Lwarp

LaTeX HTML5

The lwarp package

LaTeX to HTML

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© 2016–2022 Brian Dunn
bd@BDTechConcepts.com

Abstract

The lwarp package converts LaTeX to HTML by using LaTeX to process the user's document and directly generate HTML tags. External utility programs are only used for the final conversion of text and images. Math may be represented by SVG images or MathJax. More than 500 LaTeX packages and classes are supported, of which more than 90 also support MathJax.

Documents may be produced by DVI or PDF LaTeX, LuaLaTeX, XeLaTeX; by several CJK engines, classes, and packages; or by customized systems such as perltex and pythontex. A *texlua* script automates compilation, index, glossary, and batch image processing, and also supports *latexmk*. Configuration is semi-automatic at the first manual compile. Support files are self-generated. Print and HTML versions of each document may coexist.

Assistance is provided for HTML import into EPUB conversion software and word processors.

Requirements include the commonly-available Poppler utilities (included with MiKTeX) and Perl. Detailed installation instructions are included for each of the major operating systems and TeX distributions.

A quick-start tutorial is provided, as well as extensive documentation for special cases, a general index, and a troubleshooting index. Automatic error testing is provided for configuration files, package load order, and image generation.

SVG math and many other generated images include LaTeX expressions in the `alt` tags. MathJax may be used with advanced equation numbering under the direct control of lwarp.

Complicated tables are supported, which copy/paste well into LibreOffice Writer.

Supported classes and packages include memoir and koma-script, cleveref, caption, mdframed, siunitx, and many popular packages for tabulars, floats, graphics, theorems, the title page, bibliography, indexing, footnotes, and editorial work, as well as a number of CJK-related classes and packages.

TeX is a self-modifying tokenized macro-expansion language. Since lwarp is written directly in LaTeX, it is able to interpret the document's meaning at a deeper level than external conversions which merely approximate TeX. HTML5 and CSS3 are leveraged to provide advanced features such as booktabs trim, multicolumns, side-by-side minipages, and JavaScript-free navigation.

For a quick-start tutorial, see section 5, Tutorial.

For a list of supported features, see table 2: Supported packages and features.

To update existing projects, see section 1: Updates.

Lwarp is still in development. Changes are likely.

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Contents

Support TEX development **2**

List of Figures **42**

List of Tables **42**

1 Updates **43**

2 Introduction **63**

2.1 Typesetting conventions 65

2.2 Supported packages and features 66

3 Alternatives **72**

3.1 internet class 72

3.2 TEX4HT 72

3.3 Translators 72

3.4 AsciiDoc and Asciidoctor 73

3.4.1 Asciidoctor-LATEX 73

3.5 Pandoc 73

3.6 Word processors 73

3.7 Commercial systems 73

3.8 Comparisons 73

4 Installation **75**

4.1 Installing the lwarp package 77

4.2 Installing the *lwarpmk* utility 78

4.2.1 Using a local copy of *lwarpmk* 79

4.3 Installing additional utilities 80

5 Tutorial **82**

5.1 Starting a new project 82

5.2 Compiling the print version with *lwarpmk* 86

5.3 Compiling the HTML version with *lwarpmk* 87

5.4 Generating the SVG images 88

5.5 Using MathJax for math 89

5.6 Changing the CSS style 90

5.7 Customizing the HTML output 90

5.8 Using *latexmk* . . . 91
5.9 Using XeLaTeX or LuaLaTeX . . . 92
5.10 Using DVI LaTeX . . . 92
5.11 Using a glossary . . . 93
5.11.1 gloss package . . . 93
5.11.2 glossaries package . . . 93
5.12 Cleaning auxiliary files . . . 94
5.13 Cleaning auxiliary and output files . . . 94
5.14 Cleaning the images from the `<project>-images` directory . . . 94
5.15 Converting PDF or EPS images to SVG . . . 94
5.16 Creating HTML from an incomplete compile . . . 94
5.17 Processing multiple projects in the same directory . . . 94
5.18 Using the *make* utility . . . 95
5.19 What next? . . . 96
6 Converting an existing document . . . 97
7 Additional details . . . 98
7.1 Localization . . . 98
7.2 Accessibility . . . 98
7.3 Shell escape . . . 100
7.4 Font and UTF-8 support . . . 100
7.4.1 Indexes, glossaries, and encoding . . . 101
7.5 lwarp package loading and options . . . 102
7.6 Customizing the HTML output . . . 107
7.6.1 Example HTML file naming . . . 113
7.7 Customizing the CSS . . . 113
7.8 Assigning CSS classes and styles . . . 114
7.9 Selecting the operating system . . . 115
7.10 Selecting actions for print, HTML, or MathJax output . . . 115
7.11 Commands to be placed into the `warpprint` environment . . . 116
7.12 Title page . . . 117
7.13 HTML page meta descriptions . . . 118

7.14 HTML homepage meta title . . . 118
7.15 HTML page meta author . . . 118
8 Special cases and limitations . . . 119
8.1 Things to avoid . . . 119
8.1.1 Invalid HTML . . . 119
8.2 Formatting . . . 120
8.2.1 Text formatting . . . 120
8.2.2 Small caps . . . 120
8.2.3 Horizontal and vertical space and rules . . . 120
8.2.4 Text alignment . . . 121
8.2.5 Accents . . . 121
8.2.6 textcomp package . . . 121
8.2.7 Superscripts and other non-math uses of math mode . . . 121
8.2.8 Empty `\item` followed by a new line of text or a nested list: . . . 121
8.2.9 Filenames and URLs in lists or footnotes . . . 121
8.2.10 relsize package . . . 122
8.3 Boxes and minipages . . . 122
8.3.1 Marginpars . . . 122
8.3.2 Save Boxes . . . 122
8.3.3 Minipages . . . 122
8.3.4 Side-by-side minipages . . . 123
8.3.5 Framed minipages and other environments . . . 123
8.3.6 fancybox package . . . 124
8.3.7 mdframed package . . . 125
8.3.8 tcolorbox package . . . 126
8.4 Section names . . . 126
8.5 Cross-references . . . 127
8.5.1 Page references . . . 128
8.5.2 cleveref and varioref packages . . . 128
8.5.3 Hyperlinks, hyperref, and url . . . 128
8.5.4 Footnotes, endnotes, and page notes . . . 129

8.5.5 xr, xr-hyper, and xcite packages . . . 130
8.6 Front and back matter . . . 130
8.6.1 Custom classes with multiple authors and affiliations . . . 130
8.6.2 Starred chapters and sections . . . 130
8.6.3 abstract package . . . 131
8.6.4 titling and authblk . . . 131
8.6.5 tocloft package . . . 131
8.6.6 appendix package . . . 132
8.6.7 pagenote package . . . 132
8.6.8 endnotes package . . . 132
8.6.9 *BibTeX* . . . 132
8.6.10 xcite package . . . 132
8.6.11 gloss package . . . 132
8.6.12 glossaries package . . . 133
8.6.13 nomencl package . . . 134
8.6.14 Indexing overview . . . 134
8.6.15 Indexing with makeidx, *makeindex*, *xindy*, *xindex*, gindex . . . 134
8.6.16 Indexing with index . . . 136
8.6.17 Indexing with splitidx . . . 136
8.6.18 Indexing with imakeidx . . . 138
8.6.19 Indexes with memoir . . . 141
8.6.20 Using a custom *makeindex* style file . . . 143
8.6.21 Using a custom *xindy* style file . . . 144
8.6.22 Using a custom *xindex* style file . . . 145
8.6.23 Additional indexing limitations . . . 146
8.6.24 Index positions, TOC, tocbibind . . . 146
8.7 Math . . . 147
8.7.1 Math in section names . . . 147
8.7.2 Rendering tradeoffs . . . 147
8.7.3 SVG option . . . 148
8.7.4 MathJax option . . . 148

8.7.5 MathJax rendering options . . . 149
8.7.6 Customizing MathJax . . . 149
8.7.7 MathJax limitations . . . 150
8.7.8 Catcode changes . . . 151
8.7.9 Complicated inline math objects . . . 152
8.7.10 Complicated display math objects . . . 152
8.7.11 Theorems . . . 152
8.7.12 ntheorem package . . . 153
8.7.13 mathtools package . . . 153
8.7.14 siunitx package . . . 153
8.7.15 units and nicefrac packages . . . 155
8.7.16 physics package . . . 155
8.8 Graphics . . . 155
8.8.1 tikz package . . . 157
8.8.2 grffile package . . . 157
8.8.3 color package . . . 158
8.8.4 xcolor package . . . 158
8.8.5 epstopdf package . . . 158
8.8.6 pstricks package . . . 158
8.8.7 pdftricks package . . . 158
8.8.8 psfrag package . . . 159
8.8.9 pstool package . . . 159
8.8.10 asymptote package . . . 159
8.8.11 overpic package . . . 159
8.8.12 Multimedia packages . . . 160
8.9 Tabbing . . . 160
8.10 Tabular . . . 161
8.10.1 tabular environment . . . 161
8.10.2 multirow package . . . 163
8.10.3 longtable package . . . 164
8.10.4 threeparttablex package . . . 165

8.10.5 supertabular and xtab packages . . . 165
8.10.6 colortbl package . . . 165
8.10.7 ctable package . . . 165
8.10.8 bigdelim package . . . 166
8.11 Floats . . . 166
8.11.1 Float contents alignment . . . 166
8.11.2 float, trivfloat, and/or algorithmicx together . . . 166
8.11.3 caption and subcaption packages . . . 166
8.11.4 subfig package . . . 167
8.11.5 floatrow package . . . 167
8.11.6 keyfloat package . . . 168
8.12 KOMA-SCRIPT classes . . . 168
8.13 MEMOIR class . . . 168
8.14 International languages . . . 170
8.15 Miscellaneous packages . . . 170
8.15.1 verse and memoir . . . 170
8.15.2 newclude package . . . 170
8.15.3 babel package . . . 171
8.15.4 polyglossia package . . . 171
8.15.5 todonotes and luatodonotes packages . . . 171
8.15.6 fixme . . . 171
8.15.7 acro package . . . 172
8.15.8 chemfig package . . . 172
8.15.9 chemformula package . . . 172
8.15.10 mhchem package . . . 172
8.15.11 kotex package . . . 172
9 Compiling using custom shell commands . . . 173
9.1 Command options . . . 173
9.2 Literal character macros . . . 173
9.3 *latexmk* . . . 174
9.4 perltex package . . . 175

9.5 pythontex package . . . 175
9.6 sympytex package . . . 175
9.7 Other packages . . . 176
9.8 *make* program . . . 176
9.9 UTF-8 locale . . . 176
10 EPUB conversion . . . 178
11 Word-processor conversion . . . 180
11.1 Activating word-processor conversion . . . 180
11.2 Additional modifications . . . 181
11.3 Recommendations . . . 183
11.4 Limitations . . . 184
12 Modifying lwarp . . . 185
12.1 Creating a development system . . . 185
12.2 Modifying a package for lwarp . . . 187
12.2.1 Adding a package to the lwarp.dtx file . . . 187
12.3 Modifying a class for lwarp . . . 188
12.4 Testing lwarp . . . 188
12.5 Modifying *lwarpmk* . . . 189
13 Troubleshooting . . . 190
13.1 lwarp package error conditions and warnings . . . 190
13.1.1 Configuration file `lwarpmk.conf` . . . 190
13.1.2 Image generation with **`lwarpmk limages`** . . . 190
13.1.3 Default bitmapped font . . . 191
13.1.4 Packages . . . 191
13.1.5 Compiling . . . 191
13.2 Using the lwarp package . . . 192
13.2.1 Debug tracing output . . . 196
13.3 Compiling the `lwarp.dtx` file . . . 196
14 Trademarks . . . 197
1 lwarp.sty . . . 198
15 Implementation . . . 198

16 Section depths and HTML headings . . . 199
17 Source code . . . 200
18 Detecting the TEX engine — *pdflatex*, *lualatex*, *xelatex* . . . 201
19 Early package requirements . . . 201
20 Package load order . . . 201
20.1 Tests of package load order . . . 202
20.2 Error for disallowed packages and classes loaded before lwarp . . . 205
20.3 Enforcing package loading after lwarp . . . 207
21 MD5 hashing . . . 217
22 PDF LATEX T1 and UTF-8 encoding . . . 218
23 Unicode input characters . . . 218
24 Avoid a bitmapped font . . . 219
25 Upright quotes . . . 219
26 Avoid bad font combinations . . . 220
27 Miscellaneous tools . . . 220
27.1 Variables . . . 220
27.2 Lengths and units . . . 220
27.3 Counters . . . 221
27.4 Patching macros . . . 221
27.5 Copying macros . . . 221
27.6 Chinese text isolation . . . 222
27.7 Inserting vertical space . . . 222
27.8 Argument selection . . . 222
27.9 Inside boxes . . . 223
27.10 Global boxes . . . 223
27.11 Converting a macro name to a cs name . . . 224
27.12 Title case . . . 224
27.13 LetLtxMacrocs . . . 224
27.14 Absorbing a star . . . 224
28 Operating-System portability . . . 225
28.1 Literal characters . . . 225

28.2 Common portability code . . . 226
28.3 UNIX, LINUX, and MAC OS . . . 226
28.4 MS-WINDOWS . . . 226
29 Package options . . . 227
29.1 Additional options support . . . 231
29.2 Conditional compilation . . . 233
30 Required packages . . . 235
31 Loading packages . . . 241
32 File handles . . . 246
33 Include a file . . . 247
34 Copying a file . . . 248
35 Debugging messages . . . 248
36 Defining print and HTML versions of macros and environments . . . 249
37 HTML-conversion output modifications . . . 254
37.1 User-level controls . . . 254
37.2 Heading adjustments . . . 255
38 Remembering original formatting macros . . . 257
39 Accents . . . 258
40 Configuration files . . . 260
40.1 Decide whether to generate configuration files . . . 260
40.2 <project>_html.tex . . . 260
40.3 *lwarpmk* configuration files . . . 261
40.3.1 Helper macros . . . 261
40.3.2 lwarpmk.conf . . . 266
40.3.3 <project>.lwarpmkconf . . . 267
40.4 lwarp.css . . . 267
40.5 lwarp_sagebrush.css . . . 297
40.6 lwarp_formal.css . . . 301
40.7 sample_project.css . . . 305
40.8 lwarp.ist . . . 305
40.9 lwarp.xdy . . . 306

40.10 lwarp_one_limage.cmd . . . 306
40.11 lwarp_mathjax.txt . . . 307
40.12 lwarpmk.lua — lwarpmk option . . . 311
41 Stacks . . . 328
41.1 Assigning depths . . . 328
41.2 Closing actions . . . 329
41.3 Closing depths . . . 329
41.4 Pushing and popping the stack . . . 330
42 Data arrays . . . 331
43 Localizing catcodes . . . 332
44 Localizing dynamic math . . . 334
45 HTML entities . . . 334
46 HTML filename generation . . . 336
47 Homepage link . . . 339
48 Previous/next navigation links . . . 340
49 \LWRPrintStack diagnostic tool . . . 341
50 Closing stack levels . . . 342
51 PDF pages and styles . . . 342
52 HTML tags, spans, divs, elements . . . 344
52.1 Mapping LaTeX sections to HTML sections . . . 344
52.2 Hook while processing tags . . . 344
52.3 Babel-French tag modifications . . . 344
52.4 HTML output formatting . . . 345
52.5 HTML tags . . . 346
52.6 Block tags and comments . . . 348
52.7 Div class and element class . . . 349
52.8 Single-line elements . . . 350
52.9 HTML5 semantic elements . . . 351
52.10 High-level block and inline classes . . . 351
52.11 Closing HTML tags . . . 353

53 Paragraph handling . . . 354
53.1 Paragraph Hooks . . . 357
54 Paragraph start/stop handling . . . 358
55 Indentfirst . . . 360
56 Page headers and footers . . . 360
57 CSS . . . 361
58 MathJax script . . . 361
59 Title, HTML meta author, HTML meta description . . . 362
60 Footnotes . . . 363
60.1 Regular page footnotes . . . 364
60.2 Minipage footnotes . . . 364
60.3 Titlepage thanks . . . 364
60.4 Regular page footnote implementation . . . 364
60.5 Minipage footnote implementation . . . 367
60.6 Printing pending footnotes . . . 367
61 Marginpars . . . 369
62 Tracking internal cross references . . . 370
63 Splitting HTML files . . . 372
63.1 Sanitizing expressions for HTML . . . 376
63.2 Customizing MathJax . . . 379
64 Sectioning . . . 386
64.1 User-level starred section commands . . . 386
64.2 Book class commands . . . 387
64.3 Sectioning support macros . . . 387
64.4 Pre- and post- sectioning names . . . 394
64.5 `\section` and friends . . . 395
65 Starting a new file . . . 397
66 Starting HTML output . . . 401
67 Ending HTML output . . . 404
68 Nullifying foreground/background hooks . . . 406

69 Title page 406
69.1 Setting the title, etc. 407
69.2 \if@titlepage 408
69.3 Changes for \affiliation 408
69.4 Printing the thanks 409
69.5 Printing the title, etc. in HTML 409
69.6 Printing the title, etc. in print form 410
69.7 \maketitle for HTML output 411
69.8 \published and \subtitle 414
70 Abstract 415
71 Quote and verse 415
71.1 Attributions 415
71.2 Quotes, quotations 416
71.3 Verse 416
71.3.1 LaTeX core verse environment 417
71.3.2 verse and memoir 417
72 Verbatim and tabbing 418
73 Theorems 421
74 Lists 422
74.1 List environment 423
74.2 Itemize 426
74.3 Enumerate 427
74.4 Description 427
74.5 Patching the lists 428
75 Tabular 429
75.1 Limitations 429
75.2 Temporary package-related macros 431
75.2.1 arydshln 431
75.3 Token lookahead 432
75.4 Tabular variables 432
75.4.1 Multicolumn variables 436

75.4.2 Longtable variables 436
75.4.3 Midrule variables 436
75.5 Handling &, @, !, and bar 436
75.5.1 Handling & 438
75.6 Filling an unfinished row 439
75.7 Handling \\ 440
75.8 Looking ahead in the column specifications 441
75.9 Parsing @, >, <, !, bar columns 442
75.10 Parsing common column types 447
75.11 Parsing 'w' columns 447
75.12 Parsing '*' columns 447
75.13 Expanding the star column specifications 447
75.14 Parsing the column specifications 448
75.15 colortbl and xcolor tabular color support. 454
75.16 Starting a new row 455
75.17 Printing vertical bar tags 456
75.18 Printing @ or ! tags 456
75.19 Cell opening tag 457
75.20 Midrules 459
75.21 Cell colors 464
75.22 Multicolumns 467
75.22.1 Parsing multicolumns 467
75.22.2 Multicolumn factored code. 470
75.22.3 Multicolumn 473
75.22.4 Longtable captions 474
75.22.5 Counting HTML tabular columns 476
75.23 Multirow if not loaded 477
75.24 Multicolumnrow 477
75.25 Utility macros inside a table 479
75.26 Special-case tabular markers 479
75.27 Checking for a new table cell 480

75.28 \mrowcell . . . 483
75.29 \mcolrowcell . . . 483
75.30 HTML tabular environment . . . 483
76 Cross-references . . . 490
76.1 Setup . . . 490
76.2 New lwarp labels. . . . 490
76.3 Labels . . . 493
76.4 References . . . 495
76.5 Hyper-references . . . 499
77 Floats . . . 503
77.1 Float environment . . . 503
77.2 Float tracking . . . 505
77.3 Caption inside a float environment . . . 507
77.4 Caption and LOF linking and tracking . . . 508
78 Table of Contents, LOF, LOT . . . 511
78.1 Reading and printing the TOC . . . 511
78.2 TOC commands . . . 514
78.3 Side TOC . . . 514
78.4 Low-level TOC line formatting . . . 516
79 Index and glossary . . . 519
80 Bibliography presentation . . . 527
81 Restoring original formatting . . . 528
82 Nullifying filename formatting . . . 529
83 Math . . . 533
83.1 Limitations . . . 533
83.2 HTML alt tag names . . . 533
83.3 Inline and display math . . . 534
83.4 MathJax support . . . 547
83.5 Equation environment . . . 550
83.6 \displaymathnormal and \displaymathother . . . 553

83.7 AMS Math environments . . . 554
83.7.1 Support macros . . . 554
83.7.2 Environment patches . . . 555
84 Lateximages . . . 557
84.1 Description . . . 557
84.2 Support counters and macros . . . 558
84.3 Font size . . . 559
84.4 Equation numbers . . . 559
84.5 HTML alt tags . . . 560
84.6 lateximage environment . . . 561
85 center, flushleft, flushright . . . 567
86 Preloaded packages . . . 569
87 siunitx . . . 570
88 Graphics print-mode modifications . . . 573
88.1 General limitations . . . 573
88.2 Print-mode modifications . . . 574
89 xcolor boxes . . . 575
90 chemmacros environments . . . 578
91 cleveref . . . 578
92 Preexisting label and reference definitions . . . 579
93 picture environment . . . 579
94 Minipages and Boxes . . . 579
94.1 Computed lengths . . . 580
94.2 Virtual page size . . . 580
94.3 Footnote handling . . . 581
94.4 Minipage handling . . . 581
94.5 \parbox, \mbox, \makebox, \framebox, \fbox, \raisebox . . . 585
95 Direct formatting . . . 590
96 Skips, spaces, font sizes . . . 600
97 \phantomsection . . . 608
98 \LaTeX and other logos . . . 608

99 Starting and stopping lwarp . . . 611
100 Loading array . . . 612
101 Loading everyshi patches . . . 612
102 Loading textcomp patches . . . 612
103 Loading amsmath, amsthm patches, centernot . . . 612
104 Loading KOMA-SCRIPT class patches . . . 613
105 Loading MEMOIR class patches . . . 613
106 ut* class patches . . . 613
107 CTEX patches . . . 615
108 kotexutf patches . . . 615
109 babel and polyglossia warnings . . . 616
110 MATHJAX warnings . . . 617

2 lwarp-2in1.sty . . . 620
3 lwarp-2up.sty . . . 620
4 lwarp-a4.sty . . . 620
5 lwarp-a4wide.sty . . . 620
6 lwarp-a5comb.sty . . . 621
7 lwarp-abstract.sty . . . 621
8 lwarp-academicons.sty . . . 623
9 lwarp-accents.sty . . . 624
10 lwarp-accessibility.sty . . . 625
11 lwarp-accsupp.sty . . . 625
12 lwarp-acro.sty . . . 626
13 lwarp-acronym.sty . . . 628
14 lwarp-adjmulticol.sty . . . 629
15 lwarp-addlines.sty . . . 630
16 lwarp-afterpage.sty . . . 630
17 lwarp-algorithm2e.sty . . . 630
18 lwarp-algorithmicx.sty . . . 634
19 lwarp-alltt.sty . . . 635

20 lwarp-amscdx.sty 635
21 lwarp-amsmath.sty 636
22 lwarp-amsthm.sty 640
23 lwarp-anonchap.sty 644
24 lwarp-anysize.sty 645
25 lwarp-appendix.sty 645
26 lwarp-ar.sty 646
27 lwarp-arabicfront.sty 647
28 lwarp-array.sty 647
29 lwarp-arydshln.sty 648
30 lwarp-asymptote.sty 650
31 lwarp-atbegshi.sty 651
32 lwarp-attachfile.sty 651
33 lwarp-attachfile2.sty 652
34 lwarp-authblk.sty 654
35 lwarp-autobreak.sty 655
36 lwarp-autonum.sty 655
37 lwarp-awesomebox.sty 656
38 lwarp-axessibility.sty 657
39 lwarp-axodraw2.sty 658
40 lwarp-backnaur.sty 659
41 lwarp-backref.sty 659
42 lwarp-balance.sty 660
43 lwarp-bbding.sty 660
44 lwarp-beamerarticle.sty 665
45 lwarp-biblatex.sty 667
46 lwarp-bibunits.sty 671
47 lwarp-bigdelim.sty 671
48 lwarp-bigfoot.sty 672

49 lwarp-bigstrut.sty 673
50 lwarp-bitpattern.sty 673
51 lwarp-blowup.sty 674
52 lwarp-bm.sty 674
53 lwarp-booklet.sty 674
54 lwarp-bookmark.sty 675
55 lwarp-booktabs.sty 675
56 lwarp-bophook.sty 677
57 lwarp-bounddvi.sty 677
58 lwarp-boxedminipage.sty 678
59 lwarp-boxedminipage2e.sty 678
60 lwarp-braket.sty 678
61 lwarp-breakurl.sty 679
62 lwarp-breqn.sty 679
63 lwarp-bsheaders.sty 681
64 lwarp-bussproofs.sty 681
65 lwarp-bxpapersize.sty 681
66 lwarp-bytefield.sty 682
67 lwarp-cancel.sty 682
68 lwarp-canoniclayout.sty 683
69 lwarp-caption.sty 683
70 lwarp-caption3.sty 685
71 lwarp-cases.sty 687
72 lwarp-ccicons.sty 688
73 lwarp-centerlastline.sty 689
74 lwarp-centernot.sty 689
75 lwarp-changebar.sty 689
76 lwarp-changelayout.sty 690
77 lwarp-changepage.sty 690

78 lwarp-changes.sty 691

79 lwarp-chappg.sty 696

80 lwarp-chapterbib.sty 696

81 lwarp-chemfig.sty 696

82 lwarp-chemformula.sty 698

83 lwarp-chemgreek.sty 703

84 lwarp-chemmacros.sty 704

193 chemmacros 704

193.1 Changes to the user's document 704

193.2 Code 704

193.3 Loading packages 704

193.4 Loading modules 705

193.5 New environments 705

193.6 Acid-base 705

193.7 Charges 707

193.8 Nomenclature 707

193.9 Particles 709

193.10 Phases 710

193.11 Mechanisms 710

193.12 Newman 712

193.13 Orbital 713

193.14 Reactions 713

193.15 Reactants 714

193.16 Redox 717

193.17 Scheme 718

193.18 Spectroscopy 718

193.19 Thermodynamics 721

85 lwarp-chemnum.sty 723

86 lwarp-chkfloat.sty 724

87 lwarp-chngpage.sty 724

88 lwarp-cite.sty 725
89 lwarp-citeref.sty 725
90 lwarp-CJK.sty 726
91 lwarp-CJKutf8.sty 726
92 lwarp-classicthesis.sty 726
93 lwarp-cleveref.sty 727
94 lwarp-clrdblpg.sty 730
95 lwarp-cmbright.sty 730
96 lwarp-cmdtrack.sty 731
97 lwarp-colonequals.sty 731
98 lwarp-color.sty 732
99 lwarp-colortbl.sty 732
100 lwarp-continue.sty 734
101 lwarp-copyrightbox.sty 734
102 lwarp-crop.sty 735
103 lwarp-ctable.sty 735
104 lwarp-cuted.sty 738
105 lwarp-cutwin.sty 738
106 lwarp-dblfloatfix.sty 739
107 lwarp-dblfnote.sty 739
108 lwarp-dcolumn.sty 739
109 lwarp-decimal.sty 740
110 lwarp-decorule.sty 740
111 lwarp-diagbox.sty 740
112 lwarp-dingbat.sty 742
113 lwarp-DotArrow.sty 743
114 lwarp-dotlessi.sty 743
115 lwarp-dprogress.sty 744
116 lwarp-draftcopy.sty 744

117 lwarp-draftfigure.sty 744
118 lwarp-draftwatermark.sty 745
119 lwarp-drftcite.sty 745
120 lwarp-easy-todo.sty 745
121 lwarp-ebook.sty 746
122 lwarp-econometrics.sty 747
123 lwarp-ed.sty 749
124 lwarp-ellipsis.sty 750
125 lwarp-embrac.sty 750
126 lwarp-emptypage.sty 751
127 lwarp-endfloat.sty 751
128 lwarp-endheads.sty 751
129 lwarp-endnotes.sty 752
130 lwarp-engtlc.sty 753
131 lwarp-enotez.sty 757
132 lwarp-enumerate.sty 759
133 lwarp-enumitem.sty 759
134 lwarp-epigraph.sty 760
135 lwarp-epsf.sty 761
136 lwarp-epsfig.sty 761
137 lwarp-epstopdf.sty 762
138 lwarp-epstopdf-base.sty 762
139 lwarp-eqlist.sty 763
140 lwarp-eqparbox.sty 763
141 lwarp-errata.sty 764
142 lwarp-eso-pic.sty 765
143 lwarp-esvect.sty 766
144 lwarp-etoc.sty 766
145 lwarp-eurosym.sty 769

146 lwarp-everypage.sty 769
147 lwarp-everyshi.sty 769
148 lwarp-extarrows.sty 770
149 lwarp-extramarks.sty 770
150 lwarp-fancybox.sty 771
151 lwarp-fancyhdr.sty 776
152 lwarp-fancypar.sty 777
153 lwarp-fancyref.sty 778
154 lwarp-fancytabs.sty 778
155 lwarp-fancyvrb.sty 779
156 lwarp-fbox.sty 785
157 lwarp-fewerfloatpages.sty 788
158 lwarp-figcaps.sty 788
159 lwarp-figsize.sty 788
160 lwarp-fitbox.sty 789
161 lwarp-fix2col.sty 789
162 lwarp-fixmath.sty 789
163 lwarp-fixme.sty 790
164 lwarp-fixmetodonotes.sty 791
165 lwarp-flafter.sty 792
166 lwarp-flippdf.sty 792
167 lwarp-float.sty 792
168 lwarp-floatflt.sty 794
169 lwarp-floatpag.sty 795
170 lwarp-floatrow.sty 795
171 lwarp-fltrace.sty 800
172 lwarp-flushend.sty 800
173 lwarp-fnbreak.sty 800
174 lwarp-fncychap.sty 801

175 lwarp-fnlineno.sty 801
176 lwarp-fnpara.sty 801
177 lwarp-fnpos.sty 802
178 lwarp-fontawesome.sty 802
179 lwarp-fontawesome5.sty 803
180 lwarp-fontaxes.sty 804
181 lwarp-fontenc.sty 804
182 lwarp-footmisc.sty 805
183 lwarp-footnote.sty 806
184 lwarp-footnotebackref.sty 807
185 lwarp-footnotehyper.sty 808
186 lwarp-footnoterange.sty 808
187 lwarp-footnpag.sty 808
188 lwarp-foreign.sty 808
189 lwarp-forest.sty 809
190 lwarp-fouridx.sty 809
191 lwarp-fourier.sty 810
192 lwarp-framed.sty 811
193 lwarp-froufrou.sty 813
194 lwarp-ftcap.sty 814
195 lwarp-ftnright.sty 814
196 lwarp-fullminipage.sty 815
197 lwarp-fullpage.sty 815
198 lwarp-fullwidth.sty 815
199 lwarp-fvextra.sty 815
200 lwarp-fwlw.sty 818
201 lwarp-gensymb.sty 819
202 lwarp-gentombow.sty 819
203 lwarp-geometry.sty 819

204 lwarp-ghsystem.sty 820

205 lwarp-gindex.sty 820

206 lwarp-gloss.sty 821

207 lwarp-glossaries.sty 822

208 lwarp-gmeometric.sty 824

209 lwarp-graphics.sty 824

318 graphics 824

318.1 Graphics extensions 824

318.2 Length conversions and graphics options 825

318.3 Printing HTML styles 828

318.4 \includegraphics 828

318.5 Boxes 833

210 lwarp-graphicx.sty 836

211 lwarp-grffile.sty 836

212 lwarp-grid.sty 837

213 lwarp-grid-system.sty 837

214 lwarp-gridset.sty 837

215 lwarp-hang.sty 838

216 lwarp-hanging.sty 839

217 lwarp-hepunits.sty 840

218 lwarp-hhline.sty 841

219 lwarp-hhtensor.sty 842

220 lwarp-hypbmsec.sty 842

221 lwarp-hypcap.sty 842

222 lwarp-hypdestopt.sty 843

223 lwarp-hypernat.sty 843

224 lwarp-hyperref.sty 843

225 lwarp-hyperxmp.sty 852

226 lwarp-hyphenat.sty 853

227 lwarp-idxlayout.sty 854
228 lwarp-ifoddpage.sty 855
229 lwarp-imakeidx.sty 855
230 lwarp-impnattypo.sty 859
231 lwarp-index.sty 859
232 lwarp-inputtrc.sty 861
233 lwarp-intopdf.sty 861
234 lwarp-isomath.sty 861
235 lwarp-isotope.sty 862
236 lwarp-jurabib.sty 863
237 lwarp-karnaugh-map.sty 864
238 lwarp-keyfloat.sty 867
239 lwarp-keystroke.sty 873
240 lwarp-kpfonts.sty 874
241 lwarp-kpfonts-otf.sty 875
242 lwarp-layaureo.sty 877
243 lwarp-layout.sty 877
244 lwarp-layouts.sty 878
245 lwarp-leading.sty 880
246 lwarp-leftidx.sty 880
247 lwarp-letterspace.sty 881
248 lwarp-lettrine.sty 881
249 lwarp-libertinust1math.sty 882
250 lwarp-lineno.sty 888
251 lwarp-lips.sty 890
252 lwarp-lipsum.sty 890
253 lwarp-listings.sty 891
254 lwarp-listliketab.sty 896
255 lwarp-lltjext.sty 897

256 lwarp-lltjp-siunitx.sty 898
257 lwarp-lltjp-tascmac.sty 898
258 lwarp-longtable.sty 899
259 lwarp-lpic.sty 901
260 lwarp-lscape.sty 902
261 lwarp-ltablex.sty 902
262 lwarp-ltcaption.sty 902
263 lwarp-ltxgrid.sty 903
264 lwarp-ltxtable.sty 903
265 lwarp-lua-check-hyphen.sty 903
266 lwarp-lua-visual-debug.sty 904
267 lwarp-luacolor.sty 904
268 lwarp-luamplib.sty 904
269 lwarp-luatexko.sty 904
270 lwarp-luatodonotes.sty 907
271 lwarp-luavlna.sty 908
272 lwarp-lyluatex.sty 909
273 lwarp-magaz.sty 911
274 lwarp-makeidx.sty 911
275 lwarp-manyfoot.sty 912
276 lwarp-marginal.sty 914
277 lwarp-marginfit.sty 914
278 lwarp-marginfix.sty 914
279 lwarp-marginnote.sty 915
280 lwarp-marvosym.sty 915
281 lwarp-mathalpha.sty 916
282 lwarp-mathastext.sty 916
283 lwarp-mathcomp.sty 917
284 lwarp-mathdesign.sty 918

285 lwarp-mathdots.sty 919
286 lwarp-mathfixs.sty 920
287 lwarp-mathpazo.sty 920
288 lwarp-mathptmx.sty 921
289 lwarp-mathspec.sty 921
290 lwarp-mathtools.sty 923
291 lwarp-mattens.sty 926
292 lwarp-maybemath.sty 928
293 lwarp-mcaption.sty 929
294 lwarp-mdframed.sty 929
403 mdframed 929
403.1 Limitations 929
403.2 Package loading 930
403.3 Patches 930
403.4 Initial setup 930
403.5 Color and length HTML conversion 931
403.6 Environment encapsulation 931
403.7 Mdframed environment 932
403.8 Titles and subtitles 933
403.9 New environments 935
295 lwarp-mdwmath.sty 937
296 lwarp-media9.sty 938
297 lwarp-memhfixc.sty 940
298 lwarp-menukeys.sty 940
299 lwarp-metalogo.sty 941
300 lwarp-metalogox.sty 941
301 lwarp-mhchem.sty 942
302 lwarp-microtype.sty 944
303 lwarp-midfloat.sty 945

304 lwarp-midpage.sty 946
305 lwarp-minibox.sty 946
306 lwarp-minitoc.sty 947
307 lwarp-minted.sty 947
308 lwarp-mismath.sty 948
309 lwarp-mleftright.sty 951
310 lwarp-morefloats.sty 952
311 lwarp-moreverb.sty 952
312 lwarp-movie15.sty 953
313 lwarp-mparhack.sty 954
314 lwarp-multibib.sty 955
315 lwarp-multicap.sty 955
316 lwarp-multicol.sty 955
317 lwarp-multicolrule.sty 956
318 lwarp-multimedia.sty 957
319 lwarp-multiobjective.sty 958
320 lwarp-multirow.sty 958
321 lwarp-multitoc.sty 962
322 lwarp-musicography.sty 962
323 lwarp-mwe.sty 965
324 lwarp-nameauth.sty 966
325 lwarp-nameref.sty 967
326 lwarp-natbib.sty 967
327 lwarp-nccfancyhdr.sty 968
328 lwarp-nccfoots.sty 969
329 lwarp-nccmath.sty 969
330 lwarp-needspace.sty 971
331 lwarp-newpxmath.sty 971
332 lwarp-newtxmath.sty 972

333 lwarp-newtxsf.sty 973
334 lwarp-nextpage.sty 974
335 lwarp-nfssext-cfr.sty 974
336 lwarp-nicefrac.sty 980
337 lwarp-niceframe.sty 981
338 lwarp-nicematrix.sty 981
339 lwarp-noitcrul.sty 984
340 lwarp-nolbreaks.sty 984
341 lwarp-nomencl.sty 984
342 lwarp-nonfloat.sty 985
343 lwarp-nonumonpart.sty 985
344 lwarp-nopageno.sty 985
345 lwarp-notes.sty 985
346 lwarp-notespages.sty 986
347 lwarp-nowidow.sty 986
348 lwarp-ntheorem.sty 987
457 ntheorem 987
457.1 Limitations 987
457.2 Options 987
457.3 Remembering the theorem style 988
457.4 HTML cross-referencing 991
457.5 \newtheoremstyle 991
457.6 Standard styles 992
457.7 Additional objects 993
457.8 Renewed standard configuration 993
457.9 amsthm option 994
457.10 Ending a theorem 996
457.11 \NoEndMark 997
457.12 List-of 997
457.13 Symbols 997

457.14 Cross-referencing 998

349 lwarp-octave.sty 998

350 lwarp-orcidlink.sty 999

351 lwarp-overpic.sty 1000

352 lwarp-pagegrid.sty 1000

353 lwarp-pagenote.sty 1000

354 lwarp-pagesel.sty 1001

355 lwarp-paralist.sty 1001

356 lwarp-parallel.sty 1002

357 lwarp-parcolumns.sty 1003

358 lwarp-parnotes.sty 1005

359 lwarp-parskip.sty 1007

360 lwarp-pbalance.sty 1008

361 lwarp-pbox.sty 1008

362 lwarp-pdfcol.sty 1008

363 lwarp-pdfcolfoot.sty 1009

364 lwarp-pdfcolmk.sty 1009

365 lwarp-pdfcolparallel.sty 1009

366 lwarp-pdfcolparcolumns.sty 1010

367 lwarp-pdfcomment.sty 1010

368 lwarp-pdfcrypt.sty 1011

369 lwarp-pdflscape.sty 1011

370 lwarp-pdfmarginpar.sty 1011

371 lwarp-pdfpages.sty 1012

372 lwarp-pdfprivacy.sty 1014

373 lwarp-pdfrender.sty 1014

374 lwarp-pdfsync.sty 1014

375 lwarp-pdftricks.sty 1015

376 lwarp-pdfx.sty 1015

377 lwarp-perpage.sty 1016
378 lwarp-pfnote.sty 1017
379 lwarp-phfqit.sty 1017
380 lwarp-physics.sty 1018
381 lwarp-physunits.sty 1018
382 lwarp-picinpar.sty 1020
383 lwarp-pifont.sty 1021
384 lwarp-pinlabel.sty 1022
385 lwarp-placeins.sty 1022
386 lwarp-plarydshln.sty 1022
387 lwarp-plext.sty 1022
388 lwarp-plextarydshln.sty 1023
389 lwarp-plextcolortbl.sty 1024
390 lwarp-plimsoll.sty 1024
391 lwarp-prelim2e.sty 1024
392 lwarp-prettyref.sty 1025
393 lwarp-preview.sty 1025
394 lwarp-psfrag.sty 1025
395 lwarp-psfragx.sty 1026
396 lwarp-pst-eps.sty 1026
397 lwarp-pstool.sty 1026
398 lwarp-pstricks.sty 1027
399 lwarp-pxatbegshi.sty 1028
400 lwarp-pxeveryshi.sty 1028
401 lwarp-pxfonts.sty 1028
402 lwarp-pxftnright.sty 1028
403 lwarp-pxjahyper.sty 1029
404 lwarp-quotchap.sty 1029
405 lwarp-quoting.sty 1030

406 lwarp-ragged2e.sty 1030
407 lwarp-realscripts.sty 1031
408 lwarp-refcheck.sty 1034
409 lwarp-register.sty 1034
410 lwarp-relsize.sty 1035
411 lwarp-repeatindex.sty 1036
412 lwarp-repltext.sty 1037
413 lwarp-resizegather.sty 1037
414 lwarp-returntogrid.sty 1038
415 lwarp-rlepsf.sty 1038
416 lwarp-rmathbr.sty 1038
417 lwarp-rmpage.sty 1039
418 lwarp-romanbar.sty 1039
419 lwarp-romanbarpagenumber.sty 1039
420 lwarp-rotating.sty 1039
421 lwarp-rotfloat.sty 1040
422 lwarp-rviewport.sty 1041
423 lwarp-savetrees.sty 1041
424 lwarp-scalefnt.sty 1041
425 lwarp-scalerel.sty 1042
426 lwarp-schemata.sty 1042
427 lwarp-scrextend.sty 1043
428 lwarp-scrhack.sty 1046
429 lwarp-scrlayer.sty 1047
430 lwarp-scrlayer-notecolumn.sty 1048
431 lwarp-scrlayer-scrpage.sty 1048
432 lwarp-scrpage2.sty 1050
433 lwarp-section.sty 1051
434 lwarp-sectionbreak.sty 1051

435 lwarp-sectsty.sty 1052
436 lwarp-selectp.sty 1052
437 lwarp-semantic-markup.sty 1053
438 lwarp-seqsplit.sty 1054
439 lwarp-setspace.sty 1055
440 lwarp-shadethm.sty 1056
441 lwarp-shadow.sty 1056
442 lwarp-shapepar.sty 1056
443 lwarp-showidx.sty 1057
444 lwarp-showkeys.sty 1057
445 lwarp-showlabels.sty 1057
446 lwarp-showtags.sty 1058
447 lwarp-shuffle.sty 1058
448 lwarp-sidecap.sty 1059
449 lwarp-sidenotes.sty 1059
450 lwarp-simplebnf.sty 1061
451 lwarp-SIunits.sty 1062
452 lwarp-siunitx.sty 1070
453 lwarp-siunitx-v2.sty 1078
454 lwarp-common-mathjax-siunitx.sty 1089
455 lwarp-skmath.sty 1098
456 lwarp-slantsc.sty 1103
457 lwarp-slashed.sty 1103
458 lwarp-soul.sty 1104
459 lwarp-soulpos.sty 1105
460 lwarp-soulutf8.sty 1106
461 lwarp-splitbib.sty 1106
462 lwarp-splitidx.sty 1107
463 lwarp-srcltx.sty 1108

464 lwarp-srctex.sty 1109
465 lwarp-stabular.sty 1109
466 lwarp-stackengine.sty 1109
467 lwarp-stackrel.sty 1111
468 lwarp-statex2.sty 1111
469 lwarp-statistics.sty 1115
470 lwarp-statmath.sty 1120
471 lwarp-steinmetz.sty 1122
472 lwarp-stfloats.sty 1122
473 lwarp-struktex.sty 1123
474 lwarp-subcaption.sty 1123
475 lwarp-subfig.sty 1124
476 lwarp-subfigure.sty 1128
477 lwarp-subsupscripts.sty 1129
478 lwarp-supertabular.sty 1130
479 lwarp-svg.sty 1131
480 lwarp-swfigure.sty 1132
481 lwarp-sympytex.sty 1132
482 lwarp-syntonly.sty 1133
483 lwarp-tabfigures.sty 1133
484 lwarp-tablefootnote.sty 1133
485 lwarp-tabls.sty 1133
486 lwarp-tabularx.sty 1134
487 lwarp-tabulary.sty 1134
488 lwarp-tagpdf.sty 1135
489 lwarp-tascmac.sty 1138
490 lwarp-tcolorbox.sty 1139
491 lwarp-tensor.sty 1145
492 lwarp-termcal.sty 1146

493 lwarp-textarea.sty 1147
494 lwarp-textcomp.sty 1147
495 lwarp-textfit.sty 1150
496 lwarp-textpos.sty 1151
497 lwarp-theorem.sty 1152
498 lwarp-thinsp.sty 1155
499 lwarp-thm-listof.sty 1155
500 lwarp-thm-restate.sty 1156
501 lwarp-thmbox.sty 1157
502 lwarp-thmtools.sty 1157
503 lwarp-threadcol.sty 1158
504 lwarp-threeparttable.sty 1158
505 lwarp-threeparttablex.sty 1159
506 lwarp-thumb.sty 1160
507 lwarp-thumbs.sty 1160
508 lwarp-tikz.sty 1160
509 lwarp-tikz-imagelabels.sty 1162
510 lwarp-titleps.sty 1162
511 lwarp-titleref.sty 1165
512 lwarp-titlesec.sty 1165
513 lwarp-titletoc.sty 1167
514 lwarp-titling.sty 1168
515 lwarp-tocbasic.sty 1173
516 lwarp-tocbibind.sty 1173
517 lwarp-tocdata.sty 1175
518 lwarp-tocenter.sty 1176
519 lwarp-tocloft.sty 1176
520 lwarp-tocstyle.sty 1182
521 lwarp-todo.sty 1182

522 lwarp-todonotes.sty 1183
523 lwarp-topcapt.sty 1185
524 lwarp-tram.sty 1185
525 lwarp-transparent.sty 1185
526 lwarp-trimclip.sty 1186
527 lwarp-trivfloat.sty 1186
528 lwarp-truncate.sty 1187
529 lwarp-turnthepage.sty 1188
530 lwarp-twoup.sty 1188
531 lwarp-txfonts.sty 1188
532 lwarp-txgreeks.sty 1188
533 lwarp-typearea.sty 1189
534 lwarp-typicons.sty 1190
535 lwarp-ulem.sty 1190
536 lwarp-umoline.sty 1192
537 lwarp-underscore.sty 1192
538 lwarp-unicode-math.sty 1193
539 lwarp-units.sty 1197
540 lwarp-unitsdef.sty 1198
541 lwarp-upgreek.sty 1198
542 lwarp-upref.sty 1199
543 lwarp-url.sty 1199
544 lwarp-ushort.sty 1199
545 lwarp-uspace.sty 1200
546 lwarp-varioref.sty 1200
547 lwarp-verse.sty 1200
548 lwarp-versonotes.sty 1202
549 lwarp-vertbars.sty 1202
550 lwarp-vmargin.sty 1203

551 lwarp-vowel.sty 1203
552 lwarp-vpe.sty 1204
553 lwarp-vwcol.sty 1204
554 lwarp-wallpaper.sty 1206
555 lwarp-watermark.sty 1206
556 lwarp-widetable.sty 1207
557 lwarp-widows-and-orphans.sty 1207
558 lwarp-witharrows.sty 1207
559 lwarp-wrapfig.sty 1208
560 lwarp-wrapfig2.sty 1210
561 lwarp-xbmks.sty 1213
562 lwarp-xcolor.sty 1213
671 xcolor 1213
671.1 Limitations 1213
671.2 xcolor definitions: location and timing 1214
671.3 Package loading 1215
671.4 Remembering and restoring original definitions 1216
671.5 \normalcolor 1216
671.6 HTML color style 1216
671.7 HTML border 1217
671.8 High-level macros 1217
671.9 Row colors 1221
563 lwarp-xechangebar.sty 1223
564 lwarp-xellipsis.sty 1223
565 lwarp-xetexko.sty 1224
566 lwarp-xevlna.sty 1224
567 lwarp-xfakebold.sty 1224
568 lwarp-xfrac.sty 1225
569 lwarp-xltabular.sty 1227

570 lwarp-xltxtra.sty 1228
571 lwarp-xmpincl.sty 1228
572 lwarp-xpiano.sty 1228
573 lwarp-xpinyin.sty 1229
574 lwarp-xr.sty 1230
575 lwarp-xr-hyper.sty 1231
576 lwarp-xtab.sty 1231
577 lwarp-xunicode.sty 1233
578 lwarp-xurl.sty 1234
579 lwarp-xy.sty 1234
580 lwarp-zhlineskip.sty 1235
581 lwarp-zwpagelayout.sty 1235
582 lwarp-patch-komascript.sty 1236
583 lwarp-patch-memoir.sty 1238
692 patch-memoir 1238
692.1 Packages 1240
692.2 Label handling 1241
692.3 Page layout 1241
692.4 Text and fonts 1244
692.5 Titles 1244
692.6 Abstracts 1245
692.7 Docment divisions 1245
692.8 Pagination and headers 1248
692.9 Paragraphs and lists 1249
692.10 Contents lists 1249
692.11 Floats and captions 1253
692.12 Footnotes and page notes 1256
692.13 Decorative text 1258
692.14 Poetry 1258
692.15 Boxes, verbatims and files 1259

692.16 Cross referencing 1259
692.17 Back matter 1260
692.18 Miscellaneous 1261
692.19 ccaption emulation 1262
692.20 Final patchwork 1265

584 lwarp-common-multimedia.sty 1265

585 lwarp-common-mathjax-letters.sty 1270

586 lwarp-common-mathjax-newpxtxmath.sty 1276

587 lwarp-common-mathjax-nonunicode.sty 1283

588 lwarp-common-mathjax-overlaysymbols.sty 1286

Change History 1288

698 Chg Hist 1288

Index of Objects 1329

General Index 1352

Troubleshooting Index 1357

Index of Indexes 1364

List of Figures

1 tutorial.tex listing 83

List of Tables

1 Typesetting conventions 65
2 LaTeX lwarp package — Supported features 66
3 Required software programs 76
4 Configuration files created by print version 85
5 Localization settings 98
6 Accessibiltiy settings 99
7 Lwarp package options 103
8 HTML settings 108
9 \includegraphics and file names 155
10 Literal character macros 174
11 Section HTML headings for word-processor conversion 183
12 Section depths and HTML headings 199
13 Tabular baseline 448
14 Tabular HTML column conversions 449
15 HTML column type internal macros 450
16 Cross-referencing data structures 491
17 Float data structures 503
18 CSS related to the sideTOC 515
19 amsthm package — CSS styling of theorems and proofs 640
20 Ntheorem package — CSS styling of theorems and proofs 987
21 Theorem package — CSS styling of theorems and proofs 1152

1 Updates

The following is a summary of updates to lwarp, highlighting new features and any special changes which must be made due to improvements or modifications in lwarp itself.

For a detailed list of the most recent changes, see the end of the Change History on page 1328.

v0.904a: Fixed missing lwarp-common-mathjax-siunitx package.

v0.904: Added siunitx v3.

- Fixed HTML tags inside non-Latin text.
- MathJax now defaults to SVG rendering.
- Added siunitx v3. Updated siunitx-v2. See section 8.7.14 for limitations.
- Updated caption, chemmacros, fbox, hyperref, multicol, wrapfig2.

v0.903: Various updates and improvements.

lwarpmk
- Error if *pdftotext* not available. Ensures that POPPLER programs are installed.

core
- *ps2pdf*: Allow transparency due to recent changes in *ps2pdf*.

⚠ New images
- Due to changes in how automatically-generated SVG image file names are computed, after **`lwarpmk html`** use **`lwarpmk cleanlimages`** a single time, and then **`lwarpmk limages`** to generate the new images.
- Improved back refs.
- Fixed `verbatim*`.
- Various internal updates for recent LaTeX release.

packages
- cuted: Updated to v2.0.
- flushend: Updated to v4.0.
- mathalpha: Updated for v1.14+.
- minted: Updated to v2.6.
- cases: Updated to v3.2.
- siunitx with MathJax: Improved `\per`, `\numlist`, `\SIlist`, comma decimal points.
- Added showlabels, wrapfig2.

v0.902: beamerarticle, footnotes, paragraph tags.

core
- Fixed footnotes inside descriptions, minipages, amsthm, `\nameref`.
- Improved various paragraph tags.

packages
- Improved parnotes, sympytex.
- Added beamerarticle.
- Updated luatexko, xetexko, tagpdf.

MathJax
- Added missing standard international text symbols for MathJax.

v0.901: Tabular columns, float caption CSS, MathJax packages.

core
- Added `warpsvg` to isolate SVG math, as opposed to `warpMathJax`.
- Improved float caption CSS for newer browsers.
- Improved emulation of `\newcolumntype`.
- Added `\HTMLnewcolumntype`. See section 7.6,
- `>{\centering\arraybackslash}`, etc. now sets HTML CSS `text-align`. Also detects `\itshape`, `\bfseries`, and `\bfseries\itshape`. See section 8.10.1.

MathJax
- Now uses MathJax 3.2 packages for centernot, colortbl, gensymb, mathtools, textcomp, upgreek.

packages
- dcolumn: Now works inside a `lateximage`.
- Added mwe.
- Added lltjp-tascmac, which fixed ascmac.

v0.900: Package updates.

core
- Fix for detecting `\usepackage{lwarp}`.

packages
- amsmath: Fixed `alignat` with MathJax.
- changes: Updated to v4.2.1.
- froufrou: Updated to v1.4.0.
- lipsum: Updated to v2.3.

v0.899: Minor updates.

core
- *lwarpmk*: Warns if `\usepackage{lwarp}` is not detected.

packages
- graphics: Added support for `keepaspectratio`.
- keyfloat: Fix: `lw` with `h`.
- multicol: Improved CSS.

v0.898: Minor updates.

- Fewer underfull `\hbox` warnings.
- wrapfig: Improved integration with keyfloat.

v0.897: siunitx rollback.

docs
- Added a table of file extensions to use with `\includegraphics`. See table 9.

core
- Added tests for additional incompatible packages.

packages
- siunitx: Supports rollback to v2. Does not yet support v3.
- fixme: Improved to work if the user modifies layouts.
- float: Improved integration with newfloat, keyfloat.
- Added centerlastline, decorule, fancypar, froufrou, pbalance.
- Verified works as-is with fnpct.

v0.896: Back references, accessibility.

⚠ • Due to changes in cross referencing, execute **`lwarpmk clean`** before recompiling.

- Increased sectioning nesting stack depth. Error if overflow stack.
- Fixed footnotes at the end of the document, or inside a `description` label.
- Added an error if using braces inside `\usepackage` options.

MathJax
- Fixed footnotes in bracket display math with MathJax.

theorems
- LaTeX theorems, amsthm, ntheorem, theorem: Print theorem footnotes following theorems.

accessibility
- Added HTML `<main>` element to each page.
- Added ARIA `math` role to SVG math images, and `note` role to margin notes, footnotes, etc.

packages
- Improved citation backreferences for various packages.
- chemfig: Updated to v1.6a.
- bigdelim: Updated to v2.8.
- xetexko: Updated to v3.1.
- hyperxmp: Fix: Accept and discard additional keys.
- hyperef: Fix: Added `\*autorefname` macros.
- biblatex: Fix: Back references.
- tocloft: Fix: `\cftpagenumbersoff`, `\cftpagenumberson`.
- threeparttablex: Fix: `\TPTL@tnotex`.
- amsthm: Fix: Footnotes inside environment optional argument.
- listings: Fixed labels. Accepts but ignores escapes w/o error.
- pdflscape: Fix: Added `landscape` environment.
- Added ccicons, classicthesis, orcidlink.
- Added enotez.
- Verified support for doi, doipubmed.

v0.895: Vector packages, greatly improved MathJax for siunitx.

core
- Fixed quotes in HTML tags while using old font packages with XeLaTeX and LuaLaTeX.

MathJax
- Added `\ifblank` and `\ifstrequal` to MathJax emulation.

packages
- multirow: Allow `\par` per v2.7.
- acro: Updated to v3.5.
- fancyhdr: Updated to v4.0.
- changes: Updated to v4.0.1.
- epsfig, rotating: Now work inside `lateximage`.
- amscdx: Verified to work with SVG math. Warning added about use with MathJax.
- Added MathJax emulation for isomath, mattens, maybemath, skmath, tensor.
- Improved MathJax emulation for siunitx `\ang`, `\num`, `\SI`.
- Added epsf, impnattypo, isotope, lpic, luavlna, mdwmath, pinlabel, rlepsf, tikz-imagelabels, xevlna.
- Verified to work as-is: tensind.

v0.894: MathJax additions and improvements.

MathJax
- Improved warning message for enabling svg graphics for select math expressions while using MathJax.
- Accept and ignore a star for `\hspace`.
- Ignores `\arabic`, `\number`, `\noalign`.

packages
- Added MathJax emulation for backnaur, colortbl, nicematrix.
- booktabs: MathJax emulation now absorbs and discards trim.
- menukeys: Updated to v1.6.1.

v0.893: Minor fixes, more packages.

MathJax
- Added MathJax emulation for `\mathnormal`.

packages
- Fixed pstricks `pspicture*`.
- Fixed tikz font macros.
- braket: Now uses the MathJax extension.
- Added esvect, fixmath, keystroke, mathastext, menukeys, picinpar, plimsoll, repltext, selectp, seqsplit, simplebnf, statistics, swfigure.
- Added MathJax emulation for mathspec.
- Verified to work as-is for apxproof, syntaxdi, venndiagram.

v0.892: minted, fvextra, MathJax `\left`/`\right`.

MathJax
- fourier, libertinust1math, newpxmath, newtxmath, newtxsf, unicode-math: Added MathJax`\left`/`\right` support for additional delimiters.

packages
- textpos: Updated to v1.10.
- xcolor: Fixed optional args for `\fcolorbox` and related.
- Added fvextra, minted.

v0.891: MathJax additions and improvements.

core
- Now displays inline `\verb` text as `\texttt`.
- Fixed alltt and verbatims with LaTeX lists.
- Now generates an error if nested each of `warpHTML`, `warpprint`, `warpMathJax` inside itself.

MathJax
- Added MathJax *textmacros* extension, allowing formatting inside `\text`.

packages
- biblatex, hyperref: Added back page references.
- fancyvrb: Fixed `BVerbatim` with a label.
- listings: Fixed MathJax with captions, improved HTML sanitation.
- babel-french: Fixed `\texorpdfstring` conflict.
- Now honors Greek package options for mathdesign, mathpazo, mathptmx, newpxmath, newtxmath.
- Improved MathJax for colonequals, mathdesign, mathdots, mathfixs, mathtools, multiobjective, nicefrac, shuffle, units.
- unicode-math: Added Greek macros, as well as macros for the first several categories listed in **`texdoc unimath-symbols`**. Improved symbol shape macros with Greek. Improved documentation.
- Added bussproofs, cmbright, fourier, kpfonts, kpfonts-otf, libertinust1math, scalerel, txgreeks.

v0.89: Additional MathJax support.

core
- Adapted to upcoming LaTeX kernel changes.
- Allows load of amsmath before lwarp.

lwarpmk
- Also removes `*.bbl` when cleaning aux files.

MathJax
- MathJax: Neutralized `\protect`, `\mathcode` and related, ligatures. Fixed nested environments.

packages
- caption: Updated for v3.5, fix for label sep.
- thmtools: Updated for v0.72. Fixed `swapnumber`, `margin`.
- Improved MathJax for centernot, mathtools, mismath, SIunits, siunitx, statmath.
- Added MathJax emulation for accents, hepunits, hhtensor, mathalpha, mathdesign, mathpazo, mathptmx, mleftright, newpxmath, newtxmath, newtxsf, pxfonts, shuffle, txfonts, upgreek, ushort.
- Verified to work as-is: authoraftertitle.

v0.88: Indexing, boxing, theorems.

- Now has programmed support for more than 500 packages and classes, of which more than 60 also support MathJax.

core
- Fixed: `\ref*`, and also added MathJax emulation.
- If starting a new paragraph, `\hrulefill` creates a `<div>` with a thin horizontal line across the page. Use instead of `\hrule`.
- Fixed: Use `\chaptername` where appropriate.
- Fixed: Inline links causing extraneous paragraphs.

lwarpmk
- Added **`lwarpmk -v`** to print the version number.

indexing
- Added the `IndexRef` option to control the display of index entries. See section 7.5.
- Added `\IndexPageSeparator` and `\IndexRangeSeparator` for custom index styles.
- Added support for gindex, *xindex*.
- Verified to work as-is with varindex.

packages
- cleveref, varioref: Fix for starred macros.
- varioref: Removed page-related text from HTML output.
- xfakebold: Updated to v0.08, using pdfrender.
- caption, scrextend: Fixed `\caption*`.
- Added fbox, shadethm, tcolorbox, termcal, thmbox, thmtools.

v0.87: MathJax, bibliography packages.

core
- Added boolean `FixSmallCaps` for fonts which render small caps as all caps.
- Fixed `\bibliography` to use the HTML version's `.bbl` file. Previously the HTML bibliography relied on the print version's `.bbl`, thus would fail if the print document had not yet been created.

MathJax
- Added `\ifstar` and `\ifnextchar` to MathJax, and removed `\DeclareIfstar`. See section 8.7.6.

⚠ Removed `\DeclareIfstar`

packages
- physics: Now supports the MathJax v3 extension.

- mathtools: Improved `\underbrakcet`, `\overbracket` for MathJax.
- nccmath: Improved `\underrel` for MathJax.
- mhchem: Now supports the MathJax v3 extension for `\ce` inside math.
- cancel: Now supports the MathJax v3 extension.
- embrac: Neutralized kerning for improved HTML conversion.
- Added citeref, drftcite, jurabib, multibib, splitbib.
- Verified to work as-is with bibtopic, collref, mciteplus.

v0.86: MathJax major updates.

core
- Fixed: Filename if named files with `*`, parens, period in section name.
- Fixed: Labels in `eqnarray`, `lateximage`.

MathJax
- Updated to MathJax v3. New repository.
- Fixed forward references for MathJax.
- Improved MathJax equation number formatting, now compatible with amsmath `\numberwithin` for chapters, sections, subsections, as well as amsmath `subequations`. See section 8.7.6.
- Added `\DeclareIfstar` to define starred TEX macros in MathJax. See section 8.7.6.
- Generates an error if `\MathJaxFilename` file does not exist.

packages
- mathtools, nccmath, physics: Added starred macros for MathJax.
- nccmath: Fixed `\nr`, `\displaybreak` for MathJax.
- xcolor: Fixed `\textcolor` with babel-french.

v0.85: fontspec

packages
- fontspec: Fixed core font change macros for world languages.

⚠ acro formats
- acro: Due to v3 changes, when defining acronym formats, use `\textbf` instead of `\bfseries`, etc.
- Fixed idxlayout, mathtools, titlesec, url.

v0.84: Previous/next page links, numerous fixes.

docs
- Added documentation of `BlockClass` and `\InlineClass` for css `<div>`s and `<span>`s. See section 7.8.
- Added `\LinkPrevious`, `\LinkNext` page links. See section 7.6.

⚠ home page footer changed
- Added `\FirstPageBottom`. Home page no longer shares `\PageBottom`. See section 7.6.

core
- Improved coexistence with comment, support for nested environments.
- No longer requires but still supports the caption package.
- Improved filenames and HTML titles when using special characters.

⚠
- Change: Append `-0` to section named Index previously _index to distinguish from `index.html`
- Fixed style tags for `\multicolumn`, `\multirow`.
- Fixed spacing in `tabbing`.
- Fixed `lateximage` for: `quote`, `quotation`, `verse`, `center`, `flushleft`, `flushright`, `<par>` tags, packages verbatim, alltt, epigraph.

- Fixed textcomp due to integration into LaTeX kernel.
- Fixed `\itshape`, etc. Adapted to LaTeX fontaxes integration.
- Fixed `\@fnsymbol`.
- Warns about section names with dollar-delimited math.
- Warns about a `<span>` containing a float, caption, section, mdframed, or other `<div>` object.
- Only warn about XeTeX logo and graphics if actually used `\Xe`.

lwarpmk
- **`lwarpmk clean`** also removes `comment_*.cut`.

packages
- scrextend, scrartcl, scrbook: Added `\titlehead`, `\subject`, `\subtitle`, `\publishers`.
- titling: Fixed `\printthanks`.
- memoir, abstract: Fixed for updated memoir.
- memoir: Fixed `\newcomment`, pagenotes, crossreferences. Fixed setting a recursive name.
- Fixed or improved: amsthm, backref, biblatex, fixme, nfssext-cfr, ntheorem, parcolumns, realscripts, rotfloat, titling.
- Added boxedminipage, renamed from boxedminipage2e per author.
- Verified to work as-is with mcite.

v0.83: memoir fixes.

packages
- memoir: Various fixes and updates.
- physunits: Updated to v1.0.4.

v0.82: MathJax notes, xpinyin improvements, various updates.

MathJax
- Improved footnotes with MathJax.
- Added MathJax emulation for endnotes, marginnote, nccfoots, pagenote, parnotes, sidenotes.

packages
- xpinyin: Added pinyin with modern HTML.
- luatexko: Added `\dotemph`, `\ruby`, `\uline`, etc.
- soul: Fixed `\<`.
- chemfig: Updated to v1.5.
- draftwatermark: Updated to v2.0.
- ulem: Fixed: `\dashuline`.
- amsmath: Fixed: `\intertext` with MathJax.
- endnotes: Fixed: Marks in print mode.
- tocvsec2, tableof: Verified to work as-is.
- Added etoc (nullified).

v0.81: MathJax speedup and additional emulations.

core
- Improved warning regarding SVG math sizing / baselines and graphics / graphicx. See section 8.7.

MathJax
- Improved MathJax emulation processing speed.
- Added MathJax emulation for accsupp, axessibiltiy, colonequals, decimal, dotlessi, econometrics, engtlc, multiobjective, physunits, Slunits, stackrel, statmath.

packages
- axessibility: Updated to 2020/01/08 version.
- gridset: Updated to v0.3.
- SIunits: Fixed for math mode.
- Added DotArrow, nolbreaks, luamplib, returntogrid, statex2, tagpdf.
- Verified to work as-is with icomma, mathpunctspace, textualicomma.

v0.80: MathJax, biblatex.

MathJax
- Added docs and warning/info messages re: avoiding slow MathJax compilation. See section 8.7.6, Customizing MathJax.
- Added MathJax emulation for accessibility, autobreak, centernot, extarrows, fouridx, gensymb, leftidx, mathcomp, mathdots, mathfixs, mismath, nccmath, noitcrul, pdfcomment, relsize, rmathbr, subsupscripts, xfrac.
- Improved MathJax emulation for unicode-math.

packages
- biblatex, url: Now create hyperlinks.
- amsmath: Fix to center starred environments.
- xcolor, graphics: Made more macros robust.
- colortbl: Fix: Rule color in a `lateximage`.
- chemmacros: Updated to v5.10.
- Added fewerfloatpages, ghsystem, hhline, mismath, nccmath.

v0.79: MathJax, nested `tabular`.

MathJax
- Added or improved MathJax emulation for amsmath, ar, arydshln, bm, bigdelim, bigstrut, booktabs, braket, mathtools, multirow, physics, siunitx, slashed, unicode-math, xfakebold.
- Warn if using certain packages not supported by MathJax.

core
- `tabular`: Now may be nested.
- `minipage`, `\parbox`, `fminipage`, `\makebox`, `\framebox`: Fix: Adjust for virtual page size.
- Uses new iftex.

packages
- graphicx: Fix: Negative angles.
- caption: Fix: `\captionlistentry` with longtable.
- multirow: Fix: Centered vertical alignment.
- siunitx: Fix: `\square`, `\cubed`.
- booktabs: Fix: memoir with `lateximage`.
- babel and polyglossia: Added troubleshooting warnings.
- fontawesome, fontawesome5: Supports text color and size.
- transparent: Fix: `lateximages`.
- epigraph: Updated to v1.5e.
- xurl: Updated to v0.08.
- subcaption: Fixed with memoir.
- floatrow: Fix: `\linewidth`. No longer require float, graphics.
- floatflt, wrapfig, niceframe: Fix: Adjust for virtual page size.
- Added widetable, witharrows, steinmetz.
- Added awesomebox, catoptions.

- Added svg, supports svg-extract.
- Added parcolumns, pdfcolparcolumns,
- Added parallel, pdfcolparallel.
- Added pdfcol, pdfcolfoot, pdfcolmk.

v0.78: Fixes for support files, `alt` tags, hyperlinks, and the 2019/10 LaTeX release.

docs
- Docs: Improved documentation regarding package options. See section 8.1.

- Fix to overwrite existing support files using new `filecontents` environment.

packages
- breqn: Previously broken by the 2019/10 LaTeX update, but now working again.
- graphics: Fix for `\includegraphics` `alt` tags.
- babel-french: Fix for hyperlinks.
- media9, movie15, multimedia: Fix for the 2019/10 LaTeX update.
- accessibility: Added.

v0.77: Updates to fix recently-broken packages.

- booktabs: Updated to v1.6180339.
- chemformula: Updated to v4.15.

v0.76: MathJax, updates for LaTeX 2019/10 release.

docs
- Docs: Expanded documentation regarding the use of multiple projects in the same directory. See section 5.17.

MathJax
- MathJax: Updated to v2.7.6.

packages
- xr: Updated to v5.05.
- xr-hyper: Updated to v6.1.
- Verified works as-is with xcite.
- acro: Updated to v2.10.

⚠ broken
- Currently broken in print mode by the 2019/10 LaTeX update, and waiting for fixes: breqn, grffile, multimedia, movie15.

v0.75: keyfloat, wrapfig

- `\minipage`: Fix for `\linewidth`.

packages
- keyfloat: Improved color control.
- wrapfig: Fix for `\linewidth`.

v0.74: Docs, SVG math, *lwarpmk*, HTML `alt` and `title` text, lyluatex

docs
- Added to the tutorial the section What next?. See section 5.19.
- Added documentation about localization options. See section 7.1.
- Added documentation about accessibility options. See section 7.2.

HTML `alt` text
- Renamed and updated HTML `alt` text macros:

⚠ changed names

Old	New
(hard coded as “image”)	`\ImageAltText`
`\mathimagename`	`\MathImageAltText`
`\packagediagramname`	`\PackageDiagramAltText`

- Added `\ImageAltText` for the default HTML `alt` text for an image. See section 7.6.
- Added `\ThisAltText`, which may be used to assign a one-time HTML `alt` tag to the very next image generated by lwarp, such as a `lateximage`, `picture`, `tikzpicture`, an image generated by various chemistry or engineering packages, or an SVG math image. This macro also adds a `title` tag to a reference or hyperlink. See section 7.6.

SVG math
- Adjusted `\LateximageFontScale` default from .75 to 1.
- Fix: Font control for SVG math.

misc
- Fix: Ignores negative `\hspace`.
- Warning if `SideTOCDepth` < `FileDepth`.

lwarpmk
- *lwarpmk*: **`lwarpmk clean`** removes additional files.
- *lwarpmk*: **`lwarpmk epstopdf`** and **`lwarpmk pdftosvg`** now honor directories.

packages
- lyluatex: Split images by `system` or per `fullpage`, improved margins and scaling.
- Tested to work as-is with mathspec, unicode-math.

v0.73: `\include`, memoir, koma-script, caption, xy, datatool, music scores.

- Fix for `\include`.
- Warning for a `tabular` inside a `<span>`.
- `\color`: Added HTML support for rules and frames, but not inline text. Use `\textcolor` if possible.
- Improved many HTML tags, reducing *tidy* warnings. See Change History.

packages
- memoir: Fixes for `\frontmatter*` and `\mainmatter*`. Added `\book`.
- koma-script: Fix for starred captions in the TOC.
- caption: Fix for starred captions.
- datatool: Added pie, bar, and plot charts.
- threeparttable: Added `measuredfigure`.
- intopdf: Updated to v0.2.1.
- tocdata: Updated to v2.03.
- quotchap: Updated to v1.2.
- versonotes: Updated to v0.4.
- backnaur: Now uses SVG images. Updated to v3.1.
- xy: Fix for `\xybox`, improved xy, also now compatible with qcircuit.
- fancyvrb: Fix for label HTML tags.
- Added stackengine.

music
- Added lyluatex. (Music scores.)
- musicography: Updated to 2019/05/28. Added support for `lateximages`.

v0.72: Font control, `\multicolumn`, xr and xr-hyper.

⚠ images
- Due to internal changes, images for inline SVG math and `lateximages` will have new hash values, and will have to be regenerated using

  Enter ⇒ **`lwarpmk cleanlimages`**

  and

  Enter ⇒ **`lwarpmk limages`**

- Docs: Color-codes package names in the table of supported packages and features, table 2, according to each package's level of support by lwarp.
- `\multicolumn`: Fix for paragraph columns.

packages
- xr, xr-hyper: Fixes for references, `\externaldocument`.
- soulutf8: Fix: Loads soul for emulation.
- boxedminipage2e: Added support for `lateximages`.
- zhlineskip: Updated to v1.0e.
- Added fontaxes, slantsc, tabfigures.
- Added nfssext-cfr, thus supporting cfr-lm and several other font packages.
- Added backnaur, hypbmsec, minibox, pdfcrypt, shapepar.

v0.71: Error handling, multimedia, `tabular`.

- `tabular`: Added support for '`*`' columns. Fix for paragraph tags.
- `quotation`: Fix for HTML tag.
- Docs: Added a section about error conditions tested by lwarp. See section 13.1.
- *lwarpmk*: If file `lwarpmk.conf` is an older version, or the incorrect operating system, displays the print command to use to recompile.

packages
- chemfig: Updated for v1.4.
- endfloat: Updated for v2.7.
- textpos: Updated for v1.9.1.

multimedia
- Added media9, movie15, multimedia.

v0.70: Error handling, MathJax, mathtools.

- Error handling for "Label(s) changed." Refuses to **`lwarpmk limages`** until recompile first.
- Fix: If Computer Modern font is used, ensures cm-super or lmodern is used.
- Fixes for `\makebox`.
- Fixes for `\parbox` inside a `<span>`.
- MathJax: Updated to v2.7.5. Loads the `autoload-all.js` extension. Added `\MathJaxFilename` to select custom scripts.

packages
- textcomp, xunicode: Fix for `\textinterrobang`.
- mhchem: Works with MathJax. See section 410.
- changes: Updated to v3.1.2.
- Added autonum, changelayout, inputtrc, mathtools, metalogox.

v0.69: Error handling, many fixes, improved keyfloat / tocdata.

- Fix for HTML corruption of `lateximage` displays.
- `\makebox`, `\framebox`: Fix for (⟨*width,height*⟩) arguments.
- `fminipage`: Honors `\minipagefullwidth`.

packages
- array, longtable: Fix for `\tabularnewline`.
- tabularx, tabulary: Fix to require the array package.

- supertabular, xtab: Fix to clear caption after use.
- graphics: Added a warning if used the `\includegraphics scale` option.
- multirow: Added an error if didn't use `\mrowcell` or `\mcolrowcell` when using `\multirow` or `\multicolumnrow`.
- keyfloat: Updated for v2.00, additional improvements.
- Added ctable, eqlist, eqparbox, ftcap, listliketab, minitoc, tocdata, topcapt.

v0.68: Error handling, tabulars, footnotes.

lwarpmk
- *lwarpmk*: Improved error handling for image generation if compile was incomplete.
- `tabular`: Fix for `\warpprintonly`.

packages
- longtable: Improved flexibility for `\endhead`, etc. Improved error reporting if `\endhead`, etc. incorrect for lwarp.
- threeparttable: Fix for caption type.
- hyperref: Fix for options with braces.
- morefloats: Fix to be loaded early for print output.
- listings: Updated for v1.7.
- Added bigfoot, fnpara, footnotebackref, manyfoot, tablefootnote, threeparttablex.
- Added layouts, niceframe, perpage, showtags.
- Prevented alg, algorithmic, pdfcprot, fncylab.

v0.67: Filename generation, symbol fonts.

docs
- Documentation fix for `<project>-images`, `<project>-images.txt`.
- Added discussion regarding section names. See section 8.4.

filenames
- Added `\FilenameNullify` and `\FilenameSimplify` for filename generation. See section 8.4.
- Core, textcomp, xunicode: Nullified additional symbols during filename generation.

packages
- color: Fix for version number warnings.
- Added academicons, bbding, dingbat, eurosym, fontawesome, fontawesome5, marvosym, pifont, typicons.
- Added changes, easyReview, fitbox, foreign, gloss, karnaugh-map, multicap, nomencl, notes, struktex, umoline, xfakebold.
- Tested to work as-is with askmaps, curves, euro, karnaughmap, tikz-karnaugh.

v0.66: xr, multiple projects, image names/directory, HTML formatting

⚠ Reset the configuration
- Due to changes in *lwarpmk*, recompile any existing project a single time using **`pdflatex filename.tex`** or similar, after which *lwarpmk* may then be used with the new configuration files.

`lateximage`
- Adds options `ImagesDirectory` and `ImagesName` to assign directory and name prefixes for `lateximage` images. The new defaults include the jobname, allowing the image directories for multiple projects to coexist.

⚠ existing projects
- To reuse existing `lateximage` directories, add lwarp options

```
\usepackage[
  ImagesDirectory={lateximages},
  ImagesName={lateximage-}
]{lwarp}
```

If not reused, the existing `lateximages` directory and `lateximages.txt` file may be removed.

filenames
- Added `\FilenameLimit` to control the maximum length of the filenames generated by lwarp.

⚠ Possible filename changes
- Improved filename generation when special characters or macros are used in section names.

Windows
- Fix for **`lwarpmk cleanlimages`** with Windows.

floats
- Fixes for floats in the home page.

lists, table notes
- Improved css for definition lists, table notes.

`tabular`
- `tabular`: Fixes for `\par` in column specifier, minipage inside `tabular`.

indexing
- Indexing: Fix for a long line of multiple entries.

`minipage`
- `\minipagefullwidth`: Fix for global changes.
- Added `\UseMinipageWidths` and `\IgnoreMinipageWidths`. See section 8.3.3.

colors
- Improved `\fbox`, `\fboxBlock`, `\fminipage` to use current text color.

HTML
- Improved HTML output formatting.

docs
- Added discussion regarding invalid HTML. See section 8.1.1.
- Added discussion regarding math in section names, `\imagegraphics` `scale` option. See section 6.
- Added discussion regarding international languages in section names. See section 8.14.

packages
- caption: Fix for options clash.
- xr, xr-hyper: Now compatible.
- subcaption: Improved horizontal spacing.
- multicol: Fix for minipage inside `multicols`.
- multicolrule: Updated for v1.2.
- tocbasic: Minor update.
- acronym: Fix for acronym in float caption.
- kotexutf: Patch with *pdflatex* and new lwarp labels.
- extramarks, fancyhdr: Updated for v3.10.
- memoir: Added docs regarding version numbers. See section 8.13.
- zref: No longer required.
- Added ar, ed, indentfirst, nameauth, truncate.
- Verified to work as-is with changelog.
- Prevented colortab, epsf, hyper, picinpar, picins, sistyle, ucs.

v0.65: css layout, `alt` tags, Japanese.

page layout
- Moved the sideTOC to the left side, allowing improved css for margin notes.
- Improved page layout css.

image `alt` tags
- graphicx `\includegraphics`: Added the `alt` key to assign an `alt` tag to an image. Default is "`image`", assigned to pass validation.

duplicate HTML files
- Detects and causes an error if duplicate HTML file names are generated, caused by identical or similar sectioning names.

fixes
- Fix for `tabular*`.

- Fix for tabular border colors.
- Fixes `\quad`, `\enskip`, and figure captions to pass validation.

Japanese
- Added ltj* classes, bounddvi, gentombow, lltjext, plarydshln, plext, plextarydshln, plextcolortbl, pxatbegshi, pxeveryshi, pxftnright, pxjahyper, tascmac.
- Verified to work with plarray, plautopatch, plextarray, plextdelarray, pxgentombow, plsiunitx, pxpdfpages, pxpgfrcs, pxpgfmark.

packages
- Added support for fontspec `\textsi` and `\sishape`.
- Added multicol's `\docolaction`.
- Added embrac, footnoterange, multicolrule, versonotes.

v0.64: Koma-Script, Japanese, Chinese.

Japanese
- Added utarticle and related classes.
- Improved ujarticle and related classes.

Chinese
- Fix for biblatex with CTEX and other classes.

Koma-Script
- Fixes for scrlayer, scrlayer-scrpage.

packages
- addlines: Updated to v0.3.
- Added bsheaders, gmeometric, marginal, rmpage, scrpage2.

v0.63: mdframed, Chinese, Japanese, Korean

localization
- Added `\linkhomename`: A user-definable name for the **Home** link.
- Documented `\sidetocname`: A user-definable name for the sideTOC.

fixes
- Fix: `\LinkHome` for print output.

optimizations
- Moved package load checks to the lwarp core to reduce the number of `lwarp-*` files.

packages
- mdframed: Fix with amsthm, improved titles and font control. Improved rule widths.

Chinese
- Fixes for xeCJK.
- Added xpinyin, zhlineskip.
- Verified to work with cjkpunct, upzhkinsoku, zhspacing.

Japanese
- Verified to work with zxjatype, luatexja, luatexja-fontspec.
- Added bxjsarticle and related classes.
- Added ltjsarticle and related classes.
- Added pLATEX, upLATEX, ujarticle and related classes.
- Prevented utarticle and related classes.
- Prevented bxcjkatype.

Korean
- Verified to work with kotex, xetexko, luatexko.

v0.62: MiKTEX docs, HTML title, CTEX, xeCJK, bitpattern.

docs
- Docs: Setting a UTF-8 locale. See section 9.9.

MiKTEX
- MiKTEX: Docs for *MiKTeX Console* and miktex-poppler-bin.

HTML `<title>`
- HTML subpage titles: Added `\HTMLTitleBeforeSection` and `\HTMLTitleAfterSection` to select whether the HTML `<title>` displays the website name before or after the section name. See section 7.6.

fixes
- Fix for package options handling.

- Fixes for horizontal white space between `fminipage`, `fcolorminipage`, `colorboxBlock`, `fcolorboxBlock`.
- Logos: Fix for XeTeX logo, improved css, made robust, improved search-engine optimization.
- `\\[$1]`: Additional HTML <br> if $1 > 0 pt.
- Fixes for `\includgraphics` filename, and with `FormatWP`.
- Fix: css for `\textup`.
- Fix: Added `\slshape`.

Chinese
- Added ctex package and related classes, xeCJK.
- Prevented CJK, CJKutf8 unless xeCJK, ctex are used.

packages
- chemfig: Docs for new macro `\polymerdelim`.
- asymptote: Docs for compilation.
- chngpage: Fix to load lwarp-changepage.
- algorithm2e: Fix with non-book classes.
- register: Updated to v1.8.
- nicefrac: Improved font control and css, honors `nice` and `ugly`.
- units: Improved font control and css, honors `tight` and `loose`.
- xfrac: Improved css.
- textcomp and xunicode: Fix conflicts with `\textcircled`.
- ulem: Improved compatibility with CJKulem, `lateximage`.
- MathJax and siunitx: Removed inoperable extension.
- Added bitpattern, pdfcomment, pdfmarginpar, tram, unitsdef, xechangebar.
- Added musicography, octave, semantic-markup.
- Added 2in1, flippdf, notespages, rviewport, twoup.

v0.61: Custom compilation, EPS-related packages, documentation, indexes.

docs
- Split index into multiple indexes.
- Improved documentation regarding font selection. See section 7.4.
- Added documentation regarding debugging options. See section 35.
- Added documentation regarding HTML entities inside program listings. See section 8.2.1.

custom compiling
- Added options to specify the shell commands to execute for **`lwarpmk print`** and **`lwarpmk html`**, allowing the use of lwarp with perltex, pythontex, etc. If not specified, these are set automatically depending on the LaTeX engine, `--shell-escape`, and lwarp options. See section 9.

⚠ changed names
- Changed macro names to match `\displaymathother`, `\displaymathnormal`:

Old	New
`\StartDynamicMath`	`\inlinemathother`
`\StopDynamicMath`	`\inlinemathnormal`

fixes
- Fix: Paragraph tags in a `tabular`.
- Fix: supertabular and xtab captions.
- Fix: DVI LaTeX `\includegraphics` EPS images.
- Fix: newfloat lists.
- Fix: css footnotes text align, minipage tabular and footnote margins.

packages
- Added epsfig, psfrag, psfragx, pstool.
- Added copyrightbox, pdfprivacy, thinsp, threadcol, uspace.
- Added chkfloat, cmdtrack, dprogress, lua-visual-debug, refcheck, srcltx, srctex, vpe, xbmks.

v0.60: Fixes for longtable, listings.

fixes
- longtable, etc.: Fixes for slowdown and memory management for very long tables.
- listings: Fix for HTML entities, and also when used inside a list.
- diagbox: Fix for incorrect HTML par tags.

packages
- Added 2up, booklet.
- Added bophook, draftfigure, fullminipage, grid-system, layaureo.
- Added leading, widows-and-orphans.
- Added fancytabs, thumb, thumbs.

v0.59: DVI *latex*, MATHJAX, asymptote, pdftricks and pstricks, epstopdf, brqen.

⚠ Reset the configuration
- Due to changes in *lwarpmk*, recompile any existing project a single time using **`pdflatex filename.tex`** or similar, after which *lwarpmk* may then be used with the new configuration files.

lwarpmk
- Added an error if `lwarpmk.conf`'s format has changed and the document must be recompiled.
- Added a warning if the `lwarpmk.conf` configuration file appears to be for the wrong operating system, in case files are transferred between systems.
- Added
  ```
  lwarpmk epstopdf <list-of-EPS-files>
  ```
  to quickly convert a document's EPS images to PDF or SVG. See section 8.8.

DVI *latex*
- Added support for DVI *latex*. See section 7.5.

latexmk
- Fix for `--shell-escape` with *latexmk*.

math
- Updated MATHJAX script to v2.7.4.
- Fix: MATHJAX chapter number removed from non-numeric tagged equations.
- Added MATHJAX support for nicefrac, units.
- Fix for `\[` and `\]` with `\displaymathnormal`.

images
- Fix for `\includegraphics` filename expansion.
- `\includegraphics` now works with `.pdf` and `.eps` filename extensions.

packages
- Moved amsmath out of the lwarp core.
- Fix for chemformula `\NMR`.
- Added asymptote, pdftricks, pstricks, pst-eps.
- Added breqn, SIunits.
- Added bxpapersize, canoniclayout, draftcopy, fnbreak, nccfancyhdr.
- Added accsupp, axessibility.
- Added xunicode.
- Improved and now supports epstopdf.
- Tested to work as-is: eepic, sepfootnotes.

docs
- Added information about setting up a development version of lwarp.

v0.58: Extensive improvements in indexing, glossaries. Adds PDF-inclusion packages.

⚠ Reset the configuration

- Due to changes in *lwarpmk*, recompile any existing project a single time using **`pdflatex filename.tex`** or similar, after which *lwarpmk* may then be used with the new configuration files.

lwarpmk

- *lwarpmk*: Added the `-p` option to specify the project name.

glossaries

- *lwarpmk*: Now uses *makeglossaries* for glossary generation, allowing the processing of multiple glossaries at once.
- Added lwarp option `GlossaryCmd` to specify the shell command used by **`lwarpmk printglossary`** and **`lwarpmk htmlglossary`**. Defaults to **`makeglossaries`**.

index and glossary

- Docs: Extra indexing options. See section 8.6.14.
- Added support for *makeindex*. (Previously supported only *xindy*.) Also added indexing packages listed below.
- Added lwarp options `PrintIndexCmd`, `HTMLIndexCmd`, and `LatexmkIndexCmd` to specify shell commands used by **`lwarpmk printindex`**, **`lwarpmk htmlindex`**, and *latexmk*. May be preset with the `makeindex` or `xindy` lwarp options. See section 7.5.
- Added lwarp options `makeindex` and `xindy` to set `PrintIndexCmd`, `HTMLIndexCmd`, and `LatexmkIndexCmd` to sensible values for a typical single index. See section 7.5.
- Added lwarp option `makeindexStyle` to tell *lwarpmk* to use a custom style instead of `lwarp.ist`. See section 8.6.20.
- Fix for index entries with `\see`, `\seealso`, `\emph`, `\textbf`, etc.

misc. fixes

- Replaced each `\csuse` with `\@nameuse` for improved error detection.
- Additional internal print/HTML macro selection improvements.
- Fix: `\printindex` finishes pending `\index` writes first.

packages

- Fixes for memoir: makeidx, ccaption, multiple indexes, `\specialindex`.
- Fixes for komascript: Indexing improvements.
- Added imakeidx, index, repeatindex, splitidx.
- Added attachfile, attachfile2, intopdf, pdfpages, pdfx.
- Added cases.
- Tested to work as-is: notes2bib, hvindex.

v0.57: algorithm2e, float styles, tabular packages, internal improvements.

MathJax

- Added support for MathJax equations with `\footnote`, `\footnotemark`.

math macros

- Added `\StartDefiningMath` and `\StopDefiningMath` for use when defining macros in the preamble which contain $. See section 8.7.8.

dynamic math

- Added `\inlinemathother` and `\inlinemathnormal` to delimit math expressions which depend on a variable condition such as a counter. Such expressions will not be hashed for reuse, and will be converted to SVG math images even when MathJax is enabled. See section 8.7.9.

⚠ new name

- Renamed `\EndDefiningTabulars` to `\StopDefiningTabulars`.

lateximage alt tags
- Improved localization for lateximage HTML alt tags. For SVG math images, the alt tag under some conditions will be set to \MathImageAltText, which defaults to math image. For packages, the alt tag is set using the package name followed by \PackageDiagramAltText, which defaults to diagram. Ex:
  ```
  (-xy- diagram)
  ```
  See section 7.6.

misc. fixes
- Fix: Improved print/HTML macro selection.
- Fix: \href text catcodes.
- Fix: \subref text.
- Fixes: Colored \rule and \boxframe.

packages
- float, rotfloat: Adds support for float styles ruled and boxed.
- float: Fix: Do not create \l@<type> until \listof is used.
- marginnote: Fix: Long optional argument.
- ellipsis: Adds \midwordellipsis.
- breakurl: Fix for text catcodes.
- Added algorithm2e, register, ltablex, xltabular, xellipsis, trimclip, errata, vowel, xpiano.
- Prevents glossary.
- Tested to work as-is with gauss, phonrule, piano, SIunits, tikzcodeblocks.

v0.56: Shell escape, tabular packages.

lwarpmk
- Added
  ```
  lwarpmk pdftosvg <list-of-PDF-files>
  ```
  to quickly convert a document's PDF images to SVG, for use with HTML. See section 8.8.
- Added support for --shell-escape. See section 7.3.

tabular
- Added support for array w and W columns.
- Fix: \multicolumn parameter handling.
- Added support for double \hlines, \midrules, and vertical rules.
- Added support for arydshln dashed lines with HTML tabular, but reverts to plain rules for lateximage and SVG math array.

misc. fixes
- Fix: \thinspace.
- Fix: paralist compact environments.

packages
- Added parnotes, quoting, lua-check-hyphen, tocenter, underscore.
- Added bibunits.
- Tested to work as-is with babelbib, bodegraph, fast-diagram, nicematrix, structmech.

v0.55: Various fixes.

misc fixes
- Fix: Extraneous space in file links, which also prevented *Calibre* EPUB conversions.
- Fix: Float optional argument regression.
- Fix: \ForceHTMLTOC with \phantomsection.
- Fix: Overfull boxes in lateximages.
- Fix: QED symbols in lateximage.

packages
- koma-script: Fix: Figure with \centering, etc.
- Added clrdblpg.

v0.54: Float `\centering`, improved image checks.

⚠ Reset the configuration

- Due to changes in *lwarpmk*, recompile any existing project a single time using **`pdflatex filename.tex`** or similar, after which *lwarpmk* may then be used with the new configuration files.

lwarpmk

- `lwarpmk limages` checks for the presence of the HTML version of the document and valid image references before attempting to create the `lateximages`.
- *lwarpmk*: Improved error message if configuration file does not exist.

BibTeX

- Added documentation for avoiding error with BibTeX and `\etalchar`. See section 8.6.9.

polyglossia

- Added documentation regarding polyglossia. See section 8.15.4.

macros in section names

- Added documentation regarding the use of macros in section names. See section 8.1.

document encoding

⚠ New and revised encoding options

- Renamed and added package options:

Old Package Option	New Package Option
`xdyFilename`	`xindyStyle`
`IndexLanguage`	`xindyLanguage`
–	`xindyCodepage`
–	`pdftotextEnc`

  Use these options along with inputenc or inputenx to process documents in an encoding other than UTF-8. See section 7.4.

floats with `\centering`, etc.

- Floats now honor `\centering`, `\raggedright`, `\raggedleft`, and their ragged2e equivalents, when placed directly after:

```
\begin{floattype}
\centering
```

misc. fixes

- tikz: `\pgfpicture`, fit, align, font.
- ragged2e: `\centering` etc.
- hyperref: `\hypertarget` was creating duplicate of `\label`.
- hyperref: Active chars inside `\hyperref`, `\hyperlink`.
- hyperref: `\ref` inside `\hyperlink` caused a nested HTML link.
- glossaries: Fix when not using babel or polyglossia.
- textcomp: `\textperthousand`.
- LaTeX core `verse` environment: line spacing.

⚠

- Removed `\citetitle`, adjusted `\attribution`.

packages

- memoir: Minor update for v3.7g.
- Added inputenx, bibunits, chngpage, forest, magaz, gridset.
- Prevents loading ae, aecc, t1enc, and wasysym.

v0.53: Improved image checks.

lwarpmk

- *lwarpmk*: Added a warning about corrupted images due to the need to recompile the document one more time.
- *lwarpmk*: Added the **`lwarpmk cleanlimages`** command.
- Added documentation for **`lwarpmk cleanlimages`** and **`lwarpmk pdftohtml`**.

v0.52: Improved footnotes, SVG math.

documentation
- Improved install instructions regarding `lwarp_baseline_marker.png`.
- Added documentation regarding footnotes in section headings, and footnotes with `\VerbatimFootnotes` from fancybox, fancyvrb. See section 8.5.4.
- Added documentation regarding font selection when using XeLaTeX or LuaLaTeX with fontspec and traditional font packages. See section 7.4.

SVG math
- Fix: Limit the number of background tasks when generating `lateximages`.
- Added user-adjustable SVG math font scaling. See section 84.3.
- Added warnings if `lwarp_baseline_marker.png` is not present, or if graphicx or graphics is not loaded.
- Improved `\ensuremath` hashing expansion.
- Fix: `equation*` with `split`.
- `tabbing` now works inside a `lateximage`. Use for math in `tabbing`.

MathJax
- Fix: MathJax script was not executing in some conditions.
- Added `\CustomizeMathJax` to add custom functions. See section 8.7.

footnotes
- Fix: Footnote numbering when using `HTMLDebugComments`.
- Fix: Footnote paragraph tags.
- Fix: `FootnoteDepth` defaults to `\subsubsection`.

misc. fixes
- Fix: `\kill` in a `lateximage`.
- Fix: `\FileDepth`, misc. others, when input encoding is not `utf8`.
- Fix: `\texorpdfstring` in a section name.

packages
- hyperref emulation: Fix for #, %, &, ~, _ characters in URLs.
- fancybox, fancyvrb: Initial support for `\VerbatimFootnotes`.
- nicefrac: Added with fix for `\ensuremath`.
- graphicx: Fix for option defaults. Added v1.1a/b options.
- endfloat: Updated for v2.6.
- url: Fixes for active characters.

2 Introduction

The lwarp project aims to allow a rich LaTeX document to be converted to a reasonable HTML5 interpretation, with only minor intervention on the user's part. No attempt has been made to force LaTeX to provide for every HTML-related possibility, and HTML cannot exactly render every possible LaTeX concept. Where compromise is necessary, it is desirable to allow the print output to remain typographically rich, and compromise only in the HTML conversion.

Several "modern" features of HTML5, CSS3, and SVG are employed to allow a fairly feature-rich document without relying on the use of JavaScript. Limited testing on older browsers shows that these new features degrade gracefully.

---

lwarp is a native LaTeX package, and operates by either patching or emulating various functions. Source-level compatibility is a major goal, but occasional user intervention is required in certain cases.

As a package running directly in LaTeX, lwarp has some advantages over other methods of HTML conversion. TeX itself is still used, allowing a wider range of TeX trickery to be understood. Lua expressions are still available with LuaTeX. Entire categories of LaTeX packages work as-is when used with lwarp: definitions, file handling, utilities, internal data structures and calculations, specialized math-mode typesetting for various fields of science and engineering, and anything generating plain-text output. Blocks of PDF output may be automatically converted to SVG images while using the same font and spacing as the original print document, directly supporting Ti*k*z and `picture`. Numerous packages are easily adapted for HTML versions, either by loading and patching the originals, or by creating nullified or emulated replacements, and all without resorting to external programming. As a result, several hundred packages have already been adapted (table 2), and an uncounted number more work as-is.

Packages have been selected according to several criteria: perceived importance, popularity lists, recent CTAN updates, CTAN topics, mention in other packages, support by other HTML conversion methods, and from sample documents taken from public archives. These include some "obsolete" packages as well.[1]

Assistance is also provided for modifying the HTML output to suit the creation of EPUB documents, and for modifying the HTML output to ease import into a word processor.

---

pdflatex, *xelatex*, or *lualatex* may be used, allowing lwarp to process the usual image formats. While generating HTML output, SVG files are used in place of PDF. Other formats such as PNG and JPG are used as-is.

[1] An amazing number of decades-old packages are still in use today.

SVG images may be used for math, and are also used for `picture`, Ti*k*Z, and similar environments. The SVG format has better browser and e-book support than MathML (as of this writing), while still allowing for high-quality display and printing of images (again, subject to potentially bug-ridden[2] browser support).

Furthermore, SVG images allow math to be presented with the same precise formatting as in the print version. Math is accompanied by `<alt>` tags holding the LaTeX source for the expression, allowing it to be copy/pasted into other documents.[3] Custom LaTeX macros may be used as-is in math expressions, since the math is evaluated entirely inside LaTeX. An MD5 hash is used to combine multiple instances of the same inline math expression into a single image file, which then needs to be converted to SVG only a single time.

The MathJax JavaScript display engine may be selected for math display instead of using SVG images. Subject to browser support and Internet access, MathJax allows an HTML page to display math without relying on a large number of external image files.[4] lwarp maintains LaTeX control for cross-referencing and equation numbering, and attempts to force MathJax to tag equations accordingly.

A *texlua* program called *lwarpmk* is used to process either the print or HTML version of the document. A few external utility programs are used to finish the conversion from a LaTeX-generated PDF file which happens to have HTML5 tags, to a number of HTML5 plain-text files and accompanying images.

lwarp automatically generates the extra files necessary for the HTML conversion, such as CSS and `.xdy` files, and configuration files for the utility *lwarpmk*. Also included is a parallel version of the user's source document, `<sourcename>-html.tex`, which selects HTML output and then inputs the user's own source. This process allows both the printed and HTML versions to co-exist side-by-side, each with their own auxiliary files.

When requesting packages during HTML conversion, lwarp first looks to see if it has its own modified version to use instead of the standard LaTeX version. These `lwarp-packagename.sty` files contain code used to emulate or replace functions for HTML output.

[2] Firefox has had an on-again/off-again bug for quite some time regareding printing SVGs at high resolution.

[3] There seems to be some debate as to whether MathML is actually an improvement over LaTeX for sharing math. The author has no particular opinion on the matter, except to say that in this case LaTeX is much easier to implement!

[4] One SVG image file per math expression, except that duplicate inline math expressions are combined into a single file according to the MD5 hash function of its contents. A common scientific paper can easily include several thousand files, and in one case the MD5 hash cut the number of files in half and the rendering time by 30%.

2.1 Typesetting conventions

Font weight, family, and style are used to indicate various objects:

Table 1: Typesetting conventions

package	LaTeX package.
program	Program's executable name.
`option`	Program or package option.
`filename`	File name in the operating system.
Brand Name	Proper name for a program, operating system, etc.
`commands`	Commands to be entered by the user.
`code`	Program code.
`\macroname`	LaTeX macro.
`environment`	LaTeX environment.
`counter`	LaTeX counter.
`boolean`	LaTeX boolean.
`<element>`	HTML element.
`attribute`	HTML attribute.
User Interface	A user-interface item.
ACRO	Acronym.

subjects Blue-colored tags in the left margin aid in quickly identifying the subject of each paragraph. These are often the targets of index entries.

Prog Lwarp

index entries Black-colored tags in the left marign are used to identify programming objects such as files, packages, environments, booleans, and counters. Items without a tag are command macros. Each of these also appears in the index as individual entries, and are also listed together under "files", "packages", "environments", "booleans", and "counters".

⚠ warnings Special warnings are marked with a warning icon.

2.2 Supported packages and features

Table 2 lists some of the various LaTeX features and packages which may be used.

Package names are colored according to their support level:

name: Supported as-is.

name: Modifed to work with HTML output, and perhaps also as print output in SVG math or `latexmage` environments.

name: Emulated for HTML output.

name: Ignored for HTML output, but provides source-level compatibility.

MJ: Supported as-is for MathJax, subject to limitations.

MJ: Emulated for MathJax using custom macros, subject to limitations.

MJ: Ignored by MathJax, but may be used in the document source. May be converted to SVG images.

Table 2: LaTeX lwarp package — Supported features

Category	Status and supported features.
Engines:	DVI LaTeX, PDF LaTeX, XeLaTeX, LuaLaTeX, upLaTeX
LaTeX compiling:	*latexmk*, *make*, etc.
External compiling:	*perltex*, *pythontex*, sympytex
Classes:	article, book, report, scrartcl, scrbook, scrreprt, memoir, CJK-related as listed below.
Koma-script:	scrextend, scrhack, scrlayer. Others as listed below.
Memoir:	memhfixc
Beamer:	beamerarticle, but not the beamer class.
Languages:	babel, cjkpunct, impnattypo, luavlna, polyglossia, xeCJK, xevlna.
Chinese:	CTeX, ctex, upzhkinsoku, xpinyin, zhlineskip, zhspacing.
Japanese:	upLaTeX, LuaTeX-ja, gentombow, lltjext, plarray, plarydshln, plautopatch, plext, plextarray, plextarydshln, plextcolortbl, plextdelarray, pxatbegshi, pxeveryshi, pxftnright, pxgentombow, pxjahyper, pxpdfpages, pxpgfrcs, pxpgfmark, tascmac, zxjatype. bxjsarticle and related, ltjsarticle and related, luatexja, luatexja-fontspec, ujarticle and related, utarticle and related.
Korean:	kotex, luatexko, xetexko.

lwarp Supported Functions — continued

Category	Status
Page layout:	2in1, 2up, a4, a4wide, a5comb, addlines, anysize, atbegshi, balance, blowup, booklet, bophook, bounddvi, bxpapersize, canoniclayout, centerlastline, changelayout, changepage, chngpage, clrdblpg, continue, draftcopy, draftfigure, draftwatermark, ebook, everyshi, fancyhdr, fancytabs, flippdf, fullminipage, fullpage, fwlw, geometry, gmeometric, grid, grid-system, gridset, layaureo, layout, layouts, leading, lscape, ltxgrid, nccfancyhdr, notespages, nowidow, pagegrid, pagesel, parallel, parcolumns, pbalance, pdfcolparallel, pdfcolparcolumns, pdfcrypt, pdflscape, pdfprivacy, preview, ragged2e, returntogrid, rmpage, scrlayer-scrpage, scrpage2, setspace, selectp, textarea, threadcol, thumb, thumbs, titleps, tocenter, turnthepage, twoup, typearea, underlin, vmargin, watermark, widows-and-orphans, zwpagelayout.
Sectioning:	Adds `FileDepth` for splitting the HTML output. Files may be numbered sequentially or named according to section name. Common short words and punctuation are removed from the filenames. anonchap, bsheaders, decorule, fncychap, froufrou, hypbmsec, indentfirst, quotchap, section, sectionbreak, secdot, sectsty, titlesec, tocvsec2.
Table of contents, figures, tables:	Supported, with hyperlinks. etoc, minitoc, multitoc, shorttoc, tableof, titletoc, tocbasic, tocbibind, tocdata, tocloft, tocstyle, tocvsec2.
Title page:	`\maketitle`, `titlepage`, authblk, authoraftertitle, titling.
Front & back matter:	abstract, appendix.
Indexing:	*makeindex*, *xindy*, and *xindex* are supported, with hyperlinks. gindex, hvindex, idxlayout, imakeidx, index, makeidx, repeatindex, splitidx, varindex, xindex.
Glossary:	gloss, glossaries and *xindy*, nomencl.
Bibliography:	babelbib, bibtopic, backref, biblatex, bibunits, chapterbib, cite, citeref, collref, drftcite, hypernat, jurabib, mcite, mciteplus, multibib, natbib, notes2bib, splitbib, showtags.
Cross-references:	bookmark, breakurl, cleveref, fancyref, hypdestopt, hyperref, perpage, prettyref, titleref, url, varioref, xcite, xr, xr-hyper, xurl, zref.

lwarp Supported Functions — continued

Category	Status
Margin notes:	marginal, marginfit, marginfix, scrlayer-notecolumn, versonotes.
Footnotes:	Adds `FootnoteDepth` to print footnotes at section breaks. MathJax emulation for `\footnote`, and also as marked in the following: bigfoot, dblfnote, endheads, endnotes[MJ], enotez[MJ], fixfoot, fnbreak, fnpara, fnpct, fnpos, footmisc, footnote, footnotebackref, footnoterange, footnpag, manyfoot, marginnote[MJ], nccfoots[MJ], pagenote[MJ], parnotes[MJ], pdfcolfoot, pfnote, sepfootnotes, sidenotes[MJ], tablefootnote.
Math:	Converted to SVG images with HTML `<alt>` tags containing the LaTeX source for the math expression. MathJax supported as an alternative. amsmath[MJ]: $\mathcal{AMS}$ environments are supported. User-defined macros are available during conversion, due to native LaTeX processing.
Theorems:	Native LaTeX theorems, amsthm, apxproof, ntheorem, shadethm, theorem, thmbox, thmtools.
Additional math:	Math fonts via SVG images, accents[MJ], amscd[MJ], amscdx, autobreak[MJ], autonum, backnaur[MJ], bm[MJ], braket[MJ], breqn[MJ], bussproofs[MJ], cases[MJ], centernot[MJ], cmbright[MJ], colonequals[MJ], decimal[MJ], delarray, DotArrow[MJ], dotlessi[MJ], dotlessj[MJ], esvect[MJ], extarrows[MJ], fixmath[MJ], fouridx[MJ], fourier[MJ], guass, hhtensor[MJ], icomma[MJ], isomath[MJ], jkmath, kpfonts[MJ], kpfonts-otf[MJ], leftidx[MJ], libertinust1math[MJ], mathalpha[MJ], mathastext[MJ], mathcomp[MJ], mathdesign[MJ], mathdots[MJ], mathfixs[MJ], mathpazo[MJ], mathptmx[MJ], mathpunctspace[MJ], mathspec[MJ], mathtools[MJ], mattens[MJ], maybemath[MJ], mdwmath[MJ], mismath[MJ], mleftright[MJ], multiobjective[MJ], nccmath[MJ], nicematrix[MJ], noitcrul[MJ], newpxmath[MJ], newtxmath[MJ], newtxsf[MJ], pb-diagram, pxfonts[MJ], resizegather[MJ], rmathbr[MJ], scalerel[MJ], shuffle[MJ], skmath[MJ], stackrel[MJ], statex2[MJ], statistics, statmath[MJ], subsupscripts[MJ], tensind, tensor[MJ], textualicomma[MJ], txfonts[MJ], txgreeks[MJ], unicode-math[MJ], upgreek[MJ], ushort[MJ], witharrows[MJ], xfakebold[MJ], xy. Many others work as-is.
Display math with `\displaymathother`:	Complicated math objects in display math, such as tikz-cd, etc.

lwarp Supported Functions — continued

Category	Status
Units and fractions:	nicefrac[MJ], SIunits[MJ], siunitx[MJ], units[MJ], unitsdef, xfrac[MJ].
Floats:	Appear where declared. capt-of, caption, cutwin, dblfloatfix, endfloat, fewerfloatpages, fix2col, flafter, float, floatflt, floatrow, fltrace, ftcap, hypcap, keyfloat, morefloats, multicap, newfloat, nonfloat, picinpar, placeins, rotfloat, stfloats, subcaption, subfig, subfigure, subfloat, swfigure, topcapt, trivfloat, wrapfig, wrapfig2.
Tabular:	`tabular` environment, array[MJ], arydshln[MJ], bigdelim[MJ], bigstrut[MJ], booktabs[MJ], colortbl[MJ], ctable, dcolumn, diagbox, hhline[MJ], longtable, ltablex, ltxtable, multirow[MJ], supertabular, tabularx, tabulary, threeparttable, threeparttablex, widetable, xltabular, xtab.
Graphics:	graphics and graphicx. `\includegraphics` supports `width`, `height`, `origin`, `angle`, and `scale` tags, and adds `class`. References to PDF files are changed to SVG, other image types are accepted as well. `\rotatebox` and `\scalebox` are supported as well as HTML can handle. rotating is emulated but all objects are unrotated in HTML. `picture`, tikz, and xy are converted to an SVG image. asymptote, curves, datatool, eepic, epsf, epsfig, epstopdf, figsize, fitbox, grffile, lpic, luamplib, media9, movie15, multimedia, overpic, pict2e, pinlabel, psfrag, psfragx, pst-eps, pstool, pstricks, rlepsf, rviewport, svg, svg-extract, tikz, tikz-3dplot, tikz-imagelabels, xy
xcolor:	Full package color names, any color models, and mixing. `\textcolor`, `\colorbox`, `\fcolorbox`. Enhanced for HTML compatibility.
Lists:	Standard LaTeX environments, enumerate, enumitem, eqlist, hang, listliketab, paralist.
Environments:	Standard LaTeX environments.
Paragraphs, `minipage`, `\parbox`:	Some HTML5-imposed limitations. Nested minipages are supported. eqparbox, fancypar, minibox, pbox, shapepar.
Quotations:	copyrightbox, csquotes, epigraph, quoting, verse.
Verbatim:	fancyvrb, fvextra, moreverb, shortvrb, verbatim.
Frames:	boxedminipage, boxedminipage2e, fancybox, fbox[MJ], framed, mdframed, niceframe, shadow, tcolorbox[MJ], vertbars.

lwarp Supported Functions — continued

Category	Status
Multi-columns:	adjmulticol, multicol, multicolrule, vwcol.
Margins:	fullwidth, hanging, midpage.
Line numbering:	fnlineno, lineno.
Direct formatting:	`\emph`, `\textsuperscript`, `\textbf`, etc are supported. `\bfseries`, etc. are only supported in some cases. cancel[MJ], ellipsis, embrac, enparen, hyphenat, lettrine, lips, lua-check-hyphen, luacolor, magaz, moresize, nolbreaks, normalcolor, pdfcol, pdfcolmk, pdfrender, realscripts, relsize[MJ], scalefnt, seqsplit[MJ], soul, soulpos, soulutf8, stackengine, textfit, thinsp, trimclip, truncate, ulem, umoline, underscore, uspace, xellipsis.
Acronyms:	acro, acronym.
Ordinals:	engord, fmtcount, nth.
Text ligatures:	Ligatures for symbols are supported. Ligatures for f, q, t are intentionally turned off because many simpler browsers do not display them correctly. Modern full-featured browsers re-create these ligatures on-the-fly.
Horizontal space:	HTML output for thin-unbreakable, unbreakable, `\enskip`, `\quad`, `\qquad`, `\hspace`.
Rules:	`\rule` with width, height, raise, text color.
HTML reserved characters:	`\&`, `\textless`, and `\textgreater` are converted to HTML entities.
Fonts:	Used as-is. Appear in SVG math expressions or embedded image environments. fontaxes, nfssext-cfr, slantsc, tabfigures. Tested to work as-is: Special font macros in cfr-lm and others which use nfssext-cfr. Also see the math section for math and MathJax support for math font packages.
Symbols:	Native LaTeX diacriticals, academicons, amssymb[MJ], bbding, ccicons, chemgreek, dingbat, euro, eurosym, fontawesome, fontawesome5, gensymb[MJ], latexsym[MJ], marvosym, metalogo, metalogox, pifont, textalpha, textcomp[MJ], textgreek, typicons, xunicode.
Files:	attachfile, attachfile2, hyperxmp, inputtrc, intopdf, pdfpages, pdfx, xmpincl.

lwarp Supported Functions — continued

Category	Status
Science and engineering:	algorithm2e, algorithmicx, ar[MJ], askmaps, axodraw2, bitpattern, blochsphere, bodegraph, bohr, bytefield, chemfig, chemformula, chemgreek, chemmacros, chemnum, circuitikz, econometrics[MJ], elements, engtlc[MJ], fast-diagram, ghsystem, hepnicenames, heppennames, hepunits[MJ], isotope[MJ], karnaughmap, karnaugh-map, keystroke, listings, listingsutf8, linop, menukeys, mhchem[MJ], minted, pgfgantt, phfqit, physics[MJ], physunits[MJ], plimsoll[MJ], qcircuit, register, simplebnf, simpler-wick, slashed[MJ], steinmetz[MJ], structmech, struktex, syntaxdi, tikz-karnaugh, tikzcodeblocks, venndiagram
Arts and humanities:	foreign, forest, lyluatex, musicography, nameauth, octave, phonrule, piano, schemata, semantic-markup, tikz-dependency, vowel, xpiano
Academic:	academicons, classicthesis, doi, doipubmed, orcidlink[MJ], termcal
Admonitions:	awesomebox, notes.
Editorial:	changebar, changelog, changes, easy-todo, easyReview, ed, errata, fixme, fixmetodonotes, pdfcomment[MJ], pdfmarginpar, todo, todonotes, tram, xechangebar.
Accessibility:	accessibility[MJ], accsupp[MJ], axessibility[MJ], pdfcomment[MJ], repltext[MJ], tagpdf.
Package handling:	catoptions.
Debug:	chkfloat, cmdtrack, dprogress, lipsum, lua-visual-debug, mwe, refcheck, showlabels, showkeys, srcltx, srctex, vpe, xbmks.
Working as-is:	Various utility, calculation, file, and text-only packages, such as calc, fileerr, somedefs, trace, xspace. Also, most math-only packages, including specialized typesetting for various fields of science and engineering.

3 Alternatives

Summarized below are several other ways to convert a LaTeX or other document to HTML. Where an existing LaTeX document is to be converted to HTML, lwarp may be a good choice. For new projects with a large number of documents, it may be worth investigating the alternatives before decided which path to take.

3.1 internet class

Cls internet

The closest to lwarp in design principle is the `internet` class by Andrew Stacey — an interesting project which directly produces several versions of markdown, and also HTML and EPUB. https://github.com/loopspace/latex-to-internet

3.2 TeX4ht

Prog TeX4ht

Prog htlatex

http://tug.org/tex4ht/

This system uses native LaTeX processing to produce a DVI file containing special commands, and then uses additional post-processing for the HTML conversion by way of numerous configuration files. In some cases lwarp provides a better HTML conversion, and it supports a different set of packages. TeX4ht produces several other forms of output beyond HTML, including ODT and a direct path to EPUB, and is still being developed.

3.3 Translators

These systems use external programs to translate a subset of LaTeX syntax into HTML. Search for each on CTAN (http:\ctan.org).

Prog Hevea

HeVeA: http://hevea.inria.fr/ (not on CTAN)

Prog TtH

TtH: http://hutchinson.belmont.ma.us/tth/

Prog GELLMU

GELLMU: http://www.albany.edu/~hammond/gellmu/

Prog LaTeXML

LaTeXML: http://dlmf.nist.gov/LaTeXML/

Prog Plastex

PlasTeX: https://github.com/tiarno/plastex

Prog LaTeX2HTML

LaTeX2HTML: http://www.latex2html.org/
and http://ctan.org/pkg/latex2html.

Prog TeX2page

TeX2page: http://ds26gte.github.io/tex2page/index.html

Finally, GladTeX may used to directly insert LaTeX math into HTML:

Prog GladTeX

GladTeX: http://humenda.github.io/GladTeX/

3.4 AsciiDoc and Asciidoctor

AsciiDoc is one of the most capable markup languages, providing enough features to produce the typical technical-writing document with cross-references, and it writes LaTeX and HTML.

Prog AsciiDoc

Asciidoctor: http://asciidoctor.org/ (More active.)

Prog AsciiDoctor

AsciiDoc: http://asciidoc.org/ (The original project.)

3.4.1 Asciidoctor-LaTeX

The Asciidoctor-LaTeX project is developing additional LaTeX-related features.

Asciidoctor-LateX:
http://www.noteshare.io/book/asciidoctor-latex-manual
Prog Asciidoctor-LaTeX
https://github.com/asciidoctor/asciidoctor-latex

3.5 Pandoc

Prog Pandoc

A markup system which also reads and writes LaTeX and HTML.

Pandoc: http://pandoc.org/

(Watch for improvements in cross-references to figures and tables.)

3.6 Word processors

Prog Word
Prog LibreOffice
Prog OpenOffice

It should be noted that the popular word processors have advanced through the years in their abilities to represent math with a LaTeX-ish input syntax, unicode math fonts, and high-quality output, and also generate HTML with varying success. See recent developments in Microsoft ® *Word* ® and LibreOffice ™ *Writer*.

3.7 Commercial systems

Prog Adobe
Prog FrameMaker
Prog InDesign
Prog Flare
Prog Madcap

Likewise, several professional systems exist whose abilities have been advancing in the areas of typesetting, cross-referencing, and HTML generation. See Adobe ® *FrameMaker* ®, Adobe *InDesign* ®, and Madcap *Flare* ™.

3.8 Comparisons

AsciiDoc, Pandoc, and various other markup languages typically have a syntax which tries to be natural and human-readable, but the use of advanced features tends to require many combinations of special characters, resulting in a complicated mess of syntax. By contrast, LaTeX spells things out in readable words but takes longer to type, although integrated editors exist which can provide faster

entry and a graphic user interface. For those functions which are covered by the typical markup language it is arguable that LaTeX is comparably easy to learn, while LaTeX provides many more advanced features where needed, along with a large number of pre-existing packages which provide solutions to numerous common tasks.

Text-based document-markup systems share some of the advantages of LaTeX vs. a typical word processor. Documents formats are stable. The documents themselves are portable, work well with revision control, do not crash or become corrupted, and are easily generated under program control. Formatting commands are visible, cross-referencing is automatic, and editing is responsive. Search/replace with regular expressions provides a powerful tool for the manipulation of both document contents and structure. Markup systems and some commercial systems allow printed output through a LaTeX back end, yielding high-quality results especially when the LaTeX template is adjusted, but they lose the ability to use LaTeX macros and other LaTeX source-document features.

The effort required to customize the output of each markup system varies. For print output, LaTeX configuration files are usually used. For HTML output, a CSS file will be available, but additional configuration may require editing some form of control file with a different syntax, such as XML. In the case of lwarp, CSS is used, and much HTML output is adjusted through the usual LaTeX optional macro parameters, but further customization may require patching LaTeX code.

The popular word processors and professional document systems each has a large base of after-market support including pre-designed styles and templates, and often include content-management systems for topic reuse.

4 Installation

Table 3 shows the tools which are used for the LaTeX to HTML conversion. In most cases, these will be available via the standard package-installation tools.

Detailed installation instructions follow.

Table 3: Required software programs

Provided by your LaTeX distribution:

From TeXLive: http://tug.org/texlive/.

LaTeX: *pdflatex*, *xelatex*, or *lualatex*.

The lwarp package: This package.

The *lwarpmk* utility: Provided along with this package. This should be an operating-system executable in the same way that *pdflatex* or *latexmk* is. It is possible to have the lwarp package generate a local copy of *lwarpmk* called `lwarpmk.lua`. See table 4.

***luatex*:** Used by the *lwarpmk* program to simplify and automate document generation.

***xindy*:** The *xindy* program is used by lwarp to create indexes. On a MiKTeX system this may have to be acquired separately, but it is part of the regular installer as of mid 2015.

***latexmk*:** Optionally used by *lwarpmk* to compile LaTeX code. On a MiKTeX system, *Perl* may need to be installed first.

***pdfcrop*:** Used to pull images out of the LaTeX PDF.

Poppler PDF utilities:

***pdftotext*:** Used to convert PDF to text.

***pdfseparate*:** Used to pull images out of the LaTeX PDF.

***pdftocairo*:** Used to convert images to SVG.

These might be provided by your operating-system package manager, and MiKTeX provides miktex-poppler-bin-* packages.

From Poppler: poppler.freedesktop.org.

For MacOS®, see https://brew.sh/, install *Homebrew*, then

Enter ⇒ **`brew install poppler`**

For Windows, see MikTeX miktex-poppler-bin-*, or:
https://sourceforge.net/projects/poppler-win32/ and:
http://blog.alivate.com.au/poppler-windows/

***Perl*:**

This may be provided by your operating-system package manager, and may be required for some of the Poppler PDF utilities.

strawberryperl.com (recommended), perl.org

Automatically downloaded from the internet as required:

MathJax: Optionally used to display math. From: mathjax.org

4.1 Installing the lwarp package

There are several ways to install lwarp. These are listed here with the preferred methods listed first:

Pre-installed: Try entering into a command line:

Enter ⇒ **`kpsewhich lwarp.sty`**

If a path to `lwarp.sty` is shown, then lwarp is already installed and you may skip to the next section.

TEX Live: If using a TEX Live distribution, try installing via *tlmgr*:

Enter ⇒ **`tlmgr install lwarp`**

MiKTEX:

1. For newer versions of MiKTEX, install or update lwarp using the *MiKTeX Console* program.
2. For older versions of MiKTEX, to install lwarp the first time, use the *MiKTeX Package Manager (Admin)*. To update lwarp, use *MiKTeX Update (Admin)*.
3. Either way, also update the package miktex-misc, which will install and update the *lwarpmk* executable.

Operating-system package: The operating-system package manager may already have lwarp, perhaps as part of a set of TEX-related packages.

CTAN TDS archive: lwarp may be downloaded from the Comprehensive TEX Archive:

1. See http://ctan.org/pkg/lwarp for the lwarp package.
2. Download the TDS archive: `lwarp.tds.zip`
3. Find the TEX `local` directory:

   TEX Live:

   Enter ⇒ **`kpsewhich -var-value TEXMFLOCAL`**

   MiKTEX:

   In the **Settings** window, **Roots** tab, look for a local TDS root.

   This should be something like:

   `/usr/local/texlive/texmf-local/`
4. Unpack the archive in the TDS local directory.
5. Renew the cache:

   Enter ⇒ **`mktexlsr`**

   — or —

   Enter ⇒ **`texhash`**

   Or, for WINDOWS MiKTEX, start the program called *MiKTeX Settings (Admin)* and click on the button called **Refresh FNDB**.

CTAN `.dtx` and `.ins` files: Another form of TEX package is `.dtx` and `.ins` source files. These files are used to create the documentation and `.sty` files.

1. See http://ctan.org/pkg/lwarp for the lwarp package.
2. Download the zip archive `lwarp.zip` into your own `lwarp` directory.
3. Unpack `lwarp.zip`.

4. Locate the contents `lwarp.dtx` and `lwarp.ins`
5. Create the `.sty` files:

   Enter ⇒ **`pdflatex lwarp.ins`**
6. Create the documentation:

```
pdflatex lwarp.dtx  (several times)
makeindex -s gglo.ist -o lwarp.gls lwarp.glo
makeindex -s gind.ist lwarp.idx
pdflatex lwarp.dtx  (several times)
```

7. Copy the `.sty` files somewhere such as the TEX Live local tree found in the previous CTAN TDS section, under the subdirectory:

   `<texlocal>/tex/latex/local/lwarp`
8. Copy `lwarp_baseline_marker.png` and `lwarp_baseline_marker.eps` to the same place as the `.sty` files.
9. Copy the documentation `lwarp.pdf` to a `source` directory in the local tree, such as:

   `<texlocal>/doc/local/lwarp`
10. Renew the cache:

    Enter ⇒ **`mktexlsr`**

    — or —

    Enter ⇒ **`texhash`**

    Or, for WINDOWS MiKTEX, start the program called *MiKTeX Settings (Admin)* and click on the button called **Refresh FNDB**.
11. See section 4.2.1 to generate your local copy of *lwarpmk*.
12. Once the local version of `lwarpmk.lua` is installed, it may be made available system-wide as per section 4.2.

Project-local CTAN `.dtx` and `.ins` files: The `.dtx` and `.ins` files may be downloaded to a project directory, then compiled right there, alongside the document source files. The resultant `*.sty` and `lwarpmk.lua` files may be used as-is, so long as they are in the same directory as the document source. The files `lwarp_baseline_marker.png` and `lwarp_baseline_marker.eps` must also be copied as well. This approach is especially useful if you would like to temporarily test lwarp before deciding whether to permanently install it.

Just testing!

4.2 Installing the *lwarpmk* utility

(Note: If *lwarpmk* is not already installed, it is easiest to use a local copy instead of installing it system-wide. See section 4.2.1.)

After the lwarp package is installed, you may need to setup the *lwarpmk* utility:

1. At a command line, try executing **`lwarpmk`**. If the *lwarpmk* help message appears, then *lwarpmk* is already set up. If not, it is easiest to generate and use a local copy. See section 4.2.1.
2. For MiKTEX, try updating the miktex-misc package. This may install the *lwarpmk* executable for you.

   Otherwise, continue with the following:

3. Locate the file `lwarpmk.lua`, which should be in the `scripts` directory of the TDS tree. On a TEX Live or MiKTEX system you may use

   Enter ⇒ **`kpsewhich lwarpmk.lua`**

   (If the file is not found, you may also generate a local copy and use it instead. See section 4.2.1.)

4. Create *lwarpmk*:

   Unix: Create a symbolic link and make it executable:

   (a) Locate the TEX Live binaries:

   Enter ⇒ **`kpsewhich -var-value TEXMFROOT`**

   This will be something like:

   `/usr/local/texlive/<year>`

   The binaries are then located in the `bin/<arch>` directory under the root:

   `/usr/local/texlive/<year>/bin/<architecture>/`

   In this directory you will find programs such as *pdflatex* and *makeindex*.

   (b) In the binaries directory, create a new symbolic link from the binaries directory to `lwarpmk.lua`:

   Enter ⇒ **`ln -s <pathtolwarpmk.lua> lwarpmk`**

   (c) Make the link executable:

   Enter ⇒ **`chmod 0755 lwarpmk`**

   WINDOWS TEX Live: Create a new `lwarpmk.exe` file:

   (a) Locate the TEX Live binaries as shown above for UNIX.

   (b) In the binaries directory, make a *copy* of `runscript.exe` and call it `lwarpmk.exe` This will call the copy of `lwarpmk.lua` which is in the `scripts` directory of the distribution.

   WINDOWS MiKTEX: Create a new `lwarpmk.bat` file:

   (a) Locate the MiKTEX binaries. These will be in a directory such as:

   `C:\Program Files\MiKTeX 2.9\miktex\bin\x64`

   In this directory you will find programs such as `pdflatex.exe` and `makeindex.exe`.

   (b) Create a new file named `lwarpmk.bat` containing:

   ```
   texlua "C:\Program Files\MiKTeX 2.9\scripts\lwarp\lwarp.texlua" %*
   ```

   This will call the copy of `lwarpmk.lua` which is in the `scripts` directory of the distribution.

4.2.1 Using a local copy of *lwarpmk*

It is also possible to use a local version of *lwarpmk*:

1. When compiling the tutorial in section 5, use the `lwarpmk` option for the lwarp package:

   ```
   \usepackage[lwarpmk]{lwarp}
   ```

2. When the tutorial is compiled with *pdflatex*, the file `lwarpmk.lua` will be generated along with the other configuration files.

3. `lwarpmk.lua` may be used for this project:

Unix:

(a) Make `lwarpmk.lua` executable:

Enter ⇒ **`chmod 0755 lwarpmk.lua`**

(b) Compile documents with

Enter ⇒ **`./lwarpmk.lua html`**

Enter ⇒ **`./lwarpmk.lua print`**

etc.

(c) It may be useful to rename or link to a version without the `.lua` suffix.

WINDOWS:

Compile documents with either of the following, depending on which command shell is being used:

Enter ⇒ **`texlua lwarpmk.lua html`**

Enter ⇒ **`texlua lwarpmk.lua print`**

etc.

Or:

Enter ⇒ **`lwarpmk html`**

Enter ⇒ **`lwarpmk print`**

etc.

4.3 Installing additional utilities

To test for the existence of the additional utilities:

Enter the following in a command line. If each programs' version is displayed, then that utility is already installed. See table 3 on page 76.

Enter ⇒ **`luatex --version`**

Enter ⇒ **`xindy --version`**

Enter ⇒ **`latexmk --version`**

Enter ⇒ **`perl --version`**

Enter ⇒ **`pdfcrop --version`**

Enter ⇒ **`pdftotext -v`**

Enter ⇒ **`pdfseparate --version`**

Enter ⇒ **`pdftocairo -v`**

To install *xindy*, *latexmk*, and *pdfcrop*:

The TEX utilities *xindy*, *latexmk*, and *pdfcrop* may be installed in *TexLive* with *tlmgr*, installed by *MiKTeX*, provided by your operating system's package manager, or downloaded from the *CTAN* archive:

http://ctan.org/pkg/xindy
http://ctan.org/pkg/latexmk
http://ctan.org/pkg/pdfcrop

Prog [requirement] `pdftotext`
Prog [requirement] `pdfseparate`
Prog [requirement] `pdftocairo`

To install the POPPLER utilities to a UNIX/LINUX system:

The tools from the POPPLER project should be provided by your operating system's package manager.

To install the POPPLER utilities to a MACOS machine:

1. Install *Homebrew* from https://brew.sh/:

Enter ⇒ **`/usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"`**

2. Install the POPPLER utilities:
   Enter ⇒ `brew install poppler`

To install the POPPLER utilities to a WINDOWS machine:

If using MikTEX, install a miktex-poppler-bin-* package. Otherwise:

1. See table 3 on page 76.
2. Download and extract the POPPLER utilities *pdftotext*, *pdfseparate*, and *pdfseparate* to a directory, such as `Poppler`.
3. In the **Start** window, type "Path" to search for results related to Path. Or, open the control panel and search for "Path".
4. Choose **Edit the system environment variables** in the control panel.
5. Choose the **Environment Variables** button.
6. Choose the **Path** variable, then the **Edit** button.
7. Choose the **New** button to make an additional entry.
8. Enter the `bin` directory of the POPPLER utilities, such as:
   `C:\Users\<myname>\Desktop\Poppler\poppler-0.5_x86\poppler-0.5\bin`
   Be sure to include `\bin`.
9. Click **Ok** when done.

Prog [requirement] `perl`

To install PERL to a WINDOWS machine:

1. Download and install a version of PERL, such as STRAWBERRY PERL, to a directory without a space in its name, such as `C:\Strawberry`.
2. Edit the **Path** as seen above for the POPPLER utilities.
3. Enter the `bin` directory of the *perl* utility, such as:
   `C:\Strawberry\perl\bin`
   Be sure to include `\bin`.
4. Click **Ok** when done.

Any utilities installed by hand must be added to the PATH.

5 Tutorial

This section shows an example of how to create an lwarp document.

Need help?

See the General Index for "how-to", and the Troubleshooting Index if something doesn't work. A Troubleshooting section is also available. The Index of Objects contains automated entries for each package, macro, environment, counter, boolean, and other objects; individually and also sorted by category.

5.1 Starting a new project

1. Create a new project directory called `tutorial`.

File `tutorial.tex`

2. Inside the `tutorial` directory, create a new file called `tutorial.tex`. This may be done several ways:

   Copy from the documentation PDF:

   A listing is in fig. 1, which may be copied/pasted from the figure directly into your own editor, depending on the quality of the PDF viewer and editor, or:

   Copy from the lwarp documentation directory:

File `lwarp_tutorial.txt`

⚠ Note: `.txt` suffix!

   Another copy may be found by entering into a command line:

   Enter ⇒ **`texdoc -l lwarp_tutorial.txt`**

   This should be in the `doc/latex/lwarp/` directory along with this PDF documentation. Copy `lwarp_tutorial.txt` directly into your `tutorial` directory, renamed as `tutorial.tex`.

⚠ Bad formatting!

   When using Windows, use an editor other than Notepad, since Notepad does not accept the end-of-line from a Unix text file.

3. Compile the project:

   Enter ⇒ **`pdflatex tutorial.tex`**

   (several times)

   (*xelatex* or *lualatex* may be used as well. lwarp also supports DVI *latex* for use with `.eps` images.)

4. View the resulting `tutorial.pdf` with a PDF viewer.

A number of new files are created when `tutorial.tex` is compiled, as shown in table 4. These files are created by the `lwarp` package.

(Two of the new files are configuration files for the helper program *lwarpmk*. Whenever a print version of the document is created, the configuration files for *lwarpmk* are updated to record the operating system, LaTeX engine (*latex*, *pdflatex*, *xelatex*, or *lualatex*), the filenames of the source code and HTML output, and whether the additional helper program *latexmk* will be used to compile the document.)

Figure 1: tutorial.tex listing

Note: There are two pages!

```
% Save this as tutorial.tex for the lwarp package tutorial.

\documentclass{book}

\usepackage{iftex}

% --- LOAD FONT SELECTION AND ENCODING BEFORE LOADING LWARP ---

\ifPDFTeX
\usepackage{lmodern}            % pdflatex or dvi latex
\usepackage[T1]{fontenc}
\usepackage[utf8]{inputenc}
\else
\usepackage{fontspec}           % XeLaTeX or LuaLaTeX
\fi

% --- LWARP IS LOADED NEXT ---
\usepackage[
%   HomeHTMLFilename=index,     % Filename of the homepage.
%   HTMLFilename={node-},       % Filename prefix of other pages.
%   IndexLanguage=english,      % Language for xindy index, glossary.
%   latexmk,                    % Use latexmk to compile.
%   OSWindows,                  % Force Windows. (Usually automatic.)
%   mathjax,                    % Use MathJax to display math.
]{lwarp}
% \boolfalse{FileSectionNames}  % If false, numbers the files.

% --- LOAD PDFLATEX MATH FONTS HERE ---

% --- OTHER PACKAGES ARE LOADED AFTER LWARP ---
\usepackage{makeidx} \makeindex
\usepackage{xcolor}             % (Demonstration purposes only.)
\usepackage{hyperref,cleveref}  % LOAD THESE LAST!

% --- LATEX AND HTML CUSTOMIZATION ---
\title{The Lwarp Tutorial}
\author{Some Author}
\setcounter{tocdepth}{2}        % Include subsections in the \TOC.
\setcounter{secnumdepth}{2}     % Number down to subsections.
\setcounter{FileDepth}{1}       % Split \HTML\ files at sections
\booltrue{CombineHigherDepths}  % Combine parts/chapters/sections
\setcounter{SideTOCDepth}{1}    % Include subsections in the side\TOC
\HTMLTitle{Webpage Title}       % Overrides \title for the web page.
\HTMLAuthor{Some Author}        % Sets the HTML meta author tag.
\HTMLLanguage{en-US}            % Sets the HTML meta language.
\HTMLDescription{A description.}% Sets the HTML meta description.
\HTMLFirstPageTop{Name and \fbox{HOMEPAGE LOGO}}
\HTMLPageTop{\fbox{LOGO}}
\HTMLPageBottom{Contact Information and Copyright}
\CSSFilename{lwarp_sagebrush.css}

\begin{document}

\maketitle                      % Or titlepage/titlingpage environment.
```

```
% An article abstract would go here.

\tableofcontents                % MUST BE BEFORE THE FIRST SECTION BREAK!
\listoffigures

\chapter{First chapter}

\section{A section}

This is some text which is indexed.\index{Some text.}

\subsection{A subsection}

See \cref{fig:withtext}.

\begin{figure}\begin{center}
\fbox{\textcolor{blue!50!green}{Text in a figure.}}
\caption{A figure with text\label{fig:withtext}}
\end{center}\end{figure}

\section{Some math}

Inline math: $r = r_0 + vt - \frac{1}{2}at^2$
followed by display math:
\begin{equation}
a^2 + b^2 = c^2
\end{equation}


\begin{warpprint}   % For print output ...
\cleardoublepage    % ... a common method to place index entry into TOC.
\phantomsection
\addcontentsline{toc}{chapter}{\indexname}
\end{warpprint}
\ForceHTMLPage      % HTML index will be on its own page.
\ForceHTMLTOC       % HTML index will have its own toc entry.
\printindex

\end{document}
```

Table 4: Configuration files created by print version

tutorial.pdf: The PDF output from LaTeX. The print version of the document.

tutorial_html.tex: A small `.tex` file used to create a parallel HTML version of the document, which co-exists with usual the PDF version, and which will have its own auxiliary files. In this way, both PDF and HTML documents may co-exist side-by-side.

Auxiliary files: The usual LaTeX files `.aux`, `.log`, `.out`, `.toc`, `.lof`, `.idx`. When an HTML version of the document is created, `_html` versions of the auxiliary files will also be generated.

lwarpmk.conf: A configuration file for *lwarpmk*, which is used to automate the compilation of PDF or HTML versions of the document.

tutorial.lwarpmkconf: Another configuration file used by *lwarpmk*, which is only useful if you wish to have several projects residing in the same directory.

.css files: `lwarp.css`, `lwarp_formal.css`, `lwarp_sagebrush.css` These files are standard for lwarp, and are not meant to be modified by the user.

sample_project.css: An example of a user-customized CSS file, which may be used for project-specific changes to the lwarp defaults.

lwarp.ist: Used by lwarp while creating an index using *makeindex*. This file should not be modified by the user. A custom file may be used instead, if necessary.

lwarp.xdy: Used by lwarp while creating an index using *xindy*. This file should not be modified by the user. A custom file may be used instead, if necessary.

lwarp_one_limage.txt: For Windows only. Used to process SVG images in the background. Copied to `lwarp_one_limage.cmd` when images are generated.

lwarp_mathjax.txt: Inserted into the HTML files when MathJax is used to display math. Do not modify, see `\MathJaxFilename` instead.

comment_*.cut: Temporary files used by lwarp to conditionally process blocks of text. These files may be ignored.

When the `lwarpmk` option is given to the lwarp package:

lwarpmk.lua: A local copy of the *lwarpmk* utility.

On Unix-related operating systems this file must be made executable:

```
chmod u+x lwarpmk.lua
```

This may be useful to have to archive with a project for future use.

5.2 Compiling the print version with *lwarpmk*

The *lwarpmk* utility program is used to compile either the printed or the HTML version of the document.

`lwarpmk print` is used to recompile a printed version of the document.

⚠ Enable *lwarpmk*

1. If you have not yet done so, add `\usepackage{lwarp}` to the document, then compile the project a single time using *pdflatex*, *lualatex*, or *xelatex*. This generates the file `lwarpmk.conf`, which then allows the *lwarpmk* program to be used.

2. Re-compile the print version:

   Enter ⇒ **`lwarpmk print`**

   lwarpmk prints an introduction then checks to see if the document must be recompiled. If it seems that the files are up-to-date, then *lwarpmk* informs you of that fact and then exits.

3. Make a small change in the original document, such as adding a space character.

4. Recompile again.

   Enter ⇒ **`lwarpmk print`**

   The document is recompiled when a change is seen in the source. Several compilations may be necessary to resolve cross-references.

5. Force a recompile to occur.

   Enter ⇒ **`lwarpmk again`**

   Enter ⇒ **`lwarpmk print`**

   `lwarpmk again` updates the date code for the file, triggering a recompile the next time the document is made.[5]

6. Process the index.[6] [7]

   Enter ⇒ **`lwarpmk printindex`**

7. Recompile again to include the index.

   Enter ⇒ **`lwarpmk print`**

8. To force a single recompile when needed, even if no changes were detected:

   Enter ⇒ **`lwarpmk print1`**

Note that the HTML customization commands are ignored while making the print version.

[5] Although, when using the utility *latexmk* (introduced later), the changed date is ignored and an actual change in contents must occur to cause a recompile.

[6] The command **`lwarpmk printglossary`** is also available to process a glossary produced with the glossaries package. See section 8.6.12.

[7] Also see section 8.6.15 for index options.

5.3 Compiling the HTML version with *lwarpmk*

`lwarpmk html` is used to recompile an HTML version of the document.

⚠ Enable *lwarpmk*

1. If you have not yet done so, add `\usepackage{lwarp}` to the document, then compile the project a single time using *pdflatex*, *lualatex*, or *xelatex*. This generates the file `lwarpmk.conf`, which then allows the *lwarpmk* program to be used.

2. Compile the HTML version:

   Enter ⇒ **`lwarpmk html`**

   (a) *lwarpmk* uses LaTeX to process `tutorial_html.tex` to create `tutorial_html.pdf`.

   (b) *pdftotext* is then used to convert to the file `tutorial_html.html`. This file is a plain-text file containing HTML tags and content for the entire document.

   (c) *lwarpmk* manually splits `tutorial_html.html` into individual HTML files according to the HTML settings. For this tutorial, the result is `tutorial.html` (the home page), along with `First-chapter.html`[8], `Some-math.html`, and the document's index in `_Index.html`.[9]

3. View the HTML page in a web browser.

   Open the file `tutorial.html` in a web browser.

math images

   Note that math images have not yet been generated, so math is still displayed as its `alt` tag, which is set to the plain-text LaTeX source for that expression. Math may be displayed as SVG images (section 5.4) or by a MathJax script (section 5.5).

4. Force a recompile:

   Enter ⇒ **`lwarpmk again`**

   Enter ⇒ **`lwarpmk html`**

   Enter ⇒ **`lwarpmk print`**

5. Process the HTML index and recompile:[10][11]

   Enter ⇒ **`lwarpmk htmlindex`**

   Enter ⇒ **`lwarpmk html`**

   `_Index.html` is updated for the new LaTeX index.

6. Reload the web page to see the added index.

7. To force a single recompile when needed, even if no changes were detected:

   Enter ⇒ **`lwarpmk html1`**

[8] `First-chapter.html` also contains the first section, even though the second section is its own HTML page. This behavior is controlled by the boolean `CombineHigherDepths`.

[9] `index.html` is commonly used as a homepage, so the document index is in `_Index.html`.

[10] The command **`lwarpmk htmlglossary`** is also available to process a glossary produced with the glossaries package. See section 8.6.12.

[11] Also see section 8.6.15 for index options.

5.4 Generating the SVG images

math as SVG images

By default lwarp represents math as SVG images, with the LaTeX source included in `alt` attributes. In this way, the math is displayed as it was drawn by LaTeX, and the LaTeX source may be copied and pasted into other documents.

`picture` and Ti*k*z

lwarp uses the same mechanism for `picture` and Ti*k*z environments.

1. Create the SVG images:

   Enter ⇒ **`lwarpmk limages`**

   Enter ⇒ **`lwarpmk html`**

2. Move to the tutorial's HTML math page and reload the document in the browser.

3. The math images are displayed using the same font and formatting as the printed version.

4. Copy/paste a math expression into a text editor to see the LaTeX source.

⚠ adding/removing

When a math expression, `picture`, or Ti*k*z environment is added or removed, the SVG images must be re-created by entering **`lwarpmk limages`** to maintain the proper image-file associations. Inline SVG math may be hashed and thus not need to be recreated, but display math and objects such as Ti*k*z may move to new image numbers when the document is changed.

recompile first

Before attempting to create the SVG image files, *lwarpmk* verifies that the HTML version of the document exists and has correct internal image references.[12] If it is necessary to recompile the document's HTML version one more time, *lwarpmk* usually will inform the user with an error message, but there are some conditions which cannot be detected, so the user should watch for the LaTeX recompile warnings.

⚠ HTML instead of images

If HTML appears where an SVG image should be, recompile the document one more time to get the page numbers back in sync, then remake the images one more time.

⚠ page counter

Incorrect SVG images will also occur if the document changes the `page` counter:

```
\setcounter{page}{<value>}
```

The `page` counter must *not* be adjusted by the user.

⚠ Lots of files!

Expressing math as SVG images has the advantage of representing the math exactly as LaTeX would, but has the disadvantage of requiring an individual file for each math expression. For inline math, and some other objects, lwarp uses an MD5 hash on its LaTeX source to combine multiple instances of identical inline expressions into a single image file, but display math and other environments such as `picture` and Ti*k*z require one image file each. For a document with a large amount of math, see section 5.5 to use MathJax instead.

[12] This becomes important when dealing with a document containing thousands of images.

5.5 Using MathJax for math

math with MathJax

Math may also be represented using the MathJax JavaScript project.

1. In the tutorial's source code, uncomment the `mathjax` package option for lwarp:

   ```
   mathjax, % Use MathJax to display math.
   ```

2. Recompile

   Enter ⇒ **`lwarpmk html`**

3. Reload the math page.

⚠ MathJax requirements

MathJax requires web access unless a local copy of MathJax is available, and it also requires that JavaScript is enabled for the web page. The math is rendered by MathJax. Right-click on math to see several options for rendering, and for copying the LaTeX source.

While using MathJax has many advantages, it may not be able to represent complex expressions or spacing adjustments as well as LaTeX, and it may not support some math-related packages.

5.6 Changing the css style

For a formal css style, add to the preamble:

```
\usepackage{lwarp}
. . .
\CSSFilename{lwarp_formal.css}
. . .
\begin{document}
```

For a modern css style, `lwarp_sagebrush.css` is also provided:

```
\CSSFilename{lwarp_sagebrush.css}
```

See section 7.7 for more information about modifying the css styling of the document.

5.7 Customizing the HTML output

A number of settings may be made to control the HTML output, including filename generation, automatic compilation, math output, document splitting, meta data, and page headers and footers.

See section 7.6 for more information.

5.8 Using *latexmk*

latexmk is a LaTeX utility used to monitor changes in source files and recompile as needed.

1. In the tutorial's source code uncomment the `latexmk` option for the lwarp package:

   ```
   latexmk, % Use latexmk to compile.
   ```

2. Recompile the printed version of the document.

   Enter ⇒ **`lwarpmk print`**

   lwarp updates its own configuration files (`lwarpmk.conf` and `tutorial.lwarpmkconf`) whenever the printed version of the document is compiled. These configuration files remember that *lwarpmk* should use *latexmk* to compile the document.

3. Recompile the document.

   Enter ⇒ **`lwarpmk print`**

   and/or

   Enter ⇒ **`lwarpmk html`**

Changes are detected by comparing checksums rather than modification times, so `lwarpmk again` will not trigger a recompile, but *latexmk* has a much better awareness of changes than the *lwarpmk* utility does and it is likely to correctly know when to recompile. A recompile may be forced by making a small change to the source, and a single recompile may be forced with:

forced single-pass recompile

Enter ⇒ **`lwarpmk print1`**

and/or

Enter ⇒ **`lwarpmk html1`**

5.9 Using XeLaTeX or LuaLaTeX

XeLaTeX or LuaLaTeX may be used instead of LaTeX.

1. Remove the auxiliary files for the project:

   Enter ⇒ **`lwarpmk cleanall`**

2. Use *xelatex* or *lualatex* to compile the printed version a single time.

   Enter ⇒ **`xelatex tutorial.tex`**

   — *or* —

   Enter ⇒ **`lualatex tutorial.tex`**

   When the compile occurs, the configuration files for *lwarpmk* are modified to remember which TeX engine was used. XeLaTeX or LuaLaTeX will be used for future runs of *lwarpmk*.

3. To recompile the document:

   Enter ⇒ **`lwarpmk print`**

   -and-

   Enter ⇒ **`lwarpmk html`**

4. Also remember to update the indexes and recompile again:

   Enter ⇒ **`lwarpmk htmlindex`**

   Enter ⇒ **`lwarpmk html`**

   Enter ⇒ **`lwarpmk printindex`**

   Enter ⇒ **`lwarpmk print`**

5.10 Using DVI LaTeX

Traditional DVI LaTeX may also be used along with `.eps` image files. An SVG version of each image must also be provided. *lwarpmk* may be used to convert image formats.

To convert EPS files to PDF:

Enter ⇒ **`lwarpmk epstopdf *.eps`** **(or a list of files)**

To convert PDF files to SVG:

Enter ⇒ **`lwarpmk pdftosvg *.pdf`** **(or a list of files)**

⚠ bitmapped fonts See section 7.4 regarding font selection to avoid the use of bitmapped fonts.

5.11 Using a glossary

lwarp supports the gloss and glossaries packages, although this tutorial does not supply an example.

5.11.1 gloss package

See section 8.6.11.

5.11.2 glossaries package

To process the glossary for the print version:

Enter ⇒ **`lwarpmk printglossary`**

⚠ (If **`makeglossaries`** is not found, see section 8.6.12.)

To process the glossary for the HTML version:

Enter ⇒ **`lwarpmk htmlglossary`**

In each case, the document will have to be recompiled afterwards:

Enter ⇒ **`lwarpmk html1`**

Enter ⇒ **`lwarpmk html`**

Enter ⇒ **`lwarpmk print1`**

Enter ⇒ **`lwarpmk print`**

See section 8.6.12 to set options for processing glossaries.

5.12 Cleaning auxiliary files

To remove the auxiliary files `.aux`, `.toc`, `.lof`, `.lot`, `.idx`, `.ind`, `.log`, and `.gl*`, and a few others:

Enter ⇒ **`lwarpmk clean`**

5.13 Cleaning auxiliary and output files

To remove the auxiliary files, and also remove the `.pdf` and `.html` files:

Enter ⇒ **`lwarpmk cleanall`**

5.14 Cleaning the images from the <project>-images directory

The `<project>-images` directory contains SVG images automatically generated for inline and display math, tikz, etc. To remove all the images from the `<project>-images` directory:

Enter ⇒ **`lwarpmk cleanlimages`**

5.15 Converting PDF or EPS images to SVG

HTML cannot display PDF or EPS images, so any external PDF graphics images must be converted to SVG format. *pdftocairo* and *epstopdf* may be used one image at a time, but *lwarpmk* also provides a way to convert PDF or EPS images in bulk:

Enter ⇒ **`lwarpmk epstopdf *.eps`** **(or a list of files)**

Enter ⇒ **`lwarpmk pdftosvg *.pdf`** **(or a list of files)**

Be sure to always provide SVG files for HTML output.

5.16 Creating HTML from an incomplete compile

During testing it may be useful to finish the HTML conversion even when the document had errors and did not compile successfully. To attempt an HTML conversion of an incomplete document:

Enter ⇒ **`lwarpmk pdftohtml [-p project]`**

5.17 Processing multiple projects in the same directory

⚠ xr, xr-hyper, xcite

It is possible to have several projects in the same directory. *lwarpmk* has an optional parameter which is the document to compile.

To create each project:

Enter ⇒ **`pdflatex project_a`**

Enter ⇒ **pdflatex project_b**

Each project is given its own configuration file:

`project_a.lwarpmkconf, project_b.lwarpmkconf`

To compile each project with `lwarkmk`:

Enter ⇒ **lwarpmk print -p project_a**

Enter ⇒ **lwarpmk print -p project_b**

Enter ⇒ **lwarpmk html -p project_a**

Enter ⇒ **lwarpmk html -p project_b**

To generate each project's images:

Enter ⇒ **lwarpmk limages -p project_a**

Enter ⇒ **lwarpmk limages -p project_b**

To clean each project's images:

Enter ⇒ **lwarpmk cleanlimages -p project_a**

Enter ⇒ **lwarpmk cleanlimages -p project_b**

To clean each project's auxiliary files:

Enter ⇒ **lwarpmk cleanall -p project_a**

Enter ⇒ **lwarpmk cleanall -p project_b**

If using *bibtex*, for example, the HTML version must also be processed:

Enter ⇒ **bibtex project_a_html**

5.18 Using the *make* utility

lwarpmk has an action which may be useful for integration with the common *make* utility:

`lwarpmk pdftohtml [-p project]`

make may be used to compile the code to PDF with HTML tags (`project_html.pdf`), then *lwarpmk* may be used to convert each target to HTML files.

5.19 What next?

How do I do something? See the General Index.

Something do not work! See the Troubleshooting Index or section 13: Troubleshooting.

Package options: See section 29, Package options.

HTML and filename settings: See section 7.6, Customizing the HTML output.

Footnote placement: See section 7.6, Customizing the HTML output.

Title page, indexing, glossaries: See section 8.6, Front and back matter.

Shell escape: See section 7.3, Shell escape.

CSS customization: See section 7.7, Customizing the CSS.

MathJax customization: See section 8.7.6, Customizing MathJax.

Localization: (languages) — See section 7.1, Localization.

Accessibility: (`alt` and `title` tags) — See section 7.2, Accessibility.

Converting an existing document: See section 6, Converting an existing document.

EPUB conversion: See section 10, EPUB conversion.

Word processor conversion: See section 11, Word-processor conversion.

6 Converting an existing document

To convert an existing document for use with lwarp:

1. Arrange the document in the following order:
   (a) Declare the `\documentclass`.
   (b) Load text fonts.
   (c) Load inputenc or inputenx, fontenc, or fontspec.
   (d) Load lwarp.
   (e) Load remaining packages.
2. Modify the document:

⚠ math in section names

   (a) If using named HTML files, in section names use paren math `\(x+y\)` instead of dollar math `$x+y$`. (Dollar math works, but appears in the filename.) Or, use a short name for the TOC entry without the math, or use `\texorpdfstring` from the hyperref package:

```
\section{Some math \texorpdfstring{$1+2=3$}{three}}
```

⚠ scale

   (b) Avoid using the `\includegraphics` `scale` option. Change:

```
\includegraphics[scale=<xx>]{ . . . }
```

   to:

```
\includegraphics[width=<yy>\linewidth]{ . . . }
```

⚠ tabular

   (c) Possible changes to `tabular` environments include: `*` columns, multirow, longtable, supertabular, xtab, bigdelim. See section 8.10.1.

⚠ package options

   (d) If using braces in package options, such as with caption, see section 8.1.
   (e) Possible option clashes with memoir. See section 8.13.

⚠ indexes

   (f) If using indexes, see section 8.6.15.
   (g) If using many indexes, glossaries, `.aux` files, etc., see section 8.6.15 regarding morewrites. If morewrites is already used, be sure to add the setup with `allocate=10`.
   (h) Other changes as per Special cases and limitations, section 8.
3. Convert any PDF images to SVG. See section 8.8.
4. Manually compile the print version with *latex*, *pdflatex*, *lualatex*, or *xelatex*.
5. `lwarpmk print` to finish the print version.
6. `lwarpmk html` to create the HTML version.
7. `lwarpmk limages` to create the SVG images of any SVG math, `lateximage`, Ti*k*z, etc.

Need help?

See the General Index for "how-to", and the Troubleshooting Index if something doesn't work. A Troubleshooting section is also available. The Index of Objects contains automated entries for each package, macro, environment, counter, boolean, and other objects; individually and also sorted by category.

Table 5: Localization settings

Object names: LaTeX provides redefinable names for various objects, and lwarp adds a few more. Use `\renewcommand` to change these.

`\abstractname`: This macro is honored by lwarp.

`\linkhomename`: Displayed by the link to the homepage.

`\linkpreviousname`: Displayed by the link to the previous page

`\linknextname`: Displayed by the link to the next page.

`\sidetocname`: Displayed at the head of the sidetoc.

HTML settings: See table 8 and section 7.6 for details.

`\HTMLLanguage`: The language to declare for each web page.

`\ImageAltText`, `\MathImageAltText`, `\PackageDiagramAltText`, `\AltTextOpen`, `\AltTextClose`: The defaults used for HTML `alt` text for images. See section 7.2.

`\CSSFilename`: The name of the css file to use.

`\MathJaxFilename`: The name of the MathJax script to use.

Package options:

`ImagesName` and `ImagesDirectory`: These options control the filenames used by lwarp when it automatically generates images. See table 7 and section 7.5.

`xindyStyle`, `xindyLanguage`, `xindyCodepage`: When using *xindy*, these options may be set according to local use. See section 8.6.21.

`pdftotextEnc`: To adjust the encoding of *pdftotext*.

7 Additional details

7.1 Localization

Regional localization is supported by lwarp via the package options and macros shown in table 5.

7.2 Accessibility

lwarp provides several methods for improving access to the document using tools such as text-only browsers, copy / paste, text-to-speech readers, or Braille readers. lwarp can use the HTML `alt` text attribute for images, as describe below. lwarp can also use the HTML `title` attribute, which usually generates a pop-up text. lwarp can add this to a reference or hyperlink. lwarp also uses standard HTML5 elements which are pre-assigned ARIA roles for increased accessibility, and lwarp assigns the `math` role for SVG math images, and the `note` role for footnotes, end notes, margin paragraphs and notes, etc. MathJax also has provisions for improved accessibility as well. See table 6.

Table 6: Accessibiltiy settings

\ImageAltText: The default HTML `alt` text for `\includegraphics` and `lateximages`. Set with `\renewcommand`.

\includegraphics alt key: For `\includegraphics`, lwarp adds the `alt` key/value. For example:

```
\includegraphics[alt={Some text.}]{filename}
```

SVG math: For simple SVG math, lwarp places the LaTeX math expression in the `alt` text, so that the LaTeX expression may be copied and pasted to another document as plain text.

\MathImageAltText: For complicated SVG math, such as enclosed in `\InlineMathOther`/`\InlineMathNormal`, or `\DisplayMathOther`/`\DisplayMathNormal`, the HTML `alt` text will be set to `\MathImageAltText`. Set with `\renewcommand`.

MathJax: For MathJax, the accessibility tools provided by MathJax are enabled by default by lwarp's MathJax scripts.

\PackageDiagramAltText: Various packages create diagrams which lwarp converts into SVG images. These are given `alt` text set to `\PackageDiagramAltText`. Set with `\renewcommand`.

\ThisAltText: The HTML `alt` text of the next image may be set with:

```
\ThisAltText{Custom text about the image.}
<SVG math, Tikz, picture, etc.>
```

The next single image will be generated with the given text, and the following images will revert to back to their defaults.

`\ThisAltText` may also be used to assign an HTML `title` to the next reference or hyperlink.

```
\ThisAltText{Custom text about the link.}
Text ... \ref{label_name} ... text.
```

See section 7.6.

\AltTextOpen and \AltTextClose: By default, HTML `alt` text is enclosed by parentheses. This may be changed by redefining `\AltTextOpen` and `\AltTextClose`. Set with `\renewcommand`.

7.3 Shell escape

Opt `--shell-escape`

Some documents require the use of an external program, which is allowed when using the `--shell-escape` command-line option. When the document is first compiled manually, and also whenever the print version is recompiled, lwarp detects and remembers whether shell escape is enabled. If so, it will also be enabled when the document is recompiled with *lwarpmk*.

7.4 Font and UTF-8 support

⚠ type 3 bitmapped fonts

lwarp uses *pdftotext* to convert PDF output into UTF-8-encoded text. This process requires that UTF-8 information be embedded in the PDF file, which may prevent the use of older "type 3" bit-mapped fonts, and of older packages such as ae. The lwarp option `pdftotextEnc` may be useful in some situations. See section 7.5.

vector fonts
Computer Modern
⚠ *pdflatex*
⚠ DVI *latex*

While using DVI *latex* or PDF *pdflatex*, if no font-related package is specified then the default COMPUTER MODERN font is used, which may be a "type 3" bit-mapped font which may not convert well to plain text. A "type 1" vector font is required.

Pkg `cm-super`

To use the updated cm-super's type 1 fonts instead of Computer Modern, install the cm-super font package.

Pkg `lmodern`

To use Latin Modern instead, add

```
usepackage{lmodern}
```

to the preamble.

Pkg `dejavu`

Another useful option is the Deja Vu series of fonts, which have an increased coverage of language and glyphs:

```
\usepackage{dejavu}
```

latex, *pdflatex*, T1, UTF8

While using DVI *latex* or PDF *pdflatex*, lwarp automatically loads fontenc with T1 encoding. fontenc may be loaded with an additional encoding after lwarp. inputenc is automatically loaded with UTF8 encoding if if has not yet been loaded, but may also be specified with another encoding such as `latin1`. See the next section regarding index encoding.

⚠ *xelatex*, *lualatex*, fontspec

XeLaTeX and LuaLaTeX users must use the fontspec package. Do NOT use fontenc!

Place fontspec or fontenc, xunicode, and other font and UTF-8 related commands after the `\documentclass` command and before `\usepackage{lwarp}`.

⚠ package conflicts

In some cases, a package conflict may require that a font package be loaded after lwarp, which should work as well:

1. `documentclass{article/book/report}` comes first, followed by any of:
2. Font and UTF-8 related commands:
   - For XeLaTeX or LuaLaTeX:
     - fontspec and font choices

Pkg `fontspec`

ligatures

lwarp sets the following to turn off TeX ligatures during the generation of HTML tags, and turn off common ligatures in regular text,

since older browsers may not display them correctly and newer browsers can automatically re-create them.

```
\defaultfontfeatures[\rmfamily]{Ligatures={NoCommon,TeX}}
\defaultfontfeatures[\sffamily]{Ligatures={NoCommon,TeX}}
\defaultfontfeatures[\ttfamily]{Ligatures=NoCommon}
```

- For *pdflatex*:
  (a) `\usepackage{lmodern}`, or other font-related packages
  (b) `\usepackage[T1]{fontenc}`
  (c) `\usepackage[utf8]{inputenc}`, or `latin1`, etc. Or use inputenx.
  (d) `\usepackage{newunicodechar}` along with related definitions.
  (e) To assist with the PDF-HTML conversion:
    i. `\input glyphtounicode.tex`
    ii. `\input glyphtounicode-cmr.tex% from the pdfx package`
    iii. `\pdfgentounicode=1`
  (f) Another option to assist with the PDF-HTML conversion, such as the dotless j (`\j`):
    – `\usepackage{cmap}` — *or* —
    – `\usepackage{mmap}` — *or* —
    – `\usepackage[noTeX]{mmap}`
  (g) `\usepackage{textcomp}`

Pkg lmodern
Pkg fontenc
Pkg inputenc
Pkg inputenx
Pkg newunicodechar
File glyphtounicode.tex
⚠ dotless j
Pkg cmap
Pkg mmap
Pkg textcomp

3. `\usepackage{newtxmath}` or other math-related font packages. Many of these load amsmath, which may now be loaded before lwarp.
4. `\usepackage{lwarp}` (section 7.5) is placed after any of the above, followed by:
5. `\setmonofont{TeX Gyre Cursor}` or similar may be required if using XeLaTeX or LuaLaTeX and fontspec along with traditional font packages such as txfonts, newtxtext, etc. This is required to turn off the monospaced font's ligatures with fontspec after loading the traditional font packages. Monospaced output ligatures must be turned off to produce the correct HTML characters.

   ⚠ fontspec with monospaced fonts

   Any monospace font with built-in ligatures may require these ligatures to be disabled for HTML. In one example, JetBrain Mono, it is required to use

   ⚠ JetBrain Mono
   ⚠ HTML corrupted

   ```
   \setmonofont{JetBrains Mono}[%
   . . .
   Contextuals=AlternateOff,
   ]
   ```

   After lwarp is loaded, the ligature may be re-enabled for print mode by using `\setmonofont` again inside a `warpprint` environment.
6. … the rest of the preamble and the main document.

⚠ UTF-8 locale In some cases, an external program may require a UTF-8 "locale". See section 9.9.

7.4.1 Indexes, glossaries, and encoding

lwarp supports *makeindex*, *xindy*, *xindex*, and glossaries, gloss, and nomencl.

See section 8.6.14 for indexing, and section 8.6.12 for the glossaries package.

7.5 lwarp package loading and options

lwarp supports book, report, and article classes, as well as the equivalent Koma-script classes and memoir, and various CJK-related classes and packages.

Load the lwarp package immediately after the font and UTF-8 setup commands.

Package options may be set while loading lwarp, or later with

```
\lwarpsetup{⟨key=value, . . . ⟩}
```

Pkg `lwarp`

lwarp package options are as follows:

Opt `mathsvg`
Opt `mathjax`
Default: `mathsvg`

`mathsvg` and **`mathjax`:** Selects SVG images or MATHJAX for math display. See section 8.7.

Opt `latexmk`
Default: `false`

`latexmk`: Tells *lwarpmk* to use *latexmk* to recompile the document several times if necessary. Otherwise, *lwarpmk* attempts to determing for itself whether to recompile. See section 7.6.

Opt `dvips`
Default: `false`

`dvips`: Tells *lwarpmk* to use *dvips* and *ps2pdf* to convert DVI output to PDF.

Opt `dvipdfm`
Default: `false`

`dvipdfm`: Tells *lwarpmk* to use *dvipdfm* to convert DVI output to PDF.

Opt `dvipdfmx`
Default: `false`

`dvipdfmx`: Tells *lwarpmk* to use *dvipdfmx* to convert DVI output to PDF.

Opt `HomeHTMLFilename`
Default: `\BaseJobname`

`HomeHTMLFilename`:

Filename of the homepage, without the "`.html`" suffix. Defaults to the `\BaseJobname`. A common setting is:

```
HomeHTMLFilename=index
```

causing the homepage to be the file `index.html`. Underscores are allowed in `HomeHTMLFilename` and `HTMLFilename` options, but may need to be escaped elsewhere, such as when appearing in a list:

filename underscores

```
\item [\href{file\_name.pdf}{text}] \
```

See section 7.6.1 for examples of naming and numbering HTML files.

Opt `HTMLFilename`
Default: `<empty>`

`HTMLFilename`: A filename prefix for the rest of the HTML web pages. Useful for numbered web pages with a common prefix. May be empty. See section 7.6.1 for examples of naming and numbering HTML files.

Opt `ImagesName`
Default: `image-`

`ImagesName`: The prefix for the images automatically generated by lwarp for objects such as SVG math and `lateximages`.

Opt `ImagesDirectory`
Default: `\jobname-images`

`ImagesDirectory`: The directory for the images automatically generated by lwarp for objects such as SVG math and `lateximages`. By default, these images will appear in a directory named `<jobname>-images`, and the images will be named and numbered `image-<nn>`.

Table 7: Lwarp package options

Option	Description
mathsvg	Show math using SVG images.
mathjax	Show math using MATHJAX.
latexmk	Use *latexmk* for compiling documents.
dvips	Use *dvips* and *ps2pdf* to convert DVI documents.
dvipdfm	Use *dvipdfm* to convert DVI documents.
dvipdfmx	Use *dvipdfmx* to convert DVI documents.
HomeHTMLFilename	The filename of the home page.
HTMLFilename	A prefix for the filenames of the remaining web pages.
ImagesName	A prefix for the filenames of generated images.
ImagesDirectory	The directory used to hold generated images.
PrintLatexCmd	The shell commands for **lwarpmk print**.
HTMLLatexCmd	The shell commands for **lwarpmk html**.
For indexing (section 8.6.15) and glossaries (section 8.6.12):	
makeindex	Use *makeindex* to generate indices.
makeindexStyle	Set a custom style for *makeindex*.
xindy	Use *xindy* to generate indices.
xindyStyle	Set a custom style for *xindy*.
xindyLanguage	The *xindy* language option used for index generation.
xindyCodepage	The *xindy* codepage option used for index generation.
xindex	Use *xindex* to generate indices.
xindexConfig	Set a custom configuration file for *xindex*.
PrintIndexCmd	Shell commands executed by **lwarpmk printindex**.
HTMLIndexCmd	Shell commands executed by **lwarpmk htmlindex**.
LatexmkIndexCmd	Shell commands executed by *latexmk*.
IndexRef	How to format index links.
GlossaryCmd	Shell command executed by **lwarpmk printglossary** and **lwarpmk htmlglossary**.
Seldom necessary:	
OSWindows	Force compatibility with MS-WINDOWS.
pdftotextEnc	Set the encoding for *pdftotext*.
lwarpmk	Generate a local copy of `lwarpmk.lua`.
Used internally by lwarp:	
warpprint	Generate print output, and also generate configuration files.
warpHTML	Generate HTML output.
BaseJobname	The `\jobname` to use. Set to the `\jobname` of the printed version even while generating HTML.

Opt `PrintLatexCmd`
Default: `<automatic>`

`PrintLatexCmd:` Sets the shell commands executed by **`lwarpmk print`**. If not specified, will automatically be set according to the detected LaTeX engine and the use of `--shell-escape`.

Opt `HTMLLatexCmd`
Default: `<automatic>`

`HTMLLatexCmd:` Sets the shell commands executed by **`lwarpmk html`**. If not specified, will automatically be set according to the detected LaTeX engine and the use of `--shell-escape`.

Opt `makeindex`
Default: `makeindex`

`makeindex:` Sets `PrintIndexCmd`, `HTMLIndexCmd`, and `LatexmkImageCmd` to use *makeindex* when generating indexes with **`lwarpmk printindex`**, **`lwarpmk htmlindex`**, or *latexmk*. If neither `makeindex` nor `xindy` is used, `makeindex` is assumed.

Opt `makeindexStyle`
Default: `lwarp.ist`

`makeindexStyle:` If you wish to use a custom `.ist` file for index generation, see section 8.6.20.

Opt `xindy`
Default: `makeindex`

`xindy:` Sets `PrintIndexCmd`, `HTMLIndexCmd`, and `LatexmkImageCmd` to use *xindy* when generating indexes with **`lwarpmk printindex`**, **`lwarpmk htmlindex`**, or *latexmk*.

Opt `xindyStyle`
Default: `lwarp.xdy`

`xindyStyle:` If you wish to use a custom `.xdy` file for index generation, see section 8.6.21.

Opt `xindyLanguage`
Default: `english`

`xindyLanguage:` If using an index or glossary, see section 29.

Opt `xindyCodepage`
Default: `utf8`

`xindyCodepage:` If using an index, see section 29.

Opt `xindex`
Default: `makeindex`

`xindex:` Sets `PrintIndexCmd`, `HTMLIndexCmd`, and `LatexmkImageCmd` to use *xindex* when generating indexes with **`lwarpmk printindex`**, **`lwarpmk htmlindex`**, or *latexmk*.

Opt `xindexConfig`
Default: `<empty>`

`xindexConfig:` If you wish to use a custom `xindex-*.lua` file for index generation, see section 8.6.22.

Opt `PrintIndexCmd`
Default: `<automatic>`

`PrintIndexCmd:` Sets the shell commands executed by **`lwarpmk printindex`**. If not specified, will be set by the selection of `makeindex` or `xindy`. May be used to specify the creation of multiple indexes. See section 8.6.15.

Examples:

```
makeindex -s lwarp.ist projectname.idx            (makeindex)
xindy -M lwarp.xdy -L english -C utf8 projectname.idx   (xindy)
```

automatic setting

The use of the `makeindex` or `xindy` options sets `PrintIndexCmd` to sensible values for each of those programs while compiling a single index. lwarp's `makeindexStyle`, `xindyStyle`, `xindyLanuage`, and `xindyCodepage` options will be used if specified.

⚠ xindy

If specifying `PrintIndexCmd` manually, be sure to assign an *xindy* language and codepage with the `-L` and `-C` *xindy* options, as the lwarp `xindyLanguage` and `xindyCodepage` options are not used for the `PrintIndexCmd` option when it is set manually.

This option is stored in the configuration files `lwarpmk.conf` and `*.lwarpmkconf`, and is then passed by the **`lwarpmk printindex`** command to the operating system to compile the print indexes. Since the command string is parsed by TEX, written to a file, read from the file by LuaTEX, and finally passed to the operating system, any attempt at quoting will be problematic. For complicated commands, it would be best to create a shell script, and simply refer to the script with the lwarp `PrintIndexCmd` option.

Opt `HTMLIndexCmd`
Default: `<automatic>`

`HTMLIndexCmd:` Sets the shell commands executed by **`lwarpmk htmlindex`**. If not specified, will be set by the selection of `makeindex` or `xindy`. May be used to specify the creation of multiple indexes. See section 8.6.15.

⚠ filenames

Example settings are similar to `PrintIndexCmd`, but append `_html` to the filenames:

```
makeindex -s lwarp.ist projectname_html.idx        (makeindex)
xindy -M lwarp.xdy -L english -C utf8 projectname_html.idx
(xindy)
```

automatic setting

The use of the `makeindex` or `xindy` options sets `HTMLIndexCmd` to sensible values for each of those programs while compiling a single index. lwarp's `makeindexStyle`, `xindyStyle`, `xindyLanuage`, and `xindyCodepage` options will be used if specified.

⚠ xindy

If specifying `HTMLIndexCmd` manually, be sure to assign an *xindy* language and codepage with the `-L` and `-C` *xindy* options, as the lwarp `xindyLanguage` and `xindyCodepage` options are not used for the `HTMLIndexCmd` option when it is set manually.

As with `PrintIndexCmd`, to generate complicated indexes it may be worthwhile to use a shell script, then refer to that script with `HTMLIndexCmd`.

Opt `LatexmkIndexCmd`
Default: `<automatic>`

`LatexmkIndexCmd:` Sets the shell commands executed by *latexmk*. Unlike `PrintIndexCmd` and `HTMLIndexCmd`, `LatexmkIndexCmd` does not include any filenames, which will be provided instead by *latexmk*. See section 8.6.15.

Example settings are similar to `PrintIndexCmd`, but without a filename:

```
makeindex -s lwarp.ist                              (makeindex)
xindy -M lwarp.xdy -L english -C utf8                  (xindy)
```

automatic setting

The use of the `makeindex` or `xindy` options sets `LatexmkIndexCmd` to either of the two settings show above. lwarp's `makeindexStyle`, `xindyStyle`, `xindyLanuage`, and `xindyCodepage` options will be used if specified. Unlike `PrintIndexCmd` and `HTMLIndexCmd`, *latexmk* uses either of the single-line settings of `LatexmkIndexCmd` shown above to compile each of multiple indexes if necessary.

⚠ xindy

If specifying `LatexmkIndexCmd` manually, be sure to assign an *xindy* language and codepage with the `-L` and `-C` *xindy* options, as the lwarp `xindyLanguage` and `xindyCodepage` options are not used for the `LatexmkIndexCmd` option when it is set manually.

Opt `IndexRef`
Default: `cref`

`IndexRef:` Describes how to display the index entries for HTML output. Possible values are `ref`, `nameref`, `refnameref`, `cref`, `crefnameref`, `autoref`, or a text string such as `(link)` or `(*)` for each index entry reference. (Adding parentheses around a single character makes the link larger and easier to click on.) The default is `cref`, which is available even if the print document does

not use cleveref, as the lwarp package relies on cleveref during HTML output. Option `autoref` gives the same results as `cref`.

`\ref` and `\cref` to starred or otherwise unknown links will display as `(*)` instead of ??.

⚠ ?? If using `cref` (the default), and if a reference appears as ?? with a non-functional link, use cleveref's `\crefname` to give a name to that type of label.

In general, `crefnameref` gives the most information, but the index can become quite verbose. Using `(*)` or similar yields a very compact index.

Opt `GlossaryCmd` Default: **`makeglossaries`**

`GlossaryCmd`: Sets the shell command executed by **`lwarpmk printglossary`** and **`lwarpmk htmlglossary`**. The print or HTML glossary filename is appended to this command. See section 8.6.12.

Opt `OSWindows`

`OSWindows`: lwarp attempts to automatically sense WINDOWS, but it may be forced with this option. See section 7.9.

Opt `pdftotextEnc` Default: `UTF-8`

`pdftotextEnc`: Used to specify the encoding used by *pdftotext* during the PDF-HTML conversion. In most situations, the default is the correct choice.

Opt `lwarpmk`

`lwarpmk`: If you wish to have lwarp generate a local copy of `lwarpmk.lua` for archival or local-installation purposes, compile the print version with the `lwarpmk` option set. See section 29.

The following options are used internally by lwarp, and usually are not used in the user's document:

Opt `warpprint`
Opt `warpHTML`

`warpprint` and **`warpHTML`:** Usually controlled by *lwarpmk*, and not set in the document. Select the `warpprint` option to generate print output (default), or the `warpHTML` option to generate HTML5 output. The default is print output, so the print version may be compiled with the usual *pdflatex*, etc. When lwarp is loaded in print mode, it creates `<project>_html.tex`, which sets the `warpHTML` option before calling the user's source code `<project>.tex`. In this way, `<project>.tex` can `\usepackage{lwarp}` without any options to create a printed version, while `<project>_html.tex` will create an HTML version.

Opt `BaseJobname` Default: `\jobname`

`BaseJobname`: Not intended for the user. Used internally by lwarp when creating the `*_html.tex` file used to compile the HTML version. See section 29.

7.6 Customizing the HTML output

Table 8 shows several settings may be used to customize the HTML output. Watch for the correct placement of each!

⚠ Placement!

⚠ Changes! Note that if changes are made, it is best to first:

1. Clear all the HTML, PDF, and auxiliary files:

   Enter ⇒ **`lwarpmk clearall`**

2. Recompile the print version in order to recreate the configuration files for *lwarpmk*:

   Enter ⇒ **`lwarpmk print`**

3. Finally, recompile the HTML version with the new settings:

   Enter ⇒ **`lwarpmk html`**

Placed in the preamble before `\begin{document}`:

`\HTMLFirstPageTop` Default: <empty>

`\HTMLFirstPageTop`: {⟨*contents*⟩} A user-definable custom action applied to the top of the home page. Useful for logos, etc. `\LinkNext` may be used to link to the next web page. Defaults empty. Ignored in print output.

`\HTMLFirstPageBottom` Default: <empty>

`\HTMLFirstPageBottom`: {⟨*contents*⟩} A user-definable custom action applied to the bottom of the home page. Useful for logos, etc. `\LinkNext` may be used to link to the next web page. Defaults empty. Ignored in print output.

`\linkhomename` Default: Home

`\linkhomename`: Name of the link to the home page. Paragraphs are allowed. Redefine with `\renewcommand`.

`\linkpreviousname` Default: Previous

`\linkpreviousname`: Name of the link to the previous page. Paragraphs are allowed. Redefine with `\renewcommand`.

`\linknextname` Default: Next

`\linknextname`: Name of the link to the next page. Paragraphs are allowed. Redefine with `\renewcommand`.

Ctr `tocdepth`

`tocdepth`: Sectioning depth of the table of contents. See section 16 for a list of LaTeX stack depths.

Ctr `SideTOCDepth` Default: 1

`SideTOCDepth`: Sectioning depth of the sideTOC. Defaults to 1, causing the sideTOC to show sections but not subsections.

sideTOC

Each subpage of the website has its own small table of contents on the side (the "sideTOC"). Its depth is set by `SideTOCDepth`. This sideTOC is only shown if the browser display is wide enough. When using a narrow web browser window, "responsive web design" is used to show the sideTOC at the top of the page, as well as a link back to **Home** at the top and bottom.

It is recommended to set:

```
SideTOCDepth=FileDepth
```

or

Table 8: HTML settings

Macro/Cntr/Bool	Loc*	Description
\linkhomename	P	Name of the link to the homepage.
\linkpreviousname	P	Name of the link to the previous page.
\linknextname	P	Name of the link to the next page.
SideTOCDepth	P	Sectioning depth of the sideTOC.
\sidetocname	P	Name of the sideTOC.
FileDepth	P	Sectioning depth of the file splits.
CombineHigherDepths	P	Combine higher section levels.
FileSectionNames	P	Use section names for file names, else use numbers.
\FilenameLimit	P	Maximum length of the generated filenames.
FootnoteDepth	P	Sectioning depth of footnotes.
\abstractname	P	The name of the abstract.
\ImageAltText	PD	\includegraphics and other images' alt tag.
\ThisAltText {⟨text⟩}	PD	Assigns an alt/title tag for the next image or link.
\MathImageAltText	PD	The SVG math image lateximage alt tag.
\PackageDiagramAltText	PD	The suffix for a package's lateximage alt tags.
\AltTextOpen	PD	Start an HTML alt tag.
\AltTextClose	PD	End an HTML alt tag.
\CSSFilename	PS	The CSS for the following files.
\MathJaxFilename	PS	The MATHJAX script for the following files.
\HTMLLanguage	PS	The HTML lang tag.
\HTMLTitle	PS	The homepage's <title>, overriding \title.
\HTMLTitleBeforeSection	PS	Set subpage <title>s to \HTMLTitle - sectionname
\HTMLTitleAfterSection	PS	Set subpage <title>s to sectionname - \HTMLTitle
\HTMLAuthor	PS	The HTML author meta tag, overriding \author.
\HTMLDescription	PS	The HTML description meta tag.
\HTMLFirstPageTop	P	Heading for the home page.
\HTMLFirstPageBottom	P	Footer for the home page.
\HTMLPageTop	PS	Heading for the other pages.
\HTMLPageBottom	PS	Footer for the other pages.
\HTMLnewcolumntype	D	\newcolumntype for HTML.
\IndexPageSeparator	P	Index page list separator.
\IndexRangeSeparator	P	Index page range separator.
FixSmallCaps	P	Set true if small caps rendered as all caps.
HTMLDebugComments	P	Boolean to generate HTML comments.

* **P:** Preamble, **D:** Anywhere in the document. **S:** Before a section.

SideTOCDepth = FileDepth+1

⚠ inaccessible pages

If SideTOCDepth < FileDepth, web pages will be inaccessible via the sideTOC.

\sidetocname
Default: Contents

\sidetocname: Name of the sideTOC. Paragraphs are allowed. Redefine with \renewcommand.

Ctr FileDepth
Default: -5

FileDepth: Sectioning depth of file splits. Defaults to -5, causing the entire HTML website to be one single file.

- To place the entire file into one HTML page, use:
  \setcounter{FileDepth}{-5}
- To split the HTML file at \section depth, use:
  \setcounter{FileDepth}{1}
- To ensure that the HTML pages/files are accessible:
  Place a \tableofcontents somewhere before the first section break (therefore in the "home page"), and set
  tocdepth >= FileDepth

⚠

Bool CombineHigherDepths
Default: true

CombineHigherDepths: Combine a higher section with its first lower subsections, down to the FileDepth. Defaults to true. Set to false to simulate the concept of a chapter opening on its own page, for example.

The file splits are controlled by the counter FileDepth and the boolean CombineHigherDepths. Setting FileDepth to 0 splits the file at chapters, 1 at sections, etc. CombineHigherDepths controls whether to combine pages at levels higher than the chosen FileDepth, such as in this tutorial where the page which opens the chapter also contains the first section. Be careful to set tocdepth and SideTOCDepth to allow access to each page of the website. Set tocdepth and SideTOCDepth to be greater than or equal to FileDepth.

⚠ Inaccesible pages!

⚠ Lost in an old page!

When making changes to the file structure, it is possible to end up with the web browser pointing to an old file which is no longer in use. When this occurs, changes to the web site will not appear in the browser, even if reloading the page, because that page is no longer in use. It is best to return to the home page, clean the files (lwarpmk cleanall), change FileDepth and/or CombineHigherDepths, then finally recompile and renavigate to the desired page using the new file structure.

Bool FileSectionNames
Default: true

FileSectionNames: If true, web page filenames are derived from a sanitized version of the section names. If false, web pages are numbered. Either way, the HTMLFilename option is used as a prefix. See section 7.6.1 for examples of naming and numbering HTML files. The user must ensure that filenames are unique after begin sanitized. For example, math in the section name is removed before creating the filename, so the rest of the filename must be sufficiently unique to avoid name collisions.

⚠ Unique filename!

\FilenameLimit
Default: 80

\FilenameLimit: The maximum length of the filenames generated by lwarp. ".html" is added to this length. Redefine with \renewcommand.

Ctr FootnoteDepth
Default: 3

FootnoteDepth: Determines where to place pending footnotes. 3 places footnotes before each break down to the \subsubsection level. 1 places footnotes before each \section break. Any pending footnotes are also placed at the bottom of each page before each file break.

Bool FixSmallCaps
Default: false

FixSmallCaps: Set true if SMALL CAPS are rendering in all caps ("SMALL

CAPS"). May be required for some fonts (erewhon, utopia, fbb, et al.), and packages such as embrac.

Bool HTMLDebugComments
Default: false

HTMLDebugComments: Set true to generate HTML comments, such as which section or is being opened or closed.

\abstractname
Default: Abstract

\abstractname: The name of the abstract. This may also be over-written by the babel package. Defaults to "Abstract". Redefine with \renewcommand.

\IndexPageSeparator
Default: ", "

\IndexPageSeparator: Index page list separator. Adjust to match index style file. If using gindex, this is set automatically to gindex's \indexpagessep.

\IndexRangeSeparator
Default: "--"

\IndexRangeSeparator: Index page range separator. Adjust to match index style file. If using gindex, this is set automatically to gindex's \indexrangesep.

Placed before \begin{document}, or before any sectioning command which causes a file break:

\CSSFilename
Default: lwarp.css

\CSSFilename: {⟨*filename.css*⟩} Sets the CSS file to use for the following files. May be changed before each each sectioning command which would cause a file split.

The CSS styles of the web pages are set by the \CSSFilename command. If \CSSFilename is not used, a default plain style is used to mimic printed LaTeX output. lwarp_sagebrush.css is a semi-fancy colored style as shown in this tutorial. Change it to lwarp_formal.css for a more formal look, or comment out the \CSSFilename command to see the default. \CSSFilename may be used before each file break to set the CSS for individual pagess of the website.

\MathJaxFilename
Default: lwarp_mathjax.txt

\MathJaxFilename: {⟨*filename*⟩} Sets the MathJax script file to use for the following files. May be changed before each each sectioning command which would cause a file split.

The MathJax script file is copied into the head of each HTML file. This may be used to point to a local repository, add extensions, or change the script somewhere in the middle of the document. \MathJaxFilename may be used before each file break to set the script file for individual pages of the website.

\HTMLLanguage
Default: en-US

\HTMLLanguage: {⟨*langauge*⟩} The HTML file's HTML lang meta tag. Defaults to en-US.

\HTMLTitle
Default: \thetitle

\HTMLTitle: {⟨*title*⟩} Overrides \title for the HTML header's meta title. Defaults to \thetitle, which is set by \title, or empty otherwise. Unlike the author, \thetitle is set by \title even if not using the titling package.

\HTMLTitleBeforeSection
Default: \HTMLTitleBeforeSection

\HTMLTitleBeforeSection: Sets subpage <title> tags to show the website title followed by the section name.

\HTMLTitleAfterSection

\HTMLTitleAfterSection: Sets subpage <title> tags to show the section name followed by the website title.

custom <title>

To customize subpage <title>s, redefine \theHTMLTitleSection, which defaults to:

```
\def\theHTMLTitleSection{%
  \theHTMLTitle\theHTMLTitleSeparator\theHTMLSection%
}
```

\HTMLAuthor
Default: \theauthor

\HTMLAuthor: {⟨*author*⟩} The HTML header's meta author. Defaults to \theauthor, which is set by \author if using the titling package, but is empty otherwise. There are several ways to represent the author and affiliations, especially if using the authblk package, most of which do not result in a sensible \theauthor, so \HTMLAuthor is useful to create a list of authors without their affiliations.

\HTMLDescription
Default: <empty>

\HTMLDescription: {⟨*description*⟩} Sets the HTML description tag for the following files. May be changed before each each sectioning command which would cause a file split.

\HTMLPageTop
Default: <empty>

\HTMLPageTop: {⟨*contents*⟩} A user-definable custom action applied to the top of pages other than the home page. Useful for logos, etc. Defaults empty. \LinkHome may be used to place a link back to the homepage, as well as \LinkPrevious and \LinkNext. Ignored in print output.

\HTMLPageBottom
Default: <empty>

\HTMLPageBottom: {⟨*contents*⟩} A user-definable custom action applied to the bottom of pages other than the home page. Useful for authors, copyright notices, contact information, etc. Defaults empty. \LinkHome may be used to place a link back to the homepage, as well as \LinkPrevious and \LinkNext. Ignored in print output.

\LinkHome

\LinkHome: Creates a link to the home page. Usually used in \HTMLPageTop and related.

\LinkPrevious

\LinkPrevious: Creates a link to the previous HTML page, unless already at the home page. Usually used in \HTMLPageTop and related.

\LinkNext

\LinkNext: Creates a link to the next HTML page, unless already at the end. Usually used in \HTMLPageTop and related.

Placed in the home page before the first sectioning command which causes a file break:

\tableofcontents
⚠ TOC on the homepage!

\tableofcontents: Used to place a table of contents on the home page. This command must be used before the first file split, so that a way is available to navigate to other files from the homepage.

Links to each chapter/section are provided, as selected by tocdepth.

Placed in the document wherever necessary:

\ImageAltText
Default: image

\ImageAltText: Redefine with \renewcommand. \includegraphics and other images are assigned an HTML alt tag according to \ImageAltText along with \AltTextOpen and \AltTextClose. This text is visible in the browser if images are not loaded, and appears when the text is copied and pasted. The default is "image", and it may be changed according to the document's language. This may be set in the preamble, or changed as necessary inside the document, where it will affect the following \includegraphics and other images.

\ThisAltText

\ThisAltText: {⟨*text*⟩} \ThisAltText can be used to assign an HTML alt text attribute to the next image generated by a lateximage, picture, tikzpicture, or any other similar environment which generates an image, or the next SVG math expression. This tag is cleared after use. The tag is also cleared after each MATHJAX expression, in case the user changes between SVG math and MATHJAX.

\ThisAltText also may be used to add an HTML title to a reference or hyperlink, such as a \ref, \cref, \href, \url, \hyperref, or \hyperlink. In each case, the alternative text is cleared after use.

\MathImageAltText
Default: math image

\MathImageAltText: Redefine with \renewcommand. When creating an SVG math image, its HTML alt tag may be set to the math expression, which may be hashed for image reuse. In the case of \ensuremath or after \inlinemathother, where the contents require a unique image for each instance of the same expression, the alt tag is set to \MathImageAltText, along with \AltTextOpen and \AltTextClose, and the image is not reused.

This alt expression is visible in the browser if images are not loaded, and appears when the text is copied and pasted. The default is "math image", and it may be changed according to the document's language. This may be set in the preamble, or changed as necessary inside the document, where it will affect the following SVG math images.

\PackageDiagramAltText
Default: diagram

\PackageDiagramAltText: Redefine with \renewcommand. For many packages, the output is placed inside a lateximage with an HTML alt tag set to the package name followed by \PackageDiagramAltText. For example:

```
(-xy- diagram)
```

This expression is visible in the browser if images are not loaded, and appears when the text is copied and pasted. The default is "diagram", and may it be changed according to the document's language. This may be set in the preamble, or changed as necessary inside the document, where it will affect the following package diagrams.

\AltTextOpen
Default: (

\AltTextOpen: Redefine with \renewcommand.

\AltTextClose
Default:)

\AltTextClose: Redefine with \renewcommand. HTML alt text is enclosed by the macros \AltTextOpen and \AltTextClose, which default to an opening and closing parenthesis.

\HTMLnewcolumntype

\HTMLnewcolumntype: \newcolumntype may not always work with lwarp for HTML output, since it often involves TEX boxes and fills. To provide a simplified column type for HTML, add \HTMLnewcolumntype in addition.

Env warpprint

warpprint: An environment which is only used while generating print output. Place inside anything which does not apply to HTML and which may cause problems with lwarp. If lwarp knows about and emulates or supports a package then its related macros, lengths, counters, etc. probably won't have to be placed inside a warpprint environment, but unknown packages may cause problems which may be isolated from lwarp using this environment.

⚠ *Do not place anything else on the same line as* \end{warpprint}. Also do not nest warpprint inside itself.

Env warpHTML

warpHTML: An environment which is only included while generating HTML output. This is useful for website logos and other items which have no purpose in printed output.

⚠ *Do not place anything else on the same line as* \end{warpHTML}. Also do not nest warpHTML inside itself.

\warpprintonly

\warpprintonly: {⟨*contents*⟩} A macro version of the warpprint environ-

ment.

\warpHTMLonly **\warpHTMLonly:** {⟨*contents*⟩} A macro version of the warpHTML environment.

7.6.1 Example HTML file naming

Examples of ways to name or number HTML files:

Numbered HTML nodes:

Example: Homepage index.html, and node-1, node-2. [13]

```
\usepackage[
    HomeHTMLFilename=index,
    HTMLFilename={node-}
]{lwarp}
\boolfalse{FileSectionNames}
```

Named HTML sections, no prefix:

Example: index.html, and About.html, Products.html

```
\usepackage[
    HomeHTMLFilename=index,
    HTMLFilename={}
]{lwarp}
\booltrue{FileSectionNames}
```

Named HTML sections, with prefix:

Example: Homepage mywebsite.html, and additional pages such as mywebsite-About.html, mywebsite-Products, etc.

```
\usepackage[
    HomeHTMLFilename=mywebsite,
    HTMLFilename={mywebsite-}
]{lwarp}
\booltrue{FileSectionNames}
```

7.7 Customizing the CSS

\CSSFilename {⟨*filename*⟩}
Default: lwarp.css

\CSSFilename may be used to choose which .css file is used to display each page of the web site. Use \CSSFilename before \begin{document} to assign the style of the home page. If different parts of the website should have different styles, call \CSSFilename again before each section heading which creates a new file. This may be changed numerous times throughout the file, resulting in different HTML pages having different CSS files assigned:

[13] See \SetHTMLFileNumber to number in groups by chapter, for example.

```
...
\CSSFilename{myCSS.css}
\chapter{Another Chapter}
...
```

The styles provided by lwarp include:

lwarp.css: A default style if \CSSFilename is not used. This style is comparable to a plain LaTeX document. To set this style, you may use \CSSFilename{lwarp.css}, or no \CSSFilename call at all.

lwarp_formal.css: A formal style with a serif fonts and a traditional look.

lwarp_sagebrush.css: A style with muted colors, gradient backgrounds, additional borders, and rounded corners.

To see each style in use, change the \CSSFilename entry in the tutorial, lwarpmk html again, and then reload the tutorial webpage.

Custom css

A customized style may also be created. For each new project a file called sample_project.css is generated. This may be renamed to <project>.css then used by assigning \CSSFilename{<project>.css}.

⚠ Rename it!

Note that sample_project.css is overwritten whenever lwarp is loaded in print mode. It is therefore important to rename the file to something like <project>.css before using it, so that your own changes are not overwritten.

<project>.css has an entry which loads lwarp.css, and this entry may be changed to load lwarp_formal.css or lwarp_sagebrush.css if desired. Additional changes to the CSS may be made by making entries later in the <project>.css file.

File lwarp.css
File project.css
File sample_project.css

It is best to make a local project-specific CSS file such as project.css, containing only things which are different from lwarp.css. The file project.css should refer to lwarp.css as follows:

```
/* ( --- Start of project.css --- ) */
/* ( --- A sample project-specific CSS file for lwarp --- ) */

/* Uncomment one of the following: */
@import url("lwarp.css") ;
/* @import url("lwarp_formal.css") ; */
/* @import url("lwarp_sagebrush.css") ; */

/* Project-specific CSS setting follow here. */
/* . . . */

/* ( --- End of project.css --- ) */
```

Finally use \CSSFilename{<project>.css} in the document to activate the custom CSS.

7.8 Assigning css classes and styles

HTML CSS classes and styles may be assigned to fragments of the document.

Env BlockClass

[⟨*style*⟩] {⟨*class*⟩}

An entire block of text, including paragraphs, may be assigned a css class and optional css style using the BlockClass environment. The result is placed inside a . A BlockClass may nest other BlockClasses or \InlineClasses.

\InlineClass

(⟨*wp css style*⟩) [⟨*web css style*⟩] {⟨*css class*⟩} {⟨*text*⟩}

A section of text without paragraphs may be assinged a css class and optional css style using the \InlineClass macro. The result is placed inside a . \InlineClass may be nested, but per the HTML standard it must not contain BlockClass, nor may it contain a paragraph, nor several other objects such as HTML figures. \InlineClass also accepts a second optional parameter, enclosed inside parentheses, which assigns the style while generating output for a word processor, while ignoring the web style.

Nullified versions of BlockClass and \InlineClass are provided for the print version, so they may be used in the document without placing them inside warpHTML or \warpHTMLonly.

7.9 Selecting the operating system

Prog Unix
Prog Mac OS
Prog Linux
Prog MS-Windows
Prog Windows
Opt OSWindows

lwarp tries to detect which operating system is being used. UNIX / MAC OS / LINUX is the default (collectively referred to as "UNIX" in the configuration files), and MS-WINDOWS is supported as well.

If MS-WINDOWS is not correctly detected, use the lwarp option OSWindows.

When detected or specified, the operating-system path separator used by lwarp is modified, and the boolean usingOSWindows is set true. This boolean may be tested by the user for later use.

7.10 Selecting actions for print, HTML, or MATHJAX output

The following environments and macros are used to select actions which only apply to either traditional LaTeX print-formatted PDF generation, or to HTML generation, or to HTML with MATHJAX.

For most of built-in LaTeX and many additional packages there is user-level source code support or emulation, so no special handling will be required. For those cases which lwarp does not handle by itself, the following environments and macros may be used to isolate sections of code for print-only or HTML-only.

These environments are also useful for creating a special version of the titlepage for print and another for HTML.

Env warpHTML

Anything which is to be done only for HTML5 output is surrounded by a warpHTML environment:

```
\begin{warpHTML}
 ... something to be done only during \HTML\ generation
\end{warpHTML}
```

⚠ \end{warpHTML}
⚠ nesting

Do *not* place anything else on the same line as \end{warpHTML}. The exact phrase is used to mark the end of the environment. Do not nest warpHTML inside itself. warpMathJax may be used inside warpHTML.

Env warpprint

Anything which is to be done only for print output is surrounded by a warpprint environment:

```
\begin{warpprint}
 ... something to be done only during traditional \PDF\ generation
\end{warpprint}
```

⚠ \end{warpprint}
⚠ nesting

As above, do not place anything else on the line with \end{warpprint}. Do not nest warpprint inside itself.

Env warpall

Anything which is to be done for any output may be surrounded by a warpall environment. Doing so is optional.

```
\begin{warpall}
 ... something to be done during print \PDF\ or \HTML\ output
\end{warpall}
```

⚠ \end{warpall}
⚠ nesting

As above, do not place anything else on the line with \end{warpall}. Do not nest warpall inside itself.

Macros are also provided for print-only or HTML-only code:

\warpprintonly {⟨*actions*⟩}

Performs the given actions only when print output is being generated.

\warpHTMLonly {⟨*actions*⟩}

Performs the given actions only when HTML output is being generated.

Env warpMathJax

⚠ \end{warpMathJax}
⚠ nesting

Anything which is to be done only while using HTML output with MathJaxis surrounded by a warpMathJax environment. Usually, this is \CustomizeMathJax, used to add emulation macros. \end{warpMathJax} must appear on its own line. Do not nest warpMathJax inside itself. warpMathJax may be used inside warpHTML.

Env warpsvg

⚠ \end{warpsvg}
⚠ nesting

Anything which is to be done only while using print output or HTML output with SVG math is surrounded by a warpsvg environment. \end{warpsvg} must appear on its own line. Do not nest warpsvg inside itself. warpsvg may be used inside warpHTML.

\LWR@formatted

To define macros or environments which behave differently depending on print or HTML output, see section 36.

7.11 Commands to be placed into the warpprint environment

Certain print-related commands should always be placed inside a warpprint environment, or may need other special handling. These are unrelated to HTML output, but are hard to isolate automatically. For example:

- Paragraph formatting: `\parindent` `\parskip`
- Manual page positions such as the textpos package, which is emulated but only in a limited way.
- Anything changing the page counter. lwarp requires that the page counter not be adjusted during HTML output.

Some packages require additional setup commands. Where these packages are emulated for HTML, setup commands may work for the emulated HTML output as well as for print output. See the details for each package in this document for more information.

Also see section 13: Troubleshooting.

7.12 Title page

In the preamble, place an additional block of code to set the following:

```
\title{Document Title} % One line only
\author{Author One\affiliation{Affiliation One} \and
    Author Two\affiliation{Affiliation Two} }
\date{Optional date}
```

The title is used in the meta tags in the HTML files, unless overridden by `\HTMLTitle`, and the rest are used in `\maketitle`. To use a `\subtitle` or `\published` field, see section 69.8.

`\maketitle`

Use `\maketitle` just after the `\begin{document}`, as this will establish the title of the homepage. Optionally, use a `titlepage` environment instead.

Env `titlepage`

The `titlepage` environment may be used to hold a custom title page. The titlepage will be set in a `<div>` class `titlepage`, and `\printtitle`, etc. may be used inside this environment.

Env `titlingpage`

Another form of custom title page, where `\maketitle` is allowed, and additional information may be included as well.

`\title` {⟨*title*⟩}

⚠ HTML corrupted ⚠ newlines

Avoid newlines in the `\title`; these will interfere with the file break and CSS detection. Use a `\subtitle` command instead (section 69.8). The title will appear in the document `\maketitle` as a heading `<h1>`. The HTML meta `title` tag will also have this title, unless `\HTMLTitle` is used to set the meta title to something else instead.

`\author` {⟨*author*⟩}

In `\author`, `\protect` may be needed before some formatting commands. In HTML, the author will appear in a `<div>` of class `author` in the `\maketitle`. If the titling package is used, the author will also appear in a HTML meta tag, but `\HTMLAuthor` may be necessary to create a plain list of names if `\author` had affiliations added. `\affiliation` is a new addition to lwarp.

`\date` {⟨*date*⟩}

`\date` works as expected. In HTML, this will appear in a `<div>` class `titledate`.

`\thanks` {⟨*text*⟩}

`\thanks` are allowed in the titlepage fields, and will be rendered as HTML notes at the bottom of the title page.

7.13 HTML page meta descriptions

`\HTMLDescription` {⟨*A description of the web page.*⟩}
Default: (none)

limitations Each page of HTML output should have its own HTML meta description, which usually shows up in web search results, is limited to around 150 characters in length, and should not include the ASCII double quote character (").

placement Use `\HTMLDescription` just before `\begin{document}` to set the description of the home page, and also just before each sectioning command such as `\chapter` or `\section` where a new file will be generated, depending on `FileDepth`. For example, if `FileDepth` is 1, use `\HTMLDescription` just before each `\section` command, and that description will be placed inside the HTML page for that `\section`. The same descrition will be used for all following HTML files as well, until reset by a new `\HTMLDescription`. It is best to use a unique description for each HTML file.

disabling To disable the generation of HTML description meta tags, use:

```
\HTMLDescription{}
```

7.14 HTML homepage meta title

`\HTMLTitle` {⟨*title*⟩}
Default: `\HTMLtitle{\thetitle}`

Sets the contents of the web page `<meta name="title">` element. May be set empty to cancel the meta title tag.

See section 7.6 for `\HTMLTitleBeforeSection` and `\HTMLTitleAfterSection`, used to set the title for HTML subpages.

7.15 HTML page meta author

`\HTMLAuthor` {⟨*author*⟩}
Default: `\HTMLAuthor{\theauthor}`

Sets the contents of the web page `<meta name="author">` element. May be set empty to cancel the meta author tag.

`\author` may be used to create a list of authors and their affiliations, in several formats if using authblk, and these may not successfully parse properly into a sensible list for `\theauthor`. `\HTMLAuthor` may be used to set the meta tag to a simple list of names.

8 Special cases and limitations

Some commonly-used LaTeX expressions should be modified as follows to allow for a smooth conversion to both HTML and print-formatted outputs.

Need help?

See the General Index for "how-to", and the Troubleshooting Index if something doesn't work. A Troubleshooting section is also available. The Index of Objects contains automated entries for each package, macro, environment, counter, boolean, and other objects; individually and also sorted by category.

8.1 Things to avoid

In the document, avoid the following:

⚠ options with braces

Package options: Package options may cause problems with lwarp, especially if they include curley braces.

If selecting options with braces in `\usepackage` does not work:

```
\usepackage[font={it,small}]{caption}% does not work
```

... try instead selecting the package options before loading lwarp:

```
\PassOptionsToPackage{font={it,small}}{caption}
...
\usepackage{lwarp}
...
\usepackage{caption}
```

... or try setting package options after the package has been loaded:

```
\usepackage{caption}
\captionsetup{font={it,small}}
```

page counter: Do not adjust the page counter. If doing so is required for the print version, place the adjustment inside a `warpprint` environment.

Custom math environment macros: Do not use expressions such as `\beq` as a replacement for `\begin{equation}`.

Custom macros in section, figure, table names: Custom macros which appear in sectioning commands or float captions then appear in the `.toc`, `.lof`, and `.lot` lists, and should be made robust using `\newrobustcmd` or `\robustify` from etoolbox, xparse, etc.

When setting `FileSectionNames` to `true` to name the HTML files from the section names, the file names are created from sanitized versions of the chapter or section names, but the section names must be plain text or something which expands into plain text. Robust macros will not work at the sectioning level which is used for file names, but a robust macro or other complicated name may be used for the manditory argument of `\chapter`, `\section`, etc., if a plain-text version is also included in the optional argument:

```
\chapter[Plain Name]{\ARobustMacro{Fancy Name}}
```

8.1.1 Invalid HTML

Additionally, some objects are valid LaTeX, but invalid HTML. An example is a tabular inside `\textbf`, since HTML does not allow a table inside a span. lwarp

will create the table, and the browser may support it, but the result is technically invalid.

8.2 Formatting

8.2.1 Text formatting

⚠ `\bfseries`, etc. `\textbf`, etc. are supported, but `\bfseries`, etc. work only in some situations.

⚠ HTML special chars &, <, and > have special meanings in HTML. If `\&`, `\textless`, and `\textgreater` are used, proper HTML entities will be used, but there may be HTML parsing problems if these special characters occur unescaped in program listings or other verbatim text.

program listings For program listings, the listings package is supported, and its `literate` option is used to convert &, <, and > to proper HTML entities.

verbatim The various `verbatim`-related environments do not convert &, <, and >, so care must be taken to avoid accidentally including valid HTML code inside these environments. Adding a space on either side may be sufficient.

8.2.2 Small caps

`Bool FixSmallCaps` Some fonts, such as erewhon, utopia, or fbb, and some packages such as embrac, copy/paste "Small Caps" as all caps ("SMALL CAPS"), which lwarp then reads as all caps, so the text is printed in all caps. If small caps are being rendered as all caps, set:

```
\booltrue{FixSmallCaps}
```

⚠ CJK fonts Some CJK fonts may not work if `FixSmallCaps` is set `true`.

8.2.3 Horizontal and vertical space and rules

`\hspace` `\hspace` is converted to an inline HTML span of the given width, except that `0` width is ignored, a width of `.16667em` is converted to an HTML thin breakable space (`U+2009`), and a `\fill` is converted to a `\qquad`.

`\vspace` `\vspace` is ignored for HTML.

`~` `\,` `~` and `\,` are converted to HTML entities.

`\kern` `\hskip` `\kern` and `\hskip` are entered into the HTML PDF output as-is, then interpreted by *pdftotext*, and thus usually appear as a single space.

`\rule` `\rule` is converted to an HTML rule of the same dimensions, of the currently selected text color.

`\hrule` `\vrule` Both `\hrule` and `\vrule` are ignored for HTML. To create a horizontal dividing rule across the page, use `\hrulefill` in its own paragraph.

`\hrulefill` `\hrulefill` usually creates a one-inch rule, similar to a "fill in the blank". If it

is used at the start of a new paragraph, it creates a with a thin horizontal border across the page, as would often be done with \hrule.

8.2.4 Text alignment

Use the environments center, flushright, flushleft instead of the macros \centering, \raggedright, \raggedleft.

⚠ figure & table alignment

\centering, etc. are honored in a figure or table if they are the first command inside the float:

```
\begin{table*}
\centering
\caption{A Table}
. . .
```

8.2.5 Accents

Native LaTeX accents such as \" will work, but many more kinds of accents are available when using Unicode-aware XeLaTeX and LuaLaTeX. If using accents in section names which will become file names, it is recommended to use the LaTeX accents such as \" and \v instead of Unicode accents. The LaTeX accents will have the accents stripped when creating the filenames, whereas the Unicode accents will appear in the file names, which may cause issues with some operating systems.

8.2.6 textcomp package

Pkg textcomp

Some textcomp symbols do not have Unicode equivalents, and thus are not supported.

⚠ missing symbols

Many textcomp symbols are not supported by many system / browser fonts. In the css try referencing fonts which are more complete, but expect to see gaps in coverage.

8.2.7 Superscripts and other non-math uses of math mode

Use ^{x} instead of ^{x}

8.2.8 Empty \item followed by a new line of text or a nested list:

lists

Use a trailing backslash: \item[label] \

8.2.9 Filenames and URLs in lists or footnotes

filename underscore

Escape underscores in the filenames:

```
\item[\href{file\_name.pdf}{text}]
```

8.2.10 relsize package

Pkg relsize

For HTML, only the inline macros are supported: \textlarger, \textsmaller, and \textscale. Each becomes an inline span of a modified font-size.

\relsize, \larger, \smaller, and \relscale are ignored.

While creating SVG math for HTML, the original definitions are temporarilty restored, and so should work as expected.

⚠ not small

The HTML browser's setting for minumum font size may limit how small the output will be displayed.

8.3 Boxes and minipages

8.3.1 Marginpars

\marginpar

[⟨*left*⟩] {⟨*right*⟩} \marginpar may contains paragraphs, but in order to remain inline with the surrounding text lwarp nullifies block-related macros inside the \marginpar. Paragraph breaks are converted to <br /> tags.

\marginparBlock

[⟨*left*⟩] {⟨*right*⟩} To include block-related macros, use \marginparBlock, which takes the same arguments but creates a instead of a . A line break will occur in the text where the \marginBlock occurs.

8.3.2 Save Boxes

⚠ HTML corrupted

⚠ boxes

TEX boxes are placed inline and do not allow line breaks, so boxes with long contents may overflow the line during HTML conversion. lwarp uses methods which help avoid this problem.

⚠ minipage, \parbox

\savebox and related do not (yet) support minipage or \parbox.

8.3.3 Minipages

⚠ inline

A line of text with an inline minipage or \parbox will have the minipage or \parbox placed onto its own line, because a paragraph is a block element and cannot be made inline-block.

placement

minipages and \parboxes will be placed side-by-side in HTML unless you place a \newline between them.

side-by-side

Side-by-side minipages may be separated by \quad, \qquad, \enskip, \hspace, \hfill, or a \rule. When inside a center environment, the result is similar in print and HTML. Paragraph tags are suppressed between side-by-side minipages and these spacing commands, but not at the start or end of the paragraph.

⚠ minipage in a span

There is limited support for minipages inside an HTML . An HTML cannot appear inside a . While in a , minipages, and \parboxes, and any enclosed lists have limited HTML tags, resulting in an "inline" format, without markup except for HTML breaks. Use \newline or \par for an HTML break.

⚠ minipage size

When using `minipage`, `\parbox`, and `fminipage`, a virtual 6×9 inch text area is used for `\linewidth`, `\textwidth`, and `\textheight`, both for sizing the minipage, and also for its contents.

if width is `\linewidth`

If a `minipage` or `\parbox` is assigned a width of exactly `\linewidth`, in HTML it is automatically given no HTML width, thus allowed to fill the line as needed, similar to how it appears in print output.

full-width if HTML

A new macro `\minipagefullwidth` requests that, during HTML output, the next single `minipage` or `\parbox` be generated without an HTML `width` attribute, allowing it to be the full width of the display rather than the declared print-output width. This may be useful where the printed version's width makes no sense in HTML.

⚠ `tabular`, `multicols`

`\UseMinipageWidths`
`\IgnoreMinipageWidths`

Inside a `tabular` or `multicols` environment, where the width depends on the browser window, `\minipagefullwidth` is effectively used by default for every `minipage` or `\parbox` inside the environment. `\UseMinipageWidths` may be used to tell lwarp to honor the specified widths of all following `minipages` and `\parboxes` until the end of the local scope, and `\IgnoreMinipageWidths` may be used to tell lwarp to ignore the specified widths.

⚠ multicol

Inside a `multicols`, `\linewidth` is divided by the specified number of columns.

⚠ text alignment

Nested `minipages` adopt their parent's text alignment in HTML, whereas in regular LaTeX PDF output they do not. Use a `flushleft` or similar environment in the child `minipage` to force a text alignment.

8.3.4 Side-by-side minipages

Place side-by-side minipages inside a `center` environment, with horizontal space between them, such as `\quad`, `\qquad`, `\hspace`, or `\hfill`. The result is similar in print and HTML. Do not use space commands at the start or end of the line.

8.3.5 Framed minipages and other environments

`\fbox` can only be used around inline `<span>` items during HTML output, but HTML cannot place a block element such as a `<div>` for a minipage or a list inside of a `<span>`. Several options are provided for framing an object, depending on which kind of object and which packages are loaded:

`\fbox`
`\fboxBlock`
`Env fminipage`

For a framed object, options include:

To remove the frame in HTML output: Place the `\fbox` command and its closing brace inside `warpprint` environments. This will nullify the frame for HTML output.

For inline text:

To frame the contents inline with some formatting losses in HTML: This is the default action of `\fbox` when enclosing a minipage. During HTML output, `\fbox` nullifies the HTML tags for `minipage`, `\parbox`, and lists. The contents are included as inline text inside the `\fbox`'s `<span>` of class `framebox`. For lists, line breaks are converted to HTML breaks. The result is a plain-text inline version of the contents, framed inline with the surrounding text, but lacking any extra HTML markup.

For inline `minipage` and lists:

To frame the contents on their own line with improved formatting in HTML: A new command `\fboxBlock` is included, intended to be a direct replacement

for \fbox for cases where the \fbox surrounds a minipage, table, or list. For print output, this behaves as \fbox. For HTML output, the contents are placed inside an HTML with the class framed, resulting in the contents being placed on their own line with a frame surrounding them. The contents preserve their HTML formatting, so lists and minipages look nicer, and valid HTML is created for a tabular. While an \fbox containing a tabular is valid LaTeX code, the result in HTML is problematic since a table is a not a , so use \fboxBlock around a tabular, or else place the tabular inside a minipage, or use fminipage, described next. Also see below regarding the "Misplaced alignment tab character &." error.

For display tabular, minipages, and lists:

To create a framed minipage in both print and HTML: A new environment fminipage is included. For print output, this is identical to minipage, except that it is also framed. For HTML output, this forms a of class framed, the contents preserve their HTML formatting, and valid HTML is created for a tabular. Also see section 89 for a new environment fcolorminipage. Also see below regarding the "Misplaced alignment tab character &." error.

colored boxes and frames:

To create colored frames and boxes: See section 671 for xcolor's \colorbox and \fcolorbox, and lwarp's additional \colorboxBlock and \fcolorboxBlock.

⚠ Misplaced alignment tab character &

To frame tables or verbatim environments: Place the contents inside a fminipage, or perhaps a \fboxBlock for a tabular. Also, if using \fboxblock with tabular, you will have to use \StartDefiningTabulars before the start of the macro which uses \fboxBlock and the tabular, and \StopDefiningTabulars afterwards. Also see the lwarp documentation for the fancybox package.

To frame equations: See section 259 for the fancybox package.

For fancy framed minipages: See packages boxedminipage, shadow, fancybox, framed, mdframed.

Custom environments: Use a custom environment to create a sidebar, containing a BlockClass environment with custom CSS formatting, and \warpprintonly{\hrule} command:

```
\begin{BlockClass}{frameminipage}% ignored in print output
  % use \CSS\ to format div class framedminipage
\warpprintonly{\hrule} % only appears in print output
Contents
\warpprintonly{\hrule} % only appears in print output
\end{BlockClass}
```

8.3.6 fancybox package

Pkg fancybox

framed equation example

fancybox's documentation has an example FramedEqn environment which combines math, \Sbox, a minipage, and an \fbox. This combination requires that the entire environment be enclosed inside a lateximage, which is done by adding \lateximage at the very start of FramedEqn's beginning code, and \endlateximage at the very end of the ending code. Unfortunately, the HTML alt attribute is not used here.

```
\newenvironmentFramedEqn
{
\lateximage% NEW
\setlength{\fboxsep}{15pt}
. . . }{. . .
\[\fbox{\TheSbox}\]
\endlateximage% NEW
}
```

framing alternatives

`\fbox` works with fancybox. Also see lwarp's `\fboxBlock` macro and `fminipage` environment for alternatives to `\fbox` for framing environments.

framed table example

The fancybox documentation's example of a framed table using an `\fbox` containing a `tabular` does not work with lwarp, but the `FramedTable` environment does work if `\fbox` is replaced by `\fboxBlock`. This method does lose some HTML formatting. A better method is to enclose the table's contents inside a `fminipage` environment. The caption may be placed either inside or outside the `fminipage`:

```
\begin{table}
\begin{fminipage}{\linewidth}
\begin{tabular}{lr}
. . .
\end{tabular}
\end{fminipage}
\end{table}
```

⚠ framed verbatim

lwarp does not support the `verbatim` environment inside a span, box, or fancybox's `\Sbox`, but a `verbatim` may be placed inside a `fminipage`. The fancybox documentation's example `FramedVerb` may be defined as:

```
\newenvironment{FramedVerb}[1] % width
{
  \VerbatimEnvironment
  \fminipage{#1}
  \beginVerbatim
}{
  \endVerbatim
  \endfminipage
}
```

framed `\VerbBox`

fancybox's `\VerbBox` may be used inside `\fbox`.

indented alignment

`LVerbatim`, `\LVerbatimInput`, and `\LUseVerbatim` indent with horizontal space which may not line up exactly with what *pdftotext* detects. Some lines may be off slightly in their left edge.

8.3.7 mdframed package

Pkg `mdframed`

support

Most basic functionality is supported, including frame background colors and single-border colors and thickness, title and subtitle background colors and borders and thickness, border radius, and shadow. CSS classes are created for mdframed environments and frame titles.

⚠ loading

When used, lwarp loads mdframed in HTML with `frametheme=none`.

font

For title font, use

```
frametitlefont=\textbf,
```

instead of

```
frametitlefont=\bfseries,
```

where `\textbf` must appear just before the comma and will receive the following text as its argument (since the text happens to be between braces in the mdframed source). Since lwarp does not support `\bfseries` and friends, only one font selection may be made at a time.

theoremtitlefont

`theoremtitlefont` is not supported, since the following text is not in braces in the mdframed source.

ignored options

`userdefinedwidth` and `align` are currently ignored.

css classes

Environments created or encapsulated by mdframed are enclosed in a `<div>` of class `mdframed`, and also class `md<environmentname>` for new environments.

Frame titles are placed in a `<div>` of class |mdframedtitle|. Subtitles are in a `<div>` of class |mdframedsubtitle|, and likewise for subsubtitles.

8.3.8 tcolorbox package

Pkg tcolorbox

tcolorbox is emulated for HTML and MathJax, and supported as-is inside a `lateximage` or SVG math.

What has been tested to work (at least partly) includes:

- `tcolorbox`, `\tcbox`.
- Title, subtitle.
- Upper, lower parts.
- Colors and title fonts.
- Floating objects.
- Some layered box features.
- Counters, labels, references.
- listings, listingsutf8.
- `theorems`: Theorems are supported. `math`, `ams equation`, etc. are not supported. Use a `tcolorbox` with regular math inside it. `\tcboxmath` and `\tcbhighmath` are suppored in SVG math, and emulated in MathJax.

⚠ math

- Fitting features: `\tcboxfit` becomes `\tcbox` in HTML.

⚠ footnotes

- Footnote numbering does not match the printed output.
- MathJax emulation is provided for common macros.

⚠ undefined references

If using cleveref, it may be necessary to name theorems such as:

```
\crefname{tcb@cnt@mytheo}{my theorem}{my theorems}
```

8.4 Section names

If using named HTML files, by selecting `\booltrue{FileSectionNames}`, the generated filenames may be simplified by using `\FilenameSimplify` and `\FilenameNullify`:

`\FilenameSimplify` {⟨*text*⟩}

To remove common short words from the automatically-generated filenames, replacing each with a single hyphen "-", use \FilenameSimplify:

```
\FilenameSimplify*{-in-}
\FilenameSimplify*{A-}
```

The first example removes the word "in" in the middle of a filename, and the second example removes "A" at the start of the filename. The star forces the arguments to be detokenized, which is required for a plain-text comparison. (The unstarred form is used for a token-sensitive comparison, which is seldom required by the user.) After simplfication, repeated hyphen characters will be further simplified to a single hyphen "-". Finally, single hyphens at the start or end of the filename are removed.

\FilenameNullify {⟨*macros*⟩}

⚠ macros in section names

Macro names may appear in the automatically-generated file names. To remove these, create *non-robust* nullified versions of the macros, ensuring that each line ends with a percent character % as shown below. These are placed inside \FilenameNullify, which adds them to the list of macros which are nullfiied during filename generation. Low-level macros such as \begingroup will cause problems when nullfied. Many macros such as \textbf are already nullfied. lwarp also already nullifies built-in symbol and textcomp macros, including if defined by xunicode, but not all xunicode macros. See the definition of \LWR@nullfonts for a complete list.

```
\FilenameNullify{%
  \renewcommand*{\macroname}[1]{#1}%
  \renewcommand*{\anothermacro}{}%
}
```

⚠ duplicate filename

Avoid duplicate file names. Section names at levels which result in HTML file splits must be unique. lwarp will generate an error if a duplicate HTML filename is generated. Use the optional TOC caption entry parameter for formatting. Remember to \protect LaTeX commands which appear in section names and TOC captions.

⚠ math in section names

If using named HTML files, in section names use paren math \(x+y\) instead of dollar math $x+y$. (Dollar math works, but appears in the filename.) Or, use a short name for the TOC entry without the math, or use \texorpdfstring from the hyperref package:

```
\section{Some math \texorpdfstring{$1+2=3$}{three}}
```

8.5 Cross-references

labels
⚠ label characters

Labels with special characters may be a problem. It is best to stick with alphanumeric, hyphen, underscore, and perhaps the colon (if not French).

\nameref
⚠ empty link

\nameref refers to the most recently-used section where the \label was defined. If no section has been defined before the \label, the link will be empty. Index entries also use \nameref and have the same limitation.

8.5.1 Page references

⚠ LaTeX page numbers

The printed page does not translate to the HTML page, so `\pageref` references are converted to parentheses containing `\pagerefPageFor`, which defaults to "see ", followed by a hyperlink to the appropriate object.

Ex:

```
\ref{sec:name} on page \pageref{sec:name}
```

in HTML becomes:

"Sec. 1.23 on page (**see** sec. 1.23)".

`\pagerefPageFor` may be redefined to "page for ", empty, etc. See page 498.

8.5.2 cleveref and varioref packages

Pkg `cleveref`

Pkg `varioref`

⚠ cleveref page numbers

cleveref and varioref are supported, but printed page numbers do not map to HTML, so a section name or a text phrase are used for `\cpageref` and `\cpagerefrange`. This phrase includes `\cpagerefFor`, which defaults to "for".

Ex:

```
\cpageref{tab:first,tab:second}
```

in html becomes:

"pages **for** table 4.1 and **for** table 4.2"

See `\cpagerefFor` at page 728 to redefine the message which is printed for page number references.

⚠ varioref types

cleveref changes the behavior of varioref in that the reference type is automatically printed if cleveref is loaded. Lwarp requires cleveref, so the HTML version will always automatically print the reference types even if the print mode does not. The simplest way to make them match is to require the cleveref package for the document.

8.5.3 Hyperlinks, hyperref, and url

Pkg `hyperref`

Pkg `url`

⚠ comments between arguments

lwarp emulates hyperref, including the creation of active hyperlinks, but does not require that hyperref be loaded by the document.

Do not place a comment with a `%` character between arguments for `\hyperref`, etc., as it is neutralized for inclusion in HTML URLs.

lwarp can also load url, but url should not be used at the same time as hyperref, since they both define the `\url` command. lwarp does not (yet) attempt to convert url links into hyperlinks during HTML output, nor does the print version of url create hyperlinks.

⚠ backref

When generating HTML, lwarp's emulation of hyperref does not automatically load backref, so backref must be loaded explicitly.

8.5.4 Footnotes, endnotes, and page notes

lwarp uses native LaTeX footnote code, although with its own \box to avoid the LaTeX output routine. The usual functions mostly work as-is.

footnote numbering

To have footnote numbers reset each time footnotes are printed:

```
\setcounter{footnoteReset}{1}
```

For bigfoot, manyfoot, or perpage:

```
\MakePerPage{footnoteX}
— or —
\MakeSortedPerPage{footnoteX}
```

The footnotes are reset when they are printed, according to section level as set by FootnoteDepth, which is not necessarily by HTML page. This is recommended for \alph, \Alph, or \fnsymbol footnotes, due to the limited number of symbols which are available.

MathJax

Also for MathJax, \footnotename is used for a \footnotemark if the actual footnote number is not known. To redefine it, provide it before loading lwarp:

```
\providecommand{\footnotename}{something}
\usepackage{lwarp}
```

Similar for sidenotes. For endnotes:

```
\def\endnotename{something}% \def allows name to start with
"end"
```

For the pagenote package, there is no \pagenotename to define, since there is no \pagenotemark command.

footmisc

The footmisc stable option is emulated by lwarp.

⚠ sectioning commands

When using footnotes in sectioning commands, to generate consistent results between print and HTML, use the footmisc package with the stable option, provide a short TOC entry, and \protect the \footnote:

```
\usepackage[stable]{footmisc}
. . .
\subsection[Subsection Name]
    {Subsection Name\protect\footnote{A footnote.}}
```

memoir with footmisc
⚠ memoir

If using memoir class, with which lwarp preloads footmisc, the stable option must be declared before lwarp is loaded:

```
\PassOptionsToPackage{stable}{footmisc}
\usepackage{lwarp}
. . .
```

Do not use a starred sectioning command. As an alternative, it may be possible to adjust \secnumdepth instead.

fancybox, fancyvrb
⚠ \VerbatimFootnotes
⚠ sectioning or displaymath

If using fancybox or fancyvrb with \VerbatimFootnotes, and using footnotes in a sectioning command or display math, use \footnotemark and \footnotetext:

```
\subsection[Subsection Name]
    {Subsection Name\protect\footnotemark}
\footnotetext{A footnote with \verb+verbtim+.}
```

and likewise for equations or display math.

At present there is a bug such that paragraph closing tags are not present in footnotes when `\VerbatimFootnotes` are selected. The browser usually compensates.

pfnote
⚠ pfnote numbers

While emulating pfnote, lwarp is not able to reset HTML footnote numbers per page number to match the printed version, as HTML has no concept of page numbers. lwarp therefore uses continuous footnote numbering even for pfnote.

bigfoot, manyfoot
⚠ verbatim

Verbatim footnotes are not yet supported.

If using the bigfoot package, and possibly also manyfoot, problems may occur with counter allocation because lwarp uses many counters, and there is a difference in how counters numbered 256 and up are handled in PDF LaTeX. With bigfoot this has been known to show up as an error related to one footnote insert being forbidden inside another. Another problem showed up as a input stack error, and which of these problems occurred depended on how many counters were allocated.

As a possible solution, try creating several new counters before defining bigfoot or manyfoot footnotes, hoping to shift the problematic counter above the 256 threshold. It may instead be necessary to use XeLaTeX or LuaLaTeX instead of PDF LaTeX.

8.5.5 xr, xr-hyper, and xcite packages

See section 5.17.

8.6 Front and back matter

8.6.1 Custom classes with multiple authors and affiliations

Some classes allow multiple authors and affiliations. Often it is possible to emulate these using a standard class along with authblk:

```
%\documentclass{customclass} % for print document
\documentclass{article} % for html document

\usepackage{lwarp}
\begin{warpHTML}
\usepackage{authblk}
\let\affiliation\affil % maybe required
\end{warpHTML}
```

8.6.2 Starred chapters and sections

HTML page and TOC

The following describes `\ForceHTMLPage` and `\ForceHTMLTOC`, which may be used for endnotes, glossaries, tocbibind, bibliographies, and the index. See the following sections where applicable. Continue here if interested in the reason for adding these commands to lwarp.

Some packages use \chapter* or \section* to introduce reference material such as notes or lists, often to be placed in the back matter of a book. These starred sections are placed inline instead of on their own HTML pages, and they are not given TOC entries.

lwarp provides a method to cause a starred section to be on its own HTML page, subject to FileDepth, and also a method to cause the starred section to have its own TOC entry during HTML output.

\ForceHTMLPage

To place a starred section on its own HTML page, use \ForceHTMLPage just before the \chapter* or \section*. lwarp will create a new page for the starred sectional unit.

A starred sectional unit does not have a TOC entry unless one is placed manually. The typical method using \phantomsection and \addcontentsline works for inline text but fails when the new starred section is given its own webpage after the TOC entry is created, or when creating an EPUB where the TOC entry will point to the page before the starred section. If the starred section has its own HTML page but no correct TOC entry pointing to that page, the page will be inaccessible unless some other link is created.

⚠ inaccessible HTML page

\ForceHTMLTOC

To automatically force the HTML version of the document to have a TOC entry for a starred section, use \ForceHTMLTOC just before the \chapter* or \section*, and place \phantomsection and \addcontentsline inside a warpprint environment.

For print output, \ForceHTMLTOC and \ForceHTMLPage have no effect.

8.6.3 abstract package

Pkg abstract

⚠ missing TOC

If using the number option with file splits, be sure to place the table of contents before the abstract. The number option causes a section break which may cause a file split, which would put a table of contents out of the home page if it is after the abstract.

8.6.4 titling and authblk

Pkg titling

Pkg authblk

package support

⚠ load order

\published and \subtitle

lwarp supports the native LaTeX titling commands, and also supports the packages authblk and titling. If both are used, authblk should be loaded before titling.

If using the titling package, additional titlepage fields for \published and \subtitle may be added by using \AddSubtitlePublished in the preamble. See section 69.8.

8.6.5 tocloft package

Opt [tocloft] titles

Pkg tocloft

Pkg tocloft

⚠ tocloft & other packages

If using tocloft with tocbibind, anonchap, fncychap, or other packages which change chapter title formatting, load tocloft with its titles option, which tells tocloft to use standard LaTeX commands to create the titles, allowing other packages to work with it.

8.6.6 appendix package

Pkg appendix

⚠ incorrect TOC link

During HTML conversion, the option `toc` without the option `page` results in a TOC link to whichever section was before the `appendices` environment. It is recommended to use both `toc` and also `page` at the same time.

8.6.7 pagenote package

Pkg pagenote

pagenote works as-is, but the `page` option is disabled.

⚠ labels

Note that labels in page notes do not appear as expected, even in the print version.

8.6.8 endnotes package

Pkg endnotes

table of contents

To place the endnotes in the TOC, use:

```
\usepackage{endnotes}
\appto\enoteheading{\addcontentsline{toc}{section}{\notesname}}
\renewcommand*{\notesname}{Endnotes} % optional
```

HTML page

To additionally have the endnotes on their own HTML page, if `FileDepth` allows:

```
\ForceHTMLPage
\theendnotes
```

⚠ `\endnotemark` numbering

If using MathJax, see section 8.5.4 regarding the use of `\endnotemark` and `\endnotetext`.

8.6.9 *BibTeX*

`\etalchar`

Displays a superscript "+" to indicate "and others".

⚠ Modify *.bib

When enough authors are cited for a source, BibTeX may use the `\etalchar` command to display a math superscript with a + character to indicate "and others". Without modification, this will result in an "Improper `\prevdepth`" error. At present, lwarp requires that `\etalchar` be replaced by a text superscript. To do so, add to the start of the `.bib` file the following:

```
@PREAMBLE{"\let\etalchar\relax \newcommand{\etalchar}[1]{\textsuperscript{#1}}"}
```

8.6.10 xcite package

See section 5.17.

8.6.11 gloss package

Pkg gloss

⚠ compiling

To process the HTML glossary:

```
bibtex <projectname>_html.gls
```

8.6.12 glossaries package

Pkg glossaries

processing glossaries

Opt GlossaryCmd

Default: makeglossaries

Opt [lwarpmk] printglossary

Opt [lwarpmk] htmlglossary

lwarpmk has the commands **lwarpmk printglossary** and **lwarpmk htmlglossary**, which process the glossaries created by the glossaries package using that package's *makeglossaries* program.

The shell command to execute is set by the lwarp option GlossaryCmd, which defaults to **makeglossaries**. The print or HTML glossary filename is appended to this command.

⚠ *makeglossaries* not found

In some situations it may be required to modify the default command, such as to add the **perl** command in front:

```
\usepackage[
   GlossaryCmd={perl makeglossaries},
] {lwarp}
```

xindy language

To set the language to use for processing glossaries with *xindy*:

```
\usepackage[
   GlossaryCmd={makeglossaries -L english},
] {lwarp}
```

Other options for *makeglossaries* may be set as well.

placement and TOC options

The glossaries may be placed in a numbered or unnumbered section, given a TOC entry, and placed inline or on their own HTML page:

Numbered section, on its own HTML page:

```
\usepackage[xindy,toc,numberedsection=nolabel]{glossaries}
...
\printglossaries
```

Unnumbered section, inline with the current HTML page:

```
\usepackage[xindy,toc]{glossaries}
...
\printglossaries
```

Unnumbered section, on its own HTML page:

```
\usepackage[xindy,toc]{glossaries}
...
\ForceHTMLPage
\printglossaries
```

⚠ glossary style

The default style=item option for glossaries conflicts with lwarp, so the style is forced to index instead.

⚠ number list

The page number list in the printed form would become \namerefs in HTML, which could become a very long string if many items are referenced. For now, the number list is simply turned off.

print/HTML versions

The print and HTML versions of the glossary differ in their internal page numbers. Separate commands for generating print and HTML glossaries are used, even though the page number is currently ignored.

8.6.13 nomencl package

Pkg nomencl

To process the HTML nomenclature:

```
makeindex <project>_html.nlo -s nomencl.ist -o
<project>_html.nls
```

8.6.14 Indexing overview

There are many ways to process indexes for a LaTeX document, including native LaTeX capabilities, a number of packages and classes, the possible availability of shell escape and *latexmk*, and the need to process print and HTML versions. lwarp attempts to provide easy recompilation of indexes along with the rest of the document, but the various indexing options must be set correctly. Numerous examples are given below. Some differ in minor details, so the important parts are highlighted in red, and options are in green.

Once set up properly, the entire document may be recompiled with **`lwarpmk print`** and **`lwarpmk html`**. In some cases, it will also be necessary to compile the indexes with **`lwarpmk printindex`** and **`lwarpmk htmlindex`**. A recompile may then be forced with **`lwarpmk print1`** and **`lwarpmk html1`**.

manual processing

The user may continue to process indexes manually or by shell script without the use of *lwarpmk*, but adjustments will be required to process HTML indexes as well. In general, `*.idx` and `*.ind` files will be accompanied by `*_html.idx` and `*_html.ind` files.

custom index style

If using a custom indexing style file, see sections 8.6.20 to 8.6.22.

link appearance

To control how the index links appear in the HTML output, see the `IndexRef` option in section 7.5, page 105.

source code

See section 79 for lwarp's core index and glossary code, section 340 for index, section 571 for splitidx, section 338 for imakeidx, section 625 for tocbibind, and section 692.17 for memoir's indexing patches.

8.6.15 Indexing with makeidx, *makeindex*, *xindy*, *xindex*, gindex

lwarpmk processing

The following allow the user to process indexes automatically, or using *lwarpmk*'s commands:

Enter ⇒ **`lwarpmk printindex`**

Enter ⇒ **`lwarpmk htmlindex`**

Prog makeindex

For a single index using *makeindex*:

```
\usepackage[makeindex,latexmk] {lwarp}
```

The usual `.idx` and `.ind` files will be used, along with the new `lwarp.ist` style file. When creating the HTML index, "`_html`" is automatically appended to each of the names.

lwarpmk will use *latexmk* if specified, in which case *latexmk* will create the index automatically. Otherwise, use

Enter ⇒ **`lwarpmk printindex`**

Enter ⇒ **lwarpmk htmlindex**

to compile the indexes.

To use a custom configuration file, see section 8.6.20.

Prog xindy

For a single index using *xindy*:

```
\usepackage[
    xindy,
    xindyLanguage=english,                    <optional>
    xindyCodepage=utf8,                       <optional>
    latexmk                                   <optional>
]{lwarp}
```

The usual `.idx` and `.ind` files will be used, along with the new `lwarp.xdy` style file.

lwarpmk will use *latexmk* if specified, in which case *latexmk* will create the index automatically. Otherwise, use

Enter ⇒ **lwarpmk printindex**

Enter ⇒ **lwarpmk htmlindex**

to compile the indexes.

To use a custom configuration file, see section 8.6.21.

Prog xindex

For a single index using *xindex*:

```
\usepackage[
    xindex,
    latexmk                                   <optional>
]{lwarp}
```

The usual `.idx` and `.ind` files will be used.

lwarpmk will use *latexmk* if specified, in which case *latexmk* will create the index automatically. Otherwise, use

Enter ⇒ **lwarpmk printindex**

Enter ⇒ **lwarpmk htmlindex**

to compile the indexes.

To use a custom configuration file, see section 8.6.22.

Pkg gindex

For a single index using gindex:

```
\usepackage[
    makeindex,
    makeindexStyle=gindex.ist,
    . . . or . . .
    makeindexStyle=gindexh.ist,
    latexmk                                   <optional>
]{lwarp}
```

The usual `.idx` and `.ind` files will be used.

lwarpmk will use *latexmk* if specified, in which case *latexmk* will create the index automatically. Otherwise, use

Enter ⇒ **lwarpmk printindex**

Enter ⇒ **lwarpmk htmlindex**

to compile the indexes.

To use a custom configuration file, copy `gindex.ist` to a new file, modify, then specify it with `MakeindexStyle` as above. lwarp will automatically adapt to gindex's `\indexpagessep` and `\indexrangesep` settings.

8.6.16 Indexing with index

Prog index

lwarp is told how to use *makeindex* using the PrintIndexCmd and HTMLIndexCmd options. The file lwarp.ist is specified, which generates index letter heads for print output and also allows special HTML formatting for HTML output.

For multiple indexes using *makeindex* and index:

(Assuming that the second index has file extensions .sist and .sind)

```
\usepackage[
  makeindex, latexmk,
  PrintIndexCmd={
    makeindex -s lwarp.ist <projectname>.idx ;
    makeindex -s lwarp.ist
      -o <projectname>.sind <projectname>.sidx
  },
  HTMLIndexCmd={
    makeindex -s lwarp.ist <projectname>_html.idx ;
    makeindex -s lwarp.ist
      -o <projectname>_html.sind <projectname>_html.sidx
  }
]{lwarp}
\usepackage{index}
. . .
\makeindex
\newindex{secondname}{sidx}{sind}{Second Index}
```

⚠ WINDOWS *For Windows, replace the two ";" characters with "&".*

When creating the HTML index, "_html" is automatically appended to the index filenames.

Use

Enter ⇒ **lwarpmk printindex**

Enter ⇒ **lwarpmk htmlindex**

to compile the indexes.

If the latexmk option is selected for lwarp, *latexmk* will compile the document but will *not* compile the indexes. **lwarpmk printindex** and **lwarpmk htmlindex** will still be required.

8.6.17 Indexing with splitidx

Prog splitidx

lwarp is told how to use *splitindex* using the PrintIndexCmd and HTMLIndexCmd options. The file lwarp.ist is specified, which generates index letter heads for print output and also allows special HTML formatting for HTML output.

If the latexmk option is selected for lwarp, *latexmk* will compile the document but will *not* compile the indexes. **lwarpmk printindex** and **lwarpmk htmlindex** will still be required.

⚠ \thepage When using \AtWriteToIndex or \AtNextWriteToIndex, the user must not refer

to \thepage during HTML output, as the concept of a page number is meaningless. Instead, do

```
\addtocounter{LWR@autoindex}{1}
\LWR@new@label{LWRindex-\arabic{LWR@autoindex}}
```

where the \index-like action occurs, and then refer to \arabic{LWR@autoindex} instead of \thepage where the reference should occur.

See section 692.17 in the lwarp-patch-memoir package for the \@@wrspindexhyp macro as an example.

For multiple indexes using *makeindex* and splitidx:

```
\usepackage[
  makeindex, latexmk,
  PrintIndexCmd={
    splitindex <projectname> -- -s lwarp.ist
  },
  HTMLIndexCmd={
    splitindex <projectname>_html -- -s lwarp.ist
  }
]{lwarp}
\usepackage{splitidx}
. . .
\makeindex
\newindex[Second Index]{secondname}
```

When creating the HTML index, "_html" is automatically appended to each of the names.

Use

Enter ⇒ **lwarpmk printindex**

Enter ⇒ **lwarpmk htmlindex**

to compile the indexes.

For multiple indexes using *xindy* and splitidx:

```
\usepackage[
  xindy, latexmk,
  PrintIndexCmd={
    splitindex -m xindy <projectname> -- -M lwarp.xdy
      -L english -C utf8                    <optional>
  },
  HTMLIndexCmd={
    splitindex  -m  xindy  <projectname>_html  --  -M
lwarp.xdy
      -L english -C utf8                    <optional>
  }
]{lwarp}
\usepackage{splitidx}
. . .
\makeindex
\newindex[Second Index]{secondname}
```

When creating the HTML index, "_html" is automatically appended to each of the names.

Use

Enter ⇒ **lwarpmk printindex**

Enter ⇒ **lwarpmk htmlindex**

to compile the indexes.

8.6.18 Indexing with imakeidx

Prog imakeidx

Due to the number of methods which may be used to process multiple indexes, the options for style file and *xindy* language and codepage must be specified in one of several different ways. These are described in detail later in this section, but are summarized here.

If shell escape is used, imakeidx will automatically compile the indexes by itself. Options specifying a custom style file and *xindy* language and codepage must be specified for each `\makeindex` command using its `options=` option, which must include lwarp's special `lwarp.ist` or `lwarp.xdy` file, or a file based on them. If using a custom indexing style file, see sections 8.6.20 to 8.6.22.

The `splitindex` option is also available of shell escape is used, in which case the splitidx package and *splitindex* program will also be used.

If shell escape is not possible, *latexmk* may be used to automatically compile the indexes. The style, language, and codepage options are specified with lwarp's `makeindexStyle`, `xindyStyle`, `xindyLanguage`, and `xindyCodepage` options. These are passed to *latexmk* by *lwarpmk*'s **lwarpmk printindex** and **lwarpmk htmlindex** commands.

Where shell escape and *latexmk* are not possible, *lwarpmk* may be used to manually compile the indexes. lwarp's `PrintIndexCmd` and `HTMLIndexCmd` options are used.

For a single or multiple indexes using *makeindex* and imakeidx:

The index style `lwarp.ist` is automatically used for HTML output. This file turns on letter headings, so it may be desirable to specify it as an option, in which case it will also be used for print output, which will help match the print and HTML output.

```
\usepackage[makeindex,latexmk] {lwarp}
\usepackage[makeindex]{imakeidx}
. . .
\makeindex[options={-s lwarp.ist}]
\makeindex[name=secondname,options={-s lwarp.ist}]
```

imakeidx will automatically compile the indexes. Shell escape is not required while using *makeindex*. `latexmk` may be specified, and if so it will be used for **lwarpmk print** and **lwarpmk html**, but *imakeidx* will actually create the indexes.

For a single or multiple indexes using *makeindex* and *splitindex* with imakeidx:

The index style `lwarp.ist` is automatically used for HTML output. This file turns on letter headings, so it may be desirable to specify it as an option, in which case it will also be used for print output, which will help match the print and HTML output.

```
\usepackage[makeindex,latexmk] {lwarp}
\usepackage[makeindex,splitindex]{imakeidx}
. . .
\makeindex[options={-s lwarp.ist}]
\makeindex[name=secondname,options={-s lwarp.ist}]
```

⚠ enable shell escape

Shell escape is required while using *splitindex*. For the first compile, use

Enter ⇒ **pdflatex --shell-escape projectname.tex**

Enter ⇒ **pdflatex --enable-write18 projectname.tex** **(MiKTeX)**

or similar with *xelatex* or *lualatex*. lwarp will remember that shell escape was used.

imakeidx will automatically execute *splitindex*, and will also use *makeindex* to compile the indexes.

`latexmk` may be specified, and if so it will be used for **`lwarpmk print`** and **`lwarpmk html`**, but *imakeidx* will actually create the indexes.

For multiple indexes using *xindy* and imakeidx, using shell escape:

Options may be given to imakeidx's `\makeindex` command. The style file `lwarp.xdy` is automatically used for HTML output, and is not necessary for print output since the output will be similar. If language or codepage must be set, they should be specified as options for `\makeindex`, since imakeidx will process the indexes.

```
\usepackage[xindy,latexmk] {lwarp}
\usepackage[xindy,splitindex]{imakeidx}
. . .
\makeindex[
  options={ -M lwarp.xdy -L english -c utf8 }
]
\makeindex[
  name=secondname,
  options={ -M lwarp.xdy -L english -c utf8 }
]
```

⚠ enable shell escape

For the first compile, use

Enter ⇒ **pdflatex --shell-escape projectname.tex**

Enter ⇒ **pdflatex --enable-write18 projectname.tex** **(MiKTeX)**

or similar with *xelatex* or *lualatex*. lwarp will remember that shell escape was used.

imakeidx will automatically execute *splitindex* if selected, and will also use *xindy* to compile the indexes.

If selected, *latexmk* will automatically recompile the entire document as necessary.

For indexes using *xindy* and *imakeidx*, without shell escape, but *with latexmk*:

lwarp's options are used, and are passed to *latexmk*.

```
\usepackage[
  xindy,
  xindyLanguage=english,                    <optional>
  xindyCodepage=utf8,                       <optional>
  latexmk,
]{lwarp}
\usepackage[xindy]{imakeidx}
. . .
\makeindex
\makeindex[name=secondname]
```

latexmk will create the indexes automatically when **`lwarpmk print`** and **`lwarpmk html`** are executed.

For indexes using *xindy* and *imakeidx*, without shell escape, and *without latexmk*:

lwarpmk must be told how to create the indexes:

```
\usepackage[
  xindy,
  PrintIndexCmd={
    xindy -M lwarp.xdy -L english -C utf8
      <projectname>.idx ;
    xindy -M lwarp.xdy -L english -C utf8
      secondname.idx
  },
  HTMLIndexCmd={
    xindy -M lwarp.xdy -L english -C utf8
      <projectname>_html.idx ;
    xindy -M lwarp.xdy -L english -C utf8
      secondname_html.idx
  }
]{lwarp}
\usepackage[xindy]{imakeidx}
. . .
\makeindex
\makeindex[name=secondname]
```

⚠ WINDOWS *For Windows, replace the two ";" characters with "&".*

`<projectname>` is the `\jobname`: if compiling "`name.tex`", use the filenames `name.idx` and `name_html.idx`.

Use

Enter ⇒ **`lwarpmk printindex`**

Enter ⇒ **`lwarpmk htmlindex`**

to compile the indexes.

For multiple indexes using *xindex* and imakeidx, using shell escape:

xindex, *makeindex*, *imakeidx*, and *splitindex* can all work together:

```
\usepackage[%
  xindex,
  xindexConfig=-imakeidx,
  latexmk
] {lwarp}
\usepackage[makeindex,splitindex]{imakeidx}
. . .
\makeindex[%
  options={ -s lwarp.ist} }
]
\makeindex[
  name=secondname,
  options={ -s lwarp.ist} }
]
```

⚠ enable shell escape

For the first compile, use:

Enter ⇒ **pdflatex --shell-escape projectname.tex**

Enter ⇒ **pdflatex --enable-write18 projectname.tex** **(MiKTeX)**

or similar with *xelatex* or *lualatex*. lwarp will remember if shell escape was used.

xindex will use *imakeidx*, and *imakeidx* will automatically execute *splitindex* if selected.

If selected, *latexmk* will automatically recompile the entire document as necessary.

8.6.19 Indexes with memoir

For a single index with memoir and *makeindex*:

```
\documentclass{memoir}
\usepackage[makeindex,latexmk]{lwarp}
. . .
\makeindex
```

The usual `.idx` and `.ind` files will be used, along with the `lwarp.ist` style file.

lwarpmk will use *latexmk* if specified, in which case *latexmk* will create the index automatically. Otherwise, use

Enter ⇒ **lwarpmk printindex**

Enter ⇒ **lwarpmk htmlindex**

to compile the indexes.

For multiple indexes with memoir and *makeindex*, using *latexmk*:

lwarp's options are used, and are passed to *latexmk*.

```
\documentclass{memoir}
\usepackage[makeindex,latexmk]{lwarp}
. . .
\makeindex
\makeindex[secondname]
```

lwarpmk will use *latexmk* to create the indexes automatically when the user executes **lwarpmk print** and **lwarpmk html**.

For multiple indexes with memoir and *makeindex*, *without* latexmk:

lwarpmk must be told how to create the indexes:

```
\documentclass{memoir}
\usepackage[
  makeindex,
  PrintIndexCmd={
    makeindex -s lwarp.ist <projectname>.idx ;
    makeindex -s lwarp.ist secondname.idx
  },
  HTMLIndexCmd={
    makeindex -s lwarp.ist <projectname>_html.idx ;
    makeindex -s lwarp.ist secondname_html.idx
  }
]{lwarp}
. . .
\makeindex
\makeindex[secondname]
```

⚠ WINDOWS *For Windows, replace the two ";" characters with "&".*

`<projectname>` is the `\jobname`: if compiling "`name.tex`", use the filenames `name.idx` and `name_html.idx`.

Use

Enter ⇒ **`lwarpmk printindex`**

Enter ⇒ **`lwarpmk htmlindex`**

to compile the indexes.

For a single index with memoir and *xindy*:

```
\documentclass{memoir}
\usepackage[
    xindy,
    xindyLanguage=english,                  <optional>
    xindyCodepage=utf8,                     <optional>
    latexmk                                 <optional>
]{lwarp}
. . .
\xindyindex
\makeindex
```

The usual `.idx` and `.ind` files will be used, along with the `lwarp.xdy` style file.

lwarpmk will use *latexmk* if specified, in which case *latexmk* will create the index automatically. Otherwise, use

Enter ⇒ **`lwarpmk printindex`**

Enter ⇒ **`lwarpmk htmlindex`**

to compile the indexes.

For multiple indexes with memoir and *xindy*, using latexmk:

lwarp's options are used, and are passed to *latexmk*.

```
\documentclass{memoir}
\usepackage[
    xindy,
    xindyLanguage=english,                    <optional>
    xindyCodepage=utf8,                       <optional>
    latexmk
]{lwarp}
. . .
\xindyindex
\makeindex
\makeindex[secondname]
```

lwarpmk will use *latexmk* to create the indexes automatically.

For multiple indexes with memoir and *xindy*, *without* latexmk:

lwarpmk must be told how to create the indexes:

```
\documentclass{memoir}
\usepackage[
  xindy,
  PrintIndexCmd={
    xindy -M lwarp.xdy -L english -C utf8
      <projectname>.idx ;
    xindy -M lwarp.xdy -L english -C utf8
      secondname.idx
  },
  HTMLIndexCmd={
    xindy -M lwarp.xdy -L english -C utf8
      <projectname>_html.idx ;
    xindy -M lwarp.xdy -L english -C utf8
      secondname_html.idx
  }
]{lwarp}
. . .
\xindyindex
\makeindex
\makeindex[secondname]
```

⚠ WINDOWS *For Windows, replace the four ";" characters with "&".*

`<projectname>` is the `\jobname`: if compiling "`name.tex`", use the filenames `name.idx` and `name_html.idx`.

Use

Enter ⇒ **`lwarpmk printindex`**

Enter ⇒ **`lwarpmk htmlindex`**

to compile the indexes.

8.6.20 Using a custom *makeindex* style file

Prog `makeindex`
File `lwarp.ist`

When using *makeindex*, *lwarpmk* uses the file `lwarp.ist` to process the index. This file is over-written by lwarp whenever a print version of the document is processed.

To use a custom *makeindex* style file:

1. Copy `lwarp.ist` to a new filename such as `projectname.ist`
2. Make changes to `projectname.ist`. Keep the lines which refer to `\hyperindexref`. These lines creates the hyperlinks for the HTML index. During print output `\hyperindexref` becomes a null function.
3. If changing

   ```
   delim_n -and- delim_r
   ```

   in `projectname.ist`, then in the document preamble redefine

   ```
   \IndexPageSeparator -and- \IndexRangeSeparator
   ```

   to match.

Opt `makeindexStyle`

4. In the document source use the `makeindexStyle` option for lwarp:

   ```
   \usepackage[
     . . . other options . . .
     makeindex,
     makeindexStyle=projectname.ist,
   ]{lwarp}
   ```

   Likewise, refer to the custom style file if using `\PrintIndexCmd`, `\HTMLIndexCmd`, or `\LatexmkIndexCmd`.
5. Recompile the print version, which causes lwarp to rewrite the `lwarpmk.conf` configuration file. This tells *lwarpmk* to use the custom `projectname.ist` file instead of `lwarp.ist`.

8.6.21 Using a custom *xindy* style file

Prog `xindy`
File `lwarp.xdy`

When using *xindy*, *lwarpmk* uses the file `lwarp.xdy` to process the index. This file is over-written by lwarp whenever a print version of the document is processed.

To use a custom *xindy* style file:

1. Copy `lwarp.xdy` to a new filename such as `projectname.xdy`
2. Make changes to `projectname.xdy`.

   Keep the lines which refer to `\hyperindexref`:

   ```
   (define-attributes (("hyperindexref")))
   (markup-locref :open "\hyperindexref{" :close "}")
   ...
   (markup-locref :open "\textit{\hyperindexref{" :close "}}" :attr "textit")
   ```

   These lines create the hyperlinks for the HTML index. During print output `\hyperindexref` becomes a null function.

   To create custom styles, refer to the lines for `\textbf` and `\textit`.
3. If changing any of

   ```
   markup-locref-list :sep
   markup-locclass-list :open
   markup-locclass-list :sep
   markup-crossref-layer-list :sep
   markup-range :sep
   ```

in `projectname.xdy`, then in the document preamble redefine

```
\IndexPageSeparator -and- \IndexRangeSeparator
```

to match.

Opt `xindyStyle`

4. In the document source use the `xindyStyle` option for lwarp:
```
\usepackage[
  . . . other options . . .
  xindy,
  xindyStyle=projectname.xdy,
]{lwarp}
```
Likewise, refer to the custom style file if using `\PrintIndexCmd`, `\HTMLIndexCmd`, or `\LatexmkIndexCmd`.

5. Recompile the print version, which causes lwarp to rewrite the `lwarpmk.conf` configuration file. This tells *lwarpmk* to use the custom `projectname.xdy` file instead of `lwarp.xdy`.

8.6.22 Using a custom *xindex* style file

Prog `xindex`

To use a custom *xindex* style file:

⚠ filename

1. Copy `xindex-cfg.lua` to a new filename such as `xindex-projectname.lua`. The filename must start with `xindex-` and end with `.lua`.
2. Make changes to `xindex-projectname.lua`.
3. If changing
```
itemPageDelimiter -and- rangeSymbol
```
in `xindex-projectname.lua`, then in the document preamble redefine
```
\IndexPageSeparator -and- \IndexRangeSeparator
```
to match.

Opt `xindexConfig`

4. In the document source use the `xindexConfig` option for lwarp:
```
\usepackage[
  . . . other options . . .
  xindex,
  xindexConfig=projectname,   % (without xindex- or .lua)
]{lwarp}
```
Likewise, refer to the custom style file if using `\PrintIndexCmd`, `\HTMLIndexCmd`, or `\LatexmkIndexCmd`.

5. Recompile the print version, which causes lwarp to rewrite the `lwarpmk.conf` configuration file. This tells *lwarpmk* to use the custom `xindex-projectname.lua` file instead of the default `xindex-cfg.lua`.

8.6.23 Additional indexing limitations

⚠ *xindy* with hyperref

xindy and hyperref may not work well together for print output with "see", "see also", reference ranges, or stylized index references. It may be necessary to turn off hyper-referencing for indexes:

```
\usepackage[hyperindex=false]{hyperref}
```

⚠ empty index

If an HTML index is empty, it may be necessary to add the following before lwarp is loaded:

```
\usepackage{morewrites}
\morewritessetup{allocate=10}
. . .
\usepackage{lwarp}
```

makeindex custom display styles

When using *makeindex*, custom display styles are possible:

```
\begin{warpprint}
\newcommand{\notesstyle}[1]{#1nn}
\end{warpprint}

\begin{warpHTML}
\makeatletter
\newcommand{\notesstyle}[1]{\LWR@doindexentry{#1} notes }
\makeatother
\end{warpHTML}
. . .
A sentence.\index{key|notesstyle}
```

xindy custom display styles

For custom styles with *xindy*, see `lwarp.xdy` for `\textbf` and `\textit` as examples.

8.6.24 Index positions, TOC, tocbibind

placement and TOC options

An index may be placed inline with other HTML text, or on its own HTML page:

Pkg makeidx

Inline, with a manual TOC entry:

A commonly-used method to introduce an index in a LaTeX document:

```
\cleardoublepage
\phantomsection
\addcontentsline{toc}{section}{\indexname}% or chapter
\printindex
```

Pkg makeidx

On its own HTML page, with a manual TOC entry:

```
\begin{warpprint}
\cleardoublepage
\phantomsection
\addcontentsline{toc}{section}{\indexname}% or chapter
\end{warpprint}
\ForceHTMLPage
\ForceHTMLTOC
\printindex
```

Pkg tocbibind

Inline, with an automatic TOC entry:

The tocbibind package may be used to automatically place an entry in the TOC.

```
\usepackage[nottoc]{tocbibind}
. . .
\cleardoublepage
\phantomsection % to fix print-version index link
\printindex
```

Pkg tocbibind

On its own HTML page, with an automatic TOC entry:

```
\usepackage[nottoc]{tocbibind}
. . .
\cleardoublepage
\phantomsection % to fix print-version index link
\ForceHTMLPage
\printindex
```

Opt [tocbibind] numindex

numbered index section

Use the tocbibind `numindex` option to generate a numbered index. Without this option, the index heading has no number.

Other packages, such as imakeidx, may also have options for including the index in the Table of Contents.

Pkg tocloft

⚠ tocloft & other packages

If using tocloft with tocbibind, anonchap, fncychap, or other packages which change chapter title formatting, load tocloft with its `titles` option, which tells tocloft to use standard LaTeX commands to create the titles, allowing other packages to work with it.

8.7 Math

8.7.1 Math in section names

⚠ math in section names

If using named HTML files, in section names use paren math `\(x+y\)` instead of dollar math `$x+y$`. (Dollar math works, but appears in the filename.) Or, use a short name for the TOC entry without the math, or use `\texorpdfstring` from the hyperref package:

```
\section{Some math \texorpdfstring{$1+2=3$}{three}}
```

8.7.2 Rendering tradeoffs

Math rendering

Math may be rendered as SVG graphics or using the MathJax JavaScript display engine.

SVG files

Rendering math as images creates a new SVG file for each expression, except that an MD5 hash is used to combine identical duplicates of the same inline math expression into a single file, which must be converted to SVG only once. Display math is still handled as individual files, since it may contain labels or references which are likely to change.

SVG inline

The SVG images are currently stored separately, but they could be encoded inline directly into the HTML document. This may reduce the number of files and potentially speed loading the images, but slows the display of the rest of the document before the images are loaded.

PNG files

Others LaTeX-to-HTML converters have used PNG files, sometimes pre-scaled for

print resolution but displayed on-screen at a scaled down size. This allows high-quality print output at the expense of larger files, but SVG files are the preferred approach for scalable graphics.

MathML

Conversion to MathML might be a better approach, among other things allowing a more compact representation of math than SVG drawings. Problems with MathML include limited browser support and some issues with the fine control of the appearance of the result. Also see section 10 regarding EPUB output with MathJax.

8.7.3 SVG option

SVG math option

For SVG math, math is rendered as usual by LaTeX into the initial PDF file using the current font[14], then is captured from the PDF and converted to SVG graphics via a number of utility programs. The SVG format is a scalable-vector web format, so math may be typeset by LaTeX with its fine control and precision, then displayed or printed at any size, depending on (sometimes broken) browser support. An HTML `alt` attribute carries the LaTeX code which generated the math, allowing copy/paste of the LaTeX math expression into other documents.

SVG image font size

For the `lateximage` environment, the size of the math and text used in the SVG image may be adjusted by setting `\LateximageFontSizeName` to a font size name — *without the backslash*, which defaults to:

```
\renewcommand{\LateximageFontSizeName}{normalsize}
```

For inline SVG math, font size is instead controlled by `\LateximageFontScale`, which defaults to:

```
\newcommand*{\LateximageFontScale}{.75}
```

SVG math copy/paste

For SVG math, text copy/paste from the HTML `<alt>` tags lists the equation number or tag for single equations, along with the LaTeX code for the math expression. For $\mathcal{AMS}$ environments with multiple numbers in the same environment, only the first and last is copy/pasted, as a range. No tags are listed inside a starred $\mathcal{AMS}$ environment, although the `\tag` macro will still appear inside the LaTeX math expression.

⚠ SVG math size, baseline

SVG math sizing and baselines are improved if the graphics or graphicx package is loaded. An almost-invisible marker is placed at either end of the image to assist in cropping and computing the baseline. A warning is issued at the end of the compile if graphics or graphicx are not used.

⚠ SVG math in TeX boxes

SVG math does not work inside TeX boxes, since a `\newpage` is required before and after each image.

8.7.4 MathJax option

MathJax math option

Prog MathJax

The MathJax (`mathjax.org`) LaTeX-math to HTML converter may be used to display math.

When MathJax is enabled, math is rendered twice:

[14] See section 677 regarding fonts and fractions.

1. As regular LaTeX PDF output placed inside an HTML comment, allowing equation numbering and cross referencing to be almost entirely under the control of LaTeX, and

2. As detokenized printed LaTeX commands placed directly into the HTML output for interpretation by the MathJax display scripts. An additional script is used to pre-set the equation number format and value according to the current LaTeX values, and the MathJax equation numbering system is ignored in favor of the LaTeX internal system, seamlessly integrating with the rest of the HTML output, including any math appearing in non-MathJax SVG output.

8.7.5 MathJax rendering options

⚠ fonts

MathJax v3 may render using CHTML or SVG. SVG display renders italic characters correctly. To select SVG rendering, right-click on some math, and select

Math Settings → Math Renderer → SVG

Wait a moment for the math to rerender.

8.7.6 Customizing MathJax

equation numbering

lwarp detects and adjusts MathJax equation numbering format for article and book style equations as well as amsmath `\numberwithin` for chapters, sections, and subsections. Custom equation number formats may be set as follows, for example:

```
\renewcommand*{\theequation}{\Alph{section}.\arabic{equation}}
\AtBeginDocument{
  \renewcommand*{\theMathJaxsection}{\Alph{section}.}
}
```

⚠ `subequation`

The amsmath `subequations` environment is supported, but only with `\alpha` subequation numbering.

global customizations

MathJax does not have preexisting support every possible math function. Additional MathJax function definitions may be defined in the preamble. These will be declared at the start of each HTML page, and thus will have a global effect across all HTML pages.

Examples:

```
\begin{warpMathJax}
\CustomizeMathJax{
    \newcommand{\expval}[1]{\langle#1\rangle}
    \newcommand{\abs}[1]{\lvert#1\rvert}
}
\CustomizeMathJax{\newcommand{\arcsinh}{\text{arcsinh}}}
\CustomizeMathJax{\newcommand{\arccosh}{\text{arccosh}}}
\CustomizeMathJax{\newcommand{\NN}{\mathbb{N}}}
\end{warpMathJax}
```

⚠ slow compilation

To avoid a slowdown in compile speed, use the `warpMathJax` environment to prevent its contents from being processed in print or SVG math output. Also, place

each new definition inside its own \CustomizeMathJax. A warning to this effect is issued if an overly-long definition is attempted.

lwarp already provides MathJax customizations for some packages.

siunitx When using siunitx, a similar process may be used to add custom units:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\myunit}{\mathrm{WXYZ}}}
\CustomizeMathJax{\newcommand{\umyunit}{\mathrm{\micro\myunit}}}
\end{warpMathJax}
```

advanced control For more advanced control over dynamically creating custom definitions, see as an example the lwarp definition for \DeclarePairedDelimiterX, in section 399, mathtools.

local customizations For customizations local to the current HTML page only, macros may be defined as follows:

```
\begin{warpMathJax}
\( \newcommand{\macroname}{. . . } \)
\( \newcommand{\anothername}{. . . } \)
\end{warpMathJax}
```

To maintain compile speed, use the warpMathJax environment, and use a separate math environment for each definition.

\ifstar For MathJax, use \ifstar instead of \@ifstar:

```
\CustomizeMathJax{
  \def\myname{
    \ifstar\starredaction\unstarredaction
    % (Do not place anything after!)
  } }
```

\ifnextchar For MathJax, use \ifnextchar instead of \@ifnextchar:

```
\CustomizeMathJax{\def\myname{\ifnextchar X \found\notfound}}
```

"X" may be a single ASCII character, or a hex number inside braces, ex:

```
\CustomizeMathJax{\def\myname{\ifnextchar{0x7B}\found\notfound}}
```

Use "(" or "{0x28}" for a left parenthesis, "{0x7B}" for a left brace, "{0x7D}" for a right brace, or "{0x5C}" for a backslash.

8.7.7 MathJax limitations

MathJax limitations Limitations when using MathJax include:

Prog MathJax

⚠ \multicolumn, multirow

- MathJax does not support \multicolumn or multirow. These may be used in text tabulars or SVG math, but in MathJax math arrays they are emulated. \multicolumn only fills a single cell, resulting in a short row. \multirow simply prints its text on the first line.

⚠ footnotes

- Footnotes are emulated when used inside a MathJax expression. For an equation with a single footnote, the correct footnote number is used. For non-equations, \footnotename is used instead, since the actual number

cannot be tracked. See section 8.5.4 regarding the use of footnotes with MathJax.

⚠ references

- Inside a MathJax expression, references to equations work within the same HTML web page, but do not work when referring to an equation in a different HTML web page. Outside of a MathJax expression, in the text body, references work as expected.

lateximage

- Math appearing inside a lateximage, and therefore also inside a Ti*k*z or `picture` environment, is rendered as SVG math even if MathJaxis used in the rest of the document.

siunitx

- For siunitx, see siunitx package, section 8.7.14.

physics

- For physics, see physics package, section 8.7.16.

tabbing

- A `tabbing` environment is emulated using an HTML `<pre>`. While MathJax is enabled inside `tabbing`, the browser may not correctly render the horizontal alignment of the math and text following after on the same line.

`\text`

- MathJax includes the *textmacros* extension, which supports various macros which are commonly used inside `\text`, such as `\textbf` and text accents. Lwarp supports this extension.

⚠ Unicode

- If using DVI LaTeX or PDF LaTeX, unicode input may not appear correctly in MathJax. Either use XeLaTeX or LuaLaTeX, or replace Unicode special characters such as

  ```
  \text{special character æ}
  ```

  with their special macros, such as

  ```
  \text{special character \ae}
  ```

⚠ other macros and packages

- Many other math-related macros and packages are not directly supported by MathJax, including `\ensuremath` and occasionally-used macros such as `\relax`. While using MathJax, lwarp provides emulation for many of these macros, as well as for footnotes and emulation for dozens of packages (see table 2). In many cases these emulations simply ignore the package in a source-compatible way. Others produce a result which represents the meaning, even if they don't look exact. Look up each package in this document for a description of the limitations of each.

8.7.8 Catcode changes

preamble macros with math

The math shift character `$` is not set for HTML output until after the preamble. Macros defined in the preamble which contain `$` must be enclosed between `\StartDefiningMath` and `\StopDefiningMath` to temporarily change to the HTML meaning of `$`:

```
\StartDefiningMath
\newcommand{. . . }
\StopDefiningMath
```

As an alternative, use `\(` and `\)` instead of `$`, in which case `\StartDefiningMath` and `\StopDefiningMath` are not necessary.

If a package defines macros using `$`, it may be nessary to use `\StartDefiningMath` and `\StopDefiningMath` before and after loading the package.

8.7.9 Complicated inline math objects

`\inlinemathnormal`
`\inlinemathother`

changing contents
complicated `alt` tag

MathJax limitations

An inline math expression is usually converted to a reusable hashed SVG math image, or a MathJax expression. The hash or expression depends on the contents of the math expression. In most cases this math expression is static, such as `$x+1$`, so the image can be reused for multiples instances of the same expression. In some cases, the math expression includes a counter or other object which may change between uses. Another problem is complicated contents which do not expand well in an `alt` tag. Yet another problem is math packages which are only partially emulated in MathJax. The macro `\inlinemathother` may be used before a sequence of dynamic or complicated math expressions, and `\inlinemathnormal` after. Doing so tells lwarp to use unhashed SVG math images for those particular expressins, even if MathJaxis otherwise in use. See section 44.

8.7.10 Complicated display math objects

`\displaymathnormal`

By default, or when selecting `\displaymathnormal`, MathJax math display environments print their contents as text into HTML for MathJax to interpret, and SVG display math environments render their contents as SVG images and use their contents as the `alt` tag of HTML output. To do so, the contents are loaded into a macro for reuse. In some cases, such as complicated Ti*k*z pictures, compilation will fail.

`\displaymathother`

MathJax unsupported
complicated `alt` tag

When selecting `\displaymathother`, it is assumed that the contents are more complicated than "pure" math. An example is an elaborate Ti*k*z picture, which will not render in MathJax and will not make sense as an HTML `alt` tag. In this mode, MathJax is turned off, math display environments become SVG images, even if MathJax is selected, and the HTML `alt` tags become simple messages. The contents are internally processed as an environment instead of a macro argument, so complicated objects such as Ti*k*z pictures are more likely to compile successfully.

8.7.11 Theorems

⚠ cref reference format undefined

If the print version does not use cleveref, place all `\theoremstyle` and `\newtheorem` declarations in the preamble inside `\AtEndPreamble`.[15] For some theorems, it may also be required to add inside `\AtEndPreamble` something such as:

```
\usepackage{etoolbox} % for \ifdef, \AtEndPreamble
\AtEndPreamble{ % if not using cleveref package
  \theoremstyle{definition}
  \newtheorem{dtheorem}{Definition}
  . . .
  \ifdef{\cref}{
    \crefname{Proof}{Proof}{Proofs}
  }{}
}
```

[15] lwarp uses cleveref for the HTML conversion, and loads cleveref `\AtEndPreamble`, just before `\AtBeginDocument`. This is also before the `.aux` file is read.

8.7.12 ntheorem package

Pkg ntheorem

⚠ Font control

This conversion is not total. Font control is via CSS, and the custom LaTeX font settings are ignored.

⚠ Equation numbering

ntheorem has a bug with equation numbering in $\mathcal{AMS}$ environments when the option `thref` is used. lwarp does not share this bug, so equations with `\split`, etc, are numbered correctly with lwarp's HTML output, but not with the print output. It is recommended to use cleveref instead of ntheorem's `thref` option.

8.7.13 mathtools package

Pkg mathtools

⚠ equation numbering

`showonlyrefs` is disabled, as it conflicts with cleveref, which is used by lwarp. Equation numbers may not match the print version.

⚠ italic correction

`mathic` is not emulated for HTML.

⚠ MathJax

If using MathJax:

- mathtools `disallowspaces` does not work for MathJax. Protect brackets which are not optional arguments, such as:

```
\begin{gathered}{}
[p]=1 . . .
\end{gathered}
```

- `showonlyrefs` does not work in MathJax, and will result in a difference in equation numbering compared to the print version.
- `alignat` in MathJax requires math mode, but in LaTeX it doesn't. It may be required to use `warpHTML` and `warpprint` to isolate a version for each mode.
- `\DeclarePairedDelimiter` and related must be in the preamble before `\begin{document}`.

8.7.14 siunitx package

Pkg siunitx

siunitx is well supported by lwarp.

Limitations Some general limitations:

fractions

Due to *pdftotext* limitations, fraction output is replaced by symbol output for `per-mode` and `quotient-mode`.

`\cancel` is not currently supported for siunitx v3.

Negative values are not automatically colored.

⚠ tabular

Tabular `S` and `s` columns are rendered as simple `c` columns, although key settings will be set. If using scientific notation, `table-format`, `table-align-uncertainty`, `drop-exponent`, etc.. use `\tablenum` for each cell. This is especially required for

⚠ drop-exponent

`drop-exponent`, without which the value will be shown incorrectly.

⚠ table-auto-round

`table-auto-round` is ignored.

Math rendering Math may be rendered in several ways in the same document:

For math mode with SVG display: The original siunitx code is used while generating the SVG image.

For HTML text mode: lwarp uses siunitx code patched for HTML, and simplified units.

For math expressions while using MathJax: A limited emulation is used. Most functions work reasonably well, but many options cannot be emulated. The result usually looks fine, and otherwise is enough to get the meaning across.

Custom units siunitx allows customized units:

`\DeclareSIUnit` `{`⟨*name*⟩`}` `{`⟨*definition*⟩`}`

`\DeclareSIUnit` declares a version of the unit for the print version. This is also used when the unit is printed in SVG math or a `lateximage`. It is also used for HTML if an HTML-specific version is not defined with `\HTMLDeclareSIUnit`.

```
\DeclareSIUnit\myunit{\ensuremath{\text{m}_y}}
```

`\HTMLDeclareSIUnit` `{`⟨*name*⟩`}` `{`⟨*definition*⟩`}`

⚠ v3 only! Use this after the print unit has been defined. For siunitx v3, `\HTMLDeclareSIUnit` declares a simplified version of the unit for HTML, for example if the print-mode unit uses TEX boxes or `\ensuremath`:

```
\HTMLDeclareSIUnit\myunit{\text{m}\textsubscript{\textit{y}}}
```

It is also possible to provide a custom unit for MathJax:

```
\CustomizeMathJax{\newcommand{\myunit}{\text{m}_y}}
```

Predefined units Most units work as-is with HTML. For the following units, lwarp has already set `\HTMLDeclareSIUnit`: `\celsius`, `\arcminute`, `\arcsecond`, `\elementarycharge`, `\clight`, `\bohr`, `\electronmass`, `\hartree`, `\planckbar`.

⚠ MathJax

Document modifications required for MathJax

⚠ `\sisetup`
- Place `\sisetup` in the preamble before `\begin{document}`. Changes made later may be ignored, especially with MathJax. The MathJax emulation also ignores most macro options.

⚠ complex numbers
- Complex numbers are displayed as entered, ignoring `output-complex-root`.

custom units
- Custom units may be added with `\CustomizeMathJax`. For example, from lwarp-common-mathjax-siunitx:

```
\CustomizeMathJax{\newcommand{\hartree}{\mathit{E}_{\mathrm{h}}}}
\CustomizeMathJax{\newcommand{\angstrom}{\mathrm{\unicode{x212B}}}}
```

⚠ unit spacing
- Units work better using ~ between units instead of using periods.

Table 9: \includegraphics and file names

Print image file	HTML image file	Command to use
image.pdf[a]	image.svg[a]	\includegraphics{image}
image.eps[a]	image.svg[a]	\includegraphics{image}
image.jpg	—[b]	\includegraphics{image}
image.png	—[b]	\includegraphics{image}
image.JPG	—[b]	\includegraphics{image.JPG}[c]
image.PNG	—[b]	\includegraphics{image.PNG}[c]
image.jpg	image.gif	\includegraphics{image}

[a]: Must be a lowercase file extension.
[b]: The same file is used for print and HTML.
[c]: The uppercase extension must be specified.

⚠ \square, \cubic

- To square or cube compound units, enclose the following compound units in braces:

  ```
  \cubic{\centi\meter}
  ```

  Single units do not require braces.
- For \numlist, the argument is printed as text as-is, so use space between semicolons for improved readability.

⚠ Missing $ inserted

- If using parse-numbers = false, also use \num or \qty. siunitx=siunitx>Missing $ inserted.

Also see MathJax option, section 8.7.4.

8.7.15 units and nicefrac packages

Pkg units
Pkg nicefrac

units and nicefrac work with lwarp, but MathJax does not have an extension for units or nicefrac. These packages do work with lwarp's option svgmath.

8.7.16 physics package

Pkg physics

physics works as-is for HTML with SVG math.

For MathJax, the MathJax v3 physics extension is used.

8.8 Graphics

Pkg graphics
Pkg graphicx

file extensions

Per table 9, image filenames may be specified either with or without an extension. If an extension is given it will be used as-is, for either print or HTML output. If no extension is given, a list of possible extensions is tried, which depends on whether print or HTML is being generated. This allows a PDF file for print and a

⚠ case sensitive

SVG file for HTML, for example. If no extension is given, the automatic search will only return lowercase extensions, even if the filename actually has an uppercase extension, and lwarp cannot get around this problem, so image file extensions must be lowercase to be seen by the HTML browser with lwarp. For example, name the image file `image.pdf` instead of `image.PDF`, but refer to it in the source as `image`, without an extension. For images which may be used as-is with either print or HTML, such as JPG or PNG, you may use a capitalized extension if it is specified in the source, such as `image.JPG`.

`\includegraphics` file formats

For `\includegraphics` with `.pdf` or `.eps` files, the user must provide a `.pdf` or `.eps` image file for use in print mode, and also a `.svg`, `.png`, or `.jpg` version of the same image for use in HTML.

```
\includegraphics{filename} % print:.pdf/.eps HTML:.svg, etc.
```

For print output, lwarp will automatically choose the `.pdf` or `.eps` format if available, or some other format otherwise. For HTML, one of the other formats is used instead.

If a `.pdf` or `.eps` image is referred to with its file extension, the extension will be changed to `.svg` for HTML:

```
\includegraphics{filename.pdf} % uses .svg in html
\includegraphics{filename.eps} % uses .svg in html
```

Prog `pdftocairo`

PDF to SVG

To convert a PDF image to SVG, use the utility *pdftocairo*:

Enter ⇒ **`pdftocairo -svg filename.pdf`**

Prog `lwarpmk pdftosvg`

For a large number of images, use *lwarpmk*:

Enter ⇒ **`lwarpmk pdftosvg *.pdf`** **(or a list of filenames)**

Prog `lwarpmk epstopdf`

Prog `epstopdf`

epstopdf package

For EPS images converted to PDF using the package epstopdf, use

Enter ⇒ **`lwarpmk pdftosvg *.PDF`**

to convert to SVG images.

DVI LaTeX

When using DVI *latex*, it is necessary to convert EPS to PDF and then to SVG:

Enter ⇒ **`lwarpmk epstopdf *.eps`** **(or a list of filenames)**

Enter ⇒ **`lwarpmk pdftosvg *.pdf`** **(or a list of filenames)**

PNG and JPG

For PNG or JPGwhile using *pdflatex*, *lualatex*, or *xelatex*, the same file may be used in both print or HTML versions, and may be used with a file extension, but will also be used without the file extension if it is the only file of its base name.

GIF

GIF files may be used for HTML, but another format must also be provided for print output.

file extension priorities

If a file extension is not used, for HTML the file extension priorities are: SVG, GIF, PNG, then JPG.

duplicate files

⚠ image not displayed

A complication occurs if a file of the same name exists elsewhere in the TeX tree, such as a test image from some LaTeX package. TeX looks in the local document directory before considering the directories specified by `\graphicspath`, but the TeX tree is found as “local”, so any file in the tree is found before the directories

in \graphicspath. To use such an image, it must be copied to the document's directory to be used for HTML, and furthermore must be in the document's base directory instead of an images subdirectory.

⚠ graphics vs. graphicx

If using the older graphics syntax, use both optional arguments for \includegraphics. A single optional parameter is interpreted as the newer graphicx syntax. Note that viewports are not supported by lwarp — the entire image will be shown.

⚠ viewport

units

For \includegraphics, avoid px and % units for width and height, or enclose them inside warpHTML environments. For font-proportional image sizes, use ex or em. For fixed-sized images, use cm, mm, in, pt, or pc. Use the keys width=.5\linewidth, or similar for \textwidth or \textheight to give fixed-sized images proportional to a 6 by 9 inch text area. Do not use the scale option, since it is not well supported by HTML browsers.

options

\includegraphics accepts width and height, origin, rotate and scale, plus new class and alt keys. (alt has recently been incorportated into graphicx itself.)

HTML class

With HTML output, \includegraphics accepts an optional class=xyz keyval combination, and if this is given then the HTML output will include that class for the image. The class is ignored for print output.

HTML alt tags

Likewise, the \includegraphics alt key adds an HTML alt tag to an image, and is ignored for print output. If not assigned, each image is given an alt tag according to \ImageAltText.

⚠ scale

Avoid using the \includegraphics scale option. Change:

```
\includegraphics[scale=<xx>]{ . . . }
```

to:

```
\includegraphics[width=<yy>\linewidth]{ . . . }
```

\rotatebox

\rotatebox accepts the optional origin key.

⚠ browser support

\rotatebox, \scalebox, and \reflectbox depend on modern browser support. The css3 standard declares that when an object is transformed the whitespace which they occupied is preserved, unlike LaTeX, so expect some ugly results for scaling and rotating.

8.8.1 tikz package

Pkg tikz

⚠ displaymath and matrices

If using display math with tikzpicture or \tikz, along with matrices with the & character, the document must be modified as follows:

```
\usepackage{tikz}
\tikzset{every picture/.style={ampersand replacement=\&}}
```

and each instance of & in the tikz expression must be replaced with \&.

8.8.2 grffile package

Pkg grffile

grffile is supported as-is. File types known to the browser are displayed, and

⚠ matching PDF and SVG

unknown file types are given a link. Each PDF image for print mode should be accompanied by an SVG, PNG, or JPG version for HTML.

8.8.3 color package

Pkg color

color is superceded by xcolor, and lwarp requires several of the features of xcolor. When color is requested, xcolor is loaded as well.

8.8.4 xcolor package

Pkg xcolor

\colorboxBlock and \fcolorboxBlock

\colorboxBlock and \fcolorboxBlock are provided for increased HTML compatibility, and they are identical to \colorbox and \fcolorbox in print mode. In HTML mode they place their contents into a instead of a . These s are set to display: inline-block so adjacent \colorboxBlocks appear side-by-side in HTML, although text is placed before or after each.

Print-mode definitions for \colorboxBlock and \fcolorboxBlock are created by lwarp's core if xcolor is loaded.

background: none

\fcolorbox and \fcolorboxBlock allow a background color of none, in which case only the frame is drawn, which can be useful for HTML.

color support

Color definitions, models, and mixing are fully supported without any changes required.

colored tables

\rowcolors is supported, except that the optional argument is ignored so far.

colored text and boxes

\textcolor, \colorbox, and \fcolorbox are supported.

\color and \pagecolor

\color and \pagecolor are ignored. Use CSS or \textcolor where possible.

8.8.5 epstopdf package

Pkg epstopdf

⚠ convert to .svg

Images with an .eps extension will be converted to .pdf. The HTML output uses the .svg version, so use

Enter ⇒ **lwarpmk pdftosvg <listofPDFfiles>**

to generate .svg versions.

8.8.6 pstricks package

Pkg pstricks

⚠ use pspicture

All pstricks content should be contained inside a pspicture environment.

8.8.7 pdftricks package

Pkg pdftricks

⚠ convert image files

The pdftricks image files <jobname>-fig*.pdf must be converted to .svg, or else a missing file error will occur. The image files must also be converted again whenever they change. To convert the images:

Enter ⇒ **lwarpmk pdftosvg <jobname>-fig*.pdf**

8.8.8 psfrag package

Pkg psfrag

⚠ use psfrags

The psfrags environment is modified to use lateximage to encapsulate the image. Always use a psfrags environment to contain any local \psfrag macros and the associated \includegraphics or \epsfig calls. Outside of a psfrags environment, psfrags adjustments will not be seen by lwarp.

⚠ Tip: Use a mono-spaced font for the tags in the EPS file.

8.8.9 pstool package

Pkg pstool

\graphicspath is ignored, and the file directory must be stated.

⚠ path and filename

The filename must not have a file extension.

Use

Enter ⇒ **lwarpmk html**

followed by

Enter ⇒ **lwarpmk limages**

.

8.8.10 asymptote package

Pkg asymptote

To compile:

```
pdflatex project.tex
asy project-*.asy
pdflatex project.tex

lwarpmk print
asy project-*.asy
lwarpmk print1
lwarpmk print1

lwarpmk html
asy project_html-*.asy
lwarpmk html1
lwarpmk html1
lwarpmk limages
```

8.8.11 overpic package

Pkg overpic

⚠ scaling

The macros \overpicfontsize and \overpicfontskip are used during HTML generation. These are sent to \fontsize to adjust the font size for scaling differences between the print and HTML versions of the document. Renew these macros before using the overpic and Overpic environments.

8.8.12 Multimedia packages

Pkg multimedia
Pkg movie15
Pkg media9

The packages multimedia, movie15, and media9 are supported.

HTML5 <audio> and <video> objects are created for .mp3 and .mp4 files.

HTML5 <embed> objects are created for http and ftp links.

\href links are created for other media types. (Unfortunately, there is not much overlap between the file types supported for print output and the file types supported by HTML5.)

For media9, a multimedia object is inserted for each addresource=, as well as each flashvars source= and src=. This may result in duplicate objects.

Undesired objects may be nullified by placing them inside \warpprintonly or the warpprint environment.

Each HTML multimedia object includes the poster text, except for <embed> objects. For movie15, the text option is supported to specify the poster text.

The width, height, and totalheight options are supported. The HTML object is scaled according to the display width, correctly compensating for either tall or wide viewports.

Other options are ignored.

media9 \addmediapath is supported. It is assumed that the same path structure will exist for the HTML document.

HTML5 media controls are always specified for each <audio> and <video> object.

media9 slideshows are not supported.

\hyperlinkmovie, \movieref, and \mediabutton are not supported.

3D objects are not supported.

If using a YouTube™ video, use an "embedded" URL with .../embed/... instead of .../v/...

8.9 Tabbing

The tabbing environment works, except that SVG math and lateximages do not yet work inside the environment.

⚠ math in tabbing

If math is used inside tabbing, place tabbing inside a lateximage environment, which will render the entire environment as a single SVG image.

8.10 Tabular

8.10.1 `tabular` environment

Tabular mostly works as expected, but pay special attention to the following, especially if working with environments, macros inside tabulars, multirows, siunitx `S` columns, or the packages multirow, longtable, supertabular, or xtab.

Defining macros and environments:

⚠ Misplaced alignment tab character &

- When defining environments or macros which include `tabular` and instances of the `&` character, it may be necessary to make `&` active before the environment or macro is defined, then restore `&` to its default catcode after, using the following commands. These are are ignored in print mode.

```
\StartDefiningTabulars
<define macros or environments using tabular and &
here>
\StopDefiningTabulars
```

⚠ floatrow

This includes before and after defining any macro which used `\ttabbox` from floatrow.

⚠ `tabular` inside another environment

- When creating a new environment which contains a `tabular` environment, lwarp's emulation of the tabular does not automatically resume when the containing enviroment ends, resulting in corrupted HTML rows. To fix this, use `\ResumeTabular` as follows. This is ignored in print mode.

```
\StartDefiningTabulars  %    (&  is  used  in  a
definition)
\newenvironment{outerenvironment}
{
  \tabular{cc}
  left & right \\
}
{
  \TabularMacro\ResumeTabular
  left & right \\
  \endtabular
}
\StopDefiningTabulars
```

For developers:

- To automate the use of `\StartDefiningTabulars` and `\EndDefiningTabulars`, these macros may be embedded inside an HTML environment definition to automatically change the catcode of `&` before absorbing the arguments. Another environment may be embedded as well.

```
% Does the work after the catcode has been changed:
\newcommand*{\LWR@HTML@subsomename}[2]{%
  . . .
  \otherenvironmentname  [<args>]  {<args>}  %  for
example
}
% Change catcode before absorbing arguments:
\newcommand*{\LWR@HTML@somename{%
  \StartDefiningTabulars
  \LWR@HTML@subsomename
}
% Change catcode again at the end:
\newcommand*{\LWR@HTML@endsomename}{%
  . . .
  \endotherenvironmentname   % for example
  \StopDefiningTabulars
}
% Combine with the existing print definition:
\LWR@formattedenv{somename}
```

Cell contents:

⚠ macro in a table

- Using a custom macro inside a tabular data cell may result in an extra HTML data cell tag, corrupting the HTML table. To avoid this, use `\TabularMacro` just before the macro. This is ignored in print mode.

```
\TabularMacro\somemacro & more row contents \\
```

Column specifiers:

⚠ math

- Due to the way math is gathered for processing, column specifiers such as `>{$}c<{$}` do not work with lwarp. Instead, each cell must specify math mode individually.

`@` and `!`

- Only one each of `@` and `!` is used at each column, and they are used in that order.

`\multirow`

- In `\multirow` cells, the print version may have extra instances of <, >, `@`, and `!` cells on the second and later rows in the `\multirow` which do not appear in the HTML version.

⚠ `\newcolumntype`

- If `\newcolumntype` does not work for HTML, add a simplified column type using `\HTMLnewcolumntype`.

font and alignment

- lwarp detects each of the following, and sets HTML CSS appropriately:

```
>{\centering\arraybackslash}
>{\raggedright\arraybackslash}
>{\raggedleft\arraybackslash}
>{\itshape}
>{\bfseries}
>{\bfseries\itshape}
```

  These may be used with `\newcolumntype`, such as:

```
\newcolumntype{P}[1]{>{\centering\arraybackslash}p{#1}}
```

Rules:

- Doubled `\hlines`, `\midrules`, and vertical rules are supported.

vertical rules

- Vertical rules next to either side of an `@` or `!` column are displayed on both sides of the column.

width and trim

- Width options are honored. Trim options are converted to rounded top corners. Trim corners are not rounded with `@` or `!` columns, and full-width rules ignore trim. When given an optional width, each cell is styled to create the custom border. Without an optional width, the entire row is given a class to assign the standard border.

combined rules

- If you wish to use `\cmidrule` followed by `\bottomrule`, it may be necessary to use:

```
\cmidrule{2-3} \\[-2ex]
\bottomrule
```

The optional `-2ex` is ignored in HTML, but improves the visual formatting in the print output.

⚠ `\warpprintonly`
⚠ Misplaced `\noalign`

- For `\toprule` and `\bottomrule`, when combined with a `warpprint` or `warpHTML` environment, if a "Misplaced `\noalign`" error occurs, change

```
This & That \endhead
```

to

```
\warpprintonly{This & That \endhead}
```

and likewise with the other `\end` headings. Keep the `\endfirsthead` row unchanged, as it is still relevent to HTML output.

Other:

- tabularx ignores the width, but `X` columns do produce paragraph columns or multicolumns.

`longtable` headings

- For longtable, place headings and footings which do not apply to HTML inside `\warpprintonly{}`.

⚠ S columns

- For S columns (from the siunitx package), while producing print output, anything non-numeric must be placed inside { } braces, including commands such as `\multirow`. While producing HTML output, though, anything placed inside braces is not seen by lwarp's tabular handling algorithm. To resolve this problem, make a copy of the row, with one version for print output, containing the extra braces, and another version for HTML output, without the extra braces, such as:

```
\warpprintonly{1 & 2 & {\multirow{2}{2cm}{Text}} & 3 \\}
\warpHTMLonly{1 & 2 & \multirow{2}{2cm}{Text} & 3 \\}
```

⚠ `tabular` inside a `<span>`

- In LaTeX, a `tabular` may be placed inside a `minipage`, but in HTML a `<table>` may not be inside a `<span>`. If this situation is detected, a warning is printed instructing the user to isolate the `<span>` using `\warpprintonly` or the `warpprint` environment.

8.10.2 multirow package

vposn

- Note that recent versions of multirow include a new optional `vposn` argument.

multirow cells

- For multirow, insert `\mrowcell` into any empty multi-row cells. This will be a null function for the print output, and is a placeholder for parsing the table for HTML output. An error is generated if this is missed.

```
. . . &  \multirow{2}{.5in}{text}  & . . .
. . . &  \mrowcell                 & . . .
```

colored cells

- The multirow documentation regarding colored cells recommends using a negative number of rows. This will not work with lwarp, so `\warpprintonly` and `\warpHTMLonly` must be used to make versions for print and HTML.

with `\multicolumn`

- See section 429.2 for `\multicolumnrow`.

⚠ `\multicolumn` & `\multirow`

lwarp does not support directly combining `\multicolumn` and `\multirow`. Use `\multicolumnrow` instead. To create a 2 column, 3 row cell:

```
\multicolumnrow{2}{c}[c]{3}[0]{1in}[0pt]{Text}
```

The two arguments for `\multicolumn` come first, followed by the five arguments for `\multirow`, many of which are optional, followed by the contents.

⚠ skipped cells

⚠ empty cells

As per `\multirow`, skipped cells to the right of the `\multicolumnrow` statement are not included in the source code on the same line. On the following lines, `\mcolrowcell` must be used for each cell of each column and each row to be skipped. An error is generated if this is missed.

```
. . . &  \multicolumnrow{2}{c}[c]{3}[0]{1in}[0pt]{Text}  & . . .
. . . &  \mcolrowcell          &          \mcolrowcell   & . . .
. . . &  \mcolrowcell          &          \mcolrowcell   & . . .
```

⚠ MathJax

- MathJax does not support multirow, so it is emulated to only print its text on the first row. `\multirow` works as expected in text `tabulars` or SVG math.

8.10.3 longtable package

Pkg longtable

Use one of either `\endhead` or `\endfirsthead` for both print and HTML, and use a `\warpprintonly` macro to disable the other head phrase, and also the `\endfoot` and `\endfirstfoot` phrases. (See section 8.10.4 if using threeparttablex.)

```
\begin{longtable}{ [column specifiers] }
[ . . . ] \endfirsthead   % or \endhead, for print and HTML
\warpprintonly{          % not used in HTML
  [ . . . ] \endhead     % or \endfirsthead
  [ . . . ] \endfoot
  [ <lastfoot macros> ] \endlastfoot
}
. . .  table contents . . .
\warpHTMLonly{
  [ <lastfoot macros> ]   % HTML last footer, without \endfoot
                                          % or \endlastfoot.
}
\end{longtable}
```

⚠ Misplaced `\noalign`

Use the `\warpprintonly` macro instead of the `warpprint` environment. Doing so helps avoid "Misplaced `\noalign`." when using `\begin{warpprint}`.

⚠ `\kill`

`\kill` is ignored, place a `\kill` line inside

```
\begin{warpprint} . . .  \end{warpprint}
```

or place it inside `\warpprintonly`.

⚠ lateximage

longtable is not supported inside a `lateximage`.

8.10.4 threeparttablex package

Pkg threeparttablex

threeparttablex is used with longtable and booktabs as follows:

```
\begin{longtable}{ [column specifiers] }
[ . . . ] \endfirsthead   % or \endhead, for print and HTML
\warpprintonly{          % not used in HTML
  [ . . . ] \endhead     % or \endfirsthead
  [ . . . ] \endfoot
  \bottomrule \insertTableNotes \endlastfoot
}
. . .  table contents . . .
\warpHTMLonly{   % HTML last footer
  \bottomrule
  \UseMinipageWidths     % optional
  \insertTableNotes
  \endlastfoot
}
\end{longtable}
```

table width

The table notes are created using a `\multicolumn`. By default the width is not specified to the browser, so long table notes can cause the table to be spread out horizontally. For HTML output, lwarp guesses the width of the table depending on the number of columns, then restricts its guess to a min/max range. To use this guess for the width of the table notes, use `\UseMinipageWidths` before `\insertTableNotes`. The width is then specified, and in many cases the result is an improvement in overall table layout.

8.10.5 supertabular and xtab packages

Pkg supertabular

Pkg xtab

⚠ Misplaced alignment tab character &

For `\tablefirsthead`, etc., enclose them as follows:

```
\StartDefiningTabulars
\tablefirsthead
. . .
\StopDefiningTabulars
```

See section 8.10.1.

⚠ lateximage

supertabular and xtab are not supported inside a `lateximage`.

8.10.6 colortbl package

Pkg colortbl

⚠ row/cell color

Only use `\rowcolor` and `\cellcolor` at the start of a row, in that order.

colortbl ignores the overhang arguments.

8.10.7 ctable package

⚠ Misplaced alignment tab character &

Use `\StartDefiningTabulars` before one or more `\ctables`, and `\StopDefiningTabulars` after. These change the meaning of the ampersand & character.

8.10.8 bigdelim package

Pkg bigdelim

⚠ use \mrowcell

\ldelim and \rdelim use \multirow, so \mrowcell must be used in the proper number of empty cells in the same column below \ldelim or \rdelim, but not in cells which are above or below the delimiter:

```
\begin{tabular}{lll}
<empty> & a & b \\
\ldelim{\{}{3}{.25in}[left ] & c & d \\
\mrowcell & e & f \\
\mrowcell & g & h \\
<empty> & i & j \\
\end{tabular}
```

<-> a b

left { c d
e f
g h

<-> i j

For MathJax, limited emulation is provided which merely prints the delimter and optional text in the first row.

8.11 Floats

8.11.1 Float contents alignment

⚠ figure & table alignment

\centering, etc. are honored in a figure or table if they are the first command inside the float:

```
\begin{table*}
\centering
\caption{A Table}
. . .
```

8.11.2 float, trivfloat, and/or algorithmicx together

Pkg float

Pkg trivfloat

Pkg algorithmicx

If using \newfloat, trivfloat, and/or algorithmicx together, see section 636.1.

8.11.3 caption and subcaption packages

⚠ package conflicts

Pkg caption

Pkg subcaption

Package options may cause problems with lwarp, especially if they include curley braces.

If selecting options with braces in \usepackage does not work:

```
\usepackage[font={it,small}]{caption}% does not work
```

… try instead selecting the package options before loading lwarp:

```
\PassOptionsToPackage{font={it,small}}{caption}
. . .
\usepackage{lwarp}
. . .
\usepackage{caption}
```

… or try setting package options after the package has been loaded:

```
\usepackage{caption}
\captionsetup{font={it,small}}
```

⚠ numbering To ensure proper float numbering, set caption positions such as:

```
\captionsetup[figure]{position=bottom}
\captionsetup[subfigure]{position=bottom}
\captionsetup[table]{position=top}
\captionsetup[subtable]{position=top}
```

Similarly for longtable. These positions depend on where the user places the `\caption` command inside each float.

8.11.4 subfig package

Pkg subfig

⚠ table numbering To have correct sub table numbers:

```
\usepackage{caption}
\captionsetup[table]{position=top}
```

⚠ lof/lotdepth At present, the package options for `lofdepth` and `lotdepth` are not working. These counters must be set separately after the package has been loaded.

⚠ horizontal spacing In the document source, use `\hfill` and `\hspace*` between subfigures to spread them apart horizontally. The use of other forms of whitespace may cause paragraph tags to be generated, resulting in subfigures appearing on the following lines instead of all on a single line.

8.11.5 floatrow package

Pkg floatrow

Use `\StartDefiningTabulars` and `\StopDefiningTabulars` before and after defining macros using `\ttabbox` with a tabular inside. See section 8.10.1.

⚠ Misplaced alignment tab character &
⚠ subfig package When combined with the subfig package, while inside a `subfloatrow` `\ffigbox` and `\ttabbox` must have the caption in the first of the two of the mandatory arguments.

⚠ `\FBwidth`, `\FBheight` The emulation of floatrow does not support `\FBwidth` or `\FBheight`. These values are pre-set to `.3\linewidth` and `2in`. Possible solutions include:

- Use fixed lengths. lwarp will scale the HTML lengths appropriately.
- Use `warpprint` and `warpHTML` environments to select appropriate values for each case.
- Inside a `warpHTML` environment, manually change `\FBwidth` or `\FBheight` before the `\ffigbox` or `\ttabbox`. Use `\FBwidth` or `\FBheight` normally after-

wards; it will be used as expected in print output, and will use your custom-selected value in HTML output. This custom value will be used repeatedly, until it is manually changed to a new value.

8.11.6 keyfloat package

Pkg keyfloat

⚠ keywrap

If placing a `\keyfig[H]` inside a `keywrap`, use an absolute width for `\keyfig`, instead of `lw`-proportional widths. (The `[H]` option forces the use of a minipage, which internally adjusts for a virtual 6-inch wide minipage, which then corrupts the `lw` option.)

For wrapped figures, overhang and number of lines are ignored.

8.12 KOMA-SCRIPT classes

Cls komascript

Many features are ignored during the HTML conversion. The goal is source-level compatibility.

`\captionformat`, `\figureformat`, and `\tableformat` are not yet emulated.

⚠ Not fully tested!

Please send bug reports!

Some features have not yet been tested. Please contact the author with any bug reports.

8.13 MEMOIR class

Cls memoir

⚠ captions

lwarp uses caption, which causes a warning from memoir. This is normal. Adjust captions via caption, instead of memoir.

⚠ options clash

While emulating memoir, lwarp pre-loads a number of packages (section 692.1). This can cause an options clash when the user's document later loads the same packages with options. To fix this problem, specify the options before loading lwarp:

```
\documentclass{memoir}
. . .
\PassOptionsToPackage{options_list}{package_name}
. . .
\usepackage{lwarp}
. . .
\usepackage{package_name}
```

⚠ version numbers

memoir emulates a number of packages, and declares a version date for each which often does not match the date of the corresponding freestanding package. This can cause warnings about incorrect version numbers. Since lwarp is intended to support the freestanding packages, which are often newer than the date declared by memoir, it is hoped that memoir will update and change its emulated version numbers to match.

`\label(bookmark){tag}`

`\label` accepts an optional `(bookmark)` argument, but this is ignored in HTML.

⚠ comment

The `comment` environment is from the comment package, and thus requires that

the \begin and \end each be on its own line:

```
\begin{comment}
This is a comment.
\end{comment}
```

\newcomment — Comments defined with \newcomment use memoir's defintions, and behave as expected, where the \begin and \end do have to each be on its own line.

⚠ verbatim footnotes — \verbfootnote is not supported.

⚠ \newfootnoteseries — \newfootnoteseries, etc. are not supported.

⚠ page notes — lwarp loads pagenote to perform memoir's pagenote functions, but there are minor differences in \pagenotesubhead and related macros.

page notes with cleveref — To add support for pagenotes with cleveref, add:

```
\crefname{pagenote}{page note}{page notes}
\Crefname{pagenote}{Page note}{Page notes}
```

page note \nameref — Note that for print mode, \nameref print the section name where the page notes are declared in the text, but for HTML it prints the name where the page notes are printed.

⚠ poems — Poem numbering is not supported.

⚠ verbatim — The verbatim environment does not yet support the memoir enhancements. It is currently recommended to load and use fancyvrb instead.

⚠ glossaries — The memoir glossary system is not yet supported by *lwarpmk*. The glossaries package may be used instead, but does require the glossary entries be changed from the memoir syntax to the glossaries syntax.

⚠ framewithtitle, titledframe — The custom frame commands in the memoir manual may be emulated by placing the original defintions in the preamble inside warpprint environments, and then providing an HTML equivalent:

```
\begin{warpHTML}
\newcommand{\FrameTitle}[2]{%
    \textbf{#2}
}

\newenvironment{framewithtitle}[2][\FrameFirst@Lab\ (cont.)]{%
    \begin{fminipage}{\linewidth}
    \textbf{#2}
    \begin{minipage}{\linewidth}
}
{\end{minipage}\end{fminipage}}

\newcommand{\TitleFrame}[2]{%
    \par
    \textbf{#1}\par
    \fboxBlock{#2}
}

\newenvironment{titledframe}[2][\FrameFirst@Lab\ (cont.)]{%
    \par
    \textbf{#2}
```

```
    \begin{fminipage}{\linewidth}
}
{\end{fminipage}}
\end{warpHTML}
```

8.14 International languages

⚠ section and file names

If using *pdflatex* with the setting `\booltrue{FileSectionNames}`, non-ASCII text in section names can result in corrupted HTML file names. *pdflatex* may be used if setting `\boolfalse{FileSectionNames}`, in which case HTML file numbers will be generated.

For correct HTML file names, use *xelatex*, *lualatex*, or dedicated document classes / engines.

(As of this writing, this warning is only relevent to the kotex package.)

8.15 Miscellaneous packages

8.15.1 verse and memoir

Pkg `verse`

Cls `memoir`

`\attrib`

When using verse or memoir, always place a `\\` after each line.

The documentation for the verse and memoir packages suggest defining an `\attrib` command, which may already exist in current documents, but it will only work for print output. lwarp provides `\attribution`, which works for both print and HTML output. To combine the two so that `\attrib` is used for print and `\attribution` is used for HTML:

```
\begin{warpHTML}
\let\attrib\attribution
\end{warpHTML}
```

Len `\vleftskip`

Len `\vleftmargini`

Len `\HTMLvleftskip`

Len `\HTMLleftmargini`

These lengths are used by verse and memoir to control the left margin, and they may already be set by the user for print output. New lengths `\HTMLvleftskip` and `\HTMLleftmargini` are provided to control the margins in HTML output. These new lengths may be set by the user before any `verse` environment, and persist until they are manually changed again. One reason to change `\HTMLleftmargini` is if there is a wide `\flagverse` in use, such as the word "Chorus", in which case the value of `\HTMLleftmargini` should be set to a wide enough length to contain "Chorus". The default is wide enough for a stanza number.

⚠ spacing

⚠ `verse` margin

Horizontal spacing relies on *pdftotext*'s ability to discern the layout (`-layout` option) of the text in the HTML-tagged PDF output. For some settings of `\HTMLleftmargini` or `\HTMLleftskip` the horizontal alignment may not work out exactly, in which case a label may be shifted by one space. During translation to HTML, the stanza numbers are kept out of the left margin, which would have caused *pdftotext* to shift everything over.

8.15.2 newclude package

Pkg `newclude`

newclude modifies `\label` in a non-adaptive way, so newclude must be loaded

⚠ loading

before lwarp is loaded:

```
\documentclass{article}
. . . <font setup>
\usepackage{newclude}
\usepackage[warpHTML]{lwarp}
. . .
```

8.15.3 babel package

Pkg babel

⚠ \CaptionSeparator

When French is used, the caption separator is changed to a dash. To restore it to a colon, the following may be placed before lwarp is loaded:

```
\renewcommand*{\CaptionSeparator}{:~}
```

punctuation spaces

⚠ customized spacing

Also when French is used, lwarp creates fixed-width space around punctuation by patching \FBcolonspace, \FBthinspace, \FBguillspace, \FBmedkern, \FBthickkern, \FBtextellipsis, and the tilde. If the user's document also changes these parameters, the user's changes should be placed inside a warpprint environment so that the user's changes do not affect the HTML output.

8.15.4 polyglossia package

Pkg polyglossia

lwarp uses cleveref, which has some limitations when using polyglossia, possibly resulting in the error

```
! Undefined control sequence. . . . \__hook begindocument
```

To test compatibility, add

```
\usepackage{cleveref}
```

near the end of the preamble (as the last package to be loaded), and try to compile the print version. It may be necessary to set

```
\setdefaultlanguage{english}
```

or some other language supported by cleveref, then select other languages using \setotherlanguages.

Once the print version works with cleveref and polyglossia, the HTML version should work as well using lwarp.

8.15.5 todonotes and luatodonotes packages

Pkg todonotes

Pkg luatodonotes

The documentation for todonotes and luatodonotes have an example with a todo inside a caption. If this example does not work it will be necessary to move the todo outside of the caption.

8.15.6 fixme

Pkg fixme

⚠ external layouts

External layouts (\fxloadlayouts) are not supported.

Customized layouts are overwritten by lwarp's versions `\AtBeginDocument` in order to provide the HTML conversion. If creating a new layout, see lwarp's changes to provide similar for the new layout, inside a `warpHTML` environment.

User control is provided for setting the HTML styling of the "faces". The defaults are as follows, and may be changed in the preamble after fixme is loaded:

```
\def\FXFaceInlineHTMLStyle{font-weight:bold}
\def\FXFaceEnvHTMLStyle{font-weight:bold}
\def\FXFaceSignatureHTMLStyle{font-style:italic}
\def\FXFaceTargetHTMLStyle{font-style:italic}
```

8.15.7 acro package

⚠ formats

Define acronymn formats using `\textbf` instead of `\bfseries` etc.

8.15.8 chemfig package

If using `\polymerdelim` to add delimiters to a `\chemfig`, wrap both inside a single `lateximage`:

```
\begin{lateximage}[-chemfig-~\PackageDiagramAltText]
\chemfig{. . . }
\polymerdelim[. . . ]{. . . }
\end{lateximage}
```

8.15.9 chemformula package

⚠ chemformula with MathJax

chemformula works best without MathJax. If MathJax is used, `\displaymathother` must be used before `array`, and then `\displaymathnormal` may be used after. (The chemformula package adapts to `array`, but does not know about MathJax, and MathJax does not know about chemformula.)

While using MathJax, `\displaymathother` may also be used for other forms of display and inline math which contain chemformula expressions.

8.15.10 mhchem package

See section 410.

8.15.11 kotex package

Pkg kotex

⚠ Korean section names

See section 8.14 regarding *pdflatex* and Korean section names.

9 Compiling using custom shell commands

lwarp and *lwarpmk* try to make it easy to process print and HTML compilation tasks in most situations. Depending on the operating system, command-line options, TEX engine, and lwarp options, the commands **`lwarpmk print`** and **`lwarpmk html`** are automatically set up to correctly recompile the project. These actions may be overridden using lwarp options, thus allowing the use of packages such as perltex and pythontex.

9.1 Command options

Opt `PrintLatexCmd`
Opt `HTMLLatexCmd`

The lwarp options `PrintLatexCmd` and `HTMLLatexCmd` are used to set customized commands to be executed by **`lwarpmk print`** and **`lwarpmk html`**.

`PrintLatexCmd` should be set to shell commands which take `project.tex` and generate `project.pdf`.

`HTMLLatexCmd` should be set to take `project_html.tex` and generate `project_html.pdf`. *lwarpmk* will then take `project_html.pdf` and automatically convert it and generate `project.html`.

9.2 Literal character macros

The lwarp package options are parsed by TEX, and so some characters require the use of a special macro to represent them. See table 10. `\LWRopquote` and `\LWRopseq` may be used to increase operating-system portability. `\jobname` must have `_html` appended for processing HTML. `\space` may be necessary between other macros.

⚠ macro not found To use these macros, either kvoptions-patch must be loaded before lwarp:

```
\usepackage{kvoptions-patch}
\usepackage[
    PrintLatexCmd={ ... } ,
    HTMLLatexCmd={ ... }
]{lwarp}
```

Table 10: Literal character macros

Character	Macro	Comment
%	\LWRpercent	
$	\LWRdollar	
&	\LWRamp	
%	\LWRhash	
\	\LWRbackslash	
' or "	\LWRopquote	Depends on the operating system.
& or &&	\LWRopseq	Depends on the operating system.
(space)	\space	Forces an extra space.
(jobname)	\jobname	Without file extension.

or \lwarpsetup must be used to set PrintLatexCmd and HTMLLatexCmd:

```
\usepackage[...]{lwarp}
\lwarpsetup{
  PrintLatexCmd=
      {
          latex tm \LWRopseq
          dvips -o tm-pics.ps tm.dvi \LWRopseq
          ps2pdf -dALLOWPSTRANSPARENCY tm-pics.ps \LWRopseq
          pdflatex tm.tex
      } ,
  HTMLLatexCmd=
      {
          latex tm_html \LWRopseq
          dvips -o tm_html-pics.ps tm_html.dvi \LWRopseq
          ps2pdf -dALLOWPSTRANSPARENCY tm_html-pics.ps \LWRopseq
          pdflatex tm_html.tex
      }
}
```

9.3 *latexmk*

Prog latexmk

If *latexmk* is used for a project, it may be easiest to continue using it.

latexmk project.tex would create project.pdf as normal.

latexmk project_html.tex would create project_html.pdf, then

lwarpmk pdftohtml project_html.pdf would take project_html.pdf and convert it to project.html.

Pkg sagetex

latexmk may simplify the use of packages such as sagetex.

9.4 perltex package

Pkg perltex

The lwarp package option settings to use perltex would be similar to:

```
\usepackage[
  . . .
  PrintLatexCmd={perltex -latex=pdflatex project.tex} ,
  HTMLLatexCmd={perltex -latex=pdflatex project_html.tex} ,
  . . .
]{lwarp}
```

⚠ "impure" math

Place perltex math expressions between `\displaymathother` and `\displaymathnormal`, or `\inlinemathother` and `\inlinemathnormal`. See section 8.7.10.

9.5 pythontex package

Pkg pythontex

An example using pythontex:

```
\usepackage[
  . . .
  PrintLatexCmd={
    pdflatex project.tex \LWRopseq
    pythontex project \LWRopseq
    pdflatex project.tex
  } ,
  HTMLLatexCmd={
    pdflatex project_html.tex \LWRopseq
    pythontex project_html \LWRopseq
    pdflatex project_html.tex
  } ,
  . . .
]{lwarp}
```

Another possibility is to use *latexmk*, placing the **`latexmk . . .`** commands in the `PrintLatexCmd` and `HTMLLatexCmd` options. While using these options, the lwarp option `latexmk` would not be used.

⚠ "impure" math

⚠ HTML look-alike

No attempt has yet been made to make pythontex robust with HTML output. Some math objects must be surrounded by `\displaymathother` ... `\displaymathnormal`, or `\inlinemathother` ... `\inlinemathnormal`. Displays of code may have to be enclosed inside a `lateximage` environment to prevent <, > and similar from being interpreted by the browser as HTML entities.

9.6 sympytex package

Pkg sympytex

For sympytex:

```
\usepackage[
  . . .
  PrintLatexCmd={
    pdflatex project.tex \LWRopseq
    python project.sympy \LWRopseq
    pdflatex project.tex
  } ,
  HTMLLatexCmd={
    pdflatex project_html.tex \LWRopseq
    python project_html.sympy \LWRopseq
    pdflatex project_html.tex
  } ,
  . . .
]{lwarp}
```

Also see the warnings for pythontex, above.

9.7 Other packages

Pkg rterface

Other packages such as rterface would be set up similar to pythontex, and the same warnings would apply.

9.8 *make* program

Prog make

To use lwarp with the *make* program, have the `makefile` take `project.tex` and generate the print version `project.pdf`, as normal. `\usepackage{lwarp}` must be used, and it generates `lwarpmk.conf` when the print version is created.

To generate HTML, first have `project_html.tex` be compiled to generate `project_html.pdf`. This must be in PDF format. Finally, have `project_html.pdf` be converted to HTML using **`lwarpmk pdftohtml project_html.pdf`**, and convert SVG math with **`lwarpmk limages`**.

9.9 UTF-8 locale

⚠ UTF-8 locale

lwarpmk uses the *texlua* program, which sets the "locale" to "C", including for external operating-system calls such as when executing **`lwarpmk html`**. In some cases, an external program called from the user's document may require the use of a UTF-8 "locale". For UNIX-related operating systems, it may be required to use lwarp's custom compilation options to add a locale change:

```
\usepackage{lwarp}[
  PrintLatexCmd={
    env LC_CTYPE=en_US.UTF-8
      xelatex -shell-escape project.tex
  }
  HTMLLatexCmd={
    env LC_CTYPE=en_US.UTF-8
      xelatex -shell-escape project_html.tex
  }
]
```

Pkg ditaa

The only example seen so far where this is required is the ditaa package, where the locale change allows the use of UTF-8 with XeLaTeX and ditaa. To use LuaLaTeX instead, the locale change would have to be made inside the ditaa package where its calls the *ditaa* program.

10 EPUB conversion

lwarp does not produce EPUB documents, but it may be told to modify its HTML output to greatly assist in the conversion. An external program may then be used to finish the conversion to EPUB.

<meta> author

To assign the author's name for regular lwarp HTML files, and also for the EPUB, use `\HTMLAuthor {⟨name⟩}`. This assigns the name to the `<meta>` author element. It may be set empty, and it defaults to `\theauthor`.

A special boolean is provided to simplify the process of converting lwarp HTML output to EPUB:

`FormatEPUB`

Bool `FormatEPUB`
Default: `false`

`FormatEPUB` changes HTML output for easy EPUB conversion via an external program. Removes per-file headers, footers, and nav. Adds footnotes per chapter/section.

To help convert lwarp HTML output to EPUB, add

```
\booltrue{FormatEPUB}
```

to the project's source preamble after `\usepackage{lwarp}`. The EPUB version of the document cannot co-exist with the regular HTML version, so

Enter ⇒ **`lwarpmk cleanall`**

Enter ⇒ **`lwarpmk html`**

Enter ⇒ **`lwarpmk limages`**

to recompile with the `FormatEPUB` boolean turned on. Several changes are then made to the HTML output:

- Headers, footers, and navigation are removed at file splits.
- Any accumulated footnotes are printed at the bottom of each section.

Calibre

The resulting files will be ready to be loaded into an EPUB conversion program, such as the open-source program *Calibre* (`https://calibre-ebook.com/`).

⚠ search order

The EPUB conversion program must know what order the files are included. For lwarp projects, set the EPUB conversion software to do a breadth-first search of the files. For *Calibre*, this option is found in

Preferences → Plugins → File type plugins → HTML to Zip

⚠ encoding

Check the box Add linked files in breadth first order. Set the document encoding as `utf-8`, which is what lwarp generates for HTML, even if the original printed document uses some other encoding.

⚠ section breaks

The EPUB-conversion program must also know where the section breaks are located. For a list of lwarp's section headings, see table 12. For example, an `article` class document would break at `\section`, which is mapped to HTML heading level

<h4>, whereas a book class document would break at \chapter, which is HTML heading level <h3>. For *Calibre*, this option is found in

Preferences → Conversion (Common Options) → Structure Detection → Detect chapters at (XPath expression)

Select the "magic wand" to the right of this entry box, and set the first entry

Match HTML tags with tag name:

to "h4". (Or "h3" for document classes with \chapters.) The Detect chapters at field should then show

//h:h4 — or — **//h:h3**

This option is also available on the main tool bar at the Convert books button.

Once these settings have been made, the lwarp-generated HTML files may be loaded by *Calibre*, and then converted to an EPUB.

MathJax support

MathJax may be used in EPUB documents. Some e-readers include MathJax, but any given reader may or may not have a recent version, and may or may not include extensions such as support for siunitx.

lwarp adds some modifications to MathML to support equations numbered by chapter. These modifications may not be compatible with the e-reader's version of MathJax, so lwarp requests that a known version be loaded instead. In some cases chapter numbering of equations still doesn't work.

Until math support in EPUB documents is improved, it is recommended to use SVG images instead of MathJax, especially for equations numbered by chapter, or where siunitx support is important.

11 Word-processor conversion

lwarp may be told to modify its HTML output to make it easier to import the HTML document into a word processor. At the time of this writing, it seems that LibreOffice works best at preserving table layout, but it still has some limitations, such as an inability to automatically assign figure and table frames and captions according to user-selected HTML classes. lwarp provides some assistance in locating these frame boundaries, as shown below.

11.1 Activating word-processor conversion

A special boolean is provided to simplify the process of converting lwarp HTML output to EPUB:

`FormatWP`

Bool `FormatWP`
Default: `false`

Changes HTML output for easier conversion by a word processor. Removes headers and nav, prints footnotes per section, and also forces single-file output and turns off HTML debug comments. Additionally, honors the booleans `WPMarkFloats`, `WPMarkMinipages`, `WPMarkTOC`, and `WPMarkLOFT`.

To help modify lwarp HTML output for easier import to a word processor, add

```
\booltrue{FormatWP}
```

to the project's source preamble after lwarp is loaded. The following changes are then made to the HTML output:

formatting adjustments

- If using a class without chapters, `\section` and lower are shifted up in level for the HTML heading tags. The CSS has not been changed, so the section heading formats will not match the normal HTML output, but when imported to *LibreOffice Writer* the higher section headings will import as **Heading 1** for the title, **Heading 2** for `\section`, etc.
- Headers, footers, and navigation are removed at file splits.
- Any accumulated footnotes are printed at the bottom of each section.
- Forces single-file output.
- Turns off HTML debugging comments. These are comments appearing inside the HTML code, marking the opening/closing of sections and `<div>`s, but they are no longer useful when the document has been imported into a word processor.
- An additional `<div>` with an `id` encapsulates each float and minipage, which on import into *LibreOffice Writer* causes a thin frame to appear around the text block for each.
- Float captions are given an explicit italic formatting.
- Tabular rule borders are made explicit for *LibreOffice Writer*. LibreOffice displays a light border around each cell while editing, even those which have

no border when printed, and lwarp also uses a light border for thin rules, so it will be best to judge the results using the print preview instead of while editing in LibreOffice.

- `\includegraphics` and SVG math width and height are made explicit for LibreOffice.
- `\hspace` is approximated by a number of `\quad`s, and rules are approximated by a number of underscores.
- Explicit HTML styles are given to:
  - `\textsc`, etc.
  - `\underline`, soul and ulem markup.
  - `center`, `flushleft`, `flushright`.
  - `\marginpar`, keyfloat, sidenotes, floatflt, and wrapfig.
  - fancybox `\shadowbox`, etc.
  - The LaTeX and TeX logos.
- Honors several booleans:

  WPMarkFloats: Marks the begin and end of floats.

  WPMarkMinipages: Marks the begin and end of minipages.

  WPMarkTOC: Marks the location of the Table of Contents.

  WPMarkLOFT: Marks the locations of the List of Figures/Tables.

  WPMarkMath: Prints LaTeX math instead of using images.

  WPTitleHeading: Adjusts title and section headings.

  Several of these may be used to add markers to the HTML text which help determine where to adjust the word processor document after import.

11.2 Additional modifications

`WPMarkFloats`

Bool `WPMarkFloats`
Default: `false`

Adds

```
=== begin table ===
. . .
=== end ===
```

or

```
=== begin figure ===
. . .
=== end ===
```

around floats while formatting for word processors. This helps identify boundaries of floats to be manually converted to word-processor frames and captions.

`WPMarkMinipages`

Bool `WPMarkMinipages`
Default: `false`

Adds

```
=== begin minipage ===
. . .
=== end minipage ===
```

around minipages while formatting for word processors. This helps identify boundaries of minipages to be manually converted to word-processor frames.

WPMarkTOC

Bool WPMarkTOC
Default: true

While formatting for word processors, adds

```
=== table of contents ===
```

where the Table of Contents would have been. This helps identify where to insert the actual TOC.

If set `false`*, the actual toc is printed instead.*

WPMarkLOFT

Bool WPMarkLOFT
Default: false

While formatting for word processors, adds

```
=== list of figures ===    and/or
=== list of tables ===
```

where each of these lists would have been. This helps identify where to insert the actual lists.

If set `false`*, the actual lists are printed instead.*

WPMarkMath

---

siunitx

Bool WPMarkMath
Default: false

Prog TeXMaths

While formatting for word processors, prints math as LaTeX code instead of creating SVG images or MathJax. This is useful for cut/paste into the *LibreOffice Writer TeXMaths* extension.

When using the siunitx package, enter

```
\usepackage{siunitx}
```

in the *TeXMaths* preamble. Equation numbering is problematic for $\mathcal{AMS}$ math environments.

WPTitleHeading

Bool WPTitleHeading
Default: false
section headings

While formatting for word processors, `true` sets the document title to `<h1>`, which is expected for HTML documents, but also causes the lower-level section headings to start at **Heading 2** when imported into LibreOffice. Set to `false` to cause the title to be plain text, and the section headings to begin at **Heading 1**.

Table 11: Section HTML headings for word-processor conversion

	HTML headings*			
	With \chapter		Without \chapter	
	WPTitleHeading		WPTitleHeading	
Section	true	false	true	false
Title	<h1>	plain	<h1>	plain
\book				
\part	<h2>	<h1>	<h2>	<h1>
\chapter	<h3>	<h2>	—	—
\section	<h4>	<h3>	<h3>	<h2>
\subsection	<h5>	<h4>	<h4>	<h3>
\paragraph	<h6>	<h5>	<h5>	<h4>
\subparagraph		<h6>	<h6>	<h5>

* For default depths when not FormatWP, see table 12 on page 199.

See table 11 on page 183.

11.3 Recommendations

TOC, LOF, LOT

For use with *LibreOffice Writer*, it is recommended to:

1. Set \booltrue{FormatWP}
2. Set \booltrue{WPMarkTOC} and \boolfalse{WPMarkLOFT}
3. Use lwarp to generate the HTML document.
4. Copy/paste from the HTML document into an empty *LibreOffice Writer* document.
5. Manually insert a LibreOffice TOC in the LibreOffice document.
6. Manually add frames around each float, adding a caption which is cut/pasted from each float's simulated caption.
7. Manually create cross references.

This process yields a document with an actual LibreOffice Table of Contents, but a simulated List of Figures and List of Tables.

siunitx

For siunitx, remember to adjust the preamble as mentioned above.

LO view border options

LibreOffice has options in the **View** menu to turn on/off the display of thin borders around table cells and text objects.

11.4 Limitations

Floats and captions are not explicitly converted to LibreOffice floats with their own captions. Floats are surrounded by a thin frame in the LibreOffice editor, and may be marked with `WPMarkFloats`, but are not given a proper LibreOffice object frame. Captions are given an explicit italic formatting, but not a proper LibreOffice paragraph style.

Cross references are not actual LibreOffice linked cross references.

The List of Figures and List of Tables are not linked. The pasted pseudo LOF and LOT match the numbering of the LaTeX and HTML versions.

Equation numbering is not automatic, but the equation numbers in SVG math will match the LaTeX and HTML output. SVG math is recommended when using the $\mathcal{AMS}$ environments, which may have multiple numbered equations per object.

As of when last checked, LibreOffice ignores the following:

- Minipage alignment.
- Tabular cell vertical alignment.
- Image rotation and scaling.
- Rounded border corners, which are also used by:
  - `\textcircled`
  - booktabs trim
- `\hspace` and rules, also used by algorithmic.
- Coloring of text decorations, used by soul and ulem.
- Overline text decoration, used by romanbar.

LibreOffice also has limitations with frames and backgrounds:

- Multiple lines in an object are framed individually instead of as a whole.
- Nested frames are not handled correctly.
- Images inside boxes are not framed correctly.
- Spans with background colors and frames are not displayed correctly.

12 Modifying lwarp

locating something

To quickly find the source for a package in `lwarp.dtx`, search for `*packagename`, such as `*siunitx`.

Likewise, to quickly find the source for a file in `lwarp.dtx`, search for `*filename`, such as `*lwarp.css`.

Purely text-based packages probably will work as-is when generating HTML.

Look to existing code for ideas on how to expand into new code.

image of TEX output

An environment may be converted to a `lateximage` then displayed with an image of the resulting LATEX output. See section 93 for an example of the `picture` environment.

css classes

To create a custom HTML block or inline CSS class, see section 52.10.

print/HTML macros

To create print and HTML versions of the same macro or environment, see section 36.

⚠ TEX boxes

Any TEX boxes must be undone, as SVG math or `lateximages` require `\newpage`, which will not work in a TEX box.

12.1 Creating a development system

The following creates a local development system for lwarp on a TeXLive system in a UNIX-like environment. Doing so allows anything requesting lwarp to use the development version instead of whichever version is installed in TeXLive.

Create a development directory:

Place into this directory `lwarp.dtx` and `lwarp.ins`.

To create `lwarp.sty`, execute

Enter ⇒ **`pdflatex lwarp.ins`**

which creates `lwarp.sty` and several hundred additional `lwarp-*.sty` files for the various packages which are supported.

To create the initial documentation `lwarp.pdf`, execute

Enter ⇒ **`pdflatex lwarp.dtx`**

To make the development files visible to other projects:

Create the directory

```
/usr/local/texlive/texmf-local/tex/latex/local/lwarp
```

Inside this directory, create the file `update`, containing:

```
rm lwarp-*.sty
ln -s /path_to_dev_directory/lwarp*.sty .
ln -s /path_to_dev_directory/lwarp_baseline_marker.png .
ln -s /path_to_dev_directory/lwarp_baseline_marker.eps .
mktexlsr
```

Run ./update now, and whenever a new lwarp-* package is added.

To make the development version of *lwarpmk* visible to other projects:

```
cd /opt
ln -s /usr/local/texlive/texmf-local/bin/x86_64-linux texbin_local
cd texbin_local
ln -s ../../scripts/lwarp/lwarpmk.lua lwarpmk
cd /usr/local/texlive/texmf-local/scripts/
mkdir lwarp
cd lwarp
ln -s /path_to_dev_directory/lwarpmk.lua lwarpmk
```

Verify that the correct version is found with

Enter ⇒ **`which lwarpmk`**

To make the local versions visible to the shell:

Paths must be set by the shell startup, such as in `.bashrc` and `.cshrc`:

In `.bashrc`:

```
PATH=/opt/texbin_local:/opt/texbin:$PATH
```

In `.cshrc`:

```
setenv PATH ${HOME}/bin:/opt/texbin_local:/opt/texbin:${PATH}
```

To fully compile the lwarp documentation and indexes:

```
pdflatex lwarp.ins
pdflatex lwarp.dtx
pdflatex lwarp.dtx                          <if necessary>
makeindex -s gglo.ist -o lwarp.gls lwarp.glo   <indexes>
splitindex lwarp.idx - -s gind.ist
pdflatex lwarp.dtx
pdflatex lwarp.dtx                          <if necessary>
makeindex -s gglo.ist -o lwarp.gls lwarp.glo   <indexes>
splitindex lwarp.idx - -s gind.ist             <again>
pdflatex lwarp.dtx
pdflatex lwarp.dtx                          <if necessary>
```

(The second round of index processing is required to fully resolve the final Index of Indexes.)

To make it easier to update the documentation after a minor change, it is useful to create a command script called `make_index`, containing:

```
makeindex -s gglo.ist -o lwarp.gls lwarp.glo
splitindex lwarp.idx -- -s gind.ist
```

⚠ references

Note that Index of Indexes and the cross-references to the indexes may not be correct until the above has been accomplished.

12.2 Modifying a package for lwarp

If a class loads additional packages, it will be required to modify the class for lwarp, since lwarp must be loaded before most other packages.

To work with lwarp, a class must first set up anything which replicates the functions of the basic LaTeX classes, load any required fonts, then load lwarp, then finally load and adjust any other required packages.

When creating HTML, lwarp redefines the `\usepackage` and `\RequirePackage` macros such that it first looks to see if a `lwarp-<packagename>.sty` version exists. If so, the lwarp version is used instead. This modular system allows users to create their own versions of packages for lwarp to use for HTML, simply by creating a new package with a `lwarp-` prefix. If placed in the local directory along with the source code, it will be seen by that project alone. If placed alongside the other `lwarp-` packages where TeX can see it, then the user's new package will be seen by any documents using lwarp. (Remember `mktexlsr` or `texhash`.)

An `lwarp-<packagename>.sty` package is only used during HTML generation. Its purpose is to pretend to be the original package, while modify anything necessary to create a successful HTML conversion. For many packages it is sufficient to simply provide nullified macros, lengths, counters, etc. for anything which the original package does, while passing the raw text on to be typeset. See the pre-existing `lwarp-` packages for examples.

Anything the user might expect of the original package must be replaced or emulated by the new `lwarp-` package, including package options, user-adjustable counters, lengths, and booleans, and conditional behaviors. In many of these packages, most of the new definitions have a "local" prefix according to the package name, and `@` characters inside the name, which hides these names from the user. In most cases these macros will not need to be emulated for HTML output. Only the "user-facing" macros need to be nullified or emulated.

Each `lwarp-*` package should first call either of:

```
\LWR@ProvidesPackageDrop
  — or —
\LWR@ProvidesPackagePass
```

If "`Drop`"ped, the original print-version package is ignored, and only the `lwarp-` version is used. Use this where the original print version is useless for HTML. If "`Pass`"ed, the original package is loaded first, with the user-supplied options, then the `lwarp-` version continues loading as well. See section 457 (ntheorem) for an example of selectively disabling user options for a package. Use this when HTML output only requires some modifications of the original package. For a case where the original package is usable without changes, there is no need to create a `lwarp-` version.

12.2.1 Adding a package to the lwarp.dtx file

When adding a package to `lwarp.dtx` for permanent inclusing in lwarp, provide the `lwarp-<packagename>` code in `lwarp.dtx`, add its entry into `lwarp.ins`, and also remember to add

```
\LWR@loadafter{<packagename>}
```

to `lwarp.dtx` in section 20.1. This causes lwarp to stop with an error if packagename is loaded before lwarp. Finally, add an entry in table 2, Supported packages and features, and also the Updates section.

12.3 Modifying a class for lwarp

If a class loads additional packages, it will be required to modify the class for lwarp, since lwarp must be loaded before most other packages.

To work with lwarp, a class must first set up anything which replicates the functions of the basic LaTeX classes, load any required fonts, then load lwarp, then finally load and adjust any other required packages.

12.4 Testing lwarp

Compiling `lwarp.ins` generates all the `*.sty` files for lwarp. It can be useful to create additional `*.ins` files to be able to recompile only the pieces which have changed.

compiling individual packages

For example, to be able to recompile the lwarp core alone, copy `lwarp.ins` to `core.ins`, then modify `core.ins` to only compile:

File `core.ins`

```
\generate{
\file{lwarp.sty}{\from{lwarp.dtx}{package}}
}
```

For individual packages, create `packagename.ins`, set to compile only:

```
\generate{
\file{lwarp-packagename.sty}{\from{lwarp.dtx}{packagename}}
}
```

When changes have been made, test the print output before testing the HTML. The print output compiles faster, and any errors in the printed version will be easier to figure out than the HTML version.

compiling css and other generated files

Remember that the configuration files are only rewritten when compiling the printed version of the document.

When changing the source to *lwarpmk* or a CSS file in `lwarp.dtx`:

1. Change the source in `lwarp.dtx`.
2. `pdflatex lwarp.ins` -or- `pdflatex core.ins`
3. `pdflatex lwarp.dtx`
4. If modifying *lwarpmk* the new version should now be active.
5. If modifying CSS files or other files generated by lwarp:
   (a) For the document, `lwarpmk print` to update the CSS files in the project.
   (b) Reload the HTML document to see the effect of the new CSS files.

Sometimes it is worth checking the <project>_html.pdf file, which is the PDF containing HTML tags. Also, <project>_html.html has the text conversion of these tags, before the file is split into individual HTML files.

It is also worth checking the browser's tools for verifying the correctness of HTML and CSS code.

12.5 Modifying *lwarpmk*

Prog lwarpmk
File lwarpmk.lua

In most installations, lwarpmk.lua is an executable file located somewhere the operating system knows about, and it is called by typing **lwarpmk** into a terminal.

A project-local copy of lwarpmk.lua may be generated, modified, and then used to compile documents:

1. Add the lwarpmk option to the lwarp package.
2. Recompile the printed version of the document. The lwarpmk option causes lwarp to create a local copy of lwarpmk.lua
3. The lwarpmk option may now be removed from the lwarp package.
4. Copy and rename lwarpmk.lua to a new file such as mymake.lua.
5. Modify mymake.lua as desired.
6. If necessary, make mymake.lua executable.
7. Use mymake.lua instead of lwarpmk.lua.

13 Troubleshooting

13.1 lwarp package error conditions and warnings

lwarp tests for a number of error conditions and prints appropriate warnings. The following is a summary of these conditions.

13.1.1 Configuration file `lwarpmk.conf`

File does not exist: The configuration file must exist for lwarpmk.

Incorrect `Unix` /`Windows` selection: The operating system which was detected by lwarp. So far only `Unix` and `Windows` are supported.

Incorrect delimiter characters. Older versions of *lwarpmk* used a different delimiter.

Source name is set to `lwarp`: lwarp has recently been recompiled in this directory, which overwrote the project's configuration files. This also occurs if *lwarpmk* is executed in lwarp's source directory.

Incorrect operating system: The configuratio file was set for a different operating system, perhaps due to sharing in a collaborative project.

Outdated configuration files: lwarp has been updated since this projects was last compiled. If there appears to be a valid print command in the file, lwarpmk displays this to instruct the user how to recompile the print version, which then updates the configuration files.

The designated source file does not exist: For whatever reason…

Unknown engine: lwarp cannot determing which engine is being used. Supported are DVI LaTeX, PDF LaTeX, XeLaTeX, LuaLaTeX, and upLaTeX.

13.1.2 Image generation with `lwarpmk limages`

"Wait a moment for the images to complete before reloading page.":

Images are generated by background tasks. If the document is reloaded before these tasks are complete, some images may not yet be generated. *lwarpmk* tries to wait for background tasks to complete before exiting.

HTML version does not exist: Images are extracted from the HTML version, which must be compiled before images are generated.

`*-images.txt` does not exist: This file tells which images to extract from the HTML file. If the file does not exist, it may be that no SVG math or `lateximages` were used. If so, **`lwarpmk limages`** is not necessary.

Cross references are not correct: The document must have up-to-date cross references to locate the images to extract. A number of conditions may cause incorrect cross references.

"WARNING: Images will be incorrect.": An image reference was not found. Recompile.

`lwarpmk epstopdf *` or `lwarpmk pdftosvg *`: Errors if filenames are not found.

13.1.3 Default bitmapped font

lwarp requires the use of a vector font. If lwarp detects that the document uses the default COMPUTER MODERN font, and the cm-super package is not installed, it is assumed that the font is bitmapped. An error is generated, along with the recommendation to install cm-super or use lmodern.

13.1.4 Packages

Loaded before lwarp: Some packages and classes must be loaded before lwarp. These include input and font encoding, morewrites and newclude, and a number of CJK-related packages and classes.

Loaded after lwarp: Most packages which are modified by lwarp must be loaded after lwarp.

Loaded never: Some packages do not work with lwarp. An error is generated, along with a list of alternatives to consider.

Specific packages: Some packages enforce a specific load order vs. certain other packages.

Patching error: lwarp tries to patch some packages using xpatch. If the original package has been updated more recently than lwarp, a patch may not work. It may be necessary to use an older version of the package until lwarp is updated.

longtable: lwarp's longtable package issues detailed error messages regarding the use of the table headers and footers.

polyglossia: If used, an informative message is printed to instruct the user to be sure to set a language, without which an error will occur.

babel or polyglossia: An informative message is printed to note that not all langauges are supported by cleveref.

13.1.5 Compiling

`SideTOCDepth` < `FileDepth`: A warning is displayed if these counters are set such that the sideTOC will not be able to access all pages of the website.

Filenames: lwarp may generate file names from section names. While doing so, the filenames are simplified, and special characters and math are removed. If this process generates a duplicate filename, and error is generated, describing the filename and which section name generated it. A warning is issued if dollar-delimited math is used. Parenthesis-delimited math is recommended instead.

⚠ HTML corrupted **Multirow:** When `\multirow` or `\multicolrow` are used, `\mrowcell` or `\mcolrowcell` must be placed in the appropriate cells to avoid corrupted HTML output.

(width,height) missing a comma: `\makebox` and `\framebox` can accept a parenthesis-delimited width and height, which must be separated by a comma.

"Load graphicx or graphics for improved SVG math baselines.": SVG math sizing and baselines are improved if either of these packages are used.

"Load graphicx or graphics for improved XeTeX logo.": If these packages are loaded, the XeLaTeX logo can use the reversed "E".

"It is recommended to use `[width=xx\linewidth]` instead of `[scale=yy]` ": Browser support of `scale` does not have the same effect as in LaTeX.

13.2 Using the lwarp package

The following address problems which may occur, and possible solutions to each.

Also see:
Section 7.11: Commands to be placed into the `warpprint` environment
Section 8: Special cases and limitations

⚠ HTML corrupted **Text is not converting correctly / corrupted HTML tags:**

- Font-related UTF-8 information must be embedded in the PDF file. See section 7.4 regarding bitmapped vs. vector fonts.
- See section 8.2.1 regarding HTML entities and the characters &, <, and >.

⚠ dotlessj **Dotless j (`\j`):** See section 7.4 regarding cmap, mmap.

Undefined HTML settings:

- See the warning regarding the placement of the HTML settings at section 7.6.

Tabular problems: See section 8.10.1.

Obscure error messages:

Print first: Be sure that a print version of the document compiles and that your document's LaTeX code is correct, before attempting to generate an HTML version.

`\end{warpHTML}, \end{warpprint}, \end{warpall}, \end{warpMathJax}`:

⚠ `warpHTML`, `warpprint`, `warpMathJax`, `warpall`

Each of these must be without any other characters on the same line.

"`Runaway argument? File ended while scanning use of \next`: Don't use `warpHTML`, `warpprint`, `warpall`, or `warpMathJax` inside itself.

Options clash: If using memoir, see section 8.13.

"Missing `\begin{document}`.": Some packages require that their options be specified before lwarp is loaded, or via the package's setup macro, especially if these options include the use of braces. See section 8.1.

"No room for a new `\write`.": Before `\usepackage{lwarp}`, add:

```
\usepackage{morewrites}
\morewritessetup{allocate=10}
```

"! TeX capacity exceeded, sorry [text input levels=15].": Packages were nested too many levels deep. Locate the file `texmf.cnf` for your distribution, and add the line

```
max_in_open = 30
```

"Missing $ inserted.": If using a filename or URL in a footnote or `\item`, escape underscores with `\_`.

"Label(s) may have changed. Rerun to get cross-references right.":
This warning may repeat endlessly if a math expression is used in a caption. Simple math expressions such as $X=1$ may be replaced with

```
\textit{X}\,=\,1
```

"Temporary page! LaTeX was unable to guess the total number of pages ...":
Harmless. Recompile the document one more time.

"Leaders not followed by proper glue":
This can be caused by a missing `l@<floattype>` or `l@<sectiontype>` definition. See lwarp's definitions for examples.

"Improper \prevdepth": `lateximages` and SVG math require `\newpage`, which cannot work inside TEX boxes or `\ensuremath`. Anything using `\newsavebox`, `\newbox`, `lrbox`, `\savebox`, `\hbox`, `\vbox`, `\usebox`, `\sbox`, etc., must be modified to work without box commands.

If you find something using `\ensuremath`, have it temporarily set:

```
\LetLtxMacro\@ensuredmath\LWR@origensuredmath
```

inside a group first.

`LWR@texboxdepth`

As a stop-gap measure, you may wish to try incrementing the counter `LWR@texboxdepth` before the problematic macro, and then decrementing it after. Doing so tells lwarp to avoid using a `\newpage` inside the macro, which may avoid this error.

⚠ macros in section, table, figure names

Also, custom macros which appear inside a section, figure, or table name should be made robust since they appear inside the `.toc`, `.lof`, or `.lot` files. Use `\newrobustcmd` or `\robustify` from etoolbox, xparse, etc.

⚠ BibTeX

If using BibTeX, see section 8.6.9.

⚠ polyglossia

"! Undefined control sequence. . . . __hook begindocument":
See section 8.15.4 if using polyglossia.

⚠ custom macros for environments

"\begin{equation} ended by \end{document}": Do not use custom macros such as `\beq` and `\eeq` to replace

```
\begin{equation}
. . .
\end{equation}
```

⚠ `\LWR@formatted`

"Misplaced \omit": If using `\LWR@formatted` to define new macros for print and HTML modes, see section 36 regarding `\LWR@expandableformatted`.

"Token not allowed in a PDF string": This hyperref warning appears while creating the print-mode document, not HTML. A low-level macro is being used in a section name which appears in the PDF bookmarks. hyperref removes this macro from the bookmark, and warns of doing so. To avoid this warning, use `\pdfstringdefDisableCommands` in the preamble to define simplified replacement macros for each, or use `\texorpdfstring` in the `\section` or related macro to declare what to use for the TEX text, v.s. the PDF bookmark. See the hyperref manual.

⚠ quote character

"Command \textquoteright invalid in math mode": This can occur when the document source has math containing the slanted quote ' character, instead of using the upright quote ' character.

⚠ "impure" math objects

Complicated objects inside math: Some objects, such as Ti*k*z, may not compile in lwarp's normal math emulation. Insert

`\displaymathother` —*or*— `\inlinemathother`

before the math, and then

`\displaymathnormal` —*or*— `\inlinemathnormal`

when displaying "normal" math. See section 8.7.10.

Slow compliation of math objects: Complicated math objects can also cause problems with `alt` tags, resulting in very slow compilation, large `alt` tags, and possible crashes. Use `\inlinemathother` ... `\inlinemathnormal` or `\displaymathother` ... `\displaymathnormal` around the math expression.

⚠ MathJax **Incorrect MathJax:** Some objects do not convert to MathJax. Use `\displaymathother` before these objects, then `\displaymathnormal` to return to "normal" display math. See section 8.7.10.

Missing sections: See section 7.6 regarding the `FileDepth` and `SideTOCDepth` counters, and the use of `\tableofcontents` in the home page.

Misnumbered footnotes from section headings: See section 8.5.4.

Missing HTML files:

- See the warning regarding changes to the HTML settings at section 7.6.
- Ensure that the filenames are unique after math and short words are removed. See `FileSectionNames` at section 7.6.

Missing / incorrect cross-references:

- Use `lwarpmk again` followed by `lwarpmk html` or `lwarpmk print` to compile the document one more time.

labels
⚠ label characters

- Labels with special characters may be a problem. It is best to stick with alpha-numeric, hyphen, underscore, and perhaps the colon (if not French).

  `\nameref` refers to the most recently-used section where the `\label` was defined. If no section has been defined before the `\label`, the link will be empty. Index entries also use `\nameref` and have the same limitation.

`\nameref`
⚠ empty link

⚠ cleveref page numbers

- cleveref and varioref are supported, but printed page numbers do not map to HTML, so a section name or a text phrase are used for `\cpageref` and `\cpagerefrange`. This phrase includes `\cpagerefFor`, which defaults to "for".

  Ex:

  ```
  \cpageref{tab:first,tab:second}
  ```

  in `html` becomes:

  "pages **for** table 4.1 and **for** table 4.2"

  See `\cpagerefFor` at page 728 to redefine the message which is printed for page number references.

BibTeX errors with `\etalchar`: See section 8.6.9.

Malformed URLs: Do not use the `%` character between arguments of `\hyperref`, etc., as this character is among those which is neutralized for inclusion in HTML URLs.

Em-dashes or En-dashes in listing captions and titles:

Use XeLaTeX or LuaLaTeX.

Floats out of sequence:

Mixed "Here" and floating: Floats [H]ere and regular floats may become out of order. `\clearpage` if necessary.

Caption setup: With `\captionsetup` set the positions for the captions `above` or `below` to match their use in the source code.

Images are appearing in strange places:

- When images are added or removed, Enter **`lwarpmk limages`** to refresh the `lateximage` images.

SVG images:

⚠ adding/removing

When a math expression, `picture`, or Ti*k*z environment is added or removed, the SVG images must be re-created by entering **`lwarpmk limages`** to maintain the proper image-file associations. Inline SVG math may be hashed and thus not need to be recreated, but display math and objects such as Ti*k*z may move to new image numbers when the document is changed.

recompile first

Before attempting to create the SVG image files, *lwarpmk* verifies that the HTML version of the document exists and has correct internal image references.[16] If it is necessary to recompile the document's HTML version one more time, *lwarpmk* usually will inform the user with an error message, but there are some conditions which cannot be detected, so the user should watch for the LaTeX recompile warnings.

⚠ HTML instead of images

If HTML appears where an SVG image should be, recompile the document one more time to get the page numbers back in sync, then remake the images one more time.

⚠ page counter

Incorrect SVG images will also occur if the document changes the `page` counter:

```
\setcounter{page}{<value>}
```

The `page` counter must *not* be adjusted by the user.

⚠ Lots of files!

Expressing math as SVG images has the advantage of representing the math exactly as LaTeX would, but has the disadvantage of requiring an individual file for each math expression. For inline math, and some other objects, lwarp uses an MD5 hash on its LaTeX source to combine multiple instances of identical inline expressions into a single image file, but display math and other environments such as `picture` and Ti*k*z require one image file each. For a document with a large amount of math, see section 5.5 to use MathJax instead.

Plain-looking document:

- The document's CSS stylesheet may not be available, or may be linked incorrectly. Verify any `\CSSFilename` statements point to a valid CSS file.

⚠ HTML corrupted

Broken fragments of HTML:

- Check the PDF file used to create HTML to see if the tags overflowed the margin. (This is why such large page size and margins are used.)

Changes do not seem to be taking effect:

[16] This becomes important when dealing with a document containing thousands of images.

- Be sure to `lwarpmk clean`, recompile, then start by reloading the home page. You may have been looking at an older version of the document. If you changed a section name, you may have been looking at the file for the old name.
- See the warning regarding changes to the HTML settings at section 7.6.
- Verify that the proper CSS is actually being used.
- The browser may compensate for some subtle changes, such as automatically generating ligatures, reflowing text, etc.

Un-matched conditional compiles:

- Verify the proper `begin`/`end` of `warpprint`, `warpHTML`, and `warpall` environments.

13.2.1 Debug tracing output

`\tracinglwarp`

When `\tracinglwarp` is used, lwarp will add extra tracing messages to the `.log` file. The last several messages may help track down errors.

Place `\tracinglwarp` just after `\usepackage{lwarp}` to activate tracing.

13.3 Compiling the `lwarp.dtx` file

`lwarp_tutorial.tex`: Copy or link `lwarp_tutorial.txt` from the TDS doc directory to the `source` directory, or wherever you wish to compile the documentation. This file is included verbatim in the documentation, but is in the `doc` directory so that it may be found by *texdoc* and copied by the user.

Illogical error messages caused by an out-of-sync `lwarp.sty` file:

1. Delete the `lwarp.sty` file.
2. Enter **`pdflatex lwarp.ins`** to generate a new `lwarp.sty` file.
3. Enter **`pdflatex lwarp.dtx`** to recompile the `lwarp.pdf` documentation.

Un-nested environments:

Be sure to properly nest:

- `\begin{macrocode}` and `\end{macrocode}`
- `\begin{macro}` and `\end{macro}`
- `\begin{environment}` and `\end{environment}`

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File 1 **lwarp.sty**

15 Implementation

This package is perhaps best described as a large collection of smaller individual technical challenges, in many cases solved through a number of ~~crude hacks~~ clever tricks. Reference sources are given for many of the solutions, and a quick internet search will provide additional possibilities.

Judgement calls were made, and are often commented. Improvements are possible. The author is open to ideas and suggestions.

Packages were patched for re-use where they provided significant functionality. Examples include xcolor with its color models and conversion to HTML color output, and siunitx which provides many number and unit-formatting options, almost all of which are available in pure-text form, and thus easily used by *pdftotext*.

Packages were emulated where their primary purpose was visual formatting which is not relevent to HTML output. For example, packages related to sectioning are already patched by numerous other packages, creating a difficult number of combinations to try to support, and yet in HTML output all of the formatting is thrown away, so these packages are merely emulated.

Packages with graphical output are allowed as-is, but must be nested inside a `lateximage` environment to preserve the graphics.

Testing has primarily been done with the Iceweasel/Firefox browser.

Table 12: Section depths and HTML headings

Section	LaTeX depth	HTML headings *
Title of the entire website		`<h1>`
(none)	-5	new for this package
book	-2	`<div class = "book">`
part	-1	`<h2>`
chapter	0	`<h3>`
section	1	`<h4>`
subsection	2	`<h5>`
subsubsection	3	`<h6>`
paragraph	4	`<span class = "paragraph">`
subparagraph	5	`<span class = "subparagraph">`
listitem	7	new for this package, used for list items

* If `FormatWP` is true, section headings may be adjusted, depending on `WPTitleHeading`. See table 11 on page 183.

16 Section depths and HTML headings

Stacks are created to track depth inside the LaTeX document structure. This depth is translated to HTML headings as shown in table 12. "Depth" here is not depth in the traditional computer-science stack-usage sense, but rather a representation of the nesting depth inside the LaTeX document structure.

When starting a new section, the program first must close out any existing sections and lists of a deeper level to keep the HTML tags nested correctly.

Support for the memoir package will require the addition of a `book` level, which may push the HTML headings down a step, and also cause `subsubsection` to become a `<div>` due to a limit of six HTML headings.

It is possible to use HTML5 `<section>` and `<h1>` for all levels, but this may not be well-recognized by older browsers.

Fixed levels for parts and chapters allow the CSS to remain fixed as well.

17 Source code

This is where the documented source code for lwarp begins, continuing through the following sections all the way to the change log and index at the end of this document.

The following sections document the actual implementation of the lwarp package.

line numbers — The small numbers at the left end of a line refer to line numbers in the `lwarp.sty` file.

subjects — Blue-colored tags in the left margin aid in quickly identifying the subject of each paragraph. These are often the targets of index entries.

Prog Lwarp

index entries — Black-colored tags in the left marign are used to identify programming objects such as files, packages, environments, booleans, and counters. Items without a tag are command macros. Each of these also appears in the index as individual entries, and are also listed together under “files”, “packages”, “environments”, “booleans”, and “counters”.

⚠ warnings — Special warnings are marked with a warning icon.

for HTML output:
for PRINT output:
for HTML & PRINT:

Green-colored tags in the left margin show which sections of source code apply to the generation of HTML, print, or both forms of output.

— lwarp source code begins on the following page —

18 Detecting the TEX engine — *pdflatex*, *lualatex*, *xelatex*

See: http://tex.stackexchange.com/a/47579.

Detects XETEX and LUALATEX:

```
\RequirePackage{iftex}[2019/11/07]
\RequirePackage{ifpdf}
\RequirePackage{ifptex}

\newif\ifxetexorluatex

\ifXeTeX
    \xetexorluatextrue
\else
    \ifLuaTeX
        \xetexorluatextrue
    \else
        \xetexorluatexfalse
    \fi
\fi
```

19 Early package requirements

Pkg etoolbox

Provides \ifbool and other functions.

```
\RequirePackage{etoolbox}[2011/01/03]% v2.6 for \BeforeBeginEnvironment, etc.
```

Patch to fix copy of environment with a \par:

https://github.com/josephwright/etoolbox/issues/35

```
\long\def\etb@carsquare#1#2#3\@nil{#1#2}
```

Pkg xpatch

Patches macros with optional arguments.

```
\RequirePackage{xpatch}
```

Pkg ifplatform

Provides \ifwindows to try to automatically detect WINDOWS OS.

```
\RequirePackage{ifplatform}% sense op-system platform
```

Pkg letltxmacro

```
\RequirePackage{letltxmacro}
```

20 Package load order

Several packages must never be used with lwarp, others should only be loaded before lwarp, and others should only be loaded after. The lwarp core checks most

of these cases. In some lwarp-* packages, \LWR@loadbefore is used to trigger an error if they are loaded after lwarp, while additional code provides necessary patches for when they are loaded before.

Packages which must be loaded after lwarp are enfoced by a large number of \LWR@loadafter statements, below. Some packages are emulated by memoir, and so these are tested by \LWR@notmemoirloadafter, which does not cause an error if memoir is used.

\LWR@checkloadfilename is used to check each filename to see if it must never be loaded, or must always be loaded before lwarp.

20.1 Tests of package load order

\LWR@loadafter {⟨*packagename*⟩} Error if this package was loaded before lwarp.

```
\newcommand*{\LWR@loadafter}[1]{%
\IfPackageLoadedTF{#1}
{
    \PackageError{lwarp}
        {%
            Package #1,\MessageBreak
            or one which uses #1,\MessageBreak
            must be loaded after Lwarp.\MessageBreak
            Enter 'H' for possible solutions%
        }
        {%
            Move ``\protect\usepackage{#1}'' after
            ``\protect\usepackage{lwarp}''.\MessageBreak
            Package #1 may also be loaded by something else,\MessageBreak
            which must also be moved after Lwarp.%
        }
}
{\relax}
}
```

\LWR@notmemoirloadafter {⟨*packagename*⟩} Error if not memoir class and this package was loaded before lwarp.

memoir emulates many packages, and pretends that they have already been loaded.

```
\IfClassLoadedTF{memoir}
{\newcommand*{\LWR@notmemoirloadafter}[1]{}}
{\LetLtxMacro\LWR@notmemoirloadafter\LWR@loadafter}
```

\LWR@notltjloadafter {⟨*packagename*⟩} Error if not a ltjs* class and this package was loaded before lwarp.

```
\LetLtxMacro\LWR@notltjloadafter\LWR@loadafter

\IfClassLoadedTF{ltjarticle}{\renewcommand*{\LWR@notltjloadafter}[1]{}}{}
\IfClassLoadedTF{ltjbook}{\renewcommand*{\LWR@notltjloadafter}[1]{}}{}
\IfClassLoadedTF{ltjreport}{\renewcommand*{\LWR@notltjloadafter}[1]{}}{}
\IfClassLoadedTF{ltjsarticle}{\renewcommand*{\LWR@notltjloadafter}[1]{}}{}
```

```
\IfClassLoadedTF{ltjsbook}{\renewcommand*{\LWR@notltjloadafter}[1]{}}{}
\IfClassLoadedTF{ltjsreport}{\renewcommand*{\LWR@notltjloadafter}[1]{}}{}
\IfClassLoadedTF{ltjspf}{\renewcommand*{\LWR@notltjloadafter}[1]{}}{}
\IfClassLoadedTF{ltjskiyou}{\renewcommand*{\LWR@notltjloadafter}[1]{}}{}
\IfClassLoadedTF{ltjtarticle}{\renewcommand*{\LWR@notltjloadafter}[1]{}}{}
\IfClassLoadedTF{ltjtbook}{\renewcommand*{\LWR@notltjloadafter}[1]{}}{}
\IfClassLoadedTF{ltjtreport}{\renewcommand*{\LWR@notltjloadafter}[1]{}}{}
```

`\LWR@loadbefore` {⟨*packagename*⟩} Error if this package is loaded after lwarp.

```
\newcommand*{\LWR@loadbefore}[1]{%
\IfPackageLoadedTF{#1}
{\relax}
{
    \PackageError{lwarp}
    {%
        Package #1 must be loaded before lwarp.\MessageBreak
        Enter 'H' for possible solutions%
    }
   {Move ``\protect\usepackage{#1}'' before ``\protect\usepackage{lwarp}''.}
}
}
```

`\LWR@checkloadbefore` {⟨*packagename*⟩}

Given `\LWR@tempone` is the package name to compare to, if package names match, error if it is loaded after lwarp.

```
\newcommand*{\LWR@checkloadbefore}[1]{%
    \ifdefstring{\LWR@tempone}{#1}{%
        \LWR@loadbefore{#1}%
    }{}%
}
```

`\LWR@loadnever` {⟨*badpackagename*⟩} {⟨*replacementpkgnames*⟩}

The first packages is not supported, so tell the user to use the second instead. Factored from `\LWR@checkloadnever` and `\LWR@earlyloadnever`.

```
\newcommand*{\LWR@loadnever}[2]{%
\PackageError{lwarp}
{%
    Package #1 is not yet supported\MessageBreak
    by lwarp's HTML conversion%
    \ifblank{#2}{}{%
        .\MessageBreak
        Package(s)\MessageBreak
        \space\space#2\MessageBreak
        may be useful instead%
    }%
}
{%
    Package #1 might conflict with lwarp in some way,\MessageBreak
    or is superceded by another package.%
    \ifblank{#2}{}{%
        \MessageBreak
        For possible alternatives, see package(s) #2.%
```

```
    }%
}
}
```

`\LWR@afterloadnever` {⟨*badpackagename*⟩} {⟨*replacementpkgnames*⟩}

Given: `\LWR@tempone` is set to the package name being tested against, if this package name is the bad packagename, suggest the replacements instead. This is used when loading packages after lwarp.

```
\newcommand*{\LWR@afterloadnever}[2]{%
    \ifdefstring{\LWR@tempone}{#1}{%
        \LWR@loadnever{#1}{#2}%
    }{}%
}
```

`\LWR@earlyloadnever` {⟨*badpackagename*⟩} {⟨*replacementpkgname*⟩}

The first package is not supported, so tell the user to use the second instead. This version checks immediately for packages which may have been loaded before lwarp.

```
\newcommand*{\LWR@earlyloadnever}[2]{%
    \IfPackageLoadedTF{#1}{%
        \LWR@loadnever{#1}{#2}%
    }{}%
}
```

`\LWR@earlyclassloadnever` {⟨*badclassname*⟩} {⟨*replacementclassname*⟩}

The first class is not supported, so tell the user to use the second instead. This version checks immediately for classes which may have been loaded before lwarp.

```
\newcommand*{\LWR@earlyclassloadnever}[2]{%
\IfClassLoadedTF{#1}{%
\PackageError{lwarp}
{%
    Class #1 is not supported\MessageBreak
    by lwarp's HTML conversion%
    \ifblank{#2}{}{%
        .\MessageBreak
        #2 may be useful instead%
    }%
}
{%
    Class #1 might conflict with lwarp in some way,\MessageBreak
    or is superceded by another class.%
    \ifblank{#2}{}{%
        \MessageBreak
        For a possible alternative, see #2.%
    }%
}
}{\relax}%
}
```

20.2 Error for disallowed packages and classes loaded before lwarp

\LWR@checkloadnevers Checks against a list of incompatible packages.

```
\newcommand*{\LWR@checkloadnevers}{
\LWR@checkloadnever{ae}{cm-super, lmodern}
\LWR@checkloadnever{aecompl}{cm-super, lmodern}
\LWR@checkloadnever{aecc}{cm-super, lmodern}
\LWR@checkloadnever{alg}{algorithm2e, algorithmicx}
\LWR@checkloadnever{algorithmic}{algorithm2e, algorithmicx}
\LWR@checkloadnever{bitfield}{bytefield}
```

bxcjkatype is based on CJK:

```
\LWR@checkloadnever{bxcjkjatype}{upLaTeX, bxjsarticle, ujarticle, utarticle}
```

```
\LWR@checkloadnever{caption2}{caption}
% \LWR@checkloadnever{ccaption}{caption}% might be preloaded by memoir
\LWR@checkloadnever{colortab}{colortbl}
\LWR@checkloadnever{csvtools}{datatool}
\LWR@checkloadnever{doublespace}{setspace}
\LWR@checkloadnever{fancyheadings}{fancyhdr}
\LWR@checkloadnever{fncylab}{cleveref}
\LWR@checkloadnever{formula}{siunitx}
\LWR@checkloadnever{glossary}{glossaries}
```

hangul is not in TeXLive, and is not tested:

```
\LWR@checkloadnever{hangul}{kotex, xetexko, luatexko}
```

```
\LWR@checkloadnever{hyper}{hyperref}
\LWR@checkloadnever{libgreek}{libertinust1math, newtx}
\LWR@checkloadnever{newthm}{ntheorem}
\LWR@checkloadnever{pdfcprot}{microtype}
\LWR@checkloadnever{picins}{floatflt, wrapfig, wrapfig2}
\LWR@checkloadnever{rplain}{fancyhdr}
\LWR@checkloadnever{si}{siunitx}
\LWR@checkloadnever{sistyle}{siunitx}
\LWR@checkloadnever{slashbox}{diagbox}
\LWR@checkloadnever{statex}{statex2}
\LWR@checkloadnever{t1enc}{fontenc, inputenc, inputenx}
\LWR@checkloadnever{ucs}{inputenc, inputencx}
\LWR@checkloadnever{wasysym}{textcomp, amssymb, amsfonts, mnsymbol, fdsymbol}
```

The following may one day be supported by lwarp:

```
% \LWR@checkloadnever{adjustbox}{}% req'd for menukeys
\LWR@checkloadnever{animate}{}
\LWR@checkloadnever{auto-pst-pdf}{}
\LWR@checkloadnever{auto-pst-pdf-lua}{}
\LWR@checkloadnever{algorithms}{}
\LWR@checkloadnever{arraycols}{}
\LWR@checkloadnever{bidi}{}
\LWR@checkloadnever{cals}{}
```

```
\LWR@checkloadnever{cellspace}{tabls}
```

```
\LWR@checkloadnever{cgloss4e}{}
\LWR@checkloadnever{collcell}{}
\LWR@checkloadnever{colophon}{}
\LWR@checkloadnever{cooltooltips}{}
\LWR@checkloadnever{covington}{}
\LWR@checkloadnever{crbox}{}
\LWR@checkloadnever{decision-table}{}
\LWR@checkloadnever{dvgloss}{}
\LWR@checkloadnever{ednotes}{}
\LWR@checkloadnever{edfnotes}{}
\LWR@checkloadnever{eledform}{}
\LWR@checkloadnever{eledmac}{}
\LWR@checkloadnever{embedfile}{}
\LWR@checkloadnever{endnotes-hy}{endnotes}
\LWR@checkloadnever{expex}{}
\LWR@checkloadnever{fancytooltips}{}
\LWR@checkloadnever{fixocgx}{}
\LWR@checkloadnever{flowfram}{}
\LWR@checkloadnever{gb4e}{}
\LWR@checkloadnever{gmverse}{}
\LWR@checkloadnever{graphbox}{}
\LWR@checkloadnever{graphicxbox}{}
\LWR@checkloadnever{hvfloat}{}
\LWR@checkloadnever{inline-images}{}
\LWR@checkloadnever{isorot}{rotating}
\LWR@checkloadnever{ledmac}{}
\LWR@checkloadnever{linguex}{}
\LWR@checkloadnever{longdiv}{}
\LWR@checkloadnever{longfigure}{}
\LWR@checkloadnever{longtabu}{}
\LWR@checkloadnever{mdwenv}{}
\LWR@checkloadnever{mdwlist}{}
\LWR@checkloadnever{mdwtab}{}
\LWR@checkloadnever{navigator}{}
\LWR@checkloadnever{nccpic}{}
\LWR@checkloadnever{nccsect}{}
\LWR@checkloadnever{newvbtm}{}
\LWR@checkloadnever{ocg-p}{}
\LWR@checkloadnever{ocgtools}{}
\LWR@checkloadnever{ocgx}{}
\LWR@checkloadnever{ocgx2}{}
\LWR@checkloadnever{parrun}{}
\LWR@checkloadnever{poemscol}{}
\LWR@checkloadnever{poetry}{}
\LWR@checkloadnever{program}{}
\LWR@checkloadnever{proofread}{}
\LWR@checkloadnever{pst-pdf}{}
\LWR@checkloadnever{refstyle}{}
\LWR@checkloadnever{robustindex}{}
\LWR@checkloadnever{robustglossary}{}
\LWR@checkloadnever{semioneside}{}
\LWR@checkloadnever{slemph}{}
\LWR@checkloadnever{snotez}{sidenotes}
\LWR@checkloadnever{spacingtricks}{}
\LWR@checkloadnever{sverb}{verbatim, fancyvrb}
\LWR@checkloadnever{syntax}{}
\LWR@checkloadnever{tablists}{}
\LWR@checkloadnever{tabto}{}
\LWR@checkloadnever{tabu}{}
\LWR@checkloadnever{tabularht}{}
```

```
\LWR@checkloadnever{tabularkv}{}
\LWR@checkloadnever{thumby}{}
\LWR@checkloadnever{titles}{}
\LWR@checkloadnever{typehtml}{}
\LWR@checkloadnever{unicode-bidi}{}
\LWR@checkloadnever{vcell}{}
\LWR@checkloadnever{xhfill}{}
}
```

`\LWR@checkloadnever` {⟨*badpackagename*⟩} {⟨*replacementpkgname*⟩}

The first package is not supported, so tell the user to use the second instead.

When lwarp is first loaded, this is set to `\LWR@earlyloadnever` to check for incompatible packages which were loaded before lwarp. After lwarp is loaded, this is changed to `\LWR@afterloadnever` to check for incompatible packages during `\usepackage`.

```
\LetLtxMacro\LWR@checkloadnever\LWR@earlyloadnever
```

Now check for incompatible packages which have been loaded before lwarp:

```
\LWR@checkloadnevers
```

The older CJK and CJKutf8 only work with xeCJK:

```
\IfPackageLoadedTF{xeCJK}{}{
    \LWR@checkloadnever{CJK}{ctex, xeCJK}
    \LWR@checkloadnever{CJKutf8}{ctex, xeCJK}
}
```

Some classes do not work with lwarp:

```
\LWR@earlyclassloadnever{beamer}{beamerarticle}
\LWR@earlyclassloadnever{jarticle}{ujarticle}
\LWR@earlyclassloadnever{jbook}{ujbook}
\LWR@earlyclassloadnever{jreport}{ujreport}
\LWR@earlyclassloadnever{tarticle}{utarticle}
\LWR@earlyclassloadnever{tbook}{utbook}
\LWR@earlyclassloadnever{treport}{utreport}
\LWR@earlyclassloadnever{novel}{}
\LWR@earlyclassloadnever{powerdot}{}
```

20.3 Enforcing package loading after lwarp

Packages which should only be loaded after lwarp are tested here to trip an error of they have already been loaded.

The following packages must be loaded after lwarp:

```
\LWR@loadafter{2in1}
\LWR@loadafter{2up}
\LWR@loadafter{a4}
\LWR@loadafter{a4wide}
\LWR@loadafter{a5comb}
\LWR@notmemoirloadafter{abstract}
```

```
\LWR@loadafter{academicons}
\LWR@loadafter{accents}
\LWR@loadafter{accessibility}
\LWR@loadafter{accsupp}
\LWR@loadafter{acro}
\LWR@loadafter{acronym}
\LWR@loadafter{adjmulticol}
\LWR@loadafter{addlines}
\LWR@loadafter{afterpage}
\LWR@loadafter{algorithm2e}
\LWR@loadafter{algorithmicx}
\LWR@loadafter{alltt}
\LWR@loadafter{amscdx}
% \LWR@loadafter{amsmath}% may be preloaded
% \LWR@loadafter{amsthm}% may be preloaded
\LWR@loadafter{anonchap}
\LWR@loadafter{anysize}
\LWR@notmemoirloadafter{appendix}
\LWR@loadafter{ar}
\LWR@loadafter{arabicfront}
\LWR@notmemoirloadafter{array}
\LWR@loadafter{arydshln}
\LWR@loadafter{asymptote}
% \LWR@loadafter{atbegshi}% now in LaTeX core, also used by morewrites
\LWR@loadafter{attachfile}
\LWR@loadafter{attachfile2}
\LWR@loadafter{authblk}
\LWR@loadafter{authoraftertitle}% Supported as-is, but must be loaded after.
\LWR@loadafter{autobreak}
\LWR@loadafter{autonum}
\LWR@loadafter{awesomebox}
\LWR@loadafter{axessibility}
\LWR@loadafter{axodraw2}
\LWR@loadafter{backnaur}
\LWR@loadafter{backref}
\LWR@loadafter{balance}
\LWR@loadafter{bbding}
\LWR@loadafter{beamerarticle}
\LWR@loadafter{bigdelim}
\LWR@loadafter{bigfoot}
\LWR@loadafter{bigstrut}
\LWR@loadafter{bitpattern}
\LWR@loadafter{blowup}
\LWR@loadafter{bm}
\LWR@loadafter{booklet}
\LWR@loadafter{bookmark}
\LWR@notmemoirloadafter{booktabs}
\LWR@loadafter{bophook}
\LWR@loadafter{bounddvi}
\LWR@loadafter{boxedminipage}
\LWR@loadafter{boxedminipage2e}
\LWR@loadafter{braket}
\LWR@loadafter{breakurl}
\LWR@loadafter{breqn}
\LWR@loadafter{bsheaders}
\LWR@loadafter{bussproofs}
\LWR@loadafter{bxpapersize}
\LWR@loadafter{bytefield}
\LWR@loadafter{ccicons}
\LWR@loadafter{cancel}
```

```
\LWR@loadafter{canoniclayout}
\LWR@loadafter{caption}
\LWR@loadafter{caption2}
\LWR@loadafter{caption3}
\LWR@loadafter{cases}
% catoptions is supported by the lwarp core
% \LWR@loadafter{ccaption}% may be preloaded by memoir
\LWR@loadafter{centerlastline}
% \LWR@loadafter{centernot}% may be preloaded by newtx
\LWR@loadafter{changebar}
\LWR@loadafter{changelayout}
\LWR@notmemoirloadafter{changepage}
\LWR@loadafter{changes}
\LWR@loadafter{chappg}
\LWR@loadafter{chapterbib}
\LWR@loadafter{chemfig}
\LWR@loadafter{chemformula}
\LWR@loadafter{chemgreek}
\LWR@loadafter{chemmacros}
\LWR@loadafter{chemnum}
\LWR@loadafter{chkfloat}
\LWR@notmemoirloadafter{chngpage}
\LWR@loadafter{cite}
\LWR@loadafter{citeref}
\LWR@loadafter{classicthesis}
\LWR@loadafter{cleveref}
% cmbright may be preloaded
\LWR@loadafter{cmdtrack}
\LWR@loadafter{colonequals}
\LWR@loadafter{color}
\LWR@loadafter{colortbl}
\LWR@loadafter{continue}
\LWR@loadafter{copyrightbox}
\LWR@notmemoirloadafter{crop}
% ctex must be loaded before lwarp
\LWR@loadafter{ctable}
\LWR@loadafter{cuted}
\LWR@loadafter{cutwin}
\LWR@loadafter{dblfloatfix}
\LWR@loadafter{dblfnote}
\LWR@notmemoirloadafter{dcolumn}
\LWR@loadafter{decimal}
\LWR@loadafter{decorule}
\LWR@loadafter{diagbox}
\LWR@loadafter{dingbat}
\LWR@loadafter{DotArrow}
\LWR@loadafter{dotlessi}
\LWR@loadafter{dprogress}
\LWR@loadafter{draftcopy}
\LWR@loadafter{draftfigure}
\LWR@loadafter{draftwatermark}
\LWR@loadafter{drftcite}
\LWR@loadafter{easy-todo}
\LWR@loadafter{ebook}
\LWR@loadafter{econometrics}
\LWR@loadafter{ed}
\LWR@loadafter{ellipsis}
\LWR@loadafter{embrac}
\LWR@loadafter{emptypage}
\LWR@loadafter{endfloat}
```

```
\LWR@loadafter{endheads}
\LWR@loadafter{endnotes}
\LWR@loadafter{engtlc}
\LWR@loadafter{enotez}
\LWR@notmemoirloadafter{enumerate}
\LWR@loadafter{enumitem}
\LWR@notmemoirloadafter{epigraph}
\LWR@loadafter{epsf}
\LWR@loadafter{epsfig}
\LWR@loadafter{epstopdf}
\LWR@loadafter{epstopdf-base}
\LWR@loadafter{eqlist}
\LWR@loadafter{eqparbox}
\LWR@loadafter{errata}
\LWR@loadafter{eso-pic}
\LWR@loadafter{esvect}
\LWR@loadafter{etoc}
\LWR@loadafter{eurosym}
\LWR@loadafter{everypage}
% \LWR@loadafter{everyshi}% now in LaTeX core
\LWR@loadafter{extarrows}
\LWR@loadafter{extramarks}
\LWR@loadafter{fancybox}
\LWR@loadafter{fancyhdr}
\LWR@loadafter{fancypar}
\LWR@loadafter{fancyref}
\LWR@loadafter{fancytabs}
\LWR@loadafter{fancyvrb}
\LWR@loadafter{fbox}
\LWR@loadafter{fewerfloatpages}
\LWR@loadafter{figcaps}
\LWR@loadafter{figsize}
\LWR@loadafter{fitbox}
\LWR@loadafter{fix2col}
\LWR@loadafter{fixmath}
\LWR@loadafter{fixme}
\LWR@loadafter{fixmetodonotes}
\LWR@loadafter{flafter}
\LWR@loadafter{flippdf}
\LWR@loadafter{float}
\LWR@loadafter{floatflt}
\LWR@loadafter{floatpag}
\LWR@loadafter{floatrow}
\LWR@loadafter{fltrace}
\LWR@loadafter{flushend}
\LWR@loadafter{fnbreak}
\LWR@loadafter{fncychap}
\LWR@loadafter{fnlineno}
\LWR@loadafter{fnpara}
\LWR@loadafter{fnpos}
\LWR@loadafter{fontawesome}
\LWR@loadafter{fontawesome5}
% fontenc must be loaded before lwarp
% fontspec must be loaded before lwarp
\LWR@loadafter{footmisc}
\LWR@loadafter{footnote}
\LWR@loadafter{footnotebackref}
\LWR@loadafter{footnotehyper}
\LWR@loadafter{footnoterange}
\LWR@loadafter{footnpag}
```

```
\LWR@loadafter{foreign}
\LWR@loadafter{forest}
\LWR@loadafter{fouridx}
% fourier may be loaded before lwarp
\LWR@loadafter{framed}
\LWR@loadafter{froufrou}
\LWR@loadafter{ftcap}
\LWR@loadafter{ftnright}
\LWR@loadafter{fullminipage}
\LWR@loadafter{fullpage}
\LWR@loadafter{fullwidth}
\LWR@loadafter{fvextra}
\LWR@loadafter{fwlw}
\LWR@loadafter{gensymb}
\LWR@loadafter{gentombow}
% geometry is always loaded by lwarp, and lwarp-geometry is AtBeginDocument
\LWR@loadafter{ghsystem}
\LWR@loadafter{gindex}
\LWR@loadafter{glossaries}
\LWR@loadafter{gmeometric}
% \LWR@loadafter{graphics}% pre-loaded by xunicode
% \LWR@loadafter{graphicx}% pre-loaded by xunicode
\LWR@loadafter{gloss}
\LWR@loadafter{glossary}
\LWR@loadafter{grffile}
\LWR@loadafter{grid}
\LWR@loadafter{grid-system}
\LWR@loadafter{gridset}
\LWR@loadafter{hang}
\LWR@loadafter{hanging}
\LWR@loadafter{hepunits}
\LWR@loadafter{hhline}
\LWR@loadafter{hhtensor}
\LWR@loadafter{hypbmsec}
\LWR@loadafter{hypcap}
\LWR@loadafter{hypdestopt}
\LWR@loadafter{hypernat}
\LWR@loadafter{hyperref}
\LWR@loadafter{hyperxmp}
\LWR@loadafter{hyphenat}
\LWR@loadafter{idxlayout}
\LWR@loadafter{ifoddpage}
\LWR@loadafter{imakeidx}
\LWR@loadafter{impnattypo}
\LWR@notmemoirloadafter{index}
% inputenc must be loaded before lwarp
% inputenx must be loaded before lwarp
% inputtrc may be loaded before lwarp
\LWR@loadafter{intopdf}
\LWR@loadafter{isomath}
\LWR@loadafter{isotope}
\LWR@loadafter{jurabib}
\LWR@loadafter{karnaugh-map}
\LWR@loadafter{keyfloat}
\LWR@loadafter{keystroke}
% kpfonts may be loaded before lwarp
% kpfonts-otf may be loaded before lwarp
\LWR@loadafter{layaureo}
\LWR@loadafter{layout}
\LWR@loadafter{layouts}
```

```
\LWR@loadafter{leading}
\LWR@loadafter{leftidx}
\LWR@loadafter{letterspace}
\LWR@loadafter{lettrine}
% libertinust1math may be loaded before lwarp
\LWR@loadafter{lineno}
\LWR@loadafter{lips}
\LWR@loadafter{listings}
\LWR@loadafter{listliketab}
\LWR@loadafter{lltjp-siunitx}
\LWR@loadafter{lltjp-tascmac}
\LWR@loadafter{longtable}
\LWR@loadafter{lpic}
\LWR@loadafter{lscape}
\LWR@loadafter{ltablex}
\LWR@loadafter{ltcaption}
\LWR@loadafter{ltxgrid}
\LWR@loadafter{ltxtable}
\LWR@loadafter{lua-check-hyphen}
\LWR@loadafter{lua-visual-debug}
\LWR@loadafter{luacolor}
\LWR@loadafter{luamplib}
\LWR@loadafter{luatodonotes}
\LWR@loadafter{luavlna}
\LWR@loadafter{lyluatex}
\LWR@loadafter{magaz}
\LWR@notmemoirloadafter{makeidx}
\LWR@loadafter{manyfoot}
\LWR@loadafter{marginfit}
\LWR@loadafter{marginfix}
\LWR@loadafter{marginnote}
\LWR@loadafter{marvosym}
% mathalpha may be loaded before lwarp
\LWR@loadafter{mathastext}
\LWR@loadafter{mathcomp}
\LWR@loadafter{mathdesign}
\LWR@loadafter{mathdots}
\LWR@loadafter{mathfixs}
\LWR@loadafter{mathpazo}
\LWR@loadafter{mathptmx}
\LWR@loadafter{mathspec}
\LWR@loadafter{mathtools}
\LWR@loadafter{mattens}
\LWR@loadafter{maybemath}
\LWR@loadafter{mcaption}
\LWR@loadafter{mdframed}
\LWR@loadafter{mdwmath}
\LWR@loadafter{media9}
\LWR@loadafter{memhfixc}
\LWR@loadafter{menukeys}
\LWR@loadafter{metalogo}
\LWR@loadafter{metalogox}
\LWR@loadafter{mhchem}
\LWR@loadafter{microtype}
\LWR@loadafter{midfloat}
\LWR@loadafter{midpage}
\LWR@loadafter{minibox}
\LWR@loadafter{minitoc}
\LWR@loadafter{minted}
\LWR@loadafter{mismath}
```

```
\LWR@loadafter{mleftright}
% morefloats must be allowed early for print mode
\LWR@notmemoirloadafter{moreverb}
% morewrites must be loaded before lwarp
\LWR@notmemoirloadafter{movie15}
\LWR@notmemoirloadafter{mparhack}
\LWR@loadafter{multibib}
\LWR@loadafter{multicap}
%\LWR@loadafter{multicol}% loaded by ltxdoc
\LWR@loadafter{multicolrule}
\LWR@loadafter{multimedia}
\LWR@loadafter{multiobjective}
\LWR@loadafter{multirow}
\LWR@loadafter{multitoc}
\LWR@loadafter{musicography}
\LWR@loadafter{mwe}
\LWR@loadafter{nameauth}
\LWR@loadafter{nameref}
\LWR@loadafter{natbib}
\LWR@notmemoirloadafter{nccfancyhdr}
\LWR@loadafter{nccfoots}
\LWR@loadafter{nccmath}
\LWR@notmemoirloadafter{needspace}
% newclude must be loaded before lwarp
% newpxmath may be preloaded
% newtxmath may be loaded before lwarp
% newtxsf may be loaded before lwarp
% newunicodechar must be loaded before lwarp
\LWR@notmemoirloadafter{nextpage}
\LWR@loadafter{nicefrac}
\LWR@loadafter{niceframe}
\LWR@loadafter{nicematrix}
\LWR@loadafter{noitcrul}
\LWR@loadafter{nolbreaks}
\LWR@loadafter{nomencl}
\LWR@loadafter{nonfloat}
\LWR@loadafter{nonumonpart}
\LWR@loadafter{nopageno}
\LWR@loadafter{notes}
\LWR@loadafter{notespages}
\LWR@loadafter{nowidow}
\LWR@loadafter{ntheorem}
\LWR@loadafter{octave}
\LWR@loadafter{orcidlink}
\LWR@loadafter{overpic}
\LWR@loadafter{pagegrid}
\LWR@notmemoirloadafter{pagenote}
\LWR@loadafter{pagesel}
\LWR@loadafter{paralist}
\LWR@loadafter{parallel}
\LWR@loadafter{parcolumns}
\LWR@loadafter{parnotes}
\LWR@notmemoirloadafter{parskip}
\LWR@loadafter{pbalance}
\LWR@loadafter{pbox}
\LWR@loadafter{pdfcol}
\LWR@loadafter{pdfcolfoot}
\LWR@loadafter{pdfcolmk}
\LWR@loadafter{pdfcolparallel}
\LWR@loadafter{pdfcolparcolumns}
```

```
\LWR@loadafter{pdfcomment}
\LWR@loadafter{pdfcrypt}
\LWR@loadafter{pdflscape}
\LWR@loadafter{pdfmarginpar}
\LWR@loadafter{pdfpages}
\LWR@loadafter{pdfprivacy}
\LWR@loadafter{pdfrender}
\LWR@loadafter{pdfsync}
\LWR@loadafter{pdftricks}
\LWR@loadafter{pdfx}
\LWR@loadafter{perpage}
\LWR@loadafter{pfnote}
\LWR@loadafter{phfqit}
\LWR@loadafter{physics}
\LWR@loadafter{physunits}
\LWR@loadafter{picinpar}
\LWR@loadafter{pifont}
\LWR@loadafter{pinlabel}
\LWR@loadafter{placeins}
\LWR@loadafter{plarray}
\LWR@loadafter{plarydshln}
\LWR@loadafter{plextarray}
\LWR@loadafter{plextarydshln}
\LWR@loadafter{plcolortbl}
\LWR@loadafter{plextdelarray}
\LWR@loadafter{plimsoll}
\LWR@loadafter{prelim2e}
\LWR@loadafter{prettyref}
\LWR@loadafter{preview}
\LWR@loadafter{psfrag}
\LWR@loadafter{psfragx}
\LWR@loadafter{pst-eps}
\LWR@loadafter{pstool}
\LWR@loadafter{pstricks}
% \LWR@loadafter{pxatbegshi}% may be used by morewrites
\LWR@loadafter{pxeveryshi}
% \LWR@loadafter{pxfonts}% may be loaded before lwarp
\LWR@loadafter{pxftnright}
\LWR@loadafter{pxjahyper}
\LWR@loadafter{quotchap}
\LWR@loadafter{quoting}
\LWR@loadafter{ragged2e}
\LWR@loadafter{realscripts}
\LWR@loadafter{refcheck}
\LWR@loadafter{register}
\LWR@loadafter{relsize}
\LWR@loadafter{repeatindex}
\LWR@loadafter{resizegather}
\LWR@loadafter{returntogrid}
\LWR@loadafter{rlepsf}
\LWR@loadafter{rmathbr}
\LWR@loadafter{rmpage}
\LWR@loadafter{romanbar}
\LWR@loadafter{romanbarpagenumber}
\LWR@loadafter{rotating}
\LWR@loadafter{rotfloat}
\LWR@loadafter{rviewport}
\LWR@loadafter{savetrees}
% scalefnt is loaded by babel-french
\LWR@loadafter{scalerel}
```

```
\LWR@loadafter{schemata}
\LWR@loadafter{scrextend}
\LWR@loadafter{scrhack}
\LWR@loadafter{scrlayer}
\LWR@loadafter{scrlayer-notecolumn}
\LWR@loadafter{scrlayer-scrpage}
\LWR@loadafter{scrpage2}
\LWR@loadafter{section}
\LWR@loadafter{sectionbreak}
\LWR@loadafter{sectsty}
\LWR@loadafter{selectp}
\LWR@loadafter{semantic-markup}
\LWR@notmemoirloadafter{setspace}
\LWR@loadafter{shadow}
\LWR@loadafter{shapepar}
\LWR@notmemoirloadafter{showidx}
\LWR@loadafter{showlabels}
\LWR@loadafter{showkeys}
\LWR@loadafter{showtags}
\LWR@loadafter{shuffle}
\LWR@loadafter{sidecap}
\LWR@loadafter{sidenotes}
\LWR@loadafter{simplebnf}
\LWR@loadafter{SIunits}
\LWR@loadafter{siunitx}
\LWR@loadafter{siunitx-v2}
\LWR@loadafter{skmath}
\LWR@loadafter{slantsc}
\LWR@loadafter{slashed}
\LWR@loadafter{soul}
\LWR@loadafter{soulpos}
\LWR@loadafter{soulutf8}
\LWR@loadafter{splitbib}
\LWR@loadafter{splitidx}
\LWR@loadafter{srcltx}
\LWR@loadafter{srctex}
\LWR@loadafter{stabular}
\LWR@loadafter{stackengine}
\LWR@loadafter{stackrel}
\LWR@loadafter{statex2}
\LWR@loadafter{statistics}
\LWR@loadafter{statmath}
\LWR@loadafter{steinmetz}
\LWR@notltjloadafter{stfloats}
\LWR@loadafter{struktex}
\LWR@loadafter{subcaption}
\LWR@loadafter{subfig}
\LWR@loadafter{subfigure}
\LWR@loadafter{subsupscripts}
\LWR@loadafter{supertabular}
\LWR@loadafter{svg}
\LWR@loadafter{swfigure}
\LWR@loadafter{sympytex}
\LWR@loadafter{syntonly}
\LWR@loadafter{t1inc}
\LWR@loadafter{tabfigures}
\LWR@loadafter{tabls}
\LWR@loadafter{tablefootnote}
\LWR@notmemoirloadafter{tabularx}
\LWR@loadafter{tabulary}
```

```
\LWR@loadafter{tagpdf}
\LWR@loadafter{tascmac}
\LWR@loadafter{tcolorbox}
\LWR@loadafter{tensor}
\LWR@loadafter{termcal}
\LWR@loadafter{textarea}
% \LWR@loadafter{textcomp}% maybe before lwarp with font packages
\LWR@loadafter{textfit}
\LWR@loadafter{textpos}
\LWR@loadafter{theorem}
\LWR@loadafter{thinsp}
\LWR@loadafter{thm-listof}
\LWR@loadafter{thm-restate}
\LWR@loadafter{thmbox}
\LWR@loadafter{thmtools}
\LWR@loadafter{threadcol}
\LWR@loadafter{threeparttable}
\LWR@loadafter{threeparttablex}
\LWR@loadafter{thumb}
\LWR@loadafter{thumbs}
\LWR@loadafter{tikz}
\LWR@loadafter{tikz-imagelabels}
\LWR@loadafter{titleps}
\LWR@loadafter{titlesec}
\LWR@loadafter{titletoc}
\LWR@notmemoirloadafter{titling}
% \LWR@loadafter{tocbasic}% preloaded by koma-script classes
\LWR@notmemoirloadafter{tocbibind}
\LWR@loadafter{tocdata}
\LWR@loadafter{tocenter}
\LWR@notmemoirloadafter{tocloft}
\LWR@loadafter{tocstyle}
\LWR@loadafter{todo}
\LWR@loadafter{todonotes}
\LWR@loadafter{topcapt}
\LWR@loadafter{tram}
\LWR@loadafter{transparent}
\LWR@loadafter{trimclip}
\LWR@loadafter{trivfloat}
\LWR@loadafter{truncate}
\LWR@loadafter{turnthepage}
\LWR@loadafter{twoup}
% \LWR@loadafter{txfonts}% may be loaded before lwarp
% txgreeks may be loaded before lwarp

% \LWR@loadafter{typearea}% preloaded by koma-script classes
\LWR@loadafter{typicons}
% \LWR@loadafter{ulem}% preloaded by ctexart and related classes
\LWR@loadafter{umoline}
\LWR@loadafter{underscore}
% unicode-math may be loaded before lwarp
\LWR@loadafter{units}
\LWR@loadafter{unitsdef}
\LWR@loadafter{upgreek}
\LWR@loadafter{upref}
\LWR@loadafter{url}
\LWR@loadafter{ushort}
\LWR@loadafter{uspace}
\LWR@loadafter{varioref}
\LWR@notmemoirloadafter{verse}
```

```
\LWR@loadafter{versonotes}
\LWR@loadafter{vertbars}
\LWR@loadafter{vmargin}
\LWR@loadafter{vowel}
\LWR@loadafter{vpe}
\LWR@loadafter{vwcol}
\LWR@loadafter{wallpaper}
\LWR@loadafter{watermark}
\LWR@loadafter{widetable}
\LWR@loadafter{widows-and-orphans}
\LWR@loadafter{witharrows}
\LWR@loadafter{wrapfig}
\LWR@loadafter{wrapfig2}
\LWR@loadafter{xbmks}
\LWR@loadafter{xcolor}
\LWR@loadafter{xechangebar}
\LWR@loadafter{xellipsis}
% xetexko must be loaded before lwarp
\LWR@loadafter{xevlna}
\LWR@loadafter{xfakebold}
\LWR@loadafter{xfrac}
\LWR@loadafter{xltabular}
\LWR@loadafter{xltxtra}
\LWR@loadafter{xmpincl}
\LWR@loadafter{xpiano}
\LWR@loadafter{xpinyin}
\LWR@loadafter{xr}
\LWR@loadafter{xr-hyper}
\LWR@loadafter{xtab}
% xunicode must be loaded before lwarp
\LWR@loadafter{xurl}
\LWR@loadafter{xy}
\LWR@loadafter{zwpagelayout}
```

21 MD5 hashing

The MD5 hash is used for `lateximage` filenames for SVG math.

```
\newcommand{\LWR@mdfive}[1]{%
    \PackageError{lwarp}
        {No MD5 macro was found}
        {%
            Lwarp must find the macros \protect\pdfmdfivesum\space
            or \protect\mdfivesum.%
        }
}
```

The default for PDF LaTeX, DVI LaTeX, upLaTeX, etc:

```
\let\LWR@mdfive\pdfmdfivesum
```

For LuaLaTeX:

```
\ifLuaTeX
\RequirePackage{pdftexcmds}
\let\LWR@mdfive\pdf@mdfivesum
\fi
```

For XeLaTeX:

```
\ifXeTeX
\@ifundefined{pdffivesum}{}
    {\let\LWR@mdfive\pdfmdfivesum}
\@ifundefined{mdfivesum}{}
    {\let\LWR@mdfive\mdfivesum}
\fi
```

22 pdf LaTeX T1 and utf-8 encoding

When using pdf LaTeX, lwarp requires T1 font encoding, and recommends utf-8 input encoding.

If some other input encoding is already defined, lwarp will try to use it instead, and hope for the best.

XeLaTeX and LuaLaTeX are both utf-8 by nature.

`\LWR@pdfencoding` Sets `T1`, and also `utf8` if not already set.

```
\newcommand*{\LWR@pdfencoding}{%
    \RequirePackage[T1]{fontenc}

    \IfPackageLoadedTF{inputenc}{}{
        \IfPackageLoadedTF{inputenx}{}{
            \RequirePackage[utf8]{inputenc}
        }
    }
}
```

```
\ifPDFTeX% pdflatex or dvi latex
    \LWR@pdfencoding
\fi

\ifpTeX
    \LWR@pdfencoding
\fi
```

23 Unicode input characters

for HTML & PRINT: If using *pdflatex*, convert a minimal set of Unicode characters. Additional characters may be defined by the user, as needed.

A commonly-used multiply symbol is declared to be `\texttimes`.

The first arguments of `\newunicodechar` below are text ligatures in the source code, even though they are not printed in the following listing.

```
\ifpTeX
\else
\RequirePackage{newunicodechar}

```

```
\newunicodechar{×}{\texttimes}

\ifPDFTeX% pdflatex or dvi latex
\newunicodechar{ff}{ff}% Here, the first arguments are ligatures.
\newunicodechar{fi}{fi}
\newunicodechar{fl}{fl}
\newunicodechar{ffi}{ffi}
\newunicodechar{ffl}{ffl}
\newunicodechar{–}{---}
\newunicodechar{-}{--}
\fi

\fi
```

24 Avoid a bitmapped font

If DVI or PDF LaTeX, and if the default Computer Modern is the selected font family, ensure that cm-super or lmodern is used to provide a vector font.

```
\ifxetexorluatex
\else
    \ifdefstring{\f@family}{cmr}{
        \IfFileExists{type1ec.sty}% found in cm-super
        {}
        {% cm-super not installed
            \IfFileExists{lmodern.sty}{
               \PackageInfo{lwarp}{cm-super not installed, loading lmodern}
                \RequirePackage{lmodern}
            }{
                \PackageError{lwarp}
                {%
                    Lwarp requires a vector font.\MessageBreak
                 Install and load cm-super, lmodern, or another\MessageBreak
                    Type-1 vector font before loading lwarp.\MessageBreak
                    Enter 'H' for possible solutions%
                }
                {%
                    Install cm-super or lmodern.\MessageBreak
                    If lmodern, load it before lwarp:\MessageBreak
                     \space\space\protect\usepackage{lmodern}\MessageBreak
                        \space\space\protect\usepackage{lwarp}%
                }
            }
        }% cm-super not installed
    }{}% f@family
\fi
```

25 Upright quotes

In PDF TeX, preserve upright quotes in verbatim text. upquote also loads textcomp.

```
\ifPDFTeX
\RequirePackage{upquote}
\fi
```

```
\ifpTeX
    \RequirePackage{upquote}
\fi
```

26 Avoid bad font combinations

For XeLaTeX and LuaLaTeX, certain font combinations cause problems with lwarp.

libertinus-otf has special handling for `\textquotedbl`. Search for `\LWR@orig@textquotedbl`.

```
\ifxetexorluatex
    \AtBeginDocument{
        \IfPackageLoadedTF{kpfonts}{
            \PackageError{lwarp}
                {%
                    When using XeLaTeX or LuaLaTeX,\MessageBreak
                    use kpfonts-otf instead of kpfonts%
                }
                {%
                    Replace: \protect\usepackage{kpfonts}\MessageBreak
                    with: \protect\usepackage{kpfonts-otf}
                }
        }{}
    }
\fi
```

27 Miscellaneous tools

27.1 Variables

```
\newlength{\LWR@templengthone}
\newlength{\LWR@templengthtwo}
\newlength{\LWR@templengththree}
\newcounter{LWR@tempcountone}
```

27.2 Lengths and units

`\LWR@providelength` {⟨\lengthname⟩} Provides the length if it isn't defined yet.

Used to provide source compatibility for lengths which will be ignored, but might or might not be already provided by other packages.

```
\newcommand*\LWR@providelength[1]{%
    \ifdeflength{#1}{}{\newlength{#1}}%
}
```

`\LWR@convertto` {⟨*dest unit*⟩} {⟨*length*⟩}

Prints a length in the given units, without printing the unit itself.

```
\newcommand*{\LWR@convertto}[2]{\strip@pt\dimexpr #2*65536/\number\dimexpr 1#1}
```

\LWR@printpercentlength {⟨*smaller*⟩} {⟨*larger*⟩}

Prints a percent ratio of the two lengths.

```
\newcommand*{\LWR@printpercentlength}[2]{%
    \setcounter{LWR@tempcountone}{100*\ratio{#1}{#2}}%
    \arabic{LWR@tempcountone}%
}
```

27.3 Counters

\defaddtocounter {⟨*name*⟩} {⟨*value*⟩}

Locally add to a counter.

```
\providecommand*{\defaddtocounter}[2]{%
    \defcounter{#1}{\value{#1}+#2}%
}
```

27.4 Patching macros

\LWR@patcherror {⟨*packagename*⟩} {⟨*macroname*⟩}

Prints an error if could not patch a macro.

```
\newcommand*{\LWR@patcherror}[2]{%
    \PackageError{lwarp}%
        {%
            Unable to patch package #1,\MessageBreak
            macro \LWRbackslash #2.\MessageBreak
            Lwarp or #1 may need to be updated%
        }%
        {Please contact the maintainer of the Lwarp package.}%
}
```

27.5 Copying macros

\csNewCommandCopycs {⟨*dest csname*⟩} {⟨*source csname*⟩}

Given a cs-name for each, copies a macro to a new definition.

```
\providecommand*{\csNewCommandCopycs}[2]{%
    \expandafter\NewCommandCopy\csname#1\expandafter\endcsname%
        \csname#2\endcsname%
}
```

\NewEnvironmentCopy {⟨*dest*⟩} {⟨*source*⟩}

Copies an environment to a new definition.

```
\providecommand*{\NewEnvironmentCopy}[2]{%
    \csNewCommandCopycs{#1}{#2}%
    \csNewCommandCopycs{end#1}{end#2}%
}
```

27.6 Chinese text isolation

\LWR@isolate {⟨*text*⟩} Isolates Chinese characters from the surrounding text. This is required to avoid extra spaces on either side of the Chinese characters, especially when written to a file.

```
\newcommand{\LWR@isolate}[1]{#1}%

\IfPackageLoadedTF{ctexpatch}{
    \renewcommand{\LWR@isolate}[1]{\null#1\null}%
}{}

\IfPackageLoadedTF{xeCJK}{
    \renewcommand{\LWR@isolate}[1]{\null#1\null}%
}{}
```

\LWR@disablepinyin Disable xpinyin during file, sideTOC, and footnote generation. Set by xpinyin.

```
\newcommand*{\LWR@disablepinyin}{}
```

27.7 Inserting vertical space

\LWR@forceemptyline Extra vertical space in the HTML output. Use after \LWR@stoppars.

```
\newcommand*{\LWR@forceemptyline}{%
    \LWR@origrule{0pt}{1\baselineskip}%
    \LWR@orignewline%
}
```

27.8 Argument selection

\LWR@firstoffive {⟨*first*⟩} {⟨*second*⟩} {⟨*third*⟩} {⟨*fourth*⟩} {⟨*fifth*⟩}

\LWR@secondoffive {⟨*first*⟩} {⟨*second*⟩} {⟨*third*⟩} {⟨*fourth*⟩} {⟨*fifth*⟩}

\LWR@thirdoffive {⟨*first*⟩} {⟨*second*⟩} {⟨*third*⟩} {⟨*fourth*⟩} {⟨*fifth*⟩}

\LWR@fourthoffive {⟨*first*⟩} {⟨*second*⟩} {⟨*third*⟩} {⟨*fourth*⟩} {⟨*fifth*⟩}

\LWR@fifthoffive {⟨*first*⟩} {⟨*second*⟩} {⟨*third*⟩} {⟨*fourth*⟩} {⟨*fifth*⟩}

Expands to the nth of the five arguments. Used for extra cross referencing.

```
\long\def\LWR@firstoffive#1#2#3#4#5{#1}
\long\def\LWR@secondoffive#1#2#3#4#5{#2}
\long\def\LWR@thirdoffive#1#2#3#4#5{#3}
\long\def\LWR@fourthoffive#1#2#3#4#5{#4}
\long\def\LWR@fifthoffive#1#2#3#4#5{#5}
```

27.9 Inside boxes

Greater than zero if currently inside a TEX box, thus should not use \LWR@orignewpage. See section 13.2.

```
\newcounter{LWR@texboxdepth}
\setcounter{LWR@texboxdepth}{0}
```

\LWR@maybe@orignewpage Only do \LWR@orignewpage if not inside a TEX box.

```
\newcommand*{\LWR@maybe@orignewpage}{%
    \LWR@traceinfo{LWR@maybe@orignewpage}%
    \ifnumgreater{\value{LWR@texboxdepth}}{0}
        {}%
        {\LWR@orignewpage}%
    \LWR@traceinfo{LWR@maybe@orignewpage done}%
}
```

27.10 Global boxes

\LWR@gsavebox {⟨*macroname*⟩} {⟨*contents*⟩}

From https://tex.stackexchange.com/questions/288702/savebox-forgets-its-content-across-columns-inside-align

```
\DeclareRobustCommand\LWR@gsavebox[1]{%
  \@ifnextchar(%)
    {\LWR@@gsavepicbox#1}{\@ifnextchar[{\LWR@@gsavebox#1}{\LWR@gsbox#1}}}%
\long\def\LWR@gsbox#1#2{\global\setbox#1\hbox{%
  \color@setgroup#2\color@endgroup}}
\def\LWR@@gsavebox#1[#2]{%
  \@ifnextchar [{\LWR@@igsavebox#1[#2]}{\LWR@@igsavebox#1[#2][c]}}
\long\def\LWR@@igsavebox#1[#2][#3]#4{%
  \LWR@gsbox#1{\@imakebox[#2][#3]{#4}}}
\def\LWR@@gsavepicbox#1(#2,#3){%
  \@ifnextchar[%]
    {\LWR@@igsavepicbox#1(#2,#3)}{\LWR@@igsavepicbox#1(#2,#3)[]}}
\long\def\LWR@@igsavepicbox#1(#2,#3)[#4]#5{%
  \LWR@gsbox#1{\@imakepicbox(#2,#3)[#4]{#5}}}
```

Env LWR@glrbox {⟨*macroname*⟩}

```
\def\LWR@glrbox#1{%
  \edef\reserved@a{%
    \endgroup
    \global\setbox#1\hbox{%
      \begingroup\aftergroup}%
        \def\noexpand\@currenvir{\@currenvir}%
        \def\noexpand\@currenvline{\on@line}}%
  \reserved@a
    \@endpefalse
    \color@setgroup
      \ignorespaces}
\let\LWR@endglrbox\LWR@endlrbox
```

27.11 Converting a macro name to a cs name

\macrotocsname {⟨*macro name with backslash*⟩}

Results in the macro name without the leading backslash.

Ref: https://tex.stackexchange.com/questions/42318/removing-a-backslash-from-a-character-sequence

```
\newcommand*{\macrotocsname}[1]{%
  \ifcat\relax\noexpand#1%
    \expandafter\expandafter\expandafter\@gobble\expandafter\string
  \fi
  #1%
}
```

27.12 Title case

\LWRtexttitlecase

```
\ExplSyntaxOn
\newcommand*{\LWRtexttitlecase}[1]{%
    \text_titlecase:n{#1}%
}
\ExplSyntaxOff
```

27.13 LetLtxMacrocs

\LWR@LetLtxMacrocs {⟨*newcsname*⟩} {⟨*oldcsname*⟩}

\LetLtxMacro with cs names.

```
\newcommand*{\LWR@LetLtxMacrocs}[2]{%
    \expandafter\LetLtxMacro\csname #1\expandafter\endcsname%
    \csname#2\endcsname%
}
```

27.14 Absorbing a star

\LWR@absorbstar {⟨*csname*⟩}

Modifies a macro to aborb a star. Used for cleveref, since hyperref is emulated, so the starred macros are not created by cleveref.

```
\newcommand*{\LWR@absorbstar}[1]{%
    \LWR@LetLtxMacrocs{LWR@origns@#1}{#1}%
    \csdef{#1}{\@ifstar{\csuse{LWR@origns@#1}}{\csuse{LWR@origns@#1}}}
    \expandafter\robustify\csname #1\endcsname
}
```

28 Operating-System portability

Prog Unix
Prog Mac OS
Prog Linux
Prog MS-Windows
Prog Windows
Opt OSWindows

lwarp tries to detect which operating system is being used. UNIX / MAC OS / LINUX is the default (collectively referred to as "UNIX" in the configuration files), and MS-WINDOWS is supported as well.

If MS-WINDOWS is not correctly detected, use the lwarp option `OSWindows`.

When detected or specified, the operating-system path separator used by lwarp is modified, and the boolean `usingOSWindows` is set `true`. This boolean may be tested by the user for later use.

28.1 Literal characters

Literal characters to be used in `PrintLatexCmd` and `HTMLLatexCmd`. These are defined without `@` to easily allow their inclusion in the user's document.

The literal `%` character:

```
\let\LWRpercent\@percentchar
```

The literal `$` character:

```
\catcode`\$=12
\def\LWRdollar{$}
\catcode`\$=3
```

The literal `&` character:

```
\catcode`\&=12
\def\LWRamp{&}
\catcode`\&=4
```

The literal `\` character. The ampersand is temporarily set to the escape character during the definition of the backslash macro.

```
\catcode`\&=0
&catcode`&\=12
&def&LWRbackslash{\}
&catcode`&\=0
\catcode`\&=4
```

The literal `{` character. The ampersand is temporarily set to the begin group character during the definition of the leftbrace macro.

```
\catcode`\&=1
\catcode`\{=12
\def\LWRleftbrace&{}
\catcode`\{=1
\catcode`\&=4
```

The literal `}` character. The ampersand is temporarily set to the end group character during the definition of the leftbrace macro.

```
\catcode`\&=2
```

```
\catcode`\}=12
\def\LWRrightbrace{}&
\catcode`\}=2
\catcode`\&=4
```

The literal # character:

```
\catcode`\#=12
\def\LWRhash{#}
\catcode`\#=6
```

\LWRopquote The operating system's quote mark, UNIX default. For WINDOWS, see \LWR@setOSWindows, below.

```
\def\LWRopquote{'}
```

\LWRopseq The operating system's sequential execution command, UNIX default. For WINDOWS, see \LWR@setOSWindows, below.

```
\def\LWRopseq{\space\LWRamp\LWRamp\space\space}
```

28.2 Common portability code

Bool usingOSWindows Set if the OSWindows option is used, or if WINDOWS is automatically detected.

```
\newbool{usingOSWindows}
\boolfalse{usingOSWindows}
```

28.3 UNIX, LINUX, and MAC OS

\OSPathSymbol Symbol used to separate directories in a path.

```
\newcommand*{\OSPathSymbol}{/}
```

28.4 MS-WINDOWS

For MS-WINDOWS:

\LWR@setOSWindows Set defaults for the MS-WINDOWS operating system. lwarp attempts to auto-detect the operatings system, and the OSWindows option may also be used to force MS-WINDOWS compatibility.

```
\newcommand*{\LWR@setOSWindows}
{
\booltrue{usingOSWindows}
\renewcommand*{\OSPathSymbol}{\@backslashchar}
\def\LWRopquote{"}
\def\LWRopseq{\space\LWRamp\space\space}
}
```

Test for windows during compile. The user may also specify OSWindows package option in case this test fails.

```
\ifwindows
\LWR@setOSWindows
\fi
```

29 Package options

Pkg kvoptions

Allows key/value package options.

```
\RequirePackage{kvoptions}
\SetupKeyvalOptions{family=LWR,prefix=LWR@}
```

\lwarpsetup

A user interface to set the keys:

```
\newcommand{\lwarpsetup}[1]{\setkeys{LWR}{#1}}
```

Bool warpingprint
Bool warpingHTML
Bool mathjax
Bool LWR@origmathjax

Set to true/false depending on the package option selections for print/HTML/EPUB output and mathsvg/mathjax.

LWR@origmathjax remembers the original setting to be restored by \displaymathnormal.

```
\newbool{warpingprint}
\newbool{warpingHTML}
\newbool{mathjax}
\newbool{LWR@origmathjax}
```

defaults

The default is print output, and SVG math if the user chose HTML output.

```
\booltrue{warpingprint}%
\boolfalse{warpingHTML}%
\boolfalse{mathjax}%
```

Opt warpprint

If the warpprint option is given, boolean warpingprint is true and boolean warpingHTML is false, and may be used for \ifbool tests.

```
\DeclareVoidOption{warpprint}{%
    \PackageInfo{lwarp}{Using option 'warpprint'}
    \booltrue{warpingprint}%
    \boolfalse{warpingHTML}%
}
```

Opt warpHTML

Anything in the warpHTML environment will be generated for HTML output only.

Opt warpHTML

If the warpHTML option is given, boolean warpingHTML is true and boolean warpingprint is false, and may be used for \ifbool tests.

```
\DeclareVoidOption{warpHTML}{%
    \PackageInfo{lwarp}{Using option 'warpHTML'}%
    \booltrue{warpingHTML}%
    \boolfalse{warpingprint}%
}
```

Opt `mathsvg`

Option `mathsvg` selects SVG math display: If the `mathsvg` option is given, boolean `mathjax` is false, and may be used for `\ifbool` tests.

```
\DeclareVoidOption{mathsvg}{%
    \PackageInfo{lwarp}{Using option 'mathsvg'}
    \boolfalse{mathjax}%
    \boolfalse{LWR@origmathjax}%
}
```

Opt `mathjax`

Option `mathjax` selects MathJax math display: If the `mathjax` option is given, boolean `mathjax` is true, may be used for `\ifbool` tests.

```
\DeclareVoidOption{mathjax}{%
    \PackageInfo{lwarp}{Using option 'mathjax'}
    \booltrue{mathjax}%
    \booltrue{LWR@origmathjax}%
}
```

Opt `BaseJobname`
Default: `\jobname`

Option `BaseJobname` sets the `\BaseJobname` for this document.

This is the `\jobname` of the printed version, even if currently compiling the HTML version. I.e. this is the `\jobname` without `_html` appended. This is used to set `\HomeHTMLFilename` if the user did not provide one.

```
\DeclareStringOption[\jobname]{BaseJobname}
```

Opt `ImagesDirectory`
Default: `\jobname-images`

Option `ImagesDirectory` sets the name of the directory to use for the `lateximage` images.

```
\DeclareStringOption[\BaseJobname-images]{ImagesDirectory}
```

Opt `ImagesName`
Default: `image-`

Option `ImagesName` sets the prefix to use for the `lateximage` images.

```
\DeclareStringOption[image-]{ImagesName}
```

Opt `makeindexStyle`
Default: `lwarp.ist`

Selects a custom `.ist` file. A customized file should be based on `lwarp.ist`. See section 8.6.20.

```
\DeclareStringOption[lwarp.ist]{makeindexStyle}
```

Opt `xindyStyle`
Default: `lwarp.xdy`

Selects a custom `.xdy` file. A customized file should be based on `lwarp.xdy`. See section 8.6.21.

```
\DeclareStringOption[lwarp.xdy]{xindyStyle}
```

Opt `xindyLanguage`
Default: `english`

Sets the *xindy* language to be assigned in *lwarpmk*'s configuration files. This is then used by *lwarpmk* while processing the index and glossary.

```
\DeclareStringOption[english]{xindyLanguage}
```

Opt `xindyCodepage`
Default: `utf8`

Sets the *xindy* codepage to be assigned in *lwarpmk*'s configuration files. This is then used by *lwarpmk* while processing the index.

```
\DeclareStringOption[utf8]{xindyCodepage}
```

Opt xindexConfig
Default: <empty>

Selects a custom xindex-*.lua file. A customized file should be based on xindex-cfg.lua. See section 8.6.22.

```
\DeclareStringOption[]{xindexConfig}
```

Opt pdftotextEnc
Default: UTF-8

The option pdftotextEnc sets the encoding used by *pdftotext*. This is passed to *pdftotext* using its -enc option, and is used when converting LaTeX PDF output with HTML tags into a plain-text file with HTML tags.

```
\DeclareStringOption[UTF-8]{pdftotextEnc}
```

Opt lwarpmk

Tells lwarp to generate a local copy of *lwarpmk* called lwarpmk.lua. Useful for archiving for future use. This file may be made executable and acts just like *lwarpmk*.

If lwarpmk option, creates a local copy of lwarpmk.lua:

```
\newbool{LWR@creatinglwarpmk}
\boolfalse{LWR@creatinglwarpmk}

\DeclareVoidOption{lwarpmk}{
    \PackageInfo{lwarp}{Using option 'lwarpmk'}
    \booltrue{LWR@creatinglwarpmk}
}
```

Opt OSWindows

Tells lwarp to use MS-Windows compatibility. Auto-detection of the operating system is attempted, and this option is only necessary if the auto-detection fails. See the automatically-generated lwarpmk.conf file to find out whether the operating system was detected correctly.

```
\DeclareVoidOption{OSWindows}{
    \PackageInfo{lwarp}{Using option 'OSWindows'}
    \LWR@setOSWindows
}
```

Opt HomeHTMLFilename
Default: \BaseJobname

The filename of the homepage. The default is the jobname. This option is stored into \LWR@HomeHTMLFilename, and later transferred into \HomeHTMLFilename for internal use.

```
\DeclareStringOption[]{HomeHTMLFilename}
```

Opt HTMLFilename
Default: <empty>

The filename prefix of web pages after the homepage. The default is empty, no prefix. This option is stored into \LWR@HTMLFilename, and later transferred into \HTMLFilename for internal use.

```
\DeclareStringOption[]{HTMLFilename}
```

Opt PrintLatexCmd
Default: <automatic>

The shell commands to use to compile the print document.

```
\DeclareStringOption[]{PrintLatexCmd}
```

Opt HTMLLatexCmd
Default: <automatic>

The shell commands to use to compile the HTML document.

```
\DeclareStringOption[]{HTMLLatexCmd}
```

Opt `PrintIndexCmd` — The shell commands to use to compile the print indexes.
Default: `<empty>`

```
\DeclareStringOption[]{PrintIndexCmd}
```

Opt `HTMLIndexCmd` — The shell commands to use to compile the HTML indexes.
Default: `<empty>`

```
\DeclareStringOption[]{HTMLIndexCmd}
```

Opt `LatexmkIndexCmd` — The shell commands to by used by *latexmk* to compile the print indexes. Unlike `PrintIndexCmd` and `HTMLIndexCmd`, `LatexmkIndexCmd` does not include the filename, which will be provided by *latexmk*.
Default: `<empty>`

```
\DeclareStringOption[]{LatexmkIndexCmd}
```

Opt `makeindex` — Tells lwarp to use *makeindex* for index generation. When `lwarpmk.conf` and `*.lwarpmkconf` are generated, `PrintIndexCmd` and `HTMLIndexCmd` will be set for *makeindex* with a single index file.

```
\DeclareBoolOption[false]{makeindex}
```

Opt `xindy` — Tells lwarp to use *xindy* for index generation. When `lwarpmk.conf` and `*.lwarpmkconf` are generated, `PrintIndexCmd` and `HTMLIndexCmd` will be set for *xindy* with a single index file.

```
\DeclareBoolOption[false]{xindy}
```

Opt `xindex` — Tells lwarp to use *xindex* for index generation. When `lwarpmk.conf` and `*.lwarpmkconf` are generated, `PrintIndexCmd` and `HTMLIndexCmd` will be set for *xindex* with a single index file.

```
\DeclareBoolOption[false]{xindex}
```

Opt `IndexRef` — Tells lwarp how to display the index entries in HTMLoutput. See section 7.5.
Default: `cref`

```
\DeclareStringOption[cref]{IndexRef}
```

Opt `GlossaryCmd` — The shell command to use to compile the glossary. The print or HTML version of the glossary filename will be appended to this command.
Default: `makeglossaries`

```
\DeclareStringOption[makeglossaries]{GlossaryCmd}
```

Opt `latexmk` — Option `latexmk` tells *lwarpmk* to use *latexmk* when compiling documents.

```
\DeclareBoolOption[false]{latexmk}
```

Opt `dvips` — Option `dvips` tells *lwarpmk* to use *dvips* when compiling DVI *latex* documents.

```
\DeclareBoolOption[false]{dvips}
```

Opt `dvipdfm` — Option `dvipdfm` tells *lwarpmk* to use *dvipdfm* when compiling DVI *latex* documents.

```
\DeclareBoolOption[false]{dvipdfm}
```

Opt dvipdfmx

Option dvipdfmx tells *lwarpmk* to use *dvipdfmx* when compiling DVI *latex* documents.

```
\DeclareBoolOption[false]{dvipdfmx}
```

Execute options

Execute the package options, with the defaults which have been set just above:

```
\ProcessKeyvalOptions*\relax
```

29.1 Additional options support

Assign the \BaseJobname if the user hasn't provided one:

```
\providecommand*{\BaseJobname}{\LWR@BaseJobname}
```

Defaults unless already over-ridden by the user:

```
\ifcsempty{LWR@HomeHTMLFilename}{
    \newcommand*{\HomeHTMLFilename}{\BaseJobname}
}{
    \csedef{HomeHTMLFilename}{\LWR@HomeHTMLFilename}
}

\csedef{HTMLFilename}{\LWR@HTMLFilename}
```

Special handling for underscores in labels and filenames.

\LWR@sanitized

The sanitized version of what was given to \LWR@sanitize. Characters are set to their detokenized versions. Required for underscores in labels and filenames.

```
\newcommand*{\LWR@sanitized}{}
```

\LWR@sanitize {⟨*text*⟩}

Sanitizes the text and returns the result in \LWR@sanitized.

```
\newcommand*{\LWR@sanitize}[1]{%
\edef\LWR@sanitized{#1}%
\edef\LWR@sanitized{\detokenize\expandafter{\LWR@sanitized}}%
}
```

Sanitize some string options to neutralize underscores.

```
\LWR@sanitize{\LWR@BaseJobname}
\edef\LWR@BaseJobname{\LWR@sanitized}

\LWR@sanitize{\LWR@ImagesDirectory}
\edef\LWR@ImagesDirectory{\LWR@sanitized}

\LWR@sanitize{\LWR@ImagesName}
\edef\LWR@ImagesName{\LWR@sanitized}
```

\LWR@PrintIndexCmd and \LWR@HTMLIndexCmd are tested to see if they are empty. If so, they are set to a reasonable defaults for a single index using *makeindex*,

then possibly set to defaults for *xindy* if the lwarp `xindy` option was selected, then likewise for *xindex* if the `xindex` option was selected.

```
\ifdefempty{\LWR@PrintIndexCmd}{
    \renewcommand{\LWR@PrintIndexCmd}{%
        makeindex  -s \LWR@makeindexStyle \space  \jobname.idx%
    }
    \ifbool{LWR@xindy}{
        \renewcommand{\LWR@PrintIndexCmd}{%
            xindy
            -M \LWR@xindyStyle \space
            -L \LWR@xindyLanguage \space
            -C \LWR@xindyCodepage \space
            \jobname.idx%
        }
    }{}
    \ifbool{LWR@xindex}{
        \ifdefvoid{\LWR@xindexConfig}{
            \renewcommand{\LWR@PrintIndexCmd}{%
                xindex
                \jobname.idx%
            }
        }{
            \renewcommand{\LWR@PrintIndexCmd}{%
                xindex
                -c \LWR@xindexConfig \space
                \jobname.idx%
            }
        }
    }{}
}{}

\ifdefempty{\LWR@HTMLIndexCmd}{
    \renewcommand{\LWR@HTMLIndexCmd}{%
        makeindex  -s \LWR@makeindexStyle \space  \jobname_html.idx%
    }
    \ifbool{LWR@xindy}{
        \renewcommand{\LWR@HTMLIndexCmd}{%
            xindy
            -M \LWR@xindyStyle \space
            -L \LWR@xindyLanguage \space
            -C \LWR@xindyCodepage \space
            \jobname_html.idx%
        }
    }{}
    \ifbool{LWR@xindex}{
        \ifdefvoid{\LWR@xindexConfig}{
            \renewcommand{\LWR@HTMLIndexCmd}{%
                xindex
                \jobname_html.idx%
            }
        }{
            \renewcommand{\LWR@HTMLIndexCmd}{%
                xindex
                -c \LWR@xindexConfig \space
                \jobname_html.idx%
            }
        }
    }{}
}{}
```

```
\ifdefempty{\LWR@LatexmkIndexCmd}{
    \renewcommand{\LWR@LatexmkIndexCmd}{%
        makeindex  -s \LWR@makeindexStyle%
    }
    \ifbool{LWR@xindy}{
        \renewcommand{\LWR@LatexmkIndexCmd}{%
            xindy
            -M \LWR@xindyStyle \space
            -L \LWR@xindyLanguage \space
            -C \LWR@xindyCodepage%
        }
    }{}
    \ifbool{LWR@xindex}{
        \ifdefvoid{\LWR@xindexConfig}{
            \renewcommand{\LWR@LatexmkIndexCmd}{%
                xindex
            }
        }{
            \renewcommand{\LWR@LatexmkIndexCmd}{%
                xindex
                -c \LWR@xindexConfig
            }
        }
    }{}
}{}
```

29.2 Conditional compilation

\warpprintonly {⟨*contents*⟩}

Only process the contents if producing printed output.

```
\newcommand{\warpprintonly}[1]{\ifbool{warpingprint}{#1}{}}
```

\warpHTMLonly {⟨*contents*⟩}

Only process the contents if producing HTML output.

```
\newcommand{\warpHTMLonly}[1]{\ifbool{warpingHTML}{#1}{}}
```

Pkg comment

Provides conditional code blocks.

Attempts to use versions or verbatim fail in some cases, and do not provide much of a speed benefit even when they do work.

```
\RequirePackage{comment}
```

\LWR@includecomment {⟨*env name*⟩} {⟨*partial filename*⟩}

\LWR@excludecomment {⟨*env name*⟩} {⟨*partial filename*⟩}

Use many comment cut files to avoid collision in case the user uses the comment package. Each filename is "`comment_#2.cut`". Based on the comment package.

```
\def\LWR@includecomment
#1#2{\message{Lwarp: Including comment '#1'}%
    \csarg\def{After#1Comment}{%
        \CloseAndInputCutFile%
        \csundef{LWR@#1commentused}%
    }
    \csarg\def{#1}{%
        \endgroup
        \ifcsdef{LWR@#1commentused}{
            \PackageError{lwarp}%
                {Nested #1 environment}%
                {%
                    Environment #1 cannot be nested.\MessageBreak
                    This can happen when a package is loaded
                    from inside a\MessageBreak
                    #1 environment.%
                }%
        }{\relax}
        \csdef{LWR@#1commentused}{}
        \message{Including '#1' comment.}%
        \def\CommentCutFile{comment_#2.cut}
        \SetUpCutFile
        \ProcessComment{#1}
    }%
    \CommentEndDef{#1}
}

\def\LWR@excludecomment
#1#2{\message{Lwarp: Excluding comment '#1'}%
    \csarg\def{#1}{
        \endgroup
        \message{Excluding '#1' comment.}%
        \begingroup
           \def\CommentCutFile{comment_#2.cut}
            \def\ProcessCutFile{}%
           \def\ThisComment####1{}%
            \ProcessComment{#1}
    }%
    \csarg\def{After#1Comment}{\CloseAndInputCutFile \endgroup}
    \CommentEndDef{#1}}
```

Env `warpall` Anything in the `warpall` environment will be generated for print or HTML outputs.

```
\LWR@includecomment{warpall}{all}
```

Env `warpHTML` For HTML output:

```
\ifbool{warpingHTML}
    {\LWR@includecomment{warpHTML}{html}}
    {\LWR@excludecomment{warpHTML}{html}}
```

Env `warpprint` Anything in the `warpprint` environment will be generated for print output only.

```
\ifbool{warpingprint}
    {\LWR@includecomment{warpprint}{print}}
    {\LWR@excludecomment{warpprint}{print}}
```

Env warpMathJax Only if MathJax is being used along with HTML.

```
\begin{warpprint}
\LWR@excludecomment{warpMathJax}{mathjax}
\end{warpprint}

\begin{warpHTML}
\ifbool{mathjax}
    {\LWR@includecomment{warpMathJax}{mathjax}}
    {\LWR@excludecomment{warpMathJax}{mathjax}}
\end{warpHTML}
```

Env warpsvg Only if SVG math is being used along with HTML, or in print mode.

```
\begin{warpprint}
\LWR@includecomment{warpsvg}{mathsvg}
\end{warpprint}

\begin{warpHTML}
\ifbool{mathjax}
    {\LWR@excludecomment{warpsvg}{mathsvg}}
    {\LWR@includecomment{warpsvg}{mathsvg}}
\end{warpHTML}
```

Env LWRcreatelwarpmk Optionally generate a local copy of *lwarpmk*. Default to no.

```
\ifbool{LWR@creatinglwarpmk}
    {\LWR@includecomment{LWRcreatelwarpmk}{lwarpmk}}
    {\LWR@excludecomment{LWRcreatelwarpmk}{lwarpmk}}
```

30 Required packages

These packages are automatically loaded by lwarp when generating HTML output. Some of them are also automatically loaded when generating print output, but some are not.

for HTML output:

```
\begin{warpHTML}
```

Pkg fontspec Load fontspec if necessary:

```
\ifxetexorluatex
\IfPackageLoadedTF{fontspec}{}{
    \usepackage[no-math]{fontspec}
}
```

The monospaced font is used for HTML tags, so turn off its TeX ligatures and common ligatures:

```
\defaultfontfeatures[\rmfamily]{Ligatures={NoCommon,TeX}}
\defaultfontfeatures[\sffamily]{Ligatures={NoCommon,TeX}}
\defaultfontfeatures[\ttfamily]{Ligatures=NoCommon}
\else
```

pdflatex only: Only pre-loaded if *pdflatex* is being used.

Pkg microtype

ligatures Older browsers don't display ligatures. Turn off letter ligatures, keeping LaTeX dash and quote ligatures, which may fail on older browers but at least won't corrupt written words.

```
\RequirePackage{microtype}

\microtypesetup{
    protrusion=false,
    expansion=false,
    tracking=false,
    kerning=false,
    spacing=false}
%    \begin{macrocode}
%
% Disable ligatures for typewriter fonts.
% The comma was causing issues with \MathJax\ and \cs{,} followed by a comma.
% Ligatures for f, q, t, etc used to be disabled for non-typewriter fonts, but
% are now allowed.
% \changes{v0.89}{2020/08/01}{Disable typewriter ligatures.}
% ^^A \DisableLigatures[{,},f,q,t,T,Q]{encoding = *,family = *}% previous
%    \begin{macrocode}
\DisableLigatures{encoding = *,family = tt*}

\fi

\end{warpHTML}
```

Pkg geometry Tactics to avoid unwanted page breaks and margin overflow:

- Uses a very long and wide page to minimize page breaks and margin overflow.
- Uses a scriptsize font.
- Uses extra space at the margin to avoid HTML tag overflow off the page.
- Forces a new PDF page before some environments.
- Forces line break between major pieces of long tags.

for HTML output:

```
\begin{warpHTML}
```

If geometry has not yet been loaded, use the preexising page and text sizes to be preserved for later reuse. These will be replaced by lwarp `\AtBeginDocument` with a very large page size to reduce HTML tag overflow off the page.

```
\IfPackageLoadedTF{geometry}
{}{
    \RequirePackage[
        reset,
        paperwidth=\paperwidth,
        paperheight=\paperheight,
        textwidth=\textwidth,
        textheight=\textheight,
        left=\oddsidemargin,
        top=\topmargin,
```

```
        marginparsep=\marginparsep,
        marginparwidth=\marginparwidth,
    ]{geometry}
}
```

Remember the original definitions for later reuse. If the geometry package is loaded by the user, lwarp-geometry will nullify the user-level originals.

```
\LetLtxMacro\LWR@origgeometry\geometry
\LetLtxMacro\LWR@orignewgeometry\newgeometry
\LetLtxMacro\LWR@origrestoregeometry\restoregeometry
\LetLtxMacro\LWR@origsavegeometry\savegeometry
\LetLtxMacro\LWR@origloadgeometry\loadgeometry
```

Bool
LWR@allowanothergeometry

geometry may be loaded by the user before lwarp, after lwarp, or not at all. If before lwarp, it will have already been loaded by now and its page layout has already been saved. If geometry is loaded after lwarp, its layout will be set at that time and the user macros nullified. `\AtEndPreamble` this layout will be saved. If the user never loads geometry, lwarp-geometry will be loaded `\AtBeginDocument`, but it should not change the page layout set here. This is controlled by the boolean `LWR@allowanothergeometry`. Geometry may be adjusted throughout the preamble until `\AtEndPreamble`, when this boolean is set `false`.

```
\newbool{LWR@allowanothergeometry}
\booltrue{LWR@allowanothergeometry}
```

Use `\AtEndPreamble` to avoid class and option conflict by changing settings after other packages load, instead of using geometry package options:

```
\AtEndPreamble{
```

Whatever geometry choices the user has made in the preamble, either before or after lwarp was loaded, are now saved for possible temporary reuse, such as by lyluatex.

See the lwarp-geometry section for what happens if geometry is loaded after lwarp.

```
\LWR@origsavegeometry{LWR@usergeometry}
```

The user's paper size is saved for later reuse, such as by the pdfpages or parallel packages.

```
\newlength{\LWR@userspaperwidth}
\setlength{\LWR@userspaperwidth}{\paperwidth}

\newlength{\LWR@userspaperheight}
\setlength{\LWR@userspaperheight}{\paperheight}

\newlength{\LWR@usersmarginparwidth}
\setlength{\LWR@usersmarginparwidth}{\marginparwidth}

\newlength{\LWR@userstextwidth}
\setlength{\LWR@userstextwidth}{\textwidth}

\newlength{\LWR@userstextheight}
\setlength{\LWR@userstextwidth}{\textheight}
```

For lwarp, use a very large page and margins to help avoid letting HTML tags run off the edge:

```
\LWR@origgeometry{
    reset,
    paperheight=190in,
    paperwidth=20in,
    left=2in,
    right=6in,
    top=1in,
    bottom=1in,
    heightrounded,%
}
```

The lwarp page geometry is saved for future restore:

```
\LWR@origsavegeometry{LWR@lwarpgeometry}
```

No longer adjust the page layout when lwarp-geometry is loaded `\AtBeginDocument`:

```
\boolfalse{LWR@allowanothergeometry}%
```

ltjsbook and other classes can print vertically, and require these to be reset by lwarp:

```
\setlength{\textheight}{0.8\paperheight}
\setlength{\textwidth}{0.7\paperwidth}

\@twosidefalse
\@mparswitchfalse
}% \AtEndPreamble

\end{warpHTML}
```

for HTML & PRINT:

```
\begin{warpall}
```

Pkg xparse

LaTeX3 command argument parsing

```
\RequirePackage{xparse}
```

Pkg calc

```
\RequirePackage{calc}
```

```
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

Pkg expl3

LaTeX3 programming

```
\RequirePackage{expl3}
```

Pkg gettitlestring

Used to emulate \nameref.

```
\RequirePackage{gettitlestring}


\end{warpHTML}
```

for HTML & PRINT:

```
\begin{warpall}
```

Pkg filecontents

Used to write helper files while creating the print version.

Recent versions of LaTeX (as of Fall 2019) now include the functionality of the filecontents package, but with a new optional argument used to specify whether to force the overwriting of an existing file. If an older LaTeX kernel is used, the original filecontents package is used, but it is patched to throw away the new optional argument.

```
\@ifundefined{filec@ntents@opt}{% older kernel, discard optional args

    \RequirePackage{filecontents}

    \LetLtxMacro\LWR@orig@filec@ntents\filec@ntents

    \IfPackageAtLeastTF{filecontents}{2011/10/08}
    {
```

For a newer version of the filecontents package, simply discard the optional argument.

```
        \renewcommand*{\filec@ntents}[1][]{\LWR@orig@filec@ntents}
    }
    {% patch older package for morewrites
```

For an older version of filecontents, discard the optional argument, and also patch to work with morewrites, per https://tex.stackexchange.com/questions/312830/does-morewrites-not-support-filecontents-and-can-i-write-body-of-environment-us/312910

```
        \newwrite\fcwrite
        \renewcommand*{\filec@ntents}[1][]{%
            \def\chardef##1\write{\let\reserved@c\fcwrite}%
            \LWR@orig@filec@ntents%
        }
    }

}% older kernel
{% newer kernel
```

For a newer kernel with a filecontents environment which accepts the optional overwrite argument, use the environment as-is.

```
}% newer kernel, filecontents env accepts optional args, do not load package


\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

Pkg xifthen

```
\RequirePackage{xifthen}
```

Pkg verbatim

```
\RequirePackage{verbatim}
```

Pkg refcount

Provides \setcounterref, \setcounterpageref, etc.

```
\RequirePackage{refcount}
```

Pkg newfloat

```
\RequirePackage{newfloat}
```

```
\end{warpHTML}
```

for HTML & PRINT:

```
\begin{warpall}
```

Pkg xstring

⚠ index

There was a short-term bug in xstring regarding \IfInteger which affected lwarp's index generation. The updated version is requested here.

```
\RequirePackage{xstring}[2019/02/01]
```

Pkg environ

Used to encapsulate math environments for re-use in HTML <alt> text.

```
\RequirePackage{environ}
```

```
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

Pkg printlen

Used to convert lengths for image width/height options.

```
\RequirePackage{printlen}
```

\LWR@printlength {⟨*length*⟩}

Prints a length using a locally-controlled unit and space. Rounding is used unless the length is small.

```
\newrobustcmd*{\LWR@printlength}[1]{%
    \begingroup%
    \uselengthunit{PT}%
    \renewcommand*{\unitspace}{}%
    \ifdimless{#1}{10pt}{%
        \printlength{#1}%
    }{%
        \rndprintlength{#1}%
    }%
    \endgroup%
}
```

```
\end{warpHTML}
```

31 Loading packages

\RequirePackage and \usepackage are modified to error-check for certain packages, and for HTML they load the lwarp- version if it exists.

for HTML & PRINT:
```
\begin{warpall}
```

Remember the original \RequirePackage:

```
\LetLtxMacro\LWR@origRequirePackage\RequirePackage
\LetLtxMacro\LWR@origRequirePackageWithOptions\RequirePackageWithOptions
```

\LWR@requirepackagenames Stores the list of required package names.

```
\newcommand*{\LWR@requirepackagenames}{}
```

\LWR@parsedrequirepackagenames Stores the parsed list of required package names after spaces are removed and lwarp- is prepended.

```
\newcommand*{\LWR@parsedrequirepackagenames}{}
```

\LWR@nullifycomment Remove the preexisting comment environment. Certain packages define it for their own use.

```
\newcommand*{\LWR@nullifycomment}{%
    \PackageInfo{lwarp}%
     {Nullifying the comment environment before loading \LWR@strresulttwo,}%
    \let\comment\relax%
    \let\endcomment\relax%
}
```

\LWR@findword [⟨*1: separator*⟩] {⟨*2: list*⟩} {⟨*3: index*⟩} [⟨*4: destination*⟩]

Note that argument 4 is passed directly to \StrBetween.

```
\newcommand*\LWR@findword[3][,]{%
    \StrBetween[#3,\numexpr#3+1]{#1#2#1}{#1}{#1}%
}
```

\LWR@checkloadnever {⟨*bad package name*⟩} {⟨*replacement package names*⟩}

From now on, check for incompatible packages loaded via \usepackage, instead of packages loaded before lwarp:

```
\LetLtxMacro\LWR@checkloadnever\LWR@afterloadnever
```

\LWR@checkloadfilename {⟨*filename*⟩} Checks if this filename should be loaded after lwarp, or never at all.

```
\newcommand*{\LWR@checkloadfilename}[1]{%
```

Remember the package name to compare with, to be used by \LWR@checkloadnever and \LWR@checkloadbefore.

```
    \edef\LWR@tempone{#1}%
```

Check against the list of packages which should never be loaded:

```
\LWR@checkloadnevers
```

The following should only be loaded before lwarp:

```
\LWR@checkloadbefore{ctex}
\LWR@checkloadbefore{fontspec}
\LWR@checkloadbefore{inputenc}
\LWR@checkloadbefore{inputenx}
\LWR@checkloadbefore{nfssext-cfr}
\LWR@checkloadbefore{fontaxes}
\LWR@checkloadbefore{kotex}
\LWR@checkloadbefore{kpfonts}% textcomp option clash
\LWR@checkloadbefore{luatexja}
\LWR@checkloadbefore{luatexja-fontspec}
\LWR@checkloadbefore{luatexko}
\LWR@checkloadbefore{morewrites}
\LWR@checkloadbefore{newclude}
\LWR@checkloadbefore{newunicodechar}
\LWR@checkloadbefore{plext}
\LWR@checkloadbefore{xeCJK}
\LWR@checkloadbefore{xetexko}
\LWR@checkloadbefore{zxjatype}
}
```

`\LWR@lookforpackagename` {⟨*index*⟩}

If HTML, and if this is an lwarp-supported package name, re-direct it to the lwarp version by renaming it `lwarp-` followed by the original name.

Looks `index` deep into the list of package names, `\LWR@requirepackagenames`, and builds `\LWR@parsedrequirepackagenames` which is the modified list of names.

```
\newcommand*{\LWR@lookforpackagename}[1]{%
```

Find the `index`'th package name from the list:

```
\LWR@findword{\LWR@requirepackagenames}{#1}[\LWR@strresult]%
```

Remove blanks. The original name with blanks is in `LWR@strresult` and the final name with no blanks goes into `LWR@strresulttwo`.

```
\StrSubstitute[100]{\LWR@strresult}{ }{}[\LWR@strresulttwo]%
```

See if the package name was found:

```
\IfStrEq{\LWR@strresulttwo}{}%
{}% no filename
{% yes filename was found
```

Possible adjustments before loading the package. Maybe nullify the `comment` environment if the new package will be redefining it for a new purpose.

```
    \ifdefstring{\LWR@strresulttwo}{easyReview}{\LWR@nullifycomment}{}%
    \ifdefstring{\LWR@strresulttwo}{changes}{\LWR@nullifycomment}{}%
```

If HTML, check if the package should be loaded before lwarp, or never at all:

```
    \ifbool{warpingHTML}{\LWR@checkloadfilename{\LWR@strresulttwo}}{}%
```

If HTML, and if found, and if an lwarp-equivalent name exists, use `lwarp-*` instead.

```
    \ifboolexpr{
        bool{warpingHTML} and
        test{\IfFileExists{lwarp-\LWR@strresulttwo.sty}}
    }%
    {% lwarp-* file found
        \ifdefvoid{\LWR@parsedrequirepackagenames}{%
            \edef\LWR@parsedrequirepackagenames{lwarp-\LWR@strresulttwo}%
        }{%
            \edef\LWR@parsedrequirepackagenames{%
                \LWR@parsedrequirepackagenames,lwarp-\LWR@strresulttwo%
            }%
        }%
    }%
    {%
```

Otherwise, use the current package name.

```
        \ifdefvoid{\LWR@parsedrequirepackagenames}{%
            \edef\LWR@parsedrequirepackagenames{\LWR@strresulttwo}%
        }{%
            \edef\LWR@parsedrequirepackagenames{%
                \LWR@parsedrequirepackagenames,\LWR@strresulttwo%
            }%
        }%
    }% no lwarp-* file
}% yes filename
}
```

\RequirePackage `[`⟨*1: options*⟩`]` `{`⟨*2: package names*⟩`}` `[`⟨*3: version*⟩`]`

For each of many package names in a comma-separated list, if an lwarp version of a package exists, select it instead of the LaTeX version.

```
\RenewDocumentCommand{\RequirePackage}{o m o}{%
```

Redirect up to twenty names:[17]

```
\renewcommand*{\LWR@requirepackagenames}{#2}%
\renewcommand*{\LWR@parsedrequirepackagenames}{}%
\LWR@lookforpackagename{1}%
\LWR@lookforpackagename{2}%
\LWR@lookforpackagename{3}%
\LWR@lookforpackagename{4}%
\LWR@lookforpackagename{5}%
\LWR@lookforpackagename{6}%
\LWR@lookforpackagename{7}%
\LWR@lookforpackagename{8}%
\LWR@lookforpackagename{9}%
\LWR@lookforpackagename{10}%
\LWR@lookforpackagename{11}%
```

[17] This was originally nine names, but then I came across a package which used twelve...

```
\LWR@lookforpackagename{12}%
\LWR@lookforpackagename{13}%
\LWR@lookforpackagename{14}%
\LWR@lookforpackagename{15}%
\LWR@lookforpackagename{16}%
\LWR@lookforpackagename{17}%
\LWR@lookforpackagename{18}%
\LWR@lookforpackagename{19}%
\LWR@lookforpackagename{20}%
```

Error if braces are used in optional argument. This can cause an error, so tell how to avoid.

```
\IfSubStr{\detokenize\expandafter{#1}}{\LWRleftbrace}%
    {%
        \PackageError{lwarp}{%
            You used:\MessageBreak
            \protect\usepackage[#1]{#2}\MessageBreak
           Braces in the package options will fail with Lwarp.\MessageBreak
            Instead, use:\MessageBreak
            \protect\PassOptionsToPackage{#1}{#2}\MessageBreak
            \protect\usepackage{#2}\MessageBreak
            near the line number given below.\MessageBreak
            Enter 'h' for more info%
        }%
        {%
          See the Lwarp manual troubleshooting index entry for\MessageBreak
            ``package, options with braces''%
        }%
    }%
    {}% no brace
```

\RequirePackage depending on the options and version:

```
\IfValueTF{#1}%
{% options given
    \IfValueTF{#3}% version given?
        {\LWR@origRequirePackage[#1]{\LWR@parsedrequirepackagenames}[#3]}%
        {\LWR@origRequirePackage[#1]{\LWR@parsedrequirepackagenames}}%
}%
{% no options given
    \IfValueTF{#3}% version given?
        {\LWR@origRequirePackage{\LWR@parsedrequirepackagenames}[#3]}%
        {\LWR@origRequirePackage{\LWR@parsedrequirepackagenames}}%
}%
}
\LetLtxMacro\usepackage\RequirePackage
\@onlypreamble\RequirePackage
\@onlypreamble\usepackage
```

```
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

\LWR@ProvidesPackagePass {⟨*pkgname*⟩} [⟨*version*⟩]

Uses the original package, including options.

```
\NewDocumentCommand{\LWR@ProvidesPackagePass}{m o}{
    \PackageInfo{lwarp}{%
        Using package ‘#1’,\MessageBreak
        and adding lwarp modifications, including options,\MessageBreak%
    }%
    \IfValueTF{#2}%
        {\ProvidesPackage{lwarp-#1}[#2]}%
        {\ProvidesPackage{lwarp-#1}}%
    \DeclareOption*{%
        \PassOptionsToPackage{\CurrentOption}{#1}%
    }%
    \ProcessOptions\relax%
```

If using catoptions, an error occurs if a package is loaded with an option then loaded again with no options. lwarp does this if a package is preloaded then later patched. To avoid an error while using catoptions, if a package has already been loaded, it is loaded again with its original options.

```
    \IfPackageLoadedTF{#1}{%
        \edef\LWR@tempone{\csuse{opt@#1.sty}}%
        \IfValueTF{#2}%
            {%
                \expandafter\LWR@origRequirePackage%
                    \expandafter[\LWR@tempone]{#1}[#2]%
            }%
            {%
                \expandafter\LWR@origRequirePackage%
                    \expandafter[\LWR@tempone]{#1}%
            }%
    }{%
        \IfValueTF{#2}%
            {\LWR@origRequirePackage{#1}[#2]}%
            {\LWR@origRequirePackage{#1}}%
    }%
```

In some cases, the following seems to be required to avoid an “unknown option” error, such as when loading xcolor with options.

```
    \DeclareOption*{}%
    \ProcessOptions\relax%
}
```

`\LWR@ProvidesPackageDropA` {⟨*name*⟩} {⟨*date or -NoValue-*⟩}

Declares the package. Factored for reuse.

```
\newcommand*{\LWR@ProvidesPackageDropA}[2]{%
    \PackageInfo{lwarp}{%
        Replacing package ‘#1’ with the lwarp version,\MessageBreak
        and discarding options,%
    }%
    \IfValueTF{#2}
    {\ProvidesPackage{lwarp-#1}[#2]}
    {\ProvidesPackage{lwarp-#1}}
}
```

`\LWR@ProvidesPackageDropB` Nullifies then processes the options.

Seems to be required when options contain curly braces, which were causing "Missing \begin{document}".

```
\newcommand*{\LWR@ProvidesPackageDropB}{%
% \ProcessOptions\relax% original LaTeX code
\let\ds@\@empty%         from the original \ProcessOptions
\edef\@curroptions{}%    lwarp modification to \ProcessOptions
\@process@ptions\relax%  from the original \ProcessOptions
}
```

\LWR@ProvidesPackageDrop {⟨*pkgname*⟩} [⟨*version*⟩]

Ignores the original package and uses lwarp's version instead. Drops/discards all options.

```
\NewDocumentCommand{\LWR@ProvidesPackageDrop}{m o}{
```

Declare the package:

```
\LWR@ProvidesPackageDropA{#1}{#2}
```

Ignore all options:

```
\DeclareOption*{}
```

Process the options:

```
\LWR@ProvidesPackageDropB
}
```

```
\end{warpHTML}
```

32 File handles

Defines file handles for writes.

for HTML & PRINT:

```
\begin{warpall}
```

\LWR@quickfile For quick temporary use only. This is reused in several places.

```
\newwrite\LWR@quickfile%
```

```
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

\LWR@lateximagesfile For <project>-images.txt:

```
\newwrite\LWR@lateximagesfile
```

```
\end{warpHTML}
```

33 Include a file

During HTML output, \include{<filename>} causes the following to occur:

1. lwarp creates <filename>_html_inc.tex whose contents are:
   \input <filename>.tex
2. <filename>_html_inc.tex is then \included instead of <filename>.tex.
3. <filename>_html_inc.aux is automatically generated and used by LaTeX.

for HTML output:

```
\begin{warpHTML}
```

\@include {⟨*filename*⟩} Modified to load _html_inc files.

(Below, \clearpage caused missing text, and was changed to \newpage.)

```
\def\@include#1 {%
\immediate\openout\LWR@quickfile #1_html_inc.tex% lwarp
\immediate\write\LWR@quickfile{\string\input{#1.tex}}% lwarp
\immediate\closeout\LWR@quickfile% lwarp
\LWR@maybe@orignewpage% changed from clearpage
\if@filesw
    \immediate\write\@mainaux{\string\@input{#1_html_inc.aux}}% changed
\fi
\@tempswatrue
\if@partsw
    \@tempswafalse
    \edef\reserved@b{#1}%
    \@for\reserved@a:=\@partlist\do
    {\ifx\reserved@a\reserved@b\@tempswatrue\fi}%
\fi
\if@tempswa
    \let\@auxout\@partaux
    \if@filesw
        \immediate\openout\@partaux #1_html_inc.aux % changed
        \immediate\write\@partaux{\relax}%
    \fi
    \@input@{#1_html_inc.tex}% changed
    \LWR@maybe@orignewpage% changed from clearpage
    \@writeckpt{#1}%
    \if@filesw
        \immediate\closeout\@partaux
    \fi
\else
    \deadcycles\z@
    \@nameuse{cp@#1}%
\fi
\let\@auxout\@mainaux%
}
```

```
\end{warpHTML}
```

34 Copying a file

for HTML output:
```
\begin{warpHTML}
```

`\LWR@copyfile` {⟨*source filename*⟩} {⟨*destination filename*⟩}

Used to copy the `.toc` file to `.sidetoc` to re-print the TOC in the sideTOC navigation pane.

```
\newwrite\LWR@copyoutfile   % open the file to write to
\newread\LWR@copyinfile     % open the file to read from

\newcommand*{\LWR@copyfile}[2]{%
    \LWR@traceinfo{LWR@copyfile: copying #1 to #2}

    \immediate\openout\LWR@copyoutfile=#2
    \openin\LWR@copyinfile=#1
    \begingroup\endlinechar=-1
    \makeatletter

    \LWR@traceinfo{LWR@copyfile: about to loop}

    \loop\unless\ifeof\LWR@copyinfile
        \LWR@traceinfo{LWR@copyfile: one line}
     \read\LWR@copyinfile to\LWR@fileline  % Read one line and store it into \LWR@fileline
%   \LWR@fileline\par                   % print the content into the pdf
% print the content:
     \immediate\write\LWR@copyoutfile{\unexpanded\expandafter{\LWR@fileline}}%
    \repeat
    \immediate\closeout\LWR@copyoutfile
    \LWR@traceinfo{LWR@copyfile: done}
    \endgroup
}
```

```
\end{warpHTML}
```

35 Debugging messages

HTML comments

To have the HTML output include additional HTML comments, such as which `<div>` is closing, use

```
\booltrue{HTMLDebugComments}
```

debugging information

To have debug information written to the log, use

```
\tracinglwarp
```

for HTML & PRINT:
```
\begin{warpall}
```

Bool `LWR@tracinglwarp`

True if tracing is turned on.

```
\newbool{LWR@tracinglwarp}
```

`\tracinglwarp` Turns on the debug tracing messages.

```
\newcommand{\tracinglwarp}{\booltrue{LWR@tracinglwarp}}
```

`\LWR@traceinfo` {⟨*text*⟩} If tracing is turned on, writes the text to the `.log` file.

```
\newcommand{\LWR@traceinfo}[1]{%
\ifbool{LWR@tracinglwarp}%
{%
    \typeout{*** lwarp: #1}%
}%
{}%
}
```

Bool `HTMLDebugComments` Add comments in HTML about closing s, sections, etc.

Default: `false`

```
\newbool{HTMLDebugComments}
\boolfalse{HTMLDebugComments}
```

If `\tracinglwarp`, show where preamble hooks occur:

```
\AfterEndPreamble{
\LWR@traceinfo{AfterEndPreamble}
}

\AtBeginDocument{
\LWR@traceinfo{AtBeginDocument}
}
```

```
\end{warpall}
```

36 Defining print and HTML versions of macros and environments

The following refers to defining objects inside lwarp, and may also be of some use for package authors to adapt their packages for lwarp. The following is not for the user's document.

Many macros and environments must be provided as both print and HTML versions.

While generating the print version of a document, the original macros as defined by LaTeX and its packages are used as-is.

While generating the HTML version of a document, the original macro or environment is redefined to call a new HTML version or a copy of the original print version. The new HTML versions of macros and environments are used most of the time. Copies of the print versions are used inside a `latexmage` environment, which draws and remembers an image of the printed output, and also several other places.

The general structure for providing print and HTML versions of a macro or environment is as follows:

For a preexisting macro: An HTML version is provided with a special name, inside a warpHTML environment, then \LWR@formatted is used to redefine and patch various macros:

```
\begin{warpHTML}
\newcommand{\LWR@HTML@name}{...}

\LWR@formatted{name}
\end{warpHTML}
```

\LWR@formatted{name} copies the original print version to a new name \LWR@print@<name>, then redefines \name to use either the print or HTML version depending on which mode lwarp is using.

For a preexisiting environment: The process is similar. Note the use of \LWR@formattedenv instead of \LWR@formatted.

```
\begin{warpHTML}
\newenvironment{LWR@HTML@name}{...}{..}

\LWR@formattedenv{name}
\end{warpHTML}
```

For a new macro or environment: The print version is defined inside warpall, so that it can also be seen and modified by during HTML outut.

```
\begin{warpall}
\newcommand{\name}{...}% The print version.
\end{warpall}

\begin{warpHTML}
\newcommand{\LWR@HTML@name}{...}

\LWR@formatted{name}
\end{warpHTML}
```

Similar for an environment, using \formattedenv.

In general, \LWR@formatted or \LWR@formattedenv are placed inside a warpHTML environment, and while producing an HTML document they do the following:

- Macros are modified:
  1. The pre-existing print version \name is saved as \LWR@print@<name>, unless \LWR@print@<name> is already defined.
  2. The original \name is redefined to call either the print or HTML version depending on which format is in use at the moment, as set by \LWR@formatting, which is defined as either "print" or "HTML".
- When lwarp is producing a print document, the original definitions are used, as well as any new definitions defined in warpall above.
- When lwarp is generating HTML output, \LWR@formatting is set to "HTML", and \name is directed to \LWR@HTML@<name>. For an environment, \endname is directed to \endLWR@HTML@<name>.

- When lwarp is generating HTML output but enters a lateximage environment, or for some other reason needs to draw images using the original print defintions, \LWR@formatting is changed to "print" and \name is then redirected to \LWR@print@<name>, which was the original \name.
- Since the new \name does not process any arguments, they are processed by \LWR@print@name or \LWR@HTML@name.

Expandable versions are also provided as well. These usually are necessary for anything which could appear inside a tabular, without which a "Misplaced \omit" error may occur.

⚠ Misplaced \omit error

\LWR@expandableformatted
\LWR@expandableformattedenv

(Older versions of lwarp used \LetLtxMacro for everything, but this could fail when using macros defined by xparse. This older system is still in use for many definitions.)

for HTML output:

```
\begin{warpHTML}
```

\LWR@formatting

Remembers if selected print/HTML formatting.

Used while \LWR@restoreorigformatting, such as in an lateximage. May be set to either "print" or "HTML".

```
\newcommand*{\LWR@formatting}{HTML}
```

\LWR@formatted@checkname {⟨*name*⟩}

```
\newcommand*{\LWR@formatted@checkname}[1]{%
    \ifcsundef{#1}{%
        \ifcsundef{LWR@print@#1}{%
            \PackageError{lwarp}
            {%
                \LWRbackslash#1 or \protect\LWR@print@#1\MessageBreak
                must be defined before using \protect\LWR@formatted, etc%
            }
            {Perhaps #1 is misspelled.}
        }{\relax}%
    }{\relax}%
    \ifcsundef{LWR@HTML@#1}{%
        \PackageError{lwarp}
        {%
            \protect\LWR@HTML@#1 must be defined
            before using \protect\LWR@formatted, etc%
        }
        {Perhaps #1 is misspelled.}
    }{\relax}%
}
```

\LWR@formatted@checkendname {⟨*name*⟩}

```
\newcommand*{\LWR@formatted@checkendname}[1]{%
    \ifcsundef{end#1}{%
        \ifcsundef{endLWR@print@#1}{%
            \PackageError{lwarp}
```

```
            {%
                \protect\end#1 or \protect\endLWR@print@#1\MessageBreak
                must be defined before using \protect\LWR@formatted, etc%
            }
            {Perhaps #1 is misspelled.}
        }{\relax}%
    }{\relax}%
    \ifcsundef{endLWR@HTML@#1}{%
        \PackageError{lwarp}
        {%
            \protect\endLWR@HTML@#1 must be defined
            before using \protect\LWR@formatted, etc%
        }
        {Perhaps #1 is misspelled.}
    }{\relax}%
}
```

`\LWR@formatted` {⟨*macroname*⟩} No backslash in the macro name.

If not yet defined, defines `\LWR@print@<name>` as the original print-mode `\<name>`. Also redefines `\<name>` to use `\LWR@<format>@<name>`, where <format> is set by `\LWR@formatting`, and is `print` or `HTML`.

```
\newcommand*{\LWR@formatted}[1]{%
    \LWR@formatted@checkname{#1}%
    \ifcsundef{LWR@print@#1}{%
        \csNewCommandCopycs{LWR@print@#1}{#1}%
    }{}%
    \ifcsundef{#1}{%
        \expandafter\newrobustcmd\csname #1\endcsname{%
            \@nameuse{LWR@\LWR@formatting @#1}%
        }%
    }{%
        \expandafter\renewrobustcmd\csname #1\endcsname{%
            \@nameuse{LWR@\LWR@formatting @#1}%
        }%
    }%
}
```

`\LWR@expandableformatted` {⟨*macroname*⟩} No backslash in the macro name.

An expandable version of `\LWR@formatted`.

```
\newcommand*{\LWR@expandableformatted}[1]{%
    \LWR@formatted@checkname{#1}%
    \ifcsundef{LWR@print@#1}{%
        \csNewCommandCopycs{LWR@print@#1}{#1}%
    }{}%
    \ifcsundef{#1}{%
        \expandafter\newcommand\csname #1\endcsname{%
            \@nameuse{LWR@\LWR@formatting @#1}%
        }%
    }{%
        \expandafter\renewcommand\csname #1\endcsname{%
            \@nameuse{LWR@\LWR@formatting @#1}%
        }%
    }%
}
```

`\LWR@formattedenv` {⟨*environmentname*⟩}

If not yet defined, defines the environment `LWR@print@<name>` as the original print-mode `<name>`. Also redefines the environment `<name>` to use environment `LWR@<format>@<name>`, where `<format>` is set by `\LWR@formatting`, and is `print` or `HTML`.

```
\newcommand*{\LWR@formattedenv}[1]{%
    \LWR@formatted@checkname{#1}%
    \LWR@formatted@checkendname{#1}%
    \ifcsundef{LWR@print@#1}{%
        \NewEnvironmentCopy{LWR@print@#1}{#1}%
    }{}%
    \DeclareDocumentEnvironment{#1}{}%
    {%
        \@nameuse{LWR@\LWR@formatting @#1}%
    }%
    {%
        \@nameuse{endLWR@\LWR@formatting @#1}%
    }%
}
```

`\LWR@expandableformattedenv` {⟨*environmentname*⟩}

An expandable version of `LWR@formattedenv`.

```
\newcommand*{\LWR@expandableformattedenv}[1]{%
    \LWR@formatted@checkname{#1}%
    \LWR@formatted@checkendname{#1}%
    \ifcsundef{LWR@print@#1}{%
        \NewEnvironmentCopy{LWR@print@#1}{#1}%
    }{}%
    \DeclareExpandableDocumentEnvironment{#1}{}%
    {%
        \@nameuse{LWR@\LWR@formatting @#1}%
    }%
    {%
        \@nameuse{endLWR@\LWR@formatting @#1}%
    }%
}
```

```
\end{warpHTML}
```

Print versions.

for PRINT output:

```
\begin{warpprint}
```

```
\newcommand*{\LWR@formatted}[1]{}
\newcommand*{\LWR@expandableformatted}[1]{}
\newcommand*{\LWR@formattedenv}[1]{}
\newcommand*{\LWR@expandableformattedenv}[1]{}
```

```
\end{warpprint}
```

37 HTML-conversion output modifications

These booleans modify the HTML output in various ways to improve conversion to EPUB or word processor imports.

for HTML & PRINT:
```
\begin{warpall}
```

37.1 User-level controls

Bool `FormatEPUB`
Default: `false`

Changes HTML output for easy EPUB conversion via an external program. Removes per-file headers, footers, and nav. Adds footnotes per chapter/section.

```
\newbool{FormatEPUB}
\boolfalse{FormatEPUB}
```

Bool `FormatWP`
Default: `false`

Changes HTML output for easier conversion by a word processor. Removes headers and nav, prints footnotes per section, and also forces single-file output and turns off HTML debug comments.

```
\newbool{FormatWP}
\boolfalse{FormatWP}
```

Bool `WPMarkFloats`
Default: `false`

Adds

```
=== begin table ===
. . .
=== end ===
```

or

```
=== begin figure ===
. . .
=== end ===
```

around floats while formatting for word processors. This helps identify boundaries of floats to be manually converted to word-processor frames and captions. [18]

```
\newbool{WPMarkFloats}
\boolfalse{WPMarkFloats}
```

Bool `WPMarkMinipages`
Default: `false`

Adds

```
=== begin minipage ===
. . .
=== end minipage ===
```

around minipages while formatting for word processors. This helps identify boundaries of minipages to be manually converted to word-processor frames.

```
\newbool{WPMarkMinipages}
\boolfalse{WPMarkMinipages}
```

Bool `WPMarkTOC`
Default: `true`

While formatting for word processors, adds

[18] Perhaps some day word processors will have HTML import options for identifying `<figure>` and caption tags for figures and tables.

```
=== table of contents ===
```

where the Table of Contents would have been. This helps identify where to insert the actual TOC.

If set `false`*, the actual toc is printed instead.*

```
\newbool{WPMarkTOC}
\booltrue{WPMarkTOC}
```

Bool `WPMarkLOFT`
Default: `false`

While formatting for word processors, adds

```
=== list of figures ===    and/or
=== list of tables ===
```

where each of these lists would have been. This helps identify where to insert the actual lists.

If set `false`*, the actual lists are printed instead.*

```
\newbool{WPMarkLOFT}
\boolfalse{WPMarkLOFT}
```

Bool `WPMarkMath`
Default: `false`

While formatting for word processors, prints math as LaTeX code instead of creating SVG images or MathJax. This is useful for cut/paste into the *LibreOffice Writer TeXMaths* extension.

```
\newbool{WPMarkMath}
\boolfalse{WPMarkMath}
```

Bool `WPTitleHeading`
Default: `false`

While formatting for word processors, `true` sets the document title to <h1>, which is expected for HTML documents, but also causes the lower-level section headings to start at **Heading 2** when imported into LibreOffice. Set to `false` to cause the title to be plain text, and the section headings to begin at **Heading 1**.

See table 11 on page 183.

```
\newbool{WPTitleHeading}
\boolfalse{WPTitleHeading}
```

```
\end{warpall}
```

37.2 Heading adjustments

If formatting the HTML for a word processor, adjust heading levels.

If `WPTitleHeading` is true, adjust so that `part` is **Heading 1**.

If `WPTitleHeading` is false, use <h1> for the title, and set `part` to **Heading 2**.

for HTML output:

```
\begin{warpHTML}
```

```
\AtBeginDocument{
\ifbool{FormatWP}{
\@ifundefined{chapter}{
```

```
\ifbool{WPTitleHeading}{% part and section starting at h2
\renewcommand*{\LWR@tagtitle}{h1}
\renewcommand*{\LWR@tagtitleend}{/h1}
\renewcommand*{\LWR@tagpart}{h2}
\renewcommand*{\LWR@tagpartend}{/h2}
\renewcommand*{\LWR@tagsection}{h3}
\renewcommand*{\LWR@tagsectionend}{/h3}
\renewcommand*{\LWR@tagsubsection}{h4}
\renewcommand*{\LWR@tagsubsectionend}{/h4}
\renewcommand*{\LWR@tagsubsubsection}{h5}
\renewcommand*{\LWR@tagsubsubsectionend}{/h5}
\renewcommand*{\LWR@tagparagraph}{h6}
\renewcommand*{\LWR@tagparagraphend}{/h6}
\renewcommand*{\LWR@tagsubparagraph}{span class=\textquotedbl{}subparagraph\textquotedbl}
\renewcommand*{\LWR@tagsubparagraphend}{/span}
}% WPTitleHeading
{% not WPTitleHeading, part and section starting at h1
\renewcommand*{\LWR@tagtitle}{div class=\textquotedbl{}title\textquotedbl}
\renewcommand*{\LWR@tagtitleend}{/div}
\renewcommand*{\LWR@tagpart}{h1}
\renewcommand*{\LWR@tagpartend}{/h1}
\renewcommand*{\LWR@tagsection}{h2}
\renewcommand*{\LWR@tagsectionend}{/h2}
\renewcommand*{\LWR@tagsubsection}{h3}
\renewcommand*{\LWR@tagsubsectionend}{/h3}
\renewcommand*{\LWR@tagsubsubsection}{h4}
\renewcommand*{\LWR@tagsubsubsectionend}{/h4}
\renewcommand*{\LWR@tagparagraph}{h5}
\renewcommand*{\LWR@tagparagraphend}{/h5}
\renewcommand*{\LWR@tagsubparagraph}{h6}
\renewcommand*{\LWR@tagsubparagraphend}{/h6}
}% not WPTitleHeading
}% chapter undefined
{% chapter defined
\ifbool{WPTitleHeading}{}
{% not WPTitleHeading, part and chapter starting at h1
\renewcommand*{\LWR@tagtitle}{div class=\textquotedbl{}title\textquotedbl}
\renewcommand*{\LWR@tagtitleend}{/div}
\renewcommand*{\LWR@tagpart}{h1}
\renewcommand*{\LWR@tagpartend}{/h1}
\renewcommand*{\LWR@tagchapter}{h2}
\renewcommand*{\LWR@tagchapterend}{/h2}
\renewcommand*{\LWR@tagsection}{h3}
\renewcommand*{\LWR@tagsectionend}{/h3}
\renewcommand*{\LWR@tagsubsection}{h4}
\renewcommand*{\LWR@tagsubsectionend}{/h4}
\renewcommand*{\LWR@tagsubsubsection}{h5}
\renewcommand*{\LWR@tagsubsubsectionend}{/h5}
\renewcommand*{\LWR@tagparagraph}{h6}
\renewcommand*{\LWR@tagparagraphend}{/h6}
\renewcommand*{\LWR@tagsubparagraph}{span class=\textquotedbl{}subparagraph\textquotedbl}
\renewcommand*{\LWR@tagsubparagraphend}{/span}
}% not WPTitleHeading
}% chapter defined
}{}% FormatWP
}% AtBeginDocument

\end{warpHTML}
```

38 Remembering original formatting macros

for HTML output:
```
\begin{warpHTML}
```

Remember original definitions of formatting commands. Will be changed to HTML commands for most uses. Will be temporarily restored to original meaning inside any latexmage environment. Also nullify unused commands.

Some packages redefine \#, which is used to generate HTML, so the original must be remembered here.

```
\chardef\LWR@origpound=‘\#

\let\LWR@origcomma\,
\let\LWR@origthinspace\thinspace
\let\LWR@orignegthinspace\negthinspace
\let\LWR@origtilde~
\let\LWR@origenskip\enskip
\let\LWR@origquad\quad
\let\LWR@origqquad\qquad
\let\LWR@orighfil\hfil
\let\LWR@orighss\hss
\let\LWR@origllap\llap
\let\LWR@origrlap\rlap
\let\LWR@orighfilneg\hfilneg
\let\LWR@orighspace\hspace

\let\LWR@origrule\rule

\let\LWR@origmedskip\medskip
\let\LWR@origbigskip\bigskip

\let\LWR@origtextellipsis\textellipsis

\let\LWR@origvdots\vdots
```

libertinus-otf has too much kerning for \textquotedbl, causing an extra space.

```
\LetLtxMacro\LWR@orig@@textquotedbl\textquotedbl
\LetLtxMacro\LWR@orig@textquotedbl\LWR@orig@@textquotedbl

\AtEndPreamble{
\IfPackageLoadedTF{libertinus-otf}{
   \renewcommand{\LWR@orig@textquotedbl}{\LWR@orig@@textquotedbl\kern-.15em}
    \LetLtxMacro\textquotedbl\LWR@orig@textquotedbl
}{}
}

\LetLtxMacro\LWR@origttfamily\ttfamily

\LetLtxMacro\LWR@origem\em

\LetLtxMacro\LWR@orignormalfont\normalfont

\let\LWR@origonecolumn\onecolumn

\let\LWR@origsp\sp
```

```
\let\LWR@origsb\sb

\LetLtxMacro\LWR@origunderline\underline

\let\LWR@orignewpage\newpage

\let\LWR@origpagestyle\pagestyle
\let\LWR@origthispagestyle\thispagestyle
\LetLtxMacro\LWR@origpagenumbering\pagenumbering

\let\LWR@orignewline\newline

\AtBeginDocument{% in case packages change definition
\let\LWR@orig@trivlist\@trivlist
\let\LWR@origtrivlist\trivlist
\let\LWR@origendtrivlist\endtrivlist
\LetLtxMacro\LWR@origitem\item
\LetLtxMacro\LWR@origitemize\itemize
\LetLtxMacro\LWR@endorigitemize\enditemize
\LetLtxMacro\LWR@origenumerate\enumerate
\LetLtxMacro\LWR@endorigenumerate\endenumerate
\LetLtxMacro\LWR@origdescription\description
\LetLtxMacro\LWR@endorigdescription\enddescription
\let\LWR@orig@mklab\@mklab
\let\LWR@origmakelabel\makelabel
\let\LWR@orig@donoparitem\@donoparitem
\LetLtxMacro\LWR@orig@item\@item
\let\LWR@orig@nbitem\@nbitem
}

\let\LWR@origpar\par

\LetLtxMacro\LWR@origfootnote\footnote
\let\LWR@orig@mpfootnotetext\@mpfootnotetext


\AtBeginDocument{% in case packages change definition
\LetLtxMacro\LWR@orighline\hline%
\LetLtxMacro\LWR@origcline\cline%
}

\end{warpHTML}
```

39 Accents

Native LaTeX accents such as \" will work, but many more kinds of accents are available when using Unicode-aware XeLaTeX and LuaLaTeX. If using accents in section names which will become file names, it is recommended to use the LaTeX accents such as \" and \v instead of Unicode accents. The LaTeX accents will have the accents stripped when creating the filenames, whereas the Unicode accents will appear in the file names, which may cause issues with some operating systems.

for HTML output:

```
\begin{warpHTML}
```

Without \AtBeginDocument, \t was being re-defined somewhere.

```
\AtBeginDocument{
```

The following are restored for print when inside a `lateximage`.

For Unicode engines, only `\t` needs to be redefined:

```
\LetLtxMacro\LWR@origtie\t
```

For PDF LaTeX, additional work is required:

```
\ifPDFTeX% pdflatex or dvi latex
\LetLtxMacro\LWR@origgraveaccent\‘
\LetLtxMacro\LWR@origacuteaccent\’
\LetLtxMacro\LWR@origcircumflexaccent\^
\LetLtxMacro\LWR@origtildeaccent\~
\LetLtxMacro\LWR@origmacronaccent\=
\LetLtxMacro\LWR@origbreve\u
\LetLtxMacro\LWR@origdotaccent\.
\LetLtxMacro\LWR@origdiaeresisaccent\"
\LetLtxMacro\LWR@origdoubleacuteaccent\H
\LetLtxMacro\LWR@origcaronaccent\v
\LetLtxMacro\LWR@origdotbelowaccent\d
\LetLtxMacro\LWR@origcedillaaccent\c
\LetLtxMacro\LWR@origmacronbelowaccent\b
```

The HTML redefinitions follow.

For PDF LaTeX, Unicode diacritical marks are used:

```
\renewcommand*{\‘}[1]{#1\HTMLunicode{0300}}
\renewcommand*{\’}[1]{#1\HTMLunicode{0301}}
\renewcommand*{\^}[1]{#1\HTMLunicode{0302}}
\renewcommand*{\~}[1]{#1\HTMLunicode{0303}}
\renewcommand*{\=}[1]{#1\HTMLunicode{0304}}
\renewcommand*{\u}[1]{#1\HTMLunicode{0306}}
\renewcommand*{\.}[1]{#1\HTMLunicode{0307}}
\renewcommand*{\"}[1]{#1\HTMLunicode{0308}}
\renewcommand*{\H}[1]{#1\HTMLunicode{030B}}
\renewcommand*{\v}[1]{#1\HTMLunicode{030C}}
\renewcommand*{\d}[1]{#1\HTMLunicode{0323}}
\renewcommand*{\c}[1]{#1\HTMLunicode{0327}}
\renewcommand*{\b}[1]{#1\HTMLunicode{0331}}
\fi
```

For all engines, a Unicode diacritical tie is used:

```
\def\LWR@t#1#2{#1\HTMLunicode{0361}#2}
\renewcommand*{\t}[1]{\LWR@t#1}
```

`\LWR@restoreorigaccents` Called from `\restoreoriginalformatting` when a `lateximage` is begun.

```
\ifPDFTeX% pdflatex or dvi latex
\newcommand*{\LWR@restoreorigaccents}{%
    \LetLtxMacro\‘\LWR@origgraveaccent%
    \LetLtxMacro\’\LWR@origacuteaccent%
    \LetLtxMacro\^\LWR@origcircumflexaccent%
    \LetLtxMacro\~\LWR@origtildeaccent%
    \LetLtxMacro\=\LWR@origmacronaccent%
    \LetLtxMacro\u\LWR@origbreve%
    \LetLtxMacro\.\LWR@origdotaccent%
    \LetLtxMacro\"\LWR@origdiaeresisaccent%
```

```
    \LetLtxMacro\H\LWR@origdoubleacuteaccent%
    \LetLtxMacro\v\LWR@origcaronaccent%
    \LetLtxMacro\t\LWR@origtie%
    \LetLtxMacro\d\LWR@origdotbelowaccent%
    \LetLtxMacro\c\LWR@origcedillaaccent%
    \LetLtxMacro\b\LWR@origmacronbelowaccent%
}%
\else% XeLaTeX, LuaLaTeX:
\newcommand*{\LWR@restoreorigaccents}{%
    \LetLtxMacro\t\LWR@origtie%
}%
\fi%
}% AtBeginDocument

\end{warpHTML}
```

40 Configuration files

40.1 Decide whether to generate configuration files

Configuration files are only written if processing the print version of the document, and not processing a pstool image. pstool uses an additional compile for each image using the original document's preamble, which includes lwarp, so the lwarp configuration files are turned off if `-pstool` is part of the `\jobname`.

Default to no configuration files:

```
\LWR@excludecomment{LWRwriteconf}{writeconf}
```

Generate configuration files if print mode and not `-pstool`:

for PRINT output:

```
\begin{warpprint}
\fullexpandarg%
\IfSubStr*{\jobname}{-pstool}
    {
        \PackageInfo{lwarp}{%
            Jobname with -pstool is found.\MessageBreak
            Not generating lwarp configuration files,%
        }
    }
    {
        \PackageInfo{lwarp}{Generating lwarp configuration files,}%
        \LWR@includecomment{LWRwriteconf}{writeconf}
    }
\end{warpprint}
```

40.2 <project>_html.tex

File `*_html.tex`

Used to allow an HTML version of the document to exist alongside the print version.

Config file:

```
\begin{LWRwriteconf}
\immediate\openout\LWR@quickfile=\jobname_html.tex
\immediate\write\LWR@quickfile{%
\detokenize{\PassOptionsToPackage}%
```

```
{warpHTML,BaseJobname=\jobname}{lwarp}%
}
\immediate\write\LWR@quickfile{%
\detokenize{\input}\string{\jobname.tex\string }%
}
\immediate\closeout\LWR@quickfile
\end{LWRwriteconf}
```

40.3 *lwarpmk* configuration files

Config file:
```
\begin{LWRwriteconf}
```

`\LWR@lwarpconfversion` The version number of the configuration file, allowing *lwarpmk* to detect an obsolete configuration file format. Incremented by one each time the configuration file format changes. (This is NOT the same as the lwarp version number.)

```
\newcommand*{\LWR@lwarpconfversion}{2}% also in lwarpmk.lua
```

40.3.1 Helper macros

`\LWR@shellescapecmd` The LaTeX compile option for shell escape, if used.

```
\ifshellescape
    \def\LWR@shellescapecmd{--shell-escape }
\else
    \def\LWR@shellescapecmd{}
\fi
```

`\LWR@compilecmd` {⟨*engine*⟩} {⟨*suffix*⟩}

Used to form the basic compilation command for a document, adding the optional shell escape.

Engine is *pdflatex*, etc. Suffix is empty or `_html`

```
\newcommand*{\LWR@compilecmd}[2]{%
    #1 \LWR@shellescapecmd \jobname#2%
}
```

`\LWR@addcompilecmd` {⟨*cmd*⟩} {⟨*suffix*⟩}

Adds to the compilation command.

Cmd is *dvipdfmx*, etc. Suffix is empty or `_html`

```
\newcommand*{\LWR@addcompilecmd}[2]{%
    \LWRopseq
    #1 \jobname#2%
}
```

`\LWR@unknownengine` Error message if not sure which LaTeX engine is being used.

```
\newcommand*{\LWR@unknownengine}{%
```

```
    \PackageError{lwarp}%
        {Unknown LaTeX engine}%
        {%
            Lwarp only knows about pdflatex, DVI latex,
            xelatex, lualatex, and upLateX.%
        }%
}
```

`\LWR@latexmkvar` {⟨*varname*⟩} {⟨*value*⟩}

Adds a *latexmk* variable assignment.

```
\newcommand*{\LWR@latexmkvar}[2]{%
    -e
    \LWRopquote%
    \LWRdollar #1=q/#2/%
    \LWRopquote
}
```

`\LWR@latexmkcmd` {⟨*latexmk options*⟩}

Sets a call to *latexmk* with the given options, possibly adding `--shell-escape`, and also adding the indexing program.

```
\newcommand*{\LWR@latexmkcmd}[1]{%
    latexmk  \space \LWR@shellescapecmd \space  #1 \space
    -recorder \space
    \LWR@latexmkvar{makeindex}{\LWR@LatexmkIndexCmd}%
}
```

`\LWR@latexmkdvipdfm` {⟨*dvipdfm or dvipdfmx*⟩}

Adds the options settings for *dvipdfm* or *dvipdfmx*.

```
\newcommand*{\LWR@latexmkdvipdfm}[1]{%
    -pdfdvi \space
    \LWR@latexmkvar{dvipdf}{%
        #1
        \@percentchar O
        -o \@percentchar D
        \@percentchar S%
    }
}
```

`\LWR@compileuplatex` Sets compile options for upLaTeX with ujarticle or related classes.

```
\newcommand*{\LWR@compileuplatex}{
    \def\LWR@tempprintlatexcmd{%
        \LWR@compilecmd{uplatex}{}
        \LWR@addcompilecmd{dvipdfmx}{}
    }
    \def\LWR@tempHTMLlatexcmd{%
        \LWR@compilecmd{uplatex}{_html}
        \LWR@addcompilecmd{dvipdfmx}{_html}
    }
}
```

\LWR@PrintLatexCmd
\LWR@HTMLLatexCmd

If not set by the user, the following sets the command to use to compile the source to PDF form.

If using *latexmk*, a complicated string is created, eventually resulting in something such as:

For *xelatex* with `--shell-escape`:

```
[[latexmk   -xelatex   --shell-escape  -recorder
    -e '$makeindex = q/makeindex -s lwarp.ist/'  <jobname>_html]]
```

For *dvipdfmx*:

```
[[latexmk   -pdfdvi  -e '$dvipdf=q/dvipdfmx %O -o %D %S/'
    -recorder
    -e '$makeindex=q/makeindex -s lwarp.ist/'   <jobname>_html]]
```

For the following, temporary values are computed, but the permanent values are only set if the originals were not assigned by the user.

```
\ifbool{LWR@latexmk}{
```

For *latexmk* with *pdflatex* or *lualatex*:

```
    \ifpdf
```

For *latexmk* with *pdflatex*:

```
        \ifPDFTeX
            \def\LWR@latexcmd{\LWR@latexmkcmd{-pdf -dvi- -ps-}}
        \else
```

For *latexmk* with *lualatex*:

```
            \ifLuaTeX
                \def\LWR@latexcmd{\LWR@latexmkcmd{-lualatex}}
            \else
                \LWR@unknownengine
            \fi
        \fi
    \else% \ifpdf
```

For *latexmk* with *xelatex* or DVI *latex*:

```
        \ifXeTeX
```

For *latexmk* with *xelatex*:

```
            \def\LWR@latexcmd{\LWR@latexmkcmd{-xelatex}}
        \else% \ifXeTeX
```

For *latexmk* with DVI *latex*:

```
            \ifbool{LWR@dvipdfm}{
                \def\LWR@latexcmd{%
                    \LWR@latexmkcmd{%
                        \LWR@latexmkdvipdfm{dvipdfm}%
                    }
                }
            }{
                \ifbool{LWR@dvipdfmx}{
                    \def\LWR@latexcmd{%
                        \LWR@latexmkcmd{%
                            \LWR@latexmkdvipdfm{dvipdfmx}%
                        }
                    }
                }{
                    \def\LWR@latexcmd{\LWR@latexmkcmd{-pdfps}}
                }
            }
        \fi
    \fi% \ifpdf
```

The final assignment if *latexmk*:

```
    \def\LWR@tempprintlatexcmd{\LWR@latexcmd \space \jobname}
    \def\LWR@tempHTMLlatexcmd{\LWR@latexcmd \space \jobname_html}
}% latexmk
```

Without *latexmk*, the compiling command is simply the compiler name and the optional shell escape:

```
{% not latexmk
    \ifpdf
```

For *pdflatex* or *lualatex*:

```
        \ifPDFTeX
```

For *pdflatex*:

```
            \def\LWR@tempprintlatexcmd{\LWR@compilecmd{pdflatex}{}}
            \def\LWR@tempHTMLlatexcmd{\LWR@compilecmd{pdflatex}{_html}}
        \else
            \ifLuaTeX
```

For *lualatex*:

```
                \def\LWR@tempprintlatexcmd{\LWR@compilecmd{lualatex}{}}
                \def\LWR@tempHTMLlatexcmd{\LWR@compilecmd{lualatex}{_html}}
            \else
                \LWR@unknownengine
            \fi
        \fi
    \else% \ifpdf
```

For DVI *latex* or *xelatex*:

```
        \ifXeTeX
```

For *xelatex*:

```
            \def\LWR@tempprintlatexcmd{\LWR@compilecmd{xelatex}{}}
            \def\LWR@tempHTMLlatexcmd{\LWR@compilecmd{xelatex}{_html}}
        \else
```

For DVI *latex*. Default to *dvips*, unless told to use *dvipdfm* or *dvipdfmx*:

```
            \ifbool{LWR@dvipdfm}{
```

For DVI *latex* with *dvipdfm*:

```
                \def\LWR@tempprintlatexcmd{%
                    \LWR@compilecmd{latex}{}
                    \LWR@addcompilecmd{dvipdfm}{}
                }
                \def\LWR@tempHTMLlatexcmd{%
                    \LWR@compilecmd{latex}{_html}
                    \LWR@addcompilecmd{dvipdfm}{_html}
                }
            }{
                \ifbool{LWR@dvipdfmx}{
```

For DVI *latex* with *dvipdfmx*:

```
                    \def\LWR@tempprintlatexcmd{%
                        \LWR@compilecmd{latex}{}
                        \LWR@addcompilecmd{dvipdfmx}{}
                    }
                    \def\LWR@tempHTMLlatexcmd{%
                        \LWR@compilecmd{latex}{_html}
                        \LWR@addcompilecmd{dvipdfmx}{_html}
                    }
                }{% dvips
```

For DVI *latex* with *dvips* and *ps2pdf*:

```
                    \def\LWR@tempprintlatexcmd{%
                        \LWR@compilecmd{latex}{}
                        \LWR@addcompilecmd{dvips}{}
                      \LWR@addcompilecmd{ps2pdf -dALLOWPSTRANSPARENCY}{}.ps
                    }
                    \def\LWR@tempHTMLlatexcmd{%
                        \LWR@compilecmd{latex}{_html}
                        \LWR@addcompilecmd{dvips}{_html}
                  \LWR@addcompilecmd{ps2pdf -dALLOWPSTRANSPARENCY}{_html}.ps
                    }
                }
            }
        \fi% \ifXeTeX
    \fi% \ifpdf
}% latexmk
```

For ujarticle, utarticle, and related, using upLaTeX and *dvipdfmx*:

```
\IfClassLoadedTF{ujarticle}{\LWR@compileuplatex}{}
\IfClassLoadedTF{ujbook}{\LWR@compileuplatex}{}
\IfClassLoadedTF{ujreport}{\LWR@compileuplatex}{}
\IfClassLoadedTF{utarticle}{\LWR@compileuplatex}{}
\IfClassLoadedTF{utbook}{\LWR@compileuplatex}{}
\IfClassLoadedTF{utreport}{\LWR@compileuplatex}{}
```

Only make the setting permanent if the original was empty:

```
\ifdefempty{\LWR@PrintLatexCmd}{
    \def\LWR@PrintLatexCmd{\LWR@tempprintlatexcmd}
}{}
\ifdefempty{\LWR@HTMLLatexCmd}{
    \def\LWR@HTMLLatexCmd{\LWR@tempHTMLlatexcmd}
}{}
```

`\LWR@writeconf` {⟨*filename*⟩}

Common code for each of `lwarpmk.conf` and `<project>.lwarpmkconf`. Each entry is a variable name, the equal sign, and a quoted string inside `[[` and `]]`, which are *lua*'s long quote characters, allowing the use of single and double quotes inside.

```
\newcommand{\LWR@writeconf}[1]{
\ifcsdef{LWR@quickfile}{}{\newwrite{\LWR@quickfile}}
\immediate\openout\LWR@quickfile=#1
\immediate\write\LWR@quickfile{confversion = [[\LWR@lwarpconfversion]]}
\ifbool{usingOSWindows}{
    \immediate\write\LWR@quickfile{opsystem = [[Windows]]}
}{
    \immediate\write\LWR@quickfile{opsystem = [[Unix]]}
}
\immediate\write\LWR@quickfile{sourcename = [[\jobname]]}
\immediate\write\LWR@quickfile{homehtmlfilename = [[\HomeHTMLFilename]]}
\immediate\write\LWR@quickfile{htmlfilename = [[\HTMLFilename]]}
\immediate\write\LWR@quickfile{imagesdirectory = [[\LWR@ImagesDirectory]]}
\immediate\write\LWR@quickfile{imagesname = [[\LWR@ImagesName]]}
\immediate\write\LWR@quickfile{latexmk = [[\ifbool{LWR@latexmk}{true}{false}]]}
\immediate\write\LWR@quickfile{printlatexcmd = [[\LWR@PrintLatexCmd]]}
\immediate\write\LWR@quickfile{HTMLlatexcmd = [[\LWR@HTMLLatexCmd]]}
\immediate\write\LWR@quickfile{printindexcmd = [[\LWR@PrintIndexCmd]]}
\immediate\write\LWR@quickfile{HTMLindexcmd = [[\LWR@HTMLIndexCmd]]}
\immediate\write\LWR@quickfile{latexmkindexcmd = [[\LWR@LatexmkIndexCmd]]}
\immediate\write\LWR@quickfile{glossarycmd = [[\LWR@GlossaryCmd]]}
\immediate\write\LWR@quickfile{pdftotextenc = [[\LWR@pdftotextEnc]]}
\immediate\closeout\LWR@quickfile
}


\end{LWRwriteconf}
```

40.3.2 `lwarpmk.conf`

File `lwarpmk.conf`

`lwarpmk.conf` is automatically (re-)created by the lwarp package when executing
`pdflatex <project.tex>`,
or similar for *xelatex* or *lualatex*, in print-document generation mode, which is the default unless the `warpHTML` option is given. `lwarpmk.conf` is then used by the utility *lwarpmk*.

Config file:

```
\begin{LWRwriteconf}

\AtBeginDocument{\LWR@writeconf{lwarpmk.conf}}

\end{LWRwriteconf}
```

40.3.3 <project>.lwarpmkconf

File project.lwarpmkconf

A project-specific configuration file for *lwarpmk*.

The makeindex and xindy options have already been handled for lwarp.conf.

Config file:

```
\begin{LWRwriteconf}

\AtBeginDocument{\LWR@writeconf{\jobname.lwarpmkconf}}

\end{LWRwriteconf}
```

40.4 lwarp.css

File lwarp.css

This is the base css layer used by lwarp.

This must be present both when compiling the project and also when distributing the HTML files.

Config file:

```
\begin{LWRwriteconf}
\begin{filecontents*}[overwrite]{lwarp.css}
/*
  CSS stylesheet for the LaTeX Lwarp package
  Copyright 2016-2022 Brian Dunn — BD Tech Concepts LLC
*/


/* a fix for older browsers: */
header, section, footer, aside, nav, main,
    article, figure { display: block; }


A:link {color:#000080 ; text-decoration: none ; }
A:visited {color:#800000 ; }
A:hover {color:#000080 ; text-decoration: underline ;}
A:active {color:#800000 ; }

a.tocbook {display: inline-block ; margin-left: 0em ;
    font-weight: bold ; margin-top: 1ex ; margin-bottom: 1ex ; }
a.tocpart {display: inline-block ; margin-left: 0em ;
    font-weight: bold ;}
a.tocchapter {display: inline-block ; margin-left: 0em ;
    font-weight: bold ;}
a.tocsection {display: inline-block ; margin-left: 1em ;
    text-indent: -.5em ; font-weight: bold ; }
a.tocsubsection {display: inline-block ; margin-left: 2em ;
    text-indent: -.5em ; }
a.tocsubsubsection {display: inline-block ; margin-left: 3em ;
    text-indent: -.5em ; }
a.tocparagraph {display: inline-block ; margin-left: 4em ;
    text-indent: -.5em ; }
a.tocsubparagraph {display: inline-block ; margin-left: 5em ;
    text-indent: -.5em ; }
a.tocfigure {margin-left: 0em}
a.tocsubfigure {margin-left: 2em}
a.toctable {margin-left: 0em}
a.tocsubtable {margin-left: 2em}
a.toctheorem {margin-left: 0em}
```

```
a.toclstlisting {margin-left: 0em}

body {
    font-family: "DejaVu Serif", "Bitstream Vera Serif",
        "Lucida Bright", Georgia, serif;
    background: #FAF7F4 ;
    color: black ;
    margin:0em ;
    padding:0em ;
    font-size: 100% ;
    line-height: 1.2 ;
}

p {margin: 1.5ex 0em 1.5ex 0em ;}
table p {margin: .5ex 0em .5ex 0em ;}

/* Holds a section number */
span.sectionnumber { margin-right: 0em }

/* Inserted in front of index lines */
span.indexitem {margin-left: 0em}
span.indexsubitem {margin-left: 2em}
span.indexsubsubitem {margin-left: 4em}
div.indexheading {margin-top: 2ex ; font-weight: bold}

div.hidden, span.hidden { display: none ; }

kbd, span.texttt, p span.texttt {
    font-family: "DejaVu Mono", "Bitstream Vera Mono", "Lucida Console",
        "Nimbus Mono L", "Liberation Mono", "FreeMono", "Andale Mono",
        "Courier New", monospace;
    font-size: 100% ;
}

pre { padding: 3pt ; }

span.strong, span.textbf, div.strong, div.textbf, table td.tdbfseries { font-weight: bold; }

span.textit, div.textit, table td.tditshape { font-style: italic; }

table td.tdbfit { font-weight: bold ; font-style:italic }

span.textnormal, div.textnormal {
    font-weight: normal;
    font-style: normal;
    font-variant: normal;
    font-variant-numeric: normal ;
    font-family: "DejaVu Serif", "Bitstream Vera Serif",
        "Lucida Bright", Georgia, serif;
}

span.textmd, div.textmd { font-weight: normal; }

span.textup, div.textup {
    font-style: normal;
    font-variant: normal;
    font-variant-numeric: normal ;
}

span.textsc, div.textsc {
```

```
2365     font-variant: small-caps;
2366     font-variant-numeric: oldstyle-nums ;
2367 }
2368
2369 span.textulc, div.textulc {
2370     font-variant: normal ;
2371     font-variant-numeric: normal ;
2372 }
2373
2374 span.textsl, div.textsl { font-style: oblique; }
2375
2376 span.textrm, div.textrm {
2377     font-family: "DejaVu Serif", "Bitstream Vera Serif",
2378     "Lucida Bright", Georgia, serif;
2379 }
2380
2381 span.textsf, div.textsf {
2382      font-family: "DejaVu Sans", "Bitstream Vera Sans",
2383         Geneva, Verdana, sans-serif ;
2384 }
2385
2386 /* nfssext-cfr lining figures */
2387 span.textln, div.textln {
2388     font-variant-numeric: lining-nums ;
2389 }
2390
2391 /* nfssext-cfr proportional figures */
2392 span.textp, div.textp {
2393     font-variant-numeric: proportional-nums ;
2394 }
2395
2396 /* nfssext-cfr tabular figures */
2397 span.textt, div.textt {
2398     font-variant-numeric: tabular-nums ;
2399 }
2400
2401 /* nfssext-cfr font weights */
2402 span.textdb, div.textdb {
2403     font-weight: 500 ;
2404 }
2405
2406 span.textsb, div.textsb {
2407     font-weight: 600 ;
2408 }
2409
2410 span.texteb, div.texteb {
2411     font-weight: 800 ;
2412 }
2413
2414 span.textub, div.textub {
2415     font-weight: 900 ;
2416 }
2417
2418 span.textlg, div.textlg {
2419     font-weight: 300 ;
2420 }
2421
2422 span.textel, div.textel {
2423     font-weight: 200 ;
2424 }
```

```
2425
2426 span.textul, div.textul {
2427     font-weight: 100 ;
2428 }
2429
2430
2431
2432 span.textcircled { border: 1px solid black ; border-radius: 1ex ; }
2433
2434 span.underline {
2435     text-decoration: underline ;
2436     text-decoration-skip: auto ;
2437 }
2438
2439 span.overline {
2440     text-decoration: overline ;
2441     text-decoration-skip: auto ;
2442 }
2443
2444 div.hrule { border-top: 1px solid silver }
2445
2446
2447 /* for vertical text: */
2448 div.verticalrl { writing-mode: vertical-rl }
2449 div.horizontaltb { writing-mode: horizontal-tb }
2450
2451
2452 /* for diagbox */
2453 div.diagboxtitleN { border-bottom: 1px solid gray }
2454 div.diagboxtitleS { border-top: 1px solid gray }
2455
2456 div.diagboxE {
2457     padding-left: 2em ;
2458     text-align: right ;
2459 }
2460
2461 div.diagboxW {
2462     padding-right: 2em ;
2463     text-align: left ;
2464 }
2465
2466
2467
2468 /* For realscripts */
2469 .supsubscript {
2470     display: inline-block;
2471     text-align:left ;
2472 }
2473
2474 .supsubscript sup,
2475 .supsubscript sub {
2476     position: relative;
2477     display: block;
2478     font-size: .7em;
2479     line-height: 1;
2480 }
2481
2482 .supsubscript sup {
2483     top: .3em;
2484 }
```

```
2485
2486 .supsubscript sub {
2487     top: .3em;
2488 }
2489
2490 div.attribution p {
2491     text-align: right ;
2492     font-size: 80%
2493 }
2494
2495 span.poemtitle {
2496   font-size: 120% ; font-weight: bold;
2497 }
2498
2499 pre.tabbing {
2500     font-family: "Linux Libertine Mono O", "Lucida Console",
2501         "Droid Sans Mono", "DejaVu Mono", "Bitstream Vera Mono",
2502         "Liberation Mono", "FreeMono", "Andale Mono",
2503         "Nimbus Mono L", "Courier New", monospace;
2504 }
2505
2506 blockquote {
2507     display: block ;
2508     margin-left: 2em ;
2509     margin-right: 2em ;
2510 }
2511
2512 /* quotchap is for the quotchap package */
2513 div.quotchap {
2514     display: block ;
2515     font-style: oblique ;
2516     overflow-x: auto ;
2517     margin-left: 2em ;
2518     margin-right: 2em ;
2519 }
2520
2521 blockquote p, div.quotchap p {
2522     line-height: 1.5;
2523     text-align: left ;
2524     font-size: .85em ;
2525 }
2526
2527 /* qauthor is for the quotchap package */
2528 div.qauthor {
2529   display: block ;
2530   text-align: right ;
2531   margin-left: auto ;
2532   margin-right: 2em ;
2533   font-size: 80% ;
2534   font-variant: small-caps;
2535 }
2536
2537 div.qauthor p {
2538   text-align: right ;
2539 }
2540
2541 div.epigraph, div.dictum {
2542   line-height: 1.2;
2543     text-align: left ;
2544     padding: 3ex 1em 0ex 1em ;
```

```
/*     margin: 3ex auto 3ex auto ; */ /* Epigraph centered */
    margin: 3ex 1em 3ex auto ; /* Epigraph to the right */
/*    margin: 3ex 1em 3ex 1em ; */ /* Epigraph to the left */
    font-size: .85em ;
    max-width: 27em ;
}

div.epigraphsource, div.dictumauthor {
    text-align:right ;
    margin-left:auto ;
/*     max-width: 50% ; */
    border-top: 1px solid #A0A0A0 ;
    padding-bottom: 3ex ;
    line-height: 1.2;
}

div.epigraph p, div.dictum p { padding: .5ex ; margin: 0ex ;}
div.epigraphsource p, div.dictumauthor p { padding: .5ex 0ex 0ex 0ex ; margin: 0ex ;}
div.dictumauthor { font-style:italic }


/* copyrightbox package: */
div.copyrightbox { margin: .5ex .5em }
div.copyrightbox p {margin: 0px .5em ; padding: 0px}
div.copyrightboxnote {text-align: left ; font-size: 60%}


/* lettrine package: */
span.lettrine { font-size: 4ex ; float: left ; }
span.lettrinetext { font-variant: small-caps ; }

/* ulem, soul, umoline packages: */
span.uline {
    text-decoration: underline ;
    text-decoration-skip: auto ;
}

span.uuline {
    text-decoration: underline ;
    text-decoration-skip: auto ;
    text-decoration-style: double ;
}

span.uwave {
    text-decoration: underline ;
    text-decoration-skip: auto ;
    text-decoration-style: wavy ;
}

span.sout {
    text-decoration: line-through ;
}

span.oline {
    text-decoration: overline ;
    text-decoration-skip: auto ;
}

span.xout {
    text-decoration: line-through ;
```

```
}

span.dashuline {
    text-decoration: underline ;
    text-decoration-skip: auto ;
    text-decoration-style: dashed ;
}

span.dotuline {
    text-decoration: underline ;
    text-decoration-skip: auto ;
    text-decoration-style: dotted ;
}

span.letterspacing { letter-spacing: .2ex ; }

span.capsspacing {
    font-variant: small-caps ;
    letter-spacing: .1ex ;
}

span.highlight { background: #F8E800 ; }


/* keystroke package: */
span.keystroke {
    border-style: outset ;
    padding: 0pt .5em 0pt .5em ;
}


html body {
  margin: 0 ;
  line-height: 1.2;
}


body div {
  margin: 0ex;
}


div.book, h1, h2, h3, h4, h5, h6, span.paragraph, span.subparagraph
{
    font-family: "Linux Libertine O", "Hoefler Text", "Garamond",
        "Bembo", "Janson", "TeX Gyre Pagella", "Palatino",
        "Liberation Serif", "Nimbus Roman No 9 L",  "FreeSerif", Times,
        "Times New Roman", serif;
    font-style: normal ;
    font-weight: bold ;
    text-align: left ;
}

h1 {    /* title of the entire website, used on each page */
    text-align: center ;
    font-size: 2.5em ;
    padding: .4ex 0em 0ex 0em ;
}

div.book {
```

```
    text-align: center ;
    font-size: 2.325em ;
    padding: .4ex 0em 0ex 0em ;
}

h2 { font-size: 2.25em }
h3 { font-size: 2em }
h4 { font-size: 1.75em }
h5 { font-size: 1.5em }
h6 { font-size: 1.25em }
span.paragraph {font-size: 1em ; font-variant: normal ;
    margin-right: 1em ; }
span.subparagraph {font-size: 1em ; font-variant: normal ;
    margin-right: 1em ;  }

div.minisec {
    font-family: "DejaVu Sans", "Bitstream Vera Sans",
        Geneva, Verdana, sans-serif ;
    font-style: normal ;
    font-weight: bold ;
    text-align: left ;
}

h1 {
  margin: 0ex 0em 0ex 0em ;
  line-height: 1.3;
  text-align: center ;
}

h2 {
  margin: 1ex 0em 1ex 0em ;
  line-height: 1.3;
  text-align: center ;
}

h3 {
  margin: 3ex 0em 1ex 0em ;
  line-height: 1.3;
}

h4 {
  margin: 3ex 0em 1ex 0em ;
  line-height: 1.3;
}

h5 {
  margin: 3ex 0em 1ex 0em ;
  line-height: 1.3;
}

h6 {
  margin: 3ex 0em 1ex 0em ;
  line-height: 1.3;
}


div.titlepage {
  text-align: center ;
}

```

```
.footnotes {
    text-align: left ;
    font-size: .85em ;
    margin: 3ex 2em 0ex 2em ;
    border-top: 1px solid silver ;
}

.marginpar, .marginparblock {
    max-width: 50%;
    float: right ;
    clear: both ;
    text-align: left ;
    margin: 1ex 0.5em 1ex 1em ;
    padding: 1ex 0.5em 1ex 0.5em ;
    font-size: 85% ;
    border-top: 1px solid silver ;
    border-bottom: 1px solid silver ;
    overflow-x: auto ;
}

.marginpar br { margin-bottom: 2ex ; }

div.marginblock, div.marginparblock {
    max-width:50%;
    min-width: 10em; /* room for caption */
    float:right;
    text-align:left;
    margin: 1ex 0.5em 1ex 1em ;
    padding: 1ex 0.5em 1ex 0.5em ;
    overflow-x: auto;
}

div.marginblock div.minipage,
div.marginparblock div.minipage {
    display: inline-block ;
    margin: 0pt auto 0pt auto ;
}

div.marginblock div.minipage p ,
div.marginparblock div.minipage p
    { font-size: 85%}

div.marginblock br ,
div.marginparblock br
    { margin-bottom: 2ex ; }

main.bodycontainer {
    float: left ;
    width: 80% ;
}

div.bodywithoutsidetoc main.bodycontainer {
    float: none ;
    width: 100% ;
}

section.textbody div.footnotes{
    margin: 1ex 2em 2ex 2em ;
    border-bottom: 2px solid silver ;
}
```

```
2785
2786 .footnoteheader {
2787     border-top: 2px solid silver ;
2788     margin-top: 3ex ;
2789     padding-top: 1ex ;
2790     font-weight: bold ;
2791 }
2792
2793 .mpfootnotes {
2794     text-align: left ;
2795     font-size: .85em ;
2796     margin-left: 1em ;
2797     border-top: 1px solid silver ;
2798 }
2799
2800 /* Remove footnote top border in the title page. */
2801 div.titlepage div.mpfootnotes {
2802     border-top: none ;
2803 }
2804
2805
2806
2807 ul, ol {
2808   margin: 1ex 1em 1ex 0em;
2809   line-height: 1.2;
2810 }
2811
2812 body dir, body menu {
2813   margin: 3ex 1em 3ex 0em;
2814   line-height: 1.2;
2815 }
2816
2817 li { margin: 0ex 0em 1ex 0em; }
2818
2819 li.p { display: inline ; }
2820
2821 html {
2822   margin: 0;
2823   padding: 0;
2824 }
2825
2826 .programlisting {
2827   font-family: "DejaVu Mono", "Bitstream Vera Mono", "Lucida Console",
2828         "Nimbus Mono L", "Liberation Mono", "FreeMono", "Andale Mono",
2829         "Courier New", monospace;
2830   margin: 1ex 0ex 1ex 0ex ;
2831   padding: .5ex 0pt .5ex 0pt ;
2832   overflow-x: auto;
2833 }
2834
2835 section.textbody>pre.programlisting {
2836 border-top: 1px solid silver ;
2837 border-bottom: 1px solid silver ;
2838 }
2839
2840
2841 div.displaymath {
2842     text-align: center ;
2843 }
2844
```

```
2845 div.displaymathnumbered {
2846     text-align: right ;
2847     margin-left: 5% ;
2848     margin-right: 5% ;
2849     min-width: 2.5in ;
2850 }
2851
2852 @media all and (min-width: 400px) {
2853     div.displaymathnumbered {
2854         margin-left: 10% ;
2855         margin-right: 10% ;
2856     }
2857 }
2858
2859 @media all and (min-width: 800px) {
2860     div.displaymathnumbered {
2861         margin-right: 20% ;
2862     }
2863 }
2864
2865 @media all and (min-width: 1200px) {
2866     div.displaymathnumbered {
2867         margin-right: 30% ;
2868     }
2869 }
2870
2871
2872 .inlineprogramlisting {
2873   font-family: "DejaVu Mono", "Bitstream Vera Mono", "Lucida Console",
2874         "Nimbus Mono L", "Liberation Mono", "FreeMono", "Andale Mono",
2875         "Courier New", monospace;
2876   overflow-x: auto;
2877 }
2878
2879 span.listinglabel {
2880     display: inline-block ;
2881     font-size: 70% ;
2882     width: 4em ;
2883     text-align: right ;
2884     margin-right: 2em ;
2885 }
2886
2887 div.abstract {
2888   margin: 2em 5% 2em 5% ;
2889   padding: 1ex 1em 1ex 1em ;
2890 /*  font-weight: bold ; */
2891   font-size: 90% ;
2892     text-align: left ;
2893 }
2894
2895 div.abstract dl {line-height:1.5;}
2896 div.abstract dt {color:#304070;}
2897
2898 div.abstracttitle{
2899     font-family: "URW Classico", Optima, "Linux Biolinum O",
2900         "Linux Libertine O", "Liberation Serif", "Nimbus Roman No 9 L",
2901         "FreeSerif", "Hoefler Text", Times, "Times New Roman", serif;
2902     font-weight:bold;
2903     font-size:1.25em;
2904     text-align: center ;
```

```
}

span.abstractrunintitle{
    font-family: "URW Classico", Optima, "Linux Biolinum O",
        "Linux Libertine O", "Liberation Serif", "Nimbus Roman No 9 L",
        "FreeSerif", "Hoefler Text", Times, "Times New Roman", serif;
    font-weight:bold;
}


.verbatim {
    overflow-x: auto ;
}

.alltt {
    overflow-x: auto ;
}


.bverbatim {
    margin: 1ex 0pt 1ex 0pt ;
    padding: .5ex 0pt .5ex 0pt ;
    overflow-x: auto ;
}

.lverbatim {
    margin: 1ex 0pt 1ex 0pt ;
    padding: .5ex 0pt .5ex 0pt ;
    overflow-x: auto ;
}

.fancyvrb {
    font-size:.85em ;
    margin: 3ex 0pt 3ex 0pt
}

.fancyvrblabel {
    font-size: .85em ;
    text-align: center ;
    font-weight: bold ;
    margin-top: 1ex ;
    margin-bottom: 1ex ;
}


.verse {
    font-family: "Linux Libertine Mono O", "Lucida Console",
        "Droid Sans Mono", "DejaVu Mono", "Bitstream Vera Mono",
        "Liberation Mono", "FreeMono", "Andale Mono",
        "Nimbus Mono L", "Courier New", monospace;
    margin-left: 1em ;
}


div.singlespace { line-height: 1.2 ; }
div.onehalfspace { line-height: 1.5 ; }
div.doublespace { line-height: 2 ; }


/* Word processor format output: */
```

```
2965 div.wpfigure { border: 1px solid red ; margin: .5ex ; padding: .5ex ; }
2966 div.wptable { border: 1px solid blue ; margin: .5ex ; padding: .5ex ; }
2967 div.wpminipage { border: 1px solid green ; margin: .5ex ; padding: .5ex ;}
2968
2969
2970
2971
2972 /* Minipage environments, vertically aligned to top, center, bottom: */
2973 .minipage, .fminipage, .fcolorminipage {
2974     /* display: inline-block ; */
2975         /* Mini pages which follow each other will be tiled. */
2976     text-align:left;
2977     margin: .25em .25em .25em .25em;
2978     padding: .25em .25em .25em .25em;
2979     display: inline-flex;
2980     flex-direction: column ;
2981     overflow: auto;
2982 }
2983
2984 .inlineminipage {
2985     display: inline-block ;
2986     text-align: left
2987 }
2988
2989 /* Paragraphs in the flexbox did not collapse their margins. */
2990 /* Have not yet researched this. */
2991 .minipage p {margin: .75ex 0em .75ex 0em ;}
2992
2993 .fboxBlock .minipage, .colorbox .minipage, .colorboxBlock .minipage,
2994 .fcolorbox .minipage, .fcolorboxBlock .minipage
2995     {border: none ; background: none;}
2996
2997 .fbox, .fboxBlock { border: 1px solid black ; padding: 4pt }
2998
2999 .fbox, .fboxBlock, .fcolorbox, .fcolorboxBlock, .colorbox, .colorboxBlock,
3000 .fminipage, .fcolorminipage
3001     {display: inline-block}
3002
3003 .shadowbox, .shabox {
3004    border: 1px solid black;
3005     box-shadow: 3px 3px 3px #808080 ;
3006      border-radius: 0px ;
3007     padding: .4ex .3em .4ex .3em ;
3008     margin: 0pt .3ex 0pt .3ex ;
3009   display: inline-block ;
3010 }
3011
3012 .doublebox {
3013    border: 3px double black;
3014      border-radius: 0px ;
3015     padding: .4ex .3em .4ex .3em ;
3016     margin: 0pt .3ex 0pt .3ex ;
3017   display: inline-block ;
3018 }
3019
3020 .ovalbox, .Ovalbox {
3021    border: 1px solid black;
3022      border-radius: 1ex ;
3023     padding: .4ex .3em .4ex .3em ;
3024     margin: 0pt .3ex 0pt .3ex ;
```

```
  display: inline-block ;
}

.Ovalbox { border-width: 2px ; }

.framebox {
   border: 1px solid black;
     border-radius: 0px ;
    padding: .3ex .2em 0ex .2em ;
    margin: 0pt .1ex 0pt .1ex ;
  display: inline-block ;
}


/* mdframed, tcolorbox, shadebox packages */
.mdframed, .tcolorbox, .shadebox {
    padding: 0ex ;
    margin: 2ex 0em 2ex 0em ;
    border: 1px solid black ;
}

.tcolorbox {
    border-radius: 10pt ;
    margin: 2ex 1em 2ex 1em ;
}

.mdframed p, .tcolorbox p { padding: 0ex .5em 0ex .5em ; }

.mdframed dl, .tcolorbox dl { padding: 1ex .5em 0ex .5em ; }

.mdframedtitle, .tcolorboxtitle {
    padding: .5ex 0pt 0pt 0pt ;
    border-radius: 10pt 10pt 0pt 0pt ;
    display: block ;
    margin-bottom: 1ex ;
    border-bottom: 1px solid silver ;
}

.tcolorboxsubtitle .tcolorbox {
    margin: 2ex 0em 2ex 0em ;
    border-radius: 0pt ;
}

.mdframedsubtitle {
    display: block ;
}

.mdframedsubsubtitle {
    display: block ;
}

.mdtheorem {
    padding: 0ex .5em 0ex .5em ;
    margin: 3ex 5% 3ex 5% ;
}


/* framed package */
.framed, pre.boxedverbatim, fcolorbox {
    margin: 3ex 0em 3ex 0em ;
```

```
   border: 1px solid black;
     border-radius: 0px ;
    padding: .3ex 1em 0ex 1em ;
  display: block ;
}

.shaded {
    margin: 3ex 0em 3ex 0em ;
    padding: .3ex 1em .3ex 1em ;
    display: block ;
}

.snugframed {
    margin: 3ex 0em 3ex 0em ;
   border: 1px solid black;
     border-radius: 0px ;
  display: block ;
}

.framedleftbar {
    margin: 3ex 0em 3ex 0em ;
   border-left: 3pt solid black;
     border-radius: 0px ;
    padding: .3ex .2em .3ex 1em ;
  display: block ;
}

.framedtitle {
    margin: 0em ;
    padding: 0em ;
    font-size: 130%
}

.framedtitle p { padding: .3em }


/* For the niceframe package: */

div.niceframe, div.curlyframe, div.artdecoframe, div.generalframe {
    padding: 1ex ;
    margin: 2ex auto ;
    border-radius: 2ex ;
}

div.niceframe {
    border: 6px groove black ;
}

div.curlyframe {
    border-left: 3px dotted black ;
    border-right: 3px dotted black ;
    border-radius: 6ex ;
}

div.artdecoframe {
    border-left: 10px double black ;
    border-right: 10px double black ;
    border-radius: 6ex ;
}

```

```
3145 div.generalframe {
3146     border: 6px groove black ;
3147 }
3148
3149
3150 /* For beamerarticle: */
3151 div.beamerframe {
3152     margin: 3ex 1em 3ex 1em ;
3153    border: 1px solid gray;
3154      border-radius: 0px ;
3155     padding: .3ex 1em 0ex 1em ;
3156   display: block ;
3157 }
3158
3159
3160 dl {
3161   margin: 1ex 2em 1ex 0em;
3162   line-height: 1.3;
3163 }
3164
3165 dl dt {
3166     display: block ;
3167     float:left ;
3168     font-weight: bold;
3169     padding-right: 1em ;
3170 }
3171
3172 dl dd { display: block ; }
3173
3174 dl dd:after { content: "" ; display: block ; clear: both }
3175
3176 dl dd p { margin-top: 0em; }
3177
3178 dd ul, dd ol, dd dl {
3179     clear: both ;
3180 /*    padding-top: 1ex ; */
3181 }
3182
3183
3184 nav {
3185     font-family: "URW Classico", Optima, "Linux Biolinum O",
3186         "DejaVu Sans", "Bitstream Vera Sans",
3187         Geneva, Verdana, sans-serif ;
3188     margin-bottom: 4ex ;
3189 }
3190
3191 nav p {
3192     line-height: 1.2 ;
3193     margin-top:.5ex ;
3194     margin-bottom:.5ex;
3195     font-size: .9em ;
3196 }
3197
3198
3199
3200 img, img.hyperimage, img.borderimage {
3201     max-width: 600px;
3202     border: 1px solid silver;
3203     box-shadow: 3px 3px 3px #808080 ;
3204     padding: .5% ;
```

```
3205     margin: .5% ;
3206     background: none ;
3207 }
3208
3209 img.inlineimage{
3210     padding: 0px ;
3211     box-shadow: none ;
3212     border: none ;
3213     background: none ;
3214     margin: 0px ;
3215     display: inline-block ;
3216     border-radius: 0px ;
3217 }
3218
3219 img.logoimage{
3220     max-width: 300px ;
3221     box-shadow: 3px 3px 3px #808080 ;
3222     border: 1px solid black ;
3223     background:none ;
3224     padding:0 ;
3225     margin:.5ex ;
3226     border-radius: 10px ;
3227 }
3228
3229
3230 .section {
3231 /*
3232     To have each section float relative to each other:
3233 */
3234 /*
3235     display: block ;
3236     float: left ;
3237     position: relative ;
3238     background: white ;
3239     border: 1px solid silver ;
3240     padding: .5em ;
3241 */
3242     margin: 0ex .5em 0ex .5em ;
3243     padding: 0 ;
3244 }
3245
3246
3247 figure {
3248     margin: 5ex auto 5ex auto ;
3249     padding: 1ex 1em 1ex 1em ;
3250     overflow-x: auto ;
3251 }
3252
3253
3254 /* To automatically center images in figures: */
3255 /*
3256 figure img.inlineimage {
3257     margin: 0ex auto 0ex auto ;
3258     display: block ;
3259 }
3260 */
3261
3262 /* To automatically center minipages in figures: */
3263 /*
3264 figure div.minipage, figure div.minipage div.minipage {
```

```
    margin: 1ex auto 1ex auto ;
    display: block ;
}
*/

figure figure { margin: 0pt }

figure div.minipage p { font-size: 85% ; }

figure.subfigure, figure.subtable  {
    display: inline-block ; margin: 3ex 1em 3ex 1em ;
}

div.figurecaption .minipage { margin:0 ; padding: 0 }

/* for subcaptions: */
figure div.minipage div.figurecaption {
    max-width: 100% ;   /* fallback if min() does not work */
    max-width: min(30em,100%)
}

div.minipage figure { border: none ; box-shadow: none ; }
div.minipage figure.table { margin: 0ex }
div.minipage div.footnotes { margin: 1ex 2em 0ex 2em }

div.floatrow { text-align: center; }

div.floatrow figure { display: inline-block ; margin: 1ex 2% ; }

div.floatfoot { font-size: .85em ;
    border-top: 1px solid silver ; line-height: 1.2 ; }

/* Center if only one line, "start" align if more than one line: */
div.figurecaption , .lstlistingtitle {
    font-size: .85em ;
    font-weight: bold ;
    text-align: start ;
    margin: 1ex auto;
    width: max-content;
    max-width: 100%;
}

/* A marginblock is small, so always center and don't mess with the width. */
div.marginblock div.figurecaption {
    width: 100% ;
    text-align: center ;
}

figure.subfigure div.figurecaption, figure.subtable div.figurecaption  {
    border-bottom: none ; background: none ;
}

div.nonfloatcaption {
    margin: 1ex auto 1ex auto ;
    font-size: .85em ;
    text-align: center ;
    font-weight: bold ;
}

/* For a \RawCaption inside a minipage inside a figure's floatrow: */
```

```
figure div.floatrow div.minipage div.figurecaption {
    border: none ;
    background: none ;
}


/* For packages such as float, rotfloat, and algorithm2e: */

figure.boxed, figure.boxruled {
    border: 1px solid black ;
}

figure.ruled {
    border-top: 1px solid black ;
    border-bottom: 1px solid black ;
    border-left: 0px ;
    border-right: 0px ;
    border-radius: 0px ;
    background: none ;
    box-shadow: none ;
}

figure.ruled div.figurecaption, figure.boxruled div.figurecaption {
    border-top: 1px solid silver ;
    border-bottom: 1px solid silver ;
}


table {
    margin: 1ex auto 1ex auto ;
    border-collapse: separate ;
    border-spacing: 0px ;
    line-height: 1.3 ;
    }

table > tbody > tr.hline > td {border-top: 1px solid #808080 ; margin-top: 0ex ;
    margin-bottom: 0ex ; } /* for \hline */

tr.tbrule td {border-top: 1px solid black ; margin-top: 0ex ;
    margin-bottom: 0ex ; } /* for \toprule, \bottomrule */

td {padding: .5ex .5em .5ex .5em ;}

table td.tdl { text-align: left ; vertical-align: middle ; }
table td.tdc { text-align: center ; vertical-align: middle ; }
table td.tdat { text-align: center ; vertical-align: middle ; padding: 0px ; margin: 0px ; }
table td.tdbang { text-align: center ; vertical-align: middle ; }
table td.tdr { text-align: right ; vertical-align: middle ; }
table td.tdp { text-align: left ; vertical-align: bottom ; }
table td.tdm { text-align: left ; vertical-align: middle ; }
table td.tdb { text-align: left ; vertical-align: top ; }

table td.tvertbarl { border-left: 1px solid black }
table td.tvertbarldouble { border-left: 4px double black }
table td.tvertbarr { border-right: 1px solid black }
table td.tvertbarrdouble { border-right: 4px double black }

table td.tvertbarldash { border-left: 1px dashed black }
table td.tvertbarldoubledash { border-left: 2px dashed black }
table td.tvertbarrdash { border-right: 1px dashed black }
```

```
table td.tvertbarrdoubledash { border-right: 2px dashed black }

table td.tdcenter { text-align: center}
table td.tdleft { text-align: left}
table td.tdright { text-align: right}


/* for cmidrules: */
table td.tdrule {
    border-top: 1px solid #A0A0A0 ;
}

table td.tdrulel {
    border-top-left-radius:.5em ;
    border-top: 1px solid #A0A0A0 ;
}

table td.tdruler {
    border-top-right-radius:.5em ;
    border-top: 1px solid #A0A0A0 ;
}

table td.tdrulelr {
    border-top-left-radius:.5em ;
    border-top-right-radius:.5em ;
    border-top: 1px solid #A0A0A0 ;
}


/* Margins of paragraphs inside table cells: */
td.tdp p , td.tdprule p , td.tdP p , td.tdPrule p { padding-top: 1ex ;
    padding-bottom: 1ex ; margin: 0ex ; }
td.tdm p , td.tmbrule p , td.tdM p , td.tdMrule p { padding-top: 1ex ;
    padding-bottom: 1ex ; margin: 0ex ; }
td.tdb p , td.tdbrule p , td.tdB p , td.tdBrule p { padding-top: 1ex ;
    padding-bottom: 1ex ; margin: 0ex ; }

td.tdp , td.tdprule , td.tdP , td.tdPrule
    { padding: 0ex .5em 0ex .5em ; }
td.tdm , td.tdmrule , td.tdM , td.tdMrule
    { padding: 0ex .5em 0ex .5em ; }
td.tdb , td.tdbrule , td.tdB , td.tdBrule
    { padding: 0ex .5em 0ex .5em ; }


/* table notes: */
.tnotes {
    margin: 0ex 5% 1ex 5% ;
    padding: 0.5ex 1em 0.5ex 1em;
    font-size:.80em;
    text-align: left ;
}

.minipage .tnotes {
    margin: 0pt ;
    padding: 0pt ;
}

.tnotes dl dt p {margin-bottom:0px;}

```

```
.tnoteitemheader {margin-right: 1em;}


/* for colortbl and cell color */
div.cellcolor {
    width: 100% ;
    padding: .5ex .5em .5ex .5em ;
    margin: -.5ex -.5em -.5ex -.5em ;
}


/* for lyluatex */
span.lyluatex {
    display: inline-block ;
}

div.lyluatex p span.lateximagesource img {
    display: block ;
    margin-top: 3ex ;
    margin-bottom: 3ex ;
}


/* for bigdelim */
.ldelim, .rdelim { font-size: 200% }


/* center, flushleft, flushright environments */
div.center{text-align:center;}
div.center table {margin-left:auto;margin-right:auto;}
div.flushleft{text-align:left;}
div.flushleft table {margin-left:0em ; margin-right:auto;}
div.flushright{text-align:right;}
div.flushright table {margin-left:auto ; margin-right: 0em ;}


/* Fancybox */
div.Btrivlist table tr td {
    padding: .2ex 0em ;
}


/* program listing callouts: */
span.callout {
     font-family: "DejaVu Sans", "Bitstream Vera Sans",
        Geneva, Verdana, sans-serif ;
    border-radius: .5em;
    background-color:black;
    color:white;
    padding:0px .25em 0px .25em;
    margin: 0 ;
    font-weight: bold;
    font-size:.72em ;
}

div.programlisting pre.verbatim span.callout{
    font-size: .85em ;
}

span.verbatim {
```

```
    font-family: "DejaVu Mono", "Bitstream Vera Mono", "Lucida Console",
        "Nimbus Mono L", "Liberation Mono", "FreeMono", "Andale Mono",
        "Courier New", monospace;
}



div.titlehead
{
    text-align: left ;
    font-style: normal ;
    font-weight: normal ;
    font-style: normal ;
    font-size: .8em ;
    margin: 1ex 0em 1ex 0em ;
}

div.subject
{
    text-align: center ;
    font-style: normal ;
    font-weight: bold ;
    font-style: normal ;
    font-size: .8em ;
    margin: 1ex 0em 1ex 0em ;
}

div.published
{
    text-align: center ;
    font-variant: normal ;
    font-style: italic ;
    font-size: 1em ;
    margin: 1ex 0em 1ex 0em ;
}

div.subtitle
{
    text-align: center ;
    font-variant: normal ;
    font-style: italic ;
    font-size: 1.25em ;
    margin: 1ex 0em 1ex 0em ;
}

div.subtitle p { margin: 1ex ; }

div.author
{
    text-align: center ;
    font-variant: normal ;
    font-style: normal ;
    font-size: 1em ;
    margin: 1ex 0em 1ex 0em ;
}

div.oneauthor {
    display: inline-block ;
    margin: 0ex 1em 0ex 1em ;
}
```

```
3565
3566 /*
3567 div.author table {
3568     margin: 1ex auto 0ex auto ;
3569     background: none ;
3570 }
3571
3572 div.author table tbody tr td { padding: .25ex ; }
3573 */
3574
3575 span.affiliation {font-size: .85em ; font-variant: small-caps; }
3576
3577 div.titledate {
3578     text-align: center ;
3579     font-size: .85em ;
3580     font-style: italic;
3581     margin: 1ex 0em 1ex 0em ;
3582 }
3583
3584
3585 nav.topnavigation{
3586     text-align: left ;
3587     padding: 0.5ex 1em 0.5ex 1em ;
3588 /*     margin: 2ex 0em 3ex 0em ; */
3589     margin: 0 ;
3590     border-bottom: 1px solid silver ;
3591     border-top: 1px solid silver ;
3592     clear:both ;
3593 }
3594
3595 nav.botnavigation{
3596     text-align: left ;
3597     padding: 0.5ex 1em 0.5ex 1em ;
3598 /*     margin: 3ex 0em 2ex 0em ; */
3599     margin: 0 ;
3600     border-top: 1px solid silver ;
3601     border-bottom: 1px solid silver ;
3602     clear:both ;
3603 }
3604
3605
3606 header {
3607     line-height: 1.2 ;
3608     font-size: 1em ;
3609     border-bottom: 1px solid silver ;
3610     margin: 0px ;
3611     padding: 2ex 1em 2ex 1em ;
3612     text-align:left ;
3613 }
3614
3615
3616 footer {
3617     font-size: .85em ;
3618     line-height: 1.2 ;
3619     margin-top: 1ex ;
3620     border-top: 1px solid silver ;
3621     padding: 2ex 1em 2ex 1em ;
3622     clear:both ;
3623     text-align:left ;
3624 }
```

```
3625
3626
3627 /* for \LinkHome, \LinkPrevious, and \LinkNext: */
3628 a.linkhome { font-weight:bold ; font-size: 1em ;}
3629
3630
3631 div.lateximagesource { padding: 0px ; margin: 0px ; display: none; }
3632
3633 img.lateximage{
3634     padding: 0pt ;
3635     margin: 0pt ;
3636     box-shadow: none ;
3637     border: none ;
3638     background: none ;
3639     max-width: 100% ;
3640     border-radius: 0ex ;
3641     border: none ;
3642 }
3643
3644
3645 div.sidetoccontainer {
3646     font-family: "DejaVu Serif", "Bitstream Vera Serif",
3647         "Lucida Bright", Georgia, serif;
3648     float: left ;
3649     width: 19%; /* room for border-right next to 80% main */
3650     margin: 0pt 0em 3ex 0pt ;
3651     border-right: 1px solid silver;
3652     border-bottom: 1px solid silver;
3653     background: #FAF7F4 ;
3654     font-size:.9em ;
3655     border-radius: 0px 0px 20px 0px ;
3656 }
3657
3658 div.sidetoccontents {
3659     overflow-y: auto ;
3660     width: 100% ;
3661     text-align: left ;
3662 }
3663
3664
3665 nav.sidetoc p {line-height:1.2 ; margin: 1ex .5em 1ex .5em ;
3666     text-indent: 0 ; }
3667
3668 nav.sidetoc p a {color:black ; font-size: .7em ;}
3669
3670 div.sidetoctitle {font-size: 1.2em; font-weight:bold; text-align:center;
3671     border-bottom: 1px solid silver ;    }
3672
3673 nav.sidetoc a:hover {text-decoration: underline ; }
3674
3675
3676
3677 section.textbody { margin: 0ex 1em 0ex 1em ;}
3678
3679
3680 div.multicolsheading { -webkit-column-span: all;
3681     -moz-column-span: all; column-span: all; }
3682 div.multicols {
3683     -webkit-columns: 3 auto ;
3684     -moz-columns: 3 auto ;
```

```
3685     columns: 3 auto ;
3686 }
3687 div.multicols p {margin-top: 0ex}
3688
3689
3690 /* Used for xfrac and nicefrac: */
3691 span.numerator {
3692     font-size: 60% ;
3693     vertical-align: .4em ;
3694 }
3695
3696 span.denominator {
3697     font-size: 60%
3698 }
3699
3700
3701 /* Used for algorithm2e: */
3702 div.alg2evline{
3703     margin-left: 1em ;
3704     padding-left: 1em ;
3705     border-left: 1px solid black ;
3706     border-radius: 0px 0px 0px 1ex ;
3707 }
3708
3709 div.alg2evsline{
3710     margin-left: 1em ;
3711     padding-left: 1em ;
3712     border-left: 1px solid black ;
3713 }
3714
3715 div.alg2enoline{
3716     margin-left: 1em ;
3717     padding-left: 1em ;
3718 }
3719
3720 span.alg2elinenumber{
3721     margin-right: .5em ;
3722     font-size: 60% ;
3723     color: red ;
3724 }
3725
3726
3727 /* Used for algorithmicx: */
3728 span.floatright { float: right ; }
3729
3730
3731 /* keyfloat and tocdata: */
3732 .floatnotes {
3733     margin: 0ex 5% 0ex 5% ;
3734     padding: 0ex 1em 0ex 1em ;
3735     font-size:.80em ;
3736     text-align: left ;
3737 }
3738
3739 .authorartist{
3740     display:block ;
3741     font-size:.70em ;
3742     font-style: italic;
3743 }
3744
```

```
nav .authorartist{ display:inline; }


/* Native LaTeX theorems: */

.theoremcontents {
    font-style: italic; margin-top: 3ex ; margin-bottom: 3ex ;
}

.theoremlabel {
    font-style: normal; font-weight: bold ; margin-right: .5em ;
}


/* theorem, amsthm, and ntheorem packages */

span.theoremheader,
span.theoremheaderplain,
span.theoremheaderdefinition,
span.theoremheaderbreak,
span.theoremheadermarginbreak,
span.theoremheaderchangebreak,
span.theoremheaderchange,
span.theoremheadermargin
{
    font-style:normal ; font-weight: bold ; margin-right: 1em ;
}

span.amsthmnameplain,
span.amsthmnamedefinition,
span.amsthmnumberplain,
span.amsthmnumberdefinition
{
    font-style:normal ; font-weight: bold ;
}


span.amsthmnameremark,
span.amsthmnumberremark
{font-style:italic ; font-weight: normal ; }


span.amsthmnoteplain,
span.amsthmnotedefinition
{font-style:normal ;}


span.theoremheaderremark,
span.theoremheaderproof,
span.amsthmproofname
{font-style:italic ; font-weight: normal ; margin-right: 1em ; }

span.theoremheadersc
{
    font-style:normal ;
    font-variant: small-caps ;
    font-weight: normal ;
    margin-right: 1em ;
```

```
}

.theoremendmark {float:right}

div.amsthmbodyplain, div.theorembodyplain, div.theorembodynonumberplain,
div.theorembodybreak, div.theorembodynonumberbreak,
div.theorembodymarginbreak,
div.theorembodychangebreak,
div.theorembodychange,
div.theorembodymargin
{
    font-style:italic;
    margin-top: 3ex ; margin-bottom: 3ex ;
}

div.theorembodydefinition, div.theorembodyremark, div.theorembodyproof,
div.theorembodyplainupright, nonumberplainuprightsc,
div.amsthmbodydefinition, div.amsthmbodyremark,
div.amsthmproof
{
    font-style: normal ;
    margin-top: 3ex ; margin-bottom: 3ex ;
}

span.amsthmnoteremark {}


/* thmbox */

.thmbox {
    font-style: italic; margin-top: 3ex ; margin-bottom: 3ex ;
    border: 1px solid gray ;
    padding: 1ex ;
}

.thmboxtitle {
    font-style: normal; font-weight: bold ; margin-right: .5em ;
    border-bottom: 1px solid gray ;
}

span.thmboxproofname, span.thmboxexamplename {
    font-weight: bold ;
}

div.thmboxproof, div.thmboxexample {
    font-size: 0.85em ;
    margin: 2ex ;
}

div.thmboxleftbar {
    border-left: 2px solid black ;
    padding-left: 1em ;
}



/* For the backnaur package: */
div.backnaur {
    display: block ;
    margin: 2ex 2em 2ex 2em ;
```

```
}

div.backnaur p {
    margin: .25ex 0ex .25ex 0ex ;
}

div.backnaurprod {
    display: inline-block ;
    min-width: 8em ;
    text-align:right ;
}

div.backnaurdesc {
    display: inline-block ;
}


/* For the notes package: */
div.notesimportantnote, div.noteswarningnote, div.notesinformationnote {
    clear: both ;
    margin: 2ex 2em 2ex 2em ;
    border: 1px solid silver ;
}

div.notesicon {
    float:left ;
    display: inline-block ;
    background: gold ;
    padding: 0ex 1em 0ex 1em ;
    margin-right: 1em ;
    font-weight: bold ;
}

div.notescontents { font-style: italic }


/* nolbreaks package: */
span.nolbreaks { white-space: nowrap ; }


/*
For CSS LaTeX and related logos:
Based on spacing demonstrated by the metafont package.

The subscripts are shrunk instead of lowered below the baseline,
to avoid browser rendering errors with the line height in lists, etc.
*/

.latexlogofont {
    font-family: "Linux Libertine O", "Nimbus Roman No 9 L",
        "FreeSerif", "Hoefler Text", Times, "Times New Roman", serif;
    font-variant: normal ;
}

.latexlogo {
    font-family: "Linux Libertine O", "Nimbus Roman No 9 L",
        "FreeSerif", "Hoefler Text", Times, "Times New Roman", serif;
}

.latexlogosup {
```

```
  text-transform: uppercase;
  letter-spacing: .03em ;
  font-size: 0.7em;
  vertical-align: 0.25em;
  margin-left: -0.4em;
  margin-right: -0.15em;
}

.latexlogosub {
  text-transform: uppercase;
/*  vertical-align: -0.27ex; */
  margin-left: -0.08em;
  margin-right: -0.07em;
/*  font-size: 1em; */
    font-size: .7em ;
}

.latexlogotwoe {
  text-transform: none ;
  font-variant-numeric: oldstyle-nums ;
}

.latexlogotwoesub {
  font-style:italic ;
/*  vertical-align: -0.27ex; */
  margin-left: -0.11em;
  margin-right: -0.1em;
/*  font-size: 1em; */
    font-size: .7em ;
}

.xelatexlogo {
    font-family: "Linux Libertine O", "Nimbus Roman No 9 L",
        "FreeSerif", "Hoefler Text", Times, "Times New Roman", serif;
    letter-spacing: .03em ;
}

.xelatexlogosub {
/*  vertical-align: -0.27ex; */
  margin-left: -0.0667em;
  margin-right: -.05em;
/*  font-size: 1em; */
    font-size: .7em ;
  letter-spacing: .03em ;
}

.amslogo {
    font-family: "TeXGyreChorus","URW Chancery L",
        "Apple Chancery","ITC Zapf Chancery","Monotype Corsiva",
        "Linux Libertine O", "Nimbus Roman No 9 L",  "FreeSerif",
        "Hoefler Text", Times, "Times New Roman", serif ;
    font-style: italic ;
}

.lyxlogo {
    font-family: "URW Classico", Optima, "Linux Biolinum O",
        "DejaVu Sans", "Bitstream Vera Sans", Geneva,
        Verdana, sans-serif ;
}

```

```
3985
3986 /* Only display top and bottom navigation if a small screen: */
3987 /* Hide the sidetoc if a small screen: */
3988 nav.topnavigation { display:none; }
3989 nav.botnavigation { display:none; }
3990
3991 /* Only display the sidetoc's webpage title if a small screen */
3992 span.sidetocthetitle { display: none }
3993
3994 @media screen and (max-width: 100em) {
3995     div.multicols {
3996         -webkit-columns: 2 auto ;
3997         -moz-columns: 2 auto ;
3998         columns: 2 auto ;
3999     }
4000 }
4001
4002 @media screen and (max-width: 50em) {
4003     div.sidetoccontainer {
4004         float: none ;
4005         width: 100% ;
4006         padding: 0 ;
4007         border-radius: 0 ;
4008         border-bottom: 1px solid black ;
4009         border-top: 1px solid black ;
4010         box-shadow: none ;
4011     }
4012     span.sidetocthetitle { display: inline }
4013     nav.topnavigation { display:block }
4014     nav.botnavigation { display:block }
4015     main.bodycontainer { width: 100% }
4016     .marginpar {
4017         max-width: 100%;
4018         float: none;
4019         display:block ;
4020         margin: 1ex 1em 1ex 1em ;
4021     }
4022     div.multicols {
4023         -webkit-columns: 1 auto ;
4024         -moz-columns: 1 auto ;
4025         columns: 1 auto ;
4026     }
4027 }
4028
4029 @media print {
4030     body {
4031         font-family: "Linux Libertine O",
4032         "DejaVu Serif", "Bitstream Vera Serif",
4033         "Liberation Serif", "Nimbus Roman No 9 L",
4034         "FreeSerif", "Hoefler Text", Times, "Times New Roman", serif;
4035     }
4036     div.sidetoccontainer { display:none; }
4037     nav.topnavigation { display: none; }
4038     nav.botnavigation { display: none; }
4039     main.bodycontainer { width: 100% }
4040 }
4041
4042 @media handheld {
4043     div.sidetoccontainer { display:none; }
4044     nav.topnavigation { display:block }
```

```
    nav.botnavigation { display:block }
    main.bodycontainer { width: 100% }
}

@media projection {
    div.sidetoccontainer { display:none; }
    nav.topnavigation { display:block }
    nav.botnavigation { display:block }
    main.bodycontainer { width: 100% }
}
\end{filecontents*}
% \end{Verbatim}% for syntax highlighting
\end{LWRwriteconf}
```

40.5 lwarp_sagebrush.css

File lwarp_sagebrush.css

An optional CSS which may be used for a semi-modern appearance.

If used, this must be present both when compiling the project and also when distributing the HTML files.

Config file:

```
\begin{LWRwriteconf}
\begin{filecontents*}[overwrite]{lwarp_sagebrush.css}
@import url("lwarp.css") ;


A:link {color:#105030 ; text-decoration: none ; }
A:visited {color:#705030 ; text-shadow:1px 1px 2px #a0a0a0;}
A:hover {color:#006000 ; text-decoration: underline ; text-shadow:0px 0px 2px #a0a0a0;}
A:active {color:#00C000 ; text-shadow:1px 1px 2px #a0a0a0;}


div.book, h1, h2, h3, h4, h5, h6, span.paragraph, span.subparagraph
{
    font-family: "URW Classico", Optima, "Linux Biolinum O",
        "Linux Libertine O", "Liberation Serif",
        "Nimbus Roman No 9 L",  "FreeSerif",
        "Hoefler Text", Times, "Times New Roman", serif;
    font-variant: small-caps ;
    font-weight: normal ;
    color: #304070 ;
    text-shadow: 2px 2px 3px #808080;
}

h1 {    /* title of the entire website, used on each page */
    font-variant: small-caps ;
    color: #304070 ;
    text-shadow: 2px 2px 3px #808080;
    background-color: #F7F7F0 ;
    background-image: linear-gradient(to bottom, #F7F7F0, #C0C0C4);
}

h1 {
  border-bottom: 1px solid #304070;
/*  border-top: 2px solid #304070; */
}

```

```
h2 {
  border-bottom: 1px solid #304070;
/*  border-top: 2px solid #304070; */
    background-color: #F7F7F0 ;
    background-image: linear-gradient(to bottom, #F7F7F0, #DAD0C0);
}



div.abstract {
    background: #f5f5eb ;
    background-image: linear-gradient(to bottom, #f5f5eb, #C8C8B8);

  border: 1px solid silver;
    border-radius: 1em ;
}
div.abstract dl {line-height:1.5;}
div.abstract dt {color:#304070;}

div.abstracttitle{
    font-family: "URW Classico", Optima, "Linux Biolinum O",
        "Linux Libertine O", "Liberation Serif", "Nimbus Roman No 9 L",
        "FreeSerif", "Hoefler Text", Times, "Times New Roman", serif;
    font-weight:bold;
    font-variant: small-caps ;
    font-size:1.5em;
    border-bottom: 1px solid silver ;
    color: #304070 ;
    text-align: center ;
    text-shadow: 1px 1px 2px #808080;
}

span.abstractrunintitle{
    font-family: "URW Classico", Optima, "Linux Biolinum O",
        "Linux Libertine O", "Liberation Serif", "Nimbus Roman No 9 L",
        "FreeSerif", "Hoefler Text", Times, "Times New Roman", serif;
    font-weight:bold;
}


div.epigraph, div.dictum {
    background: #f5f5eb ;
    background-image: linear-gradient(to bottom, #f5f5eb, #C8C8B8);

    border: 1px solid silver ;
    border-radius: 1ex ;
    box-shadow: 3px 3px 3px #808080 ;
}


.example {
    background-color: #f5f5eb ;
    background-image: linear-gradient(to bottom, #f5f5eb, #C8C8B8);

}

div.exampletitle{
    font-family: "URW Classico", Optima, "Linux Biolinum O",
        "Linux Libertine O", "Liberation Serif", "Nimbus Roman No 9 L",
```

```
4155         "FreeSerif", "Hoefler Text", Times, "Times New Roman", serif;
4156     font-weight:bold;
4157     font-variant: small-caps ;
4158     border-bottom: 1px solid silver ;
4159     color: #304070 ;
4160     text-align: center ;
4161     text-shadow: 1px 1px 2px #808080;
4162 }
4163
4164
4165 .sidebar {
4166     background-color: #f5f5eb ;
4167     background-image: linear-gradient(to bottom, #f5f5eb, #C8C8B8);
4168
4169 }
4170
4171 div.sidebartitle{
4172     font-family: "URW Classico", Optima, "Linux Biolinum O",
4173         "Linux Libertine O", "Liberation Serif", "Nimbus Roman No 9 L",
4174         "FreeSerif", "Hoefler Text", Times, "Times New Roman", serif;
4175     font-weight:bold;
4176     font-variant: small-caps ;
4177     border-bottom: 1px solid silver ;
4178     color: #304070 ;
4179     text-align: center ;
4180     text-shadow: 1px 1px 2px #808080;
4181 }
4182
4183
4184 .fancyvrblabel {
4185     font-family: "URW Classico", Optima, "Linux Biolinum O",
4186         "Linux Libertine O", "Liberation Serif", "Nimbus Roman No 9 L",
4187         "FreeSerif", "Hoefler Text", Times, "Times New Roman", serif;
4188     font-weight:bold;
4189     font-variant: small-caps ;
4190     font-size: 1.5em ;
4191     color: #304070 ;
4192     text-align: center ;
4193     text-shadow: 1px 1px 2px #808080;
4194 }
4195
4196 div.minipage {
4197     background-color: #eeeee7 ;
4198     border: 1px solid silver ;
4199     border-radius: 1ex ;
4200 }
4201
4202 table div.minipage { background: none ; border: none ; }
4203
4204 div.framebox div.minipage {border:none ; background:none}
4205
4206 section.textbody > div.minipage {
4207     box-shadow: 3px 3px 3px #808080 ;
4208 }
4209
4210 div.fboxBlock div.minipage { box-shadow: none ; }
4211
4212 .framed .minipage , .framedleftbar .minipage {
4213     border: none ;
4214     background: none ;
```

```
4215     padding: 0ex ;
4216     margin: 0ex ;
4217 }
4218
4219 figure.figure .minipage, div.figurecaption .minipage { border: none; }
4220
4221 div.marginblock div.minipage ,
4222 div.marginparblock div.minipage
4223     { border: none; }
4224
4225 figure , div.marginblock {
4226     background-color: #eeeee7 ;
4227     border: 1px solid silver ;
4228     border-radius: 1ex ;
4229     box-shadow: 3px 3px 3px #808080 ;
4230 }
4231
4232 figure figure {
4233     border: 1px solid silver ;
4234     margin: 0em ;
4235     box-shadow: none ;
4236 }
4237
4238 /*
4239 div.figurecaption {
4240     border-top: 1px solid silver ;
4241     border-bottom: 1px solid silver ;
4242     background-color: #e8e8e8 ;
4243 }
4244 */
4245
4246
4247 div.table {
4248     box-shadow: 3px 3px 3px #808080 ;
4249 }
4250
4251 /*
4252 .tnotes {
4253     background: #e8e8e8;
4254     border: 1px solid silver;
4255 }
4256 */
4257
4258
4259 nav.topnavigation{
4260     background-color: #b0b8b0 ;
4261     background-image: linear-gradient(to bottom,#e0e0e0,#b0b8b0) ;
4262 }
4263
4264 nav.botnavigation{
4265     background-color: #b0b8b0 ;
4266     background-image: linear-gradient(to top,#e0e0e0,#b0b8b0) ;
4267 }
4268
4269
4270
4271 header{
4272     background-color: #F7F7F0 ;
4273     background-image: linear-gradient(to top, #F7F7F0, #b0b8b0);
4274 }
```

```
4275
4276 footer{
4277     background-color: #F7F7F0 ;
4278     background-image: linear-gradient(to bottom, #F7F7F0, #b0b8b0);
4279 }
4280
4281
4282
4283 div.sidetoccontainer {
4284     background-color: #F7F7F0 ;
4285     background-image: linear-gradient(to bottom, #F7F7F0, #C0C0C0);
4286     box-shadow: 3px 3px 3px #808080 ;
4287     }
4288
4289 div.sidetoctitle {color: #304070 ; }
4290
4291 nav.sidetoc a:hover {
4292     color:#006000 ;
4293     text-decoration: none ;
4294     text-shadow:0px 0px 2px #a0a0a0;
4295 }
4296
4297
4298 @media screen and (max-width: 45em) {
4299     div.sidetoccontainer { border-radius: 0 ; }
4300 }
4301
4302
4303 \end{filecontents*}
4304 % \end{Verbatim}% for syntax highlighting
4305 \end{LWRwriteconf}
```

40.6 lwarp_formal.css

File lwarp_formal.css

An optional CSS which may be used for a more formal appearance.

If used, this must be present both when compiling the project and also when distributing the HTML files.

Config file:

```
4306 \begin{LWRwriteconf}
4307 \begin{filecontents*}[overwrite]{lwarp_formal.css}
4308 @import url("lwarp.css") ;
4309
4310
4311
4312 A:link {color:#802020 ; text-decoration:none; }
4313 A:visited {color:#802020 ; text-shadow:none ;}
4314 A:hover {color:#400000 ; text-shadow:none ;}
4315 A:active {color:#C00000 ; text-shadow:none ;}
4316
4317
4318 body {
4319     font-family: "Linux Libertine O", "Hoefler Text", "Garamond",
4320         "Bembo", "Janson", "TeX Gyre Pagella", "Palatino",
4321         "Liberation Serif", "Nimbus Roman No 9 L",  "FreeSerif", Times,
4322         "Times New Roman", serif;
4323     background: #fffcf5;
4324 }
```

```
4325
4326 span.textrm {
4327     font-family: "Linux Libertine O", "Hoefler Text", "Garamond",
4328         "Bembo", "Janson", "TeX Gyre Pagella", "Palatino",
4329         "Liberation Serif", "Nimbus Roman No 9 L",  "FreeSerif", Times,
4330         "Times New Roman", serif;
4331 }
4332
4333 span.textsf {
4334      font-family: "DejaVu Sans", "Bitstream Vera Sans",
4335         Geneva, Verdana, sans-serif ;
4336 }
4337
4338
4339
4340 div.book, h1, h2, h3, h4, h5, h6, span.paragraph, span.subparagraph
4341 {
4342     font-family: "Linux Libertine O", "Hoefler Text", "Garamond",
4343         "Bembo", "Janson", "TeX Gyre Pagella", "Palatino",
4344         "Liberation Serif", "Nimbus Roman No 9 L",  "FreeSerif", Times,
4345         "Times New Roman", serif;
4346     color: #800000 ;
4347     text-shadow: none ;
4348 }
4349
4350 h1, h2 {
4351     background-color: #fffcf5 ;
4352     background-image: none ;
4353     border-bottom: 1px solid #808080;
4354 /*    border-top: 2px solid #808080; */
4355 }
4356
4357 div.abstracttitle {
4358     font-family: "Linux Libertine O", "Hoefler Text", "Garamond",
4359         "Bembo", "Janson", "TeX Gyre Pagella", "Palatino",
4360         "Liberation Serif", "Nimbus Roman No 9 L",  "FreeSerif", Times,
4361         "Times New Roman", serif;
4362     color: black ;
4363     text-shadow: none ;
4364 }
4365
4366 span.abstractrunintitle {
4367     font-family: "Linux Libertine O", "Hoefler Text", "Garamond",
4368         "Bembo", "Janson", "TeX Gyre Pagella", "Palatino",
4369         "Liberation Serif", "Nimbus Roman No 9 L",  "FreeSerif", Times,
4370         "Times New Roman", serif;
4371     color: black ;
4372     text-shadow: none ;
4373 }
4374
4375 div.abstract { font-size: 100% }
4376
4377 .sidebar {
4378     background: #fffcf5;
4379     background-image: none ;
4380   margin: 2em 5% 2em 5%;
4381   padding: 0.5em 1em;
4382   border: none ;
4383   border-top : 1px solid silver;
4384   border-bottom : 1px solid silver;
```

```
4385   font-size: 90% ;
4386 }
4387
4388 div.sidebartitle{
4389     font-family: "Linux Libertine O", "Hoefler Text", "Garamond",
4390         "Bembo", "Janson", "TeX Gyre Pagella", "Palatino",
4391         "Liberation Serif", "Nimbus Roman No 9 L",  "FreeSerif", Times,
4392         "Times New Roman", serif;
4393     color: #800000 ;
4394     text-shadow: none ;
4395     border: none ;
4396 }
4397
4398 .example {
4399     background: #fffcf5;
4400     background-image: none ;
4401   margin: 2em 5% 2em 5%;
4402   padding: 0.5em 1em;
4403   border: none ;
4404   border-top : 1px solid silver;
4405   border-bottom : 1px solid silver;
4406 }
4407
4408 div.exampletitle{
4409     font-family: "Linux Libertine O", "Hoefler Text", "Garamond",
4410         "Bembo", "Janson", "TeX Gyre Pagella", "Palatino",
4411         "Liberation Serif", "Nimbus Roman No 9 L",  "FreeSerif", Times,
4412         "Times New Roman", serif;
4413     color: #800000 ;
4414     text-shadow: none ;
4415     border: none ;
4416 }
4417
4418 div.fancyvrblabel{
4419     font-family: "Linux Libertine O", "Hoefler Text", "Garamond",
4420         "Bembo", "Janson", "TeX Gyre Pagella", "Palatino",
4421         "Liberation Serif", "Nimbus Roman No 9 L",  "FreeSerif", Times,
4422         "Times New Roman", serif;
4423     color: #800000 ;
4424     text-shadow: none ;
4425     border: none ;
4426 }
4427
4428
4429
4430 figure {
4431     margin: 5ex 5% 5ex 5% ;
4432     padding: 1ex 1em 1ex 1em ;
4433     background-color: #fffcf5 ;
4434     overflow-x: auto ;
4435     border: none ;
4436 /*     border-top: 1px solid silver; */
4437 /*     border-bottom: 1px solid silver; */
4438 }
4439
4440
4441 div.figurecaption , .lstlisting {
4442     border: none ;
4443 /*     border-top: 1px solid silver ; */
4444 /*     border-bottom: 1px solid silver ; */
```

```
4445     background-color: #fffcf5 ;
4446 }
4447
4448 .tnotes {
4449     background: #fffcf5 ;
4450     border-top: 1px solid silver ;
4451     border-bottom: 1px solid silver ;
4452 }
4453
4454 .theorem {
4455         background: none ;
4456 }
4457
4458 .minipage {
4459     background-color: #fffcf5 ;
4460     border: none ;
4461 }
4462
4463 div.floatrow figure { border: none ; }
4464
4465 figure figure { border: none ; }
4466
4467
4468 nav.toc, nav.lof, nav.lot, nav.lol {
4469     font-family: "Linux Libertine O", "Hoefler Text", "Garamond",
4470         "Bembo", "Janson", "TeX Gyre Pagella", "Palatino",
4471         "Liberation Serif", "Nimbus Roman No 9 L",  "FreeSerif", Times,
4472         "Times New Roman", serif;
4473 }
4474
4475 div.sidetoccontainer {
4476     font-family: "Linux Libertine O", "Hoefler Text", "Garamond",
4477         "Bembo", "Janson", "TeX Gyre Pagella", "Palatino",
4478         "Liberation Serif", "Nimbus Roman No 9 L",  "FreeSerif", Times,
4479         "Times New Roman", serif;
4480     background-image: linear-gradient(to bottom, #fffcf5, #C0C0C0);
4481 }
4482
4483 div.sidetoctitle{
4484     color: #800000 ;
4485 }
4486
4487 header{
4488     background-color: #e0e0e0 ;
4489     background-image: linear-gradient(to top, #fffcf5, #b0b0b0);
4490     text-align:center ;
4491 }
4492
4493 footer{
4494     background-color: #e0e0e0 ;
4495     background-image: linear-gradient(to bottom, #fffcf5, #b0b0b0);
4496     padding: 2ex 1em 2ex 1em ;
4497     text-align:left ;
4498 }
4499
4500 nav.botnavigation {
4501     background: #dedcd5 ;
4502     border-top: 1px solid black ;
4503 }
4504 \end{filecontents*}
```

```
% \end{Verbatim}% for syntax highlighting
\end{LWRwriteconf}
```

40.7 sample_project.css

File sample_project.css

The project-specific css file. Use with \CSSFilename.

If used, this must be present both when compiling the project and also when distributing the HTML files.

Config file:

```
\begin{LWRwriteconf}
\begin{filecontents*}[overwrite]{sample_project.css}
/* ( --- Start of project.css --- ) */
/* ( --- A sample project-specific CSS file for lwarp --- ) */

/* Uncomment one of the following: */
@import url("lwarp.css") ;
/* @import url("lwarp_formal.css") ; */
/* @import url("lwarp_sagebrush.css") ; */

/* Project-specific CSS setting follow here. */
/* . . . */

/* ( --- End of project.css --- ) */
\end{filecontents*}
% \end{Verbatim}% for syntax highlighting
\end{LWRwriteconf}
```

40.8 lwarp.ist

File lwarp.ist

Used to modify the index for lwarp.

This must be present when compiling the project, but does not need to be present when distributing the resulting HTML files.

The page compositor line is for memoir's \specialindex.

Config file:

```
\begin{LWRwriteconf}
\begin{filecontents*}[overwrite]{lwarp.ist}
preamble
"\\begin{theindex}
  \\providecommand*\\lettergroupDefault[1]{}
  \\providecommand*\\lettergroup[1]{%
      \\par\\textbf{#1}\\par
      \\nopagebreak
  }
"
headings_flag 1
heading_prefix "
  \\lettergroup{"
heading_suffix "}"
delim_0 ", \\hyperindexref{"
delim_1 ", \\hyperindexref{"
delim_2 ", \\hyperindexref{"
delim_n "}, \\hyperindexref{"
delim_r "} -- \\hyperindexref{"
delim_t "}"
```

```
page_compositor "."
\end{filecontents*}
% \end{Verbatim}% for syntax highlighting
\end{LWRwriteconf}
```

40.9 lwarp.xdy

File lwarp.xdy

Used to modify the index for lwarp.

This must be present when compiling the project, but does not need to be present when distributing the resulting HTML files.

See:
https://tex.stackexchange.com/questions/80300/how-can-i-convince-hyperref-and-xindy-to-play-together-nicely

Config file:

```
\begin{LWRwriteconf}
\begin{filecontents*}[overwrite]{lwarp.xdy}
(require "tex/inputenc/latin.xdy")
(merge-rule "\\PS *" "Postscript")
(require "texindy.xdy")
(require "page-ranges.xdy")
(require "book-order.xdy")
(define-location-class "arabic-page-numbers"
    ("arabic-numbers") :min-range-length 1)
(require "makeindex.xdy")
(define-attributes (("hyperindexref")))
(markup-locref :open "\hyperindexref{" :close "}")
(markup-locref :open "\hyperindexref{" :close "}" :attr "hyperpage")
(markup-locref :open "\textbf{\hyperindexref{" :close "}}" :attr "textbf")
(markup-locref :open "\textit{\hyperindexref{" :close "}}" :attr "textit")
(define-location-class-order ("roman-page-numbers"
                  "arabic-page-numbers"
                  "alpha-page-numbers"
                  "Roman-page-numbers"
                  "Alpha-page-numbers"
                  "see"
                  "seealso"))
\end{filecontents*}
% \end{Verbatim}% for syntax highlighting
\end{LWRwriteconf}
```

40.10 lwarp_one_limage.cmd

File lwarp_one_limage.cmd

Used by lwarp to help make lateximages when using WINDOWS.

This must be present when compiling the project, but does not need to be present when distributing the resulting HTML files.

The arguments are each of the three fields from <project>-images.txt, and also the base name of the source file.

MiKTeX does not allow file lwarp_one_limage.cmd to be created directly by *lwarpmk*, so lwarp_one_limage.txt is created instead, then copied to lwarp_one_limage.cmd by *lwarpmk*. This occurs each time *lwarpmk* used to create lateximages.

Config file:
```
\begin{LWRwriteconf}
\immediate\openout\LWR@quickfile=lwarp_one_limage.txt
\immediate\write\LWR@quickfile{%
    pdfseparate -f \LWRpercent 1 -l \LWRpercent 1 \LWRpercent 4_html.pdf %
   \LWR@ImagesDirectory\OSPathSymbol lateximagetemp-\LWRpercent\LWRpercent d.pdf%
}
\immediate\write\LWR@quickfile{%
   pdfcrop --hires  \LWR@ImagesDirectory\OSPathSymbol lateximagetemp-\LWRpercent 1.pdf %
    \LWR@ImagesDirectory\OSPathSymbol\LWRpercent 3.pdf%
}
\immediate\write\LWR@quickfile{%
   pdftocairo  -svg -noshrink  \LWR@ImagesDirectory\OSPathSymbol\LWRpercent 3.pdf %
    \LWR@ImagesDirectory\OSPathSymbol\LWRpercent 3.svg%
}
\immediate\write\LWR@quickfile{%
    del \LWR@ImagesDirectory\OSPathSymbol\LWRpercent 3.pdf%
}
\immediate\write\LWR@quickfile{%
    del \LWR@ImagesDirectory\OSPathSymbol lateximagetemp-\LWRpercent 1.pdf%
}
\immediate\write\LWR@quickfile{exit}
\immediate\closeout\LWR@quickfile
\end{LWRwriteconf}
```

40.11 lwarp_mathjax.txt

(*Emulates or patches code by* Davide P. Cervone.)

File `lwarp_mathjax.txt`

The default MathJax script used by lwarp when using MathJax. A recent version of MathJax is used, as served by the recommended repository. Adjustments are made to allow LaTeX to control the equation tags and provide for starred macros.

`\MathJaxFilename` determines which script file is copied into the HTML pages, and defaults to `lwarp_mathjax.txt`. The script files must be present when compiling the project, but do not need to be present when distributing the resulting HTML files.

custom script

To generate a custom script, such as to use a local repository, copy `lwarp_mathjax.txt` to a new file, make changes while keeping lwarp's adjustments for equation numbering and starred macros, and use `\MathJaxFilename` to select the new filename.

Config file:
```
\begin{LWRwriteconf}
\begin{filecontents*}[overwrite]{lwarp_mathjax.txt}
<script>
// Lwarp MathJax emulation code
//
// Based on code by Davide P. Cervone.
// Equation numbering: https://github.com/mathjax/MathJax/issues/2427
// Starred and ifnextchar macros: https://github.com/mathjax/MathJax/issues/2428
// \left, \right delimiters: https://github.com/mathjax/MathJax/issues/2535
//
// Modified by Brian Dunn to adjust equation numbering and add subequations.
//
// LaTeX can use \seteqnumber{subequations?}{section}{number} before each equation.
// subequations? is 0 usually, 1 if inside subequations.
// section is a string printed as-is, or empty.
// number is auto-incremented by MathJax between equations.
//
```

```
MathJax = {
  subequations: "0",
  section: "",
  loader: {
    load: ['[tex]/tagformat', '[tex]/textmacros'],
  },
  startup: {
    ready() {
      //  These would be replaced by import commands if you wanted to make
      //  a proper extension.
     const Configuration = MathJax._.input.tex.Configuration.Configuration;
      const CommandMap = MathJax._.input.tex.SymbolMap.CommandMap;
      const Macro = MathJax._.input.tex.Symbol.Macro;
      const TexError = MathJax._.input.tex.TexError.default;
      const ParseUtil = MathJax._.input.tex.ParseUtil.default;
      const expandable = MathJax._.util.Options.expandable;

      //  Insert the replacement string into the TeX string, and check
      //  that there haven't been too many maxro substitutions (prevents
      //  infinite loops).
      const useArgument = (parser, text) => {
     parser.string = ParseUtil.addArgs(parser, text, parser.string.slice(parser.i));
        parser.i = 0;
        if (++parser.macroCount > parser.configuration.options.maxMacros) {
          throw new TexError('MaxMacroSub1',
          'MathJax maximum macro substitution count exceeded; ' +
          'is there a recursive macro call?');
        }
      }

      //  Create the command map for:
     //    \ifstar, \ifnextchar, \ifblank, \ifstrequal, \gsub, \seteqnumber
      new CommandMap('Lwarp-macros', {
        ifstar: 'IfstarFunction',
        ifnextchar: 'IfnextcharFunction',
        ifblank: 'IfblankFunction',
        ifstrequal: 'IfstrequalFunction',
        gsubstitute: 'GsubstituteFunction',
        seteqnumber: 'SeteqnumberFunction'
      }, {
        //  This function implements an ifstar macro.
        IfstarFunction(parser, name) {
          const resultstar = parser.GetArgument(name);
          const resultnostar = parser.GetArgument(name);
         const star = parser.GetStar();              // true if there is a *
          useArgument(parser, star ? resultstar : resultnostar);
        },

        //  This function implements an ifnextchar macro.
        IfnextcharFunction(parser, name) {
          let whichchar = parser.GetArgument(name);
          if (whichchar.match(/^(?:0x[0-9A-F]+|[0-9]+)$/i)) {
            // $ syntax highlighting
            whichchar = String.fromCodePoint(parseInt(whichchar));
          }
          const resultnextchar = parser.GetArgument(name);
          const resultnotnextchar = parser.GetArgument(name);
          const gotchar = (parser.GetNext() === whichchar);
         useArgument(parser, gotchar ? resultnextchar : resultnotnextchar);
        },
```

```
4673
4674        // This function implements an ifblank macro.
4675        IfblankFunction(parser, name) {
4676          const blankarg = parser.GetArgument(name);
4677          const resultblank = parser.GetArgument(name);
4678          const resultnotblank = parser.GetArgument(name);
4679          const isblank = (blankarg.trim() == "");
4680          useArgument(parser, isblank ? resultblank : resultnotblank);
4681        },
4682
4683        // This function implements an ifstrequal macro.
4684        IfstrequalFunction(parser, name) {
4685          const strequalfirst = parser.GetArgument(name);
4686          const strequalsecond = parser.GetArgument(name);
4687          const resultequal = parser.GetArgument(name);
4688          const resultnotequal = parser.GetArgument(name);
4689          const isequal = (strequalfirst == strequalsecond);
4690          useArgument(parser, isequal ? resultequal : resultnotequal);
4691        },
4692
4693        // This function implements a gsub macro.
4694        GsubstituteFunction(parser, name) {
4695          const gsubfirst = parser.GetArgument(name);
4696          const gsubsecond = parser.GetArgument(name);
4697          const gsubthird = parser.GetArgument(name);
4698          let gsubresult=gsubfirst.replace(gsubsecond, gsubthird);
4699          useArgument(parser, gsubresult);
4700        },
4701
4702        //  This function modifies the equation numbers.
4703        SeteqnumberFunction(parser, name) {
4704            //  Get the macro parameters
4705         const star = parser.GetStar();              // true if there is a *
4706        const optBrackets = parser.GetBrackets(name);  // contents of optional brackets
4707        const newsubequations = parser.GetArgument(name);  // the subequations argument
4708        const neweqsection = parser.GetArgument(name);  // the eq section argument
4709        const neweqnumber = parser.GetArgument(name);  // the eq number argument
4710        MathJax.config.subequations=newsubequations ;  // a string with boolean meaning
4711        MathJax.config.section=neweqsection ;        // a string with numeric meaning
4712            parser.tags.counter = parser.tags.allCounter = neweqnumber ;
4713        }
4714
4715      });
4716
4717      //  Create the Lwarp-macros package
4718      Configuration.create('Lwarp-macros', {
4719        handler: {macro: ['Lwarp-macros']}
4720      });
4721
4722      MathJax.startup.defaultReady();
4723
4724      // For forward references:
4725      MathJax.startup.input[0].preFilters.add(({math}) => {
4726        if (math.inputData.recompile){
4727        MathJax.config.subequations = math.inputData.recompile.subequations;
4728            MathJax.config.section = math.inputData.recompile.section;
4729        }
4730      });
4731      MathJax.startup.input[0].postFilters.add(({math}) => {
4732        if (math.inputData.recompile){
```

```
4733        math.inputData.recompile.subequations = MathJax.config.subequations;
4734            math.inputData.recompile.section = MathJax.config.section;
4735        }
4736      });
4737
4738        // For \left, \right with unicode-math:
4739        const {DelimiterMap} = MathJax._.input.tex.SymbolMap;
4740        const {Symbol} = MathJax._.input.tex.Symbol;
4741        const {MapHandler} = MathJax._.input.tex.MapHandler;
4742        const delimiter = MapHandler.getMap('delimiter');
4743        delimiter.add('\\lBrack', new Symbol('\\lBrack', '\u27E6'));
4744        delimiter.add('\\rBrack', new Symbol('\\rBrack', '\u27E7'));
4745        delimiter.add('\\lAngle', new Symbol('\\lAngle', '\u27EA'));
4746        delimiter.add('\\rAngle', new Symbol('\\rAngle', '\u27EB'));
4747        delimiter.add('\\lbrbrak', new Symbol('\\lbrbrak', '\u2772'));
4748        delimiter.add('\\rbrbrak', new Symbol('\\rbrbrak', '\u2773'));
4749        delimiter.add('\\lbag', new Symbol('\\lbag', '\u27C5'));
4750        delimiter.add('\\rbag', new Symbol('\\rbag', '\u27C6'));
4751     delimiter.add('\\llparenthesis', new Symbol('\\llparenthesis', '\u2987'));
4752     delimiter.add('\\rrparenthesis', new Symbol('\\rrparenthesis', '\u2988'));
4753        delimiter.add('\\llangle', new Symbol('\\llangle', '\u2989'));
4754        delimiter.add('\\rrangle', new Symbol('\\rrangle', '\u298A'));
4755        delimiter.add('\\Lbrbrak', new Symbol('\\Lbrbrak', '\u27EC'));
4756        delimiter.add('\\Rbrbrak', new Symbol('\\Rbrbrak', '\u27ED'));
4757        delimiter.add('\\lBrace', new Symbol('\\lBrace', '\u2983'));
4758        delimiter.add('\\rBrace', new Symbol('\\rBrace', '\u2984'));
4759        delimiter.add('\\lParen', new Symbol('\\lParen', '\u2985'));
4760        delimiter.add('\\rParen', new Symbol('\\rParen', '\u2986'));
4761       delimiter.add('\\lbrackubar', new Symbol('\\lbrackubar', '\u298B'));
4762       delimiter.add('\\rbrackubar', new Symbol('\\rbrackubar', '\u298C'));
4763     delimiter.add('\\lbrackultick', new Symbol('\\lbrackultick', '\u298D'));
4764     delimiter.add('\\rbracklrtick', new Symbol('\\rbracklrtick', '\u298E'));
4765     delimiter.add('\\lbracklltick', new Symbol('\\lbracklltick', '\u298F'));
4766     delimiter.add('\\rbrackurtick', new Symbol('\\rbrackurtick', '\u2990'));
4767        delimiter.add('\\langledot', new Symbol('\\langledot', '\u2991'));
4768        delimiter.add('\\rangledot', new Symbol('\\rangledot', '\u2992'));
4769       delimiter.add('\\lparenless', new Symbol('\\lparenless', '\u2993'));
4770        delimiter.add('\\rparengtr', new Symbol('\\rparengtr', '\u2994'));
4771        delimiter.add('\\Lparengtr', new Symbol('\\Lparengtr', '\u2995'));
4772       delimiter.add('\\Rparenless', new Symbol('\\Rparenless', '\u2996'));
4773       delimiter.add('\\lblkbrbrak', new Symbol('\\lblkbrbrak', '\u2997'));
4774       delimiter.add('\\rblkbrbrak', new Symbol('\\rblkbrbrak', '\u2998'));
4775        delimiter.add('\\lvzigzag', new Symbol('\\lvzigzag', '\u29D8'));
4776        delimiter.add('\\rvzigzag', new Symbol('\\rvzigzag', '\u29D9'));
4777        delimiter.add('\\Lvzigzag', new Symbol('\\Lvzigzag', '\u29DA'));
4778        delimiter.add('\\Rvzigzag', new Symbol('\\Rvzigzag', '\u29DB'));
4779     delimiter.add('\\lcurvyangle', new Symbol('\\lcurvyangle', '\u29FC'));
4780     delimiter.add('\\rcurvyangle', new Symbol('\\rcurvyangle', '\u29FD'));
4781        delimiter.add('\\Vvert', new Symbol('\\Vvert', '\u2980'));
4782   }   // ready
4783 },    // startup
4784
4785 tex: {
4786   packages: {'[+]': ['tagformat', 'Lwarp-macros', 'textmacros']},
4787   tags: "ams",
4788       tagformat: {
4789           number: function (n) {
4790               if(MathJax.config.subequations==0)
4791                   return(MathJax.config.section + n);
4792               else
```

```
4793                 return(MathJax.config.section + String.fromCharCode(96+n));
4794             },
4795         },
4796   }
4797 }
4798 </script>
4799
4800 <script
4801     id="MathJax-script"
4802     src="https://cdn.jsdelivr.net/npm/mathjax@3/es5/tex-svg.js"
4803 ></script>
4804 \end{filecontents*}
4805 % \end{Verbatim}% for syntax highlighting
4806 \end{LWRwriteconf}
```

40.12 `lwarpmk.lua` — `lwarpmk` option

Opt `lwarpmk`

Creates a local copy of *lwarpmk*.

Prog `lwarpmk`

Command-line utility to process lwarp files and images.

parallel processing

`lateximages` and SVG math images are generated using multiple processes in parallel. For UNIX and LINUX, every 32 images the `wait` command is issued to wait for the previous batch of images to finish processing before starting a new batch. For WINDOWS, every 32 images one task is dispatched with

```
START /B /WAIT /BELOWNORMAL
```

which causes the operating system to wait until this lesser-priority tasks finishes, hopefully also waiting for the normal priority tasks which were already in progress to also complete. Afterwards, the next batch of images is started.

The following is only generated if the `lwarpmk` option was given to lwarp.

```
4807 \begin{LWRcreatelwarpmk}

4808 \begin{filecontents*}[overwrite]{lwarpmk.lua}
4809 #!/usr/bin/env texlua
4810
4811 -- Copyright 2016-2022 Brian Dunn
4812
4813
4814 printversion = "v0.904a"
4815 requiredconfversion = "2" -- also at *lwarpmk.conf
4816
4817 function printhelp ()
4818 print ("lwarpmk: Use lwarpmk -h or lwarpmk --help for help.") ;
4819 end
4820
4821
4822 function printusage ()
4823 --
4824 -- Print the usage of the lwarpmk command:
4825 --
4826 print ( [[
4827
4828 lwarpmk print [-p project]: Compile the print version if necessary.
4829 lwarpmk print1 [-p project]: Forced single compile of the print version.
```

```
lwarpmk printindex [-p project]: Process print indexes.
lwarpmk printglossary [-p project]: Process the glossary for the print version.
lwarpmk html [-p project]: Compile the HTML version if necessary.
lwarpmk html1 [-p project]: Forced single compile of the HTML version.
lwarpmk htmlindex [-p project]: Process HTML indexes.
lwarpmk htmlglossary [-p project]: Process the glossary for the html version.
lwarpmk again [-p project]: Touch the source code to trigger recompiles.
lwarpmk limages [-p project]: Process the "lateximages" created by lwarp.sty.
lwarpmk pdftohtml [-p project]:
    For use with latexmk or a Makefile:
   Converts project_html.pdf to project_html.html and individual HTML files.
    Finishes the HTML conversion even if there was a compile error.
lwarpmk pdftosvg <list of file names>: Converts each PDF file to SVG.
lwarpmk epstopdf <list of file names>: Converts each EPS file to PDF.
lwarpmk clean [-p project]: Remove *.aux, *.toc, *.lof/t,
    *.idx, *.ind, *.bbl, *.log, *_html_inc.*, .gl*,
    *_html.pdf, *_html.html, *_html.sidetoc
lwarpmk cleanall [-p project]: Remove auxiliary files, project.pdf, *.html
lwarpmk cleanlimages: Removes all images from the "lateximages" directory.
lwarpmk -v: Print the version number.
lwarpmk -h: Print this help message.
lwarpmk --help: Print this help message.

]] )
-- printconf ()
end


function splitfilename ( pathandfilename )
--
-- Separates out the path and extension from a filename.
-- Returns path, filename with extension, and extension.
-- Ex: thispath, thisfilename, thisextension = splitfilename ("path/to/filename.ext")
--
-- https://www.fhug.org.uk/wiki/wiki/doku.php?id=plugins:code_snippets:
--      split_filename_in_to_path_filename_and_extension
--
    if lfs.attributes(pathandfilename,"mode") == "directory" then
      local strPath = pathandfilename:gsub("[\\/]$","") -- $ (syntax highlighting)
        return strPath.."\\","",""
    end
    pathandfilename = pathandfilename.."."
    return pathandfilename:match("^(.-)([^\\/]-)%.([^\\/%.]-)%.?$")
end


function splitfile (destfile,sourcefile)
--
-- Split one large sourcefile into a number of files,
-- starting with destfile.
-- The file is split at each occurance of <!--|Start file|newfilename|*
-- If lwarp is in use, sets usinglwarp.
--
usinglwarp = false ;
print ("lwarpmk: Splitting " .. sourcefile .. " into " .. destfile) ;
local sfile = io.open(sourcefile)
io.output(destfile)
for line in sfile:lines() do
i,j,copen,cstart,newfilename = string.find (line,"(.*)|(.*)|(.*)|") ;
if ( (i~= nil) and (copen == "<!--") and (cstart == "Start file")) then
```

```
4890     -- split the file
4891     io.output(newfilename) ;
4892 else
4893 if ( (i~= nil) and (copen == "<!--") and (cstart == "Using lwarp")) then
4894     -- verified the use of \usepackage{lwarp}
4895     usinglwarp = true ;
4896 else
4897     -- not a splitpoint
4898     io.write (line .. "\n") ;
4899 end end
4900 end -- do
4901 io.close(sfile)
4902 if ( usinglwarp == false ) then
4903     print ("lwarpmk: ===")
4904     print ("lwarpmk: \\usepackage{lwarp} was not detected.")
4905     print ("lwarpmk: The HTML output will not be correct.")
4906     print ("lwarpmk: Ensured that \\usepackage{lwarp} is enabled,")
4907     print ("lwarpmk: then lwarpmk print and lwarpmk html again.")
4908     print ("lwarpmk: ===")
4909 end
4910 end -- function
4911
4912
4913 function cvalueerror ( line, linenum , cvalue )
4914 --
4915 -- Incorrect value, so print an error and exit.
4916 --
4917     print ("lwarpmk: ===")
4918     print ("lwarpmk: " .. linenum .. " : " .. line ) ;
4919     print (
4920         "lwarpmk: incorrect variable value \"" .. cvalue ..
4921         "\" in lwarpmk.conf.\n"
4922     ) ;
4923     print ("lwarpmk: ===")
4924 --    printconf () ;
4925     os.exit(1) ;
4926 end
4927
4928
4929 function printhowtorecompile ()
4930 -- Tells the user how to recompile to regenerate the configuration files.
4931   print ("lwarpmk: The configuration files lwarpmk.conf and "..sourcename..".lwarpmkconf" )
4932     print ("lwarpmk:   must be updated.  To do so, recompile" )
4933     print ("lwarpmk:   " , sourcename..".tex" )
4934     if ( printlatexcmd == "" ) then
4935         print ("lwarpmk:   using xe/lua/pdflatex," )
4936     else
4937         print ("lwarpmk:   using the command:")
4938         print ("lwarpmk:   " , printlatexcmd )
4939     end
4940     print ("lwarpmk:   then use lwarpmk again.")
4941 end -- printhowtorecompile
4942
4943
4944 function ignoreconf ()
4945 -- Global argument index
4946 argindex = 2
4947 end
4948
4949 function loadconf ()
```

```
--
-- Load settings from the project's "lwarpmk.conf" file:
--
-- Default configuration filename:
local conffile = "lwarpmk.conf"
local confroot = "lwarpmk"
-- Global argument index
argindex = 2
-- Optional configuration filename:
if ( arg[argindex] == "-p" ) then
    argindex = argindex + 1
    confroot = arg[argindex]
    conffile = confroot..".lwarpmkconf"
    argindex = argindex + 1
end
-- Additional defaults:
confversion = "0"
opsystem = "Unix"
imagesdirectory = "lateximages"
imagesname = "image-"
latexmk = "false"
printlatexcmd = ""
HTMLlatexcmd = ""
printindexcmd = ""
HTMLindexcmd = ""
latexmkindexcmd = ""
-- to be removed:
-- indexprog = "makeindex"
-- makeindexstyle = "lwarp.ist"
-- xindylanguage = "english"
-- xindycodepage = "utf8"
-- xindystyle = "lwarp.xdy"
-- pdftotextenc = "UTF-8"
glossarycmd = "makeglossaries"
-- Verify the file exists:
if (lfs.attributes(conffile,"mode")==nil) then
    -- file not exists
    print ("lwarpmk: ===")
    print ("lwarpmk: File \"" .. conffile .."\" does not exist.")
    print ("lwarpmk: Move to the project's source directory,")
    print ("lwarpmk: recompile using pdflatex, xelatex, or lualatex,")
    print ("lwarpmk: then try using lwarpmk again.")
    if ( arg[argindex] ~= nil ) then
        print (
            "lwarpmk: (\"" .. confroot ..
            "\" does not appear to be a project name.)"
        )
    end
    print ("lwarpmk: ===")
    printhelp () ;
    os.exit(1) -- exit the entire lwarpmk script
else -- file exists
-- Read the file:
print ("lwarpmk: Reading " .. conffile ..".")
local cfile = io.open(conffile)
-- Scan each line, parsing each line as: name = [[string]]
local linenum = 0
for line in cfile:lines() do -- scan lines
linenum = linenum + 1
i,j,cvarname,cvalue = string.find (line,"([%w-_]*)%s*=%s*%[%[([^%]]*)%]%]") ;
```

```
-- Error if incorrect enclosing characters:
if ( i == nil ) then
    print ("lwarpmk: ===")
    print ("lwarpmk: " ..  linenum .. " : " .. line ) ;
    print ("lwarpmk: Incorrect entry in " .. conffile ..".\n" ) ;
    print ("lwarpmk: ===")
--    printconf () ;
    os.exit(1) ;
end -- nil
if ( cvarname == "confversion" ) then
    confversion = cvalue
elseif ( cvarname == "opsystem" ) then
    -- Verify choice of opsystem:
    if ( (cvalue == "Unix") or (cvalue == "Windows") ) then
        opsystem = cvalue
    else
        cvalueerror ( line, linenum , cvalue )
    end
elseif ( cvarname == "sourcename" ) then sourcename = cvalue
elseif ( cvarname == "homehtmlfilename" ) then homehtmlfilename = cvalue
elseif ( cvarname == "htmlfilename" ) then htmlfilename = cvalue
elseif ( cvarname == "imagesdirectory" ) then imagesdirectory = cvalue
elseif ( cvarname == "imagesname" ) then imagesname = cvalue
elseif ( cvarname == "latexmk" ) then latexmk = cvalue
elseif ( cvarname == "printlatexcmd" ) then printlatexcmd = cvalue
elseif ( cvarname == "HTMLlatexcmd" ) then HTMLlatexcmd = cvalue
elseif ( cvarname == "printindexcmd" ) then printindexcmd = cvalue
elseif ( cvarname == "HTMLindexcmd" ) then HTMLindexcmd = cvalue
elseif ( cvarname == "latexmkindexcmd" ) then latexmkindexcmd = cvalue
elseif ( cvarname == "glossarycmd" ) then glossarycmd = cvalue
elseif ( cvarname == "pdftotextenc" ) then pdftotextenc = cvalue
else
    print ("lwarpmk: ===")
    print ("lwarpmk: " .. linenum .. " : " .. line ) ;
    print (
        "lwarpmk: Incorrect variable name \"" .. cvarname .. "\" in " ..
        conffile ..".\n"
    ) ;
    print ("lwarpmk: ===")
--    printconf () ;
os.exit(1) ;
end -- cvarname
end -- do scan lines
io.close(cfile)
end -- file exists
-- Error if sourcename is "lwarp".
-- This could happen if a local copy of lwarp has recently been recompiled.
if sourcename=="lwarp" then
    print ("lwarpmk: ===")
   print ("lwarpmk: lwarp.sty has recently been recompiled in this directory,")
   print ("lwarpmk: and \"lwarpmk.conf\" is no longer set for your own project.")
    print ("lwarpmk:   (Perhaps you are not in your project's directory?)")
    print ("lwarpmk: In your project directory, recompile your project")
    print ("lwarpmk: using pdf/lua/xelatex <projectname>.")
   print ("lwarpmk: After a recompile, \"lwarpmk.conf\" will be set for your project,")
    print ("lwarpmk: and you may again use lwarpmk.")
    print ("lwarpmk: ===")
    os.exit(1)
end -- sourcename of "lwarp"
-- Select some operating-system commands:
```

```
5070 if opsystem=="Unix" then  -- For Unix / Linux / Mac OS:
5071     rmname = "rm"
5072     mvname = "mv"
5073     cpname = "cp"
5074     touchnamepre = "touch"
5075     touchnamepost = ""
5076     newtouchname = "touch"
5077     dirslash = "/"
5078     opquote= "\'"
5079     cmdgroupopenname = " ( "
5080     cmdgroupclosename = " ) "
5081     seqname = " && "
5082     bgname = " &"
5083 elseif opsystem=="Windows" then -- For Windows
5084     rmname = "DEL"
5085     mvname = "MOVE"
5086     cpname = "COPY"
5087     touchnamepre = "COPY /b"
5088     touchnamepost = "+,,"
5089     newtouchname = "echo empty >"
5090     dirslash = "\\"
5091     opquote= "\""
5092     cmdgroupopenname = ""
5093     cmdgroupclosename = ""
5094     seqname = " & "
5095     bgname = ""
5096 else
5097     print ("lwarpmk: ===")
5098     print ("lwarpmk: Select Unix or Windows for opsystem." )
5099     print ("lwarpmk: ===")
5100     os.exit(1)
5101 end --- for Windows
5102 -- Warning if the operating system does not appear to be correct,
5103 -- in case files were transferred to another system.
5104 if ( (package.config:sub(1,1)) ~= dirslash ) then
5105     print ("lwarpmk: ===")
5106    print ("lwarpmk: It appears that lwarpmk.conf is for a different operating system." )
5107     printhowtorecompile ()
5108     print ("lwarpmk: ===")
5109     os.exit(1)
5110 end
5111 -- Error if the configuration file's version is not current:
5112 if ( confversion ~= requiredconfversion ) then
5113     print ("lwarpmk: ===")
5114     printhowtorecompile ()
5115     print ("lwarpmk: ===")
5116     os.exit(1)
5117 end
5118 end -- loadconf
5119
5120
5121 function executecheckerror ( executecommands , errormessage )
5122 --
5123 -- Execute an operating system call,
5124 -- and maybe exit with an error message.
5125 --
5126 local err
5127 err = os.execute ( executecommands )
5128 if ( err ~= 0 ) then
5129     print ("lwarpmk: ===")
```

```
5130     print ("lwarpmk: " .. errormessage )
5131     print ("lwarpmk: ===")
5132     os.exit(1)
5133 end
5134 end -- executecheckerror
5135
5136
5137 function refreshdate ()
5138 os.execute(touchnamepre .. " " .. sourcename .. ".tex " .. touchnamepost)
5139 end
5140
5141
5142
5143 function reruntoget (filesource)
5144 --
5145 -- Scan the LaTeX log file for the phrase "Rerun to get",
5146 -- indicating that the file should be compiled again.
5147 -- Return true if found.
5148 --
5149 local fsource = io.open(filesource)
5150 for line in fsource:lines() do
5151 if ( string.find(line,"Rerun to get") ~= nil ) then
5152     io.close(fsource)
5153     return true
5154 end -- if
5155 end -- do
5156 io.close(fsource)
5157 return false
5158 end
5159
5160
5161
5162 function onetime (latexcmd, fsuffix)
5163 --
5164 -- Compile one time, return true if should compile again.
5165 -- fsuffix is "" for print, "_html" for HTML output.
5166 --
5167 print("lwarpmk: Compiling with: " .. latexcmd)
5168 executecheckerror (
5169     latexcmd ,
5170     "Compile error."
5171 )
5172 return (reruntoget(sourcename .. fsuffix .. ".log") ) ;
5173 end
5174
5175
5176 function manytimes (latexcmd, fsuffix)
5177 --
5178 -- Compile up to five times.
5179 -- fsuffix is "" for print, "_html" for HTML output
5180 --
5181 if onetime(latexcmd, fsuffix) == true then
5182 if onetime(latexcmd, fsuffix) == true then
5183 if onetime(latexcmd, fsuffix) == true then
5184 if onetime(latexcmd, fsuffix) == true then
5185 if onetime(latexcmd, fsuffix) == true then
5186 end end end end end
5187 end
5188
5189
```

```
function verifyfileexists (filename)
--
-- Exit if the given file does not exist.
--
if (lfs.attributes ( filename , "modification" ) == nil ) then
    print ("lwarpmk: ===")
    print ("lwarpmk: " .. filename .. " not found." ) ;
    print ("lwarpmk: ===")
    os.exit (1) ;
end
end



function pdftohtml ()
--
-- Convert <project>_html.pdf into HTML files:
--
-- Convert to text:
print ("lwarpmk: Converting " .. sourcename
    .."_html.pdf to " .. sourcename .. "_html.html")
err = os.execute("pdftotext  -enc " .. pdftotextenc .. "  -nopgbrk  -layout "
    .. sourcename .. "_html.pdf " .. sourcename .. "_html.html")
if ( err ~= 0 ) then
    print ("lwarpmk: ===")
    print ("lwarpmk: Ensure that the Poppler utilities are installed." )
   print ("lwarpmk: See the Lwarp manual: ‘Installing additional utilities’." )
    print ("lwarpmk: ===")
    os.exit(1)
end
-- Split the result into individual HTML files:
splitfile (homehtmlfilename .. ".html" , sourcename .. "_html.html")
end


function removeaux ()
--
-- Remove auxiliary files:
-- All .aux files are removed since there may be many bbl*.aux files.
-- Also removes sourcename_html.pdf, sourcename_html.html,
-- and sourcename_html.sidetoc, plus comment_*.cut.
--
os.execute ( rmname .. " *.aux " ..
    sourcename ..".toc " .. sourcename .. "_html.toc " ..
    sourcename ..".lof " .. sourcename .. "_html.lof " ..
    sourcename ..".lot " .. sourcename .. "_html.lot " ..
    sourcename ..".bbl " .. sourcename .. "_html.bbl " ..
    " *.idx " ..
    " *.ind " ..
    sourcename ..".ps " .. sourcename .."_html.ps " ..
    sourcename ..".log " .. sourcename .. "_html.log " ..
    sourcename ..".gl* " .. sourcename .. "_html.gl* " ..
    sourcename .. "_html.pdf " ..
    sourcename .. "_html.html " ..
    sourcename .. "_html.sidetoc " ..
    " *_html_inc.* " ..
    " comment_*.cut"
    )
end

```

```
function checkhtmlpdfexists ()
--
-- Error if the HTML document does not exist.
-- The lateximages are drawn from the HTML PDF version of the document,
-- so "lwarpmk html" must be done before "lwarpmk limages".
--
local htmlpdffile = io.open(sourcename .. "_html.pdf", "r")
if ( htmlpdffile == nil ) then
    print ("")
    print ("lwarpmk: ===")
    print ("lwarpmk: The HTML version of the document does not exist.")
    print ("lwarpmk: Enter \"lwarpmk html\" to compile the HTML version.")
    print ("lwarpmk: ===")
    os.exit(1)
end
io.close (htmlpdffile)
end -- checkhtmlpdfexists


function warnlimages ()
--
-- Warning of a missing <sourcename>-images.txt file:
    print ("lwarpmk: ===")
    print ("lwarpmk: \"" .. sourcename .. "-images.txt\" does not exist.")
   print ("lwarpmk: Your project does not use SVG math or other lateximages,")
    print ("lwarpmk: or the file has been deleted somehow.")
    print ("lwarpmk: Use \"lwarpmk html1\" to recompile your project")
    print ("lwarpmk: and recreate \"" .. sourcename .. "-images.txt\".")
   print ("lwarpmk: If your project does not use SVG math or other lateximages,")
   print ("lwarpmk: then \"" .. sourcename .. "-images.txt\" will never exist, and")
    print ("lwarpmk: \"lwarpmk limages\" will not be necessary.")
    print ("lwarpmk: ===")
end -- warnlimages


function warnlimagesrecompile ()
-- Warning if must recompile before creating limages:
    print ("")
    print ("lwarpmk: ===")
    print ("lwarpmk: Cross-references are not yet correct.")
   print ("lwarpmk: The document must be recompiled before creating the lateximages.")
   print ("lwarpmk: Enter \"lwarpmk html1\" again, then try \"lwarpmk limages\" again.")
    print ("lwarpmk: ===")
end --warnlimagesrecompile


function checklimages ()
--
-- Check <sourcename>.txt to see if need to recompile first.
-- If any entry has a page number of zero, then there were incorrect images.
--
print ("lwarpmk: Checking for a valid " .. sourcename .. "-images.txt file.")
local limagesfile = io.open(sourcename .. "-images.txt", "r")
if ( limagesfile == nil ) then
    warnlimages ()
    os.exit(1)
end
-- Track warning to recompile if find a page 0
local pagezerowarning = false
-- Scan <sourcename>.txt
```

```
for line in limagesfile:lines() do
    -- lwimgpage is the page number in the PDF which has the image
    -- lwimghash is true if this filename is a hash
    -- lwimgname is the lateximage filename root to assign for the image
  i,j,lwimgpage,lwimghash,lwimgname = string.find (line,"|(.*)|(.*)|(.*)|")
    -- For each entry:
    if ( (i~=nil) ) then
        -- If the page number is 0, image references are incorrect
        --  and must recompile the soure document:
        if ( lwimgpage == "0" ) then
            pagezerowarning = true
        end
    end -- if i~=nil
end -- do
-- The last line should be |end|end|end|.
-- If not, the compile must have aborted, and the images are incomplete.
if ( lwimgpage ~= "end" ) then
    warnlimagesrecompile()
    os.exit(1) ;
end
if ( pagezerowarning ) then
    warnlimagesrecompile()
    os.exit(1) ;
end -- pagezerowarning
end -- checklimages


function createuniximage ( lwimgfullname )
--
-- Create one lateximage for Unix / Linux / Mac OS.
--
executecheckerror (
    cmdgroupopenname ..
    "pdfseparate -f " .. lwimgpage .. " -l " .. lwimgpage .. " " ..
        sourcename .."_html.pdf " ..
        imagesdirectory .. dirslash .."lateximagetemp-%d" .. ".pdf" ..
        seqname ..
    -- Crop the image:
   "pdfcrop  --hires  " .. imagesdirectory .. dirslash .. "lateximagetemp-" ..
        lwimgpage .. ".pdf " ..
        imagesdirectory .. dirslash .. lwimgname .. ".pdf" ..
        seqname ..
    -- Convert the image to svg:
   "pdftocairo -svg  -noshrink  " .. imagesdirectory .. dirslash .. lwimgname .. ".pdf " ..
        imagesdirectory .. dirslash .. lwimgname ..".svg" ..
        seqname ..
    -- Remove the temporary files:
   rmname .. " " .. imagesdirectory .. dirslash .. lwimgname .. ".pdf" .. seqname ..
   rmname .. " " .. imagesdirectory .. dirslash .. "lateximagetemp-" .. lwimgpage .. ".pdf" ..
    cmdgroupclosename .. " >/dev/null " .. bgname
    ,
    "File error trying to convert " .. lwimgfullname
)
-- Every 32 images, wait for completion at below normal priority,
--  allowing other image tasks to catch up.
numimageprocesses = numimageprocesses + 1
if ( numimageprocesses > 32 ) then
    numimageprocesses = 0
    print ( "lwarpmk: waiting" )
    executecheckerror ( "wait" , "File error trying to wait.")
```

```
end
end -- createuniximage


function createwindowsimage ( lwimgfullname )
--
-- Create one lateximage for Windows.
--
-- Every 32 images, wait for completion at below normal priority,
--  allowing other image tasks to catch up.
numimageprocesses = numimageprocesses + 1
if ( numimageprocesses > 32 ) then
    numimageprocesses = 0
    thiswaitcommand = "/WAIT /BELOWNORMAL"
    print ( "lwarpmk: waiting" )
else
    thiswaitcommand = ""
end
-- Execute the image generation command
executecheckerror (
    "start /B " .. thiswaitcommand .. " \"\" lwarp_one_limage " ..
    lwimgpage .. " " ..
    lwimghash .. " " ..
    lwimgname .. " " ..
    sourcename .. " <nul >nul"
    ,
    "File error trying to create image."
)
end -- createwindowsimage


function createonelateximage ( line )
--
-- Given the next line of <sourcename>.txt, convert a single image.
--
-- lwimgpage is the page number in the PDF which has the image
-- lwimghash is true if this filename is a hash
-- lwimgname is the lateximage filename root to assign for the image
i,j,lwimgpage,lwimghash,lwimgname = string.find (line,"|(.*)|(.*)|(.*)|")
-- For each entry:
if ( (i~=nil) ) then
    -- Skip if the page number is 0:
    if ( lwimgpage == "0" ) then
        pagezerowarning = true
    -- Skip if the page number is "end":
    else if ( lwimgpage == "end" ) then
    else
        -- Skip is this image is hashed and already exists:
     local lwimgfullname = imagesdirectory .. dirslash .. lwimgname .. ".svg"
        if (
            (lwimghash ~= "true") or
            (lfs.attributes(lwimgfullname,"mode")==nil) -- file not exists
        )
        then -- not hashed or not exists:
            -- Print the name of the file being generated:
            print ( "lwarpmk: " .. lwimgname )
         -- Touch/create the dest so that only once instance tries to build it:
            executecheckerror (
                newtouchname .. " " .. lwimgfullname ,
                "File error trying to touch " .. lwimgfullname
```

```
            )
            -- Separate out the image into its own single-page pdf:
            if opsystem=="Unix" then
                createuniximage (lwimgfullname)
            elseif opsystem=="Windows" then
                createwindowsimage (lwimgfullname)
            end
        end -- not hashed or not exists
    end -- not page "end"
    end -- not page 0
end -- not nil
end -- createonelateximage


function createlateximages ()
--
-- Create lateximages based on <sourcename>-images.txt:
--
-- See if the document must be recompiled first:
checklimages ()
-- See if the HTML version exists:
checkhtmlpdfexists ()
-- Attempt to create the lateximages:
print ("lwarpmk: Creating lateximages.")
local limagesfile = io.open(sourcename .. "-images.txt", "r")
if ( limagesfile == nil ) then
    warnlimages ()
    os.exit(1)
end
-- Create the lateximages directory, ignore error if already exists
err = os.execute("mkdir " .. imagesdirectory)
-- For Windows, create lwarp_one_limage.cmd from lwarp_one_limage.txt:
if opsystem=="Windows" then
    executecheckerror (
        cpname .. " lwarp_one_limage.txt lwarp_one_limage.cmd" ,
     "File error trying to copy lwarp_one_limage.txt to lwarp_one_limage.cmd"
    )
end -- create lwarp_one_limage.cmd
-- Track the number of parallel processes
numimageprocesses = 0
-- Track warning to recompile if find a page 0
pagezerowarning = false
-- Scan <sourcename>.txt
for line in limagesfile:lines() do
    createonelateximage ( line )
end -- do
io.close(limagesfile)
print ( "lwarpmk limages: ===")
print ( "lwarpmk limages: Wait a moment for the images to complete" )
print ( "lwarpmk limages:   before reloading the page." )
print ( "lwarpmk limages: ===")
print ( "lwarpmk limages: Done." )
if ( pagezerowarning == true ) then
    print ( "lwarpmk limages: WARNING: Images will be incorrect." )
    print ( "lwarpmk limages:   Enter \"lwarpmk cleanlimages\", then" )
   print ( "lwarpmk limages:   recompile the document one more time, then" )
    print ( "lwarpmk limages:   repeat \"lwarpmk images\" again." )
end -- pagezerowarning
end -- function

```

```
5490
5491 function convertepstopdf ()
5492 --
5493 -- Converts EPS files to PDF files.
5494 -- The filenames are arg[argindex] and up.
5495 -- arg[1] is the command "epstopdf".
5496 --
5497 ignoreconf ()
5498 for i = argindex , #arg do
5499     if (lfs.attributes(arg[i],"mode")==nil) then
5500         print ("lwarpmk: File \"" .. arg[i] .. "\" does not exist.")
5501     else
5502         print ("lwarpmk: Converting \"" .. arg[i] .. "\"")
5503         thispath, thisfilename, thisextension = splitfilename(arg[i])
5504         if ( thispath == nil ) then
5505             os.execute ( "epstopdf " .. arg[i] )
5506         else
5507             os.execute (
5508                 "epstopdf " ..
5509                 thispath .. thisfilename .. "." .. thisextension .. " " ..
5510                 thispath .. thisfilename .. ".pdf"
5511             )
5512         end
5513     end -- if
5514 end -- do
5515 end --function
5516
5517
5518 function convertpdftosvg ()
5519 --
5520 -- Converts PDF files to SVG files.
5521 -- The filenames are arg[argindex] and up.
5522 -- arg[1] is the command "pdftosvg".
5523 --
5524 ignoreconf ()
5525 for i = argindex , #arg do
5526     if (lfs.attributes(arg[i],"mode")==nil) then
5527         print ("lwarpmk: File \"" .. arg[i] .. "\" does not exist.")
5528     else
5529         print ("lwarpmk: Converting \"" .. arg[i] .. "\"")
5530         thispath, thisfilename, thisextension = splitfilename(arg[i])
5531         if ( thispath == nil ) then
5532             os.execute ( "pdftocairo -svg " .. arg[i] )
5533         else
5534             os.execute (
5535                 "pdftocairo -svg " ..
5536                 thispath .. thisfilename .. "." .. thisextension .. " " ..
5537                 thispath .. thisfilename .. ".svg"
5538             )
5539         end
5540     end -- if
5541 end -- do
5542 end --function
5543
5544
5545 -- Force an update and conclude processing:
5546 function updateanddone ()
5547 print ("lwarpmk: Forcing an update of " .. sourcename ..".tex.")
5548 refreshdate ()
5549 print ("lwarpmk: " .. sourcename ..".tex is ready to be recompiled.")
```

```
print ("lwarpmk: Done.")
end -- function


-- Start of the main code: --


-- lwarpmk --version :

if (arg[1] == "--version") then
print ( "lwarpmk: " .. printversion )

else -- not --version


-- print intro:

print ("lwarpmk: " .. printversion .. "  Automated make for the LaTeX Lwarp package.")


-- lwarpmk print:

if arg[1] == "print" then
loadconf ()
if ( latexmk == "true" ) then
    print ("lwarpmk: Compiling with: " .. printlatexcmd)
    executecheckerror (
        printlatexcmd ,
        "Compile error."
    )
    print ("lwarpmk: Done.")
else -- not latexmk
    verifyfileexists (sourcename .. ".tex") ;
    -- See if up to date:
    if (
       ( lfs.attributes ( sourcename .. ".pdf" , "modification" ) == nil ) or
        (
            lfs.attributes ( sourcename .. ".tex" , "modification" ) >
            lfs.attributes ( sourcename .. ".pdf" , "modification" )
        )
    ) then
        -- Recompile if not yet up to date:
        manytimes(printlatexcmd, "")
        print ("lwarpmk: Done.") ;
    else
        print ("lwarpmk: " .. sourcename .. ".pdf is up to date.") ;
    end
end -- not latexmk


-- lwarpmk print1:

elseif arg[1] == "print1" then
    loadconf ()
    verifyfileexists (sourcename .. ".tex") ;
    onetime(printlatexcmd, "")
    print ("lwarpmk: Done.") ;


-- lwarpmk printindex:
```

```
5610 -- Compile the index then touch the source
5611 -- to trigger a recompile of the document:
5612
5613 elseif arg[1] == "printindex" then
5614 loadconf ()
5615 os.execute ( printindexcmd )
5616 print ("lwarpmk: -------")
5617 updateanddone ()
5618
5619
5620 -- lwarpmk printglossary:
5621 -- Compile the glossary then touch the source
5622 -- to trigger a recompile of the document:
5623
5624 elseif arg[1] == "printglossary" then
5625 loadconf ()
5626 print ("lwarpmk: Processing the glossary.")
5627
5628 os.execute(glossarycmd .. " " .. sourcename)
5629 updateanddone ()
5630
5631
5632 -- lwarpmk html:
5633
5634 elseif arg[1] == "html" then
5635 loadconf ()
5636 if ( latexmk == "true" ) then
5637     print ("lwarpmk: Compiling with: " .. HTMLlatexcmd)
5638     executecheckerror (
5639         HTMLlatexcmd ,
5640         "Compile error."
5641     )
5642     pdftohtml ()
5643     print ("lwarpmk: Done.")
5644 else -- not latexmk
5645     verifyfileexists ( sourcename .. ".tex" ) ;
5646     -- See if exists and is up to date:
5647     if (
5648       ( lfs.attributes ( homehtmlfilename .. ".html" , "modification" ) == nil ) or
5649         (
5650             lfs.attributes ( sourcename .. ".tex" , "modification" ) >
5651             lfs.attributes ( homehtmlfilename .. ".html" , "modification" )
5652         )
5653     ) then
5654         -- Recompile if not yet up to date:
5655         manytimes(HTMLlatexcmd, "_html")
5656         pdftohtml ()
5657         print ("lwarpmk: Done.")
5658     else
5659         print ("lwarpmk: " .. homehtmlfilename .. ".html is up to date.")
5660     end
5661 end -- not latexmk
5662
5663
5664 -- lwarpmk html1:
5665
5666 elseif arg[1] == "html1" then
5667     loadconf ()
5668     verifyfileexists ( sourcename .. ".tex" ) ;
5669     onetime(HTMLlatexcmd, "_html")
```

```
5670     pdftohtml ()
5671     print ("lwarpmk: Done.")
5672
5673
5674 -- lwarpmk pdftohtml:
5675 elseif arg[1] == "pdftohtml" then
5676     loadconf ()
5677     pdftohtml ()
5678
5679
5680 -- lwarpmk htmlindex:
5681 -- Compile the index then touch the source
5682 -- to trigger a recompile of the document:
5683
5684 elseif arg[1] == "htmlindex" then
5685 loadconf ()
5686 os.execute ( HTMLindexcmd )
5687 print ("lwarpmk: -------")
5688 updateanddone ()
5689
5690
5691 -- lwarpmk htmlglossary:
5692 -- Compile the glossary then touch the source
5693 -- to trigger a recompile of the document.
5694 -- The <sourcename>.xdy file is created by the glossaries package.
5695
5696 elseif arg[1] == "htmlglossary" then
5697 loadconf ()
5698 print ("lwarpmk: Processing the glossary.")
5699 os.execute(glossarycmd .. " " .. sourcename .. "_html")
5700 updateanddone ()
5701
5702
5703 -- lwarpmk limages:
5704 -- Scan the <sourcename>.txt file to create lateximages.
5705
5706 elseif arg[1] == "limages" then
5707 loadconf ()
5708 print ("lwarpmk: Processing images.")
5709 createlateximages ()
5710 print ("lwarpmk: Done.")
5711
5712
5713 -- lwarpmk again:
5714 -- Touch the source to trigger a recompile.
5715
5716 elseif arg[1] == "again" then
5717 loadconf ()
5718 updateanddone ()
5719
5720
5721 -- lwarpmk clean:
5722 -- Remove project.aux, .toc, .lof, .lot, .log, *.idx, *.ind, *_html_inc.*, .gl*
5723
5724 elseif arg[1] == "clean" then
5725 loadconf ()
5726 removeaux ()
5727 print ("lwarpmk: Done.")
5728
5729
```

```
-- lwarpmk cleanall
-- Remove project.aux, .toc, .lof, .lot, .log, *.idx, *.ind, *_html_inc.*, .gl*
--    and also project.pdf, project.dvi, *.html

elseif arg[1] == "cleanall" then
loadconf ()
removeaux ()
os.execute ( rmname .. " " ..
    sourcename .. ".pdf " .. sourcename .. "_html.pdf " ..
    sourcename .. ".dvi " .. sourcename .. "_html.dvi " ..
    "*.html"
    )
print ("lwarpmk: Done.")


-- lwarpmk cleanlimages
-- Remove images from the imagesdirectory.

elseif arg[1] == "cleanlimages" then
loadconf ()
os.execute ( rmname .. " " .. imagesdirectory .. dirslash .. "*" )
print ("lwarpmk: Done.")

-- lwarpmk epstopdf <list of file names>
-- Convert EPS files to PDF using epstopdf
elseif arg[1] == "epstopdf" then
convertepstopdf ()
print ("lwarpmk: Done.")


-- lwarpmk pdftosvg <list of file names>
-- Convert PDF files to SVG using pdftocairo
elseif arg[1] == "pdftosvg" then
convertpdftosvg ()
print ("lwarpmk: Done.")


-- lwarpmk with no argument :

elseif (arg[1] == nil) then
printhelp ()


-- lwarpmk -v:

elseif (arg[1] == "-v" ) then
-- The version number has already been printed
-- by the lwarpmk intro.

-- lwarpmk -h or lwarpmk --help :

elseif (arg[1] == "-h" ) or (arg[1] == "--help") then
printusage ()


-- Unknown command:

else
printhelp ()
print ("\nlwarpmk: ****** Unknown command \""..arg[1].."\". ******\n")
```

```
end
end -- not --version
\end{filecontents*}
% \end{Verbatim}% for syntax highlighting

\end{LWRcreatelwarpmk}
```

41 Stacks

for HTML output:

```
\begin{warpHTML}
```

Stacks are used to remember how to close sections and list items. Before a new section is started, previously nested sections and items must be closed out (un-nested) in proper order. Note that starting a new section may close several levels of previously nested items at the same time. For example, starting a new `\section` would close any currently open subsection, subsubsection, and paragraph. General environments are not nested on the stack since they have their own close mechanism. List environments are nested, and items inside those environments are nested one level deeper still. List environments may be nested inside other list environments, and list items are nested inside list environments as well. Thus, the stack may have items which are not necessarily in order, since a description may contain an enumerate, for example. Depths to be recorded in `\LWR@closedepthone`, etc.

41.1 Assigning depths

initial depths for empty stack entries:

```
\newcommand*{\LWR@depthnone}{-5}
```

All sectioning depths are deeper than `LWR@depthfinished`:

```
\newcommand*{\LWR@depthfinished}{-4}
\newcommand*{\LWR@depthbook}{-2}
\newcommand*{\LWR@depthpart}{-1}
\newcommand*{\LWR@depthchapter}{0}
\newcommand*{\LWR@depthsection}{1}
\newcommand*{\LWR@depthsubsection}{2}
\newcommand*{\LWR@depthsubsubsection}{3}
\newcommand*{\LWR@depthparagraph}{4}
\newcommand*{\LWR@depthsubparagraph}{5}
```

Used by `\itemize`, `\enumerate`, `\description`:

```
\newcommand*{\LWR@depthlist}{6}
```

Used by `\item`:

```
\newcommand*{\LWR@depthlistitem}{7}
\let\LWR@depthdescitem\LWR@depthlistitem
```

41.2 Closing actions

A stack to record the action to take to close each nesting level: Add more levels of stack if necessary for a very deeply nested document, adding to \pushclose and \popclose as well.

```
\newcommand*{\LWR@closeone}{}% top of the stack
\newcommand*{\LWR@closetwo}{}
\newcommand*{\LWR@closethree}{}
\newcommand*{\LWR@closefour}{}
\newcommand*{\LWR@closefive}{}
\newcommand*{\LWR@closesix}{}
\newcommand*{\LWR@closeseven}{}
\newcommand*{\LWR@closeeight}{}
\newcommand*{\LWR@closenine}{}
\newcommand*{\LWR@closeten}{}
\newcommand*{\LWR@closeeleven}{}
\newcommand*{\LWR@closetwelve}{}
\newcommand*{\LWR@closethirteen}{}
\newcommand*{\LWR@closefourteen}{}
\newcommand*{\LWR@closefifteen}{}
\newcommand*{\LWR@closesixteen}{}
\newcommand*{\LWR@closeseventeen}{}
\newcommand*{\LWR@closeeighteen}{}
\newcommand*{\LWR@closenineteen}{}
```

41.3 Closing depths

A stack to record the depth of each level:

⚠ Note that nested LaTeX structures may push depths which are non-sequential.

Ex:

```
\begin{itemize}
   \item{A}
   \begin{description}
      \item{B}
   \end{description}
\end{itemize}
```

```
\newcommand*{\LWR@closedepthone}{\LWR@depthnone}% top of the stack
\newcommand*{\LWR@closedepthtwo}{\LWR@depthnone}
\newcommand*{\LWR@closedepththree}{\LWR@depthnone}
\newcommand*{\LWR@closedepthfour}{\LWR@depthnone}
\newcommand*{\LWR@closedepthfive}{\LWR@depthnone}
\newcommand*{\LWR@closedepthsix}{\LWR@depthnone}
\newcommand*{\LWR@closedepthseven}{\LWR@depthnone}
\newcommand*{\LWR@closedeptheight}{\LWR@depthnone}
\newcommand*{\LWR@closedepthnine}{\LWR@depthnone}
\newcommand*{\LWR@closedepthten}{\LWR@depthnone}
\newcommand*{\LWR@closedeptheleven}{\LWR@depthnone}
\newcommand*{\LWR@closedepthtwelve}{\LWR@depthnone}
\newcommand*{\LWR@closedepththirteen}{\LWR@depthnone}
\newcommand*{\LWR@closedepthfourteen}{\LWR@depthnone}
```

```
\newcommand*{\LWR@closedepthfifteen}{\LWR@depthnone}
\newcommand*{\LWR@closedepthsixteen}{\LWR@depthnone}
\newcommand*{\LWR@closedepthseventeen}{\LWR@depthnone}
\newcommand*{\LWR@closedeptheighteen}{\LWR@depthnone}
\newcommand*{\LWR@closedepthnineteen}{\LWR@depthnone}
```

41.4 Pushing and popping the stack

\LWR@pushclose {⟨*sectiontype*⟩}

Pushes one return action and its LaTeX depth onto the stacks.

```
\NewDocumentCommand{\LWR@pushclose}{m}
{%
\global\let\LWR@closenineteen\LWR@closeeighteen%
\global\let\LWR@closeeighteen\LWR@closeseventeen%
\global\let\LWR@closeseventeen\LWR@closesixteen%
\global\let\LWR@closesixteen\LWR@closefifteen%
\global\let\LWR@closefifteen\LWR@closefourteen%
\global\let\LWR@closefourteen\LWR@closethirteen%
\global\let\LWR@closethirteen\LWR@closetwelve%
\global\let\LWR@closetwelve\LWR@closeeleven%
\global\let\LWR@closeeleven\LWR@closeten%
\global\let\LWR@closeten\LWR@closenine%
\global\let\LWR@closenine\LWR@closeeight%
\global\let\LWR@closeeight\LWR@closeseven%
\global\let\LWR@closeseven\LWR@closesix%
\global\let\LWR@closesix\LWR@closefive%
\global\let\LWR@closefive\LWR@closefour%
\global\let\LWR@closefour\LWR@closethree%
\global\let\LWR@closethree\LWR@closetwo%
\global\let\LWR@closetwo\LWR@closeone%
\global\csletcs{LWR@closeone}{LWR@printclose#1}%
\global\let\LWR@closedepthnineteen\LWR@closedeptheighteen%
\global\let\LWR@closedeptheighteen\LWR@closedepthseventeen%
\global\let\LWR@closedepthseventeen\LWR@closedepthsixteen%
\global\let\LWR@closedepthsixteen\LWR@closedepthfifteen%
\global\let\LWR@closedepthfifteen\LWR@closedepthfourteen%
\global\let\LWR@closedepthfourteen\LWR@closedepththirteen%
\global\let\LWR@closedepththirteen\LWR@closedepthtwelve%
\global\let\LWR@closedepthtwelve\LWR@closedepthe leven%
\global\let\LWR@closedepthe leven\LWR@closedepthten%
\global\let\LWR@closedepthten\LWR@closedepthnine%
\global\let\LWR@closedepthnine\LWR@closedeptheight%
\global\let\LWR@closedeptheight\LWR@closedepthseven%
\global\let\LWR@closedepthseven\LWR@closedepthsix%
\global\let\LWR@closedepthsix\LWR@closedepthfive%
\global\let\LWR@closedepthfive\LWR@closedepthfour%
\global\let\LWR@closedepthfour\LWR@closedepththree%
\global\let\LWR@closedepththree\LWR@closedepthtwo%
\global\let\LWR@closedepthtwo\LWR@closedepthone%
\global\csletcs{LWR@closedepthone}{LWR@depth#1}%
```

Error if the deepest depth is no longer \LWR@depthnone, which means that it somehow has been nested too deeply, or things are not being unnested correctly.

```
\ifdefstring{\LWR@closedepthnineteen}{\LWR@depthnone}%
    {}%
```

```
    {%
        \PackageError{lwarp}%
            {The document is nested too deeply for Lwarp}%
            {PLEASE inform the Lwarp maintainer!}%
    }%
}
```

`\LWR@popclose` Pops one action and its depth off the stacks.

```
\newcommand*{\LWR@popclose}
{%
\global\let\LWR@closeone\LWR@closetwo%
\global\let\LWR@closetwo\LWR@closethree%
\global\let\LWR@closethree\LWR@closefour%
\global\let\LWR@closefour\LWR@closefive%
\global\let\LWR@closefive\LWR@closesix%
\global\let\LWR@closesix\LWR@closeseven%
\global\let\LWR@closeseven\LWR@closeeight%
\global\let\LWR@closeeight\LWR@closenine%
\global\let\LWR@closenine\LWR@closeten%
\global\let\LWR@closeten\LWR@closeeleven%
\global\let\LWR@closeeleven\LWR@closetwelve%
\global\let\LWR@closetwelve\LWR@closethirteen%
\global\let\LWR@closethirteen\LWR@closefourteen%
\global\let\LWR@closefourteen\LWR@closefifteen%
\global\let\LWR@closefifteen\LWR@closesixteen%
\global\let\LWR@closesixteen\LWR@closeseventeen%
\global\let\LWR@closeseventeen\LWR@closeeighteen%
\global\let\LWR@closeeighteen\LWR@closenineteen%
\global\let\LWR@closedepthone\LWR@closedepthtwo%
\global\let\LWR@closedepthtwo\LWR@closedepththree%
\global\let\LWR@closedepththree\LWR@closedepthfour%
\global\let\LWR@closedepthfour\LWR@closedepthfive%
\global\let\LWR@closedepthfive\LWR@closedepthsix%
\global\let\LWR@closedepthsix\LWR@closedepthseven%
\global\let\LWR@closedepthseven\LWR@closedeptheight%
\global\let\LWR@closedeptheight\LWR@closedepthnine%
\global\let\LWR@closedepthnine\LWR@closedepthten%
\global\let\LWR@closedepthten\LWR@closedeptheleven%
\global\let\LWR@closedeptheleven\LWR@closedepthtwelve%
\global\let\LWR@closedepthtwelve\LWR@closedepththirteen%
\global\let\LWR@closedepththirteen\LWR@closedepthfourteen%
\global\let\LWR@closedepthfourteen\LWR@closedepthfifteen%
\global\let\LWR@closedepthfifteen\LWR@closedepthsixteen%
\global\let\LWR@closedepthsixteen\LWR@closedepthseventeen%
\global\let\LWR@closedepthseventeen\LWR@closedeptheighteen%
\global\let\LWR@closedeptheighteen\LWR@closedepthnineteen%
}
```

```
\end{warpHTML}
```

42 Data arrays

These macros are similar to the arrayjobx package, except that `\LWR@setexparray`'s argument is expanded only once when assigned.

`name` has no backslash, `index` can be a number or a text name, and an empty `value` must be `\relax` instead of empty.

To assign an empty value:

```
\LWR@setexparray{name}{index}{}
```

for HTML output:

```
\begin{warpHTML}
```

`\LWR@setexparray` {⟨*name*⟩} {⟨*index*⟩} {⟨*contents*⟩}

```
\newbool{LWR@setexparray@doingparhooks}

\NewDocumentCommand{\LWR@setexparray}{m m m}{%
```

Temporarily disable paragraph handling during the assignment. This is not done in a group with global assignments because a table may be nested.

```
    \let\ifLWR@setexparray@doingparhooks\ifLWR@doingparhooks%
    \setbool{LWR@doingparhooks}{false}%
    \let\LWR@setexparray@par\par%
    \let\par\relax%
```

The name of the control sequence is the given name with the index appended.

```
    \xdef\LWR@thisexparrayname{#1#2}%
```

Locally assign the value to the control sequence:

```
    \ifstrempty{#3}%
        {\csdef{\LWR@thisexparrayname}{}}%
        {\csedef{\LWR@thisexparrayname}{#3}}%
```

Restore the paragraph handling:

```
    \let\ifLWR@doingparhooks\ifLWR@setexparray@doingparhooks%
    \let\par\LWR@setexparray@par%
}
```

`\LWR@getexparray` {⟨*name*⟩} {⟨*index*⟩}

```
\newcommand*{\LWR@getexparray}[2]{%
    \@nameuse{#1#2}%
}

\end{warpHTML}
```

43 Localizing catcodes

for HTML & PRINT:

```
\begin{warpall}
```

⚠ Misplaced alignment tab character &

Place `\StartDefiningTabulars` and `\StopDefiningTabulars` before and after defining macros or environments which include the tabular & character in their definitions.

The catcode of & must be changed before the definitions begin, and must be restored afterwards. Doing so avoids the error

```
Misplaced alignment tab character &.
```

`\StartDefiningTabulars` Place before defining something with & in it.

```
\newcommand{\StartDefiningTabulars}{%
    \LWR@traceinfo{StartDefiningTabulars}%
    \warpHTMLonly{\catcode`\&=\active}%
}
```

`\StopDefiningTabulars` Place after defining something with & in it.

```
\newcommand{\StopDefiningTabulars}{%
    \LWR@traceinfo{StopDefiningTabulars}%
    \warpHTMLonly{\catcode`\&=4}%
}
```

Bool `LWR@mathmacro` True if currently defining math macros. Used to disable SVG math hashing and MathJax math contents while defining a macro using inline math. Begin a macro, it is not guaranteed that the contents are static, and so the image must be unique. The contents also almost certainly will not be parsed correctly by MathJax.

```
\newbool{LWR@mathmacro}
\boolfalse{LWR@mathmacro}
```

`\StartDefiningMath` Place before defining something with $ in it.

```
\newcommand{\StartDefiningMath}{%
    \LWR@traceinfo{StartDefiningMath}%
    \warpHTMLonly{\catcode`\$=\active}%
}
```

`\StopDefiningMath` Place after defining something with $ in it.

```
\newcommand{\StopDefiningMath}{%
    \LWR@traceinfo{StopDefiningMath}%
    \warpHTMLonly{\catcode`\$=3}% math shift
}

\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

A definition for & in case it is referred to after `\StartDefiningTabulars` but outside a `tabular`.

```
\StartDefiningTabulars
\protected\gdef&{%
    \PackageWarning{lwarp}{%
        An ampersand is being used inside a tabular\MessageBreak
    }%
}%
\StopDefiningTabulars

\end{warpHTML}
```

44 Localizing dynamic math

Inline SVG math usually uses a hash of its contents to generate `lateximages` which are reusable for multiple instances with the same contents. If the contents may change for each use, such as depending on the current value of a counter, then `\inlinemathother` must be used before the inline math expression, and `\inlinemathnormal` must be used after.

For MathJax, the inline math expression is usually printed for MathJax to interpret. When marked as dynamic math, the following inline math expression will be displayed as an unhashed inline SVG image instead.

For existing code and packages, it may be possible to patch macros after they have been defined, using the xpatch package, which is pre-loaded by lwarp:

```
\xpatchcmd{\macroname}
    {$math expression$}
    {\inlinemathother$math expression$\inlinemathnormal}
    {}
    {\typeout{Error patching macroname.}}
```

for HTML & PRINT:

```
\begin{warpall}
```

Bool `LWR@dynamicmath` Default: `false`

True to mark inline math which is dynamic in nature, thus should not be hashed for reuse.

```
\newbool{LWR@dynamicmath}
\boolfalse{LWR@dynamicmath}
```

`\inlinemathother` Place before using `$ ... $` or `\( ... \)` if the contents of the math are not static, depending on counters or dynamic macros.

```
\newcommand{\inlinemathother}{%
\LWR@traceinfo{inlinemathother}%
\booltrue{LWR@dynamicmath}%
}
```

`\inlinemathnormal` Place after using `$ ... $` or `\( ... \)` with dynamic contents.

```
\newcommand{\inlinemathnormal}{%
\LWR@traceinfo{inlinemathnormal}%
\boolfalse{LWR@dynamicmath}%
}
```

```
\end{warpall}
```

45 HTML entities

for HTML output:

```
\begin{warpHTML}
```

HTML Unicode entities:

```
\let\LWR@origampersand\&
```

\LWR@fontfortags {⟨*macro name*⟩}

Forces roman TT font for HTML tags.

```
\newrobustcmd*{\LWR@fontfortags}[1]{%
    \ifmmode%
        \PackageError{lwarp}%
            {%
                An HTML tag was generated inside math.\MessageBreak
                This should never occur.\MessageBreak
                Something is broken in Lwarp%
            }%
            {(Using #1.)}%
    \else%
```

Used by ltjtbook, platex, and related.

```
        \ifdef{\romanencoding}%
            {%
                \romanencoding{\encodingdefault}%
            }%
            {%
```

Used by babel:

```
                \ifdef{\latintext}
                    {\latintext}
                    {\fontencoding\encodingdefault}%
            }%
        \LWR@print@normalfont%
        \LWR@origttfamily%
    \fi%
}
```

\HTMLentity {⟨*entitytag*⟩}

\protect is in case the tag appears in TOC, LOF, LOT.

```
\newcommand*{\HTMLentity}[1]{%
% \LWR@traceinfo{HTMLentity \detokenize{#1}}%
    \begingroup%
    \LWR@hook@processingtags%
    \LWR@fontfortags{HTMLentity}%
    \protect\LWR@origampersand\LWR@isolate{#1};%
    \endgroup%
% \LWR@traceinfo{HTMLentity done}%
}
```

\HTMLunicode {⟨*hex_unicode*⟩}

```
\newcommand*{\HTMLunicode}[1]{\HTMLentity{\LWR@origpound{}x#1}}
```

\&

```
\renewrobustcmd*{\&}{\HTMLentity{amp}}
```

\textless

```
\let\LWR@origtextless\textless
\renewrobustcmd*{\textless}{\HTMLentity{lt}}
```

\textgreater

```
\let\LWR@origtextgreater\textgreater
\renewrobustcmd*{\textgreater}{\HTMLentity{gt}}

\end{warpHTML}
```

46 HTML filename generation

The filename of the homepage is set to \HomeHTMLFilename.html. The filenames of additional sections start with \HTMLFilename, to which is appended a section number or a simplified section name, depending on FileSectionNames.

for HTML & PRINT:

```
\begin{warpall}
```

\BaseJobname The \jobname of the printed version, even if currently compiling the HTML version. I.e. this is the \jobname without _html appended. This is used to set \HomeHTMLFilename if the user did not provide one.

```
\providecommand*{\BaseJobname}{\jobname}
```

\HTMLFilename The prefix for all generated HTML files other than the home page, defaulting to empty. See section 7.6.1.

```
\providecommand*{\HTMLFilename}{}
```

\HomeHTMLFilename The filename of the home page, defaulting to the \BaseJobname. See section 7.6.1.

```
\providecommand*{\HomeHTMLFilename}{\BaseJobname}
```

\SetHTMLFileNumber {⟨*number*⟩}

Sets the file number for the next file to be generated. 0 is the home page. Use just before the next sectioning command, and set it to one less than the desired number of the next section. May be used to generate numbered groups of nodes such as 100+ for one chapter, 200+ for another chapter, etc.

```
\newcommand*{\SetHTMLFileNumber}[1]{%
    \setcounter{LWR@htmlfilenumber}{#1}%
}
```

Bool FileSectionNames Selects how to create HTML file names.

Defaults to use section names in the filenames.

```
\newbool{FileSectionNames}
\booltrue{FileSectionNames}
```

```
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

Updated each time a new HTML file is begun. Used to provide HTML previous/next web page links.

```
\newcounter{LWR@HTMLpagenum}
\setcounter{LWR@HTMLpagenum}{0}
```

Ctr `LWR@htmlseqfilenumber`

A sequential count of the number of each HTML file as it is being created. Number 0 is the home page. Unlike `\LWR@htmlfilenumber`, this one is known to increment by one for each file. This is used to generate previous /next links for each web page, via labels called `\BaseJobname-autofile-*`, and the last page is also labelled `\BaseJobname-autofile-last`.

```
\newcounter{LWR@htmlseqfilenumber}
\setcounter{LWR@htmlseqfilenumber}{0}
```

Bool `LWR@setseqfilelabel`

At each new HTML file, this is false until a sectional unit is used, at which point this is set true and a label is placed. In this way, the previous/next labels will point to a named section.

```
\newbool{LWR@setseqfilelabel}
\setbool{LWR@setseqfilelabel}{false}
```

Ctr `LWR@htmlfilenumber`

Records the number of each HTML file as it is being created. Number 0 is the home page. This might not be sequential, as the user may use `\SetHTMLFileNumber` to create groups of numbered nodes.

```
\newcounter{LWR@htmlfilenumber}
\setcounter{LWR@htmlfilenumber}{0}
```

`\LWR@htmlsectionfilename` {⟨*htmlfilenumber or name*⟩}

Prints the filename for a given section: `\HTMLFilename{}filenumber/name.html`

```
\newcommand*{\LWR@htmlsectionfilename}[1]{%
\LWR@traceinfo{LWR@htmlsectionfilename A !\detokenize{#1}!}%
\begingroup%
```

Disable CJK xpinyin while generating file names.

```
\LWR@disablepinyin%
```

Section 0 or empty is given the home filename. The filename must be detokenized for underscores.

```
% \LWR@traceinfo{about to assign temp}%
\LWR@sanitize{#1}%
\LWR@traceinfo{about to compare with ??}%
```

```
\ifdefstring{\LWR@sanitized}{??}
    {\LWR@traceinfo{found ??}}%
    {\LWR@traceinfo{not found ??}}%
\LWR@traceinfo{about to compare with zero or empty}%
\ifboolexpr{
    test {\ifdefstring{\LWR@sanitized}{0}} or
    test {\ifdefstring{\LWR@sanitized}{}} or
    test {\ifdefstring{\LWR@sanitized}{??}}
}
{%
    \LWR@traceinfo{LWR@htmlsectionfilename B \HomeHTMLFilename.html}%
    \HomeHTMLFilename.html%
}%
```

For a LaTeX section named “Index” or “index” without a prefix, create a filename with a trailing `-0` to avoid colliding with the HTML filename `index.html`:

```
{%
    \LWR@traceinfo{LWR@htmlsectionfilename C \LWR@sanitized}%
    \ifboolexpr{
            test{\ifdefvoid{\HTMLFilename}} and
            (
                test{\ifdefstring{\LWR@sanitized}{Index}} or
                test{\ifdefstring{\LWR@sanitized}{index}}
            )
    }%
    {%
        \LWR@traceinfo{Adding a zero to the index filename.}%
        \LWR@sanitized-0.html%
    }%
```

Otherwise, create a filename with the chosen prefix:

```
    {%
        \HTMLFilename\LWR@isolate{\LWR@sanitized}.html%
    }%
}%
\LWR@traceinfo{LWR@htmlsectionfilename Z}%
\endgroup%
}
```

`\LWR@htmlrefsectionfilename` {⟨*label*⟩}

Prints the filename for the given label

```
\newcommand*{\LWR@htmlrefsectionfilename}[1]{%
    \LWR@traceinfo{LWR@htmlrefsectionfilename: !\detokenize{#1}!}%
```

`\LWR@nullfonts` to allow math in a section name.

```
    \begingroup%
    \LWR@nullfonts%
    \LWR@htmlsectionfilename{\LWR@htmlfileref{#1}}%
    \endgroup%
    \LWR@traceinfo{LWR@htmlrefsectionfilename: done}%
}
```

```
\end{warpHTML}
```

47 Homepage link

for HTML & PRINT:

```
\begin{warpall}
```

`\linkhomename` Holds the default name for the home link.

```
\newcommand{\linkhomename}{Home}
```

```
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

`\LinkHome` May be used wherever you wish to place a link back to the homepage. The filename must be detokenized for underscores.

```
\newcommand*{\LinkHome}{%
    \LWR@subhyperrefclass{\HomeHTMLFilename.html}{\linkhomename}{linkhome}%
}
```

```
\end{warpHTML}
```

for PRINT output:

```
\begin{warpprint}
```

`\LinkHome` May be used wherever you wish to place a link back to the homepage. For print output, if hyperref is available a hyperlink to the first page is used, named by `\linkhomename`. If hyperref is not available, a pageref is used instead.

`\BaseJobname` is included in the link label in case multiple documents are cross-referenced.

```
\AtBeginDocument{
\@ifundefined{hyperref}{
    \newcommand*{\LinkHome}{%
        \linkhomename\ --- page \pageref{\BaseJobname-page-LWRfirstpage}%
    }
}{
    \newcommand*{\LinkHome}{%
        \hyperref[\BaseJobname-page-LWRfirstpage]{\linkhomename}%
    }
}
}

\AfterEndPreamble{\label{\BaseJobname-page-LWRfirstpage}}
```

```
\end{warpprint}
```

for HTML output:

```
\begin{warpHTML}
```

`\LWR@topnavigation` Creates a link to the homepage at the top of the page for use when the window is too narrow for the sideTOC.

```
\newcommand*{\LWR@topnavigation}{%
    \LWR@htmlelementclassline{nav}{topnavigation}{\LinkHome}
}
```

\LWR@botnavigation Creates a link to the homepage at the bottom of the page for use when the window is too narrow for the sideTOC.

```
\newcommand*{\LWR@botnavigation}{%
    \LWR@htmlelementclassline{nav}{botnavigation}{\LinkHome}
}
```

```
\end{warpHTML}
```

48 Previous/next navigation links

for HTML & PRINT:

```
\begin{warpall}
```

\linkpreviousname What to call the link to the previous web page.

```
\newcommand*{\linkpreviousname}{Previous}
```

\linknextname What to call the link to the next web page.

```
\newcommand*{\linknextname}{Next}
```

```
\end{warpall}
```

for PRINT output:

```
\begin{warpprint}
```

\LinkPrevious Creates a link to the previous web page if there is one.

```
\newcommand*{\LinkPrevious}{}
```

\LinkNext Creates a link to the next web page if there is one.

```
\newcommand*{\LinkNext}{}
```

```
\end{warpprint}
```

for HTML output:

```
\begin{warpHTML}
```

\LinkPrevious Creates a link to the previous web page if there is one.

The links refer to the LaTeX labels `\Basejobname-autofile-*`

```
\newcommand*{\LinkPrevious}{%
    \ifnumless{\value{LWR@htmlseqfilenumber}}{1}{}{%
        \setcounter{LWR@tempcountone}{\value{LWR@htmlseqfilenumber}-1}%
        \LWR@subhyperrefclass{%
            \LWR@htmlrefsectionfilename{%
                \BaseJobname-autofile-\arabic{LWR@tempcountone}%
            }%
        }{\linkpreviousname}{linkhome}%
    }%
}
```

\LinkNext Creates a link to the next web page if there is one.

The links refer to the LaTeX labels \Basejobname-autofile-*
and the last is the label \Basejobname-autofile-last

```
\newcommand*{\LinkNext}{%
    \ifcsdef{r@\BaseJobname-autofile-last@lwarp}{%
        \edef\LWR@tempone{%
        \LWR@htmlfileref{\BaseJobname-autofile-\arabic{LWR@htmlseqfilenumber}}%
        }%
        \edef\LWR@temptwo{%
            \LWR@htmlfileref{\BaseJobname-autofile-last}%
        }%
        \ifdefequal{\LWR@tempone}{\LWR@temptwo}{}{%
           \setcounter{LWR@tempcountone}{\value{LWR@htmlseqfilenumber}+1}%
            \LWR@subhyperrefclass{%
                \LWR@htmlrefsectionfilename{%
                    \BaseJobname-autofile-\arabic{LWR@tempcountone}%
                }%
            }{\linknextname}{linkhome}%
        }%
    }{}%
}
```

```
\end{warpHTML}
```

49 \LWRPrintStack diagnostic tool

⚠ Diagnostics tool: Prints the LaTeX nesting depth values for the stack levels. \LWR@startpars is used before printing the stack, so that \LWRPrintStack may be called from anywhere in the normal text flow.

for HTML output:

```
\begin{warpHTML}
```

\LWRPrintStack Prints the closedepth stack.

```
\newcommand*{\LWR@subprintstack}{
\LWR@closedepthone\ \LWR@closedepththwo\ \LWR@closedepththree\
\LWR@closedepthfour\ \LWR@closedepthfive\ \LWR@closedepthsix\
\LWR@closedepthseven\ \LWR@closedepthheight\ \LWR@closedepthnine\
\LWR@closedepthten\ \LWR@closedepththeleven\ \LWR@closedepthtwelve\
\LWR@closedepththirteen\ \LWR@closedepthfourteen\ \LWR@closedepthfifteen\
\LWR@closedepthsixteen\ \LWR@closedepthseventeen\ \LWR@closedepthheighteen\
\LWR@closedepthnineteen\
}

\newcommand*{\LWRPrintStack}{
\LWR@startpars
\LWR@subprintstack
}
```

```
\end{warpHTML}
```

for PRINT output:

```
\begin{warpprint}
```

```
\newcommand*{\LWRPrintStack}{}
```

```
\end{warpprint}
```

50 Closing stack levels

for HTML output:

```
\begin{warpHTML}
```

Close one nested level:

```
\newcommand*{\LWR@closeoneprevious}{%

\LWR@closeone

\LWR@popclose
}
```

`\LWR@closeprevious` {⟨*sectintype*⟩} Close everything up to the given depth:

```
\newcommand*{\LWR@closeprevious}[1]{%
\LWR@traceinfo{%
    LWR@closeprevious to depth \csuse{LWR@depth#1}, %
    depths are \LWR@subprintstack%
}%
```

Close any pending paragraph:

```
\LWR@stoppars%
```

Close anything nested deeper than the desired depth. First close anything deeper, then at most one of the same level.

```
\whileboolexpr{test{\ifnumcomp{\LWR@closedepthone}{>}{\csuse{LWR@depth#1}}}}%
{%
   \LWR@traceinfo{LWR@closeprevious: closing out depth \LWR@closedepthone}%
    \LWR@closeoneprevious%
}%
\ifboolexpr{test{\ifnumcomp{\LWR@closedepthone}{=}{\csuse{LWR@depth#1}}}}%
{%
   \LWR@traceinfo{LWR@closeprevious: closing out depth \LWR@closedepthone}%
    \LWR@closeoneprevious%
}{}%
\LWR@traceinfo{LWR@closeprevious: done, depths are \LWR@subprintstack}%
}
```

```
\end{warpHTML}
```

51 PDF pages and styles

for HTML output:

```
\begin{warpHTML}
```

`\LWR@forcenewpage` New PDF page a before major environment.

This is used just before major environments, such as verse. Reduces the chance of an environment overflowing the HTML PDF output page.

```
\newcommand{\LWR@forcenewpage}{%
\LWR@traceinfo{LWR@forcenewpage}%
\ifinner\else%
    \LWR@traceinfo{LWR@forcenewpage A}%
    \LWR@stoppars%
    \LWR@traceinfo{LWR@forcenewpage B}%
    \LWR@maybe@orignewpage%
    \LWR@traceinfo{LWR@forcenewpage C}%
    \LWR@startpars%
\fi%
\LWR@traceinfo{LWR@forcenewpage done}%
}
```

\pagestyle, etc. are nullified for HTML output.

\pagestyle {⟨*style*⟩}

```
\renewcommand*{\pagestyle}[1]{}
```

\thispagestyle {⟨*style*⟩}

```
\renewcommand*{\thispagestyle}[1]{}
```

\markboth {⟨*left*⟩} {⟨*right*⟩}

```
\renewcommand*{\markboth}[2]{}
```

\markright {⟨*right*⟩}

```
\renewcommand*{\markright}[1]{}
```

\raggedbottom

```
\renewcommand*{\raggedbottom}{}
```

\flushbottom

```
\renewcommand*{\flushbottom}{}
```

\sloppy

```
\renewcommand*{\sloppy}{}
```

\fussy

```
\renewcommand*{\fussy}{}
```

\pagenumbering * {⟨*commands*⟩}

```
\RenewDocumentCommand{\pagenumbering}{s m}{}
\end{warpHTML}
```

52 HTML tags, spans, divs, elements

for HTML output:
```
\begin{warpHTML}
```

52.1 Mapping LaTeX sections to HTML sections

```
\newcommand*{\LWR@tagtitle}{h1}
\newcommand*{\LWR@tagtitleend}{/h1}
\newcommand*{\LWR@tagbook}{div class=\textquotedbl{}book\textquotedbl}
\newcommand*{\LWR@tagbookend}{/div}
\newcommand*{\LWR@tagpart}{h2}
\newcommand*{\LWR@tagpartend}{/h2}
\newcommand*{\LWR@tagchapter}{h3}
\newcommand*{\LWR@tagchapterend}{/h3}
\newcommand*{\LWR@tagsection}{h4}
\newcommand*{\LWR@tagsectionend}{/h4}
\newcommand*{\LWR@tagsubsection}{h5}
\newcommand*{\LWR@tagsubsectionend}{/h5}
\newcommand*{\LWR@tagsubsubsection}{h6}
\newcommand*{\LWR@tagsubsubsectionend}{/h6}
\newcommand*{\LWR@tagparagraph}{span class=\textquotedbl{}paragraph\textquotedbl}
\newcommand*{\LWR@tagparagraphend}{/span}
\newcommand*{\LWR@tagsubparagraph}{span class=\textquotedbl{}subparagraph\textquotedbl}
\newcommand*{\LWR@tagsubparagraphend}{/span}

\newcommand*{\LWR@tagregularparagraph}{p}
```

52.2 Hook while processing tags

Hook [lwarp]
`\LWR@hook@processingtags`

This is used to disable special text processing while processing HTML tags. Special processing includes that done by babel-french, luavina, xevlna.

`\LWR@hook@processingtags`

Disable special text processing while generating tags. Replaces `\LWR@FBcancel` in most places.

```
\newcommand*{\LWR@hook@processingtags}{}
```

52.3 Babel-French tag modifications

Adjust babel-french for HTML spaces. So far, this only works for *pdflatex* and *xelatex*.

(*Emulates or patches code by* Daniel Flipo.)

```
\providecommand*{\LWR@FBcancel}{}

\AtBeginDocument{%
```

In some circumstances, `\NoAutoSpacing` may be defined when `\frenchbsetup` is not.

```
\@ifundefined{NoAutoSpacing}%
```

```
    {}%
    {%
        \LetLtxMacro\LWR@FBcancel\NoAutoSpacing%
        \appto{\LWR@hook@processingtags}{\LWR@FBcancel}%
    }%

\@ifundefined{frenchbsetup}%
{}%
{%
    \frenchbsetup{FrenchFootnotes=false}%

%
    \renewrobustcmd*{\FBcolonspace}{%
        \begingroup%
        \LWR@hook@processingtags%
        \LWR@origampersand{}nbsp;%
        \endgroup%
    }%
    \renewrobustcmd*{\FBthinspace}{%
        \begingroup%
        \LWR@hook@processingtags%
        \LWR@origampersand\LWR@origpound{}x202f;% \,
        \endgroup%
    }%
    \renewrobustcmd*{\FBguillspace}{%
        \begingroup%
        \LWR@hook@processingtags%
        \LWR@origampersand{}nbsp;% ~,  for \og xyz \fg{}
        \endgroup%
    }%
    \DeclareDocumentCommand{\FBmedkern}{}{%
        \begingroup%
        \LWR@hook@processingtags%
        \LWR@origampersand\LWR@origpound{}x202f;% \,
        \endgroup%
    }%
    \DeclareDocumentCommand{\FBthickkern}{}{%
        \begingroup%
        \LWR@hook@processingtags%
        \LWR@origampersand{}nbsp;% ~
        \endgroup%
    }%
    \renewrobustcmd*{~}{\HTMLentity{nbsp}}% was overwritten by babel-french
    \ifFBunicode%
    \else%
        \DeclareTextSymbol{\FBtextellipsis}{LY1}{133}%
        \DeclareTextCommandDefault{\FBtextellipsis}{\textellipsis\xspace}%
    \fi%
}%
}
```

52.4 HTML output formatting

Helps format the output HTML code for human readability.

`\LWR@indentHTML` Newline and indent the output HTML code.

```
\newcommand*{\LWR@indentHTML}{%
    \LWR@orignewline\LWR@origrule{2em}{0pt}%
}
```

\LWR@indentHTMLtwo Newline and indent the output HTML code.

```
\newcommand*{\LWR@indentHTMLtwo}{%
    \LWR@orignewline\LWR@origrule{4em}{0pt}%
}
```

52.5 HTML tags

\LWR@htmltagc {⟨*tag*⟩} Break ligatures and use upright apostrophes in HTML tags.

\protect is in case the tag appears in TOC, LOF, LOT.

```
\newcommand*{\LWR@htmltagc}[1]{%
    \LWR@traceinfo{LWR@htmltagc !\detokenize{#1}!}%
    \begingroup%
    \LWR@hook@processingtags%
    \LWR@fontfortags{LWR@htmltagc}%
    \protect\LWR@origtextless%
    \LWR@isolate{#1}%
    \protect\LWR@origtextgreater%
    \endgroup%
}
```

\LWR@spanwarnformat {⟨*object*⟩}

Warns if the given object is used inside a span.

```
\newcommand*{\LWR@spanwarnformat}[1]{%
    \ifnumcomp{\value{LWR@spandepth}}{>}{0}{%
        \PackageWarning{lwarp}{%
            A #1 is being used inside a span.\MessageBreak
            Formatting may be lost,%
        }%
    }{}%
}
```

\LWR@spanwarninvalid {⟨*object*⟩}

Warns if the given object is used inside a span.

```
\newcommand*{\LWR@spanwarninvalid}[1]{%
    \ifnumcomp{\value{LWR@spandepth}}{>}{0}{%
        \PackageWarning{lwarp}{%
            A #1 is being used inside a span.\MessageBreak
            This generates invalid HTML,%
        }%
    }{}%
}
```

Env LWR@nestspan Disable minipage, \parbox, and HTML s inside a .

⚠ \begin{LWR@nestspan} must follow the opening tag to allow a paragraph to start if the span is at the beginning of a new paragraph.

⚠ \end{LWR@nestspan} must follow the or a <p> may appear inside the span.

```
\newcommand*{\LWR@nestspanitem}{%
    \if@newlist\else{
        \LWR@htmltagc{br /}%
        \LWR@orignewline%
    }\fi%
    \LWR@origitem%
}

\newenvironment*{LWR@nestspan}
{%
    \LWR@traceinfo{LWR@nestspan starting}%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
    {%
        \LWR@traceinfo{LWR@nestspan: inside a lateximage}%
    }%
    {% not in a lateximage
        \LWR@traceinfo{LWR@nestspan: NOT inside a lateximage}%
        \addtocounter{LWR@spandepth}{1}%
```

Nullify several objects inside the span:

```
        \RenewDocumentEnvironment{minipage}{O{t} o O{t} m}%
            {\LWR@spanwarnformat{minipage or \protect\parbox}}%
            {}%
        \RenewDocumentEnvironment{BlockClass}{o m}%
            {\LWR@spanwarnformat{multi-paragraph object}}%
            {}%
        \RenewDocumentEnvironment{LWR@BlockClassWP}{m m D(){} m}%
            {\LWR@spanwarnformat{multi-paragraph object}}%
            {}%
        \renewcommand{\BlockClassSingle}[2]{%
            {\LWR@spanwarnformat{multi-paragraph object}}%
            ##2%
        }%
        \renewcommand{\LWR@forcenewpage}{}%
        \renewcommand{\LWR@liststart}{\LetLtxMacro\item\LWR@nestspanitem}%
        \renewcommand{\LWR@listend}{\leavevmode}%
       \renewenvironment{quote}{\LWR@htmltagc{br /}}{\LWR@htmltagc{br /}}%
     \renewenvironment{quotation}{\LWR@htmltagc{br /}}{\LWR@htmltagc{br /}}%
    }% not in a lateximage
    \LWR@traceinfo{LWR@nestspan starting: done}%
}% starting env
{% ending env
    \LWR@traceinfo{LWR@nestspan ending}%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
    {}%
    {\addtocounter{LWR@spandepth}{-1}}%
    \LWR@traceinfo{LWR@nestspan ending: done}%
}
```

\LWR@htmlspan {⟨*tag*⟩} {⟨*text*⟩}

⚠ \LWR@spandepth is used to ensure that paragraph tags are not generated inside a span. The exact sequence of when to add and subtract the counter is important to correctly handle the paragraph tags before and after the span.

```
\NewDocumentCommand{\LWR@htmlspan}{m +m}{%
    \LWR@ensuredoingapar%
    \LWR@htmltagc{#1}%
    \begin{LWR@nestspan}%
    #2%
    \LWR@htmltagc{/#1}%
    \end{LWR@nestspan}%
}
```

\LWR@htmlspanclass [⟨*style*⟩] (⟨*aria role*⟩) {⟨*class*⟩} {⟨*text*⟩}

```
\NewDocumentCommand{\LWR@htmlspanclass}{o D(){} m +m}{%
    \LWR@traceinfo{LWR@htmlspanclass |#1|#2|#3|}%
    \LWR@ensuredoingapar%
    \ifblank{#2}%
        {\LWR@subhtmlelementclass{span}[#1]{#3}}%
        {\LWR@subhtmlelementclass{span}[#1](#2){#3}}%
    \begin{LWR@nestspan}%
    #4%
    \LWR@htmltagc{/span}%
    \LWR@traceinfo{LWR@htmlspanclass done}%
    \end{LWR@nestspan}%
}
```

\LWR@htmltag {⟨*tag*⟩}

Print an HTML tag: <tag>

```
\newcommand*{\LWR@htmltag}[1]{%
    \LWR@htmltagc{#1}%
}
```

52.6 Block tags and comments

In the following, \origttfamily breaks ligatures, which may not be used for HTML codes:

\LWR@htmlopencomment
\LWR@htmlclosecomment

```
\newcommand*{\LWR@htmlopencomment}{%
% \LWR@traceinfo{LWR@htmlopencomment}%
    \begingroup%
    \LWR@hook@processingtags%
    \LWR@fontfortags{LWR@htmlopencomment}%
    \LWR@print@mbox{\LWR@origtextless{}!-\/-}%
    \endgroup%
}

\newcommand*{\LWR@htmlclosecomment}{%
% \LWR@traceinfo{LWR@htmlclosecomment}%
    \begingroup%
```

```
    \LWR@hook@processingtags%
    \LWR@fontfortags{LWr@htmlclosecomment}%
    \LWR@print@mbox{-\/-\LWR@origtextgreater}%
    \endgroup%
}
```

`\LWR@htmlcomment` {⟨*comment*⟩}

```
\newcommand{\LWR@htmlcomment}[1]{%
    \ifmmode%
    \else%
        \LWR@htmlopencomment{}%
        {%
            \LWR@print@normalfont%
            \LWR@origttfamily% break ligatures
            #1%
        }%
        \LWR@htmlclosecomment{}%
    \fi%
}
```

`\LWR@htmlblockcomment` {⟨*comment*⟩}

```
\newcommand{\LWR@htmlblockcomment}[1]
    {\LWR@stoppars\LWR@htmlcomment{#1}\LWR@startpars}
```

`\LWR@htmlblocktag` {⟨*tag*⟩} print a stand-alone HTML tag

```
\newcommand*{\LWR@htmlblocktag}[1]{%
    \LWR@stoppars%
    \LWR@htmltag{#1}%
    \LWR@startpars%
}
```

52.7 Div class and element class

`\LWR@subhtmlelementclass` {⟨*element*⟩} [⟨*style*⟩] (⟨*aria role*⟩) {⟨*class*⟩}

Factored and reused in several places.

The trailing spaces allow more places for a line break.

The use of `\textquotedbl` instead of " provides improved compatibility with xeCJK.

```
\NewDocumentCommand{\LWR@subhtmlelementclass}{m O{} D(){} m}{%
    \LWR@traceinfo{LWR@subhtmlelementclass !#1!#2!#3!#4!}%
    \ifblank{#2}%
    {% empty style
        \LWR@htmltag{%
            #1%
            \ifblank{#3}{}{ role=\textquotedbl#3\textquotedbl}% spaces
            \ifblank{#4}{}{ class=\textquotedbl#4\textquotedbl}% spaces
        }%
    }%
```

```
    {% non-empty style
        \LWR@htmltag{%
            #1\LWR@indentHTML%
         \ifblank{#3}{}{role=\textquotedbl#3\textquotedbl\LWR@indentHTML}%
        \ifblank{#4}{}{class=\textquotedbl#4\textquotedbl\LWR@indentHTML}%
            style=\textquotedbl#2\textquotedbl\LWR@orignewline%
        }%
    }%
    \LWR@traceinfo{LWR@subhtmlelementclass done}%
}
```

\LWR@htmlelementclass {⟨*element*⟩} [⟨*style*⟩] {⟨*class*⟩}

```
\NewDocumentCommand{\LWR@htmlelementclass}{m o D(){} m}{%
    \LWR@stoppars%
    \LWR@forceemptyline%
    \ifblank{#3}%
        {\LWR@subhtmlelementclass{#1}[#2]{#4}}%
        {\LWR@subhtmlelementclass{#1}[#2](#3){#4}}%
    \LWR@startpars%
}
```

\LWR@htmlelementclassend {⟨*element*⟩} {⟨*class*⟩}

```
\newcommand*{\LWR@htmlelementclassend}[2]{%
    \LWR@stoppars%
    \LWR@htmltag{/#1}%
    \ifbool{HTMLDebugComments}{%
        \LWR@htmlcomment{End of #1 ``#2''}%
    }{}%
    \LWR@startpars%
}
```

\LWR@htmldivclass [⟨*style*⟩] (⟨*aria role*⟩) {⟨*class*⟩}

```
\NewDocumentCommand{\LWR@htmldivclass}{o D(){} m}{%
    \ifblank{#2}
        {\LWR@htmlelementclass{div}[#1]{#3}}%
        {\LWR@htmlelementclass{div}[#1](#2){#3}}%
}
```

\LWR@htmldivclassend {⟨*class*⟩}

```
\newcommand*{\LWR@htmldivclassend}[1]{%
    \LWR@htmlelementclassend{div}{#1}%
}
```

52.8 Single-line elements

A single-line element, without a paragraph tag for the line of text:

\LWR@htmlelementclassline {⟨*element*⟩} [⟨*style*⟩] {⟨*class*⟩} {⟨*text*⟩}

```
\NewDocumentCommand{\LWR@htmlelementclassline}{m o m +m}{%
```

```
    \LWR@stoppars
    \LWR@forceemptyline%
    \LWR@subhtmlelementclass{#1}[#2]{#3}%
    #4%
    \LWR@htmltag{/#1}
    \LWR@startpars
}
```

52.9 HTML5 semantic elements

`\LWR@htmlelement` {⟨*element*⟩}

```
\newcommand*{\LWR@htmlelement}[1]{%
    \LWR@htmlblocktag{#1}
}
```

`\LWR@htmlelementend` {⟨*element*⟩}

```
\newcommand*{\LWR@htmlelementend}[1]{%
    \LWR@stoppars
    \LWR@htmltag{/#1}
    \LWR@startpars
}

\end{warpHTML}
```

52.10 High-level block and inline classes

These are high-level commands which allow the creation of arbitrary block or inline sections which may be formatted with css.

Nullified versions are provided for print mode.

For other direct-formatting commands, see section 95.

Env `BlockClass` [⟨*style*⟩] (⟨*aria role*⟩) {⟨*class*⟩} High-level interface for `<div>` classes.

Ex: `\begin{BlockClass}{class} text \end{BlockClass}`

for HTML & PRINT:

```
\begin{warpall}
\NewDocumentEnvironment{BlockClass}{o D(){} m}{}{}
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}

\NewDocumentEnvironment{LWR@HTML@BlockClass}{o D(){} m}%
    {\LWR@htmldivclass[#1](#2){#3}}%
    {\LWR@htmldivclassend{#3}}

\LWR@formattedenv{BlockClass}
\end{warpHTML}
```

`\BlockClassSingle` {⟨*class*⟩} {⟨*text*⟩} A single-line `<div>`, without a paragraph tag for the line of text.

for HTML & PRINT:
```
\begin{warpall}
\newcommand{\BlockClassSingle}[2]{#2}
\end{warpall}
```

for HTML output:
```
\begin{warpHTML}
\newcommand{\LWR@HTML@BlockClassSingle}[2]{%
    \LWR@htmlelementclassline{div}{#1}{#2}%
}

\LWR@formatted{BlockClassSingle}
\end{warpHTML}
```

`\InlineClass` (⟨*WP style*⟩) [⟨*style*⟩] {⟨*class*⟩} {⟨*text*⟩}

High-level interface for inline span classes.

(⟨*WP style*⟩) is css styling to add when formatting for a word processor import.

[⟨*style*⟩] is the css styling to add when not formatting for a word processor.

for HTML & PRINT:
```
\begin{warpall}
\NewDocumentCommand{\InlineClass}{D{(}{)}{} o m +m}{#4}%
\end{warpall}
```

for HTML output:
```
\begin{warpHTML}
\NewDocumentCommand{\LWR@HTML@InlineClass}{D{(}{)}{} o m +m}{%
    \LWR@traceinfo{LWR@HTML@InlineClass #3}%
    \ifbool{FormatWP}{%
        \LWR@traceinfo{LWR@HTML@InlineClass: FormatWP}%
        \LWR@htmlspanclass[#1]{#3}{#4}%
    }{%
        \LWR@traceinfo{LWR@HTML@InlineClass: not FormatWP}%
        \LWR@htmlspanclass[#2]{#3}{#4}%
    }%
    \LWR@traceinfo{LWR@HTML@InlineClass: done}%
}

\LWR@formatted{InlineClass}
\end{warpHTML}
```

Env `LWR@BlockClassWP` {⟨*WPstyle*⟩} {⟨*HTMLstyle*⟩} (⟨*aria role*⟩) {⟨*class*⟩} Low-level interface for `<div>` classes with an automatic float ID. These are often used when `\ifbool{FormatWP}`.

The use of `\textquotedbl` instead of " provides improved compatibility with xeCJK.

for HTML & PRINT:
```
\begin{warpall}
\NewDocumentEnvironment{LWR@BlockClassWP}{m m D(){} m}{}{}
\end{warpall}
```

for HTML output:
```
\begin{warpHTML}
\NewDocumentEnvironment{LWR@HTML@LWR@BlockClassWP}{m m D(){} m}%
    {%
        \LWR@stoppars%
        \ifbool{FormatWP}%
        {%
            \addtocounter{LWR@thisautoidWP}{1}%
```

```
            \LWR@htmltag{%
                div class=\textquotedbl#4\textquotedbl\ % space
                id=\textquotedbl%
                    \LWR@print@mbox{autoidWP-\arabic{LWR@thisautoidWP}}%
                \textquotedbl%
                \ifblank{#3}{}{ role=\textquotedbl#3\textquotedbl}%
                \ifblank{#1}{}{ style=\textquotedbl#1\textquotedbl}%
            }%
        }% FormatWP
        {% not FormatWP
            \LWR@htmltag{%
                div class=\textquotedbl#4\textquotedbl%
                \ifblank{#3}{}{ role=\textquotedbl#3\textquotedbl}%
                \ifblank{#2}{}{ style=\textquotedbl#2\textquotedbl}%
            }%
        }% not FormatWP
        \LWR@startpars%
    }
    {\LWR@htmldivclassend{#4}}

\LWR@formattedenv{LWR@BlockClassWP}
\end{warpHTML}
```

52.11 Closing HTML tags

for HTML output:

```
\begin{warpHTML}
```

Sections H1, H2, etc. do not need a closing HTML tag, but we add a comment for readability:

```
\newcommand*{\LWR@printclosebook}
    {\ifbool{HTMLDebugComments}{\LWR@htmlcomment{Closing book}}{}}
\newcommand*{\LWR@printclosepart}
    {\ifbool{HTMLDebugComments}{\LWR@htmlcomment{Closing part}}{}}
\newcommand*{\LWR@printclosechapter}
    {\ifbool{HTMLDebugComments}{\LWR@htmlcomment{Closing chapter}}{}}
\newcommand*{\LWR@printclosesection}
    {\ifbool{HTMLDebugComments}{\LWR@htmlcomment{Closing section}}{}}
\newcommand*{\LWR@printclosesubsection}
    {\ifbool{HTMLDebugComments}{\LWR@htmlcomment{Closing subsection}}{}}
\newcommand*{\LWR@printclosesubsubsection}
   {\ifbool{HTMLDebugComments}{\LWR@htmlcomment{Closing subsubsection}}{}}
\newcommand*{\LWR@printcloseparagraph}
    {\ifbool{HTMLDebugComments}{\LWR@htmlcomment{Closing paragraph}}{}}
\newcommand*{\LWR@printclosesubparagraph}
    {\ifbool{HTMLDebugComments}{\LWR@htmlcomment{Closing subparagraph}}{}}
```

Lists require closing HTML tags:

```
\newcommand*{\LWR@printcloselistitem}
    {\LWR@htmltag{/li}}
\newcommand*{\LWR@printclosedescitem}
    {\LWR@htmltag{/dd}}
\newcommand*{\LWR@printcloseitemize}
    {\LWR@htmltag{/ul}}
\newcommand*{\LWR@printcloseenumerate}
    {\LWR@htmltag{/ol}}
\newcommand*{\LWR@printclosedescription}
```

```
6613     {\LWR@htmltag{/dl}}

6614 \end{warpHTML}
```

53 Paragraph handling

These commands generate the HTML paragraph tags when allowed and required.

Paragraph tags are or are not allowed depending on many conditions. Section 54 has high-level commands which allow paragraph-tag generation to start/stop. Even when allowed (LWR@doingstartpars), tags are not generated until a LaTeX paragraph is being used (LWR@doingapar). LWR@lateximagedepth is used to prevent nesting tags inside a lateximage. LWR@spandepth is used to prevent nesting paragraph tags inside a paragraph, which became important inside \fbox commands and other spans.

The LaTeX paragraph hooks are used to manage tag creation.

for HTML output:

```
6615 \begin{warpHTML}
```

Ctr LWR@spandepth

Do not create paragraph tags inside of an HTML span.

```
6616 \newcounter{LWR@spandepth}
6617 \setcounter{LWR@spandepth}{0}
```

Bool LWR@doingparhooks

Tells whether the lwarp paragraph hooks are to be active.

```
6618 \newbool{LWR@doingparhooks}
6619 \boolfalse{LWR@doingparhooks}
```

Bool LWR@in@multirow@par

Tells whether to generate break instead of paragraph tags inside a \multirow.

```
6620 \newbool{LWR@in@multirow@par}
6621 \boolfalse{LWR@in@multirow@par}
```

Bool LWR@starting@fancybox

Suppresses <br> if beginning a fancybox environment.

```
6622 \newbool{LWR@starting@fancybox}
6623 \boolfalse{LWR@starting@fancybox}
```

Bool LWR@doingstartpars

Tells whether paragraphs may be generated.

```
6624 \newbool{LWR@doingstartpars}
6625 \boolfalse{LWR@doingstartpars}
```

Bool LWR@doingapar

Tells whether have actually generated and are currently processing paragraph text.

```
6626 \newbool{LWR@doingapar}
6627 \global\boolfalse{LWR@doingapar}
```

Bool LWR@algocf@dopars

Tells whether algorithm2e has patched paragraph handling using \everypar. If so, the open paragraph tags are generated by algorithm2e's \algocf@everypar instead of \LWR@openparagraph.

```
6628 \newbool{LWR@algocf@dopars}
6629 \boolfalse{LWR@algocf@dopars}
```

\PN@parnotes@auto Redefined by parnotes to print paragraph notes at the end of each paragraph.

```
\def\PN@parnotes@auto{}%
```

\LWR@ensuredoingapar
\LWR@openparagraph These were different in older versions of lwarp, but are now the same thing.

```
\newcommand*{\LWR@openparagraph}
{%
```

See if paragraph handling is enabled:

```
    \ifboolexpr{
        bool{LWR@doingparhooks} and
        bool{LWR@doingstartpars}
    }%
    {% handling pars
```

See if have already started a lateximage or a . If so, do not generate nested paragraph tags.

```
        \ifboolexpr{
            test {\ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}} or
            test {\ifnumcomp{\value{LWR@spandepth}}{>}{0}}
        }% nested par tags?
```

If so: Do nothing if already started a lateximage page. Cannot nest a lateximage. Also do nothing if already inside a . Do not nest paragraph tags inside a .

```
        {}% no nested par tags
```

Else: No lateximage or has been started yet, so it's OK to generate paragraph tags.

```
        {% yes nest par tags
            \ifbool{LWR@doingapar}{}{%
```

If parnotes is used, paragraph notes are inserted before starting the next paragraph:

```
                \PN@parnotes@auto%
```

Set flag before creating the tag, so that the tag itself does not trigger a new paragraph:

```
                \global\booltrue{LWR@doingapar}%
```

The opening paragraph tag. Do not create tag if doing algorithm2e handling instead:

```
                \ifbool{LWR@algocf@dopars}{}{%
                    \ifbool{LWR@in@multirow@par}%
                        {}%
                {\LWR@htmltagc{\LWR@tagregularparagraph}\LWR@orignewline}%
                }%
            }%
        }% end of yes nest par tags
```

```
    }% end of handling pars
    {}% not handling pars
}

\let\LWR@ensuredoingapar\LWR@openparagraph
```

\LWR@closeparagraph@br Add an HTML break if in a span, and not in a lateximage, and not in tabular metadata. Factored from \LWR@closeparagraph.

```
\newcommand*{\LWR@closeparagraph@br}
{%
    \ifboolexpr{
        test {\ifnumcomp{\value{LWR@spandepth}}{>}{0}} and
        test {\ifnumcomp{\value{LWR@lateximagedepth}}{=}{0}} and
        not bool {LWR@starting@fancybox} and
        not bool {LWR@intabularmetadata} or
        bool {LWR@in@multirow@par}
    }%
        {\unskip\LWR@htmltagc{br /}}%
        {}%
}
```

\LWR@closeparagraph

```
\newcommand*{\LWR@closeparagraph}
{%
% \LWR@traceinfo{LWR@closeparagraph}%
```

See if paragraph handling is enabled:

```
    \ifbool{LWR@doingparhooks}{%
        \ifbool{LWR@doingapar}%
```

If currently in paragraph mode:

```
        {% handling pars
```

See if already started a lateximage or a :

```
            \ifboolexpr{
                test {\ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}} or
                test {\ifnumcomp{\value{LWR@spandepth}}{>}{0}} or
                bool{LWR@in@multirow@par}
            }%
```

Add a parbreak if in a span, not in a lateximage, and not in table metadata.

```
            {% no nested par tags
                \LWR@closeparagraph@br%
            }% no nested par tags
```

If have not already started a lateximage or a :

```
            {% yes nest par tags
```

Print a closing tag.

(The fill seems to be required to force the caption package to create flush left caption text in the HTML.)

```
                \@hspacer{\fill}% \hspace*{\fill}
                \leavevmode\LWR@orignewline%
                \LWR@htmltagc{/\LWR@tagregularparagraph}%
```

No longer doing a paragraph:

```
                \global\boolfalse{LWR@doingapar}%
```

Disable the special `minipage` & `\hspace` interaction until a new minipage is found:

```
                \global\boolfalse{LWR@minipagethispar}%
```

If parnotes is used, paragraph notes are inserted after ending the previous paragraph:

```
                \PN@parnotes@auto%

            }% end of yes nest par tags
        }% LWR@doingapar: end of handling pars
```

Add a parbreak if in a span, not in a lateximage, and not in table metadata.

```
        {% not LWR@doingapar: not handling pars
            \LWR@closeparagraph@br%
        }% not handling pars
```

In most cases, finish with a LaTeX `\par`, but in the case of paragraphs between lines in a tabular fetch the next token instead. Required for `\multicolumn`.

```
        \ifboolexpr{%
            not bool {LWR@doingapar} and
            test {\ifnumcomp{\value{LWR@tabulardepth}}{>}{0}} and
            test {
           \ifnumcomp{\value{LWR@tabulardepth}}{=}{\value{LWR@tabularpardepth}}
            } and
            bool {LWR@intabularmetadata} and
            not bool {LWR@tableparcell} and
            test {\ifnumcomp{\value{LWR@lateximagedepth}}{=}{0}}
        }%
            {\LWR@getmynexttoken}%
            {}%
    }% LWR@doingparhooks
    {}% not LWR@doingparhooks
% Do not place anything here, due to the above \LWR@getmynexttoken.
}
```

53.1 Paragraph Hooks

Hook [LaTeX] `para/begin`

```
\AddToHook{para/begin}[lwarp]{\LWR@openparagraph}
```

Hook [LaTeX] para/end

```
\AddToHook{para/end}[lwarp]{\LWR@closeparagraph}
\end{warpHTML}
```

54 Paragraph start/stop handling

These commands allow/disallow the generation of HTML paragraph tags.

Section 53 has the commands which actually generate the tags.

The LaTeX paragraph hooks are used to generate the opening and closing paragraph tags.

for HTML output:

```
\begin{warpHTML}
```

\LWR@startpars

Begin handling HTML paragraphs. This allows an HTML paragraph to start, but one has not yet begun.

```
\newcommand*{\LWR@startpars}%
{%
```

Ignore if inside a lateximage or :

```
    \ifboolexpr{
        test {\ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}} or
        test {\ifnumcomp{\value{LWR@spandepth}}{>}{0}}
    }%
        {}% nesting
        {% not nesting
```

The LaTeX paragraph hook controls tag generation for the start and end of paragraphs.

See if currently handling HTML paragraphs:

```
        \ifboolexpr {bool{LWR@doingparhooks} and bool{LWR@doingstartpars}}%
```

If already in paragraph mode, do nothing.

```
                {}%
```

If not currently in paragraph mode:

```
                {\par}%
```

Are now handling paragraphs, but have not yet actually started one:

```
            \global\booltrue{LWR@doingstartpars}%
```

No <par> tag yet to undo:

```
            \global\boolfalse{LWR@doingapar}%
        }% not nesting
}
```

\LWR@stoppars Stop handling HTML paragraphs. Any currently open HTML paragraph is closed, and no more will be opened.

```
\newcommand*{\LWR@stoppars}%
{%
```

Ignore if inside a lateximage or :

```
    \ifboolexpr{
        test {\ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}} or
        test {\ifnumcomp{\value{LWR@spandepth}}{>}{0}}
    }%
        {}% nesting
        {% not nesting
```

See if currently handling HTML paragraphs:

```
            \ifboolexpr{bool{LWR@doingparhooks} and bool{LWR@doingapar}}%
```

if currently in an HTML paragraph:

```
            {%
```

Print a closing tag:

```
                \leavevmode\LWR@orignewline%
                \LWR@htmltagc{/\LWR@tagregularparagraph}%
                \LWR@orignewline%
```

No longer have an open HTML paragraph:

```
                \global\boolfalse{LWR@doingapar}%
```

Disable the special minipage & \hspace interaction until a new minipage is found:

```
                \global\boolfalse{LWR@minipagethispar}%
            }%
```

If was not in an HTML paragraph:

```
            {}%
```

No longer in paragraph mode:

```
            \global\setbool{LWR@doingstartpars}{false}%
```

No <p> tag to undo:

```
            \global\boolfalse{LWR@doingapar}%
        }% not nesting
}

\end{warpHTML}
```

55 Indentfirst

Pkg indentfirst

indentfirst redefines `\@afterindentfalse` to be `\@afterindenttrue`. This is reversed `\AtBeginDocument` here.

for HTML output:

```
\begin{warpHTML}

\AtBeginDocument{
    \def\@afterindentfalse{\let\if@afterindent\iffalse}
    \@afterindentfalse
}
\let\LWR@afterindent@syntaxhighlight\fi% syntax highlighting

\end{warpHTML}
```

56 Page headers and footers

for HTML & PRINT:

```
\begin{warpall}
```

In the following, catcode is manually changed back and forth without groups, since new macros are being defined which must not be contained within the groups.

```
\newcommand{\LWR@firstpagetop}{} % for the home page alone
\newcommand{\LWR@firstpagebottom}{} % for the home page alone
\newcommand{\LWR@pagetop}{} % for all other pages
\newcommand{\LWR@pagebottom}{}
```

`\HTMLFirstPageTop` {⟨*text and logos*⟩}

```
\newcommand{\HTMLFirstPageTop}[1]{%
    \renewcommand{\LWR@firstpagetop}{#1}%
}
```

`\HTMLFirstPageBottom` {⟨*text and logos*⟩}

```
\newcommand{\HTMLFirstPageBottom}[1]{%
    \renewcommand{\LWR@firstpagebottom}{#1}%
}
```

`\HTMLPageTop` {⟨*text and logos*⟩}

```
\newcommand{\HTMLPageTop}[1]{%
    \renewcommand{\LWR@pagetop}{#1}%
}
```

`\HTMLPageBottom` {⟨*text and logos*⟩}

```
\newcommand{\HTMLPageBottom}[1]{%
    \renewcommand{\LWR@pagebottom}{#1}%
}

\end{warpall}
```

57 CSS

for HTML output:
```
\begin{warpHTML}
```

`\LWR@currentcss` The CSS filename to use. This may be changed mid-document using `\CSSFilename`, allowing different CSS files to be used for different sections of the document.

```
\newcommand*{\LWR@currentcss}{lwarp.css}
```

`\CSSFilename` {⟨*new-css-filename.css*⟩} Assigns the CSS file to be used by the following HTML pages.

```
\newcommand*{\CSSFilename}[1]{%
    \renewcommand*{\LWR@currentcss}{#1}%
    \@onelevel@sanitize\LWR@currentcss%
}

\end{warpHTML}
```

for PRINT output:
```
\begin{warpprint}
\newcommand*{\CSSFilename}[1]{}
\end{warpprint}
```

58 MathJax script

for HTML output:
```
\begin{warpHTML}
```
Default: `lwarp_mathjax.txt`

`\LWR@mathjaxfilename` The MathJax script filename to use. This file is copied into the head of each HTML page. This may be changed mid-document using `\MathJaxFilename`, allowing the use of a custom MathJax script, such as for a local repository, or different MathJax script files to be used for different sections of the document.

```
\newcommand*{\LWR@mathjaxfilename}{lwarp_mathjax.txt}
```

`\MathJaxFilename` {⟨*filename*⟩} Assigns the MathJax script file to be used by the following HTML pages.

```
\newcommand*{\MathJaxFilename}[1]{%
    \renewcommand*{\LWR@mathjaxfilename}{#1}%
    \@onelevel@sanitize\LWR@mathjaxfilename%
}

\end{warpHTML}
```

for PRINT output:
```
\begin{warpprint}
\newcommand*{\MathJaxFilename}[1]{}
\end{warpprint}
```

59 Title, HTML meta author, HTML meta description

for HTML output:

```
\begin{warpHTML}
```

`\title` {⟨*title*⟩} Modified to remember `\thetitle`, which is used to set the HTML page titles.

```
\let\LWR@origtitle\title

\renewcommand*{\title}[1]{%
    \LWR@origtitle{#1}%
    \begingroup%
        \renewcommand{\thanks}[1]{}%
        \protected@xdef\thetitle{#1}%
    \endgroup%
}

\end{warpHTML}
```

for HTML & PRINT:

```
\begin{warpall}
```

`\HTMLTitle` {⟨*Titlename*⟩} The Title to place into an HTML meta tag. The default is to use the document `\title`'s setting.

```
\providecommand{\thetitle}{\BaseJobname}

\newcommand{\theHTMLTitle}{\thetitle}

\newcommand{\HTMLTitle}[1]{\renewcommand{\theHTMLTitle}{#1}}
```

`\HTMLAuthor` {⟨*authorname*⟩} The author to place into an HTML meta tag. If none given, the default is `\theauthor`, which is empty unless the titling package is used.

```
\providecommand{\theauthor}{}

\newcommand{\theHTMLAuthor}{\theauthor}

\newcommand{\HTMLAuthor}[1]{\renewcommand{\theHTMLAuthor}{#1}}
```

This is placed inside an HTML meta tag at the start of each file. This may be changed mid-document using `\HTMLDescription`, allowing different HTML descriptions to be used for different sections of the document.

⚠ HTML author Do not use double quotes, and do not exceed 150 characters.

`\HTMLDescription` {⟨*New html meta description.*⟩} Assigns the HTML file's description meta tag.

```
\newcommand{\LWR@currentHTMLDescription}{}

\newcommand{\HTMLDescription}[1]{%
\renewcommand{\LWR@currentHTMLDescription}{#1}
}

\end{warpall}
```

60 Footnotes

lwarp uses native LaTeX footnote code, although with its own \box to avoid the LaTeX output routine. The usual functions mostly work as-is.

footnote numbering

To have footnote numbers reset each time footnotes are printed:

```
\setcounter{footnoteReset}{1}
```

For bigfoot, manyfoot, or perpage:

```
\MakePerPage{footnoteX}
— or —
\MakeSortedPerPage{footnoteX}
```

The footnotes are reset when they are printed, according to section level as set by FootnoteDepth, which is not necessarily by HTML page. This is recommended for \alph, \Alph, or \fnsymbol footnotes, due to the limited number of symbols which are available.

MathJax

Also for MathJax, \footnotename is used for a \footnotemark if the actual footnote number is not known. To redefine it, provide it before loading lwarp:

```
\providecommand{\footnotename}{something}
\usepackage{lwarp}
```

Similar for sidenotes. For endnotes:

```
\def\endnotename{something}% \def allows name to start with
"end"
```

For the pagenote package, there is no \pagenotename to define, since there is no \pagenotemark command.

footmisc

The footmisc stable option is emulated by lwarp.

⚠ sectioning commands

When using footnotes in sectioning commands, to generate consistent results between print and HTML, use the footmisc package with the stable option, provide a short TOC entry, and \protect the \footnote:

```
\usepackage[stable]{footmisc}
. . .
\subsection[Subsection Name]
    {Subsection Name\protect\footnote{A footnote.}}
```

memoir with footmisc

⚠ memoir

If using memoir class, with which lwarp preloads footmisc, the stable option must be declared before lwarp is loaded:

```
\PassOptionsToPackage{stable}{footmisc}
\usepackage{lwarp}
. . .
```

Do not use a starred sectioning command. As an alternative, it may be possible to adjust \secnumdepth instead.

Several kinds of footnotes are used: in a regular page, in a minipage, or as thanks in the titlepage. Each of these is handle differently.

60.1 Regular page footnotes

In HTML documents, footnotes are placed at the bottom of the web page or the section, depending on `FootnoteDepth`, using the LaTeX box `\LWR@footnotebox`. Using this instead of the original `\footins` box avoids having footnotes be printed by the output routine, since footnotes should be printed per HTML page instead of per PDF page.

See section 60.4 for the implementation.

60.2 Minipage footnotes

See section 60.5 for how minipage footnotes are gathered. See section 94.4 for how minipage footnotes are placed into the document.

60.3 Titlepage thanks

See section 69.7 for titlepage footnotes.

60.4 Regular page footnote implementation

for HTML & PRINT:

```
\begin{warpall}
```

Ctr `FootnoteDepth`

Default: 3

Determines how deeply to place footnotes in the HTML files, similar to `tocdepth`. The default of 3 places footnotes before each `\subsubsection` or higher. See table 12 for a table of LaTeX section headings.

```
\newcounter{FootnoteDepth}
\setcounter{FootnoteDepth}{3}
```

Ctr `footnoteReset`

Default: 0

If non-zero, the `footnote` counter is reset to this value each time the footnotes are printed, as controlled by `FootnoteDepth`. For the manyfoot and bigfoot packages, additional counters such as `footnote<suffix>Reset` will be defined as well. These counters may be set non-zero by the user, and are also set if the perpage's `\MakePerPage` or `\MakeSortedPerPage` macros are used for the `footnote` or `footnote<suffix>` counters.

(The name is not capitalized because it is made from the counter's name with "Reset" appended.)

```
\newcounter{footnoteReset}
\setcounter{footnoteReset}{0}
```

```
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

Required for footnotes inside `description` or amstheorem square braces:

```
\AtBeginDocument{
\robustify{\footnote}
```

```
\robustify{\footnotemark}
}
```

\LWR@footnotebox Patch LaTeX footnotes to use a new \box instead of an insert for lwarp footnotes. This avoids having the original \footins appear at the bottom of a lateximage, which is on its own new page.

```
\newbox\LWR@footnotebox
```

Bool LWR@spewingnotes Used with the footnote package to suppress paragraph tags before and after \spewnotes.

```
\newbool{LWR@spewingnotes}% For the footnote package.
```

Much of the following has unneeded print-mode formatting removed.

\@makefntext {⟨*text*⟩}

```
\long\def\@makefntext#1{\textsuperscript{\@thefnmark}~{#1}}
```

\@makefnmark

```
\def\@makefnmark{%
    \textsuperscript{\@thefnmark}%
}
```

Footnotes may be in regular text, in which case paragraphs are tagged, or in a table data cell or lateximage, in which case paragraph tags must be added manually.

In a lateximage during HTML output, the lateximage is placed inside a print-mode minipage, but the footnotes are broken out by:

```
\def\@mpfn{footnote}
\def\thempfn{\thefootnote}
\let\@footnotetext\LWR@footnotetext
```

\LWR@@footnotetext {⟨*text*⟩} {⟨*footnote box name*⟩}

Factored to allow multiple footnote boxes for manyfoot.

```
\long\def\LWR@@footnotetext#1#2{%
\LWR@traceinfo{LWR@footnotetext}%
```

Perhaps generate an autopage in the text to link a citation backreference closer to its usage.

```
\LWR@newautopagelabel{page}%
\LWR@ensuredoingapar%
```

Locally disable auto page labels inside the footnote text. Footnotes are accumulated in the current page before finally being placed in a potentially later page, so the autopages would be incorrect.

```
\begingroup%
\let\LWR@newautopagelabel\LWR@null@newautopagelabel%
```

Take the existing footnote box and add the new content:

```
\global\setbox\csname #2\endcsname=\vbox{%
    \unvbox\csname #2\endcsname%
```

Remember the footnote number for `\ref`:

```
    \protected@edef\@currentlabel{%
        \csname p@footnote\endcsname\@thefnmark%
    }% @currentlabel
```

Open a group:

```
    \color@begingroup%
```

Disable CJK xpinyin while generating footnotes.

```
    \LWR@disablepinyin%
```

Use HTML superscripts in the footnote even when the main text is inside a `latexmage`, because the footnote will be in HTML:

```
    \renewrobustcmd{\textsuperscript}[1]{\LWR@htmlspan{sup}{##1}}%
```

Use paragraph tags if in a tabular data cell or a `latexmage`:

```
    \ifbool{LWR@spewingnotes}{}{%
        \LWR@htmltagc{\LWR@tagregularparagraph}\LWR@orignewline%
    }%
```

Append the footnote to the list:

```
    \@makefntext{#1}%
```

Closing paragraph tag:

```
    \ifbool{LWR@spewingnotes}{}{%
        \LWR@origtilde\LWR@orignewline%
        \LWR@htmltagc{/\LWR@tagregularparagraph}%
        \LWR@orignewline%
    }%
```

Close the group:

```
    \color@endgroup%
}% vbox
\endgroup%
}%
```

`\LWR@footnotetext` {⟨*text*⟩}

```
\long\def\LWR@footnotetext#1{\LWR@@footnotetext{#1}{LWR@footnotebox}}%
```

`\@footnotetext` {⟨*text*⟩}

```
\LetLtxMacro\@footnotetext\LWR@footnotetext
```

60.5 Minipage footnote implementation

Patch LaTeX minipage footnotes to use a new \box instead of an insert for lwarp minipage footnotes. This avoids having the original \@mpfootins appear at the bottom of a lateximage, which is on its own new page.

```
\newbox\LWR@mpfootnotes
```

\@mpfootnotetext {⟨*text*⟩}

```
\long\def\@mpfootnotetext#1{%
\LWR@traceinfo{@mpfootnotetext}%
\LWR@ensuredoingapar%
\global\setbox\LWR@mpfootnotes\vbox{%
    \unvbox\LWR@mpfootnotes%
    \reset@font\footnotesize%
    \hsize\columnwidth%
    \@parboxrestore%
    \protected@edef\@currentlabel%
        {\csname p@mpfootnote\endcsname\@thefnmark}%
    \color@begingroup%
```

Add paragraph tag:

```
    \LWR@htmltagc{\LWR@tagregularparagraph}\LWR@orignewline%

    \@makefntext{%
        \ignorespaces#1%
    }%
```

Add the closing paragraph tag:

```
    \leavevmode\LWR@orignewline%
    \LWR@htmltagc{/\LWR@tagregularparagraph}%

    \color@endgroup%
}% vbox
```

Paragraph handling:

```
\LWR@ensuredoingapar%
\LWR@traceinfo{@mpfootnotetext: done}%
}
```

\thempfootnote Redefined to remove the \itshape, which caused an obscure compiling error in some situations.

```
\AtBeginDocument{
    \def\thempfootnote{\@alph\c@mpfootnote}
}
```

60.6 Printing pending footnotes

\LWR@@printpendingfootnotes {⟨*footnote counter name*⟩}

```
\newcommand*{\LWR@@printpendingfootnotes}[1]{%
\expandafter\ifvoid\csname LWR@#1box\endcsname\else
    \LWR@forcenewpage
    \begin{BlockClass}(note){footnotes}%
```

Create a new autopage in case citation back references occur inside the footnotes:

```
    \LWR@newautopagelabel{page}%

    \null
    \unvbox\csuse{LWR@#1box}
    \setbox\csuse{LWR@#1box}=\vbox{}
    \end{BlockClass}
    \ifltxcounter{#1Reset}{%
        \ifnumgreater{\value{#1Reset}}{0}{%
            \setcounter{#1}{\value{#1Reset}}%
            \addtocounter{#1}{-1}%
        }{}%
    }{}%
\fi
}
```

`\LWR@printpendingfootnotes` Enclose the footnotes in a class, print, then clear. For manynotes, new footnotes may be added via `\appto`.

```
\newcommand*{\LWR@printpendingfootnotes}{%
    \LWR@@printpendingfootnotes{footnote}%
}
```

`\LWR@maybeprintpendingfootnotes` {⟨*depth*⟩} Used to print footnotes before sections only if formatting for an EPUB or word processor:

```
\newcommand*{\LWR@maybeprintpendingfootnotes}[1]{%
\ifboolexpr{
    not test{\ifnumcomp{#1}{>}{\value{FootnoteDepth}}} or
    bool{FormatEPUB} or
    bool{FormatWP}
}%
{\LWR@printpendingfootnotes}%
{}%
}
```

`\LWR@printpendingmpfootnotes` Enclose the minipage footnotes in a class, print, then clear.

```
\newcommand*{\LWR@printpendingmpfootnotes}{%
\ifvoid\LWR@mpfootnotes\else
    \LWR@forcenewpage
    \begin{BlockClass}(note){footnotes}%
    \null
    \unvbox\LWR@mpfootnotes
    \setbox\LWR@mpfootnotes=\vbox{}
    \end{BlockClass}
\fi
}
```

`\LWR@nullifyfootnotes` Cancels footnotes, such as inside an HTML comment or a `\nameref`.

```
\newcommand*{\LWR@nullifyfootnotes}{%
    \renewcommand{\footnote}[2][]{}%
    \renewcommand{\footnotemark}[1][]{}%
}
```

```
\end{warpHTML}
```

61 Marginpars

\marginpar [⟨*left*⟩] {⟨*right*⟩} \marginpar may contains paragraphs, but in order to remain inline with the surrounding text lwarp nullifies block-related macros inside the \marginpar. Paragraph breaks are converted to <br /> tags.

\marginparBlock [⟨*left*⟩] {⟨*right*⟩} To include block-related macros, use \marginparBlock, which takes the same arguments but creates a instead of a . A line break will occur in the text where the \marginBlock occurs.

for HTML output:

```
\begin{warpHTML}
```

\marginpar [⟨*left*⟩] {⟨*right*⟩}

```
\renewcommand{\marginpar}[2][]{%
\ifbool{FormatWP}%
{%
    \begin{LWR@BlockClassWP}%
        {width:2in; float:right; margin:10pt}{}(note){marginblock}%
    #2
    \end{LWR@BlockClassWP}%
}%
{%
    \LWR@htmlspanclass(note){marginpar}{#2}%
}%
}
```

\marginparBlock [⟨*left*⟩] {⟨*right*⟩}

For use when the marginpar will be more than one paragraph, and/or contains more than simple text.

HTML version.

```
\newcommand{\marginparBlock}[2][]{%
    \LWR@stoppars%
    \ifbool{FormatWP}%
    {%
        \begin{LWR@BlockClassWP}%
            {width:2in; float:right; margin:10pt}{}%
            (note){marginblock}%
        #2
        \end{LWR@BlockClassWP}
    }%
    {%
        \begin{BlockClass}[width:2in; float:right; margin:10pt]%
            (note){marginparblock}%
        #2
```

```
6973          \end{BlockClass}
6974      }%
6975      \LWR@startpars%
6976 }
```

\reversemarginpar

```
6977 \renewcommand*{\reversemarginpar}{}
```

\normalmarginpar

```
6978 \renewcommand*{\normalmarginpar}{}
```

```
6979 \end{warpHTML}
```

for PRINT output:

```
6980 \begin{warpprint}
```

\marginparBlock [⟨*left*⟩] {⟨*right*⟩}

For use when the marginpar will be more than one paragraph, and/or contains more than simple text.

Print version.

```
6981 \LetLtxMacro\marginparBlock\marginpar
```

```
6982 \end{warpprint}
```

62 Tracking internal cross references

Cross references are generated using the PDF file's page number during LaTeX compilation. Internal labels are generated which include these page numbers in the label.

File *_html.aux

A new entry in the *_html.aux file is used to help cross-references:

```
\newlabel{autopage-<nnn>}{{<x>}{<y>}}
```

Ctr LWR@currentautosecpage

Records the page number when the section was created. (If a math expression is included in the section name, and SVG math is used, the corresponding lateximage will cause the page number to change by the time the following autosec label is created, thus the initial page number is recorded here.) LWR@currentautosecfloatpage is updated more often than LWR@currentautosecpage.

```
6983 \newcounter{LWR@currentautosecpage}
6984 \setcounter{LWR@currentautosecpage}{1}
```

Ctr LWR@currentautosecfloatpage

The HTML output's PDF page number at the start of a new HTML file, section, or float. Updated more often than LWR@currentautosecpage, such as when a new float occurs. Used only for table of contents, list of figures, list of tables, but not for general cross references such as \label, citation backlinks, etc.

\LWRsetnextfloat is written with this and the autoid by the modified \addcontentsline just before each float's entry.

```
\newcounter{LWR@currentautosecfloatpage}
\setcounter{LWR@currentautosecfloatpage}{1}
```

Ctr LWR@previousautopagelabel

Remembers which autopage label was most recently generated. Used to avoid duplicates.

```
\newcounter{LWR@previousautopagelabel}
\setcounter{LWR@previousautopagelabel}{-1}
```

\LWR@newautopagelabel {⟨*pagenumber counter*⟩}

\BaseJobname is added to the label in case xr or xr-hyper are used.

```
\newcommand*{\LWR@newautopagelabel}[1]{%
```

No action if this autopage label has already been defined:

```
\ifnumequal{\value{LWR@previousautopagelabel}}{\value{page}}%
    {}%
```

If the PDF page has changed, create a label using the desired counter.

If the counter is LWR@currentautosecpage, that was the page number when the section generation began, but the current PDF page may be different by now if the section name had an SVG image, such as SVG math. To allow the cross-reference to point just after the section heading, the label must be made after the section heading is complete, which may have generated a new PDF page. Thus, the label is made with the given counter, which may be the PDF page number where the section heading began, then if the PDF page number has changed, another label is made for the current page number.

```
    {%
        \label{\BaseJobname-autopage-\csuse{the#1}}%
```

If there are intervening pages, such as an SVG image, define another label for the new page:

```
        \ifnumequal{\value{#1}}{\value{page}}%
            {}%
            {\label{\BaseJobname-autopage-\csuse{thepage}}}%
```

Remember the latest autopage label:

```
        \setcounter{LWR@previousautopagelabel}{\value{page}}%
    }%
}
```

\LWR@null@newautopagelabel {⟨*pagenumber counter*⟩}

Inside a footnote, the page numbers will be incorrect, so this is nullified.

```
\newcommand*{\LWR@null@newautopagelabel}[1]{}
```

63 Splitting HTML files

- Files are split according to `FileDepth` and `CombineHigherDepths`.
- Filenames are sanitized by `\LWR@filenamenoblanks`.
- `\LWR@newhtmlfile` finishes an HTML page, adds a comment to tell where and how to split the file, then starts a new HTML page.

for HTML & PRINT:

```
\begin{warpall}
```

Ctr `FileDepth` {⟨*section depth*⟩} determines how deeply to break into new HTML files, similar to `tocdepth`. The default of -5 produces one large HTML file.

```
\newcounter{FileDepth}
\setcounter{FileDepth}{-5}
```

Bool `CombineHigherDepths` Combile higher-level sections together into one file?

```
\newbool{CombineHigherDepths}
\booltrue{CombineHigherDepths}
```

`\FilenameLimit` Maximum length of the generated filenames.

```
\newcommand*{\FilenameLimit}{80}
```

```
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

`\LWR@thisfilename` The currently-active filename or number. At first, this is the homepage.

```
\AtBeginDocument{
\ifbool{FileSectionNames}%
    {\newcommand*{\LWR@thisfilename}{\HomeHTMLFilename}}
    {\newcommand*{\LWR@thisfilename}{0}}
}
```

`\LWR@thisnewfilename` The filename being sanitized.

```
\newcommand*{\LWR@thisnewfilename}{}
```

`\LWR@simplifyname` * {⟨*expression*⟩} Simplify `\LWR@thisnewfilename`.

If starred, detokenizes the input expression. If found, changes the expression to a single detokenized dash.

```
\NewDocumentCommand{\LWR@simplifyname}{s m}{%
\IfBooleanTF{#1}{%
    \StrSubstitute{\LWR@thisnewfilename}%
        {\detokenize{#2}}%
        {\detokenize{-}}[\LWR@thisnewfilename]%
}{%
    \StrSubstitute{\LWR@thisnewfilename}%
```

```
        {#2}%
        {\detokenize{-}}[\LWR@thisnewfilename]%
}
}
```

\LWR@simplifycustom User-defined filename simplifications. Redefine with \newcommand.

```
\newcommand*{\LWR@simplifycustom}{}
```

\FilenameSimplify * {⟨*phrase*⟩} Assign a user-defined filename simplification. Appends to \LWR@simplifycustom.

```
\NewDocumentCommand{\FilenameSimplify}{s m}{%
\IfBooleanTF{#1}{%
    \appto{\LWR@simplifycustom}{%
        \LWR@simplifyname*{#2}%
    }%
}{%
    \appto{\LWR@simplifycustom}{%
        \LWR@simplifyname{#2}%
    }%
}%
}
```

\LWR@avoiddupfilenames Instructions for how to avoid duplicate filenames. This is used in a warning in \LWR@filenamenoblanks, and in an error in \LWR@newhtmlfile.

```
\newcommand*{\LWR@avoiddupfilenames}{%
    To avoid duplicate filenames, use the optional\MessageBreak
    short Table of Contents entry:\MessageBreak
    \space\space\protect\section[Unique name, no math]{Name with math}%
        \MessageBreak
    or use \protect\texorpdfstring, from the hyperref package:\MessageBreak
    \space\space%
        \protect\section{\MessageBreak
            \space\space\space\space\protect\texorpdfstring\MessageBreak
                \space\space\space\space\space\space%
                {Name with math}{Unique name, no math}\MessageBreak
        \space\space}
}
```

\LWR@filenamenoblanks {⟨*filename*⟩}

Convert blanks into dashes, removes short words, store result in \LWR@thisfilename.

Also see \LWR@nullfonts for nullified macros.

```
\newcommand*{\LWR@filenamenoblanks}[1]{%
\begingroup
```

Locally temporarily disable direct-formatting commands, not used in filenames:

```
\LWR@nullfonts%
\renewcommand*{\LWR@htmltagc}[1]{}%

\edef\LWR@thisnewfilename{#1}%
```

Replaces common macros with hyphens. (\& is done by \LWR@nullfonts.)

```
\RenewDocumentCommand{\LWR@subsingledollar}{s m m m}{}%
\LWR@simplifyname{\_}
\LWR@simplifyname{\#}
\LWR@simplifyname{\textbackslash}
\LWR@simplifyname{\protect}
\LWR@simplifyname{\ }
\LWR@simplifyname{\textless}
\LWR@simplifyname{\textgreater}
```

```
\edef\LWR@thisnewfilename{\detokenize\expandafter{\LWR@thisnewfilename}}%
```

Warn if there is dollar math in the section name:

```
\ifbool{FileSectionNames}{%
    \IfSubStr{\LWR@thisnewfilename}{\LWRdollar}{%
        \PackageWarning{lwarp}
        {%
            This section name:\MessageBreak
            \space\space``\detokenize\expandafter{#1}''\MessageBreak
            at the line number listed below,\MessageBreak
            is using $dollar-delimited math$,
            which generates\MessageBreak
            complicated file names.  It is better to use\MessageBreak
            \space\space%
           \protect\section{Name with \protect\(parenthesis math\protect\)}%
                \MessageBreak
            The math then will be removed from the file name.\MessageBreak
            \MessageBreak
            \LWR@avoiddupfilenames%
            \MessageBreak
            This section is found before or%
        }
    }{}%
}{}
```

```
\LWR@traceinfo{LWR@filenamenoblanks edef: !\LWR@thisnewfilename!}%
\fullexpandarg%
```

Convert spaces into hyphens:

```
\LWR@simplifyname*{ }
```

Convert punctutation into hyphens:

```
\LWR@simplifyname*{*}
\LWR@simplifyname*{(}
\LWR@simplifyname*{)}
\LWR@simplifyname*{.}
\LWR@simplifyname*{!}
\LWR@simplifyname*{,}
\LWR@simplifyname*{'}
\LWR@simplifyname*{+}
\LWR@simplifyname*{/}
\LWR@simplifyname*{:}
\LWR@simplifyname*{;}
\LWR@simplifyname*{=}
```

```
\LWR@simplifyname*{?}
\LWR@simplifyname*{@}
\LWR@simplifyname*{^}
\LWR@simplifyname*{&}
\LWR@simplifyname*{"}
\LWR@simplifyname*{<}
\LWR@simplifyname*{>}

\LWR@simplifyname{\LWRbackslash}
```

Braces are removed entirely to avoid extra dashes in the result.

```
\StrSubstitute{\LWR@thisnewfilename}%
    {\LWRleftbrace}{}[\LWR@thisnewfilename]%
\StrSubstitute{\LWR@thisnewfilename}%
    {\LWRrightbrace}{}[\LWR@thisnewfilename]%

\LWR@simplifyname{\LWRpercent}
\LWR@simplifyname{\LWRdollar}

\LWR@simplifyname*{|}
\LWR@simplifyname*{^}
\LWR@simplifyname*{~}
\LWR@simplifyname*{[}
\LWR@simplifyname*{]}
\LWR@simplifyname*{‘}
```

Convert short words:

```
\LWR@simplifyname*{-s-}
\LWR@simplifyname*{-S-}
\LWR@simplifyname*{-a-}
\LWR@simplifyname*{-A-}
\LWR@simplifyname*{-an-}
\LWR@simplifyname*{-AN-}
\LWR@simplifyname*{-to-}
\LWR@simplifyname*{-TO-}
\LWR@simplifyname*{-by-}
\LWR@simplifyname*{-BY-}
\LWR@simplifyname*{-of-}
\LWR@simplifyname*{-OF-}
\LWR@simplifyname*{-and-}
\LWR@simplifyname*{-AND-}
\LWR@simplifyname*{-for-}
\LWR@simplifyname*{-FOR-}
\LWR@simplifyname*{-the-}
\LWR@simplifyname*{-THE-}
```

Convert custom words:

```
\LWR@simplifycustom%
```

If PDF LaTeX and not `utf8` encoding, don't try to convert emdash, endash:

```
\ifPDFTeX% pdflatex or dvi latex
\ifdefstring{\inputencodingname}{utf8}{%
    \LWR@simplifyname*{—}
```

```
%     emdash
    \LWR@simplifyname*{-}
%     endash
}{}%
\else% not PDFTeX
    \LWR@simplifyname*{-}
    \LWR@simplifyname*{-}
\fi%
```

Convert multiple hyphens:

```
\LWR@simplifyname*{-----}
\LWR@simplifyname*{----}
\LWR@simplifyname*{---}
\LWR@simplifyname*{--}
```

If starts with a dash, remove the leading dash:

```
\IfBeginWith{\LWR@thisnewfilename}{\detokenize{-}}{%
    \StrGobbleLeft{\LWR@thisnewfilename}{1}[\LWR@thisnewfilename]%
}{}%
```

If ends with a dash, remove the trailing dash:

```
\IfEndWith{\LWR@thisnewfilename}{\detokenize{-}}{%
    \StrGobbleRight{\LWR@thisnewfilename}{1}[\LWR@thisnewfilename]%
}{}%
```

Limits the length of the filename:

```
\StrLeft{\LWR@thisnewfilename}{\FilenameLimit}[\LWR@thisnewfilename]%
```

Return the global result:

```
\global\let\LWR@thisfilename\LWR@thisnewfilename%
\endgroup%
\LWR@traceinfo{LWR@filenamenoblanks: result is \LWR@thisfilename}%
}
```

63.1 Sanitizing expressions for HTML

Math expressions are converted to `latexmages`, and some math environments may contain &, <, or >, which should not be allowed inside an HTML <alt> tag, so must convert them to HTML entities.

`\LWR@replacestrings` {⟨*search*⟩} {⟨*replace*⟩}

Replaces strings inside `\tmpb`.

Modified from the original, by PETR OLSAK, from the opmac package.

```
\bgroup
\catcode`!=3 \catcode`?=3

\long\gdef\LWR@replacestrings@addto#1#2{%
    \expandafter\def\expandafter#1\expandafter{#1#2}%
```

```
}

\gdef\LWR@replacestrings#1#2{%
   \long\def\LWR@replacestringsA##1#1{\def\tmpb{##1}\LWR@replacestringsB}%
   \long\def\LWR@replacestringsB##1#1{%
        \ifx!##1\relax \else\LWR@replacestrings@addto\tmpb{#2##1}%
        \expandafter\LWR@replacestringsB\fi%
   }%                                  improved version <May 2016> inspired
   \expandafter\LWR@replacestringsA\tmpb?#1!#1% from pysyntax.tex by Petr Krajnik
    \long\def\LWR@replacestringsA##1?{%
        \def\tmpb{##1}%
    }\expandafter\LWR@replacestringsA\tmpb%
}
\egroup
```

Bool
LWR@MathJax@silentquotes

If true, double quotes (\" and ") are removed (used for mathspec). This unfortunately includes double quotes used inside \text with MathJax. If false, double quotes are escaped.

```
\newbool{LWR@MathJax@silentquotes}
\boolfalse{LWR@MathJax@silentquotes}
```

\LWR@subHTMLsanitize

\LWR@strresult must first be set by \LWR@HTMLsanitize, \LWR@HTMLsanitizeexpand, or \CustomizeMathJax.

```
\catcode`\#=12
\catcode`\&=12
\newcommand{\LWR@subHTMLsanitize}{%
```

The &, <, and > may be interpreted by the browser:

```
    \edef\tmpb{\detokenize\expandafter{\LWR@strresult}}%
    \LWR@replacestrings{&}{&amp;}%
    \LWR@replacestrings{<}{&lt;}%
    \LWR@replacestrings{>}{&gt;}%
```

The quotes occasionally causes problems. For mathspec, also allow neutralization of \" and the " character.

```
    \ifbool{LWR@MathJax@silentquotes}
        {%
            \expandafter\LWR@replacestrings\expandafter{\LWRbackslash"}{}%
            \LWR@replacestrings{"}{}%
        }%
        {\LWR@replacestrings{"}{&quot;}}%
    \LWR@replacestrings{'}{&apos;}%
    \LWR@replacestrings{`}{&grave;}%
```

MathJax allows expressions to be defined with \newcommand. These expressions would appear with ## for each argument, and each must be changed to a single #. This must be done after all the above changes. Attempting another conversion after this causes an error upon further expansion.

```
    \LWR@replacestrings{##}{#}%
    \edef\LWR@strresult{\detokenize\expandafter{\tmpb}}%
}
```

```
\catcode`\#=6
\catcode`\&=4
```

`\LWR@HTMLsanitizedetokenized` {⟨*detokenized text*⟩}

Prints the sanitized text, already detokenized.

```
\newrobustcmd{\LWR@HTMLsanitizedetokenized}[1]{%
    \LWR@traceinfo{LWR@HTMLsanitizedetokenized !#1!}%
```

Cancel French babel character handling, and fully expand the strings:

```
    \begingroup%
    \LWR@hook@processingtags%
    \edef\LWR@strresult{#1}%
    \LWR@subHTMLsanitize%
    \LWR@strresult%
    \endgroup%
    \LWR@traceinfo{LWR@HTMLsanitize done}%
}
```

`\LWR@HTMLsanitizeexpanded` {⟨*text*⟩}

This version must be given the detokenized and expanded text. This is only used for adding math to MathJax expressions or `lateximage` `alt` tags.

```
\edef\LWR@beginspaceleftbrace{begin \LWRleftbrace}
\edef\LWR@beginspaceleftbrace{\detokenize\expandafter{\LWR@beginspaceleftbrace}}
\edef\LWR@beginleftbrace{begin\LWRleftbrace}
\edef\LWR@beginleftbrace{\detokenize\expandafter{\LWR@beginleftbrace}}

\edef\LWR@endspacerightbrace{end \LWRrightbrace}
\edef\LWR@endspacerightbrace{\detokenize\expandafter{\LWR@endspacerightbrace}}
\edef\LWR@endrightbrace{end\LWRrightbrace}
\edef\LWR@endrightbrace{\detokenize\expandafter{\LWR@endrightbrace}}

\newrobustcmd{\LWR@HTMLsanitizeexpanded}[1]{%
```

Cancel French babel character handling, and fully expand the strings:

```
    \begingroup%
    \LWR@hook@processingtags%

    \edef\LWR@strresult{#1}%
```

The math expression may includes spaces between tokens, but MathJax does not want a space between `\begin` or `\end` and the following brace. This space is removed here.

```
    \protect\StrSubstitute{\LWR@strresult}%
        {\LWR@beginspaceleftbrace}{\LWR@beginleftbrace}[\LWR@strresult]%
    \protect\StrSubstitute{\LWR@strresult}%
        {\LWR@endspacerightbrace}{\LWR@endrightbrace}[\LWR@strresult]%

    \LWR@subHTMLsanitize%
    \LWR@strresult%
    \endgroup%
}
```

63.2 Customizing MathJax

\LWR@customizedMathJax Additional MathJax definitions to be added to the start of each HTML page.

```
\newcommand*{\LWR@customizedMathJax}{}
```

Bool LWR@warnedcustomizemathjax Used to issue only one warning about using a \CustomizeMathJax per macro.

```
\newbool{LWR@warnedcustomizemathjax}
\boolfalse{LWR@warnedcustomizemathjax}
```

\LWR@subcustomizedmathjax {⟨*macro definition*⟩}

```
\newcommand*{\LWR@subcustomizedmathjax}[1]{%
    \begingroup%
    \LWR@hook@processingtags%
    \edef\LWR@strresult{\detokenize{#1}}%
    \LWR@subHTMLsanitize%
    \xdef\LWR@customizedMathJax{%
        \LWR@customizedMathJax%
            \LWR@strresult%
    }%
    \endgroup%
}
\@onlypreamble\LWR@subcustomizedmathjax
```

\CustomizeMathJax {⟨*macro definition*⟩}

A warning is issued if a very long argument is given.

```
\newcommand*{\CustomizeMathJax}[1]{%
    \ifbool{LWR@warnedcustomizemathjax}{}{%
        \StrLen{\detokenize{#1}}[\LWR@tempone]%
        \ifnumgreater{\LWR@tempone}{350}{%
            \AtEndDocument{%
                \PackageNoteNoLine{lwarp}{%
                To ensure faster MathJax compilation, place each\MessageBreak
                custom macro in its own \protect\CustomizeMathJax.\MessageBreak
                See the Lwarp documentation regarding customizing\MessageBreak
                      MathJax%
                }%
            }%
            \booltrue{LWR@warnedcustomizemathjax}%
        }{}%
    }%
    \appto\LWR@customizedMathJax{\LWRbackslash(}%
    \LWR@subcustomizedmathjax{#1}%
    \appto\LWR@customizedMathJax{\LWRbackslash)\par}%
}
\@onlypreamble\CustomizeMathJax
```

\LWR@infoprocessingmathjax {⟨*package name*⟩}

```
\newcommand*{\LWR@infoprocessingmathjax}[1]{%
\typeout{---}
\typeout{Package lwarp: Processing MathJax customizations for #1.}
```

```
\typeout{\space\space This may take a moment.}
\typeout{---}
}
```

defaults Default customizations:

In the MathJax code, footnotes are only referenced. For equations, they are also generated in the HTML when the LaTeX math is generated inside the HTML comment. For other math environments, the `\footnotemark`/`\footnotetext` method must be used. See section 8.5.4 regarding `\footnotemark`.

⚠ `\footnotemark`

For footnotes, `\footnotename` is used in most cases, however for `equation` the footnote is picked up from LaTeXin `\LWR@doendequation`.

First, `\footnotename` for MathJax is copied from LaTeX.

```
\providecommand{\footnotename}{footnote}

% due to warpMathJax:
\end{warpHTML}

\begin{warpMathJax}
\xdef\LWR@customizedMathJax{\LWR@customizedMathJax%
    \LWRbackslash(%
    \LWRbackslash{}newcommand%
    \{\LWRbackslash{}footnotename\}%
    \{\footnotename\}%
    \LWRbackslash)\par%
}
\end{warpMathJax}
```

`\LWRfootnote` is set per `equation` if a footnote is detected in the equation's math expression, otherwise it defaults to `\footnotename`.

```
\begin{warpMathJax}
\CustomizeMathJax{\def\LWRfootnote{1}}
\CustomizeMathJax{\newcommand{\footnote}[2][\LWRfootnote]{{}^{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\footnotemark}[1][\LWRfootnote]{{}^{\mathrm{#1}}}}
```

`\hspace` is modified to accept and ignore a star:

```
\CustomizeMathJax{\let\LWRorighspace\hspace}
\CustomizeMathJax{\renewcommand{\hspace}{\ifstar\LWRorighspace\LWRorighspace}}
```

Various other customizations:

```
\CustomizeMathJax{\newcommand{\mathnormal}[1]{{#1}}}
\CustomizeMathJax{\newcommand\ensuremath[1]{#1}}
\CustomizeMathJax{% absorb two optional arguments
    \newcommand{\LWRframebox}[2][]{\fbox{#2}}
    \newcommand{\framebox}[1][]{\LWRframebox}
}
\CustomizeMathJax{\newcommand{\setlength}[2]{}}
\CustomizeMathJax{\newcommand{\addtolength}[2]{}}
\CustomizeMathJax{\newcommand{\setcounter}[2]{}}
\CustomizeMathJax{\newcommand{\addtocounter}[2]{}}
\CustomizeMathJax{\newcommand{\arabic}[1]{}}
\CustomizeMathJax{\newcommand{\number}[1]{}}
```

```
\CustomizeMathJax{\newcommand{\noalign}[1]{\text{#1}\notag \\}}
\CustomizeMathJax{\newcommand{\cline}[1]{}}
\CustomizeMathJax{\newcommand{\directlua}[1]{\text{(directlua)}}}
\CustomizeMathJax{\newcommand{\luatexdirectlua}[1]{\text{(directlua)}}}
```

\protect, \mathchar, and \delimiter are silently discarded; and \mathcode and \delcode are ignored.

```
\CustomizeMathJax{\newcommand{\protect}{}}
\CustomizeMathJax{\def\LWRabsorbnumber#1 {}}
\CustomizeMathJax{\def\LWRabsorbquotenumber"#1 {}}
\CustomizeMathJax{\newcommand{\LWRabsorboption}[1][]{}}
\CustomizeMathJax{\newcommand{\LWRabsorbtwooptions}[1][]{\LWRabsorboption}}
\CustomizeMathJax{\def\mathchar{\ifnextchar"\LWRabsorbquotenumber\LWRabsorbnumber}}
\CustomizeMathJax{\def\mathcode#1={\mathchar}}
\CustomizeMathJax{\let\delcode\mathcode}
\CustomizeMathJax{\let\delimiter\mathchar}
```

Some text symbols missing from MathJax:

```
\CustomizeMathJax{\def\oe{\unicode{x0153}}}
\CustomizeMathJax{\def\OE{\unicode{x0152}}}
\CustomizeMathJax{\def\ae{\unicode{x00E6}}}
\CustomizeMathJax{\def\AE{\unicode{x00C6}}}
\CustomizeMathJax{\def\aa{\unicode{x00E5}}}
\CustomizeMathJax{\def\AA{\unicode{x00C5}}}
\CustomizeMathJax{\def\o{\unicode{x00F8}}}
\CustomizeMathJax{\def\O{\unicode{x00D8}}}
\CustomizeMathJax{\def\l{\unicode{x0142}}}
\CustomizeMathJax{\def\L{\unicode{x0141}}}
\CustomizeMathJax{\def\ss{\unicode{x00DF}}}
\CustomizeMathJax{\def\SS{\unicode{x1E9E}}}
\CustomizeMathJax{\def\dag{\unicode{x2020}}}
\CustomizeMathJax{\def\ddag{\unicode{x2021}}}
\CustomizeMathJax{\def\P{\unicode{x00B6}}}
\CustomizeMathJax{\def\copyright{\unicode{x00A9}}}
\CustomizeMathJax{\def\pounds{\unicode{x00A3}}}
\end{warpMathJax}


\begin{warpHTML}% due to warpMathJax
```

\LWR@customizeMathJax Prints MathJax commands to the HTML output.

```
\newcommand{\LWR@customizeMathJax}{%
\ifbool{mathjax}{

\LWR@stoppars
\LWR@htmlcomment{MathJax customizations:}

\begin{BlockClass}{hidden}
\LWR@stoppars
```

Avoid ligatures while printing MathJax customizations:

```
{
    \LWR@print@ttfamily
    \LWR@customizedMathJax
```

```
}
\LWR@startpars
\end{BlockClass}

\LWR@startpars
}{}
}
```

```
\end{warpHTML}
```

for PRINT output:

```
\begin{warpprint}
```

`\CustomizeMathJax` The print-mode version:

```
\newcommand*{\CustomizeMathJax}[1]{}
```

`\FilenameSimplify` * {⟨*expression*⟩}

```
\NewDocumentCommand{\FilenameSimplify}{s m}{}
```

```
\end{warpprint}
```

for HTML output:

```
\begin{warpHTML}
```

`\LWR@createfooter` If specified, create the first or later web page footer.

```
\newcommand*{\LWR@createfooter}{%
    \ifnumless{\value{LWR@htmlseqfilenumber}}{1}{%
        \ifdefempty{\LWR@firstpagebottom}{}{%
            \LWR@htmlelement{footer}

            \LWR@firstpagebottom

            \LWR@htmlelementend{footer}
        }%
    }{%
        \ifdefempty{\LWR@pagebottom}{}{%
            \LWR@htmlelement{footer}

            \LWR@pagebottom

            \LWR@htmlelementend{footer}
        }%
    }%
}
```

`\LWR@newhtmlfile` {⟨*section name*⟩}

Finishes the current HTML page with footnotes, footer, navigation, then starts a new HTML page with an HTML comment telling where to split the page and what the new filename and CSS are, then adds navigation, side TOC, header, and starts the text body.

```
\newcommand*{\LWR@newhtmlfile}[1]{
\LWR@traceinfo{LWR@newhtmlfile}
```

At the bottom of the ending file:

```
\LWR@htmlelementclassend{section}{textbody}
\LWR@htmlelementclassend{main}{bodycontainer}
\LWR@htmlelementclassend{div}{bodyandsidetoc}

\LWR@printpendingfootnotes

```

No footer between files if EPUB:

```
\ifbool{FormatEPUB}{}{\LWR@createfooter}
```

No bottom navigation if are finishing the home page or formatting for EPUB or a word-processor.

```
\ifthenelse{\boolean{FormatEPUB}\OR\boolean{FormatWP}}
    {}
    {\ifnumcomp{\value{LWR@htmlfilenumber}}{>}{0}{\LWR@botnavigation}{}}
```

End of this HTML file:

```
\LWR@stoppars
\LWR@htmltag{/body}\LWR@orignewline
\LWR@htmltag{/html}\LWR@orignewline
\LWR@traceinfo{LWR@newhtmlfile: about to LWR@orignewpage}
\LWR@maybe@orignewpage


\addtocounter{LWR@htmlfilenumber}{1}%
\addtocounter{LWR@htmlseqfilenumber}{1}%
```

If using a filename based on section name, create a version without blanks. The filename without blanks will be placed into `\LWR@thisfilename`. Duplicates will be detected using MD5 hashes.

If not using a filename, the file number will be used instead.

```
\ifbool{FileSectionNames}%
{%
```

Convert the section name to a filename with blanks and common words removed. The resulting filename is in `\LWR@thisfilename`.

```
    \LWR@filenamenoblanks{#1}%
```

Create a macro name from the MD5 hash of the file name, to detect duplicates:

```
    \edef\LWR@hashedname{\LWR@mdfive{\LWR@thisfilename}}%
```

If the macro name is not yet defined, this filename is unique.

```
    \ifcsundef{LWR@filename\LWR@hashedname}{%
```

If the filename is unique, create a macro using the hashed name, to be used to test for additional duplicates in the future.

```
        \csdef{LWR@filename\LWR@hashedname}{}%
    }{%
```

If the filename is not unique, create an error.

```
        \PackageError{lwarp}%
            {%
                The section name:\MessageBreak
                ‘‘#1’’,\MessageBreak
                at the line number listed below,\MessageBreak
                generates the filename\MessageBreak
                ‘‘\LWR@thisfilename’’,\MessageBreak
                which appears to be a duplicate.  There is a\MessageBreak
            previous section with an identical or similar name.\MessageBreak
             While generating file names, Lwarp sanitizes math,\MessageBreak
                most symbols, and a few common short words,\MessageBreak
                and this may cause a conflict.\MessageBreak
                Enter ’H’ for possible solutions%
            }%
            {%
                \LWR@avoiddupfilenames%
            }%
    }%
}%
```

If using file numbers instead of names, the name is set to the next file number.

```
{\renewcommand*{\LWR@thisfilename}{\arabic{LWR@htmlfilenumber}}}
```

Include an HTML comment to instruct lwarpmk where to split the files apart. Uses pipe-separated fields for `split_html.gawk`. Uses monospaced font with ligatures disabled for everything except the title.

```
\LWR@traceinfo{LWR@newhtmlfile: about to print start file}%
```

`\LWR@nullfonts` to allow math in a section name.

```
\begingroup%
\LWR@nullfonts%
\LWR@htmlblockcomment{%
|Start file|%
\LWR@htmlsectionfilename{\LWR@thisfilename}|%
}
\endgroup%
```

At the top of the starting file:

```
\LWR@stoppars

```

Start a new file with the given section name:

```
\LWR@filestart[#1]

```

Track the PDF page numbers of the HTML output. This is updated more frequently than `LWR@currentautosecpage`.

```
\setcounter{LWR@currentautosecfloatpage}{\value{page}}%
\LWR@newautopagelabel{LWR@currentautosecfloatpage}%
```

No navigation between files if formatting for an EPUB or word processor:

```
\ifthenelse{\boolean{FormatEPUB}\OR\boolean{FormatWP}}
    {}
    {\LWR@topnavigation}

```

No header if between files if formatting for an EPUB or word processor:

```
\ifthenelse{\boolean{FormatEPUB}\OR\boolean{FormatWP}}
    {}
    {


        \ifdefempty{\LWR@pagetop}{}{
            \LWR@htmlelement{header}

            \LWR@pagetop

            \LWR@htmlelementend{header}
        }
    }

```

The container for the sidetoc and text body:

```
\LWR@htmlelementclass{div}{bodyandsidetoc}
```

No sideTOC if formatting for an EPUB or word processor:

```
\ifthenelse{\boolean{FormatEPUB}\OR\boolean{FormatWP}}
    {}
    {\LWR@sidetoc}

```

Start of the <textbody>:

```
\LWR@htmlelementclass{main}{bodycontainer}
\LWR@htmlelementclass{section}{textbody}
```

Not yet found a new section in this file. Once one is found, a label will be placed for previous/next links.

```
\boolfalse{LWR@setseqfilelabel}
```

Print title only if there is one. Skip if formatting for an EPUB or word processor:

```
\ifthenelse{\boolean{FormatEPUB}\OR\boolean{FormatWP}}%
    {}%
    {%
        \ifcsvoid{thetitle}{}{%
            \LWR@printthetitle%
        }%
    }%
```

Keep paragraph tags disabled for now:

```
\LWR@stoppars
```

If using MathJax, print the customizations here.

```
\LWR@customizeMathJax

\LWR@traceinfo{LWR@newhtmlfile: done}
}

\end{warpHTML}
```

64 Sectioning

Sectioning and cross-references have been emulated from scratch, rather than try to patch several layers of existing LaTeX code and packages. Formatting is handled by css, so the emulated code has much less work to do than the print versions.

Unicode

⚠ accents in filenames

Section names and the resulting filenames with accented characters are partially supported, depending on the ability of *pdflatex* to generate characters and *pdftotext* to read them. If extra symbols appear in the text, it may be that *pdflatex* is actually producing a symbol over or under a character, resulting in *pdftotext* picking up the accent symbol separately.

XeLaTeX and LuaLaTeX directly support accented section and file names, but it may be necessary to use LaTeX accents instead of native Unicode accents. LaTeX accents will have the accents stripped when creating file names, whereas using Unicode accents will create filenames which include accents, which may cause issues with some operating systems.

for HTML output:

```
\begin{warpHTML}
```

64.1 User-level starred section commands

`\ForceHTMLPage`

For HTML output, forces the next section to be on its own HTML page, if `FileDepth` allows, even if starred. For use with `\printindex` and others which generate a starred section which should be on its own HTML page. Also see `\ForceHTMLTOC`.

For print output, no effect.

```
\newbool{LWR@forcinghtmlpage}
\boolfalse{LWR@forcinghtmlpage}

\newcommand*{\ForceHTMLPage}{%
\global\booltrue{LWR@forcinghtmlpage}%
}
```

`\ForceHTMLTOC`

For HTML output, forces the next section to have a TOC entry, even if starred. For use with `\printindex` and others which generate a starred section which should be in the TOC so that it may be accessed via HTML. Not necessary if used with tocbibind. Also see `\ForceHTMLPage`.

For print output, no effect.

```
\newbool{LWR@forcinghtmltoc}
\boolfalse{LWR@forcinghtmltoc}

\newcommand*{\ForceHTMLTOC}{%
\global\booltrue{LWR@forcinghtmltoc}%
}
```

```
\end{warpHTML}
```

for PRINT output:

```
\begin{warpprint}
\newcommand*{\ForceHTMLPage}{}
\newcommand*{\ForceHTMLTOC}{}
\end{warpprint}
```

for HTML output:

```
\begin{warpHTML}
```

64.2 Book class commands

`\mainmatter` ⚠ Declare the main matter section of the document. Does not reset the page number, which must be consecutive arabic numbers for the HTML conversion.

```
\newbool{LWR@mainmatter}
\DeclareDocumentCommand{\mainmatter}{}{%
\booltrue{LWR@mainmatter}%
}
```

`\frontmatter` Declare the front matter section of the document, using arabic numbering for the internal numbering. Does not reset the page number.

```
\DeclareDocumentCommand{\frontmatter}{}{%
\boolfalse{LWR@mainmatter}%
}
```

`\backmatter` Declare the back matter section of the document. Does not reset the page number.

```
\DeclareDocumentCommand{\backmatter}{}{%
\boolfalse{LWR@mainmatter}
}
```

64.3 Sectioning support macros

`\LWR@sectionumber` {⟨*section type*⟩}

Typeset a section number and its trailing space with CSS formatting:

```
\newcommand*{\LWR@sectionnumber}[1]{%
\InlineClass{sectionnumber}{#1}%
}
```

`autosec` A tag used by the TOC and index.

\LWR@createautosec {⟨*section type*⟩}

Create an autosection tag.

The use of \textquotedbl instead of " provides improved compatibility with xeCJK.

```
\newcommand*{\LWR@createautosec}[1]{%
\LWR@htmltag{%
    #1 % space
    id=\textquotedbl\LWR@print@mbox{autosec-\arabic{page}}\textquotedbl%
}%
}
```

\LWR@pushoneclose {⟨*sectiontype*⟩} Stacks the new sectioning level's closing tag, to be used when this section is closed some time later.

⚠ \LWR@stoppars must be executed first.

```
\NewDocumentCommand{\LWR@pushoneclose}{m}{%
\LWR@traceinfo{LWR@pushoneclose #1}%
    \LWR@pushclose{#1}%
}
```

\LWR@startnewdepth {⟨*sectiontype*⟩}

Closes currently stacked tags of a lesser level, then opens the new nesting level by saving this new sectioning level's closing tag for later use.

⚠ \LWR@stoppars must be executed first.

```
\NewDocumentCommand{\LWR@startnewdepth}{m}{%
```

Close any stacked sections up to this new one.

```
\LWR@closeprevious{#1}%
```

Push a new section depth:

```
\LWR@pushoneclose{#1}%
}
```

Ctr LWR@prevFileDepth

Remembers the previous LWR@FileDepth.

Initialized to a deep level so that any section will trigger a new HTML page after the home page.

```
\newcounter{LWR@prevFileDepth}
\setcounter{LWR@prevFileDepth}{\LWR@depthsubparagraph}
```

\@seccntformat {⟨*sectiontype*⟩}

```
\def\@seccntformat#1{\csname the#1\endcsname\quad}
```

\simplechapterdelim Used by tocbibind and anonchap.

```
\newcommand*{\simplechapterdelim}{}
```

\@chapcntformat {⟨*sectiontype*⟩}

\let to \@seccntformat by default, but may be redefined by \simplechapter and \restorechapter from tocbibind or anonchap.

```
\let\@chapcntformat\@seccntformat
```

\@partcntformat {⟨*sectiontype*⟩}

\let to \@seccntformat by default, but may be redefined by ctex.

```
\let\@partcntformat\@seccntformat
```

\@partnameformat Prints "Part" for part sections.

Nullified by ctex.

```
\newcommand*{\@partnameformat}{\LWR@isolate{\partname}~}%
```

\LWR@printchaptername Print \chaptername in most cases, but this is nullified for ctexbook, komascript, ujt* classes.

```
\newcommand*{\LWR@printchaptername}{%
    \ifdefvoid{\chaptername}{}{\chaptername~}%
}
```

\LWR@section * [⟨*TOC name*⟩] {⟨*name*⟩} {⟨*sectiontype*⟩}

The common actions for the high-level sectioning commands.

```
\DeclareDocumentCommand{\LWR@section}{m m m m}{%
\IfValueTF{#2}%
    {\LWR@traceinfo{LWR@section: starting #4 #2}}%
    {\LWR@traceinfo{LWR@section: starting #4 #3}}%
```

Warn if starting a section inside a :

```
    \LWR@spanwarninvalid{section}%
```

```
\LWR@maybeprintpendingfootnotes{\csuse{LWR@depth#4}}%
\LWR@stoppars%
\LWR@startnewdepth{#4}%
```

Cancel special minipage horizontal space interaction:

```
\global\boolfalse{LWR@minipagethispar}%
```

Start a new HTML file unless starred, and if is a shallow sectioning depth.

Exception: Also start a new HTML file for \part*, for appendix.

Generate a new LaTeX page so that TOC and index page number points to the section:

```
\LWR@traceinfo{LWR@section: testing whether to start a new HTML file}%
```

```
\IfBooleanT{#1}{\LWR@traceinfo{LWR@section: starred}}%
\ifbool{LWR@forcinghtmlpage}{\LWR@traceinfo{LWR@section: forcinghtmlpage}}{}%
\ifthenelse{%
    \(%
        \(\NOT\equal{#1}{\BooleanTrue}\)\OR%
        \(\cnttest{\@nameuse{LWR@depth#4}}{=}{\LWR@depthpart}\)\OR%
        \(\boolean{LWR@forcinghtmlpage}\)%
    \)%
    \AND%
    \cnttest{\@nameuse{LWR@depth#4}}{<=}{\value{FileDepth}}%
    \AND%
    \(%
        \NOT\boolean{CombineHigherDepths}\OR%
        \cnttest{\@nameuse{LWR@depth#4}}{<=}{\value{LWR@prevFileDepth}}%
    \)%
    \AND%


    \(% phantomsection
        \NOT\isempty{#3}%
        \OR%
        \(\NOT\equal{#1}{\BooleanTrue}\)%
    \)%
}%
```

If so: start a new HTML file:

```
{% new file
    \LWR@traceinfo{LWR@section: new HTML file}%
```

See if there was an optional TOC name entry:

```
    \IfNoValueTF{#2}%
```

If no optional entry

```
        {\LWR@newhtmlfile{#3}}%
```

If yes an optional entry

```
        {\LWR@newhtmlfile{#2}}%
}% new file
```

Else: No new HTML file:

```
{% not new file
```

Generate a new LaTeX page so that TOC and index page number points to the section:

```
   \LWR@traceinfo{LWR@section: not a new HTML file, about to LWR@orignewpage}%
    \LWR@maybe@orignewpage%
}% not new file

```

Remember this section's name for `\nameref`:

```
\IfValueT{#3}{%
```

```
    \LWR@traceinfo{LWR@section: about to LWR@setlatestname}%
    \IfValueTF{#2}{\LWR@setlatestname{#2}}{\LWR@setlatestname{#3}}%
}%
```

Print an opening comment with the level and the name; ex: “section” “Introduction” Footnotes may be used in section names, which would also appear in the HTML section opening comments, so the short TOC entry is used if possible, and a limited opening comment is made if the sectional unit is starred.

```
\begingroup%
\LWR@nullfonts%
\LWR@nullifyfootnotes%
\LWR@htmlcomment{.............................}%
\LWR@orignewline%
\ifbool{HTMLDebugComments}%
    {%
        \IfBooleanTF{#1}% starred
            {%
                \IfNoValueTF{#2}% short TOC
                    {\LWR@htmlcomment{Opening #4* ``#3''}}%
                    {\LWR@htmlcomment{Opening #4* ``#2''}}%
            }%
            {%
                \IfNoValueTF{#2}% short TOC
                    {\LWR@htmlcomment{Opening #4 ``#3''}}%
                    {\LWR@htmlcomment{Opening #4 ``#2''}}%
            }%
        \LWR@orignewline%
    }%
    {}%
\endgroup%
```

For inline sections paragraph and subparagraph, start a new paragraph now:

```
\ifthenelse{%
    \cnttest{\@nameuse{LWR@depth#4}}{>=}{\LWR@depthparagraph}%
}%
    {\LWR@startpars}%
    {}%
```

Create the opening tag with an autosec:

```
\LWR@traceinfo{LWR@section: about to LWR@createautosec}%
\LWR@createautosec{\@nameuse{LWR@tag#4}}%

\setcounter{LWR@currentautosecpage}{\value{page}}%
```

Check if starred:

```
\IfBooleanTF{#1}%
{%
    \LWR@traceinfo{LWR@section: starred}%
```

Starred, but also forcing a TOC entry, so add unnumbered TOC name or regular name:

```
    \ifbool{LWR@forcinghtmltoc}%
    {%
```

```
        \addcontentsline{toc}{#4}{%
            \IfValueTF{#2}{\LWR@isolate{#2}}{\LWR@isolate{#3}}%
        }%
    }%
    {}%
}% starred
```

Not starred, so step counter and add to TOC:

```
{% not starred
```

Only add a numbered TOC entry if section number is not too deep:

```
    \ifthenelse{%
        \cnttest{\@nameuse{LWR@depth#4}}{<=}{\value{secnumdepth}}%
    }%
    {% if secnumdepth
```

If in the main matter, step the counter and add the TOC entry. For `article` class, lwarp assumes that all is mainmatter.

```
        \LWR@traceinfo{LWR@section: about to test main matter}%
        \ifbool{LWR@mainmatter}%
        {%
            \LWR@traceinfo{LWR@section: yes mainmatter}%
            \refstepcounter{#4}%
```

Add main matter numbered TOC entry with the TOC name or the regular name:

```
            \LWR@traceinfo{LWR@section: about to addcontentsline}%
            \addcontentsline{toc}{#4}%
            {%
                \protect\numberline{%
                    \@nameuse{pre#4name}%
                    \@nameuse{the#4}%
                    \@nameuse{post#4name}%
                }%
                {%
                    \ignorespaces%
              \IfValueTF{#2}{\LWR@isolate{#2}}{\LWR@isolate{#3}}\protect\relax%
                }%
            }%
            \LWR@traceinfo{LWR@section: finished addcontentsline}%
        }% end of if main matter
```

If not main matter, add unnumbered TOC name or regular name:

```
        {% not main matter
            \LWR@traceinfo{LWR@section: no main matter}%
            \addcontentsline{toc}{#4}{%
                \IfValueTF{#2}{\LWR@isolate{#2}}{\LWR@isolate{#3}}%
            }%
        }% end of not main matter
    }% end of secnumdepth
```

Deeper than secnumdepth, so add an unnumbered TOC entry:

```
    {%
```

```
        \addcontentsline{toc}{#4}{%
            \IfValueTF{#2}{\LWR@isolate{#2}}{\LWR@isolate{#3}}%
        }%
    }%
```

For part, print “Part”:

```
    \ifbool{LWR@mainmatter}%
    {%
        \ifthenelse{%
            \(\cnttest{\@nameuse{LWR@depth#4}}{<=}%
                {\value{secnumdepth}}\) \AND%
            \(\cnttest{\@nameuse{LWR@depth#4}}{=}{\LWR@depthpart}\)%
        }%
            {\@partnameformat}%
            {}%
```

Print the section number:

```
        \LWR@traceinfo{LWR@section: about to print section number}%
        \ifthenelse{%
            \cnttest{\@nameuse{LWR@depth#4}}{<=}{\value{secnumdepth}}%
        }%
            {%
                \ifstrequal{#4}{part}%
                {\protect\LWR@sectionnumber{\@partcntformat{#4}}}%
                {%
                    \ifstrequal{#4}{chapter}%
                        {%

                            \LWR@printchaptername%
                          \protect\LWR@sectionnumber{\@chapcntformat{#4}}%
                        }%
                        {\protect\LWR@sectionnumber{\@seccntformat{#4}}}%
                }%
            }%
            {}%
        \LWR@traceinfo{LWR@section: finished print section number}%
    }{}%
}% not starred
```

Print the section name:

```
\LWR@traceinfo{LWR@section: about to print the section name}%
\LWR@isolate{#3}%
```

Close the heading tag, such as /H2:

```
\LWR@traceinfo{LWR@section: about to close the heading tag}%
\LWR@htmltag{\@nameuse{LWR@tag#4end}}%
\LWR@orignewline%
```

Generate a LaTeX label.

Track the PDF page numbers of the HTML output. A new autopage label may be generated for LWR@currentautosecpage for the start of the section, and also for the current page if it is different due to an SVG image in the section

name. Also, the final page after the section has been created is updated in LWR@currentautosecfloatpage.

```
\LWR@traceinfo{LWR@section: about to create the LaTeX label}%
\setcounter{LWR@currentautosecfloatpage}{\value{page}}%
\LWR@newautopagelabel{LWR@currentautosecpage}\LWR@orignewline%
```

If this is the first section found in this file, create a label for prevous/next links:

```
\ifbool{LWR@setseqfilelabel}{}{%
    \label{\BaseJobname-autofile-\arabic{LWR@htmlseqfilenumber}}%
    \booltrue{LWR@setseqfilelabel}%
}%
```

Start paragraph handing unless is an inline paragraph or subparagraph:

```
\ifthenelse{%
    \cnttest{\@nameuse{LWR@depth#4}}{<}{\LWR@depthparagraph}%
}%
    {\LWR@startpars}%
    {}%
```

If not starred, remember the previous depth to possibly trigger a new HTML page.

HOWEVER, allow a \part* to start a new HTML page. This is used by appendix.

A starred section does not trigger a new HTML page at the beginning of this macro, so it should not affect it here at the end either. This became an issue when a \listoftables was tested in the middle of the document. The \chapter* for the list was not allowing a new HTML page for the section following it while CombineHigherDepths was true.

```
\ifthenelse{%
    \NOT\equal{#1}{\BooleanTrue}\OR%
    \cnttest{\@nameuse{LWR@depth#4}}{=}{\LWR@depthpart}%
}%
    {% not starred
        \setcounter{LWR@prevFileDepth}{\@nameuse{LWR@depth#4}}%
    }% not starred
    {}%
```

Reset to defaults if not a phantomsection:

```
\ifstrempty{#3}%
    {}%
    {%
        \global\boolfalse{LWR@forcinghtmlpage}%
        \global\boolfalse{LWR@forcinghtmltoc}%
    }%
%
\LWR@traceinfo{LWR@section: done}%
}
```

64.4 Pre- and post- sectioning names

\prebookname
\postbookname

Usually null, but is used by uj* and ut* Japanese classes.

```
\providecommand*{\prebookname}{}
\providecommand*{\postbookname}{}
```

\prepartname
\postpartname

Usually null, but is used by uj* and ut* Japanese classes.

```
\providecommand*{\prepartname}{}
\providecommand*{\postpartname}{}
```

\prechaptername
\postchaptername

Usually null, but is used by uj* and ut* Japanese classes.

```
\providecommand*{\prechaptername}{}
\providecommand*{\postchaptername}{}
```

\presectionname
\postsectionname

Always null, but provided here for algorithmic simplicity in \LWR@section.

```
\providecommand*{\presectionname}{}
\let\postsectionname\presectionname

\let\presubsectionname\presectionname
\let\postsubsectionname\postsectionname

\let\presubsubsectionname\presectionname
\let\postsubsubsectionname\postsectionname

\let\preparagraphname\presectionname
\let\postparagraphname\postsectionname

\let\presubparagraphname\presectionname
\let\postsubparagraphname\postsectionname
```

64.5 \section and friends

For memoir, a second optional argument is allowed.

For hypbmsec, a second optional argument or either parenthesis argument is allowed.

Each of these additional arguments are for headers or PDF bookmarks, and are ignored for HTML output.

\part * (⟨*2:PDF name*⟩) [⟨*3:TOC name*⟩] [⟨*4:PDF name*⟩] (⟨*5:PDF name*⟩) {⟨*6:name*⟩}

```
\newcommand{\part@preamble}{}% for koma-script

\DeclareDocumentCommand{\part}{s d() o o d() m}{%
    \LWR@section{#1}{#3}{#6}{part}%

    \part@preamble% for koma-script
    \renewcommand{\part@preamble}{}%
}
```

\chapter * (⟨*2:PDF name*⟩) [⟨*3:TOC name*⟩] [⟨*4:PDF name*⟩] (⟨*5:PDF name*⟩) {⟨*6:name*⟩}

```
\let\@printcites\relax% for quotchap package
```

```
7758
7759 \newcommand{\chapter@preamble}{}% for koma-script
7760
7761 \@ifundefined{chapter}
7762 {}
7763 {%
7764     \DeclareDocumentCommand{\chapter}{s d() o o d() m}{%
7765         \LWR@section{#1}{#3}{#6}{chapter}%
7766
7767         \@printcites% for quotchap package
7768
7769         \chapter@preamble% for koma-script
7770         \renewcommand{\chapter@preamble}{}%
7771     }
7772 }
```

\section * (⟨2:PDF name⟩) [⟨3:TOC name⟩] [⟨4:PDF name⟩] (⟨5:PDF name⟩) {⟨6:name⟩}

```
7773 \DeclareDocumentCommand{\section}{s d() o o d() m}{%
7774     \LWR@section{#1}{#3}{#6}{section}%
7775 }
```

\subsection * (⟨2:PDF name⟩) [⟨3:TOC name⟩] [⟨4:PDF name⟩] (⟨5:PDF name⟩) {⟨6:name⟩}

```
7776 \DeclareDocumentCommand{\subsection}{s d() o o d() m}{%
7777     \LWR@section{#1}{#3}{#6}{subsection}%
7778 }
```

\subsubsection * (⟨2:PDF name⟩) [⟨3:TOC name⟩] [⟨4:PDF name⟩] (⟨5:PDF name⟩) {⟨6:name⟩}

```
7779 \DeclareDocumentCommand{\subsubsection}{s d() o o d() m}{%
7780     \LWR@section{#1}{#3}{#6}{subsubsection}%
7781 }
```

\paragraph * (⟨2:PDF name⟩) [⟨3:TOC name⟩] [⟨4:PDF name⟩] (⟨5:PDF name⟩) {⟨6:name⟩}

```
7782 \DeclareDocumentCommand{\paragraph}{s d() o o d() m}{%
7783     \LWR@section{#1}{#3}{#6}{paragraph}%
7784 }
```

\subparagraph * (⟨2:PDF name⟩) [⟨3:TOC name⟩] [⟨4:PDF name⟩] (⟨5:PDF name⟩) {⟨6:name⟩}

```
7785 \DeclareDocumentCommand{\subparagraph}{s d() o o d() m}{%
7786     \LWR@section{#1}{#3}{#6}{subparagraph}%
7787 }

7788 \end{warpHTML}
```

65 Starting a new file

for HTML & PRINT:

```
\begin{warpall}
```

\HTMLLanguage Default language for the HTML lang tag.

```
\newcommand*{\LWR@currentHTMLLanguage}{en-US}

\newcommand*{\HTMLLanguage}[1]{%
    \renewcommand*{\LWR@currentHTMLLanguage}{#1}%
}
```

\theHTMLTitleSeparator May be used inside \theHTMLTitleSection to separate the website's overall HTML title and the particular page's section name.

```
\ifPDFTeX% pdflatex or dvi latex
    \ifdefstring{\inputencodingname}{utf8}{%
        \newcommand*{\theHTMLTitleSeparator}{ —\ }% EMdash
    }{%
        \newcommand*{\theHTMLTitleSeparator}{ -\ }% hyphen
    }%
\else%
    \ifpTeX
        \newcommand*{\theHTMLTitleSeparator}{ -\ }% hyphen
    \else
        \newcommand*{\theHTMLTitleSeparator}{ —\ }% EMdash
    \fi%
\fi%
```

\HTMLTitleBeforeSection Sets the HTML page's meta title tag to show the website title before the section name.

```
\newcommand*{\HTMLTitleBeforeSection}{%
    \def\theHTMLTitleSection{%
        \theHTMLTitle\theHTMLTitleSeparator\theHTMLSection%
    }%
}
```

\HTMLTitleAfterSection Sets the HTML page's meta title tag to show the section name before the website title.

```
\newcommand*{\HTMLTitleAfterSection}{%
    \def\theHTMLTitleSection{%
        \theHTMLSection\theHTMLTitleSeparator\theHTMLTitle%
    }%
}
```

\theHTMLTitleSection Forms the HTML page's meta title tag. The default is to show the website title before the section name.

```
\HTMLTitleBeforeSection
```

\theHTMLSection The section name is passed to \LWR@filestart, which then sets \theHTMLSection for use inside \theHTMLTitleSection to create an HTML meta title tag.

```
\newcommand*{\theHTMLSection}{}
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

`\LWR@filestart` `[`⟨*section name*⟩`]` Creates the opening HTML tags.

```
\newcommand*{\LWR@filestart}[1][]{%
\LWR@traceinfo{LWR@filestart !#1!}%
```

Locally temporarily disable direct-formatting commands:

```
\begingroup%
\LWR@nullfonts%
```

Save the section name for use while creating the HTML meta `title` tag:

```
\edef\theHTMLSection{#1}%
```

Remove extra material:

```
\StrSubstitute{\theHTMLSection}{\protect}{\detokenize{-}}[\theHTMLSection]%
\StrSubstitute{\theHTMLSection}%
    {\detokenize{-----}}{\detokenize{-}}[\theHTMLSection]%
\StrSubstitute{\theHTMLSection}%
    {\detokenize{----}}{\detokenize{-}}[\theHTMLSection]%
\StrSubstitute{\theHTMLSection}%
    {\detokenize{---}}{\detokenize{-}}[\theHTMLSection]%
\StrSubstitute{\theHTMLSection}%
    {\detokenize{--}}{\detokenize{-}}[\theHTMLSection]%
```

If starts with a dash, remove the leading dash:

```
\IfBeginWith{\theHTMLSection}{\detokenize{-}}{%
    \StrGobbleLeft{\theHTMLSection}{1}[\theHTMLSection]%
}{}%
```

Create the page's HTML header:

```
\LWR@htmltag{!DOCTYPE html}\LWR@orignewline
```

The language is user-adjustable:

NOTE: `\LWR@orig@textquotedbl` is used here because `\textquotedbl` is nullified by `\LWR@nullfonts` while starting the new file.

```
\LWR@htmltag{%
   html lang=\LWR@orig@textquotedbl\LWR@currentHTMLLanguage\LWR@orig@textquotedbl%
}\LWR@orignewline
```

Start of the meta data:

```
\LWR@htmltag{head}\LWR@orignewline
```

Charset is fixed at UTF-8:

```
\LWR@htmltag{%
    meta charset=\LWR@orig@textquotedbl{}UTF-8\LWR@orig@textquotedbl\ /%
}\LWR@orignewline
```

Author:

```
\ifthenelse{\equal{\theHTMLAuthor}{}}%
    {}%
    {%
        \LWR@htmltag{%
        meta name=\LWR@orig@textquotedbl{}author\LWR@orig@textquotedbl\ % space
        content=\LWR@orig@textquotedbl\theHTMLAuthor\LWR@orig@textquotedbl\ /%
        }\LWR@orignewline%
    }%
```

lwarp is the generator:

```
\LWR@htmltag{%
    meta % space
    name=\LWR@orig@textquotedbl{}generator\LWR@orig@textquotedbl\ % space
   content=\LWR@orig@textquotedbl{}LaTeX Lwarp package\LWR@orig@textquotedbl\ /%
}\LWR@orignewline%
```

If there is a description, add it now:

```
\ifdefempty{\LWR@currentHTMLDescription}{}{%
    \LWR@htmltag{%
      meta name=\LWR@orig@textquotedbl{}description\LWR@orig@textquotedbl\ % space
      content=\LWR@orig@textquotedbl\LWR@currentHTMLDescription\LWR@orig@textquotedbl\ /%
    }\LWR@orignewline
}%
```

Mobile-friendly viewport:

```
\LWR@htmltag{%
    meta % space
    name=\LWR@orig@textquotedbl{}viewport\LWR@orig@textquotedbl\ % space
   content=\LWR@orig@textquotedbl{}width=device-width, initial-scale=1.0\LWR@orig@textquotedbl\ /%
}\LWR@orignewline
```

IE patch:

```
\LWR@htmltag{!-\/-[if lt IE 9]}\LWR@orignewline
\LWR@htmltag{%
    script % space
    src=\LWR@orig@textquotedbl{}%
        http://html5shiv.googlecode.com/svn/trunk/html5.js%
    \LWR@orig@textquotedbl%
}%
\LWR@htmltag{/script}\LWR@orignewline
\LWR@htmltag{![endif]-\/-}\LWR@orignewline
```

The page's title, if there is one. A section name is also added if given.

```
\ifthenelse{\equal{\theHTMLTitle}{}}%
    {}%
```

```
    {%
        \LWR@htmltag{title}%
        \ifdefempty{\theHTMLSection}%
            {\theHTMLTitle}%
            {\theHTMLTitleSection}%
        \LWR@htmltag{/title}\LWR@orignewline%
    }%
```

The page's stylesheet:

```
\LWR@htmltag{%
    link % space
    rel=\LWR@orig@textquotedbl{}stylesheet\LWR@orig@textquotedbl\ % space
    type=\LWR@orig@textquotedbl{}text/css\LWR@orig@textquotedbl\ % space
    href=\LWR@orig@textquotedbl\LWR@currentcss\LWR@orig@textquotedbl\ /%
}%
\LWR@orignewline
```

Optional MathJax support. The HTML tags must be turned off during the verbatim input, and the paragraph handling which was turned on at the end of verbatim input must be immediately turned off again.

```
\ifbool{mathjax}%
{%
    \begingroup%
    \LWR@restoreoriglists%
    \boolfalse{LWR@verbtags}%

        \IfFileExists{\LWR@mathjaxfilename}%
            {\verbatiminput{\LWR@mathjaxfilename}}%
            {%
                \PackageError{lwarp}%
                    {%
                \protect\MathJaxFilename\space specified the file\MessageBreak
                        \space\space\LWR@mathjaxfilename\MessageBreak
                        which does not exist%
                    }%
             {Specify an existing file, or remove \protect\MathJaxFilename.}%
            }%

    \booltrue{LWR@verbtags}%
    \endgroup%
    \LWR@stoppars%
}% end of mathjax
{}%
```

End of the header:

```
\LWR@htmltag{/head}\LWR@orignewline
```

Start of the body:

```
\LWR@htmltag{body}\LWR@orignewline

\endgroup%
\LWR@traceinfo{LWR@filestart: done}%
}
```

```
\end{warpHTML}
```

66 Starting HTML output

for HTML output:

```
\begin{warpHTML}
```

`\LWR@LwarpStart` Executed at the beginning of the entire document.

The use of `\textquotedbl` instead of " improves compatibility with xeCJK.

```
\catcode`\$=\active
\newcommand*{\LWR@LwarpStart}
{%
\LWR@traceinfo{LWR@lwarpStart}
```

If formatting for a word processor, force filedepth to single-file only, force HTML debug comments off.

```
\ifbool{FormatWP}{%
    \setcounter{FileDepth}{-5}%
    \boolfalse{HTMLDebugComments}%
}{}
```

Expand and detokenize `\HomeHTMLFilename` and `\HTMLFilename`:

```
\edef\LWR@strresult{\HomeHTMLFilename}
\edef\HomeHTMLFilename{\detokenize\expandafter{\LWR@strresult}}
\edef\LWR@strresult{\HTMLFilename}
\edef\HTMLFilename{\detokenize\expandafter{\LWR@strresult}}
```

Force onecolumn and empty page style:

```
\LWR@origonecolumn%
\LWR@origpagestyle{empty}%
```

No black box for overfull lines:

```
\overfullrule=0pt
```

Reduce chance of line overflow when HTML tags are added:

```
\LWR@print@footnotesize%
```

In PDF output, don't allow line breaks to interfere with HTML tags:

```
\LWR@print@raggedright%
\LetLtxMacro{\\}{\LWR@endofline}%
```

Spread the lines for *pdftotext* to read them well:

```
\linespread{1.3}%
```

For *pdftotext* to reliably identify paragraph splits:

```
\setlength{\parindent}{0pt}
\setlength{\parskip}{2ex}
```

For the lateximage record file:

```
\immediate\openout\LWR@lateximagesfile=\BaseJobname-images.txt
```

Removes space around the caption in the HTML:

```
\setlength{\belowcaptionskip}{0ex}
\setlength{\abovecaptionskip}{0ex}
```

Redefine the plain page style to be empty when used by index pages:

```
\renewcommand{\ps@plain}{}
```

Plug in some new actions. This is done just before the document start so that they won't be over-written by some other package.

Float captions:

```
\let\LWR@origcaption\caption
```

Not yet started any paragraph handling:

```
\global\booltrue{LWR@doingparhooks}
\global\boolfalse{LWR@doingapar}
\global\boolfalse{LWR@doingstartpars}
```

\color@endgroup's \endgraf was conflicting with lwarp's paragraph handling.

```
\let\color@endgroup\endgroup
```

Document and page settings:

```
\mainmatter
\LWR@origpagenumbering{arabic}
```

Start a new HTML file and a header:

```
\LWR@traceinfo{LWR@lwarpStart: Starting new file.}
\LWR@filestart%
```

Tell *lwarpmk* that the lwarp package is in use. This allows *lwarpmk* to warn if usepackage{lwarp} was somehow disabled.

```
\begingroup%
\LWR@nullfonts%
\LWR@htmlblockcomment{%
|Using lwarp|%
\LWR@htmlsectionfilename{\LWR@thisfilename}|%
}
\endgroup%
```

```
\LWR@traceinfo{LWR@lwarpStart: Generating first header.}
\ifdefempty{\LWR@firstpagetop}{}{%
    \LWR@htmltag{header}\LWR@orignewline
    \LWR@startpars
    \LWR@firstpagetop
    \LWR@stoppars
```

```
    \LWR@htmltag{/header}\LWR@orignewline
}%

\LWR@htmlelementclass{div}{bodywithoutsidetoc}
\LWR@htmlelementclass{main}{bodycontainer}
\LWR@traceinfo{LWR@lwarpStart: Generating textbody.}
\LWR@htmlelementclass{section}{textbody}
```

Create a label for previous/next links, and remember it has been done:

```
\booltrue{LWR@setseqfilelabel}%
\label{\BaseJobname-autofile-\arabic{LWR@htmlseqfilenumber}}
```

Patch the `itemize`, `enumerate`, and `description` environments and `\item`. This works with the native LaTeX environments, as well as those provided by enumitem, enumerate, and paralist.

```
\LWR@patchlists
```

Ensure that math mode is active to call lwarp's patches:

```
\catcode`\$=\active
```

Required for `\nameref` to work with SVG math:

```
\immediate\write\@mainaux{\catcode`\string$\active}%
\LetLtxMacro\LWR@syntaxhighlightone$% balance for editor syntax highlighting
```

Allow HTML paragraphs to begin:

```
\LWR@startpars
```

If using MathJax, disable `\ensuremath` by printing a nullified definition at the start of each file, and add further customizations:

```
\ifbool{mathjax}{
    \typeout{---}
    \typeout{Package lwarp:}
    \typeout{Processing MathJax customizations for the first HTML page.}
    \typeout{Later HTML pages will take the same amount of time.}
   \typeout{If this takes too long, see the Lwarp manual regarding customizing MathJax.}
}{}

\LWR@customizeMathJax

\ifbool{mathjax}{
    \typeout{Done.}
    \typeout{---}
}{}
```

First autopage label in case a figure occurs early before the first section: A new autopage label may be generated for `LWR@currentautosecpage` for the start of the section, and also for the current page if it is different due to an SVG image in the section name. Also, the final page after the section has been created is updated in `LWR@currentautosecfloatpage`.

```
\setcounter{LWR@currentautosecfloatpage}{\value{page}}%
\LWR@newautopagelabel{LWR@currentautosecpage}%
```

```
\LWR@traceinfo{LWR@lwarpStart: done}
}
\catcode`\$=3% math shift until lwarp starts
```

```
\end{warpHTML}
```

67 Ending HTML output

for HTML output:

```
\begin{warpHTML}
```

`\LWR@requesttoc` {⟨*boolean*⟩} {⟨*suffix*⟩} Requests that a TOC, LOF, or LOTbe generated.

```
\newcommand*{\LWR@requesttoc}[2]{%
\ifbool{#1}
{
    \expandafter\newwrite\@nameuse{tf@#2}
    \immediate\openout \@nameuse{tf@#2} \jobname.#2\relax
}{}
}
```

`\LWR@LwarpEnd` Final stop of all HTML output:

```
\newcommand*{\LWR@LwarpEnd}
{
\LWR@stoppars
\LWR@closeprevious{finished}
```

At the bottom of the ending file:

Print any pending footnotes:

```
\LWR@printpendingfootnotes
```

Close the textbody.

(The `\LWR@origtilde` is in case no autopage is required for the label, which would not print anything, and something must be printed before the newline.)

```
\label{\BaseJobname-autofile-last}\LWR@origtilde\LWR@orignewline
```

```
\LWR@htmlelementclassend{section}{textbody}
\LWR@htmlelementclassend{main}{bodycontainer}
\LWR@htmlelementclassend{div}{bodyandsidetoc}
```

Create the footer if not EPUB

```
\ifbool{FormatEPUB}{}{\LWR@createfooter}
```

No bottom navigation if are finishing the home page, or if formatting for an EPUB or word processor.

Presumably has a table-of-contents.

```
\ifthenelse{\boolean{FormatEPUB}\OR\boolean{FormatWP}}
    {}
    {
        \ifnumcomp{\value{LWR@htmlfilenumber}}{>}{0}{\LWR@botnavigation}{}
    }

\LWR@stoppars% final stop of all paragraphs
```

Finish the HTML file:

```
\LWR@htmltag{/body}\LWR@orignewline
\LWR@htmltag{/html}\LWR@orignewline
```

Seems to be required sometimes:

```
\LWR@maybe@orignewpage
}
```

Hook [LaTeX] enddocument/info Used to close the *-images.txt file.

\enddocument If labels have not changed, mark successful completion of the lateximages.txt file. Executed as everything is being shut down.

For the newer kernel hooks, see **texdoc lthooks-doc** and **texdoc ltshipout-doc**.

```
\ifdef{\AddToHook}{% newer kernel
    \AddToHook{enddocument/info}{%
       \if@filesw
       \ifx \@multiplelabels \relax
         \if@tempswa
```

This is where warnings of duplicate labels would appear.

```
         \else
```

No duplicate labels, so safe to create images.

```
            \immediate\write\LWR@lateximagesfile{%
                |end|end|end|%
            }%
         \fi
       \fi\fi
    }
}% newer kernel
{% older kernel
    \xpatchcmd{\enddocument}
        {%
            \if@tempswa
            \@latex@warning@no@line{Label(s) may have changed.
            Rerun to get cross-references right}%
            \fi
        }
        {%
            \if@tempswa
                \@latex@warning@no@line{Label(s) may have changed.
                Rerun to get cross-references right}%
            \else
```

No duplicate labels, so safe to create images.

```
                \immediate\write\LWR@lateximagesfile{%
                    |end|end|end|%
                }%
            \fi
        }
        {}
        {
            \AtEndDocument{
                \PackageWarningNoLine{lwarp}
                {%
                    Could not patch \protect\enddocument.\MessageBreak
                 If labels have changed, be sure to recompile before\MessageBreak
                    creating lateximages with\MessageBreak
                    \space\space lwarpmk limages,\MessageBreak
                    or the images may be corrupt%
                }
            }
        }
}% older kernel
```

68 Nullifying foreground/background hooks

See **texdoc lthooks-doc** and **textdoc ltshipout-doc**.

Hook shipoout/background [LaTeX] Nullified.

Hook shipoout/foreground [LaTeX] Nullified.

```
\ifdef{\RemoveFromHook}{
    \AfterEndPreamble{
        \IfHookEmptyTF{shipout/background}{}{
            \PackageInfo{lwarp}{Removing background hook}
            \RemoveFromHook{shipout/background}[*]
        }
        \IfHookEmptyTF{shipout/foreground}{}{
            \PackageInfo{lwarp}{Removing foreground hook}
            \RemoveFromHook{shipout/foreground}[*]
        }
    }
}{}
```

```
\end{warpHTML}
```

69 Title page

package support ⚠ load order

lwarp supports the native LaTeX titling commands, and also supports the packages authblk and titling. If both are used, authblk should be loaded before titling.

\published and \subtitle

If using the titling package, additional titlepage fields for \published and \subtitle may be added by using \AddSubtitlePublished in the preamble. See section 69.8.

affiliation

lwarp provides for the \author macro an additional \affiliation macro to pro-

vide an affiliation and other additional information for each author in the title page. The affiliation information is removed when using titlingpage's `\theauthor` in the main text.

reusing titlepage information

The titling package maintains the definitions of `\thetitle`, `\theauthor`, etc., after the title has been typeset. These commands are to be used to refer to the document's title and author, etc., in the main text. These definitions have the `\thanks` and `\affiliation` removed, and for `\author` the `\and` is replaced to generate a simple inline list of authors separated by commas. Note: `\theauthor` does not work well with authblk unless the traditional LaTeX syntax is used.

⚠ `\theauthor`, authblk

custom titlepages

`\printtitle`, `\printauthor`, etc., are provided for use inside a custom `titlepage` or `titlingpage` environment, and these retain the `\thanks` and `\affiliation`.

`\printthanks`

`\printthanks` has been added to force the printing of thanks inside a `titlingpage` environment when `\maketitle` is not used.

⚠ `\thanks`

Inside a `\titlepage` or `\titlingpage` environment, use `\thanks` instead of `\footnote` for acknowledgements, etc.

69.1 Setting the title, etc.

The following provide setting commands for both HTML and print outputs.

`\author`
`\and`

{⟨*author*⟩} While using `\maketitle` and print mode, the author is treated as a single-column `tabular` and the `\and` feature finishes the current `tabular` then starts a new one for the next author. Each author thus is placed into its own `tabular`, and an affiliation may be placed on its own line such as

```
\author{Name \\ Affiliation \and Second Name \\ Second Affiliation}
```

For HTML, the entire author block is placed inside a `<div>` of class `author`, and each individual author is inside a `<div>` of class `oneauthor`.

`\@title`
`\@author`
`\@date`

`\@title`, `\@author`, and `\@date` store the values as originally assigned, including any `\thanks`, `\and`, or `\affiliation`. These are low-level macros intended to be used by other macros only inside a `titlepage` or `titlingpage`, and are used by `\maketitle`. The author is printed inside a single-column `tabular`, which becomes multiple single-column `tabulars` if multiples authors are included. For HTML, these `tabulars` become side-by-side `<div>`s of class `oneauthor`, all of which are combined into one `<div>` of class `author`.

`\printtitle`
`\printauthor`
`\printdate`

`\printtitle`, etc. are user-level macros intended to be used in custom `titlepage` or `titlingpage` environments in cases where `\maketitle` is not desired. These commands preserve the `\thanks`, etc., and should not be used in the main text.

`\thetitle`
`\theauthor`
`\thedate`
`\HTMLPageBottom`

`\thetitle`, `\theauthor`, and `\thedate` are available if titling has been loaded, and are sanitized user-level versions from which have been removed the `\thanks` and `\affiliation`, and `\and` is changed for inline text usage. The author is printed inline without `\affiliation` or `\thanks`, with `\and` placing commas between multiple authors. Thus, these commands are to be used in the main text whenever the user wishes to refer to the document's title and such. One practical use for this is to place the authors at the bottom of each HTML page, such as:

```
\HTMLPageBottom{
  \begin{center}\textcopyright~20xx \theauthor\end{center}
```

```
}
```

⚠ \theauthor, authblk

\theauthor does not work well if authblk is used. If \theauthor is important, it is recommended to use the standard LaTeX syntax for \author, optionally with lwarp's \affiliation macro as well.

⚠ affiliations

After \maketitle has completed, \theauthor retains the definition of the author, but \and is changed to become a comma and a space, intending to print the authors names separated by spaces. This fails when affiliations are included on their own table rows.

\affiliation

A solution, provide here, is to define a macro \affiliation which, during \maketitle, starts a new row and adds the affiliation, but after \maketitle is finished \affiliation is re-defined to discard its argument, thus printing only the author names when \author is later used inline.

69.2 \if@titlepage

for HTML & PRINT:

```
\begin{warpall}
```

\if@titlepage

Some classes do not provide \if@titlepage. In this case, provide it and force it false.

```
\ifcsvoid{@titlepagefalse}{
    \newif\if@titlepage
    \@titlepagefalse
}{}

\end{warpall}
```

69.3 Changes for \affiliation

\affiliation {⟨*text*⟩}

Adds the affiliation to the author for use in \maketitle.

Inside titlepage, this macro prints its argument. Outside, it is null.

for HTML & PRINT:

```
\begin{warpall}
\providerobustcmd{\affiliation}[1]{}
\end{warpall}
```

for PRINT output:

```
\begin{warpprint}

\AtBeginEnvironment{titlepage}{
\renewrobustcmd{\affiliation}[1]{\\ \textsc{\small#1}}
}

\AtBeginDocument{
\IfPackageLoadedTF{titling}{
\AtBeginEnvironment{titlingpage}{
\renewrobustcmd{\affiliation}[1]{\\ \textsc{\small#1}}
}
```

```
}{}% titling loaded
}% AtBeginDocument
```

```
\end{warpprint}
```

for HTML output:

```
\begin{warpHTML}
```

Env `titlepage` Sets up a of class `titlepage`. Provided even for memoir class, since it is used by `\maketitle`.

```
\DeclareDocumentEnvironment{titlepage}{}
{%
    \renewrobustcmd{\affiliation}[1]{\\ \InlineClass{affiliation}{##1}}%
    \LWR@printpendingfootnotes
    \LWR@forcenewpage
    \BlockClass{titlepage}
}
{
    \endBlockClass
    \LWR@printpendingfootnotes
}
```

```
\end{warpHTML}
```

69.4 Printing the thanks

`\printthanks` Forces the `\thanks` to be printed. This is necessary in a `titlingpage` environment when `\maketitle` was not used.

for PRINT output:

```
\begin{warpprint}
\newcommand*{\printthanks}{\@thanks}
\end{warpprint}
```

for HTML output:

```
\begin{warpHTML}
\newcommand*{\printthanks}{\LWR@stoppars\@thanks\LWR@startpars}
\end{warpHTML}
```

69.5 Printing the title, etc. in HTML

The following are for printing the title, etc. in a `titlepage` or a `titlingpage` in HTML:

for HTML output:

```
\begin{warpHTML}
```

`\printtitle`

```
\newcommand*{\printtitle}
{%
    \LWR@stoppars%
    \LWR@htmltag{\LWR@tagtitle}%
    \@title%
    \LWR@htmltag{\LWR@tagtitleend}%
    \LWR@startpars%
}
```

\LWR@printthetitle A private version which prints the title without footnotes, used to title each HTML page.

```
\newcommand*{\LWR@printthetitle}
{%
    \LWR@stoppars%
    \LWR@htmltag{\LWR@tagtitle}%
    \thetitle%
    \LWR@htmltag{\LWR@tagtitleend}%
    \LWR@startpars%
}
```

\printauthor HTML version.

```
\newcommand*{\printauthor}{
```

The entire author block is contained in a named author:

```
\begin{BlockClass}{author}
```

\and finishes one author and starts the next:

```
\renewcommand{\and}{%
\end{BlockClass}
\begin{BlockClass}{oneauthor}
}
```

Individual authors are contained in a named oneauthor:

```
\begin{BlockClass}{oneauthor}
\@author
\end{BlockClass}
\end{BlockClass}
}
```

\printdate

```
\newcommand*{\printdate}{%
\begin{BlockClass}{titledate}
\@date
\end{BlockClass}
}
```

```
\end{warpHTML}
```

69.6 Printing the title, etc. in print form

The following are for printing the title, etc. in a titlepage or a titlingpage in print form:

for PRINT output:

```
\begin{warpprint}
```

\printtitle

```
\newcommand*{\printtitle}{{\Huge\@title}}
```

\printauthor Print mode.

```
\newcommand*{\printauthor}
    {{\large\begin{tabular}[t]{c}\@author\end{tabular}}}
```

\printdate

```
\newcommand*{\printdate}{{\small\textit{\@date}}}
```

```
\end{warpprint}
```

69.7 \maketitle for HTML output

An HTML of class titlepage is used.

\thanks are a form of footnotes used in the title page. See section 60 for other kinds of footnotes.

See \thanksmarkseries{series}, below, to set the style of the footnote marks.

for HTML output:

```
\begin{warpHTML}
```

```
\IfClassLoadedTF{memoir}
{
\newcommand{\LWR@setfootnoteseries}{%
    \renewcommand\thefootnote{\@arabic\c@footnote}%
}
}{% not memoir
\if@titlepage
\newcommand{\LWR@setfootnoteseries}{%
    \renewcommand\thefootnote{\@arabic\c@footnote}%
}
\else
\newcommand{\LWR@setfootnoteseries}{%
    \renewcommand\thefootnote{\@fnsymbol\c@footnote}%
}
\fi
}% not memoir
```

\LWR@maketitlesetup Patches \thanks macros.

```
\newcommand*{\LWR@maketitlesetup}{%
```

Redefine the footnote mark:

```
\LWR@setfootnoteseries%
\def\@makefnmark{%
    \textsuperscript{\thefootnote}%
}
```

\thefootnote ⇒ \nameuse{arabic}{footnote}, or
\thefootnote ⇒ \nameuse{fnsymbol}{footnote}

Redefine the footnote text:

```
\long\def\@makefntext##1{%
```

Make the footnote mark and some extra horizontal space for the tags:

```
\textsuperscript{\@thefnmark}~%
```

\makethanksmark ⇒ \thanksfootmark ⇒ \tamark ⇒ \@thefnmark ⇒ \itshape a (or similar)

Print the text:

```
{##1}%
}%
}
```

\@fnsymbol {⟨*counter*⟩}

Re-defined to use an HTML entity for the double vertical bar symbol. The original definition used \| which was not being seen by *pdftotext*.

```
\def\LWR@HTML@@fnsymbol#1{%
    \ifcase#1\or *\or
    \HTMLentity{dagger}\or
    \HTMLentity{Dagger}\or
    \HTMLentity{sect}\or
    \HTMLentity{para}\or
    \HTMLunicode{2016}\or
    **\or
    \HTMLentity{dagger}\HTMLentity{dagger} \or
    \HTMLentity{Dagger}\HTMLentity{Dagger} \else
    \@ctrerr\fi%
}
\LWR@formatted{@fnsymbol}
```

\maketitle HTML mode. Creates an HTML titlepage div and typesets the title, etc.

Code from the titling package is adapted, simplified, and modified for HTML output.

The name \LWR@maketitle is used to preserve its definition in case a later package overwrites \maketitle.

```
\newcommand*{\LWR@maketitle}{%
```

An HTML titlepage is used for all classes.

```
\begin{titlepage}
```

Set up special patches:

```
\LWR@maketitlesetup
```

Typeset the title, etc:

```
\@maketitle
```

Immediately generate any \thanks footnotes:

```
\LWR@stoppars\@thanks\LWR@startpars
```

Close the HTML titlepage div and cleanup:

```
\end{titlepage}
\setcounter{footnote}{0}%
\global\let\thanks\relax
\global\let\maketitle\relax
\global\let\@maketitle\relax
\global\let\@thanks\@empty
\global\let\@author\@empty
\global\let\@date\@empty
\global\let\@title\@empty
\global\let\title\relax
\global\let\author\relax
\global\let\date\relax
\global\let\and\relax
}

\LetLtxMacro\maketitle\LWR@maketitle
```

`\@maketitle` HTML mode. Typesets the title, etc.:

```
\providecommand*{\@maketitle}{}
\renewrobustcmd{\@maketitle}{%
    \LWR@stoppars%
    \LWR@htmltag{\LWR@tagtitle}%
    \@title%
    \LWR@htmltag{\LWR@tagtitleend}%
    \LWR@startpars%
    \begin{BlockClass}{author}%
```

For IEEEtran class:

```
    \renewcommand*{\cr}{}%
    \renewcommand*{\crcr}{}%
    \renewcommand*{\noalign}{}%

        \renewcommand{\and}{%
            \end{BlockClass}%
            \begin{BlockClass}{oneauthor}%
        }%
        \begin{BlockClass}{oneauthor}%
            \@author%
        \end{BlockClass}%
    \end{BlockClass}%
    \begin{BlockClass}{titledate}%
    \@date%
    \end{BlockClass}%
}
```

`\LWR@titlingmaketitle` `\maketitle` for use inside an HTML `titlingpage` environment.

```
\newcommand*{\LWR@titlingmaketitle}{%
```

Keep pending footnotes out of the title block:

```
\LWR@stoppars\@thanks\LWR@startpars
```

Set up special patches:

```
\LWR@maketitlesetup
```

Typeset the title, etc:

```
\@maketitle
```

Immediately generate any \thanks footnotes:

```
\LWR@stoppars\@thanks\LWR@startpars
}
```

```
\end{warpHTML}
```

69.8 \published and \subtitle

\subtitle and \published

To add \subtitle and \published to the titlepage, load the titling package and use \AddSubtitlePublished in the preamble.

The default lwarp.css has definitions for the published and subtitle classes.

If titling is loaded, \AddSubtitlePublished creates a number of additional macros, and also assigns some of the titling hooks. If titling is not loaded, \AddSubtitlePublished creates null macros.

⚠ titling hooks

Do not use \AddSubtitlePublished if the user has patched the titling hooks for some other reason. Portions are marked \warpprintonly to reduce extra tags in HTML. Similarly, BlockClass has no effect in print mode. Thus, the following may be marked warpall.

for HTML & PRINT:

```
\begin{warpall}
```

\AddSubtitlePublished

Adds \published and \subtitle, and related.

```
\newcommand*{\AddSubtitlePublished}{%
\IfPackageLoadedTF{titling}{% yes titling package
    \newcommand{\@published}{}%
    \newcommand{\published}[1]{\gdef\@published{##1}}%
    \renewcommand*{\maketitlehooka}{\printpublished}%
    \newcommand*{\printpublished}{%
        \warpprintonly{\begin{center}\unskip}%
        \begin{BlockClass}{published}%
        \warpprintonly{\large\itshape}%
        \@published%
        \end{BlockClass}%
        \warpprintonly{\end{center}}%
    }%
    \newcommand{\@subtitle}{}%
    \newcommand{\subtitle}[1]{\gdef\@subtitle{##1}}%
    \renewcommand*{\maketitlehookb}{\printsubtitle}%
    \newcommand*{\printsubtitle}{%
        \warpprintonly{\begin{center}\unskip}%
        \begin{BlockClass}{subtitle}%
        \warpprintonly{\Large\itshape}%
        \@subtitle%
```

```
        \end{BlockClass}%
        \warpprintonly{\end{center}}%
    }%
}% yes titling package
{% no titling package

    \def\@published{}%
    \DeclareDocumentCommand{\published}{m}{\gdef\@published{##1}}%
    \DeclareDocumentCommand{\printpublished}{}{}%
    \def\@subtitle{}%
    \DeclareDocumentCommand{\subtitle}{m}{\gdef\@subtitle{##1}}%
    \DeclareDocumentCommand{\printsubtitle}{}{}%
}% no titling package
}% \AddSubtitlePublished

\end{warpall}
```

70 Abstract

The following code replaces the LaTeX default, and will itself be replaced later if the abstract package is loaded.

for HTML output:

```
\begin{warpHTML}
```

`\abstractname` User-redefinable title for the abstract.

Also over-written by the babel package.

```
\providecommand*{\abstractname}{Abstract}
```

Some classes allow an optional name, so it is allowed here.

Env `abstract`

```
\DeclareDocumentEnvironment{abstract}{O{\abstractname}}
{
    \LWR@forcenewpage
    \BlockClass{abstract}
    \BlockClassSingle{abstracttitle}{#1}
}
{
    \endBlockClass
}

\end{warpHTML}
```

71 Quote and verse

71.1 Attributions

`\attribution` {⟨*name*⟩}

For use with quote, quotation, verse:

Ex: `"A quotation." \attribution{\textsc{Author Name}\\\textsl{Book Title}}`

for HTML & PRINT:

```
\begin{warpall}
\newcommand{\attribution}[1]{
    \begin{flushright}
    \unskip
    #1
    \end{flushright}%
}
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
\newcommand{\LWR@HTML@attribution}[1]{%
    \LWR@stoppars%
    \begin{BlockClass}{attribution}
    #1
    \end{BlockClass}
    \LWR@startpars%
}
\LWR@formatted{attribution}
\end{warpHTML}
```

71.2 Quotes, quotations

for HTML output:

```
\begin{warpHTML}
```

Env `quote`

```
\newenvironment*{LWR@HTML@quote}
{
    \LWR@forcenewpage
    \LWR@htmlblocktag{blockquote}
}
{\LWR@htmlblocktag{/blockquote}}

\LWR@formattedenv{quote}
```

Env `quotation`

```
\newenvironment*{LWR@HTML@quotation}
{
    \LWR@forcenewpage
    \LWR@htmlblocktag{blockquote}
}
{\LWR@htmlblocktag{/blockquote}}

\LWR@formattedenv{quotation}

\end{warpHTML}
```

71.3 Verse

When using verse or memoir, always place a \\ after each line.

\attrib

The documentation for the verse and memoir packages suggest defining an \attrib command, which may already exist in current documents, but it will only work for print output. lwarp provides \attribution, which works for both print and HTML output. To combine the two so that \attrib is used for print and \attribution is used for HTML:

```
\begin{warpHTML}
\let\attrib\attribution
\end{warpHTML}
```

Len \vleftskip
Len \vleftmargini
Len \HTMLvleftskip
Len \HTMLleftmargini

These lengths are used by verse and memoir to control the left margin, and they may already be set by the user for print output. New lengths \HTMLvleftskip and \HTMLleftmargini are provided to control the margins in HTML output. These new lengths may be set by the user before any verse environment, and persist until they are manually changed again. One reason to change \HTMLleftmargini is if there is a wide \flagverse in use, such as the word "Chorus", in which case the value of \HTMLleftmargini should be set to a wide enough length to contain "Chorus". The default is wide enough for a stanza number.

⚠ spacing

Horizontal spacing relies on *pdftotext*'s ability to discern the layout (-layout option) of the text in the HTML-tagged PDF output. For some settings of \HTMLleftmargini or \HTMLleftskip the horizontal alignment may not work out exactly, in which case a label may be shifted by one space. During translation to HTML, the stanza numbers are kept out of the left margin, which would have caused *pdftotext* to shift everything over.

⚠ verse margin

71.3.1 LaTeX core verse environment

for HTML output:

```
\begin{warpHTML}
```

Env verse

```
\newenvironment{LWR@HTML@verse}
               {\let\\\newline% lwarp
                \list{}{\itemsep      \z@
                        \itemindent   -1.5em%
                        \listparindent\itemindent
                        \rightmargin  \leftmargin
                        \advance\leftmargin 1.5em}%
                \item\relax}
               {\endlist}

\LWR@formattedenv{verse}
```

```
\end{warpHTML}
```

for HTML & PRINT:

```
\begin{warpall}
```

71.3.2 verse and memoir

The following lengths are used by verse and memoir. They may be set in either print or HTML output, but are only used in HTML. This allows the user to set \vleftskip and \leftmargini for print output, and optionally select different values for HTML.

Len \HTMLvleftskip Sets \vleftskip inside a verse environment in HTML.

```
\newlength{\HTMLvleftskip}
\setlength{\HTMLvleftskip}{1em}
```

Len \HTMLleftmargini Sets \leftmargini inside a verse environment in HTML.

```
\newlength{\HTMLleftmargini}
\setlength{\HTMLleftmargini}{4.5em}
```

```
\end{warpall}
```

72 Verbatim and tabbing

for HTML & PRINT:

```
\begin{warpall}
```

Len \VerbatimHTMLWidth Width to use in HTML Verbatim environment.

This width is used when placing line numbers to the right. Ignored during print output.

```
\newlength{\VerbatimHTMLWidth}
\setlength{\VerbatimHTMLWidth}{4in}
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

Bool LWR@verbtags Used to temporarily turn off verbatim tags while doing \verbatiminput in the HTML head.

```
\newbool{LWR@verbtags}
\booltrue{LWR@verbtags}
```

\verb Patched to encapsulate the verbatim text inside span with a class of texttt.

```
\LetLtxMacro\LWR@orig@verb@egroup\verb@egroup

\def\LWR@verb@egroup@endspan{%
    \LWR@orig@verb@egroup%
    \LWR@htmltag{/span}%
    \endgroup%
}


\xpretocmd{\verb}
    {%
        \begingroup%
        \LWR@htmltag{span class=\textquotedbl{}texttt\textquotedbl}%
        \let\verb@egroup\LWR@verb@egroup@endspan%
    }
    {}
    {\LWR@patcherror{LaTeX}{verb}}
```

\LWR@atbeginverbatim [⟨*1: style*⟩] {⟨*2: class*⟩}

Encloses a verbatim environment with the given CSS class.

The use of `\textquotedbl` instead of " improves compatibility with xeCJK.

```
\newcommand*{\LWR@atbeginverbatim}[2][]
{%
```

Stop generating HTML paragraph tags:

```
\LWR@stoppars%
```

Avoid excessive space between lines:

```
\setlength{\parskip}{0ex}%
\setlength{\topsep}{0pt}%
\setlength{\partopsep}{0pt}%
```

Inside the verbatim, temporarily prevent underfull `\hbox` warnings.

```
            \hbadness=10000\relax%
```

Create a new `pre` of the given class. The tags may temporarily be turned off for internal use, such as loading the MathJax script.

```
\ifbool{LWR@verbtags}{%
    \LWR@htmltag{pre class=\textquotedbl#2\textquotedbl%
        \ifthenelse{\equal{#1}{}}{}{ style=\textquotedbl#1\textquotedbl}%
    }%
    \par%
}{}%
```

Use a mono-spaced font to preserve horizontal positioning. If horizontal alignment is important for the user, use a mono-spaced font in the CSS for the `verse` class.

```
\begingroup%
```

```
\LWR@print@normalfont%
\LWR@origttfamily%
\LWR@print@scriptsize%
```

Since inside a <pre>, restore the original list processing:

```
\LWR@restoreoriglists%
```

Turn off babel-french extra space before punctuation:

```
\LWR@hook@processingtags%
```

Do not produce HTML tags for `\hspace` inside a verse `par`. Restore plain LaTeX `\hspace` functionality:

```
\LWR@select@print@hspace%
}
```

`\LWR@afterendverbatim` Finishes enclosing a verbatim environment.

```
\newcommand*{\LWR@afterendverbatim}{%
\endgroup%
\par%
```

At the end of the environment, close the pre:

```
\ifbool{LWR@verbtags}{%
    \noindent\LWR@htmltag{/pre}\par% pre
}{}%
```

Resume regular paragraph handling:

```
\LWR@startpars%
}
```

\verbatiminput {⟨*filename*⟩}

Patch \verbatiminput to add HTML tags:

```
\newcommand{\LWR@HTML@verbatim@input}[2]{%
    \ifbool{LWR@verbtags}{\LWR@forcenewpage}{}%
    \LWR@atbeginverbatim{Verbatim}%
    \LWR@print@verbatim@input{#1}{#2}%
    \LWR@afterendverbatim%
}

\LWR@formatted{verbatim@input}
```

Env verbatim

```
\AfterEndPreamble{
\LWR@traceinfo{Patching verbatim.}
\AtBeginEnvironment{verbatim}{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {}%
        {%
            \LWR@forcenewpage%
            \LWR@atbeginverbatim{verbatim}%
        }%
}
\AfterEndEnvironment{verbatim}{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {}%
        {%
            \LWR@afterendverbatim%
        }%
}
%
\AtBeginEnvironment{verbatim*}{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {}%
        {%
            \LWR@forcenewpage%
            \LWR@atbeginverbatim{verbatim}%
        }%
}
\AfterEndEnvironment{verbatim*}{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
```

```
        {}%
        {%
            \LWR@afterendverbatim%
        }%
}
}
```

Env `tabbing` The `tabbing` environment works, except that SVG math and `lateximages` do not yet work inside the environment.

⚠ math in `tabbing` If math is used inside `tabbing`, place `tabbing` inside a `lateximage` environment, which will render the entire environment as a single SVG image.

```
\newenvironment*{LWR@HTML@tabbing}
{%
    \LWR@forcenewpage%
    \LWR@atbeginverbatim{tabbing}%
    \let\enskip\LWR@origenskip%
    \let\quad\LWR@origquad%
    \let\qquad\LWR@origqquad%
    \let~\LWR@origtilde%
    \let\,\LWR@origcomma%
    \let\thinspace\LWR@origthinspace%
    \let\negthinspace\LWR@orignegthinspace%
    \LWR@print@tabbing%
}
{%
    \endLWR@print@tabbing%
    \LWR@afterendverbatim%
}

\LWR@formattedenv{tabbing}
```

```
\end{warpHTML}
```

73 Theorems

`\newtheorem` {⟨*text*⟩} [⟨*counter*⟩] — *or* — [⟨*oldname*⟩] {⟨*text*⟩}

A few minor changes are made to supply HTML tags.

- The entire theorem is placed into a `<div>` of class `theoremcontents`.
- The label for each theorem is placed inside a `<span>` of class `theoremlabel`.
- The contents are placed inside a `<div>` of class theoremcontents.

for HTML output:

```
\begin{warpHTML}
```

`\@begintheorem` {⟨*name*⟩} {⟨*number*⟩}

```
\renewcommand{\@begintheorem}[2]{%
\LWR@forcenewpage
```

```
8481     \LWR@printpendingfootnotes%                    lwarp

8482 \BlockClass{theoremcontents}
8483 \trivlist
8484 \item[\InlineClass{theoremlabel}{#1\ #2\ }]\itshape
8485 }
```

\@opargbegintheorem {⟨*name*⟩} {⟨*number*⟩} {⟨*oparg*⟩}

LaTeX defines this, but amsthm `\relax`es it, so it will not be defined if amsthm is loaded before lwarp.

```
8486 \ifundef{\@opargbegintheorem}{}{
8487     \renewcommand{\@opargbegintheorem}[3]{%
8488         \LWR@forcenewpage
8489         \BlockClass{theoremcontents}
8490         \trivlist
8491         \item[\InlineClass{theoremlabel}{#1\ #2\ (#3)\ }]\itshape
8492     }
8493 }
```

\@endtheorem

```
8494 \renewcommand*{\@endtheorem}{%
8495 \endtrivlist

8496     \LWR@printpendingfootnotes%                    lwarp

8497 \endBlockClass% theoremcontents
8498 }

8499 \end{warpHTML}
```

74 Lists

The environments `itemize`, `enumerate`, and `description` are patched when lwarp is started. These patches support the standard LaTeX environments, as well as those of enumerate, enumitem, and paralist, and at least the French version of babel. Additional patches are done on a package-specific basis.

The LaTeX source for `itemize` and `enumerate` are found in `source2e`, but the source for `description` is found in `article.cls`, etc.

empty item To have an empty item,use `\mbox{}` or a trailing backslash. This forces a new line in print output, matching the new line which will appear in HTML output. Ex:

```
begin{itemize}
item \mbox{}
    \begin{itemize}
...
    \end{itemize}
item \
```

```
  \begin{itemize}
...
  \end{itemize}
```

\makelabel

While inside a list environment, lwarp nullifies a number of TEX horizontal skip and fill commands, allowing the user to define \makelabel for print mode while HTML mode ignores those commands.

⚠ label font When defining \makelabel in a list environment, use \textbf etc. instead of \bfseries.

74.1 List environment

for HTML output:

```
\begin{warpHTML}
```

\LWR@printcloselist May be locally redefined by enumerate or description.

```
\newcommand*{\LWR@printcloselist}{\LWR@printcloseitemize}
```

\LWR@printopenlist May be locally redefined by enumerate or description.

```
\newcommand*{\LWR@printopenlist}{%
  ul style=\textquotedbl\LWR@print@mbox{list-style-type:none}\textquotedbl{}%
}
```

\@mklab Removes PDF spacing.

```
\AtBeginDocument{
\def\@mklab#1{%
%     \hfil %
    #1}
\let\makelabel\@mklab
}
```

\@donoparitem Modified for HTML output by replacing TEX boxes with plain text. Also removes PDF spacing.

```
\def\@donoparitem{%
  \@noparitemfalse
%   \global\setbox\@labels\hbox{\hskip -\leftmargin
%                                \unhbox\@labels
%                                 \hskip \leftmargin}%
%   \if@minipage\else
%     \@tempskipa\lastskip
%     \vskip -\lastskip
%     \advance\@tempskipa\@outerparskip
%     \advance\@tempskipa -\parskip
%     \vskip\@tempskipa
%   \fi
}
```

\@item Modified for HTML output by replacing TEX boxes with plain text. Also removes PDF spacing.

```
\def\LWR@HTML@item[#1]{%
\LWR@traceinfo{@item}%
  \if@noparitem
    \@donoparitem
  \else
%     \if@inlabel
%       \indent
%     \fi
    \ifhmode
%       \unskip\unskip
    \fi
    \if@newlist
      \if@nobreak
        \@nbitem
      \else
%         \addpenalty\@beginparpenalty
%         \addvspace\@topsep
%         \addvspace{-\parskip}%
      \fi
    \else
%       \addpenalty\@itempenalty
%       \addvspace\itemsep
    \fi
    \global\@inlabeltrue
  \fi
%   \everypar{%
    \@minipagefalse
    \global\@newlistfalse

%     \if@inlabel
%       \global\@inlabelfalse

%       {\setbox\z@\lastbox
%        \ifvoid\z@
%          \kern-\itemindent
%        \fi}%

%       \box\@labels
%       \penalty\z@
%     \fi

%     \if@nobreak
%       \@nobreakfalse
%       \clubpenalty \@M
%     \else
%       \clubpenalty \@clubpenalty
%       \everypar{}%
%     \fi}%

  \if@noitemarg
    \@noitemargfalse
    \if@nmbrlist

      \refstepcounter\@listctr
    \fi
  \fi

    \makelabel{#1} % extra space
```

```
%   \sbox\@tempboxa{\makelabel{#1}%
%   \global\setbox\@labels\hbox{%
%     \unhbox\@labels
%     \hskip \itemindent
%     \hskip -\labelwidth
%     \hskip -\labelsep
%     \ifdim \wd\@tempboxa >\labelwidth
%       \box\@tempboxa

%     \else
%       \hbox to\labelwidth {\unhbox\@tempboxa}%
%     \fi
%     \hskip \labelsep}%
  \ignorespaces%
}
```

`\@nbitem`

```
\def\@nbitem{%
%   \@tempskipa\@outerparskip
%   \advance\@tempskipa -\parskip
%   \addvspace\@tempskipa
}
```

`\LWR@listitem` `[⟨label⟩]`

Handles `\item` inside a `list`, `itemize`, or `enumerate`.

See `\LWR@openparagraph` where extra `\hspace` is used to leave room for the label while inside a list during paragraph construction.

```
\newcommand*{\LWR@listitem}{%
    \LWR@stoppars%
    \LWR@startnewdepth{listitem}%
    \LWR@htmltag{li}%
    \LWR@orignewline%
    \LWR@startpars%
    \LWR@ensuredoingapar%
    \LWR@origitem%
}
```

`\LWR@nulllistfills` Nullifies various TEX fill commands, in case they are used inside `\makelabel`. Problems are caused when these are nullified all the time.

```
\newcommand*{\LWR@nulllistfills}{%
    \renewcommand*{\hss}{}%
    \renewcommand*{\llap}[1]{##1}%
    \renewcommand*{\rlap}[1]{##1}%
    \renewcommand*{\hfil}{}%
    \renewcommand*{\hfilneg}{}%
    \renewcommand*{\hfill}{}%
}
```

Env `list` {⟨*label*⟩} {⟨*commands*⟩}

```
\newcommand*{\LWR@liststart}{%
    \LWR@traceinfo{LWR@liststart}%
```

```
    \LWR@stoppars%
    \LWR@pushoneclose{list}%
    \LWR@htmltag{\LWR@printopenlist}\LWR@orignewline%
    \LWR@startpars%
    \setlength{\topsep}{0pt}%
    \setlength{\partopsep}{0pt}%
    \setlength{\itemsep}{0pt}%
    \setlength{\parsep}{0pt}%
    \setlength{\leftmargin}{0pt}%
    \setlength{\rightmargin}{0pt}%
    \setlength{\listparindent}{0pt}%
    \setlength{\itemindent}{0pt}%
    \setlength{\labelsep}{1em}%
    \LWR@nulllistfills%
}

\newcommand*{\LWR@listend}{%
    \LWR@traceinfo{LWR@listend}%
    \LWR@stoppars%
    \LWR@closeprevious{list}%
    \LWR@startpars%
}
```

74.2 Itemize

`\LWR@itemizeitem` `[`⟨*label*⟩`]`

Handles `\item` inside an itemize or enumerate.

The optional argument is passed to `\LWR@origitem`.

See `\LWR@openparagraph` where extra `\hspace` is used to leave room for the label while inside a list during paragraph construction.

```
\newcommand*{\LWR@itemizeitem}{%
    \LWR@stoppars%
    \LWR@startnewdepth{listitem}%
    \LWR@htmltag{li}%
    \LWR@orignewline%
    \LWR@startpars%
    \LWR@ensuredoingapar%
    \LWR@origitem%
}
```

Env `itemize` `[`⟨*options*⟩`]`

```
\newcommand*{\LWR@itemizestart}{%
    \renewcommand*{\LWR@printcloselist}{\LWR@printcloseitemize}%
    \renewcommand*{\LWR@printopenlist}{%
      ul style=\textquotedbl\LWR@print@mbox{list-style-type:none}\textquotedbl{}%
    }%
    \LetLtxMacro\item\LWR@itemizeitem%
    \LWR@nulllistfills%
}
```

74.3 Enumerate

An HTML unordered list is used with customized LaTeX-generated labels.

Env `enumerate` [⟨*options*⟩]

```
\newcommand*{\LWR@enumeratestart}{%
    \renewcommand*{\LWR@printcloselist}{\LWR@printcloseitemize}%
    \renewcommand*{\LWR@printopenlist}{%
     ul style=\textquotedbl\LWR@print@mbox{list-style-type:none}\textquotedbl{}%
    }%
    \LetLtxMacro\item\LWR@itemizeitem%
    \LWR@nulllistfills%
}
```

74.4 Description

`\LWR@descitem` [⟨*label*⟩] Handles an `\item` inside a description.

```
\newcommand*{\LWR@descitem}[1][]{%
    \LWR@stoppars%
    \LWR@setlatestname{#1}%
    \LWR@startnewdepth{descitem}%
```

While creating the label, encase it inside tags and disable `\hspace`, which is used by the standard classes to add space to the labels.

```
    \begingroup%
    \let\LWR@orig@desc@makelabel\makelabel
    \renewcommand*{\makelabel}[1]{%
        \LWR@htmltag{dt}%
        \LWR@orig@desc@makelabel{#1}%
        \LWR@htmltag{/dt}%
    }
    \LWR@select@html@nohspace%
    \LWR@origitem[#1]%
    \endgroup%
    \LWR@orignewline%
    \LWR@htmltag{dd}%
    \LWR@startpars%
}
```

Env `description` [⟨*options*⟩]

Footnotes are modified to correctly parse optional arguments.

```
\newcommand*{\LWR@descriptionstart}{%
    \renewcommand*{\LWR@printcloselist}{\LWR@printclosedescription}
    \renewcommand*{\LWR@printopenlist}{dl}
    \LetLtxMacro\item\LWR@descitem%
    \LWR@nulllistfills%
}
```

74.5 Patching the lists

\LWR@patchlists Patches list environments.

\LWR@patchlists remembers \item as defined by whatever packages have been loaded, then patches the itemize, enumerate, and description environments and \item. This works with the native LaTeX environments, as well as those provided by enumitem, enumerate, and paralist.

```
\newcommand*{\LWR@patchlists}{%
    \LetLtxMacro\item\LWR@listitem%
    \LetLtxMacro\@item\LWR@HTML@item%
    \renewcommand*{\@trivlist}{%
        \LWR@traceinfo{@trivlist start}%
        \LWR@liststart%
        \LWR@orig@trivlist%
        \LWR@traceinfo{@trivlist done}%
    }%
    \renewcommand*{\trivlist}{%
        \LWR@traceinfo{trivlist}%
        \LWR@origtrivlist%
    }%
    \renewcommand*{\endtrivlist}{%
        \LWR@traceinfo{endtrivlist start}%
        \LWR@origendtrivlist\LWR@listend%
        \LWR@traceinfo{endtrivlist done}%
    }%
    \renewcommand*{\itemize}{%
        \LWR@itemizestart\LWR@origitemize%
    }%
    \renewcommand*{\enumerate}{%
        \LWR@enumeratestart\LWR@origenumerate%
    }%
    \renewcommand*{\description}{%
        \LWR@descriptionstart\LWR@origdescription%
    }%
}
```

\LWR@restoreoriglists Restores the original trivlist environment.

```
\newcommand*{\LWR@restoreoriglists}{%
    \LWR@traceinfo{LWR@restoreoriglists}%
    \LetLtxMacro\item\LWR@origitem%
    \LetLtxMacro\@item\LWR@orig@item%
    \let\@trivlist\LWR@orig@trivlist%
    \let\trivlist\LWR@origtrivlist%
    \let\endtrivlist\LWR@origendtrivlist%
    \LetLtxMacro\itemize\LWR@origitemize%
    \LetLtxMacro\enditemize\LWR@endorigitemize%
    \LetLtxMacro\enumerate\LWR@origenumerate%
    \LetLtxMacro\endenumerate\LWR@endorigenumerate%
    \LetLtxMacro\description\LWR@origdescription%
    \LetLtxMacro\enddescription\LWR@endorigdescription%
    \let\@mklab\LWR@orig@mklab%
    \let\makelabel\LWR@origmakelabel%
    \let\@donoparitem\LWR@orig@donoparitem%
    \let\@nbitem\LWR@orig@nbitem%
}
```

```
\end{warpHTML}
```

75 Tabular

This is arguably the most complicated part of the entire package. Numerous tricks are employed to handle the syntax of the LaTeX core and the various tabular-related packages.

75.1 Limitations

Tabular mostly works as expected, but pay special attention to the following, especially if working with environments, macros inside tabulars, multirows, siunitx S columns, or the packages multirow, longtable, supertabular, or xtab.

Defining macros and environments:

⚠ Misplaced alignment tab character &

- When defining environments or macros which include `tabular` and instances of the `&` character, it may be necessary to make `&` active before the environment or macro is defined, then restore `&` to its default catcode after, using the following commands. These are are ignored in print mode.

```
\StartDefiningTabulars
<define macros or environments using tabular and &
here>
\StopDefiningTabulars
```

⚠ floatrow

This includes before and after defining any macro which used `\ttabbox` from floatrow.

⚠ `tabular` inside another environment

- When creating a new environment which contains a `tabular` environment, lwarp's emulation of the tabular does not automatically resume when the containing enviroment ends, resulting in corrupted HTML rows. To fix this, use `\ResumeTabular` as follows. This is ignored in print mode.

```
\StartDefiningTabulars  %    (&  is  used  in  a
definition)
\newenvironment{outerenvironment}
{
  \tabular{cc}
  left & right \\
}
{
  \TabularMacro\ResumeTabular
  left & right \\
  \endtabular
}
\StopDefiningTabulars
```

For developers:

- To automate the use of `\StartDefiningTabulars` and `\EndDefiningTabulars`, these macros may be embedded inside an HTML environment definition to automatically change the catcode of `&` before absorbing the arguments. Another environment may be embedded as well.

```
% Does the work after the catcode has been changed:
\newcommand*{\LWR@HTML@subsomename}[2]{%
  . . .
  \otherenvironmentname  [<args>]  {<args>}  %  for
example
}
% Change catcode before absorbing arguments:
\newcommand*{\LWR@HTML@somename{%
  \StartDefiningTabulars
  \LWR@HTML@subsomename
}
% Change catcode again at the end:
\newcommand*{\LWR@HTML@endsomename}{%
  . . .
  \endotherenvironmentname   % for example
  \StopDefiningTabulars
}
% Combine with the existing print definition:
\LWR@formattedenv{somename}
```

Cell contents:

⚠ macro in a table

- Using a custom macro inside a tabular data cell may result in an extra HTML data cell tag, corrupting the HTML table. To avoid this, use `\TabularMacro` just before the macro. This is ignored in print mode.

```
\TabularMacro\somemacro & more row contents \\
```

Column specifiers:

⚠ math

- Due to the way math is gathered for processing, column specifiers such as `>{$}c<{$}` do not work with lwarp. Instead, each cell must specify math mode individually.

`@` and `!`

- Only one each of `@` and `!` is used at each column, and they are used in that order.

`\multirow`

- In `\multirow` cells, the print version may have extra instances of <, >, `@`, and `!` cells on the second and later rows in the `\multirow` which do not appear in the HTML version.

⚠ `\newcolumntype`

- If `\newcolumntype` does not work for HTML, add a simplified column type using `\HTMLnewcolumntype`.

font and alignment

- lwarp detects each of the following, and sets HTML CSS appropriately:

```
>{\centering\arraybackslash}
>{\raggedright\arraybackslash}
>{\raggedleft\arraybackslash}
>{\itshape}
>{\bfseries}
>{\bfseries\itshape}
```

  These may be used with `\newcolumntype`, such as:

```
\newcolumntype{P}[1]{>{\centering\arraybackslash}p{#1}}
```

Rules:

- Doubled `\hlines`, `\midrules`, and vertical rules are supported.

vertical rules

- Vertical rules next to either side of an `@` or `!` column are displayed on both sides of the column.

width and trim

- Width options are honored. Trim options are converted to rounded top corners. Trim corners are not rounded with `@` or `!` columns, and full-width rules ignore trim. When given an optional width, each cell is styled to create the custom border. Without an optional width, the entire row is given a class to assign the standard border.

combined rules

- If you wish to use `\cmidrule` followed by `\bottomrule`, it may be necessary to use:
  ```
  \cmidrule{2-3} \\[-2ex]
  \bottomrule
  ```
  The optional `-2ex` is ignored in HTML, but improves the visual formatting in the print output.

⚠ `\warpprintonly`
⚠ Misplaced `\noalign`

- For `\toprule` and `\bottomrule`, when combined with a `warpprint` or `warpHTML` environment, if a "Misplaced `\noalign`" error occurs, change
  ```
  This & That \endhead
  ```
  to
  ```
  \warpprintonly{This & That \endhead}
  ```
  and likewise with the other `\end` headings. Keep the `\endfirsthead` row unchanged, as it is still relevent to HTML output.

Other:

- tabularx ignores the width, but `X` columns do produce paragraph columns or multicolumns.

`longtable` headings

- For longtable, place headings and footings which do not apply to HTML inside `\warpprintonly{}`.

⚠ S columns

- For S columns (from the siunitx package), while producing print output, anything non-numeric must be placed inside { } braces, including commands such as `\multirow`. While producing HTML output, though, anything placed inside braces is not seen by lwarp's tabular handling algorithm. To resolve this problem, make a copy of the row, with one version for print output, containing the extra braces, and another version for HTML output, without the extra braces, such as:
  ```
  \warpprintonly{1 & 2 & {\multirow{2}{2cm}{Text}} & 3 \\}
  \warpHTMLonly{1 & 2 & \multirow{2}{2cm}{Text} & 3 \\}
  ```

⚠ `tabular` inside a `<span>`

- In LaTeX, a `tabular` may be placed inside a `minipage`, but in HTML a `<table>` may not be inside a `<span>`. If this situation is detected, a warning is printed instructing the user to isolate the `<span>` using `\warpprintonly` or the `warpprint` environment.

for HTML output: 8730 `\begin{warpHTML}`

75.2 Temporary package-related macros

These macros are temporary placeholders for macros defined by various packages. If the relevent package is not loaded, these placeholders are used instead.

75.2.1 arydshln

Emualated by the original LaTeX non-dashed versions.

```
\LetLtxMacro\hdashline\hline
\LetLtxMacro\cdashline\cline
\LetLtxMacro\firsthdashline\hline
\LetLtxMacro\lasthdashline\hline
```

75.3 Token lookahead

Used by `\LWR@futurenonspacelet` to look at the next token.

`\LWR@mynexttoken`

```
\newcommand\LWR@mynexttoken\relax
```

`\LWR@futurenonspacelet` `\futurelet` copies the next token then executes a function to analyze it.

`\LWR@futurenonspacelet` does the same, but ignores intervening spaces and paragraphs.

Based on the booktabs style:

```
\def\LWR@futurenonspacelet#1{\def\LWR@cs{#1}%
\afterassignment\LWR@fnslone\let\nexttoken= }

\def\LWR@fnslone{\expandafter\futurelet\LWR@cs\LWR@fnsltwo}

\def\LWR@fnsltwo{%
    \expandafter\ifx\LWR@cs\@sptoken%
        \let\next=\LWR@fnslthree%
    \else%
        \expandafter\ifx\LWR@cs\par%
            \let\next=\LWR@fnslthree%
        \else%
            \let\next=\nexttoken%
        \fi%
    \fi\next}

\def\LWR@fnslthree{\afterassignment\LWR@fnslone\let\next= }
```

`\LWR@getmynexttoken` Looks ahead and copies the next token into `\LWR@mynexttoken`.

```
\newcommand*{\LWR@getmynexttoken}{%
    \LWR@traceinfo{LWR@getmynexttoken}%
```

⚠ Nothing must follow this next line:

```
    \LWR@futurenonspacelet\LWR@mynexttoken\LWR@tabledatacolumntag
}
```

75.4 Tabular variables

In order to support nested `tabular`s, each of these is used locally. For local counters, etoolbox's `\defcounter` and lwarp's new `\defaddtocounter` are used.

Bool `LWR@startedrow` True if should print a row tag before this column.

```
\newbool{LWR@startedrow}
\boolfalse{LWR@startedrow}
```

Bool `LWR@tabularcelladded` True if have added a data cell for this position.

```
\newbool{LWR@tabularcelladded}
\boolfalse{LWR@tabularcelladded}
```

Ctr `LWR@hlines` Number of `\hlines` or `\midrules` above the next row.

```
\newcounter{LWR@hlines}
```

Ctr `LWR@hdashedlines` Number of arydshln dashed lines above the next row.

```
\newcounter{LWR@hdashedlines}
```

Bool `LWR@doingtbrule` True if the next row will have a top/bottom rule above it.

```
\newbool{LWR@doingtbrule}
\boolfalse{LWR@doingtbrule}
```

Bool `LWR@doingcmidrule` True if the next row will have a cmidrule above it.

This is used by `\LWR@tabularfinishrow` to force a final empty row to create the border for the `\cmidrule`.

```
\newbool{LWR@doingcmidrule}
\boolfalse{LWR@doingcmidrule}
```

Bool `LWR@tableparcell` True if are handling a paragraph inside a table cell, so must close the paragraph tag before moving on.

```
\newbool{LWR@tableparcell}
```

Bool `LWR@skippingmrowcell` True if are doing an empty `\multirow` cell, and thus there is no data tag to close.

```
\newbool{LWR@skippingmrowcell}
```

Bool `LWR@skippingmcolrowcell` True if are doing an empty `\multicolumnrow` cell, and thus there is no data tag to close, and do not print `@` and `!` columns.

```
\newbool{LWR@skippingmcolrowcell}
```

Bool `LWR@usedmultirow` Used to error if used `\multirow` or `\multicolumnrow` without using `\mrowcell` or `\mcolrowcell`.

```
\newbool{LWR@usedmultirow}
```

Bool `LWR@foundmrowcell` Used to error if used `\multirow` or `\multicolumnrow` without using `\mrowcell` or `\mcolrowcell`.

```
\newbool{LWR@foundmrowcell}
```

Bool `LWR@skipatbang` True if just finished a `\multicolumn` so should not create the trailing `@` or `!` columns table data cells.

```
\newbool{LWR@skipatbang}
```

Bool LWR@emptyatbang — True if finishing a row and should print empty @ or ! column table data cells.

```
\newbool{LWR@emptyatbang}
```

Bool LWR@intabularmetadata — True if are in a tabular but not in a data cell. Used to prevent extra HTML breaks if not inside table data.

```
\newbool{LWR@intabularmetadata}
\boolfalse{LWR@intabularmetadata}
```

Bool LWR@exitingtabular — When \end is found, turns off the next opening data tag.

```
\newbool{LWR@exitingtabular}
```

Bool LWR@tabularmutemods — Mutes HTML output for @, !, < and >.

This is used while printing the final row to generate \bottomrules.

```
\newbool{LWR@tabularmutemods}
```

Bool LWR@validtablecol — True if found a valid table column type.

```
\newbool{LWR@validtablecol}
```

Bool LWR@opttablecol — True if found a table column optional argument.

```
\newbool{LWR@opttablecol}
```

Used to add a style to a table data cell:

```
\newbool{LWR@tdhavecellstyle}
```

Ctr LWR@tabularDepth — Tracks whether & is being used inside a tabular.

```
\newcounter{LWR@tabulardepth}
\setcounter{LWR@tabulardepth}{0}
```

Ctr LWR@tabularpardepth — Tracks whether should look ahead at the next token when encountering a \par while processing tabular contents.

When LWR@tabularpardepth is deeper than LWR@tabulardepth then lwarp has started looking at the contents of the tabular, and thus any \pars encountered must be followed by another token lookahead.

```
\newcounter{LWR@tabularpardepth}
\setcounter{LWR@tabularpardepth}{0}
```

```
\newcommand*{\LWR@colsresult}{}%temp storage for column format results
\newcommand*{\LWR@pposition}{}
\newcommand*{\LWR@pleft}{}
\newcommand*{\LWR@pright}{}
```

LWR@tablecolspec — Holds the parsed column specification, of total width LWR@tabletotalLaTeXcols, not counting @ and ! columns.

Will contain a string such as llrrccpc, exactly one letter per LaTeX table column, without @, !, >, <, or the vertical bar.

\LWR@strresult Holds the result of Str functions.

```
\providecommand*{\LWR@strresult}{}
\providecommand*{\LWR@strresulttwo}{}
```

\LWR@origcolspec Holds the original column specs given to tabular.

```
\newcommand*{\LWR@origcolspec}{}
```

Ctr LWR@tablecolspecwidth Holds the number of tokens in the table columns specification.

This is includes one for each @, !, <, > column, and also one for each of the parameters of p, @, !, <, > columns, and three for each D column.

(This is not the total # of LaTeX columns in the table.)

```
\newcounter{LWR@tablecolspecwidth}
```

Ctr LWR@tablecolspecindex While parsing the LaTeX table column specification, starts at 1 and is incremented per token of the specification.

```
\newcounter{LWR@tablecolspecindex}
```

Ctr LWR@tableLaTeXcolindex While producing the table, resets to 1 at the start of the table and also at each end of line, and is incremented by 1 by each ampersand.

```
\newcounter{LWR@tableLaTeXcolindex}
```

Ctr LWR@tabletotalLaTeXcols While parsing a table column specification, begins at 0 and increments by 1 per LaTeX table column. Eventually holds the final number of LaTeX table columns in each row, not counting @ and ! columns. (In HTML, @ and ! cells become their own columns, but are not included in LWR@tabletotalLaTeXcols.)

```
\newcounter{LWR@tabletotalLaTeXcols}
```

Ctr LWR@tabletotalLaTeXcolsnext Holds the next LaTeX table column index while parsing, equal to one more than LWR@tabletotalLaTeXcols.

```
\newcounter{LWR@tabletotalLaTeXcolsnext}
```

LWR@colatspec A data array of specifications for @ columns. The leftmost's index is leftedge, the others are counter values. See section 42.

LWR@colbangspec A data array of specifications for ! columns. The leftmost's index is leftedge, the others are counter values. See section 42.

LWR@colbeforespec A data array of specifications for > columns.

LWR@colafterspec A data array of specifications for < columns.

LWR@colbarspec A data array of specifications for vertical rules.

LWR@coladdclass A data array of extra css class, as set by >.

Ctr LWR@cellcolordepth Counts how many cell color s were added to the current tabular data cell.

```
\newcounter{LWR@cellcolordepth}
```

75.4.1 Multicolumn variables

```
8798 \newcounter{LWR@tablemulticolswidth}
```

Indexes into the multicolumn specification:

```
8799 \newcounter{LWR@tablemulticolspos}
```

Remembers multicolumn vertical rules if found in the column spec.

```
8800 \newcounter{LWR@mcolvertbarsl}
8801 \newcounter{LWR@mcolvertbarsr}
8802 \newcounter{LWR@mcolvertbarsldash}
8803 \newcounter{LWR@mcolvertbarsrdash}
8804 \newbool{LWR@mcolvertbaronleft}
```

75.4.2 Longtable variables

Bool `LWR@starredlongtable` Per the caption package, step the counter if `longtable*`.

```
8805 \newbool{LWR@starredlongtable}
8806 \boolfalse{LWR@starredlongtable}
```

75.4.3 Midrule variables

Ctr `LWR@midrulecounter` Indexes across the `LWR@midrules` and `LWR@trim<l/r>rules` data arrays.

```
8807 \newcounter{LWR@midrulecounter}
```

75.5 Handling &, @, !, and bar

For technical discussion regarding problems redefining \&, See:
http://tex.stackexchange.com/questions/11638/
where-do-i-find-futurelets-nasty-behaviour-documented/11860#11860

`\LWR@instertatbangcols`

```
8808 \newcommand*{\LWR@insertatbangcols}{%
8809     \ifbool{LWR@skipatbang}%
8810     {}%
8811     {%
8812         \LWR@printatbang{at}{\arabic{LWR@tableLaTeXcolindex}}%
8813         \LWR@printatbang{bang}{\arabic{LWR@tableLaTeXcolindex}}%
8814     }%
8815 }
```

`\LWR@closetabledatacell` If `LWR@skippingmrowcell` or `LWR@skippingmcolrowcell` then there is no data tag to close. Otherwise, close any paragraphs, then close the data tag.

```
8816 \newcommand*{\LWR@closetabledatacell}{%
8817     \booltrue{LWR@intabularmetadata}%
8818     \ifbool{LWR@exitingtabular}%
8819     {%
```

```
        \LWR@stoppars%
    }%
    {% not exiting tabular
     \ifboolexpr{bool{LWR@skippingmrowcell} or bool{LWR@skippingmcolrowcell}}%
        {%

            \LWR@stoppars%
```

If not skipping a `\multicolumnrow` cell, insert the `@` and `!` columns after this non-existant column.

```
            \ifbool{LWR@skippingmcolrowcell}%
                {}%
                {\LWR@insertatbangcols}%
        }%
        {% not skippingmrowcell
```

Insert any `<` then any `@` and `!` column contents, unless muted for the `\bottomrule` or a `\multicolumn`:

```
            \unskip%
            \ifboolexpr{%
                bool{LWR@tabularmutemods} or
                bool{LWR@skipatbang} or
                bool{LWR@emptyatbang}
            }%
                {}%
                {%
                    \LWR@getexparray{LWR@colafterspec}%
                        {\arabic{LWR@tableLaTeXcolindex}}%
                }%
```

Close paragraphs:

```
            \LWR@stoppars%
            \boolfalse{LWR@tableparcell}%
```

Close the table data cell.

Close any color `<div>`s.

```
        \whileboolexpr{test {\ifnumcomp{\value{LWR@cellcolordepth}}{>}{0}}}{%
                \LWR@htmltag{/div}\LWR@orignewline%
                \defaddtocounter{LWR@cellcolordepth}{-1}%
            }%
```

Skip the `@` and `!` cells if are closing a multicolumn cell.

```
            \leavevmode\unskip\LWR@htmltag{/td}\LWR@orignewline%
            \global\booltrue{LWR@tabularcelladded}%
            \LWR@insertatbangcols%
        }% not skipping mrowcell
    }% not exiting tabular
    \boolfalse{LWR@skippingmrowcell}%
    \boolfalse{LWR@skippingmcolrowcell}%
    \boolfalse{LWR@skipatbang}%
```

Color control. Column is set by >{} for each cell, so it must be cleared here.

```
    \def\LWR@cellHTMLcolor{}%
    \def\LWR@columnHTMLcolor{}%
    \defcounter{LWR@cellcolordepth}{0}%
}
```

When not used inside a tabular, & performs its original function as recorded here (with catcode 4).

```
\let\LWR@origampmacro&
```

```
\end{warpHTML}
```

75.5.1 Handling &

for HTML output:

```
\begin{warpHTML}
```

& Will behave depending on whether it is being used inside tabular.

& is redefined to test whether it is inside a tabular environment, in which case it performs special processing for HTML conversion. If not, it behaves normally.

```
\newcommand*{\LWR@tabularampersand}{%
    \LWR@traceinfo{LWR@tabularampersand}%
    \ifnumcomp{\value{LWR@tabulardepth}}{>}{0}%
    {%
```

If not skipping a multirow cell, close the current data cell.

```
        \unskip%
        \LWR@closetabledatacell%
```

Move to the next column.

```
        \defaddtocounter{LWR@tableLaTeXcolindex}{1}%
```

Have not yet added data in this column:

```
        \global\boolfalse{LWR@tabularcelladded}%
```

Look at the next token to decide multi or single column data tag.

```
        \LWR@getmynexttoken%
    }%
```

If not inside a tabular, performs the original action:

```
    {%
        \LWR@origampmacro%
    }%
}
```

& is left with its original catcode for now.

tikz package seems to require & be left alone until after tikz has been loaded. Also, cleveref uses the ampersand in one of its options.

& is made active inside a tabular.

& is left alone when in math alignments.

75.6 Filling an unfinished row

\LWR@tabularfinishrow Adds empty table cells if necessary to finish the row.

At the end of the table, if any bottom rules are requested then an empty row must be generated to form the borders which show the rules.

```
\newcommand*{\LWR@tabularfinishrow}{%
```

If not exiting the tabular, or doing a rule, or have already started a row, finish this row:

```
    \ifboolexpr{%
        not bool {LWR@exitingtabular} or%
        bool{LWR@doingtbrule} or%
        bool{LWR@doingcmidrule} or%
        test{\ifnumcomp{\value{LWR@hlines}}{>}{0}} or%
        test{\ifnumcomp{\value{LWR@hdashedlines}}{>}{0}} or%
        bool{LWR@startedrow}%
    }{%
```

To temporarily turn off LWR@exitingtabular so that table data tags will still be generated:

If generating a final row for the \bottomrule borders, turn off the @, !, <, and > column output:

```
    \ifbool{LWR@exitingtabular}{%
        \booltrue{LWR@tabularmutemods}%
    }{%
        \boolfalse{LWR@tabularmutemods}%
    }%
```

Locally reenable the table data tags until finished with the final row:

```
    \boolfalse{LWR@exitingtabular}%
```

Generate table data tags and ampersands until the right edge:

```
    \whileboolexpr{%
        test {
            \ifnumcomp{\value{LWR@tableLaTeXcolindex}}{<}
                {\value{LWR@tabletotalLaTeXcols}}
        } or %
        (%
            bool{LWR@intabularmetadata} and%
            not bool{LWR@tabularcelladded} and%
```

```
            test {
                \ifnumcomp{\value{LWR@tableLaTeXcolindex}}{=}
                    {\value{LWR@tabletotalLaTeXcols}}
            }%
        )%
    }%
    {%
        \LWR@tabledatasinglecolumntag%
```

The following is essentially `\LWR@tabularampersand` with `LWR@emptyatbang` added to empty the following cells:

```
        \LWR@closetabledatacell%
        \defaddtocounter{LWR@tableLaTeXcolindex}{1}%
        \global\boolfalse{LWR@tabularcelladded}%
        \booltrue{LWR@emptyatbang}%
```

Starts the next cell:

```
        \ifnumcomp{\value{LWR@tableLaTeXcolindex}}{<}
                {\value{LWR@tabletotalLaTeXcols}}%
            {\LWR@getmynexttoken}%
            {}%
    }%
```

Reenable the original `LWR@exitingtabular` to close the entire table:

```
    \ifbool{LWR@tabularmutemods}{%
        \booltrue{LWR@exitingtabular}%
    }{%
        \boolfalse{LWR@exitingtabular}%
    }%
    \boolfalse{LWR@tabularmutemods}%

    \boolfalse{LWR@emptyatbang}%
    }{}% ifboolexpr
}
```

75.7 Handling \\

Inside tabular, `\\` is redefined to `\LWR@tabularendofline`

Throws away options `\\[dim]` or `\\*`

`\LWR@tabularendofline`

```
\NewDocumentCommand{\LWR@tabularendofline}{s o}{%
```

Finish the row:

```
    \ifnumcomp{\value{LWR@tableLaTeXcolindex}}{<}
            {\value{LWR@tabletotalLaTeXcols}}%
        {\LWR@tabularfinishrow}%
        {\LWR@closetabledatacell}%
    \LWR@htmltag{/tr}\LWR@orignewline%
```

xcolor row color support:

```
    \@rowc@lors%
```

No longer inside a data cell:

```
    \booltrue{LWR@intabularmetadata}%
```

Not yet started a table row:

```
    \boolfalse{LWR@startedrow}%
```

Additional setup:

```
    \defcounter{LWR@hlines}{0}%
    \defcounter{LWR@hdashedlines}{0}%
    \boolfalse{LWR@doingtbrule}%
    \boolfalse{LWR@doingcmidrule}%
    \LWR@clearmidrules%

    \def\LWR@rowHTMLcolor{}%
```

Start at first column:

```
    \defcounter{LWR@tableLaTeXcolindex}{1}%
```

Have not yet added data in this column:

```
    \global\boolfalse{LWR@tabularcelladded}%
```

Allow TEX to flush the pending paragraph. Not doing so causes a slowdown for very large tables.

```
    \LWR@stoppars%
    \LWR@origpar%
```

Look at the next token to decide between single column data tag or a special case:

```
    \LWR@getmynexttoken%
}
```

75.8 Looking ahead in the column specifications

`\LWR@columnspeclookahead` {⟨*offset*⟩}

Looks `offset` tokens ahead in the column specification, setting `\LWR@strresulttwo`.

The `w` column alignment will be seen as a single unit such as `{c}`.

```
\newcommand*{\LWR@columnspeclookahead}[1]{%
    \setcounter{LWR@tempcountone}{\value{LWR@tablecolspecindex}}%
    \addtocounter{LWR@tempcountone}{#1}%
    \fullexpandarg%
   \StrChar{\LWR@origcolspec}{\arabic{LWR@tempcountone}}[\LWR@strresulttwo]%
```

Get the contents of the first group in \LWR@strresulttwo:

```
        \exploregroups%
        \StrChar{\LWR@strresulttwo}{1}[\LWR@strresulttwo]%
        \noexploregroups%
}
```

75.9 Parsing @, >, <, !, bar columns

Holds the parsed argument for @, >, <, or ! columns:

```
\newcommand*{\LWR@colparameter}{}
```

\LWR@parseatcolumn {⟨*this column type*⟩}

Handles @{text} columns.

The argument is ignored, but provided for compatibility with \LWR@parsenormalcolumn.

```
\newcommand*{\LWR@parseatcolumn}[1]{%
```

Move to the next token after the '@':

```
    \LWR@traceinfo{at column}%
    \defaddtocounter{LWR@tablecolspecindex}{1}%
```

Read the next token into \LWR@colparameter, expanding once:

```
    \LWR@traceinfo{about to read the next token:}%
    \expandarg%
    \StrChar{\LWR@origcolspec}%
        {\arabic{LWR@tablecolspecindex}}[\LWR@colparameter]%
    \fullexpandarg%
```

Store the result into a data array, expanding once out of \LWR@colparameter:

```
    \LWR@traceinfo{have now read the next token}%
    \ifnumcomp{\value{LWR@tabletotalLaTeXcols}}{=}{0}%
    {% left edge of the table:
        \LWR@traceinfo{at the left edge}%
        \LWR@setexparray{LWR@colatspec}%
            {leftedge}%
            {\expandafter\@firstofone\LWR@colparameter}%
        \LWR@traceinfo{at the left edge: %
            \LWR@getexparray{LWR@colatspec}{leftedge}}%
    }%
    {% not at the left edge:
        \LWR@traceinfo{not at the left edge}%
        \LWR@setexparray{LWR@colatspec}%
            {\arabic{LWR@tabletotalLaTeXcols}}%
            {\expandafter\@firstofone\LWR@colparameter}%
        \LWR@traceinfo{at \arabic{LWR@tabletotalLaTeXcols}%
        : % space
       \LWR@getexparray{LWR@colatspec}{\arabic{LWR@tabletotalLaTeXcols}}}%
    }%
    \let\LWR@colparameter\relax%
```

```
    \booltrue{LWR@validtablecol}%
}
```

`\LWR@parsebangcolumn` {⟨*this column type*⟩} Handles `!{text}` columns.

The argument is ignored, but provided for compatibility with `\LWR@parsenormalcolumn`.

```
\newcommand*{\LWR@parsebangcolumn}[1]{%
```

Move to the next token after the '!':

```
    \LWR@traceinfo{bang column}%
    \defaddtocounter{LWR@tablecolspecindex}{1}%
```

Read the next token into `\LWR@colparameter`, expanding once:

```
    \LWR@traceinfo{about to read the next token:}%
    \expandarg%
    \StrChar{\LWR@origcolspec}%
        {\arabic{LWR@tablecolspecindex}}[\LWR@colparameter]%
    \fullexpandarg%
```

Store the result into a data array, expanding once out of `\LWR@colparameter`:

```
    \LWR@traceinfo{have now read the next token}%
    \ifnumcomp{\value{LWR@tabletotalLaTeXcols}}{=}{0}%
    {% left edge of the table:
        \LWR@traceinfo{at the left edge}%
        \LWR@setexparray{LWR@colbangspec}%
            {leftedge}%
            {\expandafter\@firstofone\LWR@colparameter}%
    }%
    {% not at the left edge:
        \LWR@traceinfo{not at the left edge}%
        \LWR@setexparray{LWR@colbangspec}%
            {\arabic{LWR@tabletotalLaTeXcols}}%
            {\expandafter\@firstofone\LWR@colparameter}%
      \LWR@traceinfo{bang \arabic{LWR@tabletotalLaTeXcols}: \LWR@colparameter!}%
    }%
    \let\LWR@colparameter\relax%
    \booltrue{LWR@validtablecol}%
}
```

`\LWR@checkbeforeaddclass` {⟨*compared csname*⟩} {⟨*css class to add*⟩}

```
\newcommand*{\LWR@checkbeforeaddclass}[2]{%
    \ifcsstrequal{LWR@tempone}{#1}%
        {%
            \LWR@setexparray{LWR@coladdclass}%
                {\arabic{LWR@tabletotalLaTeXcolsnext}}%
                { #2}% space is intentional
        }{}%
}
```

`\LWR@checkmathcolpar` Error if using math in column parameters.

```
\newcommand*{\LWR@checkmathcolpar}{%
```

```
    \IfSubStr{\detokenize\expandafter{\LWR@colparameter}}{\LWRdollar}%
        {%
            \PackageError{lwarp}%
                {%
                Lwarp does not support ‘$’ in column specifiers.\MessageBreak
                  Specify ‘$’ math for each cell in the column.\MessageBreak
                     Enter ’h’ for more info%
                }%
                {%
              For example, replace ‘>{$}c<{$}’ with ‘c’, and then\MessageBreak
                     use ‘$cell contents$’ for each cell in the column.%
                }%
        }{}%
}
```

`\LWR@parsebeforecolumn` {⟨*this column type*⟩}

Handles `>{text}` columns.

The argument is ignored, but provided for compatibility with `\LWR@parsenormalcolumn`.

```
\newcommand*{\LWR@parsebeforecolumn}[1]{%
```

Move to the next token after the ’>’:

```
    \defaddtocounter{LWR@tablecolspecindex}{1}%
```

Read the next token, expanding once into `\LWR@colparameter`:

```
    \expandarg%
    \StrChar{\LWR@origcolspec}%
        {\arabic{LWR@tablecolspecindex}}[\LWR@colparameter]%
    \fullexpandarg%
```

Error if using `>{$}`, which is not supported by lwarp.

```
    \LWR@checkmathcolpar%
```

Store the result into a data array, expanding once out of `\LWR@colparameter`:

```
    \LWR@setexparray{LWR@colbeforespec}%
        {\arabic{LWR@tabletotalLaTeXcolsnext}}%
        {\expandafter\@firstofone\LWR@colparameter}%
%
    \edef\LWR@tempone{\expandafter\@firstofone\LWR@colparameter}%
```

If detect `>{\centering\arraybackslash}` or related, add a css class.

```
    \LWR@checkbeforeaddclass{LWR@detect@centeringarraybackslash}{tdcenter}
    \LWR@checkbeforeaddclass{LWR@detect@raggedrightarraybackslash}{tdleft}
    \LWR@checkbeforeaddclass{LWR@detect@raggedleftarraybackslash}{tdright}
    \LWR@checkbeforeaddclass{LWR@detect@itshape}{tditshape}
    \LWR@checkbeforeaddclass{LWR@detect@bfseries}{tdbfseries}
    \LWR@checkbeforeaddclass{LWR@detect@bfit}{tdbfit}

    \let\LWR@colparameter\relax%
    \booltrue{LWR@validtablecol}%
}
```

\LWR@parseaftercolumn {⟨*this column type*⟩}

Handles <{text} columns.

The argument is ignored, but provided for compatibility with \LWR@parsenormalcolumn.

```
\newcommand*{\LWR@parseaftercolumn}[1]{%
```

Move to the next token after the '<':

```
    \defaddtocounter{LWR@tablecolspecindex}{1}%
```

Read the next token, expanding once into \LWR@colparameter:

```
    \expandarg%
    \StrChar{\LWR@origcolspec}%
        {\arabic{LWR@tablecolspecindex}}[\LWR@colparameter]%
    \fullexpandarg%
```

Error if using >{$}, which is not supported by lwarp.

```
    \LWR@checkmathcolpar%
```

Store the result into a data array, expanding once out of \LWR@colparameter:

```
    \LWR@setexparray{LWR@colafterspec}%
        {\arabic{LWR@tabletotalLaTeXcols}}%
        {\expandafter\@firstofone\LWR@colparameter}%
    \let\LWR@colparameter\relax%
    \booltrue{LWR@validtablecol}%
}
```

\LWR@parsebarcolumn {⟨*this column type*⟩}

Handles vertical rules.

The argument is ignored, but provided for compatibility with \LWR@parsenormalcolumn.

```
\newcommand*{\LWR@parsebarcolumn}[1]{%
    \LWR@traceinfo{LWR@parsebarcolumn}%
```

Remember the bar at this position:

```
    \ifnumcomp{\value{LWR@tabletotalLaTeXcols}}{=}{0}%
    {% left edge of the table:
        \edef\LWR@tempone{\LWR@getexparray{LWR@colbarspec}{leftedge}}%
        \ifdefstring{\LWR@tempone}{tvertbarl}%
        {\LWR@setexparray{LWR@colbarspec}{leftedge}{tvertbarldouble}}%
        {\LWR@setexparray{LWR@colbarspec}{leftedge}{tvertbarl}}%
    }%
    {% not at the left edge:
        \edef\LWR@tempone{%
        \LWR@getexparray{LWR@colbarspec}{\arabic{LWR@tabletotalLaTeXcols}}%
        }%
        \ifdefstring{\LWR@tempone}{tvertbarr}%
        {%
            \LWR@setexparray{LWR@colbarspec}%
                {\arabic{LWR@tabletotalLaTeXcols}}{tvertbarrdouble}%
```

```
        }%
        {%
            \LWR@setexparray{LWR@colbarspec}%
                {\arabic{LWR@tabletotalLaTeXcols}}{tvertbarr}%
        }%
    }%
    \booltrue{LWR@validtablecol}%
}
```

`\LWR@parsecoloncolumn` {⟨*this column type*⟩}

Handles vertical rules.

The argument is ignored, but provided for compatibility with `\LWR@parsenormalcolumn`.

```
\newcommand*{\LWR@parsecoloncolumn}[1]{%
    \LWR@traceinfo{LWR@parsecoloncolumn}%
```

Remember the bar at this position:

```
    \ifnumcomp{\value{LWR@tabletotalLaTeXcols}}{=}{0}%
    {% left edge of the table:
        \edef\LWR@tempone{\LWR@getexparray{LWR@colbarspec}{leftedge}}%
        \ifdefstring{\LWR@tempone}{tvertbarldash}%
        {\LWR@setexparray{LWR@colbarspec}{leftedge}{tvertbarldoubledash}}%
        {\LWR@setexparray{LWR@colbarspec}{leftedge}{tvertbarldash}}%
    }%
    {% not at the left edge:
        \edef\LWR@tempone{%
        \LWR@getexparray{LWR@colbarspec}{\arabic{LWR@tabletotalLaTeXcols}}%
        }%
        \ifdefstring{\LWR@tempone}{tvertbarrdash}%
        {\LWR@setexparray{LWR@colbarspec}%
            {\arabic{LWR@tabletotalLaTeXcols}}{tvertbarrdoubledash}}%
        {\LWR@setexparray{LWR@colbarspec}%
            {\arabic{LWR@tabletotalLaTeXcols}}{tvertbarrdash}}%
    }%
    \booltrue{LWR@validtablecol}%
}
```

`\LWR@parsesemicoloncolumn` {⟨*this column type*⟩}

Handles vertical rules.

The argument is ignored, but provided for compatibility with `\LWR@parsenormalcolumn`.

The arguments to the column type are absorbed by `\LWR@columntype@<char>`, defined by `\LWR@modifycolumntype`.

```
\newcommand*{\LWR@parsesemicoloncolumn}[1]{%
```

Treat ; as a : column:

```
    \LWR@parsecoloncolumn{}%
}
```

75.10 Parsing common column types

\LWR@parsenormalcolumn {⟨*this column type*⟩}

Add to the accumulated column specs, advance counters, and pre-clear another column of at, before, and after specs.

\newcolumntype definitons use \LWR@parsenormalcolumn, so an HTML and print version are given so that they may work inside a lateximage.

The arguments to the column type are absorbed by \LWR@columntype@<char>, defined by \LWR@modifycolumntype.

```
\newcommand*{\LWR@HTML@LWR@parsenormalcolumn}[1]{%
    \defaddtocounter{LWR@tabletotalLaTeXcols}{1}%
    \defaddtocounter{LWR@tabletotalLaTeXcolsnext}{1}%

  \LWR@setexparray{LWR@tablecolspec}{\arabic{LWR@tabletotalLaTeXcols}}{#1}%

    \LWR@traceinfo{normal column \arabic{LWR@tabletotalLaTeXcols}: #1}%
  \LWR@setexparray{LWR@colatspec}{\arabic{LWR@tabletotalLaTeXcolsnext}}{}%
  \LWR@setexparray{LWR@colbangspec}{\arabic{LWR@tabletotalLaTeXcolsnext}}{}%
  \LWR@setexparray{LWR@colbeforespec}{\arabic{LWR@tabletotalLaTeXcolsnext}}{}%
  \LWR@setexparray{LWR@colafterspec}{\arabic{LWR@tabletotalLaTeXcolsnext}}{}%
  \LWR@setexparray{LWR@colbarspec}{\arabic{LWR@tabletotalLaTeXcolsnext}}{}%
  \LWR@setexparray{LWR@coladdclass}{\arabic{LWR@tabletotalLaTeXcolsnext}}{}%
    \booltrue{LWR@validtablecol}%
}

\newcommand*{\LWR@print@LWR@parsenormalcolumn}[1]{}

\LWR@formatted{LWR@parsenormalcolumn}
```

75.11 Parsing 'w' columns

W and w columns are handled via array with \HTMLnewcolumntype.

75.12 Parsing '*' columns

\LWR@parsestarcolumn {⟨*this column type*⟩} Star columns should already have been expanded, so this should never be used.

The arguments to the column type are absorbed by \LWR@columntype@<char>, defined by \LWR@modifycolumntype.

The argument is ignored, but provided for compatibility with \LWR@parsenormalcolumn.

```
\newcommand*{\LWR@parsestarcolumn}[1]{}
```

75.13 Expanding the star column specifications

\LWR@expandpreamble {⟨*tabular preamble*⟩}

Table 13: Tabular baseline

l	p	m	b	r
			bot	
		mid	bot	
l	par	mid	bot	r
	par	mid		
	par			

From array `\@mkpream`.

The resulting expanded preamble is stored in `\the\@temptokena`. Assign as:

```
\edef\destination{\the\@temptokena}
```

```
\newcommand*{\LWR@expandpreamble}[1]{%
    \edef\@tempa{\@temptokena={#1}}%
    \@tempa%
    \@tempswatrue%
    \@whilesw\if@tempswa\fi{%
        \@tempswafalse\the\NC@list%
    }%
}
```

75.14 Parsing the column specifications

⚠ tabular baselines

HTML CSS cannot exactly match the LaTeX concept of a baseline for a table row. Table 13 shows the LaTeX results for various vertical-alignment choices, with the baseline of the first column drawn across all the columns for comparison. See the p column specification in table 14 for details.

Table 14 describes how each kind of column is converted to HTML.

Table 15 shows the various internal macros generated for each column type.

`\LWR@modifycolumntype` {⟨*1: column type letter*⟩} {⟨*2: number args to ignore*⟩} {⟨*3: csname of the cell action*⟩} {⟨*4: csname of the multicolumn print type action*⟩} {⟨*5: csname of the multicolumn print data action*⟩}

Add HTML functionality to an existing print version column type.

```
\newcommand*{\LWR@modifycolumntype}[5]{%
    \LWR@traceinfo{LWR@modifycolumntype !#1!#2!#3!#4!#5!}%
            \LWR@traceinfo{LWR@modifycolumntype #1}%
            \edef\@tempa{%
                \noexpand\csdef{LWR@columntype@#1}{%
                    \noexpand\@nameuse{#3}{#1}%
                    \noexpand\defaddtocounter{LWR@tablecolspecindex}{#2}%
                }%
                \noexpand\csdef{LWR@columntype@mctype@#1}{%
                    \noexpand\@nameuse{#4}{#1}%
                }%
                \noexpand\csdef{LWR@columntype@mcdata@#1}{%
```

Table 14: Tabular HTML column conversions

Each cell is given a CSS class of `td<columntype>`.

l, r, c: Converted to table cells without paragraph tags.
Uses CSS `vertical-align:middle` so that top or bottom-aligned cells may go above or below this cell.

p: Converted to table cells with paragraph tags. Ref: Table 13, LaTeX places the top line of a parbox aligned with the rest of the text line, so CSS `vertical-align:bottom` is used to have the HTML result appear with the paragraph extending below the L, R, C cells at the middle, if possible. This may be confusing as a P cell may not top-align with an L,R,C cell in the HTML conversion, especially in the presence of a B cell, and two P cells side-by-side will be aligned at the bottom instead of the top. Some adjustment of the CSS may be desired, changing `td.tdp`, `td.tdP`, `td.tdprule`, and `td.tdPrule` to `vertical-align: middle`. Another possibility is to change L,R,C, and P to `vertical-align: top` and not worry about the alignment of B and M cells or trying to approximate LaTeX baselines.

m: With paragraph tags, CSS `vertical-align:middle`.

b: With paragraph tags, CSS `vertical-align:top` so that the bottom of the text is closest to the middle of the text line.

w and W: Converted to `l`, `c`, or `r`. No paragraph tags.

P, M, B: Horizontally-centered versions.

S: Treated as 'c'. Ignores optional argument. From the siunitx package.

D: Treated as 'c'. From the dcolumn package.

@, !, >, <: One each, in that order.

|: Vertical rule.

Unknown: Converted to 'l'.

`\newcolumntype`: Expands to its replacement text.

`\HTMLnewcolumntype`: Provides simplified replacement text for HTML.

Table 15: HTML column type internal macros

<coltype>: The single-letter column type, such as c or X.

Created by \LWR@modifycolumntype: Used by lwarp to add HTML functionality to each built-in column type.

\LWR@columntype@<coltype>: Handles tabular columns depending on the type. Calls \LWR@parsenormalcolumn or related, then advances \LWR@tablecolspecindex.

\LWR@columntype@mctype@<coltype>: Generates the \multicolumn HTML cell CSS class. Calls \LWR@printmccoltype@normal or related.

\LWR@columntype@mcdata@<coltype>: Generates the \multicolumn HTML cell data. Calls \LWR@printmccoldata@normal or related.

Created by \newcolumntype: From array.

\NC@find@<coltype>: Internally used to parse the column specifier.

\NC@rewrite@<coltype>: Stores the print-mode replacement text.

Created by \HTMLnewcolumntype: From lwarp.

\LWR@print@NC@rewrite@<coltype>: Copied from \NC@rewrite@<type>.

\LWR@HTML@NC@rewrite@<coltype>: Stores the HTML-mode replacement text.

\NC@rewrite@<coltype>: Redefined to use the print or HTML version.

```
                    \noexpand\@nameuse{#5}{#2}%
                }%
            }%
            \@tempa%
    \LWR@traceinfo{LWR@modifycolumntype done}%
}

\LWR@modifycolumntype{l}{0}{LWR@parsenormalcolumn}
    {LWR@printmccoltype@normal}{LWR@printmccoldata@normal}

\LWR@modifycolumntype{c}{0}{LWR@parsenormalcolumn}
    {LWR@printmccoltype@normal}{LWR@printmccoldata@normal}

\LWR@modifycolumntype{r}{0}{LWR@parsenormalcolumn}
    {LWR@printmccoltype@normal}{LWR@printmccoldata@normal}

\LWR@modifycolumntype{@}{0}{LWR@parseatcolumn}
    {LWR@printmccoltype@ignore}{LWR@printmccoldata@other}

\LWR@modifycolumntype{!}{0}{LWR@parsebangcolumn}
    {LWR@printmccoltype@ignore}{LWR@printmccoldata@other}

\LWR@modifycolumntype{>}{0}{LWR@parsebeforecolumn}
    {LWR@printmccoltype@ignore}{LWR@printmccoldata@other}

\LWR@modifycolumntype{<}{0}{LWR@parseaftercolumn}
    {LWR@printmccoltype@ignore}{LWR@printmccoldata@other}

```

```
\LWR@modifycolumntype{|}{0}{LWR@parsebarcolumn}
    {LWR@printmccoltype@vertbar}{LWR@printmccoldata@skip}

\LWR@modifycolumntype{:}{0}{LWR@parsecoloncolumn}
    {LWR@printmccoltype@colon}{LWR@printmccoldata@skip}

\LWR@modifycolumntype{;}{1}{LWR@parsesemicoloncolumn}
    {LWR@printmccoltype@semicolon}{LWR@printmccoldata@skip}

\LWR@modifycolumntype{p}{1}{LWR@parsenormalcolumn}
    {LWR@printmccoltype@normal}{LWR@printmccoldata@paragraph}

\LWR@modifycolumntype{m}{1}{LWR@parsenormalcolumn}
    {LWR@printmccoltype@normal}{LWR@printmccoldata@paragraph}

\LWR@modifycolumntype{b}{1}{LWR@parsenormalcolumn}
    {LWR@printmccoltype@normal}{LWR@printmccoldata@paragraph}
```

A star column:

```
\LWR@modifycolumntype{*}{2}{LWR@parsestarcolumn}
    {LWR@printmccoltype@ignore}{LWR@printmccoldata@skip}
```

`\HTMLnewcolumntype` {⟨*col type*⟩} [⟨*num args*⟩] [⟨*optional arg*⟩] {⟨*replacement text*⟩}

A user-level macro to creates an HTML version of the replacement text for the column type.

This is the equivalent to:

```
\newcommand*{\LWR@HTML@NC@rewrite@<columntype>}[<num args>]
      {\NC@find <replacement text>}
\LWR@formatted{NC@rewrite@<columntype>}
```

```
\NewDocumentCommand{\HTMLnewcolumntype}{m O{0} o m}{%
    \IfValueTF{#3}
    {
        \expandafter\newcommand\expandafter*%
            \csname LWR@HTML@NC@rewrite@#1\endcsname[#2][#3]{\NC@find #4}%
        \LWR@formatted{NC@rewrite@#1}%
    }
    {
        \expandafter\newcommand\expandafter*%
            \csname LWR@HTML@NC@rewrite@#1\endcsname[#2]{\NC@find #4}%
        \LWR@formatted{NC@rewrite@#1}%
    }
}
```

```
\end{warpHTML}
```

for PRINT output:

```
\begin{warpprint}
```

```
\NewDocumentCommand{\HTMLnewcolumntype}{m O{0} o m}{}
```

```
\end{warpprint}
```

for HTML output:

```
\begin{warpHTML}
```

\LWR@parsetablecols {⟨*colspecs*⟩}

Scans the column specification left to right.

Builds \LWR@tablecolspec with the final specification, one LaTeX column per entry. The final number of LaTeX columns in each row is stored in LWR@tabletotalLaTeXcols, which is the number of & and \\ in each line, but which does not include @, !, <, > specifications in the count.

```
\newcommand*{\LWR@parsetablecols}[1]{%
    \LWR@traceinfo{LWR@parsetablecols}%
```

Remember the original supplied column spec:

```
    \renewcommand*{\LWR@origcolspec}{#1}%
```

Remove spaces:

```
    \expandarg%
    \StrSubstitute{\LWR@origcolspec}{ }{}[\LWR@origcolspec]%
```

Expand any star columns:

```
    \LWR@expandpreamble{\LWR@origcolspec}%
    \edef\LWR@origcolspec{\the\@temptokena}%
```

The parsed column spec data array, LWR@tablecolspec, will be overwritten with new values.

Total number of columns found so far. Also pre-initialize the first several columns of specs:

```
    \defcounter{LWR@tabletotalLaTeXcols}{0}%
    \defcounter{LWR@tabletotalLaTeXcolsnext}{1}%
    \LWR@setexparray{LWR@colatspec}{leftedge}{}%
    \LWR@setexparray{LWR@colatspec}{1}{}%
    \LWR@setexparray{LWR@colatspec}{2}{}%
    \LWR@setexparray{LWR@colatspec}{3}{}%
    \LWR@setexparray{LWR@colbangspec}{leftedge}{}%
    \LWR@setexparray{LWR@colbangspec}{1}{}%
    \LWR@setexparray{LWR@colbangspec}{2}{}%
    \LWR@setexparray{LWR@colbangspec}{3}{}%
    \LWR@setexparray{LWR@colbeforespec}{1}{}%
    \LWR@setexparray{LWR@colbeforespec}{2}{}%
    \LWR@setexparray{LWR@colbeforespec}{3}{}%
    \LWR@setexparray{LWR@colafterspec}{1}{}%
    \LWR@setexparray{LWR@colafterspec}{2}{}%
    \LWR@setexparray{LWR@colafterspec}{3}{}%
    \LWR@setexparray{LWR@colbarspec}{leftedge}{}%
    \LWR@setexparray{LWR@colbarspec}{1}{}%
    \LWR@setexparray{LWR@colbarspec}{2}{}%
    \LWR@setexparray{LWR@colbarspec}{3}{}%
    \LWR@setexparray{LWR@coladdclass}{1}{}%
    \LWR@setexparray{LWR@coladdclass}{2}{}%
    \LWR@setexparray{LWR@coladdclass}{3}{}%
```

Starting at the first column specification:

```
    \defcounter{LWR@tablecolspecindex}{1}%
```

Place the colspecs string length into \LWR@strresult, and remember the number of characters in the column specification:

```
    \expandarg%
    \StrLen{\LWR@origcolspec}[\LWR@strresult]%
    \fullexpandarg%
    \LWR@traceinfo{original column spec length: \LWR@strresult}%
    \defcounter{LWR@tablecolspecwidth}{\LWR@strresult}%
```

Haven't seen any optional arguments so far

```
    \boolfalse{LWR@opttablecol}%
```

Scan through the column specifications:

```
    \whileboolexpr{%
        not test{%
            \ifnumcomp{\value{LWR@tablecolspecindex}}{>}%
                {\value{LWR@tablecolspecwidth}}%
        }%
    }%
    {%
```

Place the next single-character column type into \LWR@strresult:

```
    \expandarg%
   \StrChar{\LWR@origcolspec}{\arabic{LWR@tablecolspecindex}}[\LWR@strresult]%
   \LWR@traceinfo{position \arabic{LWR@tablecolspecindex}: \LWR@strresult}%
    \fullexpandarg%
```

Not yet found a valid column type:

```
    \boolfalse{LWR@validtablecol}%
```

Skip over any optional arguments, such as siunitx S column:

```
    \IfStrEq{\LWR@strresult}{[}{\booltrue{LWR@opttablecol}}{}%
```

Throw away anything found inside the optional argument:

```
    \ifbool{LWR@opttablecol}%
    {}% inside an optional argument
    {% not an optional tabular argument
```

Not inside an optional argument, so consider the column type:

```
        \ifcsdef{LWR@columntype@\LWR@strresult}%
            {\csuse{LWR@columntype@\LWR@strresult}}%
            {}%
```

If an unknown column type, use l:

```
        \ifbool{LWR@validtablecol}{}{%
            \LWR@traceinfo{invalid column type: \LWR@strresult}%
            \LWR@parsenormalcolumn{l}%
        }%
    }% not an optional column argument
```

If read the closing bracket, no longer inside the optional argument:

```
    \IfStrEq{\LWR@strresult}{]}{\boolfalse{LWR@opttablecol}}{}%
```

Move to the next character:

```
    \defaddtocounter{LWR@tablecolspecindex}{1}%
    }% whiledo
}%
```

75.15 colortbl and xcolor tabular color support

These macros provide a minimal emulation of some colortbl macros which might appear between table cells. If colortbl is loaded, these macros will be replaced with functional versions.

For each of the HTML colors below, the text for the HTML color is set if requested, but the macro is empty if none has been set.

`\rownum` Reserve a counter register.

```
\@ifundefined{rownum}{\newcount\rownum}{}
```

`\@rowcolors` Emulated in case xcolor is not used.

```
\newcommand*{\@rowcolors}{}
```

`\@rowc@lors` Emulated in case xcolor is not used.

```
\newcommand*{\@rowc@lors}{}
```

`\LWR@xcolorrowHTMLcolor` Emulated xcolor row color.

```
\newcommand*{\LWR@xcolorrowHTMLcolor}{}
```

`\LWR@columnHTMLcolor` HTMLstyle code for the column color.

```
\def\LWR@columnHTMLcolor{}
```

`\LWR@rowHTMLcolor` HTMLstyle code for the row color.

```
\def\LWR@rowHTMLcolor{}
```

`\LWR@cellHTMLcolor` HTMLstyle code for the cell color.

```
\def\LWR@cellHTMLcolor{}
```

`\LWR@ruleHTMLcolor` HTMLstyle code for the rule color.

```
\newcommand*{\LWR@ruleHTMLcolor}{}
```

\rowcolor [⟨*model*⟩] {⟨*color*⟩} [⟨*left overhang*⟩] [⟨*right overhang*⟩] Print version. The HTML version is in lwarp-colortbl. Used before starting a tabular data cell, thus \LWR@getmynexttoken.

```
\newcommand*{\rowcolor}{\LWR@getmynexttoken}%
```

\arrayrulecolor [⟨*model*⟩] {⟨*color*⟩}

\arrayrulecolornexttoken [⟨*model*⟩] {⟨*color*⟩}

Print versions for use outside and inside a tabular:

```
\newcommand{\arrayrulecolor}[2][named]{}
\newcommand{\arrayrulecolornexttoken}[2][named]{\LWR@getmynexttoken}
```

\doublerulesepcolor [⟨*model*⟩] {⟨*color*⟩}

\doublerulesepcolornexttoken [⟨*model*⟩] {⟨*color*⟩}

Print versions for use inside and outside a tabular:

```
\newcommand{\doublerulesepcolor}[2][named]{}
\newcommand{\doublerulesepcolornexttoken}[2][named]{\LWR@getmynexttoken}
```

75.16 Starting a new row

\LWR@maybenewtablerow If have not yet started a new table row, begin one now. Creates a new row tag, adding a class for hline or tbrule if necessary.

```
\newcommand*{\LWR@maybenewtablerow}
{%
    \ifbool{LWR@startedrow}%
    {}% started the row
    {% not started the row
```

Remember that now have started the row:

```
        \booltrue{LWR@startedrow}%
```

Create the row tag, with a class if necessary.

```
        \booltrue{LWR@intabularmetadata}%
        \ifboolexpr{%
            test{\ifnumcomp{\value{LWR@hlines}}{>}{0}} or%
            test{\ifnumcomp{\value{LWR@hdashedlines}}{>}{0}}%
        }%
        {%
            \LWR@htmltag{tr class=\textquotedbl{}hline\textquotedbl }%
            \LWR@orignewline%
        }%
        {% not doing hline
            \ifbool{LWR@doingtbrule}%
            {%
                \ifdefvoid{\LWR@ruleHTMLcolor}{%
                 \LWR@htmltag{tr class=\textquotedbl{}tbrule\textquotedbl}%
```

```
                }{%
                    \LWR@htmltag{%
                      tr class=\textquotedbl{}tbrule\textquotedbl\ % space
                        style=\textquotedbl{}border-top: 1px solid % space
                          \LWR@origpound\LWR@ruleHTMLcolor \textquotedbl{}%
                    }%
                }%
                \LWR@orignewline%
            }%
            {\LWR@htmltag{tr}\LWR@orignewline}%
        }% end of not doing hline
    }% end of not started the row
}
```

75.17 Printing vertical bar tags

\LWR@printbartag {⟨*index*⟩}

Adds to a tabular data cell an HTML class name for a left/right vertical bar.

```
\newcommand*{\LWR@printbartag}[1]{%
    \LWR@traceinfo{LWR@printbartag !#1!}%
    \ifboolexpr{bool{LWR@tabularmutemods} or bool{LWR@emptyatbang}}%
    {}% muting or empty
    {% not muting
        \edef\LWR@tempone{\LWR@getexparray{LWR@colbarspec}{#1}}%
        \ifdefempty{\LWR@tempone}{}{ \LWR@tempone}%
    }% not muting
    \LWR@traceinfo{LWR@printbartag done}%
}
```

75.18 Printing @ or ! tags

\LWR@printatbang {⟨*at — or — bang*⟩} {⟨*index*⟩}

```
\newcommand*{\LWR@printatbang}[2]{%
```

Fetch the column at or bang spec:

```
    \xdef\LWR@atbangspec{\LWR@getexparray{LWR@col#1spec}{#2}}%
    \LWR@traceinfo{atbang: #2 !\LWR@atbangspec!}%
```

Only generate if is not empty;

```
    \ifdefempty{\LWR@atbangspec}%
    {}%
    {% not empty
        \LWR@htmltag{%
            td class=\textquotedbl{}td#1%
            \LWR@subaddcmidruletrim{}{}%
            \LWR@printbartag{#2}%
            \textquotedbl{}%
            \LWR@tdstartstyles%
            \LWR@addcmidrulewidth%
            \LWR@addcdashline%
```

```
            \LWR@addtabularrulecolors%
            \LWR@tdendstyles%
        }%
```

Create an empty cell if muting for the \bottomrule:

```
        \ifboolexpr{bool{LWR@tabularmutemods} or bool{LWR@emptyatbang}}%
            {}%
            {\LWR@atbangspec}%
%
        \LWR@htmltag{/td}\LWR@orignewline%
        \global\booltrue{LWR@tabularcelladded}%
    }% not empty
}%
```

\LWR@addleftmostbartag

```
\newcommand*{\LWR@addleftmostbartag}{%
    \ifnumcomp{\value{LWR@tableLaTeXcolindex}}{=}{1}{%
        \LWR@printbartag{leftedge}%
    }{}%
}
```

\LWR@tabularleftedge

```
\newcommand*{\LWR@tabularleftedge}{%
    \ifnumcomp{\value{LWR@tableLaTeXcolindex}}{=}{1}%
    {%
        \LWR@printatbang{at}{leftedge}%
        \LWR@printatbang{bang}{leftedge}%
    }% left edge
    {}% not left edge
}
```

75.19 Cell opening tag

\LWR@thiscolspec Temporary storage.

```
\newcommand*{\LWR@thiscolspec}{}
```

\LWR@tabledatasinglecolumntag Print a table data opening tag with style for alignment and color.

```
\newcommand*{\LWR@tabledatasinglecolumntag}%
{%
    \LWR@traceinfo{LWR@tabledatasinglecolumntag}%
    \LWR@maybenewtablerow%
```

Don't start a new paragraph tag if have already started one:

```
    \ifbool{LWR@intabularmetadata}%
    {%
```

If have found the end of tabular command, do not create the next data cell:

```
        \ifbool{LWR@exitingtabular}{}%
        {% not exiting tabular
```

Print the @ and ! contents before first column:

```
            \LWR@tabularleftedge%
```

Fetch the current column's alignment character into \LWR@strresult:

```
            \xdef\LWR@strresult{%
          \LWR@getexparray{LWR@tablecolspec}{\arabic{LWR@tableLaTeXcolindex}}%
            }%
```

Print the start of a new table data cell:

```
        \LWR@traceinfo{LWR@tabledatasinglecolumntag: about to print td tag}%
            \LWR@htmltag{%
                td class=\textquotedbl{}td%
```

Append this column's spec:

```
                \LWR@strresult%
```

If this column has a cmidrule, add "rule" to the end of the HTML class tag. Also add vertical bar tags.

```
                \LWR@addcmidruletrim%
                \LWR@addleftmostbartag%
                \LWR@printbartag{\arabic{LWR@tableLaTeXcolindex}}%
```

Add any tabular > column text alignment or font control CSS:

```
                \LWR@getexparray{LWR@coladdclass}%
                    {\arabic{LWR@tableLaTeXcolindex}}%
```

Close the class description:

```
                \textquotedbl{}%
```

Add styles for rules, alignment:

```
                \LWR@tdstartstyles%
                \LWR@addcmidrulewidth%
                \LWR@addcdashline%


                \xdef\LWR@thiscolspec{%
                    \LWR@getexparray{LWR@tablecolspec}%
                        {\arabic{LWR@tableLaTeXcolindex}}%
                }%
                \LWR@addformatwpalignment{\LWR@thiscolspec}%
```

Add styles for cell and rule colors:

```
                \LWR@addtabularrowcolor%
                \LWR@addtabularrulecolors%


                \LWR@tdendstyles%
            }% HTML td
        \LWR@traceinfo{LWR@tabledatasinglecolumntag: done printing td tag}%
```

If this is a p, m, b, or X column, allow paragraphs:

```
            \ifboolexpr{%
                test{ \ifdefstring{\LWR@strresult}{p} } or
                test{ \ifdefstring{\LWR@strresult}{m} } or
                test{ \ifdefstring{\LWR@strresult}{b} }
            }%
            {% allow pars
           \LWR@traceinfo{LWR@tabledatasinglecolumntag: about to LWR@startpars}%
                \booltrue{LWR@tableparcell}%
                \LWR@startpars%
           \LWR@traceinfo{LWR@tabledatasinglecolumntag: done with LWR@startpars}%
            }% allow pars
            {}% no pars
```

Print the > contents unless muted for the \bottomrule:

```
           \ifboolexpr{bool{LWR@tabularmutemods} or bool{LWR@emptyatbang}}%
            {}%
            {%
           \LWR@getexparray{LWR@colbeforespec}{\arabic{LWR@tableLaTeXcolindex}}%
            }%
            \boolfalse{LWR@intabularmetadata}%
        }% not exiting tabular
    }{}% in tabular metadata
    \LWR@traceinfo{LWR@tabledatasinglecolumntag: done}%
}%
```

75.20 Midrules

LWR@midrules LWR@midrules is a data array (section 42) of columns each containing a non-zero width if a midrule should be created for this column.

LWR@trimlrules LWR@trimlrules is a data array (section 42) of columns containing l if a midrule should be left trimmed for each column.

LWR@trimrrules LWR@trimrrules is a data array (section 42) of columns containing r if a midrule should be right trimmed for each column.

LWR@cdashlines LWR@cdashlines is a data array (section 42) of columns each containing a Y if an arydshln package "cdashed line" should be created for this column.

Len \LWR@heavyrulewidth The default width of the rule.

```
\newlength{\LWR@heavyrulewidth}
\setlength{\LWR@heavyrulewidth}{.08em}
```

Len \LWR@lightrulewidth The default width of the rule.

```
\newlength{\LWR@lightrulewidth}
\setlength{\LWR@lightrulewidth}{.05em}
```

Len \LWR@cmidrulewidth The default width of the rule.

```
\newlength{\LWR@cmidrulewidth}
\setlength{\LWR@cmidrulewidth}{.03em}
```

Len \LWR@thiscmidrulewidth

The width of the next rule, defaulting to \LWR@cmidrulewidth.

If not \LWR@cmidrulewidth, a style will be used to generate the custom width.

Assigned from the LWR@midrules array.

```
\newlength{\LWR@thiscmidrulewidth}
\setlength{\LWR@thiscmidrulewidth}{\LWR@cmidrulewidth}
```

\LWR@clearmidrules

Start new midrules. Called at beginning of tabular and also at \\.

Clears all LWR@midrules and LWR@trimrules markers for this line.

```
\newcommand*{\LWR@clearmidrules}
{%
    \defcounter{LWR@midrulecounter}{1}%
    \whileboolexpr{%
        not test{%
            \ifnumcomp{\value{LWR@midrulecounter}}{>}%
                {\value{LWR@tabletotalLaTeXcols}}%
        }%
    }%
    {%
        \LWR@setexparray{LWR@midrules}{\arabic{LWR@midrulecounter}}{0pt}%
        \setlength{\LWR@thiscmidrulewidth}{\LWR@cmidrulewidth}%
        \LWR@setexparray{LWR@trimlrules}{\arabic{LWR@midrulecounter}}{}%
        \LWR@setexparray{LWR@trimrrules}{\arabic{LWR@midrulecounter}}{}%
        \LWR@setexparray{LWR@cdashlines}{\arabic{LWR@midrulecounter}}{N}%
        \defaddtocounter{LWR@midrulecounter}{1}%
    }%
}
```

\LWR@subcmidrule {⟨*width*⟩} {⟨*trim*⟩} {⟨*leftcolumn*⟩} {⟨*rightcolumn*⟩}

Marks LWR@midrules data array elements to be non-zero widths from left to right columns. Also marks trimming for the L and/or R columns.

LWR@doingcmidrule is set to force an empty row at the end of the tabular to create the rule.

```
\newcommand*{\LWR@subcmidrule}[4]{%
    \defcounter{LWR@midrulecounter}{#3}%
    \whileboolexpr{%
        not test {%
            \ifnumcomp{\value{LWR@midrulecounter}}{>}{#4}%
        }%
    }%
    {%
        \LWR@setexparray{LWR@midrules}{\arabic{LWR@midrulecounter}}{#1}%
        \defaddtocounter{LWR@midrulecounter}{1}%
    }% whiledo
    \IfSubStr{#2}{l}{\LWR@setexparray{LWR@trimlrules}{#3}{l}}{}%
    \IfSubStr{#2}{r}{\LWR@setexparray{LWR@trimrrules}{#4}{r}}{}%
    \booltrue{LWR@doingcmidrule}%
}
```

\LWR@docmidrule [⟨*width*⟩] (⟨*trim*⟩) {⟨*leftcolumn-rightcolumn*⟩}

Marks LWR@midrules array elements to be a non-zero width from left to right columns. Also marks trimming for the L and/or R columns.

```
\NewDocumentCommand{\LWR@docmidrule}
    {O{\LWR@cmidrulewidth} D(){} >{\SplitArgument{1}{-}}m}
    {\LWR@subcmidrule{#1}{#2}#3}
```

\LWR@subcdashline {⟨*leftcolumn*⟩} {⟨*rightcolumn*⟩}

Marks LWR@cdashlines data array elements to be Y from left to right columns.

LWR@doingcmidrule is set to force an empty row at the end of the tabular to create the rule.

```
\newcommand*{\LWR@subcdashline}[2]{%
    \defcounter{LWR@midrulecounter}{#1}%
    \whileboolexpr{%
        not test {%
            \ifnumcomp{\value{LWR@midrulecounter}}{>}{#2}%
        }%
    }%
    {%
        \LWR@setexparray{LWR@cdashlines}{\arabic{LWR@midrulecounter}}{Y}%
        \defaddtocounter{LWR@midrulecounter}{1}%
    }% whiledo
    \booltrue{LWR@doingcmidrule}%
}
```

\LWR@docdashline {⟨*leftcolumn-rightcolumn*⟩}

Marks LWR@cdashlines data array elements to be Y from left to right columns.

```
\NewDocumentCommand{\LWR@docdashline}{>{\SplitArgument{1}{-}}m}%
{%
    \LWR@subcdashline#1%
}
```

\LWR@tdstartstyles Begins possibly adding a table data cell style.

```
\newcommand*{\LWR@tdstartstyles}{\boolfalse{LWR@tdhavecellstyle}}
```

\LWR@tdaddstyle Starts adding a table data cell style.

```
\newcommand*{\LWR@tdaddstyle}{%
    \ifbool{LWR@tdhavecellstyle}%
        {; }%
        { style=\textquotedbl}%
    \booltrue{LWR@tdhavecellstyle}%
}
```

\LWR@tdendstyles Finishes possibly adding a table data cell style. Prints the closing quote.

```
\newcommand*{\LWR@tdendstyles}{%
    \ifbool{LWR@tdhavecellstyle}%
        {%
            \textquotedbl%
```

```
            \boolfalse{LWR@tdhavecellstyle}%
        }{}%
}
```

`\LWR@subaddcmidruletrim` {⟨*lefttrim*⟩} {⟨*righttrim*⟩} Adds a `\cmidrule` with optional trim.

```
\newcommand*{\LWR@subaddcmidruletrim}[2]{%
    \setlength{\LWR@templengthone}{%
        \LWR@getexparray{LWR@midrules}{\arabic{LWR@tableLaTeXcolindex}}%
    }%
    \ifdimcomp{\LWR@templengthone}{>}{0pt}%
        {%
```

Print the class with left and right trim letters appended:

```
            \LWR@origtilde tdrule#1#2%
```

Remember the width of the rule:

```
            \setlength{\LWR@thiscmidrulewidth}{\LWR@templengthone}%
        }%
        {%
            \setlength{\LWR@thiscmidrulewidth}{0pt}%
        }%
}
```

`\LWR@addcmidruletrim` Adds left or right trim to a `\cmidrule`.

```
\newcommand*{\LWR@addcmidruletrim}{%
    \LWR@subaddcmidruletrim%
      {\LWR@getexparray{LWR@trimlrules}{\arabic{LWR@tableLaTeXcolindex}}}%
      {\LWR@getexparray{LWR@trimrrules}{\arabic{LWR@tableLaTeXcolindex}}}%
}
```

`\LWR@addrulewidth` {⟨*thiswidth*⟩} {⟨*defaultwidth*⟩}

If not default width, add a custom style with width and color depending on `thiswidth`.

Must be placed between `\LWR@tdstartstyles` and `\LWR@tdendstyles`.

```
\newcommand{\LWR@addrulewidth}[2]{%
```

Only add a custom width if `thiswidth` is different than the `defaultwidth`, or if a color is being used:

```
    \ifboolexpr{%
        test{\ifdimcomp{#1}{=}{0pt}} or
        (
            ( test{\ifdimcomp{#1}{=}{#2}} and not bool{FormatWP} )
            and ( test {\ifdefvoid{\LWR@ruleHTMLcolor}} )
        )
    }%
    {}% default width and color
    {% custom width and/or color
```

Ensure that the width is wide enough to display in the browser:

```
        \LWR@forceminwidth{#1}%
```

Begin adding another style:

```
        \LWR@tdaddstyle%
```

The style itself:

```
        border-top:\LWR@printlength{\LWR@atleastonept} solid % space
```

If default gray, the darkness of the color depends on the thickness of the rule:

```
        \ifdefvoid{\LWR@ruleHTMLcolor}{%
            \ifdimcomp{#1}{<}{\LWR@lightrulewidth}%
            {\LWR@origpound{}A0A0A0}%
            {% lightrule or heaver
                \ifdimcomp{#1}{<}{\LWR@heavyrulewidth}%
                {\LWR@origpound{}808080}%
                {black}%
            }% lightrule or heavier
        }{%
            \LWR@origpound\LWR@ruleHTMLcolor%
        }%
    }% custom width and/or color
}
```

`\LWR@addcmidrulewidth` Adds a `style` for the rule width.

Must be placed between `\LWR@tdstartstyles` and `\LWR@tdendstyles`.

```
\newcommand{\LWR@addcmidrulewidth}{%
    \LWR@addrulewidth{\LWR@thiscmidrulewidth}{\LWR@cmidrulewidth}%
}
```

`\LWR@addcdashline` Must be placed between `\LWR@tdstartstyles` and `\LWR@tdendstyles`.

```
\newcommand{\LWR@addcdashline}{%
    \edef\LWR@tempone{%
        \LWR@getexparray{LWR@cdashlines}{\arabic{LWR@tableLaTeXcolindex}}%
    }%
    \ifdefstring{\LWR@tempone}{Y}{%
        \LWR@tdaddstyle%
        border-top: 1pt dashed %
        \ifdefvoid{\LWR@ruleHTMLcolor}%
            {black}%
            {\LWR@origpound\LWR@ruleHTMLcolor}%
    }{}%
}
```

`\LWR@WPcell` {⟨*text-align*⟩} {⟨*vertical-align*⟩}

```
\newcommand*{\LWR@WPcell}[2]{%
    \LWR@tdaddstyle%
    \LWR@print@mbox{text-align:#1}; \LWR@print@mbox{vertical-align:#2}%
}
```

\LWR@addformatwpalignment {⟨*colspec*⟩}

If FormatWP, adds a style for the alignment.

Must be placed between \LWR@tdstartstyles and \LWR@tdendstyles.

```
\newcommand*{\LWR@addformatwpalignment}[1]{%
    \ifbool{FormatWP}{%
        \IfSubStr{#1}{l}{\LWR@WPcell{left}{middle}}{}%
        \IfSubStr{#1}{c}{\LWR@WPcell{center}{middle}}{}%
        \IfSubStr{#1}{r}{\LWR@WPcell{right}{middle}}{}%
        \IfSubStr{#1}{p}{\LWR@WPcell{left}{bottom}}{}%
        \IfSubStr{#1}{m}{\LWR@WPcell{left}{middle}}{}%
        \IfSubStr{#1}{b}{\LWR@WPcell{left}{top}}{}%
    }{}%
}
```

75.21 Cell colors

\LWR@addtabularrowcolor Adds a cell's row color style, if needed.

No color is added for the final row of empty cells which finishes each tabular.

```
\newcommand*{\LWR@addtabularrowcolor}{%
    \ifbool{LWR@tabularmutemods}{}{%
        \ifdefvoid{\LWR@rowHTMLcolor}{%
            \ifdefvoid{\LWR@xcolorrowHTMLcolor}{}%
            {% xcolor row color
                \LWR@tdaddstyle%
                background:\LWR@origpound\LWR@xcolorrowHTMLcolor%
            }%
        }%
        {% explicit row color
            \LWR@tdaddstyle%
            background:\LWR@origpound\LWR@rowHTMLcolor%
        }%
    }%
}
```

\LWR@addtabularhrulecolor Adds a cell's horizontal rule color style, if needed.

```
\newcommand*{\LWR@addtabularhrulecolor}{%
```

If either form of horizontal rule is requested:

```
    \ifboolexpr{%
        test{\ifnumcomp{\value{LWR@hlines}}{>}{0}} or%
        test{\ifnumcomp{\value{LWR@hdashedlines}}{>}{0}} or%
        bool{LWR@doingtbrule}%
    }{%
```

If there is a no custom color:

```
        \ifdefvoid{\LWR@ruleHTMLcolor}%
        {%
            \ifnumcomp{\value{LWR@hlines}}{>}{1}%
```

```
            {%
                \LWR@tdaddstyle%
                border-top: 4px double%
            }{% else
            \ifnumcomp{\value{LWR@hdashedlines}}{>}{1}%
            {%
                \LWR@tdaddstyle%
                border-top: 2px dashed%
            }{% else
            \ifnumcomp{\value{LWR@hdashedlines}}{=}{1}%
            {%
                \LWR@tdaddstyle%
                border-top: 1px dashed%
            }{}}}%
```

If no color and not doubled or dashed, then add nothing, since a simpler rule is the default.

```
        }%
```

If there is a custom color:

```
        {%
            \ifnumcomp{\value{LWR@hlines}}{>}{1}%
            {%
                \LWR@tdaddstyle%
                border-top: 4px double \LWR@origpound\LWR@ruleHTMLcolor%
            }{% else
            \ifnumcomp{\value{LWR@hdashedlines}}{>}{1}%
            {%
                \LWR@tdaddstyle%
                border-top: 2px dashed \LWR@origpound\LWR@ruleHTMLcolor%
            }{% else
            \ifnumcomp{\value{LWR@hdashedlines}}{=}{1}%
            {%
                \LWR@tdaddstyle%
                border-top: 1px dashed \LWR@origpound\LWR@ruleHTMLcolor%
            }{% else
                \LWR@tdaddstyle%
                border-top: 1px solid \LWR@origpound\LWR@ruleHTMLcolor%
            }}}%
        }%
    }{}%
}
```

`\LWR@addtabularrulecolors` Adds a cell's rule color styles, if needed.

No color is added for the final row of empty cells which finishes each `tabular`.

```
\newcommand*{\LWR@addtabularrulecolors}{%
```

Custom horizonal rule color:

```
    \LWR@addtabularhrulecolor%
```

No vertical rules if finishing the `tabular` with a row of empty cells:

```
    \ifbool{LWR@tabularmutemods}{}{%
```

If at the leftmost cell, possibly add a leftmost vertical rule:

```
        \ifnumequal{\value{LWR@tableLaTeXcolindex}}{1}{%
```

Fetch the left edge's vertical bar specification:

```
            \edef\LWR@tempone{\LWR@getexparray{LWR@colbarspec}{leftedge}}%
```

Add a custom style if a vertical bar was requested:

```
            \ifdefstring{\LWR@tempone}{tvertbarl}{%
                    \LWR@tdaddstyle%
                    border-left: 1px solid % space
                        \LWR@vertruleHTMLcolor%
            }{}%
            \ifdefstring{\LWR@tempone}{tvertbarldouble}{%
                    \LWR@tdaddstyle%
                    border-left: 4px double % space
                        \LWR@vertruleHTMLcolor%
            }{}%
            \ifdefstring{\LWR@tempone}{tvertbarldash}{%
                    \LWR@tdaddstyle%
                    border-left: 1px dashed % space
                        \LWR@vertruleHTMLcolor%
            }{}%
            \ifdefstring{\LWR@tempone}{tvertbarldoubledash}{%
                    \LWR@tdaddstyle%
                    border-left: 2px dashed % space
                        \LWR@vertruleHTMLcolor%
            }{}%
        }{}%
```

Possibly add a right vertical rule for this cell:

```
        \edef\LWR@tempone{%
        \LWR@getexparray{LWR@colbarspec}{\arabic{LWR@tableLaTeXcolindex}}%
        }%
        \ifdefstring{\LWR@tempone}{tvertbarr}{%
```

Add a custom style if a vertical bar was requested:

```
                \LWR@tdaddstyle%
                border-right: 1px solid \LWR@vertruleHTMLcolor%
        }{}%
        \ifdefstring{\LWR@tempone}{tvertbarrdouble}{%
                \LWR@tdaddstyle%
                border-right: 4px double \LWR@vertruleHTMLcolor%
        }{}%
        \ifdefstring{\LWR@tempone}{tvertbarrdash}{%
                \LWR@tdaddstyle%
                border-right: 1px dashed \LWR@vertruleHTMLcolor%
        }{}%
        \ifdefstring{\LWR@tempone}{tvertbarrdoubledash}{%
                \LWR@tdaddstyle%
                border-right: 2px dashed \LWR@vertruleHTMLcolor%
        }{}%
    }%
}
```

\LWR@subaddtabularcellcolor {⟨*html color*⟩}

```
\newcommand*{\LWR@subaddtabularcellcolor}[1]{%
    \LWR@htmltag{div class=\textquotedbl{}cellcolor\textquotedbl\ % space
        style=\textquotedbl{}%
        background:\LWR@origpound{}{}#1 %
        \textquotedbl\ %
    }% space
    \defaddtocounter{LWR@cellcolordepth}{1}%
}
```

\LWR@addtabularcellcolor Adds a cell color style, if needed.

```
\newcommand*{\LWR@addtabularcellcolor}{%
    \ifdefvoid{\LWR@cellHTMLcolor}%
    {%
        \ifdefvoid{\LWR@rowHTMLcolor}%
        {%
            \ifdefvoid{\LWR@xcolorrowHTMLcolor}%
            {%
                \ifdefvoid{\LWR@columnHTMLcolor}%
                {}%
                {\LWR@subaddtabularcellcolor{\LWR@columnHTMLcolor}}%
            }%
            {\LWR@subaddtabularcellcolor{\LWR@xcolorrowHTMLcolor}}%
        }%
        {\LWR@subaddtabularcellcolor{\LWR@rowHTMLcolor}}%
    }%
    {\LWR@subaddtabularcellcolor{\LWR@cellHTMLcolor}}%
}
```

75.22 Multicolumns

75.22.1 Parsing multicolumns

\LWR@printmccoltype@normal {⟨*col type*⟩}

Prints the column type, and remembers that any vertical bars are no longer on the left edge.

```
\newcommand*{\LWR@printmccoltype@normal}[1]{%
    #1%
    \boolfalse{LWR@mcolvertbaronleft}%
}
```

\LWR@printmccoltype@ignore {⟨*col type*⟩}

This type does not print a multi-column data cell.

```
\newcommand*{\LWR@printmccoltype@ignore}[1]{}%
```

\LWR@printmccoltype@vertbar {⟨*col type*⟩}

Adds a left or right vertical bar.

```
\newcommand*{\LWR@printmccoltype@vertbar}[1]{%
    \ifbool{LWR@mcolvertbaronleft}%
        {\defaddtocounter{LWR@mcolvertbarsl}{1}}% left edge
        {\defaddtocounter{LWR@mcolvertbarsr}{1}}% not left edge
}
```

`\LWR@printmccoltype@colon` {⟨*col type*⟩}

Adds a left or right vertical bar.

```
\newcommand*{\LWR@printmccoltype@colon}[1]{%
    \ifbool{LWR@mcolvertbaronleft}%
        {\defaddtocounter{LWR@mcolvertbarsldash}{1}}% left edge
        {\defaddtocounter{LWR@mcolvertbarsrdash}{1}}% not left edge
}
```

`\LWR@printmccoltype@semicolon` {⟨*col type*⟩}

Adds a left or right vertical bar.

```
\let\LWR@printmccoltype@semicolon\LWR@printmccoltype@colon
```

`\LWR@printmccoltype` {⟨*colspec*⟩} Print any valid column type found. Does not print `@`, `!`, `>`, or `<` columns or their associated tokens.

This is printed as part of the table data tag's `class`.

`\LWR@columntype@mctype@<type>` is defined by `\LWR@modifycolumntype`.

```
\newcommand*{\LWR@printmccoltype}[1]{%
    \LWR@traceinfo{lwr@printmccoltype -#1-}%
```

Get one token of the column spec:

```
    \StrChar{#1}{\arabic{LWR@tablemulticolspos}}[\LWR@strresult]%
```

Detokenize to avoid problems with special characters:

```
    \edef\LWR@strresult{\detokenize\expandafter{\LWR@strresult}}%
```

Add to the HTML tag depending on which column type is found:

```
    \ifcsdef{LWR@columntype@mctype@\LWR@strresult}%
        {\csuse{LWR@columntype@mctype@\LWR@strresult}}%
        {\boolfalse{LWR@mcolvertbaronleft}}%
    \LWR@traceinfo{lwr@printmccoltype done}%
}
```

`\LWR@printmccoldata@other` {⟨*num args to skip*⟩} {⟨*entire colspec*⟩}

For `@`, `!`, `>`, `<`, print the next token without paragraph tags:

```
\newcommand*{\LWR@printmccoldata@other}[2]{%
    \defaddtocounter{LWR@tablemulticolspos}{1}%
    \StrChar{#2}{\arabic{LWR@tablemulticolspos}}[\LWR@strresult]%
    \LWR@strresult%
```

A valid column data type was found:

```
    \booltrue{LWR@validtablecol}%
}
```

`\LWR@printmccoldata@skip` {⟨*num args to skip*⟩} {⟨*entire colspec*⟩}

Nothing to print for this column type.

```
\newcommand*{\LWR@printmccoldata@skip}[2]{%
    \defaddtocounter{LWR@tablemulticolspos}{#1}%
```

A valid column data type was found:

```
    \booltrue{LWR@validtablecol}%
}
```

For `\LWR@printmccoldata@...>`, {⟨*num args to skip*⟩} is provided by `\LWR@columntype@mcdata@<coltype>` when it was defined by `\LWR@modifycolumntype`. `\entire colspec` is provided by `\LWR@printmccoldata` when it uses `\LWR@columntype@mcdata@<coltype>`.

`\LWR@printmccoldata@normal` {⟨*num args to skip*⟩} {⟨*entire colspec*⟩}

```
\newcommand*{\LWR@printmccoldata@normal}[2]{%
    \LWR@multicoltext%
    \defaddtocounter{LWR@tablemulticolspos}{#1}%
}
```

`\LWR@printmccoldata@paragraph` {⟨*num args to skip*⟩} {⟨*entire colspec*⟩}

```
\newcommand*{\LWR@printmccoldata@paragraph}[2]{%
    \LWR@startpars%
    \LWR@multicoltext%
    \defaddtocounter{LWR@tablemulticolspos}{#1}%
    \LWR@stoppars%
}
```

`\LWR@printmccoldata` {⟨*entire colspec*⟩}

Print the data for any valid column type found.

```
\newcommand*{\LWR@printmccoldata}[1]{%
    \LWR@traceinfo{lwr@printmccoldata -#1}%
```

Not yet found a valid column type:

```
    \boolfalse{LWR@validtablecol}%
```

Get one token of the column spec, into a local copy in case nested.

```
    \StrChar{#1}{\arabic{LWR@tablemulticolspos}}[\LWR@strresult]%
    \edef\LWR@printmccoldatatoken{\LWR@strresult}%
```

Print the text depending on which column type is found. Also handles `@`, `>`, `<` as it comes to them.

```
    \ifcsdef{LWR@columntype@mcdata@\LWR@printmccoldatatoken}%
        {\csuse{LWR@columntype@mcdata@\LWR@printmccoldatatoken}{#1}}%
        {}%
```

If an unknown column type, print the text:

```
    \ifbool{LWR@validtablecol}{}{\LWR@multicoltext{}}%
```

Tracing:

```
    \LWR@traceinfo{lwr@printmccoldata done}%
}
```

\parsemulticolumnalignment {⟨*1: colspec*⟩} {⟨*2: printresults csname*⟩}

Scan the multicolumn specification and execute the printfunction for each entry.

Note that the spec for a p{spec} column, or @, >, <, is a token list which will NOT match l, c, r, or p.

```
\newcommand*{\LWR@parsemulticolumnalignment}[2]{%
    \defcounter{LWR@tablemulticolspos}{1}%
    \StrLen{#1}[\LWR@strresult]%
    \defcounter{LWR@tablemulticolswidth}{\LWR@strresult}%
```

Scan across the tokens in the column spec:

```
    \whileboolexpr{%
        not test {%
            \ifnumcomp{\value{LWR@tablemulticolspos}}{>}%
                {\value{LWR@tablemulticolswidth}}%
        }%
    }%
    {%
```

Execute the assigned print function for each token in the column spec:

```
        \csuse{#2}{#1}%
```

Move to the next token in the column spec:

```
        \defaddtocounter{LWR@tablemulticolspos}{1}%
    }%
}
```

75.22.2 Multicolumn factored code

\LWR@addmulticolvertrulecolor

```
\newcommand*{\LWR@addmulticolvertrulecolor}{%
```

No vertical rules if finishing the tabular with a row of empty cells:

```
    \ifbool{LWR@tabularmutemods}{}{%
```

Left side:

```
        \ifnumcomp{\value{LWR@mcolvertbarsl}}{=}{1}{%
            \LWR@tdaddstyle%
            border-left: 1px solid \LWR@vertruleHTMLcolor%
        }{}%
        \ifnumcomp{\value{LWR@mcolvertbarsl}}{>}{1}{%
            \LWR@tdaddstyle%
            border-left: 4px double \LWR@vertruleHTMLcolor%
        }{}%
        \ifnumcomp{\value{LWR@mcolvertbarsldash}}{=}{1}{%
            \LWR@tdaddstyle%
            border-left: 1px dashed \LWR@vertruleHTMLcolor%
        }{}%
        \ifnumcomp{\value{LWR@mcolvertbarsldash}}{>}{1}{%
            \LWR@tdaddstyle%
            border-left: 2px dashed \LWR@vertruleHTMLcolor%
        }{}%
```

Right side:

```
        \ifnumcomp{\value{LWR@mcolvertbarsr}}{=}{1}{%
            \LWR@tdaddstyle%
            border-right: 1px solid \LWR@vertruleHTMLcolor%
        }{}%
        \ifnumcomp{\value{LWR@mcolvertbarsr}}{>}{1}{%
            \LWR@tdaddstyle%
            border-right: 4px double \LWR@vertruleHTMLcolor%
        }{}%
        \ifnumcomp{\value{LWR@mcolvertbarsrdash}}{=}{1}{%
            \LWR@tdaddstyle%
            border-right: 1px dashed \LWR@vertruleHTMLcolor%
        }{}%
        \ifnumcomp{\value{LWR@mcolvertbarsrdash}}{>}{1}{%
            \LWR@tdaddstyle%
            border-right: 2px dashed \LWR@vertruleHTMLcolor%
        }{}%
    }%
}
```

```
\newcommand{\LWR@multicoltext}{}
```

To find multicolumn right trim:

```
\newcounter{LWR@lastmulticolumn}
```

`\LWR@domulticolumn` `[`⟨*1: vpos*⟩`]` `[`⟨*2: #rows*⟩`]` {⟨*3: numLaTeXcols*⟩} {⟨*4: numHTMLcols*⟩} {⟨*5: colspec*⟩} {⟨*6: text*⟩}

```
\NewDocumentCommand{\LWR@domulticolumn}{o o m m m +m}{%
    \LWR@traceinfo{LWR@domulticolumn -#1- -#2- -#4- -#5-}%
```

Remember the text to be inserted, and when used remember that a valid column type was found:

```
    \renewcommand{\LWR@multicoltext}{%
        #6%
        \booltrue{LWR@validtablecol}%
```

```
}%
```

Expand the preamble and save it.

```
\LWR@expandpreamble{#5}%
\edef\LWR@origmccolspec{\the\@temptokena}%
```

Compute the rightmost column to be included. This is used to create the right trim.

```
\defcounter{LWR@lastmulticolumn}{\value{LWR@tableLaTeXcolindex}}%
\defaddtocounter{LWR@lastmulticolumn}{#3}%
\defaddtocounter{LWR@lastmulticolumn}{-1}%
```

Row processing:

```
\LWR@maybenewtablerow%
```

Begin the opening table data tag:

```
\LWR@htmltag{%
    td colspan=\textquotedbl#4\textquotedbl\ %

    \IfValueT{#2}{ % rows?
        rowspan=\textquotedbl#2\textquotedbl\ %
    }%


    class=\textquotedbl{}td%
```

Print the column type and vertical bars:

```
    \defcounter{LWR@mcolvertbarsl}{0}%
    \defcounter{LWR@mcolvertbarsr}{0}%
    \defcounter{LWR@mcolvertbarsldash}{0}%
    \defcounter{LWR@mcolvertbarsrdash}{0}%
    \booltrue{LWR@mcolvertbaronleft}%
  \LWR@parsemulticolumnalignment{\LWR@origmccolspec}{LWR@printmccoltype}%
```

If this column has a cmidrule, add “rule” to the end of the HTML class tag.

If this position had a “Y” then add “rule” for a horizontal rule:

```
    \LWR@subaddcmidruletrim%
        {%
            \LWR@getexparray{LWR@trimlrules}%
                {\arabic{LWR@tableLaTeXcolindex}}%
        }%
        {%
            \LWR@getexparray{LWR@trimrrules}%
                {\arabic{LWR@lastmulticolumn}}%
        }%
```

Also add vertical bar class.

```
    \ifnumcomp{\value{LWR@mcolvertbarsl}}{=}{1}{ tvertbarl}{}%
    \ifnumcomp{\value{LWR@mcolvertbarsl}}{>}{1}{ tvertbarldouble}{}%
    \ifnumcomp{\value{LWR@mcolvertbarsr}}{=}{1}{ tvertbarr}{}%
```

```
        \ifnumcomp{\value{LWR@mcolvertbarsr}}{>}{1}{ tvertbarrdouble}{}%
        \ifnumcomp{\value{LWR@mcolvertbarsldash}}{=}{1}{ tvertbarldash}{}%
        \ifnumcomp{\value{LWR@mcolvertbarsldash}}{>}{1}%
            { tvertbarldoubledash}{}%
        \ifnumcomp{\value{LWR@mcolvertbarsrdash}}{=}{1}{ tvertbarrdash}{}%
        \ifnumcomp{\value{LWR@mcolvertbarsrdash}}{>}{1}%
            { tvertbarrdoubledash}{}%
```

Close the class tag's opening quote:

```
        \textquotedbl{}%
```

```
        \LWR@tdstartstyles%
```

Style for vertical position:

```
        \IfValueT{#1}{% vpos?
            \ifstrequal{#1}{b}%
                {%
                    \LWR@tdaddstyle%
                    \LWR@print@mbox{vertical-align:bottom}%
                }{}%
            \ifstrequal{#1}{t}%
                {%
                    \LWR@tdaddstyle%
                    \LWR@print@mbox{vertical-align:top}%
                }{}%
        }% vpos?
```

Style for row colors:

```
        \LWR@addtabularrowcolor%
```

Other styles:

```
        \LWR@addcmidrulewidth%
        \LWR@addcdashline%
        \LWR@addtabularhrulecolor%
        \LWR@addmulticolvertrulecolor%
        \LWR@addformatwpalignment{\LWR@origmccolspec}%
        \LWR@tdendstyles%
    }% end of the opening table data tag
    \boolfalse{LWR@intabularmetadata}%
   \LWR@parsemulticolumnalignment{\LWR@origmccolspec}{LWR@printmccoldata}%
}
```

75.22.3 Multicolumn

`\LWR@htmlmulticolumn` {⟨*numcols*⟩} {⟨*alignment*⟩} {⟨*text*⟩}

```
\NewDocumentCommand{\LWR@htmlmulticolumn}{m m +m}%
{%
```

Figure out how many extra HTML columns to add for `@` and `!` columns:

```
    \LWR@tabularhtmlcolumns{\arabic{LWR@tableLaTeXcolindex}}{#1}%
```

Create the multicolumn tag:

```
    \LWR@domulticolumn{#1}{\arabic{LWR@tabhtmlcoltotal}}{#2}{#3}%
```

Move to the next LaTeX column:

```
    \defaddtocounter{LWR@tableLaTeXcolindex}{#1}%
    \defaddtocounter{LWR@tableLaTeXcolindex}{-1}%
```

Skip any trailing `@` or `!` columns for this cell:

```
    \booltrue{LWR@skipatbang}%
}
```

75.22.4 Longtable captions

longtable captions use `\multicolumn`.

Per the caption package. User-redefinable float type.

```
\providecommand*{\LTcaptype}{table}
```

`\LWR@longtabledatacaptiontag` `* [⟨toc entry⟩] {⟨caption⟩}`

```
\NewDocumentCommand{\LWR@longtabledatacaptiontag}{s o +m}
{%
```

Remember the latest name for `\nameref`:

```
    \IfValueTF{#2}{% optional given?
        \ifblank{#2}% optional empty?
        {\LWR@setlatestname{#3}}% empty
        {\LWR@setlatestname{#2}}% given and non-empty
    }% optional given
    {\LWR@setlatestname{#3}}% no optional
```

Create a multicolumn across all the columns:

Figure out how many extra HTML columns to add for `@` and `!` columns found between the first and the last column:

```
    \LWR@tabularhtmlcolumns{1}{\arabic{LWR@tabletotalLaTeXcols}}%
```

Create the multicolumn tag. The caption will be centered by the CSS caption class.

```
    \LWR@domulticolumn{\arabic{LWR@tabletotalLaTeXcols}}%
        {\arabic{LWR@tabhtmlcoltotal}}%
        {p}%
    {% \LWR@domulticolumn
    \IfBooleanTF{#1}% star?
```

Star version, show a caption but do not make a LOT entry:

```
    {% yes star
        \LWR@figcaption%
```

```
        \LWR@isolate{#3}%
        \endLWR@figcaption%
    }%
    {% No star:
```

Not the star version:

Don't step the counter if `\caption[]{A caption.}`

```
        \ifbool{LWR@starredlongtable}%
        {%
            \ifblank{#2}% TOC entry
            {}%
            {%
                \refstepcounter{\LTcaptype}%
                \protected@edef\@currentlabel{%
                    \@nameuse{p@\LTcaptype}\@nameuse{the\LTcaptype}%
                }%
            }%
        }{}%
```

Create an HTML caption. Afterwards, maybe make a LOT entry.

```
        \LWR@figcaption%
        \LWR@isolate{\@nameuse{fnum@\LTcaptype}}%
        \CaptionSeparator%
        \LWR@isolate{#3}%
        \endLWR@figcaption%
```

See if an optional caption was given:

```
        \ifblank{#2}% TOC entry empty
```

if the optional caption was given, but empty, do not form a TOC entry

```
        {}%
```

If the optional caption was given, but might only be `[]`:

```
        {% TOC entry not empty
            \IfNoValueTF{#2}% No TOC entry?
```

The optional caption is `[]`:

```
            {% No TOC entry
                \addcontentsline%
                {\@nameuse{ext@\LTcaptype}}%
                {\LTcaptype}%
                {%
                    \protect\numberline%
             {\LWR@isolate{\@nameuse{p@\LTcaptype}}\@nameuse{the\LTcaptype}}%
                    {\ignorespaces \LWR@isolate{#3}\protect\relax}%
                }%
            }% end of No TOC entry
```

The optional caption has text enclosed:

```
            {% yes TOC entry
```

```
                \addcontentsline%
                {\@nameuse{ext@\LTcaptype}}%
                {\LTcaptype}%
                {%
                    \protect\numberline%
             {\LWR@isolate{\@nameuse{p@\LTcaptype}}\@nameuse{the\LTcaptype}}%
                    {\ignorespaces \LWR@isolate{#2}\protect\relax}%
                }%
            }% end of yes TOC entry
        }% end of TOC entry not empty
    }% end of no star
```

Skip any trailing `@` or `!` columns for this cell:

```
    \booltrue{LWR@skipatbang}%
    }% end of \LWR@domulticolumn
   \defaddtocounter{LWR@tableLaTeXcolindex}{\value{LWR@tabletotalLaTeXcols}}%
    \defaddtocounter{LWR@tableLaTeXcolindex}{-1}

}
```

75.22.5 Counting HTML tabular columns

The LaTeX specification for a table includes a number of columns separated by the `&` character. These columns differ in content from line to line. Additional virtual columns may be specified by the special `@` and `!` columns. These columns are identical from line to line, but may be skipped during a multicolumn cell.

For HTML output, `@` and `!` columns are placed into their own tabular columns. Thus, a LaTeX `\multicolumn` command may span several additional `@` and `!` columns in HTML output. These additional columns must be added to the total number of columns spanned by an HTML multi-column data cell.

```
\newcounter{LWR@tabhtmlcolindex}
\newcounter{LWR@tabhtmlcolend}
\newcounter{LWR@tabhtmlcoltotal}
```

`\LWR@subtabularhtmlcolumns` {⟨*index*⟩}

Factored from `\LWr@tabularhtmlcolumns`, which follows.

```
\newcommand*{\LWR@subtabularhtmlcolumns}[1]{%
```

Temporarily define a macro equal to the `@` specification for this column:

```
    \edef\LWR@atbangspec{\LWR@getexparray{LWR@colatspec}{#1}}%
```

If the `@` specification is not empty, add to the count:

```
    \ifdefempty{\LWR@atbangspec}%
        {}%
        {\defaddtocounter{LWR@tabhtmlcoltotal}{1}}%
```

Likewise for the `!` columns:

```
    \edef\LWR@atbangspec{\LWR@getexparray{LWR@colbangspec}{#1}}%
```

```
    \ifdefempty{\LWR@atbangspec}%
        {}%
        {\defaddtocounter{LWR@tabhtmlcoltotal}{1}}%
}
```

\LWR@tabularhtmlcolumns {⟨*starting LaTeX column*⟩} {⟨*number LaTeX columns*⟩}

Compute the total number of HTML columns being spanned, considering the starting LaTeX table column and the number of LaTeX tabular columns being spanned. Any `@` and `!` columns within this span are included in the total count. The resulting number of HTML columns is returned in the counter `LWR@tabhtmlcoltotal`.

```
\newcommand*{\LWR@tabularhtmlcolumns}[2]{%
```

Count the starting index, compute ending index, and begin with the count being the LaTeX span, to which additional `@` and `!` columns may be added:

```
    \defcounter{LWR@tabhtmlcolindex}{#1}%
    \defcounter{LWR@tabhtmlcoltotal}{#2}%
    \defcounter{LWR@tabhtmlcolend}{#1}%
    \defaddtocounter{LWR@tabhtmlcolend}{#2}%
```

If at the left edge, add the at/bang columns for the left edge:

```
    \ifnumcomp{\value{LWR@tabhtmlcolindex}}{=}{1}{%
        \LWR@subtabularhtmlcolumns{leftedge}%
    }{}%
```

Walk across the LaTeX columns looking for `@` and `!` columns:

```
    \whileboolexpr{%
        test {%
        \ifnumcomp{\value{LWR@tabhtmlcolindex}}{<}{\value{LWR@tabhtmlcolend}}%
        }%
    }%
    {%
        \LWR@subtabularhtmlcolumns{\arabic{LWR@tabhtmlcolindex}}%
        \defaddtocounter{LWR@tabhtmlcolindex}{1}%
    }% whiledo
}
```

```
\end{warpHTML}
```

75.23 Multirow if not loaded

A default defintion in case multirow is not loaded. This is used during table parsing.

```
\begin{warpHTML}
\newcommand{\multirow}[2][c]{}
\end{warpHTML}
```

75.24 Multicolumnrow

A print-mode version is defined here, and is also used during HTML output while inside a `lateximage`.

See section 429 for the HTML versions.

for HTML & PRINT:
```
\begin{warpall}
```

`\multicolumnrow` {⟨*1:cols*⟩} {⟨*2:halign*⟩} [⟨*3:vpos*⟩] {⟨*4:numrows*⟩} [⟨*5:bigstruts*⟩] {⟨*6:width*⟩} [⟨*7:fixup*⟩] {⟨*8:text*⟩}

For discussion of the use of `\DeclareExpandableDocumentCommand`, see:
https://tex.stackexchange.com/questions/168434/problem-with-abbreviation-of-multirow-and-multicolumn-latex

`\AtBeginDocument` to adjust after the user may have loaded multirow, which requires several tests to determine which version is loaded and thus which options are available.

```
\AtBeginDocument{
```

`\@ifundefined{@xmultirow}` determines if multirow was never loaded.

Null action if not loaded:

```
\@ifundefined{@xmultirow}
{
\DeclareExpandableDocumentCommand{\LWR@print@multicolumnrow}%
    {+m +m +O{c} +m +O{0} +m +O{0pt} +m}%
    {}%
}% no version of multirow was loaded
{% \@xmultirow defined, so some version of multirow was loaded
```

`\IfPackageLoadedTF{multirow}` determines if v2.0 or later of multirow was used, which included the `\ProvidesPackage` macro.

The print version:

```
\IfPackageLoadedTF{multirow}{% v2.0 or newer
\IfPackageAtLeastTF{multirow}{2016/09/01}% 2016/09/27 for v2.0
{% v2.0+:
\DeclareExpandableDocumentCommand{\LWR@print@multicolumnrow}%
    {+m +m +O{c} +m +O{0} +m +O{0pt} +m}%
    {\multicolumn{#1}{#2}{\@xmultirow[#3]{#4}[#5]{#6}[#7]{#8}}}%
}
{% loaded but older, probably not executed:
\DeclareExpandableDocumentCommand{\LWR@print@multicolumnrow}%
    {+m +m +O{c} +m +O{0} +m +O{0pt} +m}%
    {\multicolumn{#1}{#2}{\@xmultirow{#4}[#5]{#6}[#7]{#8}}}%
}
}% packageloaded{multirow}
```

If not `\IfPackageLoadedTF{multirow}` but `\@xmultirow` is defined, then this must be v1.6 or earlier, which did not `\ProvidesPackage{multirow}`, and did not have the vposn option.

```
{% v1.6 or older did not \ProvidePackage
\DeclareExpandableDocumentCommand{\LWR@print@multicolumnrow}%
    {+m +m +O{c} +m +O{0} +m +O{0pt} +m}%
    {\multicolumn{#1}{#2}{\@xmultirow{#4}[#5]{#6}[#7]{#8}}}%
}

```

```
}% \@ifundefined{@xmultirow}

\providecommand*{\multicolumnrow}{\LWR@print@multicolumnrow}

}% AtBeginDocument

\end{warpall}
```

75.25 Utility macros inside a table

for HTML output:

```
\begin{warpHTML}
```

Used to prevent opening a tabular data cell if the following token is one which does not create tabular data:

```
\newcommand*{\LWR@donothing}{}
```

In case array is not loaded:

```
\let\firsthline\relax
\let\lasthline\relax
\newcommand*{\firsthline}{}
\newcommand*{\lasthline}{}
```

In case bigdelim is not loaded:

```
\newcommand*{\ldelim}{}
\newcommand*{\rdelim}{}
```

```
\end{warpHTML}
```

75.26 Special-case tabular markers

for HTML & PRINT:

```
\begin{warpall}
```

`\TabularMacro` Place this just before inserting a custom macro in a table data cell. Doing so tells lwarp not to automatcally start a new HTML table data cell yet. See section 8.10.1.

```
\newcommand*{\TabularMacro}{}
```

```
\end{warpall}
```

`\ResumeTabular` Used to resume tabular entries after resuming an environment.

⚠ `tabular` inside another environment

When creating a new environment which contains a `tabular` environment, lwarp's emulation of the tabular does not automatically resume when the containing enviroment ends, resulting in corrupted HTML rows. To fix this, use `\ResumeTabular` as follows. This is ignored in print mode.

```
\StartDefiningTabulars %   (& is used in a definition)
\newenvironment{outerenvironment}
{
   \tabular{cc}
   left & right \\
}
{
   \TabularMacro\ResumeTabular
   left & right \\
   \endtabular
}
\StopDefiningTabulars
```

for HTML output:

```
\begin{warpHTML}

\newcommand*{\ResumeTabular}{%
    \boolfalse{LWR@exitingtabular}%
    \boolfalse{LWR@tabularmutemods}%
    \LWR@getmynexttoken%
}

\end{warpHTML}
```

for PRINT output:

```
\begin{warpprint}

\newcommand*{\ResumeTabular}{}

\end{warpprint}
```

75.27 Checking for a new table cell

for HTML output:

```
\begin{warpHTML}
```

`\LWR@tabledatacolumntag`

Open a new HTML table cell unless the next token is for a macro which does not create data, such as `\hline`, `\toprule`, etc:

```
\newcommand*{\LWR@tabledatacolumntag}%
{%
    \LWR@traceinfo{LWR@tabledatacolumntag}%
```

`\show\LWR@mynexttoken` to see what tokens to look for

If not any of the below, start a new table cell:

```
    \global\let\LWR@mynextaction\LWR@tabledatasinglecolumntag%
```

If exiting the tabular:

```
    \ifdefequal{\LWR@mynexttoken}{\end}%
        {\booltrue{LWR@exitingtabular}}{}%
```

`longtable` can have a caption in a cell

```
    \ifdefequal{\LWR@mynexttoken}{\caption}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%
```

Look for other things which would not start a table cell:

```
    \ifdefequal{\LWR@mynexttoken}{\multicolumn}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%
    \ifdefequal{\LWR@mynexttoken}{\multirow}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%
    \ifdefequal{\LWR@mynexttoken}{\multicolumnrow}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%
    \ifdefequal{\LWR@mynexttoken}{\noalign}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%
```

If an `\mrowcell`, this is a cell to be skipped over:

```
    \ifdefequal{\LWR@mynexttoken}{\mrowcell}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%
```

If an `\mcolrowcell`, this is a cell to be skipped over:

```
    \ifdefequal{\LWR@mynexttoken}{\mcolrowcell}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\TabularMacro}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\hline}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\firsthline}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\lasthline}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\toprule}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\midrule}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\cmidrule}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\morecmidrules}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\specialrule}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\cline}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%
```

```
    \ifdefequal{\LWR@mynexttoken}{\bottomrule}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\hhline}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\rowcolor}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\arrayrulecolor}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\doublerulesepcolor}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\warpprintonly}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\warpHTMLonly}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\ldelim}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\rdelim}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%
```

For arydshln:

```
    \ifdefequal{\LWR@mynexttoken}{\hdashline}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\cdashline}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\firsthdashline}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%

    \ifdefequal{\LWR@mynexttoken}{\lasthdashline}%
        {\global\let\LWR@mynextaction\LWR@donothing}{}%
```

Ignore an empty line between rows:

```
    \ifdefequal{\LWR@mynexttoken}{\par}%
        {%
            \global\let\LWR@mynextaction\LWR@donothing%
        }{}%
```

No action for an \end token.

Add similar to the above for any other non-data tokens which might appear in the table.

Start the new table cell if was not any of the above:

```
   \LWR@traceinfo{LWR@tabledatacolumntag: done, about to do LWR@mynextaction}%
    \LWR@mynextaction%
}
```

```
\end{warpHTML}
```

75.28 \mrowcell

for HTML & PRINT:

```
\begin{warpall}
```

`\mrowcell` The user must insert `\mrowcell` into any `\multirow` cells which must be skipped.
⚠ multirow cells This command has no action during print output.

```
\newcommand*{\mrowcell}{}
```

```
\end{warpall}
```

75.29 \mcolrowcell

for HTML & PRINT:

```
\begin{warpall}
```

`\mcolrowcell` The user must insert `\mcolrowcell` into any `\multicolumnrow` cells which must
⚠ multirow cells be skipped. This command has no action during print output.

```
\newcommand*{\mcolrowcell}{}
```

```
\end{warpall}
```

75.30 HTML tabular environment

for HTML output:

```
\begin{warpHTML}
```

These are default defininitions in case booktabs is not loaded, and are not expected to used, but must exist as placeholders. memoir may have already loaded booktabs.

```
\providecommand*{\toprule}[1][]{\hline}
\providecommand*{\midrule}[1][]{\hline}
\providecommand*{\cmidrule}{\cline}
\providecommand*{\bottomrule}[1][]{\hline}
\providecommand*{\addlinespace}[1][]{}
\providecommand*{\morecmidrules}{}
\providecommand*{\specialrule}[3]{\hline}
```

`\noalign` {⟨*text*⟩} Redefined for use inside `tabular`.

```
\LetLtxMacro\LWR@orignoalign\noalign

\newcommand{\LWR@tabularnoalign}[1]{%
    \advance\rownum\m@ne%
    \LetLtxMacro\LWR@save@xcolorrowHTMLcolor\LWR@xcolorrowHTMLcolor%
    \renewcommand*{\LWR@xcolorrowHTMLcolor}{}%
    \multicolumn{\value{LWR@tabletotalLaTeXcols}}{l}{#1} \\
    \LetLtxMacro\LWR@xcolorrowHTMLcolor\LWR@save@xcolorrowHTMLcolor%
    % \@rowc@lors%
    \LWR@getmynexttoken%
}
```

\LWR@HTMLhline The definition of \hline depends on whether tabls has been loaded. If so, optional space below the line may be specified, but will be ignored.

```
\AtBeginDocument{

\IfPackageLoadedTF{lwarp-tabls}
{
    \newcommand*{\LWR@HTMLhline}[1][]{%
        \ifbool{FormatWP}%
            {\LWR@docmidrule{1-\arabic{LWR@tabletotalLaTeXcols}}}%
            {\defaddtocounter{LWR@hlines}{1}}%
        \LWR@getmynexttoken}%
}
{
    \newcommand*{\LWR@HTMLhline}{%
        \ifbool{FormatWP}%
            {\LWR@docmidrule{1-\arabic{LWR@tabletotalLaTeXcols}}}%
            {\defaddtocounter{LWR@hlines}{1}}%
        \LWR@getmynexttoken}%
}

}% AtBeginDocument
```

\LWR@HTMLcline {⟨*columns*⟩}

```
\NewDocumentCommand{\LWR@HTMLcline}{m}%
    {\LWR@docmidrule{#1}\LWR@getmynexttoken}%
```

\LWR@tabular@warpprintonly {⟨*contents*⟩}

Only process the contents if producing printed output. Modified inside a tabular to grab the next token.

```
\newcommand{\LWR@tabular@warpprintonly}[1]{%
    \ifbool{warpingprint}{#1}{}%
    \LWR@getmynexttoken%
}
```

\LWR@nullifyNoAutoSpacing For babel-french, turn off auto spacing at the start of the tabular, then nullify the autospacing commands inside the tabular, since they were not compatible with the tabular parsing code for each cell, which uses xstring.

```
\AtBeginDocument{
\@ifundefined{NoAutoSpacing}%
{% no babel-french
    \newcommand*{\LWR@nullifyNoAutoSpacing}{}
}% no babel-french
{% yes babel-french
    \newcommand*{\LWR@nullifyNoAutoSpacing}{%
        \NoAutoSpacing%
        \renewcommand*{\NoAutoSpacing}{}%
        \renewcommand*{\LWR@FBcancel}{}%
    }
}% yes babel-french
}% AtBeginDocument
```

Env tabular <direction> [⟨*vertposition*⟩] {⟨*colspecs*⟩}

The <direction> is from plext for Japanese documents, and is ignored.

```
\StartDefiningTabulars

\NewDocumentCommand{\LWR@HTML@@tabular}{d<> o m}
{%
    \LWR@traceinfo{LWR@HTML@@tabular started}%
```

⚠ <table> inside

In LaTeX, a tabular may be placed inside a minipage, but in HTML a <table> may not be inside a . Since there may be several nested s, with an unknown number of other objects between, it is hard to undo all these s before the <table> then redo them after. The broswer probably compensates for this situation, but formatting may be lost inside the <table> because several things are neutralized inside a . Furthermore, in the HTML output, the entire <table> is placed on a single line of HTML code, since the line breaking commands are neutralized inside a . Since this is such a sloppy situation, a warning is issued here instructing the user to please isolate the to print-only.

```
    \LWR@spanwarnformat{tabular}%
    \addtocounter{LWR@tabulardepth}{1}%
```

Not yet started a table row:

```
    \boolfalse{LWR@startedrow}%
```

Not yet doing any rules:

```
    \defcounter{LWR@hlines}{0}%
    \defcounter{LWR@hdashedlines}{0}%
    \boolfalse{LWR@doingtbrule}%
    \boolfalse{LWR@doingcmidrule}%
```

For babel-french, turn off auto spacing one time, then nullify the autospacing commands since were not compatible with the tabular parsing code.

```
    \LWR@nullifyNoAutoSpacing%
```

Have not yet found the end of tabular command. Unmute the @ and ! columns.

```
    \boolfalse{LWR@exitingtabular}%
    \boolfalse{LWR@tabularmutemods}%
```

Error if failed to use \mrowcell or \mcolrowcell when needed.

```
    \boolfalse{LWR@usedmultirow}%
    \boolfalse{LWR@foundmrowcell}%
```

In case of nesting:

```
    \renewcommand*{\LWR@multicoltext}{}%
    \booltrue{LWR@intabularmetadata}%
```

New PDF page, unless in a \multirow:

```
    \ifbool{LWR@in@multirow@par}%
        {\leavevmode\LWR@orignewline}%
        {\LWR@forcenewpage}%
```

In case of nesting, locally no longer in a \multirow:

```
\boolfalse{LWR@in@multirow@par}%
```

Create the table tag:

```
\LWR@htmlblocktag{table}%
```

Parse the table columns:

```
\LWR@parsetablecols{#3}%
```

Table col spec is: \LWR@tablecolspec which is a string of llccrr, etc.

Do not place the table inside a paragraph:

```
\LWR@stoppars%
```

Track column #:

```
\defcounter{LWR@tableLaTeXcolindex}{1}%
```

Have not yet added data in this column:

```
\global\boolfalse{LWR@tabularcelladded}%
```

Start looking for midrules:

```
\LWR@clearmidrules%
```

\\ becomes a macro to end the table row:

```
\LetLtxMacro{\\}{\LWR@tabularendofline}%
```

\warpprintonly inside a tabular must grab the next token.

```
\LetLtxMacro\warpprintonly\LWR@tabular@warpprintonly%
```

The following adjust for colortbl.

```
\LetLtxMacro\arrayrulecolor\arrayrulecolornexttoken%
\LetLtxMacro\doublerulesepcolor\doublerulesepcolornexttoken%
\def\LWR@columnHTMLcolor{}%
\def\LWR@rowHTMLcolor{}%
\def\LWR@cellHTMLcolor{}%
\@rowcolors%
```

The vertical rules are set to the color active at the start of the tabular. \arrayrulecolor will then affect horizontal rules inside the tabular, but not the vertical rules.

```
\ifdefvoid{\LWR@ruleHTMLcolor}%
    {\edef\LWR@vertruleHTMLcolor{black}}%
    {\edef\LWR@vertruleHTMLcolor{\LWR@origpound\LWR@ruleHTMLcolor}}%
```

Tracking the depth of cell color s:

```
\defcounter{LWR@cellcolordepth}{0}%
```

The following may appear before a data cell is created, so after doing their actions, we look ahead with \LWR@getmynextoken to see if the next token might create a new data cell:

The optional parameter for \hline supports the tabls package.

```
    \LWR@traceinfo{LWR@@HTML@tabular: redefining macros}%
    \LetLtxMacro\noalign\LWR@tabularnoalign%
    \LetLtxMacro\hline\LWR@HTMLhline%
    \LetLtxMacro\cline\LWR@HTMLcline%

    \DeclareDocumentCommand{\hdashline}{o}{%
        \ifbool{FormatWP}%
            {\LWR@docdashline{1-\arabic{LWR@tabletotalLaTeXcols}}}%
            {\defaddtocounter{LWR@hdashedlines}{1}}%
        \LWR@getmynexttoken%
    }%

    \DeclareDocumentCommand{\cdashline}{m}{%
        \LWR@docdashline{##1}\LWR@getmynexttoken%
    }%

    \DeclareDocumentCommand{\firsthdashline}{o}{%
        \ifbool{FormatWP}%
            {\LWR@docdashline{1-\arabic{LWR@tabletotalLaTeXcols}}}%
            {\defaddtocounter{LWR@hdashedlines}{1}}%
        \LWR@getmynexttoken%
    }%

    \DeclareDocumentCommand{\lasthdashline}{o}{%
        \ifbool{FormatWP}%
            {\LWR@docdashline{1-\arabic{LWR@tabletotalLaTeXcols}}}%
            {\defaddtocounter{LWR@hdashedlines}{1}}%
        \LWR@getmynexttoken%
    }%
```

The following create data cells and will have no more data in this cell, so we do not want to look ahead for a possible data cell, so do not want to use \LWR@getmynexttoken.

```
    \renewcommand{\multicolumn}{\LWR@htmlmulticolumn}%
    \renewcommand*{\mrowcell}{%
        \LWR@maybenewtablerow%
        \LWR@tabularleftedge%
        \booltrue{LWR@skippingmrowcell}%
        \booltrue{LWR@foundmrowcell}%
    }%
    \renewcommand*{\mcolrowcell}{%
        \LWR@maybenewtablerow%
        \booltrue{LWR@skippingmcolrowcell}%
        \booltrue{LWR@foundmrowcell}%
    }%
    \LetLtxMacro\caption\LWR@longtabledatacaptiontag%
```

Reset for new processing:

```
    \boolfalse{LWR@tableparcell}%
    \boolfalse{LWR@skippingmrowcell}%
```

```
    \boolfalse{LWR@skippingmcolrowcell}%
    \boolfalse{LWR@skipatbang}%
    \boolfalse{LWR@emptyatbang}%
```

Set & for its special meaning inside the tabular:

```
    \StartDefiningTabulars%
    \protected\gdef&{\LWR@tabularampersand}%
```

Locally force any minipages to be fullwidth, until the end of the `tabular`:

```
    \booltrue{LWR@forceminipagefullwidth}%
```

Nest one level deeper of tabular paragraph handling:

```
    \addtocounter{LWR@tabularpardepth}{1}%
```

Look ahead for a possible table data cell:

```
    \LWR@traceinfo{LWR@@HTML@tabular: about to LWR@getmynexttoken}%
    \LWR@getmynexttoken%
}%
```

Ending the environment:

```
\newcommand*{\LWR@HTML@endtabular}
{%
    \LWR@traceinfo{LWR@HTML@endtabular}%
```

Unnest one level of tabular paragraph handling:

```
    \addtocounter{LWR@tabularpardepth}{-1}%
    \ifboolexpr{%
        test {%
            \ifnumcomp{\value{LWR@tableLaTeXcolindex}}{<}%
                {\value{LWR@tabletotalLaTeXcols}}
        } or %
        (%
            bool{LWR@intabularmetadata} and%
            not bool{LWR@tabularcelladded} and%
            test {%
                \ifnumcomp{\value{LWR@tableLaTeXcolindex}}{=}%
                    {\value{LWR@tabletotalLaTeXcols}}%
            }%
        )%
    }%
    {%
        \LWR@tabularfinishrow%
    }%
    {%
        \LWR@closetabledatacell%
    }%
    \LWR@htmlblocktag{/tr}%
```

xcolor row color support:

```
    \@rowc@lors%
```

```
    \LWR@htmlblocktag{/table}%
    \boolfalse{LWR@intabularmetadata}%
```

Unnest one level of tabular:

```
    \addtocounter{LWR@tabulardepth}{-1}%
```

Restore & to its usual meaning:

```
    \ifnumequal{\value{LWR@tabulardepth}}{0}{%
        \protected\gdef&{\LWR@origampmacro}%
        \StopDefiningTabulars%
    }{}%
```

Error if used `\multirow` or `\multicolumnrow` without using `\mrowcell` or `\mcolrowcell`.

```
    \ifbool{LWR@usedmultirow}{%
        \ifbool{LWR@foundmrowcell}%
            {\relax}%
            {%
                \PackageError{lwarp}%
                {%
             When using \protect\multirow, \protect\multicolumnrow,\MessageBreak
                    or the bigdelim package,\MessageBreak
             place \protect\mrowcell\space or \protect\mcolrowcell\MessageBreak
                    in empty cells which are to be skipped.\MessageBreak
                    See the Lwarp package documentation:\MessageBreak
                    "Special cases and limitations" -> "Tabular"
                }%
                {%
                    See the Lwarp package documentation:\MessageBreak
                    "Special cases and limitations" -> "Tabular".
                }%
            }%
    }{}%

    \LWR@traceinfo{LWR@HTML@endtabular finished}%
}

\csletcs{LWR@HTML@endtabular*}{LWR@HTML@endtabular}

\StopDefiningTabulars
```

siunitx may redefine `tabular`, so set the following later:

```
\AtBeginDocument{
    \LetLtxMacro\LWR@origendtabular\endtabular
    \csletcs{LWR@origendtabular*}{endtabular*}
    \LWR@formatted{@tabular}
    \LWR@formatted{endtabular}
    \LWR@formatted{endtabular*}
}

\end{warpHTML}
```

76 Cross-references

Sectioning commands have been emulated from scratch, so the cross-referencing commands are custom-written for them. Emulating both avoids several layers of patches.

File *_html.aux

A new entry in *_html.aux is used to remember section name, file, and lateximage depth and number for each label:

```
\newlabel{<labelname>@lwarp}{{<section name>}{<filename>}
                                    {<limagedepth>}{<limagenumber>}}
```

Table 16 shows the data structures related to cross-referencing.

for HTML output: 10357 \begin{warpHTML}

76.1 Setup

\@currentlabelname

To remember the most recently defined section name, description, or caption, for \nameref.

10358 \def\@currentlabelname{\linkhomename}%

\LWR@stripperiod {⟨*text*⟩} [⟨.⟩]

Removes a trailing period.

10359 \def\LWR@stripperiod#1.\ltx@empty#2\@nil{#1}%

\LWR@setlatestname {⟨*object name*⟩}

Removes \label, strips any final period, and remembers the result.

10360 \newcommand*{\LWR@setlatestname}[1]{%

Remove \label and other commands from the name, the strip any final period. See gettitlestring.

```
10361     \GetTitleStringExpand{#1}%
10362   \edef\@currentlabelname{\detokenize\expandafter{\GetTitleStringResult}}%
10363     \edef\@currentlabelname{%
10364         \expandafter\LWR@stripperiod\@currentlabelname%
10365         \ltx@empty.\ltx@empty\@nil%
10366     }%
10367 }
```

76.2 New lwarp labels.

File *_html.aux

A new entry in *_html.aux is used to remember section name, file, and lateximage depth and number for each label:

Table 16: Cross-referencing data structures

Original LaTeX: (print and HTML)

\refstepcounter: Steps the couunter and sets \@currentlabel.

\@currentlabel: \p@<ctr>\the<ctr> Updated by \refstepcounter.

\label: Writes to the .aux file:
\newlabel{<label>}{{\@currentlabel}{\thepage}}

\newlabel: When the .aux file is read, sets \r@<label>.

\r@<label>: Set to: {{\@currentlabel}{\thepage}}

\ref: Returns the first part of \r@<label>.

\pageref: Returns the second part of \r@<label>.

Added by lwarp: (HTML only)

\label: Adds HTML tags (section 76.3), and another .aux entry (section 76.2). If memoir is used, its \@mem@old@label points to lwarp's version, and cleveref patches.

\newlabel: Unchanged. When the .aux file is read, sets \r@<label>@lwarp.

\r@<label>@lwarp: Set to {{section_name}{file_name}{depth}{number}}:

\LWR@nameref: The section or object name for this label.

\LWR@currentautosecpageref: The LWR@currentautosecpage for this label.

\LWR@htmlfileref: The filenumber or name for this label.

\LWR@lateximagedepthref: The lateximagedepth for this label.

\LWR@lateximagenumberref: The lateximagenumber for this label.

\nameref: Emualted from hyperref for lwarp. See section 76.4.

\ref and \nameref: Adds HTML tags. See section 76.4.

Added by amsmath: (print and HTML)

\label: Execution is delayed until the math environment is completed.

\ltx@label: LaTeX \label, (HTML: patched by lwarp,) later patched by cleveref.

Added by cleveref: (print and HTML)

\refstepcounter: Added: sets \cref@currentlabel.

\cref@currentlabel: (<type>=<ctr> unless an alias is used):
[<type>][\arabic{<ctr>}][<parent ctrs>]{\p@<ctr>\the<ctr>} Also see section 60.4 for use with footnotes.

\label: Writes to the .aux file:
\newlabel{<label>@cref}{{\cref@currentlabel}{\thepage}}

\newlabel: Unchanged. When the .aux file is read, sets \r@<label>@cref.

\r@<label>@cref: Set to: {{\cref@currentlabel}{\thepage}}

Utility functions: See \cref@getlabel, \cref@gettype, \cref@getcounter, \cref@getprefix.

Cross-referencing names: \crefname and \Crefname assign human-readable names for references to this counter type.

Additionally patched by lwarp: (HTML only)

\cref, etc.: Modified for lwarp. See section 202.

\label inside math: See section 83.7.1.

Footnotes: See \noteentry in section 60.4.

```
\newlabel{<labelname>@lwarp}{{<section name>}{<filename>}
                                    {<limagedepth>}{<limagenumber>}}
```

See:
http://tex.stackexchange.com/questions/57194/extract-section-number-from-equation-reference

\LWR@setref {⟨*args list*⟩} {⟨*selector*⟩} {⟨*label*⟩}

\@setref without the \null (\hbox), and without the warning messages. Each caused problems with lwarp references. The regular reference will cause the warning.

```
\def\LWR@setref#1#2#3{%
  \ifx#1\relax%
    ??%
  \else%
   \expandafter#2#1%
  \fi}
```

\LWR@nameref {⟨*label*⟩} Returns the section name for this label:

```
\newcommand*{\LWR@nameref}[1]{%
    \begingroup%
    \LWR@nullifyfootnotes%
   \expandafter\LWR@setref\csname r@#1@lwarp\endcsname\LWR@firstoffive{#1}%
    \endgroup%
}
```

\LWR@currentautosecpageref {⟨*label*⟩} Returns the LWR@currentautosecpage for this label:

```
\newcommand*{\LWR@currentautosecpageref}[1]{%
   \expandafter\LWR@setref\csname r@#1@lwarp\endcsname\LWR@secondoffive{#1}%
}
```

\LWR@htmlfileref {⟨*label*⟩} Returns the file number or name for this label:

```
\newcommand*{\LWR@htmlfileref}[1]{%
   \expandafter\LWR@setref\csname r@#1@lwarp\endcsname\LWR@thirdoffive{#1}%
}
```

\LWR@lateximagedepthref {⟨*label*⟩} Returns the lateximagedepth for this label:

```
\newcommand*{\LWR@lateximagedepthref}[1]{%
   \expandafter\LWR@setref\csname r@#1@lwarp\endcsname\LWR@fourthoffive{#1}%
}
```

\LWR@lateximagenumberref {⟨*label*⟩} Returns the lateximagenumber for this label:

```
\newcommand*{\LWR@lateximagenumberref}[1]{%
   \expandafter\LWR@setref\csname r@#1@lwarp\endcsname\LWR@fifthoffive{#1}%
}
```

\LWR@write@lwarplabel {⟨*label*⟩} Sanitize the name and then creates the label:

```
\newcommand*{\LWR@write@lwarplabel}[1]{%
    \LWR@traceinfo{LWR@write@lwarplabel !#1!}%
    \LWR@setlatestname{\@currentlabelname}%
        \@bsphack%
        \protected@write\@auxout{}%
            {%
                \string\newlabel{#1@lwarp}{%
                    {\@currentlabelname}%
                    {\theLWR@currentautosecpage}%
                    {%
                        \ifbool{FileSectionNames}%
                            {\LWR@thisfilename}%
                            {\arabic{LWR@htmlfilenumber}}%
                    }%
                    {\arabic{LWR@lateximagedepth}}%
                    {\arabic{LWR@lateximagenumber}}%
                }%
            }%
        \@esphack%
}
```

76.3 Labels

\LWR@label@subcreatetag Creates the tag from \LWR@sanitized.

```
\newcommand*{\LWR@label@subcreatetag}{%
   \LWR@htmltag{a \LWR@print@mbox{id=\textquotedbl\LWR@sanitized\textquotedbl}}%
    \LWR@htmltag{/a}%
}
```

\LWR@label@inmathcomment

```
\newcommand*{\LWR@label@inmathcomment}{%
    \ifboolexpr{bool{mathjax} or ( bool{FormatWP} and bool{WPMarkMath} ) }%
    {%
```

The combined LaTeX & HTML label is printed in a \mbox field:

```
        \mbox{%
```

Shift the label over to the right side of the environment to avoid over-printing the math:

```
        \ifdef{\totwidth@}{\ifbool{LWR@amsmultline}{}{\hspace*{\totwidth@}}}{}%
```

Temporarily end the HTML comment, insert the LaTeX & HTML label, then resume the HTML comment. \@firstofone is required to remove extra braces introduced by the amsmath package.)

```
            \LWR@htmlclosecomment%
            \LWR@label@subcreatetag%
            \LWR@htmlopencomment%
        }% mbox
    }% mathjax
```

```
    {%
        \LWR@label@subcreatetag%
    }%
}
```

`\LWR@label@createtag` {⟨*label*⟩} Creates an HTML id tag.

Used by `\LWR@new@label` and `\hyperdef`.

`\detokenize` is used to allow underscores in the labels.

```
\newcommand*{\LWR@label@createtag}[1]{%
    \LWR@traceinfo{LWR@label@createtag !#1!}%
```

Create an HTML id tag unless are inside a lateximage, since it would appear in the image:

```
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
    {}%
    {% not lateximage
```

If not doing a lateximage, create an HTML ID tag.

```
        \LWR@sanitize{#1}%
        \ifbool{LWR@insidemathcomment}%
        {% inside HTML math comment
            \LWR@label@inmathcomment%
        }% inside HTML math comment
        {% not inside HTML math comment
            \ifbool{LWR@doingstartpars}%
            {% pars allowed
                \ifbool{LWR@doingapar}%
                {% par started
                    \LWR@label@subcreatetag%
                }% par started
                {% par not started
                    \LWR@stoppars%
                    \LWR@label@subcreatetag%
                    \LWR@startpars%
                }% par not started
            }% pars allowed
            {% pars not allowed
                    \LWR@label@subcreatetag%
            }% pars not allowed
        }% not inside HTML math comment
    }% not lateximage
}
```

`\LWR@new@label` {⟨*label*⟩}

`\label` during HTML output when not in SVG math mode, removing extra spaces around the label, as done by a regular LaTeX `\label`.

The is also used during a `lateximage`, including SVG math, since the special label handling is required, but `\LWR@label@createtag` does not generate HTML tags inside a `lateximage`.

If memoir is used, it's `\@mem@old@label` is pointed here.

clevereref later encases this to add its own cross-referencing, and also patches memoir.

```
\newcommand*{\LWR@new@label}[1]{%
    \LWR@traceinfo{LWR@new@label: starting}%
    \LWR@traceinfo{LWR@new@label: !#1!}%
% \@bsphack%
```

Create a traditional LaTeX label, as modified by cleveref:

```
    \LWR@orig@label{#1}%
```

Create a special label which holds the section number, section name, `LWR@htmlfilenumber`, `LWR@lateximagedepth`, and `LWR@lateximagenumber`:

```
    \LWR@traceinfo{%
        LWR@new@label: filesectionnames is %
        \ifbool{FileSectionNames}{true}{false}%
    }%
    \LWR@traceinfo{%
        LWR@new@label: LWR@thisfilename is !\LWR@thisfilename!%
    }%
    \LWR@traceinfo{%
        LWR@new@label: LWR@htmlfilenumber is \arabic{LWR@htmlfilenumber}%
    }%
    \LWR@write@lwarplabel{#1}%
    \LWR@label@createtag{#1}%
    % \@esphack%
    \LWR@traceinfo{LWR@new@label: done}%
}
```

76.4 References

`\LWR@addlinktitle`

```
\newcommand*{\LWR@addlinktitle}{%
    \ifdefvoid{\LWR@ThisAltText}{}{ % space
        title=\textquotedbl\LWR@ThisAltText\textquotedbl\ % space
        \gdef\LWR@ThisAltText{}%
    }%
}
```

`\LWR@startref` {⟨*label*⟩} (Common code for `\ref` and `\nameref`.)

Open an HTML tag reference to a filename, # character, and a label.

```
\newcommand*{\LWR@startref}[1]
{%
    \LWR@sanitize{#1}%
    \LWR@traceinfo{LWR@startref A: !#1!}%
```

Create the filename part of the link:

```
    \LWR@htmltag{a href=\textquotedbl%
    \LWR@traceinfo{LWR@startref B}%
```

```
    \LWR@print@mbox{\LWR@htmlrefsectionfilename{#1}}%
    \LWR@traceinfo{LWR@startref C}%
    \LWR@origpound%
```

Create the destination id:

See if `LWR@lateximagedepth` is unknown:

```
    \LWR@traceinfo{LWR@startref D: !#1!}%
    \ifcsundef{r@#1@lwarp}%
```

"??" if `LWR@lateximagedepth` is unknown, so create a link with an unknown destination:

```
    {%
        \LWR@traceinfo{LWR@startref D0: ??}%
        ??%
    }%
```

If `LWR@lateximagedepth` is known. Use a lateximage if the depth is greater than zero, or a regular link otherwise:

```
    {%
        \ifthenelse{\cnttest{\LWR@lateximagedepthref{#1}}{>}{0}}%
            {%

                lateximage-\BaseJobname-\LWR@lateximagenumberref{#1}%
            }%
            {%
                \LWR@traceinfo{LWR@startref D3}%
```

`\detokenize` is used to allow underscores in the labels:

```
                \LWR@print@mbox{\LWR@sanitized}%
            }%
    }%
    \LWR@traceinfo{LWR@startref E}%
```

Closing quote:

```
    \textquotedbl%
```

Maybe add a title:

```
    \LWR@addlinktitle%
    }%
    \LWR@traceinfo{LWR@startref F}%
}
```

`\LWR@subnewref` {⟨*label*⟩} {⟨*label or sub@label*⟩}

Factored for the subfig package. Uses the original label for the hyper-reference, but prints its own text, such as "`1(b)`".

```
\NewDocumentCommand{\LWR@subnewref}{m m}{%
    \LWR@traceinfo{LWR@subnewref #1 #2}%
    \LWR@startref{#1}%
```

```
    \LWR@print@ref{#2}%
    \LWR@htmltag{/a}%
}
```

`\ref` * {⟨*label*⟩}

`\ref` is redefined to `\LWR@HTML@ref`, except inside the text part of a `\hyperref`, where it is redefined to `\LWR@ref@ignorestar`.

`\LWR@HTML@ref` * {⟨*label*⟩} Create an internal document reference link, or without a link if starred per hyperref.

hyperref defines a starred version. Since hyperref is only emulated, the starred version is defined here for print mode, in case `\ref` is used inside SVG math:

```
\LWR@absorbstar{ref}%
```

The HTML version:

```
\NewDocumentCommand{\LWR@HTML@ref}{s m}{%
    \LWR@traceinfo{LWR@HTML@ref !#2!}%
    \IfBooleanTF{#1}%
        {\LWR@print@ref{#2}}%
        {\LWR@subnewref{#2}{#2}}%
}

\LWR@formatted{ref}
```

`\LWR@refwithsection` * {⟨*label*⟩}

Creates a reference, using the section number as the text. Used for back references.

```
\NewDocumentCommand{\LWR@refwithsection}{s m}{%
    \LWR@traceinfo{LWR@refwithsection !#2!}%
```

If starred, just use the text without a hyperlink:

```
    \IfBooleanTF{#1}%
     {\LWR@print@ref{\BaseJobname-autopage-\LWR@currentautosecpageref{#2}}}%
        {%
```

Open the reference:

```
            \LWR@startref{#2}%
```

Add the text of the link.

Check for and handle an undefined reference:

```
            \edef\@tempa{\LWR@currentautosecpageref{#2}}%
            \ifdefstring{\@tempa}{??}%
                {??}%
```

For a defined reference:

```
                {%
```

Set \@tempa to \r@<label>, which is {section number}{page number}.

```
\edef\@tempa{%
    \csname
r@\BaseJobname-autopage-\LWR@currentautosecpageref{#2}%
    \endcsname%
}%
```

Check the section number alone:

```
\edef\@tempa{\expandafter\@firstoftwo\@tempa}%
```

If the reference has no section number print an asterisk:

```
\expandafter\ifblank\expandafter{\@tempa}%
    {*}
```

If there is a section number, print it:

```
    {%
        \LWR@print@ref{%
  \BaseJobname-autopage-\LWR@currentautosecpageref{#2}%
        }%
    }%
}%
```

Close the reference:

```
        \LWR@htmltag{/a}%
    }%
}
```

For MathJax:

```
\CustomizeMathJax{\let\LWRref\ref}
\CustomizeMathJax{\renewcommand{\ref}{\ifstar\LWRref\LWRref}}
```

\pagerefPageFor Text for page references.

```
\newcommand*{\pagerefPageFor}{see }
```

\pageref * {⟨*label*⟩} Create an internal document reference, or just the unlinked number if starred, per hyperref.

```
\NewDocumentCommand{\LWR@new@pageref}{s m}{%
    \IfBooleanTF{#1}%
        {(\pagerefPageFor\LWR@print@ref{#2})}%
        {(\cpageref{#2})}%
}
```

\nameref {⟨*label*⟩}

```
\newrobustcmd*{\nameref}[1]{%
    \LWR@traceinfo{nameref}%
```

```
    \LWR@startref{#1}%
    \LWR@traceinfo{nameref B}%
    \LWR@nameref{#1}%
    \LWR@traceinfo{nameref C}%
    \LWR@htmltag{/a}%
    \LWR@traceinfo{nameref: done}%
}
```

`\Nameref` {⟨*label*⟩} In print, adds the page number. In HTML, does not.

```
\LetLtxMacro\Nameref\nameref
```

76.5 Hyper-references



Note that the code currently only sanitizes the underscore character. Additional characters should be rendered inert as well. See the `hyperref.sty` definition of `\gdef\hyper@normalise` for an example.

Pkg `hyperref`



Do not tell other packages that hyperref is emulated. Some packages patch various commands if hyperref is present, which will probably break something, and the emulation already handles whatever may be emulated anyhow.

```
% DO NOT TELL OTHER PACKAGES TO ASSUME HYPERREF, lest they attempt to patch it:
% \EmulatesPackage{hyperref}[2015/08/01]% Disabled.  Do not do this.
```

Emulates hyperref:

`\@currentHref` Added to support backref.

```
\AtBeginDocument{
    \def\@currentHref{\BaseJobname-autopage-\theLWR@previousautopagelabel}%
}
```

`\LWR@linkcatcodes` Sets catcodes before processing macros which have hyperlinks as arguments.

```
\newcommand*{\LWR@linkcatcodes}{%
    \catcode`\#=12%
    \catcode`\%=12%
    \catcode`\&=12%
    \catcode`\~=12%
    \catcode`\_=12%
```

For babel-french:

```
    \LWR@hook@processingtags%
}
```

`\LWR@linkmediacatcodes` Sets catcodes before processing macros which have hyperlinks as arguments. Modified for multimedia links.

```
\newcommand*{\LWR@linkmediacatcodes}{%
    \catcode`\#=12%
```

```
    \catcode`\%=12%
% \catcode`\&=12% left alone for splitting flash variables
    \catcode`\~=12%
    \catcode`\_=12%
```

For babel-french:

```
    \LWR@hook@processingtags%
}
```

`\LWR@subhyperref` {⟨*URL*⟩}

Starts a link for `\LWR@hrefb`. A group must have been opened first, with nullified catcodes. The text name is printed afterwards, after the group is closed and catcodes restored.

```
\NewDocumentCommand{\LWR@subhyperref}{m}{%
    \LWR@traceinfo{LWR@subhyperref !#1!}%
    \LWR@sanitize{#1}%
    \LWR@htmltag{%
        a href=\textquotedbl\LWR@sanitized\textquotedbl\ % space
        \LWR@addlinktitle % space
        target=\textquotedbl\_{}blank\textquotedbl\ % space
    }%
}
```

`\LWR@subhyperreftext` {⟨*text*⟩}

Finishes the hyperref for `\LWR@hrefb`. Catcodes must have been restored already. To be used after `\LWR@subhyperref`, and after its group has been closed.

```
\newcommand{\LWR@subhyperreftext}[1]{%
    #1%
    \LWR@htmltag{/a}%
    \LWR@ensuredoingapar%
}
```

`\LWR@subhyperrefclass` {⟨*URL*⟩} {⟨*text*⟩} {⟨*htmlclass*⟩}

```
\NewDocumentCommand{\LWR@subhyperrefclass}{m +m m}{%
    \LWR@htmltag{%
        a % space
      href=\textquotedbl\begingroup\@sanitize#1\endgroup\textquotedbl\ % space
        class=\textquotedbl#3\textquotedbl\ % space
        \LWR@addlinktitle % space
    }\LWR@orignewline%
    #2%
    \LWR@htmltag{/a}%
    \LWR@ensuredoingapar%
}
```

`\LWR@href` [⟨*options*⟩] {⟨*URL*⟩} {⟨*text*⟩}

Create a link with accompanying text:

```
\DeclareDocumentCommand{\LWR@hrefb}{O{} m}{%
```

```
    \LWR@ensuredoingapar%
    \LWR@subhyperref{#2}%
    \endgroup% restore catcodes
    \LWR@subhyperreftext%
}

\newrobustcmd*{\LWR@href}{%
    \begingroup%
    \LWR@linkcatcodes%
    \LWR@hrefb%
}
```

`\LWR@nolinkurl` {⟨*URL*⟩}

Print the name of the link without creating the link:

```
\newcommand*{\LWR@nolinkurlb}[1]{%
    \LWR@ensuredoingapar%
    \def\LWR@templink{#1}%
    \@onelevel@sanitize\LWR@templink%
    \LWR@templink%
    \endgroup%
}

\newrobustcmd*{\LWR@nolinkurl}{%
    \begingroup%
    \LWR@linkcatcodes%
    \LWR@nolinkurlb%
}
```

`\LWR@url` {⟨*URL*⟩}

Create a link whose text name is the address of the link.

The url package may redefine `\url`, so it is `\let` to `\LWR@urla`here and also redefined by lwarp-url.

```
\DeclareDocumentCommand{\LWR@urlb}{m}{%
    \LWR@ensuredoingapar%
    \def\LWR@templink{#1}%
    \@onelevel@sanitize\LWR@templink%
    \LWR@href{\LWR@templink}{\LWR@templink}%
    \endgroup%
}

\newrobustcmd*{\LWR@url}{%
    \begingroup%
    \LWR@linkcatcodes%
    \LWR@urlb%
}
```

`\LWR@subinlineimage` {⟨*1:* <alt> *tag*⟩} {⟨*2: class*⟩} {⟨*3: filename*⟩} {⟨*4: extension*⟩} {⟨*5: css style*⟩} {⟨*6: aria role*⟩}

Factored from `lateximage`.

```
\newcommand*{\LWR@subinlineimage}[6]{%
    \ifblank{#6}%
```

```
        {\renewcommand*{\LWR@tempone}{}%
        {\renewcommand*{\LWR@tempone}{role="#6"\LWR@indentHTML}}%
    \ifblank{#1}%
    {%
        \LWR@htmltag{img \LWR@indentHTML
            src=\textquotedbl#3.#4\textquotedbl \LWR@indentHTML
            alt=\textquotedbl#3\textquotedbl \LWR@indentHTML
            \LWR@tempone
            style=\textquotedbl#5\textquotedbl \LWR@indentHTML
            class=\textquotedbl#2\textquotedbl \LWR@orignewline
        }%
    }%
    {%
        \LWR@htmltag{img \LWR@indentHTML
            src=\textquotedbl#3.#4\textquotedbl \LWR@indentHTML
            alt=\textquotedbl#1\textquotedbl \LWR@indentHTML
            \LWR@tempone
            style=\textquotedbl#5\textquotedbl \LWR@indentHTML
            class=\textquotedbl#2\textquotedbl \LWR@orignewline
        }%
    }%
}

\end{warpHTML}
```

Table 17: Float data structures

For each <type> of float (figure, table, etc.) there exists the following:

counter <type>: A counter called <type>, such as `figure`, `table`.

\<type>name: Name. `\figurename` prints "Figure", etc.

\ext@<type>: File extension. `\ext@figure` prints "lof", etc.

\fps@<type>: Placement.

\the<type>: Number. `\thetable` prints the number of the table, etc.

\p@<type>: Parent's number. Prints the number of the [within] figure, etc.

\fnum@<type>: Prints the figure number for the caption.
`\<type>name \the<type>`, "Figure 123".

\<type>: Starts the float environment. `\figure` or `\begin{figure}`

\end<type>: Ends the float environment. `\endfigure` or `\end{figure}`

\tf@<ext>: The LaTeX file identifier for the output file.

LWR@have<type>: A boolean remembering whether a `\listof` was requested for a float of this type.

File with extension lo<f,t,a-z>: An output file containing the commands to build the `\listof<type>` "table-of-contents" structure.

Cross-referencing names: For cleveref's `\cref` and related, `\crefname` and `\Crefname` assign human-readable names for references to this float type.

77 Floats

Floats are supported, although partially through emulation.

Table 17 shows the data structure associated with each <type> of float.

77.1 Float environment

for HTML output:
```
\begin{warpHTML}
```

`\LWR@floatbegin` `{`⟨*type*⟩`}` `[`⟨*placement*⟩`]` Begins a `\newfloat` environment.

```
\NewDocumentCommand{\LWR@floatbegin}{m o}{%
```

Warn if starting a float inside a :

```
    \LWR@spanwarninvalid{float}%

    \ifbool{FormatWP}{\newline}{}%
    \LWR@stoppars%
```

There is a new float, so increment the unique float counter:

```
    \addtocounter{LWR@thisautoid}{1}%
    \booltrue{LWR@freezethisautoid}%

    \begingroup%
```

Settings while inside the environment:

```
    \LWR@print@raggedright%
```

Open an HTML `figure` tag. The figure is assigned a `class` equal to its type, and another class according to the float package style, if used. Note that `\csuse` returns an empty string if `\LWR@floatstyle@<type>` is not defined.

```
    \LWR@htmltag{%
        figure id=\textquotedbl%
            \LWR@print@mbox{autoid-\arabic{LWR@thisautoid}}%
        \textquotedbl\ % space
        class=\textquotedbl#1 \@nameuse{LWR@floatstyle@#1}\textquotedbl%
    }%
    \ifbool{FormatWP}{%
        \LWR@orignewline%
        \LWR@BlockClassWP{}{}{wp#1}%
    }{}%
```

Update the caption type:

```
    \renewcommand*{\@captype}{#1}%
```

Mark the float for a word processor conversion:

```
    \LWR@startpars%
    \ifboolexpr{bool{FormatWP} and bool{WPMarkFloats}}{%

    === begin #1 ===

    }{}%
```

After each `\LWR@floatbegin`, look for `\centering`, etc next, using `\LWR@floatalignment`.

```
}
```

For koma-script. The following does not work for tables.

```
\AtBeginDocument{

\IfPackageLoadedTF{tocbasic}{

\appto\figure@atbegin{%
    \LWR@futurenonspacelet\LWR@mynexttoken\LWR@floatalignment%
}

}{}% tocbasic

}% AtBeginDocument
```

\@xfloat
\@xdlbfloat

Support packages which create floats directly.

Look for \centering, etc using \LWR@floatalignment.

```
\AtBeginDocument{
    \def\@xfloat #1[#2]{%
        \LWR@floatbegin{#1}[#2]
        \LWR@futurenonspacelet\LWR@mynexttoken\LWR@floatalignment%
    }
    \def\@xdblfloat #1[#2]{%
        \LWR@floatbegin{#1}[#2]
        \LWR@futurenonspacelet\LWR@mynexttoken\LWR@floatalignment%
    }
}
```

\LWR@floatend

Ends a \newfloat environment.

```
\newcommand*{\LWR@floatend}{%
```

If saw a \centering, finish the center environment:

```
    \LWR@endfloatalignment%
```

Mark the float end for a word processor conversion:

```
    \ifboolexpr{bool{FormatWP} and bool{WPMarkFloats}}{%

    === end ===

    }{}%
    \LWR@stoppars%
```

Close an HTML figure tag:

```
    \ifbool{FormatWP}{\endLWR@BlockClassWP}{}%
    \LWR@htmlelementend{figure}%
    \endgroup%
    \boolfalse{LWR@freezethisautoid}%
    \LWR@startpars%
    \ifbool{FormatWP}{\newline}{}%
}
```

\end@float
\end@dlbfloat

Support packages which create floats directly.

```
\AtBeginDocument{
    \let\end@float\LWR@floatend
    \let\end@dblfloat\LWR@floatend
}
```

77.2 Float tracking

Ctr LWR@thisautoid

A sequential counter for all floats and theorems. This is used to identify the float or theorem then reference it from the List of Figures and List of Tables.

```
\newcounter{LWR@thisautoid}
```

Ctr LWR@thisautoidWP — A sequential counter for all word processor conversion s. This is used to convince LibreOffice to form a frame around this element.

```
\newcounter{LWR@thisautoidWP}
```

Bool LWR@freezethisautoid — Prevents multiple increments of \LWR@thisautoid inside a float.

```
\newbool{LWR@freezethisautoid}
\boolfalse{LWR@freezethisautoid}
```

\LWR@forcenewautoidanchor — Adds a new <autoid> anchor.

```
\newcommand*{\LWR@forcenewautoidanchor}{%
    \addtocounter{LWR@thisautoid}{1}%
    \ifbool{LWR@doingapar}%
    {%
        \LWR@htmltag{a id=\textquotedbl%
            \LWR@print@mbox{autoid-\arabic{LWR@thisautoid}}%
            \textquotedbl\ }% space
        \LWR@htmltag{/a }%
    }%
    {%
        \LWR@stoppars%
        \LWR@htmltag{a id=\textquotedbl%
            \LWR@print@mbox{autoid-\arabic{LWR@thisautoid}}%
        \textquotedbl\ }% space
        \LWR@htmltag{/a }%
        \LWR@startpars%
    }%
}
```

\LWR@newautoidanchor — Sometimes adds a new <autoid> anchor.

```
\newcommand*{\LWR@newautoidanchor}{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {}%
        {\ifbool{LWR@freezethisautoid}{}{\LWR@forcenewautoidanchor}}%
}
```

\@captype — Remembers which float type is in use.

```
\newcommand*{\@captype}{}
```

\LWR@floatalignmentname — Set to center, flushleft, or flushright if saw \centering, \raggedright, or \raggedleft.

```
\newcommand*{\LWR@floatalignmentname}{}
```

\LWR@floatalignment — If sees a \centering, \raggedleft, or \raggedright, creates a center, flushright, or flushleft environment.

```
\newcommand*{\LWR@floatalignment}{%
    \ifdefstrequal{\LWR@mynexttoken}{\centering}{%
        \center%
        \renewcommand*{\LWR@floatalignmentname}{center}%
    }{}%
```

```
    \ifdefstrequal{\LWR@mynexttoken}{\raggedright}{%
        \flushleft%
        \renewcommand*{\LWR@floatalignmentname}{flushleft}%
    }{}%
    \ifdefstrequal{\LWR@mynexttoken}{\raggedleft}{%
        \flushright%
        \renewcommand*{\LWR@floatalignmentname}{flushright}%
    }{}%
}
```

`\LWR@endfloatalignment` Closes an environment from `\LWR@floatalignment`.

```
\newcommand*{\LWR@endfloatalignment}{%
    \ifdefvoid{\LWR@floatalignmentname}%
        {}%
        {\@nameuse{end\LWR@floatalignmentname}}%
    \renewcommand*{\LWR@floatalignmentname}{}%
}
```

77.3 Caption inside a float environment

`\CaptionSeparator` How to separate the float number and the caption text, if not defined by the user. In most cases, caption's settings are used instead.

```
\AtBeginDocument{\providecommand*{\CaptionSeparator}{:~}}
```

`\@caption` {⟨*posn*⟩} [⟨*name*⟩] {⟨*long name*⟩}

`\@makecaption` {⟨*name and num*⟩} {⟨*text*⟩}

Prints the float type and number, the caption separator, and the caption text.

`\@caption` is provided here in case caption is not loaded, and is based on the nameref package.

```
\AtBeginDocument{
    \IfPackageLoadedTF{caption}{}{
        \let\LWR@orig@caption\@caption%
        \long\def\@caption#1[#2]{%
```

Warn if using a caption inside a :

```
            \LWR@spanwarnformat{caption}%

            \LWR@setlatestname{#2}%
            \LWR@orig@caption{#1}[{#2}]% also takes third argument
        }%

        \renewcommand{\@makecaption}[2]{%
            \LWR@traceinfo{@makecaption}%
            \caption@begin{\@captype}%
            \LWR@isolate{#1}%
            \edef\LWR@tempone{#1}%
            \ifdefvoid{\LWR@tempone}{}{\CaptionSeparator}%
            \LWR@isolate{#2}%
```

```
10818             \caption@end%
10819             \LWR@traceinfo{@makecaption: done}%
10820         }%
10821     }
10822 }
```

77.4 Caption and LOF linking and tracking

When a new HTML file is marked in the LaTeX PDF file, or at the start of a new section, the LaTeX PDF page number at that point is stored in `LWR@currentautosecfloatpage`, (and the associated filename is remembered by the special LaTeX labels). This page number is used to generate an `autopage` HTML `<id>` in the HTML output at the start of the new HTML file or section. Meanwhile, there is a float counter used to generate an HTML `autoid` `<id>` at the start of the float itself in the HTML file. The `autopage` and `autoid` values to use for each float are written to the `.lof`, etc. files just before each float's entry. These values are used by `\l@figure`, etc. to create the HTML links in the List of Figures, etc.

Ctr `LWR@nextautoid`

Ctr `LWR@nextautopage`

Tracks `autoid` for floats. Tracks `autopage` for floats.

These are updated per float as the `.lof`, `.lot` file is read.

```
10823 \newcounter{LWR@nextautoid}
10824 \newcounter{LWR@nextautopage}
```

`\LWRsetnextfloat` {⟨*autopage*⟩} {⟨*float autoid*⟩}

File `*_html.lof`

File `*_html.lot`

This is written to the `*_html.lof` or `*_html.lot` file just before each float's usual entry. The `autopage` and the float's `autoid` are remembered for `\l@figure` to use when creating the HTML links.

```
10825 \newcommand*{\LWRsetnextfloat}[2]{%
10826     \setcounter{LWR@nextautopage}{#1}%
10827     \setcounter{LWR@nextautoid}{#2}%
10828 }
```

Env `LWR@figcaption`

An HTML `<figcaption>` is not allowed in places where LaTeX does allow a figure caption, such as inside a `longtable` where the tabular has already started, or inside a `center` environment. Therefore, a `<div>` of class `figurecaption` is used instead.

```
10829 \newenvironment*{LWR@figcaption}
10830     {%
10831         \ifbool{FormatWP}{%
10832             \BlockClass[font-style:italic]{figurecaption}%
10833         }{%
10834             \BlockClass{figurecaption}%
10835         }%
```

Inside the caption, temporarily prevent underfull `\hbox` warnings, such as when the caption contains a math SVG image.

```
10836             \hbadness=10000\relax%
10837     }%
10838     {\endBlockClass}
```

\LWR@HTML@caption@begin {⟨*type*⟩}

Low-level code to create HTML tags for captions.

The print versions are from the caption package, if loaded.

```
\newcommand*{\LWR@HTML@caption@begin}[1]
{%
    \LWR@traceinfo{LWR@HTML@caption@begin}%
```

Keep par and minipage changes local:

```
    \begingroup%
```

No need for a minipage or \parbox inside the caption:

```
    \RenewDocumentEnvironment{minipage}{O{t} o O{t} m}{}{}%
    \RenewDocumentCommand{\parbox}{O{t} O{} O{t} m +m}{##5}%
```

Enclose the original caption code inside an HTML tag:

```
    \LWR@figcaption%
    \LWR@traceinfo{LWR@HTML@caption@begin: about to LWR@origcaption@begin}%
    \LWR@print@caption@begin{#1}%
    \LWR@traceinfo{LWR@HTML@caption@begin: done}%
}
```

\LWR@HTML@caption@end Low-level patches to create HTML tags for captions.

```
\newcommand*{\LWR@HTML@caption@end}
{%
    \LWR@traceinfo{LWR@HTML@caption@end}%
    \LWR@print@caption@end%
```

Closing tag:

```
    \endLWR@figcaption%
    \endgroup%
    % \leavevmode% avoid bad space factor (0) error
    \LWR@traceinfo{LWR@HTML@caption@end: done}%
}
```

\caption@begin
\caption@end

Low-level patches to create HTML tags for captions. These are assigned \AtBeginDocument so that other packages which modify captions will have already been loaded before saving the print-mode version.

Print versions are provided here in case caption is not loaded.

```
\AtBeginDocument{
    \providecommand{\caption@begin}[1]{}
    \LWR@formatted{caption@begin}

    \providecommand{\caption@end}{}
    \LWR@formatted{caption@end}
}
```

\captionlistentry Tracks the float number for this caption used outside a float. Patched to create an HTML anchor.

```
\AtBeginDocument{%
\IfPackageLoadedTF{caption}{
    \let\LWR@origcaptionlistentry\captionlistentry

    \renewcommand*{\captionlistentry}{%
        \LWR@ensuredoingapar%
        \LWR@origcaptionlistentry%
    }

    \def\LWR@LTcaptionlistentry{%
        \LWR@ensuredoingapar%
        \LWR@forcenewautoidanchor%
        \bgroup%
        \@ifstar{\egroup\LWR@LT@captionlistentry}% gobble *
            {\egroup\LWR@LT@captionlistentry}%
    }%

    \def\LWR@LT@captionlistentry#1{%
        \caption@listentry\@firstoftwo[\LTcaptype]{#1}%
    }%
}% caption loaded
{% caption not loaded
    \newcommand{\captionlistentry}[2][]{}%
    \newcommand{\LWR@LT@captionlistentry}[2][]{}%
}
}% AtBeginDocument
```

\addcontentsline Patched to write the autopage and autoid before each float's entry. No changes if writing .toc For a theorem, automatically defines \ext@<type> as needed, to mimic and reuse the float mechanism.

f

```
\let\LWR@origaddcontentsline\addcontentsline

\renewcommand*{\addcontentsline}[3]{%
    \ifstrequal{#1}{toc}{}{% not TOC

    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {}%
        {\LWR@newautoidanchor}%

        \ifcsvoid{ext@#2}{\csdef{ext@#2}{#1}}{}%

        \addtocontents{\@nameuse{ext@#2}}{%
            \protect\LWRsetnextfloat%
            {\arabic{LWR@currentautosecfloatpage}}%
            {\arabic{LWR@thisautoid}}%
        }%
    }% not TOC
    \LWR@origaddcontentsline{#1}{#2}{#3}%
}
```

Pkg capt-of
Pkg caption

Either package provides \captionof, which is later patched at the beginning of

the document.

\captionof Patched to handle paragraph tags.

```
\RequirePackage{capt-of}

\AtBeginDocument{
    \let\LWR@origcaptionof\captionof

    \renewcommand*{\captionof}{%
        \LWR@stoppars%
        \LWR@origcaptionof%
    }
}% AtBeginDocument
```

```
\end{warpHTML}
```

78 Table of Contents, LOF, LOT

This section controls the generation of the TOC, LOF, and LOT.

The `.toc`, `.lof`, and `.lot` files are named by the source code `\jobname`.

In HTML, the printed tables are placed inside a `<div>` of class `toc`, `lof`, or `lot`.

A "sidetoc" is provided which prints a subset of the TOC on the side of each page other than the homepage.

The regular LaTeX infrastructure is used for TOC, along with some patches to generate HTML output.

for HTML output:

```
\begin{warpHTML}
```

78.1 Reading and printing the TOC

\LWR@myshorttoc {⟨*toc/lof/lot/sidetoc*⟩}

Reads in and prints the TOC/LOF/LOT at the current position. While doing so, makes the `@` character into a normal letter to allow formatting commands in the section names.

Unlike in regular LaTeX, the file is not reset after being read, since the sideTOC may be referred to again in each HTML page.

```
\newcommand*{\LWR@myshorttoc}[1]{%
    \LWR@traceinfo{LWR@myshorttoc: #1}%
```

Only if the file exists:

```
    \IfFileExists{\jobname.#1}{%
        \LWR@traceinfo{LWR@myshorttoc: loading}%
```

⚠ Many of the commands in the file will have `@` characters in them, so `@` must be

made a regular letter.

```
        \begingroup%
        \makeatletter%
```

Disable CJK xpinyin while generating the sideTOC.

```
        \LWR@disablepinyin%
```

Read in the TOC file:

```
        \@input{\jobname.#1}%
        \endgroup%
    }%
    {}%
    \LWR@traceinfo{LWR@myshorttoc: done}%
}
```

`\LWR@subtableofcontents` {⟨*toc/lof/lot*⟩} {⟨*sectionstarname*⟩}

Places a TOC/LOF/LOT at the current position.

```
\NewDocumentCommand{\LWR@subtableofcontents}{m m}{%
```

Closes previous levels:

```
    \@ifundefined{chapter}%
        {\LWR@closeprevious{section}}%
        {\LWR@closeprevious{chapter}}%
```

Prints any pending footnotes so that they appear above the potentially large TOC:

```
    \LWR@printpendingfootnotes%
```

Place the list into its own chapter (if defined) or section:

```
    \@ifundefined{chapter}{\section*{#2}}{\chapter*{#2}}%
```

Create a new HTML nav containing the TOC/LOF/LOT:

```
    \LWR@htmlelementclass{nav}{#1}%
```

Create the actual list:

```
    \LWR@myshorttoc{#1}%
```

Close the nav:

```
    \LWR@htmlelementclassend{nav}{#1}%
}
```

`\@starttoc` {⟨*ext*⟩}

Patch `\@starttoc` to encapsulate the TOC inside HTML tags:

```
\let\LWR@orig@starttoc\@starttoc
```

```
10943
10944 \renewcommand{\@starttoc}[1]{
10945     \LWR@htmlelementclass{nav}{#1}%
10946     \LWR@orig@starttoc{#1}%
10947     \LWR@htmlelementclassend{nav}{#1}%
10948 }
```

Bool `LWR@copiedsidetoc` Used to only copy the TOC file to the sidetoc a single time.

(listings and perhaps other packages would re-use `\tableofcontents` for their own purposes, causing the sidetoc to be copied more than once, and thus end up empty.)

```
10949 \newbool{LWR@copiedsidetoc}
10950 \boolfalse{LWR@copiedsidetoc}
```

`\tableofcontents` Patch `\tableofcontents`, etc. to print footnotes first. newfloat uses `\listoffigures` for all future float types.

```
10951 \AtBeginDocument{
10952
10953 \let\LWR@origtableofcontents\tableofcontents
10954
10955 \renewcommand*{\tableofcontents}{%
```

Do not print the table of contents if formatting for a word processor, which will presumably auto-generate its own updated table of contents:

```
10956     \ifboolexpr{bool{FormatWP} and bool{WPMarkTOC}}{
10957
10958     === table of contents ===
10959
10960     }
10961     {
```

Copy the `.toc` file to `.sidetoc` for printing the sideTOC. The original `.toc` file is renewed when `\tableofcontents` is finished.

```
10962         \ifbool{LWR@copiedsidetoc}{}{%
10963             \LWR@copyfile{\jobname.toc}{\jobname.sidetoc}%
10964             \booltrue{LWR@copiedsidetoc}%
10965         }%
10966         \LWR@printpendingfootnotes
10967         \LWR@origtableofcontents
10968     }
10969 }% \tableofcontents
10970
10971 }% AtBeginDocument
```

`\listoffigures`

```
10972 \let\LWR@origlistoffigures\listoffigures
10973
10974 \renewcommand*{\listoffigures}{
10975     \ifboolexpr{bool{FormatWP} and bool{WPMarkLOFT}}{
10976
10977     === list of figures ===
```

```
    }
    {
        \LWR@printpendingfootnotes
        \LWR@origlistoffigures
    }
}
```

\listoftables

```
\let\LWR@origlistoftables\listoftables

\renewcommand*{\listoftables}{
    \ifboolexpr{bool{FormatWP} and bool{WPMarkLOFT}}{

    === list of tables ===

    }
    {
        \LWR@printpendingfootnotes
        \LWR@origlistoftables
    }
}
```

78.2 TOC commands

\LWR@listof {⟨*type*⟩} {⟨*title*⟩}

Emulate the \listof command from the float package (section 276). Used to create lists of custom float types. Also used to redefine the standard LaTeX \listoffigures and \listoftables commands, and in tocloft and memoir.

```
\NewDocumentCommand{\LWR@listof}{m +m}{%
    \@ifundefined{l@#1}{%
      \csdef{l@#1}##1##2{\hypertocfloat{1}{#1}{\@nameuse{ext@#1}}{##1}{##2}}%
    }{}%
    \LWR@subtableofcontents{\@nameuse{ext@#1}}{#2}%
    \expandafter\newwrite\csname tf@\csname ext@#1\endcsname\endcsname%
    \immediate\openout \csname tf@\csname ext@#1\endcsname\endcsname%
        \jobname.\@nameuse{ext@#1}\relax%
}
```

78.3 Side TOC

The "side TOC" is a table-of-contents positioned to the side.

It may be renamed by redefining \sidetocname, and may contain paragraphs.

Per table 18, css may be used to format the sideTOC.

```
\end{warpHTML}
```

for HTML & PRINT:

```
\begin{warpall}
```

Table 18: CSS related to the sideTOC

div.sidetoccontainer: The entire sideTOC.

div.sidetoctitle: The title.

div.sidetoccontents: The table of contents.

Ctr SideTOCDepth

Controls how deep the side-TOC gets. Use a standard LaTeX section level similar to tocdepth. Warn if parts of the website may be inaccessible.

```
\newcounter{SideTOCDepth}
\setcounter{SideTOCDepth}{1}

\AtEndDocument{%
    \ifnumcomp{\value{SideTOCDepth}}{<}{\value{FileDepth}}{
        \PackageWarningNoLine{lwarp}
        {%
            SideTOCDepth is less than FileDepth,\MessageBreak
            so some website pages may be inaccessible%
        }
    }{}
}
```

\sidetocname Holds the default name for the sideTOC.

```
\newcommand{\sidetocname}{Contents}
```

```
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

\LWR@sidetoc Creates the actual side-TOC.

```
\newcommand*{\LWR@sidetoc}{%
    \LWR@forcenewpage
    \LWR@stoppars

```

The entire sideTOC is placed into a nav of class sidetoc.

```
    \LWR@htmlelementclass{div}{sidetoccontainer}
    \LWR@htmlelementclass{nav}{sidetoc}

    \setcounter{tocdepth}{\value{SideTOCDepth}}

```

The title is placed into a of class sidetoctitle, and may contain paragraphs.

```
    \begin{BlockClass}{sidetoctitle}
    \ifcsvoid{thetitle}{}{\InlineClass{sidetocthetitle}{\thetitle}\par}
    \sidetocname
    \end{BlockClass}
```

The table of contents is placed into a of class sidetoccontents.

```
    \begin{BlockClass}{sidetoccontents}
```

```
    \LinkHome

    \LWR@myshorttoc{sidetoc}
    \end{BlockClass}
    \LWR@htmlelementclassend{nav}{sidetoc}
    \LWR@htmlelementclassend{div}{sidetoccontainer}
}
```

78.4 Low-level TOC line formatting

`\numberline` {⟨*number*⟩}

(Called from each line in the `.aux`, `.lof` files.)

Record this section number for further use:

```
\newcommand*{\LWR@numberline}[1]{%
    \LWR@sectionnumber{#1}\quad%
}

\LetLtxMacro\numberline\LWR@numberline
```

`\LWR@maybetocdata` Replaced by tocdata. Adds author name.

```
\newcommand*{\LWR@maybetocdata}{}
```

`\hypertoc` {⟨*1: depth*⟩} {⟨*2: type*⟩} {⟨*3: name*⟩} {⟨*4: page*⟩}

Called by `\l@section`, etc. to create a hyperlink to a section.

The autopage label is always created just after the section opens.

#1 is depth

#2 is `section`, `subsection`, etc.

#3 the text of the caption

#4 page number

```
\NewDocumentCommand{\hypertoc}{m m +m m}{%
    \LWR@traceinfo{hypertoc !#1!#2!#3!#4!}%
```

Respond to `tocdepth`:

```
    \ifnumcomp{#1}{>}{\value{tocdepth}}%
        {}%
        {%
            \LWR@startpars%
```

Create an HTML link to `<filename>#autosec-(page)`, with the name, of the given HTML class.

`\BaseJobname` is added to the label in case xr or xr-hyper are used.

```
            \LWR@subhyperrefclass{%
                \LWR@htmlrefsectionfilename{\BaseJobname-autopage-#4}%
                    \LWR@origpound\LWR@print@mbox{autosec-#4}%
            }{#3}{toc#2}%

            \LWR@maybetocdata%

            \LWR@stoppars%
        }%
    \LWR@traceinfo{hypertoc done}%
}
```

Ctr `lofdepth` TOC depth for figures.

```
\IfClassLoadedTF{memoir}{}{
    \newcounter{lofdepth}
    \setcounter{lofdepth}{1}
}
```

Ctr `lotdepth` TOC depth for tables.

```
\IfClassLoadedTF{memoir}{}{
    \newcounter{lotdepth}
    \setcounter{lotdepth}{1}
}
```

`\hypertocfloat` {⟨*1: depth*⟩} {⟨*2: type*⟩} {⟨*3: ext of parent*⟩} {⟨*4: caption*⟩} {⟨*5: page*⟩}

#1 is depth

#2 is `figure`, `table`, etc.

#3 is `lof`, `lot`, of the parent.

#4 the text of the caption

#5 page number

```
\newcommand{\hypertocfloat}[5]{%
```

If some float-creation package has not yet defined the float type's `lofdepth` counter, etc, define it here:

```
    \@ifundefined{c@#3depth}{%
        \newcounter{#3depth}%
        \setcounter{#3depth}{1}%
    }{}%
```

Respond to `lofdepth`, etc.:

```
    \LWR@traceinfo{hypertocfloat depth is #1 #3depth is \arabic{#3depth}}%
    \ifthenelse{\cnttest{#1}{<=}{\arabic{#3depth}}}%
        {%
            \LWR@startpars%
```

Create an HTML link to filename#autoid-(float number), with text of the caption, of the given HTML class.

\BaseJobname is added to the label in case xr or xr-hyper are used.

```
            \LWR@subhyperrefclass{%
            \LWR@htmlrefsectionfilename{%
                \BaseJobname-autopage-\arabic{LWR@nextautopage}%
            }%
           \LWR@origpound\LWR@print@mbox{autoid-\arabic{LWR@nextautoid}}}%
            {#4}{toc#2}%

            \LWR@maybetocdata%

            \LWR@stoppars%
        }%
        {}%
}
```

Automatically called by \contentsline:

\l@book {⟨*name*⟩} {⟨*page*⟩}

Uses \DeclareDocumentCommand in case the class does not happen to have a \book.

```
\DeclareDocumentCommand{\l@book}{m m}{\hypertoc{-2}{book}{#1}{#2}}
```

\l@part {⟨*name*⟩} {⟨*page*⟩}

Uses \DeclareDocumentCommand in case the class does not happen to have a \part.

```
\DeclareDocumentCommand{\l@part}{m m}{\hypertoc{-1}{part}{#1}{#2}}
```

\l@chapter {⟨*name*⟩} {⟨*page*⟩}

Uses \DeclareDocumentCommand in case the class does not happen to have a \chapter.

```
\@ifundefined{chapter}
{}
{
\DeclareDocumentCommand{\l@chapter}{m m}
    {\hypertoc{0}{chapter}{#1}{#2}}
}
```

\l@section {⟨*name*⟩} {⟨*page*⟩}

```
\renewcommand{\l@section}[2]{\hypertoc{1}{section}{#1}{#2}}
```

\l@subsection {⟨*name*⟩} {⟨*page*⟩}

```
\renewcommand{\l@subsection}[2]{\hypertoc{2}{subsection}{#1}{#2}}
```

\l@subsubsection {⟨*name*⟩} {⟨*page*⟩}

```
\renewcommand{\l@subsubsection}[2]{\hypertoc{3}{subsubsection}{#1}{#2}}
```

\l@paragraph {⟨*name*⟩} {⟨*page*⟩}

```
\renewcommand{\l@paragraph}[2]{\hypertoc{4}{paragraph}{#1}{#2}}
```

\l@subparagraph {⟨*name*⟩} {⟨*page*⟩}

```
\renewcommand{\l@subparagraph}[2]{\hypertoc{5}{subparagraph}{#1}{#2}}
```

\l@figure {⟨*name*⟩} {⟨*page*⟩}

```
\renewcommand{\l@figure}[2]{\hypertocfloat{1}{figure}{lof}{#1}{#2}}
```

\l@table {⟨*name*⟩} {⟨*page*⟩}

```
\renewcommand{\l@table}[2]{\hypertocfloat{1}{table}{lot}{#1}{#2}}
```

```
\end{warpHTML}
```

79 Index and glossary

See:
http://tex.stackexchange.com/questions/187038/how-to-mention-section-number-in-index-created-by-imakeidx

Index links are tracked by the counter LWR@autoindex. This counter is used to create a label for each index entry, and a reference to this label for each entry in the index listing. This method allows each index entry to link directly to its exact position in the document.

for HTML output:

```
\begin{warpHTML}

\newcounter{LWR@autoindex}
\setcounter{LWR@autoindex}{0}

\newcounter{LWR@autoglossary}
\setcounter{LWR@autoglossary}{0}
```

\IndexPageSeparator
\IndexRangeSeparator
User-adjustable delimiters for page and range separators in the *.ind files.

```
\newcommand*{\IndexPageSeparator}{, }
\newcommand*{\IndexRangeSeparator}{--}
```

Env theindex

```
\@ifundefined{chapter}
    {\newcommand*{\LWR@indexsection}[1]{\section*{#1}}}
    {\newcommand*{\LWR@indexsection}[1]{\chapter*{#1}}}

```

```
11122
11123 \AtBeginDocument{
11124
11125 \renewenvironment*{theindex}{%
11126     \LWR@indexsection{\indexname}%
11127     \LetLtxMacro\item\LWR@indexitem%
11128     \LetLtxMacro\subitem\LWR@indexsubitem%
11129     \LetLtxMacro\subsubitem\LWR@indexsubsubitem%
11130 }{}
11131
11132 }% AtBeginDocument
```

`\LWR@indexitem` `[⟨index key⟩]` The optional argument is added to support repeatindex.

```
11133 \newcommand{\LWR@indexitem}[1][\@empty]{
11134
11135     \InlineClass{indexitem}{\LWR@htmlcomment{}}#1%
11136 }
```

`\LWR@indexsubitem`

```
11137 \newcommand{\LWR@indexsubitem}{
11138
11139     \InlineClass{indexsubitem}{\LWR@htmlcomment{}}%
11140 }
```

`\LWR@indexsubsubitem`

```
11141 \newcommand{\LWR@indexsubsubitem}{
11142
11143     \InlineClass{indexsubsubitem}{\LWR@htmlcomment{}}%
11144 }
```

`\LWR@xindex@modifyentry` `{⟨indexing term⟩}`

If using *xindex*, modifies the pipe character to become `\hyperindexformat`. The indexing term is split into two argument at the pipe, then fed to `\LWR@xindex@modifyentrysub`.

```
11145 \NewDocumentCommand{\LWR@xindex@modifyentry}{>{\SplitArgument{1}{|}}m}
11146     {\LWR@xindex@modifyentrysub#1}
```

Handle left and right parenthesis range argument, or add a `hyperindexformat` clause.

```
11147 \newcommand*{\LWR@xindex@modifyentrysub}[2]{%
11148     \edef\LWR@tempone{#1}%
11149     \edef\LWR@temptwo{#2}%
11150     \IfValueTF{#2}{%
11151         \ifx#2(%
11152             \appto\LWR@tempone{|(}%
11153         \else%
11154             \ifx#2)%
11155                 \appto\LWR@tempone{|)}%
11156             \else%
11157                 \appto\LWR@tempone{%
11158                     |hyperindexformat\LWRleftbrace%
```

```
                    \LWRbackslash#2%
                    \LWRrightbrace%
                }%
            \fi%
        \fi%
    }%
    {}%
}
```

`\@wrindex` {⟨*indexing term*⟩} Redefined to write the `LWR@autoindex` counter instead of page.

If using *xindex*, the first line is a comment including a special phrase which tricks *xindex* into thinking that hyperref was used.

```
\newbool{LWR@xindex@tricked}
\boolfalse{LWR@xindex@tricked}

\def\LWR@wrindex#1{%
    \ifbool{LWR@xindex}{%
        \ifbool{LWR@xindex@tricked}{}{%
            \protected@write\@indexfile{}%
            {%
                \LWRpercent\space hyperpage\LWRrightbrace%
                \LWRpercent\space trick xindex to assume hyperref%
            }%
            \global\booltrue{LWR@xindex@tricked}%
        }%
        \LWR@xindex@modifyentry{#1}%
    }{%
        \def\LWR@tempone{#1}%
    }%
    \addtocounter{LWR@autoindex}{1}%
    \label{LWRindex-\arabic{LWR@autoindex}}%
    \protected@write\@indexfile{}%
    {\string\indexentry{\LWR@tempone}{\arabic{LWR@autoindex}}}%
    \endgroup%
    \@esphack%
}

\AtBeginDocument{
\let\@wrindex\LWR@wrindex
}
```

`\@wrglossary` {⟨*term*⟩} Redefined to write the `LWR@autoglossary` counter instead of page.

```
\def\@wrglossary#1{%
    \addtocounter{LWR@autoglossary}{1}%
    \LWR@new@label{LWRglossary-\theLWR@autoglossary}%
    \protected@write\@glossaryfile{}%
    {\string\glossaryentry{#1}{\theLWR@autoglossary}}%
    \endgroup%
    \@esphack%
}
```

`\LWR@indexnameref@anonref` {⟨*LWR@autoindex*⟩}

Displays a reference link where there no \ref available.

```
\newcommand*{\LWR@indexnameref@anonref}[1]{%
    \LWR@startref{LWRindex-#1}%
    (*)%
    \LWR@htmltag{/a}%
}
```

\LWR@indexnameref@ref {⟨*LWR@autoindex*⟩}

Creates \ref-style index references. To avoid an unwanted space if there is nothing to reference, the reference is checked first.

```
\newcommand*{\LWR@indexnameref@ref}[1]{%
    \edef\LWR@thisref{\csuse{r@LWRindex-#1}}%
    \ifdefvoid{\LWR@thisref}{}{%
        \edef\LWR@thisref{\expandafter\@firstoftwo\LWR@thisref}%
        \ifdefvoid{\LWR@thisref}%
            {\LWR@indexnameref@anonref{#1}}%
            {\ref{LWRindex-#1}}%
    }%
}
```

\LWR@indexnameref@refnameref {⟨*LWR@autoindex*⟩}

Creates \ref-style index references. To avoid an unwanted space if there is nothing to reference, the reference is checked first. For links to starred or ?? objects, only the name is used.

```
\newcommand*{\LWR@indexnameref@refnameref}[1]{%
    \edef\LWR@thisref{\csuse{r@LWRindex-#1}}%
    \ifdefvoid{\LWR@thisref}{}{%
        \edef\LWR@thisref{\expandafter\@firstoftwo\LWR@thisref}%
        \ifdefvoid{\LWR@thisref}{}{%
            \ifdefstring{\LWR@thisref}{(*)}%
                {}%
                {\ref{LWRindex-#1} }% space
        }%
    }%
    \nameref{LWRindex-#1}%
}
```

\LWR@indexnameref@cref {⟨*LWR@autoindex*⟩}

Creates \cref-style index references. If no numbered reference is available, a \nameref is used instead. If the reference is ??, which will be changed by \LWR@indexnameref to become (*), then the link is changed to show (*).

```
\newcommand*{\LWR@indexnameref@cref}[1]{%
    \edef\LWR@thisref{\csuse{r@LWRindex-#1}}%
    \ifdefvoid{\LWR@thisref}{%
        \nameref{LWRindex-#1}%
    }{%
        \edef\LWR@thisref{\expandafter\@firstoftwo\LWR@thisref}%
        \ifdefvoid{\LWR@thisref}{%
            \nameref{LWRindex-#1}%
        }{%
            \ifdefstring{\LWR@thisref}{(*)}{%
```

```
                \LWR@indexnameref@anonref{#1}%
            }{%
                \cref{LWRindex-#1}%
            }%
        }%
    }%
}
```

`\LWR@indexnameref@crefnameref` {⟨*LWR@autoindex*⟩}

Creates `\cref`-style index references. If no numbered reference is available, a `\nameref` is used instead. If the reference is ??, which will be changed by `\LWR@indexnameref` to become (*), then the link is changed to show only the name.

```
\newcommand*{\LWR@indexnameref@crefnameref}[1]{%
    \edef\LWR@thisref{\csuse{r@LWRindex-#1}}%
    \ifdefvoid{\LWR@thisref}%
        {}%
        {%
            \edef\LWR@thisref{\expandafter\@firstoftwo\LWR@thisref}%
            \ifdefvoid{\LWR@thisref}%
                {}%
                {%
                    \ifdefstring{\LWR@thisref}{(*)}%
                        {}%
                        {\cref{LWRindex-#1}} % space
                }%
        }%
    \nameref{LWRindex-#1}%
}
```

`\LWR@indexnameref` {⟨*LWR@autoindex*⟩}

Creates a hyperlink based on the given entry's autoindex.

```
\newcommand*{\LWR@indexnameref}[1]{%
    {% group
```

Temporarily redefine caption's `\caption@xref` because it was printing ?? in the indexes, and also causing error on expansion:

```
        \ifdef{\caption@xref}{%
            \renewcommand*{\caption@xref}[2]{(*)}%
        }{}%

        \ifdefstring{\LWR@IndexRef}{ref}{%
            \LWR@indexnameref@ref{#1}%
        }{%
        \ifdefstring{\LWR@IndexRef}{nameref}{%
            \nameref{LWRindex-#1}%
        }{%
        \ifdefstring{\LWR@IndexRef}{refnameref}{%
            \LWR@indexnameref@refnameref{#1}%
        }{%
        \ifdefstring{\LWR@IndexRef}{cref}{%
            \LWR@indexnameref@cref{#1}%
        }{%
```

```
        \ifdefstring{\LWR@IndexRef}{crefnameref}{%
            \LWR@indexnameref@crefnameref{#1}%
        }{%
        \ifdefstring{\LWR@IndexRef}{autoref}{%
            \LWR@indexnameref@cref{#1}%
        }{% text string
            \LWR@startref{LWRindex-#1}%
            \LWR@IndexRef%
            \LWR@htmltag{/a}%
        }}}}}%
    }% group
}
```

`\LWR@doindexentrysubsub` {⟨*range start: LWR@autoindex, or macros.*⟩} {⟨*range end or blank*⟩}

Creates a hyperlink, or handles `\see`, `\textbf`, etc.

```
\newrobustcmd{\LWR@doindexentrysubsub}[2]{%
    \IfInteger{#1}%
        {\LWR@indexnameref{#1}}%
        {#1}%
    \IfValueT{#2}{%
        \IndexRangeSeparator%
        \IfInteger{#2}%
            {\LWR@indexnameref{#2}}%
            {#2}%
    }%
}
```

`\LWR@doindexentrysub` {⟨*range delimiter*⟩} {⟨*LWR@autoindex or macros, possible a range*⟩}

```
\NewDocumentCommand{\LWR@doindexentrysub}{m >{\SplitArgument{1}{#1}}m}
    {\LWR@doindexentrysubsub#2}
```

`\LWR@doindexentry` {⟨*LWR@autoindex or macros, possible a range*⟩}

```
\newcommand*{\LWR@doindexentry}[1]{%
    \relax% required
   \expandafter\LWR@doindexentrysub\expandafter{\IndexRangeSeparator}{#1}%
}
```

`\LWR@hyperindexrefnullified` Handles macros commonly seen inside an `\index` entry. Each macro is redefined to create and format a link to its entry.

⚠ index formatting To handle additional macros:

```
\appto\LWR@hyperindexrefnullified{. . . }
```

```
\newcommand{\LWR@hyperindexrefnullified}{%
    \renewrobustcmd{\emph}[1]{\LWR@HTML@emph{\LWR@doindexentry{##1}}}%
    \renewrobustcmd{\textbf}[1]{\LWR@HTML@textbf{\LWR@doindexentry{##1}}}%
    \renewrobustcmd{\texteb}[1]{\LWR@HTML@texteb{\LWR@doindexentry{##1}}}%
    \renewrobustcmd{\textlg}[1]{\LWR@HTML@textlg{\LWR@doindexentry{##1}}}%
    \renewrobustcmd{\textrm}[1]{\LWR@HTML@textrm{\LWR@doindexentry{##1}}}%
    \renewrobustcmd{\textsf}[1]{\LWR@HTML@textsf{\LWR@doindexentry{##1}}}%
    \renewrobustcmd{\texttt}[1]{\LWR@HTML@texttt{\LWR@doindexentry{##1}}}%
    \renewrobustcmd{\textup}[1]{\LWR@HTML@textup{\LWR@doindexentry{##1}}}%
```

```
    \renewrobustcmd{\textsc}[1]{\LWR@HTML@textsc{\LWR@doindexentry{##1}}}%
   \renewrobustcmd{\textulc}[1]{\LWR@HTML@textulc{\LWR@doindexentry{##1}}}%
    \renewrobustcmd{\textsi}[1]{\LWR@HTML@textsi{\LWR@doindexentry{##1}}}%
    \renewrobustcmd{\textit}[1]{\LWR@HTML@textit{\LWR@doindexentry{##1}}}%
    \renewrobustcmd{\textsl}[1]{\LWR@HTML@textsl{\LWR@doindexentry{##1}}}%
}
```

\hyperindexref {⟨*list of LWR@autoindex, commas, and ranges*⟩}

\hyperindexref{LWR@autoindex} is inserted into *.ind by the *makeindex* style file lwarp.ist or the *xindy* style file lwarp.xdy. For *xindex*, \hyperpage is inserted, which is \let to \hyperindexref. For *gindex*, \addindexitem and related are inserted, which are defined to use \hyperindexref.

The argument is split at commas, and also for ranges, then passed to \LWR@hyperindexrefsub.

```
\newcommand*{\hyperindexref}[1]{%
    \relax% required
   \expandafter\LWR@hyperindexref@comma\expandafter{\IndexPageSeparator}{#1}%
}
```

\LWR@hyperindexref@comma {⟨*separator*⟩} {⟨*list of args*⟩}

The list is split at commas, and passed to \LWR@hyperindexref@@comma.

```
\NewDocumentCommand{\LWR@hyperindexref@comma}
    {m >{\SplitList{#1}} m}
    {%
```

Used to place the separtor between each entry, but not before the first.

```
        \def\LWR@hyperindexref@thiscomma{}%
        \def\LWR@hyperindexref@nextcomma{#1}%
```

Each comma-delimited entry is now passed individually to \LWR@hyperindexref@@comma.

```
        \ProcessList{#2}\LWR@hyperindexref@@comma%
    }
```

\LWR@hyperindexref@@comma {⟨*arg, perhaps with a range*⟩}

A comma separator is placed if not the first item, then the range is parsed.

```
\newcommand*{\LWR@hyperindexref@@comma}[1]{%
    \LWR@hyperindexref@thiscomma%
   \renewcommand{\LWR@hyperindexref@thiscomma}{\LWR@hyperindexref@nextcomma}%
   \expandafter\LWR@hyperindexref@range\expandafter{\IndexRangeSeparator}{#1}%
}
```

\LWR@hyperindexref@range {⟨*range delimiter*⟩} {⟨*arg*⟩}

```
\NewDocumentCommand{\LWR@hyperindexref@range}
    {m >{\SplitArgument{1}{#1}} m}
    {\LWR@hyperindexrefsub#2}
```

\LWR@hyperindexrefsub {⟨*range start: LWR@autoindex*⟩} {⟨*range end, or* -NoValue-⟩}

Handles the start and end of a range, if applicable.

```
\newcommand*{\LWR@hyperindexrefsub}[2]{%
    \LWR@hyperindexrefsubtwo{#1}%
    \IfValueT{#2}{%
        \IndexRangeSeparator%
        \LWR@hyperindexrefsubtwo{#2}%
    }%
}
```

`\LWR@hyperindexrefsubtwo` {⟨*LWR@autoindex*⟩}

```
\newcommand*{\LWR@hyperindexrefsubtwo}[1]{%
```

In long index lines with numerous entries, *makeindex* can insert a newline before the page number, resulting in an extra space before the first digit. If the first character is a space, remove it first.

```
    \edef\LWR@tempone{#1}%
    \IfBeginWith{\LWR@tempone}{ }{%
        \StrGobbleLeft{\LWR@tempone}{1}[\LWR@tempone]%
    }{}%
```

If a numeric entry, create a link. If not numeric, such as `\see`, use the entry as-is. `\emph`, `\textit`, etc. have been redefined above to create and format the entry.

```
    \IfInteger{\LWR@tempone}%
        {\LWR@indexnameref{\LWR@tempone}}%
        {%
            \begingroup%
            \LWR@hyperindexrefnullified%
            #1%
            \endgroup%
        }%
}
```

`\hyperpage` Emulate hyperref.

```
\LetLtxMacro\hyperpage\hyperindexref
```

`\nohyperpage` Emulate hyperref.

```
\def\nohyperpage#1{}
```

`\hyperindexformat` Emulate hyperref.

```
\def\hyperindexformat#1#2{%
    #1{\hyperpage{#2}}%
}%
```

```
\end{warpHTML}
```

for PRINT output: A null command for print mode, in case hyperref was not used:

```
\begin{warpprint}
\newcommand{\hyperindexref}[1]{#1}
\end{warpprint}
```

for HTML & PRINT: For the glossaries package, try to prevent an error where \glo@name was not found:

```
\begin{warpall}
\providecommand{\glo@name}{}
\end{warpall}
```

80 Bibliography presentation

for HTML output:
```
\begin{warpHTML}
```

\bibliography {⟨*filenames*⟩} At one time this was modified to read \BaseJobname.bbl, which meant the HTML version could not resolve until the print version was also present. This also confused multibib. It has been reverted to the original to use \jobname.bbl.

\@biblabel {⟨*text-refnumber*⟩}

```
\renewcommand{\@biblabel}[1]{[#1]\quad}
```

Env thebibliography To emphasize document titles in the bibliography, the following redefines \em inside thebibliography to gather everything until the next closing brace, then display these tokens with \textit.

Adapted from embracedef.sty, *which is by* TAKAYUKI YATO*:*
https://gist.github.com/zr-tex8r/b72555e3e7ad2f0a37f1

```
\AtBeginDocument{

\AtBeginEnvironment{thebibliography}{

\providecommand*{\LWR@newem}[1]{\textit{#1}}

\renewrobustcmd{\em}{%
  \begingroup
    \gdef\LWR@em@after{\LWR@em@finish\LWR@newem}%
    \afterassignment\LWR@em@after
    \toks@\bgroup
}

\def\LWR@em@finish#1{%
    \xdef\LWR@em@after{\noexpand#1{\the\toks@}}%
  \endgroup
  \LWR@em@after\egroup
}

}% \AtBeginEnvironment{thebibliography}

}% \AtBeginDocument
```

```
\end{warpHTML}
```

81 Restoring original formatting

for HTML output:
```
\begin{warpHTML}
```

`\LWR@restoreMathJaxformatting` A few macros (ref: tcolorbox) must be treated separately while printing the HTML comment for a MathJax expression. These are set here, to which other functions may be appended.

```
\newcommand*{\LWR@restoreMathJaxformatting}{}
```

`\LWR@restoreorigformatting` Used to temporarily restore the print-mode meaning of a number of formatting, graphics, and symbols-related macros while generating SVG math or a `lateximage`.

Must be used inside a group.

Sets `\LWR@formatting` to `print` until the end of the group.

A number of packages will `\appto` additional actions to this macro.

Various packages add to this macro using `\appto`.

```
\newcommand*{\LWR@restoreorigformatting}{%
    \LWR@traceinfo{LWR@restoreorigformatting}%
```

Numerous macros change their print/HTML meaning depending on `\LWR@formatting`:

```
    \renewcommand*{\LWR@formatting}{print}%
    \linespread{1}%

    \setbool{LWR@doingparhooks}{false}%

    \LWR@select@print@hspace%

    \def\color@endgroup{\endgraf\endgroup}%

    \LetLtxMacro\hfil\LWR@orighfil%
    \let\hss\LWR@orighss%
    \let\llap\LWR@origllap%
    \let\rlap\LWR@origrlap%
    \let\hfilneg\LWR@orighfilneg%

    \let\,\LWR@origcomma% disable HTML short unbreakable space
    \let\thinspace\LWR@origthinspace% disable HTML short unbreakable space
  \let\negthinspace\LWR@orignegthinspace% disable HTML negative short unbreakable space
    \let\textellipsis\LWR@origtextellipsis%

    \let\vdots\LWR@origvdots%

    \let\textless\LWR@origtextless%
    \let\textgreater\LWR@origtextgreater%

    \let\&\LWR@origampersand%
```

```
    \LetLtxMacro\em\LWR@origem%
    \LetLtxMacro\normalfont\LWR@orignormalfont%
    \let\sp\LWR@origsp%
    \let\sb\LWR@origsb%
    \LetLtxMacro\underline\LWR@origunderline%
    \let~\LWR@origtilde%
    \let\enskip\LWR@origenskip%
    \let\quad\LWR@origquad%
    \let\qquad\LWR@origqquad%
```

`\endtabular` must be restored to its original, instead of relying on lwarp's `\LWR@formatted` mechanism:

```
    \LetLtxMacro\endtabular\LWR@origendtabular%
    \csletcs{endtabular*}{LWR@origendtabular*}%

    \LetLtxMacro\noalign\LWR@orignoalign%
    \LetLtxMacro\hline\LWR@orighline%

    \let\newline\LWR@orignewline%
    \LetLtxMacro\includegraphics\LWR@origincludegraphics%

    \LetLtxMacro\@ensuredmath\LWR@origensuredmath%

    \let\math\LWR@orig@math%
    \let\endmath\LWR@orig@endmath%
    \let\displaymath\LWR@orig@displaymath%
    \let\enddisplaymath\LWR@orig@enddisplaymath%
%
    \LWR@restoreorigaccents%
    \LWR@restoreoriglists%

    \let\@mpfootnotetext\LWR@orig@mpfootnotetext%

    \LWR@hook@processingtags%
```

To enable MathJax-specific nullification, used for tcolorbox:

```
    \ifboolexpr{bool{mathjax} or ( bool{FormatWP} and bool{WPMarkMath} ) }%
        {\LWR@restoreMathJaxformatting}%
        {}%
}

\end{warpHTML}
```

82 Nullifying filename formatting

The following are used to nullify certain macros and environments while converting section names to file names.

for HTML output:

```
\begin{warpHTML}
```

Also commonly used are \@empty, \@gobble, and \@firstofone.

```
\newcommand*{\LWR@dash}{-}
```

\LWR@nullfonts Removes formatting during filename operations, file references, and HTML comments.

⚠ Use only inside a group.

The following are *not* made robust, since they must be expanded to their nullified versions.

```
\catcode`\$=\active% redefining $ below
\catcode`\_=12% redefining \_ below
\newcommand*{\LWR@nullfonts}{%
```

Various built-in symbols.

```
    \renewcommand*{\$}{-}%
    \renewcommand*{\%}{-}%
    \renewcommand*{\_}{-}%
    \renewcommand*{\}}{-}%
    \renewcommand*{\{}{-}%
    \renewcommand*{\&}{-}% used to be 'and'
    \renewcommand*{\#}{-}%
    \renewcommand*{\,}{-}%
    \renewcommand*{~}{-}%
%
% accents:
    \renewcommand*{\`}[1]{##1}%
    \renewcommand*{\'}[1]{##1}%
    \renewcommand*{\^}[1]{##1}%
    \renewcommand*{\~}[1]{##1}%
    \renewcommand*{\=}[1]{##1}%
    \renewcommand*{\u}[1]{##1}%
    \renewcommand*{\.}[1]{##1}%
    \renewcommand*{\"}[1]{##1}%
    \renewcommand*{\H}[1]{##1}%
    \renewcommand*{\v}[1]{##1}%
    \renewcommand*{\d}[1]{##1}%
    \renewcommand*{\c}[1]{##1}%
    \renewcommand*{\b}[1]{##1}%
    \renewcommand*{\t}[1]{##1}%
%
    \let\newline\LWR@dash%
    \let\textasciicircum\LWR@dash%
    \let\textasciitilde\LWR@dash%
    \let\textasteriskcentered\LWR@dash%
    \let\textbackslash\LWR@dash%
    \let\textbar\LWR@dash%
    \let\textbardbl\LWR@dash%
    \let\textbigcircle\LWR@dash%
    \let\textbraceleft\LWR@dash%
    \let\textbraceright\LWR@dash%
    \let\textbullet\LWR@dash%
    \let\textcopyright\LWR@dash%
    \let\textdagger\LWR@dash%
    \let\textdaggerdbl\LWR@dash%
    \let\textdollar\LWR@dash%
```

```
11498     \let\textellipsis\LWR@dash%
11499     \let\textemdash\LWR@dash%
11500     \let\textendash\LWR@dash%
11501     \let\textexclamdown\LWR@dash%
11502     \let\textgreater\LWR@dash%
11503     \let\textless\LWR@dash%
11504     \let\textordfeminine\LWR@dash%
11505     \let\textordmasculine\LWR@dash%
11506     \let\textparagraph\LWR@dash%
11507     \let\textperiodcentered\LWR@dash%
11508     \let\textpertenthousand\LWR@dash%
11509     \let\textperthousand\LWR@dash%
11510     \let\textquestiondown\LWR@dash%
11511     \let\textquotedblleft\LWR@dash%
11512     \let\textquotedblright\LWR@dash%
11513     \let\textquoteleft\LWR@dash%
11514     \let\textquoteright\LWR@dash%
11515     \let\textregistered\LWR@dash%
11516     \let\textsection\LWR@dash%
11517     \let\textsterling\LWR@dash%
11518     \let\texttrademark\LWR@dash%
11519     \let\textunderscore\LWR@dash%
11520     \let\textvisiblespace\LWR@dash%
11521     \let\copyright\LWR@dash%
11522     \let\dag\LWR@dash%
11523     \let\ddag\LWR@dash%
11524     \let\dots\LWR@dash%
11525     \let\P\LWR@dash%
11526     \let\pounds\LWR@dash%
11527     \let\S\LWR@dash%
11528 %
11529     \renewcommand*{\aa}{a}%
11530     \renewcommand*{\AA}{A}%
11531     \renewcommand*{\AE}{AE}%
11532     \renewcommand*{\ae}{ae}%
11533     \renewcommand*{\dh}{d}%
11534     \renewcommand*{\DH}{D}%
11535     \renewcommand*{\DJ}{D}%
11536     \renewcommand*{\dj}{d}%
11537     \renewcommand*{\IJ}{IJ}%
11538     \renewcommand*{\ij}{ij}%
11539     \renewcommand*{\L}{L}%
11540     \renewcommand*{\l}{l}%
11541     \renewcommand*{\NG}{NG}%
11542     \renewcommand*{\ng}{ng}%
11543     \renewcommand*{\O}{O}%
11544     \renewcommand*{\o}{o}%
11545     \renewcommand*{\oe}{oe}%
11546     \renewcommand*{\OE}{OE}%
11547     \renewcommand*{\ss}{ss}%
11548     \renewcommand*{\SS}{SS}%
11549     \renewcommand*{\th}{th}%
11550     \renewcommand*{\TH}{TH}%
11551 %
11552     \let\guillemotleft\@empty%
11553     \let\guilsinglleft\@empty%
11554     \let\quotedblbase\@empty%
11555     \let\textquotedbl\@empty%
11556     \let\guillemotright\@empty%
11557     \let\guilsinglright\@empty%
```

```
    \let\quotesinglbase\@empty%

    \renewcommand*{\HTMLunicode}[1]{}%
    \renewcommand*{\HTMLentity}[1]{}%

    \renewcommand{\textsuperscript}[1]{##1}%
    \renewcommand{\textsubscript}[1]{##1}%

    \renewcommand{\underline}[1]{##1}%

    \RenewDocumentCommand{\hspace}{s m}{}%

    \RenewDocumentCommand{\LWR@htmlspanclass}{o D(){} m +m}{{##4}}%
  \DeclareExpandableDocumentCommand{\InlineClass}{D{(}{)}{} o m +m}{{##4}}%
```

Nullify math macros.

```
    \def\(##1\){}%
    \def\[##1\]{}%
    \RenewDocumentCommand{\LWR@subsingledollar}{s m m m}{}%
```

Nullify logos:

```
    \renewcommand*{\TeX}{TeX}%
    \renewcommand*{\LaTeX}{LaTeX}%
    \renewcommand*{\LaTeXe}{LaTeX2e}%
    \renewcommand*{\LuaTeX}{LuaTeX}%
    \renewcommand*{\LuaLaTeX}{LuaLaTeX}%
    \renewcommand*{\XeTeX}{XeTeX}%
    \renewcommand*{\XeLaTeX}{XeLaTeX}%
    \renewcommand*{\ConTeXt}{ConTeXt}%
    \renewcommand*{\BibTeX}{BibTeX}%
    \renewcommand*{\MakeIndex}{MakeIndex}%
    \renewcommand*{\AmS}{AmS}%
    \renewcommand*{\MiKTeX}{MiKTeX}%
    \renewcommand*{\LyX}{LyX}%
```

Use the simpler form with `\texorpdfstring`:

```
    \def\texorpdfstring{\expandafter\@secondoftwo}%
}
\catcode`\$=3%
\catcode`\_=8%
```

`\FilenameNullify` {⟨*redefinitions*⟩}

Adds more nullifying definitions for filename generation.

```
\newcommand*{\FilenameNullify}[1]{%
    \appto{\LWR@nullfonts}{#1}%
}

\end{warpHTML}
```

83 Math

83.1 Limitations

See Math, section 8.7.

83.2 HTML alt tag names

Redefinable names for the HTML alt tags, for translation according to the reader's native language.

for HTML & PRINT:

```
\begin{warpall}
```

\AltTextOpen
Default: (

The opening part of HTML alt tag for an image. The default is a left parenthesis.

```
\newcommand*{\AltTextOpen}{(}
```

\AltTextClose
Default: (

The closing part of HTML alt tag for an image. The default is a right parenthesis.

```
\newcommand*{\AltTextClose}{)}
```

\ImageAltText
Default: image

The HTML alt tag for an image.

```
\newcommand*{\ImageAltText}{image}
```

\MathImageAltText
Default: "math image"

The HTML alt tag for an SVG math image.

```
\newcommand*{\MathImageAltText}{math image}
```

\LWR@ThisAltText

The HTML alt tag for the next image. Cleared after use, and also after each lateximage, \LWR@subsingledollar, and each use of MathJax.

```
\newcommand*{\LWR@ThisAltText}{}
```

\ThisAltText {⟨*text*⟩}

Assigns the HTML alt tag for the next image generated by lwarp, such as a lateximage, picture, or SVG math.

```
\newcommand*{\ThisAltText}[1]{%
    \renewcommand{\LWR@ThisAltText}{#1}%
}
```

\PackageDiagramAltText
Default: "diagram"

Appended to the lateximage HTML alt tag for the images generated by many packages.

```
\newcommand*{\PackageDiagramAltText}{diagram}
```

```
\end{warpall}
```

83.3 Inline and display math

for HTML output:

```
\begin{warpHTML}
```

Ctr `LWR@externalfilecnt`

Counter for the external files which are generated and then referenced from the HTML:

```
\newcounter{LWR@externalfilecnt}
```

Bool `LWR@indisplaymathimage`

True if processing display math for SVG output. Inside a `lateximage`, display math is only set to print-mode output if `LWR@indisplaymathimage` is false. Used to avoid nullifying display math before it has been completed.

```
\newbool{LWR@indisplaymathimage}
```

Bool `LWR@insidemathcomment`

True while inside an HTML comment which is displaying a math environment. Used to undo the comment for a moment while creating a `\label`, so that the label's HTML tags will be seen by HTML.

```
\newbool{LWR@insidemathcomment}
\boolfalse{LWR@insidemathcomment}
```

Bool `LWR@xfakebold`

True if xfakebold `\setBold` is in use.

```
\newbool{LWR@xfakebold}
\boolfalse{LWR@xfakebold}
```

`\LWR@orig@setBold`

Redefined by lwarp-xfakebold.

```
\newcommand*{\LWR@orig@setBold}{}
```

`\LWR@orig@unsetBold`

Redefined by lwarp-xfakebold.

```
\newcommand*{\LWR@orig@unsetBold}{}
```

`\LWR@applyxfakebold`

Redefined by lwarp-xfakebold.

```
\newcommand*{\LWR@applyxfakebold}{}
```

`\LWR@setcurrentfont`

Sets the actual LaTeX font to that which was selected for HTML output. Ex: In HTML mode, `\bfseries` sets `\LWR@f@series` to "bf". This sets the PDF output here for use inside a `lateximage`.

```
\newcommand*{\LWR@setcurrentfont}{%
    \LWR@traceinfo{Using font family \LWR@f@family}%
    \@nameuse{LWR@print@\LWR@f@family family}%
    \LWR@traceinfo{Using font series \LWR@f@series}%
    \@nameuse{LWR@print@\LWR@f@series series}%
    \LWR@traceinfo{Using font shape \LWR@f@shape}%
    \@nameuse{LWR@print@\LWR@f@shape shape}%
    \LWR@traceinfo{Using font caps shape \LWR@f@shapecaps}%
    \@nameuse{LWR@print@\LWR@f@shapecaps shape}%
}
```

\$

Plain dollar signs appearing in the HTML output may be interpreted by MathJax to be math shifts. For a plain text dollar \$, use an HTML entity to avoid it being interpreted by MathJax, unless are inside a lateximage, in which case it will not be seen by MathJax.

```
\let\LWR@origtextdollar\$

\renewcommand*{\$}{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {\LWR@origtextdollar}%
        {\HTMLunicode{00024}}%
}
```

File
lwarp_baseline_marker.png
File
lwarp_baseline_marker.eps

A marker to be used to help *pdfcrop* identify the inline math baseline and width. If either graphicx or graphics is loaded, this marker is placed at the lower left and lower right corners of the inline math. *pdfcrop* is then able to identify the width of the image, and also the height of an image such as a horizontal dash which does not otherwise touch the baseline.

A marker with alpha or opacity of 0% is not registered by *pdfcrop*, so the marker is a small square block of 1% alpha, which seems to work while still being effectively invisible in the final SVG image.

If graphicx is loaded, this marker is sized as a tiny 1 sp square. If graphics is loaded, this marker is used at its default size of around .25 pt. If neither graphics package is loaded, the marker is replaced by a 10 sp horizontal space, and there is no assistance for determining baseline or width of the inline math image. The best results are obtained when using graphicx.

\LWR@addbaselinemarker

Places a small marker in an SVG inline image. If graphics or graphicx are loaded, the marker is a mostly transparent image. If neither is loaded, no marker is used.

```
\AtBeginDocument{

\ifpdf
    \newcommand*{\LWR@baselinename}{lwarp_baseline_marker.png}
\else
    \ifXeTeX
        \newcommand*{\LWR@baselinename}{lwarp_baseline_marker.png}
    \else
        \newcommand*{\LWR@baselinename}{lwarp_baseline_marker.eps}
    \fi
\fi

\IfFileExists{\LWR@baselinename}%
{
    \IfPackageLoadedTF{graphicx}{
        \newcommand*{\LWR@addbaselinemarker}{%
            \LWR@origincludegraphics{\LWR@baselinename}%
        }
    }{
        \IfPackageLoadedTF{graphics}{
            \newcommand*{\LWR@addbaselinemarker}{%
                \LWR@origincludegraphics{\LWR@baselinename}%
            }
        }{
            \newcommand*{\LWR@addbaselinemarker}{%
```

```
                \global\booltrue{LWR@warnbaselinemarker}%
            }
            \AtEndDocument{
                \ifbool{LWR@warnbaselinemarker}{
                    \PackageNoteNoLine{lwarp}{%
                       Load graphicx or graphics for improved\MessageBreak
                        SVG math sizing and baselines%
                    }
                }{}
            }
        }
    }
}{% lwarp_baseline_marker.png or .eps is not present
    \newcommand*{\LWR@addbaselinemarker}{%
        \global\booltrue{LWR@warnbaselinemarker}%
    }
    \AtEndDocument{
        \ifbool{LWR@warnbaselinemarker}{
            \PackageWarningNoLine{lwarp}{%
                File \LWR@baselinename\space is not installed\MessageBreak
                alongside the lwarp-*.sty files, so\MessageBreak
                SVG math sizing and baselines may not be accurate}
        }{}
    }
}

}% AtBeginDocument
```

Bool `LWR@warnbaselinemarker` True if the math baseline marker was ever called for, but graphics or graphicx were not loaded.

```
\newbool{LWR@warnbaselinemarker}
\boolfalse{LWR@warnbaselinemarker}
```

Bool `LWR@unknownmathsize` If Ti*k*z or other objects are used inside math mode, the resulting image may exceed the TEX box, resulting in an incorrect measurement of the size of the resulting image. If this is so, the HTML styles for image size and depth will be neutralized.

```
\newbool{LWR@unknownmathsize}
```

`\LWR@singledollarmeasure` {⟨*math expression*⟩}

Measures the size of the image of the math expression.

(In some circumstances SVG math is used even if MATHJAX is preferred.)

SVG math: `\LWR@origensuredmath` is part of argument #4.

SVG math `\ensuremath`: `\LWR@origensuredmath` is part of argument #4.

SVG dynamic math: `\LWR@origensuredmath` is part of argument #4.

MATHJAX: Argument #4 is the contents of the math expression without `\LWR@origensuredmath`. This case is handled above.

MATHJAX `\ensuremath`: `\LWR@origensuredmath` is part of argument #4.

MATHJAX dynamic math: Argument #4 is the contents of the math expression without `\LWR@origensuredmath`, so `\LWR@origensuredmath` is added below.

\ifmmode: Included “just in case”.

Factored from \LWR@subsingledollarsvg.

```
\newcommand*{\LWR@singledollarmeasure}[1]{%
    \begingroup%
```

Temporarily disable formatting while measuring the image parameters:

```
    \LWR@restoreorigformatting%
    \RenewDocumentEnvironment{lateximage}{s o s o o d()}{}{}% inside group
    \LWR@print@normalsize%
```

Temporarily set font for the HTML PDF output:

```
    \LWR@setcurrentfont%
```

lateximagedepth must be nested to avoid generating paragraph tags. $\mathcal{AMS}$ math modifies the \text macro such that \addtocounter does not always occur as expected. Lower-level code is used instead.

```
    \global\advance\c@LWR@lateximagedepth 1\relax%
```

Typeset the math in a box. While doing so, some macros or environments may set LWR@unknownmathsize, in which case this will be used to cancel the HTML styles being generated here.

```
    \boolfalse{LWR@unknownmathsize}%
    \ifmmode%
        \global\sbox{\LWR@singledollarbox}{#1}%
    \else%
        \ifbool{LWR@dynamicmath}{%
            \ifbool{mathjax}{%
                \global\sbox{\LWR@singledollarbox}%
                    {\LWR@origensuredmath{#1}}%
            }{%
                \global\sbox{\LWR@singledollarbox}{#1}%
            }%
        }{%
            \global\sbox{\LWR@singledollarbox}{#1}%
        }%
    \fi%
```

Add a small and almost transparent marker at the depth of the image.

A math minus sign has the same depth as a plus, even though it does not draw anything below the baseline. This means that *pdfcrop* would crop the image without depth. The marker below the baseline is seen by *pdfcrop* and preserves the depth.

```
    \global\sbox{\LWR@singledollarbox}{%
        \usebox{\LWR@singledollarbox}%
        \raisebox{-\dp\LWR@singledollarbox}{%
            \LWR@addbaselinemarker%
        }%
    }%
```

More low-level code to undo the counter change.

```
    \global\advance\c@LWR@lateximagedepth -1\relax% Due to AmS \text macro.
```

Measure the depth:

```
    \setlength{\LWR@singledollardepth}{%
        \LateximageFontScale\dp\LWR@singledollarbox%
    }%
```

Make the length a global change:

```
    \global\LWR@singledollardepth=\LWR@singledollardepth%
```

Likewise for width:

```
    \setlength{\LWR@singledollarwidth}{%
        \LateximageFontScale\wd\LWR@singledollarbox%
    }%
    \global\LWR@singledollarwidth=\LWR@singledollarwidth%
```

Likewise for total height:

```
    \setlength{\LWR@singledollarheight}{%
        \LateximageFontScale\ht\LWR@singledollarbox%
    }%
    \addtolength{\LWR@singledollarheight}{%
        \LateximageFontScale\dp\LWR@singledollarbox%
    }%
    \global\LWR@singledollarheight=\LWR@singledollarheight%

    \endgroup%
}
```

`\LWR@subsingledollarsvg` * {⟨*2: alt text*⟩} {⟨*3: add'l hashing*⟩} {⟨*4: math expression*⟩}

For inline math. Uses SVG math. The image is measured and ajusted to the baseline of the HTML output, and placed inside a `lateximage`.

(In some circumstances SVG math is used even if MathJax is preferred.)

Factored from `\LWR@subsingledollar`.

```
\newcommand*{\LWR@subsingledollarsvg}[4]{%
    \LWR@traceinfo{LWR@subsingledollartsvg}%
```

Measure the depth, width, and height of the math image:

```
    \LWR@singledollarmeasure{#4}%
```

Set a style for the the height or width. The `em` unit is used so that the math scales according to the user's selected font size.

Start with the greater of the width or the height, biased towards the width:

```
    \ifdimgreater{\LWR@singledollarwidth}{.7\LWR@singledollarheight}{%
        \def\LWR@singledollarstyle{%
```

```
            width:\LWR@convertto{em}{\the\LWR@singledollarwidth} em%
        }%
    }{%
        \def\LWR@singledollarstyle{%
            height:\LWR@convertto{em}{\the\LWR@singledollarheight} em%
        }%
    }%
```

If a very narrow width, use the height.

```
    \ifdimless{\LWR@singledollarwidth}{.2em}%
    {%
        \def\LWR@singledollarstyle{%
            height:\LWR@convertto{em}{\the\LWR@singledollarheight} em%
        }%
    }%
    {}%
```

If very wide and short, use the width:

```
    \ifdimless{\LWR@singledollarheight}{.2em}%
    {%
        \def\LWR@singledollarstyle{%
            width:\LWR@convertto{em}{\the\LWR@singledollarwidth} em%
        }%
    }%
    {}%
```

If there is significant text depth, add the depth to the style.

```
    \ifdimgreater{\LWR@singledollardepth}{0.05ex}{%
        \def\LWR@singledollardepthstyle{%
            \ ; % extra space
            \LWR@print@mbox{%
           vertical-align:-\LWR@convertto{em}{\the\LWR@singledollardepth} em%
            } % extra space
        }%
    }{%
        \def\LWR@singledollardepthstyle{}%
    }%
```

If using certain Ti*k*z actions inside math, the resulting image may exceed the TEX boundaries, so the HTML size styles may be incorrect, and must be neutralized.

```
    \ifbool{LWR@unknownmathsize}{%
        \def\LWR@singledollarstyle{}%
        \def\LWR@singledollardepthstyle{}%
    }{}%
```

Create the `latexmage` using the alternate tag and the computed size and depth. The star causes `latexmage` to use an MD5 hash as the filename. When hashing, also include the current font and color in the hash.

```
    \ifbool{LWR@dynamicmath}{%
        \LWR@traceinfo{subsingledollarsvg: dynamic}%
        \begin{lateximage}% no hashing
            [\MathImageAltText]% alt tag
            []% no add'l hashing
            [\LWR@singledollarstyle \LWR@singledollardepthstyle]% CSS
```

```
            (math)% ARIA
    }{% not dynamic math
        \LWR@traceinfo{subsingledollarsvg: static}%
        \IfValueTF{#1}{% #1 True
            \LWR@findcurrenttextcolor% sets \LWR@tempcolor
```

Support for xfakebold:

```
            \ifbool{LWR@xfakebold}%
                {\def\LWR@tempone{Y}}%
                {\def\LWR@tempone{N}}%

            \LWR@traceinfo{subsingledollarsvg about to lateximage}%
            \begin{lateximage}*% use hashing
                [#2]% alt
                *% do not add open/closing braces
                [% addl' hashing
                    #3%
                    FM\LWR@f@family%
                    SR\LWR@f@series%
                    SH\LWR@f@shape%
                    SHC\LWR@f@shapecaps%
                    CL\LWR@tempcolor%
                    FB\LWR@tempone% xfakebold
                ]%
                [\LWR@singledollarstyle \LWR@singledollardepthstyle]% CSS
                (math)% ARIA
                \LWR@traceinfo{subsingledollar did lateximage}%
        }{% #1 False
            \begin{lateximage}% no hashing
                [#2]% alt
                []% no add'l hashing
                [\LWR@singledollarstyle \LWR@singledollardepthstyle]% CSS
                (math)% ARIA
        }%
    }% not dynamic math
```

Place small and almost transparent markers on the baseline at the left and right edges of the image. These markers are seen by *pdfcrop*, and force vertically-centered objects such as a dash to be raised off the baseline in the cropped image, and also force the total width and left / right margins to be correct. (Except that in some fonts a character may exceed the bounding box, and thus may appear wider than expected when converted to an image.)

```
    \LWR@addbaselinemarker%
```

Support for xfakebold:

```
    \LWR@applyxfakebold%
```

Typeset the contents:

```
    \usebox{\LWR@singledollarbox}%
```

The closing baseline marker:

```
    \LWR@addbaselinemarker%
```

```
11812     \end{lateximage}%
11813 %
11814 }
```

`\LWR@subsingledollar` * {⟨*2: alt text*⟩} {⟨*3: add'l hashing*⟩} {⟨*4: math expression*⟩}

For inline math. Uses MathJax, or for svg math the image is measured and ajusted to the baseline of the html output, and placed inside a `lateximage`.

svg math: `\LWR@origensuredmath` is part of argument #4.

svg math `\ensuremath`: `\LWR@origensuredmath` is part of argument #4.

svg dynamic math: `\LWR@origensuredmath` is part of argument #4.

MathJax: Argument #4 is the contents of the math expression without `\LWR@origensuredmath`. This case is handled above.

MathJax `\ensuremath`: `\LWR@origensuredmath` is part of argument #4.

MathJax dynamic math: Argument #4 is the contents of the math expression without `\LWR@origensuredmath`, so `\LWR@origensuredmath` is added below.

image filename hashing

If starred, a hashed filename is used.If so, the hash is based on the `alt` tag and also the additional hashing argument.

This may be used to provide an expression with a simple `alt` tag but also enough additional information to provide a unique hash.

An example is when the expression is a complicated TEX expression, which would not copy/paste well. A simplified tag may be used, while the complicated expression is used in the additional hashing argument to ensure a unique image.

Another example is when the expression is simple, but the image depends on options. These options may be decoded into text form and included in the additional hashing argument in order to make the hash unique according to the set of options, even if the simple `alt` tag is still the same.

```
11815 \newlength{\LWR@singledollarwidth}
11816 \newlength{\LWR@singledollarheight}
11817 \newlength{\LWR@singledollardepth}
11818
11819 \newsavebox{\LWR@singledollarbox}
11820
11821 \NewDocumentCommand{\LWR@subsingledollar}{s m m m}{%
11822     \LWR@traceinfo{LWR@subsingledollar !#2!}%

11823     \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
11824     {%
11825         \LWR@traceinfo{LWR@subsingledollar: already in a lateximage}%
11826             #4% contents
11827     }%
11828     {% not in a lateximage
11829         \begingroup%
```

Support for xfakebold:

```
11830         \LWR@applyxfakebold%
```

MathJax cannot parse the often complicated TEX expressions which appear in the various uses of \ensuredmath. \ensuremath forces the alt tag to "(math image)", as translated according to \MathImageAltText. If this is the case, force the use of a lateximage even if MathJax. Likewise for siunitx if parse-numbers=false.

If MathJax, or if formatting math for a word processor, and not \ensuredmath, and not a dynamic math expression, print the math expression:

```
        \ifboolexpr{%
            (
                bool{mathjax} or
                ( bool{FormatWP} and bool{WPMarkMath} )
            ) and
            ( not test {
                    \ifstrequal {#2}% from \ensuredmath
                        {\AltTextOpen\MathImageAltText\AltTextClose}
                }
            ) and
            ( not bool{LWR@dynamicmath} )
        }%
```

For MathJax, print the math between \(and \):

```
        {%
            \LWR@traceinfo{LWR@subsingledollar: Mathjax}%
            {%
                \textbackslash(%
                {%
```

\ifmmode to avoid error about \ttfamily inside math mode in the case of nested math, ex. equation with tcolorbox with math.

```
                    \ifmmode\else\LWR@print@ttfamily\fi%
                    \LWR@HTMLsanitizedetokenized{\detokenize{#4}}%
                }%
                \textbackslash)%
            }%
        }% mathjax
```

For svg, print the math inside a lateximage, with an <alt> tag of the LaTeX code, and a css style to control the baseline adjustment.

```
        {% not mathjax
            \LWR@traceinfo{%
           LWR@subsingledollar: NOT mathjax, or is ensuremath, or is dynamic%
            }%
            \LWR@subsingledollarsvg{#1}{#2}{#3}{#4}%
        }% not mathjax
        \endgroup%
    }% not in a lateximage
```

Clear the single-use alt text:

```
    \gdef\LWR@ThisAltText{}%
    \LWR@traceinfo{LWR@subsingledollar: done}%
}

\LetLtxMacro\LWR@origdollar$
\LetLtxMacro\LWR@secondorigdollar$% balance for editor syntax highlighting
```

```
\LetLtxMacro\LWR@origopenparen\(
\LetLtxMacro\LWR@origcloseparen\)
\LetLtxMacro\LWR@origopenbracket\[
\LetLtxMacro\LWR@origclosebracket\]
```

$ $$ Redefine the dollar sign to place math inside a `lateximage`, or use MathJax:

```
\begingroup
\catcode`\$=\active%
\protected\gdef${\@ifnextchar$\LWR@doubledollar\LWR@singledollar}%
```

Used by chemformula to escape single-dollar math:

```
\protected\gdef\LWR@newsingledollar{\@ifnextchar$\LWR@doubledollar\LWR@singledollar}%
```

\LWR@doubledollar Redefine the double dollar sign to place math inside a `lateximage`, or use MathJax:

```
\protected\gdef\LWR@doubledollar$#1$${%
```

If MathJax or formatting for a word processor, print the LaTeX expression:

```
    \ifboolexpr{bool{mathjax} or ( bool{FormatWP} and bool{WPMarkMath} ) }%
```

For MathJax, print the math between `\[` and `\]`. If there is a footnote, endnote, or other kind of note ('`note`' is present), sync the note numbers.

```
    {% intentional blank line:

        \IfSubStr{\detokenize\expandafter{#1}}{\detokenize{note}}{%
```

The equation is printed to the PDF output inside HTML comment tags. This allows labels and footnotes to be accepted and processed. The `math` environment is selected here, and `\LWR@hidelatexequation` will use the original print-mode meaning of `math`.

```
            \LWR@hidelatexequation{math}{#1}%


            \InlineClass{hidden}{\LWR@syncnotenumbers}%
            \textbackslash[%
            {%
                \LWR@print@ttfamily%
                \LWR@HTMLsanitizedetokenized{\detokenize{#1}}%
            }%
            \textbackslash]
            \InlineClass{hidden}{\LWR@syncnotenames}%
        }{%
            \textbackslash[%
            {%
                \LWR@print@ttfamily%
                \LWR@HTMLsanitizedetokenized{\detokenize{#1}}%
            }%
            \textbackslash]
        }%

    }% mathjax
```

For SVG, print the math inside a `lateximage`, with an `<alt>` tag of the LaTeX code:

```
    {% not mathjax
        \begin{BlockClass}{displaymath}%
        \LWR@newautoidanchor%
        \booltrue{LWR@indisplaymathimage}%
        \begin{lateximage}%
        [%
            \textbackslash{[} % extra space
            \LWR@HTMLsanitizedetokenized{\detokenize{#1}} % extra space
            \textbackslash{]}%
        ]%
        *% do not add open/closing braces
        (math)% ARIA
```

Support for xfakebold:

```
        \LWR@applyxfakebold%
```

```
        \LWR@origdollar\LWR@origdollar#1\LWR@origdollar\LWR@origdollar%
        \end{lateximage}%
        \end{BlockClass}%
    }% not mathjax
```

Clear the single-use `alt` text:

```
    \gdef\LWR@ThisAltText{}%
}%
```

`\LWR@singledollar` {⟨*math expression*⟩}

```
\protected\gdef\LWR@singledollar#1${%
    \LWR@traceinfo{LWR@singledollar}%
    \ifbool{mathjax}{%
        \LWR@subsingledollar*%
        {% alt tag
            \textbackslash( %
            \LWR@HTMLsanitizedetokenized{\detokenize{#1}} % extra space
            \textbackslash)%
        }%
        {singledollar}% add'l hashing
        {#1}% contents
    }{% not mathjax
        \LWR@subsingledollar*%
        {% alt tag
            \textbackslash( %
            \LWR@HTMLsanitizedetokenized{\detokenize{#1}} % extra space
            \textbackslash)%
        }%
        {singledollar}% add'l hashing
        {\LWR@origensuredmath{#1}}% contents
    }% not mathjax
```

Clear the single-use `alt` text:

```
    \gdef\LWR@ThisAltText{}%
}
```

\(Redefine to the above dollar macros.
\[

```
\AtBeginDocument{
    \protected\gdef\(#1\){$#1$}
    \protected\gdef\[#1\]{$$#1$$}
}

\endgroup% active $


\AtBeginDocument{
\LetLtxMacro\LWR@openbracketnormal\[
\LetLtxMacro\LWR@closebracketnormal\]
}
```

\@ensuredmath {⟨*expression*⟩}

If MathJax, a `lateximage` is used, since `\ensuremath` is often used for complex TEX expressions which MathJax may not render. If SVG math, a hashed file is used with a simple `alt` tag, but additional hashing provided by the contents.

```
\LetLtxMacro\LWR@origensuredmath\@ensuredmath

\renewcommand{\@ensuredmath}[1]{%
    \ifbool{mathjax}{%
        \LWR@subsingledollar*{\AltTextOpen\MathImageAltText\AltTextClose}%
        {%
        \protect\LWR@HTMLsanitizedetokenized{\detokenize\expandafter{#1}}%
        }%
        {%
            \relax%
            \LWR@origensuredmath{#1}%
        }%
    }{% SVG math
```

If already inside a `lateximage` in math mode, continue as-is.

```
        \ifmmode%
            \LWR@origensuredmath{#1}%
        \else%
```

Create an inline math `lateximage` with a simple `alt` tag and additional hashing according to the contents.

```
            \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
                {\LWR@origensuredmath{#1}}%
                {%
                    \LWR@subsingledollar*%
                        {\AltTextOpen\MathImageAltText\AltTextClose}%
                        {%
                            \protect\LWR@HTMLsanitizedetokenized{%
                                \detokenize\expandafter{#1}%
                            }%
                        }%
                        {\LWR@origensuredmath{#1}}%
                }%
        \fi%
    }%
```

Clear the single-use `alt` text:

```
    \gdef\LWR@ThisAltText{}%
}
```

Remember then remove the old `math` and `displaymath` environments:

```
\let\LWR@orig@math\math
\let\LWR@orig@endmath\endmath

\let\LWR@orig@displaymath\displaymath
\let\LWR@orig@enddisplaymath\enddisplaymath

\let\math\relax
\let\endmath\relax

\let\displaymath\relax
\let\enddisplaymath\relax
```

Env `math` Set math mode then typeset the body of what was between the begin/end. See the environ package for `\BODY`.

```
\NewEnviron{math}{\expandafter\(\BODY\)}
```

Env `LWR@displaymathnormal` Set math mode then typeset the body of what was between the begin/end. See the environ package for `\BODY`.

```
\NewEnviron{LWR@displaymathnormal}{\expandafter\[\BODY\]\@ignoretrue}
```

Set the default displaymath to the normal version:

```
\LetLtxMacro\displaymath\LWR@displaymathnormal%
\LetLtxMacro\enddisplaymath\endLWR@displaymathnormal%
```

Env `LWR@displaymathother` A version of `displaymath` which can handle complicated objects, but does not supply MathJax or HTML `alt` tags.

```
\newenvironment{LWR@displaymathother}
{%
    \begin{BlockClass}{displaymath}%
    \LWR@newautoidanchor%
    \booltrue{LWR@indisplaymathimage}%
    \begin{lateximage}[\MathImageAltText](math)% [alt](ARIA)
    \LWR@origdollar\LWR@origdollar%
}
{%
    \LWR@origdollar\LWR@origdollar%
    \end{lateximage}%
    \end{BlockClass}%
}
```

Env `LWR@equationother` A version of `displaymath` which can handle complicated objects, but does not supply MathJax or HTML `alt` tags.

```
\newenvironment{LWR@equationother}
{%
    \begin{BlockClass}{displaymathnumbered}%
    \LWR@newautoidanchor%
    \booltrue{LWR@indisplaymathimage}%
    \begin{lateximage}[\MathImageAltText](math)% [alt](ARIA)
    \LWR@orig@equation%
}
{%
    \LWR@orig@endequation%
    \end{lateximage}%
    \end{BlockClass}%
}
```

83.4 MathJax support

Ctr LWR@nextequation

Used to add one to compute the next equation number.

```
\newcounter{LWR@nextequation}
```

Determing how to set MathJax section and equation numbers. Adjusts for various kinds of \theequation to determine \theMathJaxsection and \theMathJaxequation.

```
\newcommand\LWR@article@theequation{\@arabic\c@equation}

\newcommand\LWR@book@theequation
  {\ifnum \c@chapter>\z@ \thechapter.\fi \@arabic\c@equation}


\newcommand\LWR@chapter@theequation{\thechapter.\arabic{equation}}
\newcommand\LWR@section@thequation{\thesection.\arabic{equation}}
\newcommand\LWR@subsection@thequation{\thesubsection.\arabic{equation}}

\AtBeginDocument{
    % default per article class:
    \newcommand*{\theMathJaxsubequations}{0}
    \newcommand*{\theMathJaxsection}{}
    \newcommand*{\theMathJaxequation}{\arabic{equation}}

    \ifdefstrequal{\theequation}{\LWR@article@theequation}
    {}{
    \ifdefstrequal{\theequation}{\LWR@book@theequation}{
      \renewcommand*{\theMathJaxsection}{\ifnum \c@chapter>\z@ \thechapter.\fi}
    }{
    \ifdefstrequal{\theequation}{\LWR@subsection@thequation}{
        \renewcommand*{\theMathJaxsection}{\thesubsection{}.}
    }{
    \ifdefstrequal{\theequation}{\LWR@section@thequation}{
        \renewcommand*{\theMathJaxsection}{\thesection{}.}
    }{
    \ifdefstrequal{\theequation}{\LWR@chapter@theequation}{
        \renewcommand*{\theMathJaxsection}{\thechapter{}.}
    }{% unknown format
        \PackageWarningNoLine{lwarp}
        {%
          Unknown equation tag format for \protect\theequation.\MessageBreak
             Article-style equation numbering will be used%
        }
```

```
12060     }}}}}
12061 }
```

`\LWR@syncmathjax` Sets the MathJax equation format and number for the following equations.

These MathJax commands are printed inside "`\(`" and "`\)`" characters. They are printed to HTML output, not interpreted by LaTeX.

```
12062 \newcommand*{\LWR@syncmathjax}{%
```

Tell MathJax that the next equation number is the current LaTeX equation number.

Before each equation, lwarp inserts into the HTML code:

```
\seteqnumber{subequations?}{section}{number}
```

`subequations?` is `0` usually, `1` if inside amsmath `subequations`.

`section` is a string printed as-is, or empty.

`number` is auto-incremented by MathJax between equations.

Place the MathJax command inside "`\(`" and "`\)`" characters, to be printed to HTML, not interpreted by LaTeX.

```
12063         \LWR@stoppars%
12064         \InlineClass{hidden}{
12065             \textbackslash(%
12066             \textbackslash{}seteqnumber%
12067             \{\theMathJaxsubequations\}%
12068             \{\theMathJaxsection\}%
12069             \{\theMathJaxequation\}%
12070             \textbackslash)%
12071         }
12072         \LWR@startpars%
12073 }
```

`\LWR@hidelatexequation` {⟨*environment*⟩} {⟨*contents*⟩}

Creates the LaTeX version of the equation inside an HTML comment.

```
12074 \NewDocumentCommand{\LWR@hidelatexequation}{m +m}{%
```

Stop HTML paragraph handling and open an HTML comment:

```
12075     \LWR@stoppars
12076     \LWR@htmlopencomment
12077
```

Start the LaTeX math environment inside the HTML comment:

```
12078     \begingroup
12079     \@nameuse{LWR@orig@#1}
```

While in the math environment, restore various commands to their LaTeX meanings.

```
    \LWR@restoreorigformatting
    \booltrue{LWR@insidemathcomment}
```

Temporarily prevent underfull \hbox warnings.

```
    \hbadness=10000\relax%
```

See \LWR@htmlmathlabel in section 83.7.1.

Print the contents of the equation:

```
    #2
```

End the LaTeX math environment inside the HTML comment:

```
    \@nameuse{LWR@orig@end#1}
    \endgroup

```

Close the HTML comment and resume HTML paragraph handling:

```
    \LWR@htmlclosecomment
    \boolfalse{LWR@insidemathcomment}
    \LWR@startpars
}
```

\LWR@addmathjax {⟨*environment name*⟩} {⟨*contents*⟩}

Given the name of a math environment and its contents, create a MathJax instance. The contents are printed to HTML output, not interpreted by LaTeX.

```
\NewDocumentCommand{\LWR@addmathjax}{m +m}{%
    \LWR@origtilde\LWR@orignewline
```

Enclose the MathJax environment inside printed "\(" and "\)" characters. Print the environment name and contents, sanitizing for HTML special characters.

```
    {%
        \LWR@print@ttfamily%
        \textbackslash{}begin\{#1\}
```

The alignat environment takes a mandatory argument, which must be replicated here.

```
        \ifboolexpr{
            test {\ifstrequal{#1}{alignat}} or
            test {\ifstrequal{#1}{alignat*}} or
            test {\ifstrequal{#1}{alignat+}}
        }%
            {\{\arabic{LWR@maxfields@}\}}%
            {}%
```

The environment contents and \end:

```
        \LWR@orignewline%
        \LWR@HTMLsanitizeexpanded{\detokenize\expandafter{#2}}%
```

```
12105         \LWR@orignewline%
12106         \textbackslash{}end\{#1\}
12107     }%

12108     \LWR@orignewline
12109 }
```

83.5 Equation environment

Remember existing `equation` environment, after redefined by amsmath, if loaded.

```
12110 \AtBeginDocument{
12111     \let\LWR@orig@equation\equation
12112     \let\LWR@orig@endequation\endequation
12113     \csletcs{LWR@orig@equation*}{equation*}
12114     \csletcs{LWR@orig@endequation*}{endequation*}
12115 }
```

`\LWR@doequation` {⟨*env contents*⟩} {⟨*env name*⟩}

For SVG math output, the contents are typeset using the original `equation` inside a `lateximage`, along with an `<alt>` tag containing a detokenized copy of the LaTeX source for the math.

For MathJax output, the contents are typeset in an original `equation` environment placed inside a HTML comment, with special processing for `\labels`. The contents are also printed to the HTML output for processing by the MathJax script.

```
12116 \newcommand*{\LWR@doequation}[2]{%
12117
```

If `mathjax` or `FormatWP`, print the LaTeX expression:

```
12118     \ifboolexpr{bool{mathjax} or ( bool{FormatWP} and bool{WPMarkMath} ) }%
```

MathJax output:

```
12119     {
```

Print commands to syncronize MathJax's equation number and format to the current LaTeX chapter/section and equation number:

```
12120         \LWR@syncmathjax%
```

Print the LaTeX math inside an HTML comment:

```
12121         \LWR@hidelatexequation{#2}{#1}
12122     }
```

SVG output: Create the `lateximage` along with an HTML `<alt>` tag having an equation number, the LaTeX equation environment commands, and the contents of the environment's `\BODY`.

```
12123     {% not mathjax
```

Begin the `lateximage` with an `<alt>` tag containing the math source:

```
        \ifstrequal{#2}{equation*}{%
            \begin{BlockClass}{displaymath}%
        }{%
            \begin{BlockClass}{displaymathnumbered}%
        }%
        \LWR@newautoidanchor%
        \booltrue{LWR@indisplaymathimage}%
        \begin{lateximage}[%
            \ifstrequal{#2}{equation*}{%
                \ifdefequal{\LWR@equationtag}{\theequation}{%
    %                                   no tag was given
                }{%
                    (\LWR@equationtag) % tag was given
                }%
            }{%
                (\LWR@equationtag) % automatic numbering
            }%
            \textbackslash{begin\{#2\}} % extra space
        \LWR@HTMLsanitizeexpanded{\detokenize\expandafter{#1}} % extra space
            \textbackslash{end\{#2\}}%
        ]*(math)% alt tag, ARIA
```

Support for xfakebold:

```
        \LWR@applyxfakebold%
```

Create the actual LaTeX-formatted equation inside the `lateximage` using the contents of the environment.

```
        \@nameuse{LWR@orig@#2}%
        #1% contents collected by \collect@body
        \@nameuse{LWR@orig@end#2}%
        \end{lateximage}%
        \end{BlockClass}%
    }% not mathjax
```

Clear the single-use `alt` text:

```
    \gdef\LWR@ThisAltText{}%
}
```

After the environment, if MathJax, print the math to the HTML output for MathJax processing. If a footnote is used, sync the `footnote` counter before, then unsync after for non-equation environments, as defined next.

```
\newcommand*{\LWR@doendequation}[1]{%
    \ifboolexpr{bool{mathjax} or ( bool{FormatWP} and bool{WPMarkMath} ) }%
    {%
        \IfSubStr{\detokenize\expandafter{\BODY}}{\detokenize{note}}{%
            \InlineClass{hidden}{\LWR@syncnotenumbers}%
            \LWR@addmathjax{#1}{\BODY}%
            \InlineClass{hidden}{\LWR@syncnotenames}%
        }{%
            \LWR@addmathjax{#1}{\BODY}%
        }%
    }{}%

```

Clear the single-use `alt` text:

```
    \gdef\LWR@ThisAltText{}%
}
```

The following are used to syncronize footnote marks and related to MathJax if *note* is used inside the MathJax expression. The counter is read from LaTeX then defined into MathJax for use during the following equation. After the equation, the MathJax value is returned to the text from `\footnotename`. Other notes may be added by appending to `\LWR@syncnotenumbers` and `\LWR@syncnotenames`.

`\LWR@synconenotenumber` {⟨*MathJax variable*⟩} {⟨*mark*⟩}

```
\newcommand*{\LWR@synconenotenumber}[2]{%
    \textbackslash(
    \textbackslash{}def\textbackslash{}#1\{#2\}
    \textbackslash)
}
```

`\LWR@syncnotenumbers` Assignments to make.

```
\newcommand*{\LWR@syncnotenumbers}{\LWR@synconenotenumber{LWRfootnote}{\thefootnote}}
```

`\LWR@synconenotename` {⟨*MathJax variable*⟩} {⟨*text*⟩}

```
\newcommand*{\LWR@synconenotename}[2]{%
    \textbackslash(
    \textbackslash{}def\textbackslash{}#1name\{#2\}
    \textbackslash)
}
```

`\LWR@syncnotenames` Assignments to make.

```
\newcommand*{\LWR@syncnotenames}{\LWR@synconenotename{LWRfootnote}{\footnotename}}
```

Remove existing `equation` environment:

```
\AtBeginDocument{
    \let\equation\relax
    \let\endequation\relax
    \csletcs{equation*}{relax}
    \csletcs{endequation*}{relax}
}
```

Env `equation` The new `equation` environment is created with `\NewEnviron` (from the environ package), which stores the contents of its environment in a macro called `\BODY`.

```
\AtBeginDocument{
    \NewEnviron{equation}%
        {\LWR@doequation{\BODY}{equation}}%
        [\LWR@doendequation{equation}]

    \LetLtxMacro\LWR@equationnormal\equation
    \LetLtxMacro\endLWR@equationnormal\endequation
}% AtBeginDocument
```

Env equation*

```
\AtBeginDocument{
    \NewEnviron{equation*}%
        {\LWR@doequation{\BODY}{equation*}}%
        [\LWR@doendequation{equation*}]

    \csletcs{LWR@equationnormalstar}{equation*}
    \csletcs{LWR@endequationnormalstar}{endequation*}
}% AtBeginDocument
```

Remember the "less" version of equation, which uses MathJaxand alt tags, but does not support complicated contents such as some Ti*k*z expressions.

```
\AtBeginDocument{
    \LetLtxMacro\LWR@equationless\equation
    \LetLtxMacro\endLWR@equationless\endequation
    \csletcs{LWR@equationlessstar}{equation*}
    \csletcs{LWR@endequationlessstar}{endequation*}
}
```

83.6 \displaymathnormal and \displaymathother

\displaymathnormal

By default, or when selecting \displaymathnormal, MathJax math display environments print their contents as text into HTML for MathJax to interpret, and SVG display math environments render their contents as SVG images and use their contents as the alt tag of HTML output. To do so, the contents are loaded into a macro for reuse. In some cases, such as complicated Ti*k*z pictures, compilation will fail.

\displaymathother

MathJax unsupported complicated alt tag

When selecting \displaymathother, it is assumed that the contents are more complicated than "pure" math. An example is an elaborate Ti*k*z picture, which will not render in MathJax and will not make sense as an HTML alt tag. In this mode, MathJax is turned off, math display environments become SVG images, even if MathJax is selected, and the HTML alt tags become simple messages. The contents are internally processed as an environment instead of a macro argument, so complicated objects such as Ti*k*z pictures are more likely to compile successfully.

\displaymathnormal simple math objects

Use when display math environments have simple math which is to sent to MathJax or included in HTML alt tags.

```
\newcommand*{\displaymathnormal}{%
    \ifbool{LWR@origmathjax}{\booltrue{mathjax}}{\boolfalse{mathjax}}%
    \LetLtxMacro\[\LWR@openbracketnormal%
    \LetLtxMacro\]\LWR@closebracketnormal%
    \LetLtxMacro\displaymath\LWR@displaymathnormal%
    \LetLtxMacro\enddisplaymath\endLWR@displaymathnormal%
    \LetLtxMacro\equation\LWR@equationnormal%
    \LetLtxMacro\endequation\endLWR@equationnormal%
    \csletcs{equation*}{LWR@equationnormalstar}%
    \csletcs{endequation*}{LWR@endequationnormalstar}%
}
```

\displaymathother complicated math objects

Use when display math environments have complicated objects which will not work with MathJax or should not be included in HTML alt tags. Complicated

contents are more likely to compile correctly.

```
\newcommand*{\displaymathother}{%
    \boolfalse{mathjax}%
    \LetLtxMacro\displaymath\LWR@displaymathother%
    \LetLtxMacro\enddisplaymath\endLWR@displaymathother%
    \LetLtxMacro\[\LWR@displaymathother%
    \LetLtxMacro\]\endLWR@displaymathother%
    \LetLtxMacro\equation\LWR@equationother%
    \LetLtxMacro\endequation\endLWR@equationother%
    \csletcs{equation*}{displaymath}%
    \csletcs{endequation*}{enddisplaymath}%
}
```

```
\end{warpHTML}
```

for PRINT output:

```
\begin{warpprint}
```

Print-mode versions:

```
\newcommand*{\displaymathnormal}{}
\newcommand*{\displaymathother}{}
```

```
\end{warpprint}
```

for HTML output:

```
\begin{warpHTML}
```

83.7 AMS Math environments

83.7.1 Support macros

Bool `LWR@amsmultline`

True if processing a multline environment.

To compensate for `multline`-spefific code, `LWR@amsmultline` is used to add extra horizontal space in `\LWR@htmlmathlabel` if is used in an amsmath environment which is not a `multline` environment and not an `equation`.

```
\newbool{LWR@amsmultline}
\boolfalse{LWR@amsmultline}
```

`\LWR@beginhideamsmath` Starts hiding LaTeX math inside an HTML comment.

```
\newcommand*{\LWR@beginhideamsmath}{
    \LWR@stoppars
    \LWR@origtilde\LWR@orignewline
    \LWR@htmlopencomment

    \begingroup
    \LWR@restoreorigformatting
```

Temporarily prevent underfull \hbox warnings.

```
    \hbadness=10000\relax%
```

```
    \booltrue{LWR@insidemathcomment}
}
```

\LWR@endhideamsmath Ends hiding LaTeX math inside an HTML comment.

```
\newcommand*{\LWR@endhideamsmath}{
    \endgroup

    \LWR@htmlclosecomment
    \boolfalse{LWR@insidemathcomment}
    \LWR@orignewline
    \LWR@startpars
}
```

83.7.2 Environment patches

The amsmath environments already collect their contents in \@envbody for further processing. eqnarray is not an $\mathcal{AMS}$ package, and thus requires special handling.

For SVG math: Each envrionment is encapsulated inside a lateximage environment, along with a special optional argument of \LWR@amsmathbody or \LWR@amsmathbodynumbered telling lateximage to use as the HTML <alt> tag the environment's contents which were automatically captured by the $\mathcal{AMS}$ environment.

For MathJax: Each environment is synched with LaTeX's equation numbers, typeset with LaTeX inside an HTML comment, then printed to HTML output for MathJax to process.

Env eqnarray This environmnet is not an $\mathcal{AMS}$ environment and thus its body is not automatically captured, so the environ package is used to capture the environment into \BODY.

```
\let\LWR@origeqnarray\eqnarray
\let\LWR@origendeqnarray\endeqnarray
```

To remember whether the starred environment was used, and thus whether to number the equations:

```
\newbool{LWR@numbereqnarray}
\booltrue{LWR@numbereqnarray}
```

Common code used by eqnarray and Beqnarray (from fancybox):

```
\newcommand{\LWR@eqnarrayfactor}{%
```

If mathjax or FormatWP, print the LaTeX expression:

```
    \ifboolexpr{bool{mathjax} or ( bool{FormatWP} and bool{WPMarkMath} ) }%
    {%
```

If MathJax, the environment contents (the \BODY) are executed in a HTML comment to trigger the correct equation number increment (if not starred), then are included verbatim in the output for MathJax to interpret:

```
        \LWR@syncmathjax%
```

```
        \boolfalse{LWR@amsmultline}%
        \ifbool{LWR@numbereqnarray}%
        {%
```

If numbering the equations, execute a copy inside an HTML comment block:

```
            \LWR@beginhideamsmath%
            \LWR@origeqnarray%
            \BODY%
            \LWR@origendeqnarray%
            \LWR@endhideamsmath%
```

Then print the (sanitized) contents to the output for MathJax to interpret:

```
            \LWR@addmathjax{eqnarray}{\BODY}%
        }%
        {% not LWR@numbereqnarray
```

If not numbering equations, just create the contents for MathJax:

```
            \LWR@addmathjax{eqnarray*}{\BODY}%
        }% LWR@numbereqnarray
    }% mathjax
    {% not mathjax
        \ifbool{LWR@numbereqnarray}%
        {%
```

For numbered SVG equations, first create a `latexmage` with an `alt` attribute containing sanitized copy of the source code:

```
            \begin{BlockClass}{displaymathnumbered}%
            \LWR@newautoidanchor%
            \booltrue{LWR@indisplaymathimage}%
        \begin{lateximage}[(\LWR@startingequationtag\textendash\LWR@equationtag)%
                \LWR@addmathjax{eqnarray}{\BODY}]*(math)%
```

Support for xfakebold:

```
            \LWR@applyxfakebold%
```

Create the image contents using an actual `eqnarray`:

```
            \LWR@origeqnarray%
            \BODY%
            \LWR@origendeqnarray%
            \end{lateximage}%
            \end{BlockClass}%
        }%
        {% not LWR@numbereqnarray
```

If not numbered, do the same, but an extra `\nonumber` seems to be required:

```
            \begin{BlockClass}{displaymath}%
            \LWR@newautoidanchor%
            \booltrue{LWR@indisplaymathimage}%
            \begin{lateximage}[\LWR@addmathjax{eqnarray*}{\BODY}]*(math)%
```

Support for xfakebold:

```
            \LWR@applyxfakebold%

            \def\@eqncr{\nonumber\@seqncr}
            \csuse{LWR@origeqnarray}%
            \BODY%
            \nonumber\csuse{LWR@origendeqnarray}%
            \end{lateximage}%
            \end{BlockClass}%
        }% LWR@numbereqnarray
    }% not mathjax
```

Default to number equations in the future:

```
    \booltrue{LWR@numbereqnarray}%
```

Clear the single-use `alt` text:

```
    \gdef\LWR@ThisAltText{}%
}
```

`eqnarray` itself is made with a blank line before and after to force it to be on its own line:

```
\RenewEnviron{eqnarray}
{%

\LWR@eqnarrayfactor

}
```

The starred version is patched to turn off the numbering:

```
\csgpreto{eqnarray*}{\boolfalse{LWR@numbereqnarray}}

\end{warpHTML}
```

84 Lateximages

84.1 Description

Env `lateximage`

A `lateximage` is a piece of the document which is typeset in LaTeX then included in the HTML output as an image. This is used for math if SVG math is chosen, and also for the `picture`, `tikzpicture`, and other environments.

Before typesetting the `lateximage` a large number of formatting, graphics, and symbols-related macros are temporarily restored to their print-mode meaning by `\LWR@restoreorigformatting`. (See section 81.)

A `lateximage` is typeset on its own PDF page inside an HTML comment which starts on the preceeding page and ends on following page, and instructions are written to `lateximage.txt` for *lwarpmk* to extract the `lateximage` from the page of the PDF file then generate an accompanying `.svg` file image file. Meanwhile, instructions to show this image are placed into the HTML file after the comment.

An HTML is created to hold both the HTML comment, which will have the *pdftotext* conversion, and also the link to the final .svg image.

A LaTeX label is used to remember which PDF page has the image. A label is used because footnotes, endnotes, and pagenotes may cause the image to appear at a later time. The label is declared along with the image, and so it correctly remembers where the image finally ended up.

HTML alt tag

The HTML alt tag is set to the LaTeX source for SVG math, some chemistry expressions, and perhaps some other expressions which make sense for text copy/paste. In some other cases, the alt tag is set according to the package name.

When creating an SVG math image, its HTML alt tag may be set to the math expression, which may be hashed for image reuse. In the case of \ensuremath or after \inlinemathother, where the contents require a unique image for each instance of the same expression, the alt tag is set to \MathImageAltText, along with \AltTextOpen and \AltTextClose, and the image is not reused.

This alt expression is visible in the browser if images are not loaded, and appears when the text is copied and pasted. The default is "math image", and it may be changed according to the document's language. This may be set in the preamble, or changed as necessary inside the document, where it will affect the following SVG math images.

For many packages, the output is placed inside a lateximage with an HTML alt tag set to the package name followed by \PackageDiagramAltText. For example:

```
(-xy- diagram)
```

This expression is visible in the browser if images are not loaded, and appears when the text is copied and pasted. The default is "diagram", and may it be changed according to the document's language. This may be set in the preamble, or changed as necessary inside the document, where it will affect the following package diagrams.

SVG image font size

For the lateximage environment, the size of the math and text used in the SVG image may be adjusted by setting \LateximageFontSizeName to a font size name — *without the backslash*, which defaults to:

```
\renewcommand{\LateximageFontSizeName}{normalsize}
```

For inline SVG math, font size is instead controlled by \LateximageFontScale, which defaults to:

```
\newcommand*{\LateximageFontScale}{.75}
```

84.2 Support counters and macros

for HTML output:

```
\begin{warpHTML}
```

Ctr LWR@lateximagenumber

Sequence the images.

```
\newcounter{LWR@lateximagenumber}
\setcounter{LWR@lateximagenumber}{0}
```

Ctr LWR@lateximagedepth

Do not create \lateximage inside of \lateximage.

```
\newcounter{LWR@lateximagedepth}
\setcounter{LWR@lateximagedepth}{0}
```

A few utility macros to write special characters:

```
\edef\LWR@hashmark{\string#} % for use in \write
\edef\LWR@percent{\@percentchar} % for use in \write
```

Ctr `LWR@LIpage`

Used to reference the PDF page number of a lateximage to be written into `<project>-images.txt`.

```
\newcounter{LWR@LIpage}
```

```
\end{warpHTML}
```

84.3 Font size

for HTML & PRINT:

```
\begin{warpall}
```

`\LateximageFontSizeName`

Declares how large to write text in `\lateximages`. The `.svg` file text size should blend well with the surrounding HTML text size.

⚠ no backslash *Do not include the leading backslash in the name.*

```
\newcommand*{\LateximageFontSizeName}{normalsize}
```

`\LateximageFontScale`

Declares how large to scale inline SVG math images. The `.svg` file text size should blend well with the surrounding HTML text size. The default is 1, but it may be redefined as needed depending on the HTML font.

```
\newcommand*{\LateximageFontScale}{1}
```

```
\end{warpall}
```

84.4 Equation numbers

for HTML output:

```
\begin{warpHTML}
```

Ctr `LWR@startingequation`

For use with `lateximage` and multi-line numbered equations. Remembers the next equation number so that it may be printed in the alt tag.

```
\newcounter{LWR@startingequation}

\@ifundefined{chapter}
{
\renewcommand{\theLWR@startingequation}{%
    \arabic{LWR@startingequation}%
}
}
{% chapter defined
\renewcommand{\theLWR@startingequation}{%
    \ifnumcomp{\value{chapter}}{>}{0}{\arabic{chapter}.}{}%
```

```
    \arabic{LWR@startingequation}%
}
}
```

Bool `LWR@isstartingequation` True for the first equation tag, false for later tags in the same environment.

```
\newbool{LWR@isstartingequation}
```

`\LWR@startingequationtag` Prints the starting equation number or tag.

```
\let\LWR@startingequationtag\theLWR@startingequation
```

`\LWR@equationtag` Prints the ending equation number or tag.

This is reset by `lateximage`, may be temporarily overwritten by `\tag` calling `\LWR@remembertag`.

```
\newcommand*{\LWR@equationtag}{}
```

Only if SVG math, patch `\tag` after packages have loaded, in case someone else modified `\tag`.

```
\AtBeginDocument{

\ifbool{mathjax}{}{% not mathjax
```

`\LWR@remembertag` {⟨*tag*⟩}

For use inside the math environments while using SVG math. Sets `\theLWR@startingequation` and `\theequation` to the given tag.

```
\NewDocumentCommand{\LWR@remembertag}{m}{%
    \ifbool{LWR@isstartingequation}%
    {%
        \global\boolfalse{LWR@isstartingequation}%
        \xdef\LWR@startingequationtag{#1}%
    }{}%
    \xdef\LWR@equationtag{#1}%
}%

}% not mathjax
}% AtBeginDocument
```

84.5 HTML `alt` tags

`\LWR@amsmathbody` {⟨*envname*⟩} For use inside the optional argument to a `lateximage` to add the contents of a AMS math environment to the `<alt>` tag.

```
\newcommand*{\LWR@amsmathbody}[1]
{%
    \textbackslash\{begin\}\{#1\} % extra space
    \LWR@HTMLsanitizeexpanded{\detokenize\expandafter{\the\@envbody}}%
    \textbackslash\{end\}\{#1\}%
}
```

\LWR@amsmathbodynumbered {⟨*envname*⟩} For use inside the optional argument to a lateximage to add the contents of a AMS math environment to the alt tag, prefixed by the equation numbers.

```
\newcommand*{\LWR@amsmathbodynumbered}[1]
{%
    \ifnumcomp{\value{LWR@startingequation}}{=}{\value{equation}}%
        {(\LWR@equationtag)}%
      {(\LWR@startingequationtag\textendash\LWR@equationtag)} % extra space
    \LWR@amsmathbody{#1} % extra space
}
```

84.6 lateximage environment

\LWR@lateximage@oneimageb {⟨*1: alt text*⟩} {⟨*2: filename*⟩} {⟨*3: css style*⟩} {⟨*4: aria role*⟩} Creates the image for the lateximage.

```
\newcommand{\LWR@lateximage@oneimageb}[4]{%
    \LWR@subinlineimage{#1}{lateximage}%
    {%
        \LWR@print@mbox{%
            \LWR@ImagesDirectory\OSPathSymbol%
            #2%
        }%
    }{svg}{#3}{#4}%
}
```

\LWR@lateximage@oneimage {⟨*1: alt text*⟩} {⟨*2: filename*⟩} {⟨*3: css style*⟩} {⟨*4: delimit?*⟩} {⟨*5: aria role*⟩}

Creates an image for the lateximage, whose alt text depends on the circumstances.

```
\newcommand{\LWR@lateximage@oneimage}[5]{%
    \LWR@traceinfo{LWR@lateximage@oneimage !#1!#2!#3!#4!#5!}%
    \ifdefvoid{\LWR@ThisAltText}{%
        \IfBooleanTF{#4}{%
            \LWR@lateximage@oneimageb{#1}{#2}{#3}{#5}%
        }{%
            \LWR@lateximage@oneimageb%
                {\AltTextOpen#1\AltTextClose}%
                {#2}{#3}{#5}%
        }%
    }{%
        \LWR@lateximage@oneimageb%
            {\AltTextOpen\LWR@ThisAltText\AltTextClose}%
            {#2}{#3}{#5}%
    }%
}
```

Env lateximage * [⟨*2:* <alt> *tag*⟩] * [⟨*4: add'l hashing*⟩] [⟨*5: css style*⟩] (⟨*6: aria role*⟩)

Typesets the contents and then renders the result as an SVG file. Star #1 causes the image to be hashed for reuse. Star #3 causes the alt tag to not include \AltTextOpen and \AltTextClose, for use with math expressions.

The optional <alt> tag is included in the HTML code for use with copy/paste.

image filename hashing

If starred, a hashed filename is used.If so, the hash is based on the `alt` tag and also the additional hashing argument.

This may be used to provide an expression with a simple `alt` tag but also enough additional information to provide a unique hash.

An example is when the expression is a complicated TEX expression, which would not copy/paste well. A simplified tag may be used, while the complicated expression is used in the additional hashing argument to ensure a unique image.

Another example is when the expression is simple, but the image depends on options. These options may be decoded into text form and included in the additional hashing argument in order to make the hash unique according to the set of options, even if the simple `alt` tag is still the same.

File `*_html.aux`

A new label is placed into the file `*_html.aux`:

```
\newlabel{LWRlateximage-<BaseJobname>-<number>}{{<x>}{<y>}}
```

This is used to find the image in the PDF file, according to its name.

File `*-images.txt`

A list of images to generate is created in `<jobname>-images.txt`. Each line has three pipe-delimited fields, containing the PDF page number from `<jobname>_html.pdf`, where the image is located, a boolean indicating whether the image is hashed, and the filename of the image. The last line has "end" in each field, and is used to detect an incomplete compile.

```
\catcode`\$=\active%

\NewDocumentEnvironment{lateximage}{s O{\ImageAltText} s O{} O{} D(){}}%
{%
\LWR@traceinfo{lateximage !#1!#2!#3!#4!#5!#6!}%
\LWR@traceinfo{lateximage: starting on \jobname.pdf page \arabic{page}}%
\LWR@traceinfo{lateximage: entering depth is \arabic{LWR@lateximagedepth}}%
```

Nested `lateximages` remain one large `lateximage`:

```
\ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
```

If nesting inside an already-existing lateximage, simply record one more level. $\mathcal{AMS}$ packages redefine `\addtocounter` to do nothing if inside a `\text`, so lower-level TEX macros are used for tracking nested `lateximages`.

```
{%
%     \addtocounter{LWR@lateximagedepth}{1}%
    \global\advance\c@LWR@lateximagedepth 1\relax% Due to AmS \text macro.
}%
```

Otherwise, this is the outer-most lateximage:

```
{% start of outer-most lateximage
```

Remember the next equation number to be allocated, in case it must be printed in a multi-equation environment:

```
    \LWR@traceinfo{lateximage: starting outer-most lateximage}%
    \setcounter{LWR@startingequation}{\value{equation}}%
```

```
    \addtocounter{LWR@startingequation}{1}%
    \booltrue{LWR@isstartingequation}%
    \let\LWR@startingequationtag\theLWR@startingequation%
```

The default equation tag, unless overwritten by `\tag`:

```
    \let\LWR@equationtag\theequation%
```

Starting a new lateximage:

```
    \addtocounter{LWR@lateximagenumber}{1}%
  \LWR@traceinfo{lateximage: LWR@lateximagenumber is \arabic{LWR@lateximagenumber}}%
```

While inside a lateximage, locally do not use mathjax:

```
    \boolfalse{mathjax}%
```

Be sure that are doing a paragraph:

```
    \LWR@ensuredoingapar%
```

Inside the `lateximage`, temporarily prevent underfull `\hbox` warnings.

```
    \hbadness=10000\relax%
```

Next file:

```
    \addtocounter{LWR@externalfilecnt}{1}%
  \LWR@traceinfo{lateximage: LWR@externalfilecnt is \arabic{LWR@externalfilecnt}}%
```

Figure out what the next page number will be. `\setcounterpageref` assigns `LWR@LIpage` to the page number for the reference `LWRlateximage-BaseJobname-XXX`:

```
    \setcounterpageref{LWR@LIpage}{%
        LWRlateximage-\BaseJobname-\arabic{LWR@lateximagenumber}%
    }%
    \LWR@traceinfo{lateximage: LWR@LIpage is \arabic{LWR@LIpage}}%
```

Create an HTML span which will hold the comment which contains the *pdftotext* translation of the image's page, and also will hold the link to the `.svg` file:

```
    \LWR@htmltag{span\LWR@indentHTML%
        id=\textquotedbl{}%
            lateximage-\BaseJobname-\arabic{LWR@lateximagenumber}%
            \textquotedbl\LWR@indentHTML
        class=\textquotedbl{}lateximagesource\textquotedbl\LWR@orignewline
    }%
```

Write instructions to the `<ImagesDirectory>.txt` file:

```
    \LWR@traceinfo{lateximage: about to write to \BaseJobname-images.txt}%
    \IfBooleanTF{#1}% starred
    {% hash
```

Compute and save the hashed file name for later use:

```
        \ifdefvoid{\LWR@ThisAltText}{%
```

```
            \IfBooleanTF{#3}{%
                \edef\LWR@hashedname{%
                    \LWR@mdfive{\detokenize\expandafter{#2}-!-#4}%
                }%
            }{%
                \edef\LWR@hashedname{%
                 \LWR@mdfive{\detokenize\expandafter{\AltTextOpen#2\AltTextClose}-!-#4}%
                }%
            }%
        }{%
            \edef\LWR@hashedname{%
           \LWR@mdfive{\detokenize\expandafter{\AltTextOpen\LWR@ThisAltText\AltTextClose}-!-#4}%
            }%
        }%
        \LWR@traceinfo{lateximage: hash is \LWR@hashedname}%
```

Write the page, hashing, and hashed name:

```
        \immediate\write\LWR@lateximagesfile{%
            |\arabic{LWR@LIpage}|true|\LWR@hashedname|%
        }%
    }% hash
    {% no hash
```

No hash, so write the page, no hashing, and the image number:

```
        \LWR@traceinfo{lateximage: hash false}%
        \immediate\write\LWR@lateximagesfile{%
        |\arabic{LWR@LIpage}|false|\LWR@ImagesName\arabic{LWR@externalfilecnt}|%
        }%
    }% no hash
```

Place an open comment tag. This will hide any traces of the lateximage PDF page which were picked up by *pdftotext*.

```
    \LWR@traceinfo{lateximage: about to create open comment}%
    \LWR@htmlopencomment%
```

One level deeper. At this outer-most `lateximage`, it is known that this is not being used inside an $\mathcal{AMS}$ `\text`, since the outer-most level will never be in math mode.

```
     \addtocounter{LWR@lateximagedepth}{1}%
```

Start the new PDF page:

```
    \LWR@traceinfo{lateximage: about to create a new page}%
    \LWR@maybe@orignewpage%
```

If the current page is larger, typeset the image in a “standard” width page and font size:

```
    \LWR@traceinfo{lateximage: about to create minipage}%
    \setcounter{LWR@mpfootnote@store}{\value{mpfootnote}}
    \ifdimless{\linewidth}{6in}{%
        \LWR@print@minipage{\linewidth}%
    }{%
        \LWR@print@minipage{6in}%
    }%
```

```
    \ifnumgreater{\value{LWR@minipage@depth}}{0}%
        {\setcounter{mpfootnote}{\value{LWR@mpfootnote@store}}}%
        {}%
    \@nameuse{LWR@print@\LateximageFontSizeName}%
```

Temporarily restore formatting to its PDF definitions: Do not produce HTML tags for \hspace, etc. inside a lateximage.

```
    \LWR@traceinfo{lateximage: about to temporarily restore formatting}%
    \LWR@restoreorigformatting%
```

If not inside a minipage, use full-page footnotes instead of minipage footnotes. These become HTML footnotes.

```
    \ifnumgreater{\value{LWR@minipage@depth}}{0}%
        {}%
        {%
            \def\@mpfn{footnote}%
            \def\thempfn{\thefootnote}%
            \LetLtxMacro\@footnotetext\LWR@footnotetext%
        }%
```

Create the LWRlateximage<number> label:

```
    \LWR@traceinfo{lateximage: about to create label}%
   \LWR@orig@label{LWRlateximage-\BaseJobname-\arabic{LWR@lateximagenumber}}%
    \LWR@traceinfo{lateximage: finished creating the label}%
```

Adjust the rule color to match HTML:

```
    \ifdefvoid{\LWR@ruleHTMLcolor}{}{%
        \LWR@print@arrayrulecolor[HTML]{\LWR@ruleHTMLcolor}%
    }%
```

Enable print-mode math functions:

```
    \LetLtxMacro$\LWR@origdollar%
    \catcode`\$=3% math shift
    \LetLtxMacro\(\LWR@origopenparen%
    \LetLtxMacro\)\LWR@origcloseparen%
```

Only enable print-mode display math if are not already inside display math:

```
    \ifbool{LWR@indisplaymathimage}{}{% not in display math
        \LetLtxMacro\[\LWR@origopenbracket%
        \LetLtxMacro\]\LWR@origclosebracket%
        \let\equation\LWR@orig@equation%
        \let\endequation\LWR@orig@endequation%
        \csletcs{equation*}{LWR@orig@equation*}%
        \csletcs{endequation*}{LWR@orig@endequation*}%
    }% not in display math
```

For chemformula:

```
    \LetLtxMacro\LWR@newsingledollar$%
    \LetLtxMacro\LWR@newsingledollar$% syntax highlighting

}% end of outer-most lateximage
```

```
\LWR@traceinfo{lateximage: finished start of environment}%
}% end of \begin{lateximage}
```

\endlateximage When the lateximage environment closes:

```
{% start of \end{lateximage}
\LWR@traceinfo{lateximage: starting end of lateximage}%
```

Nested more than one deep?

```
\LWR@traceinfo{lateximage: internal depth was \arabic{LWR@lateximagedepth}}%
\ifnumcomp{\value{LWR@lateximagedepth}}{>}{1}%
```

If nesting inside an already existing lateximage, simply record one less level. Uses a lower-level TEX macro due to $\mathcal{AMS}$ \text change of \addtocounter.

```
{%
    \LWR@traceinfo{lateximage: unnesting}%
    \global\advance\c@LWR@lateximagedepth -1\relax%
}%
```

If this is the outer-most lateximage:

```
{% end of outer-most lateximage
```

Finish the lateximage minipage and start a new PDF page:

```
\LWR@traceinfo{lateximage: ending outer-most lateximage}%
    \endLWR@print@minipage%
    \LWR@maybe@orignewpage%
```

Close the HTML comment which encapsulated any traces of the lateximage picked up by *pdftotext*:

```
    \LWR@print@vspace*{.5\baselineskip}%
    \LWR@htmlclosecomment%
    \LWR@traceinfo{lateximage: The page after the image is \arabic{page}}%
```

Create a link to the lateximage, allowing its natural height:

```
    \LWR@traceinfo{about to LWR@lateximage@oneimage !#2!}%
    \IfBooleanTF{#1}% starred
    {% hash
        \LWR@lateximage@oneimage{#2}{\LWR@hashedname}{#5}{#3}{#6}%
    }% hash
    {% no hash
      \LWR@lateximage@oneimage{#2}{\LWR@ImagesName\theLWR@externalfilecnt}{#5}{#3}{#6}%
    }% no hash
```

Be sure that are doing a paragraph:

```
    \LWR@ensuredoingapar%
```

Close the HTML span which has the *pdftotext* comment and also the link to the .svg image:

```
    \LWR@htmltag{/span}%
```

```
    \ifbool{HTMLDebugComments}{%
        \LWR@htmlcomment{End of lateximage}%
    }{}%
```

Undo one latexmage level. This is not inside an $\mathcal{AMS}$ `\text`, so regular `\addtocounter` may be used here.

```
    \addtocounter{LWR@lateximagedepth}{-1}%
```

Clear the single-use `alt` text:

```
    \gdef\LWR@ThisAltText{}%
}% end of outer-most lateximage
\LWR@traceinfo{lateximage: exiting depth is \arabic{LWR@lateximagedepth}}%
\LWR@traceinfo{lateximage: done}%
}%
\catcode`\$=3% math shift
\end{warpHTML}
```

for PRINT output:

```
\begin{warpprint}
```

Env `lateximage` * [⟨<alt> *tag*⟩] * [⟨*add'l hashing*⟩] [⟨*css style*⟩]

Ignored in print mode.

```
\NewDocumentEnvironment{lateximage}{s o s o o d()}
    {}{}
```

```
\end{warpprint}
```

85 center, flushleft, flushright

for HTML output:

```
\begin{warpHTML}
```

Env `center` Replace `center` functionality with css tags. In a , these macros are nullified, but extra % are used to remove spurrious spaces here as well.

```
\newenvironment*{LWR@HTML@center}
{%
    \LWR@forcenewpage%
    \ifbool{FormatWP}%
        {\BlockClass[\LWR@print@mbox{text-align:center}]{center}}%
        {\BlockClass{center}}%
}
{\endBlockClass}

\LWR@formattedenv{center}
```

Env `flushright`

```
\newenvironment*{LWR@HTML@flushright}
{%
    \LWR@forcenewpage%
```

```
12567     \ifbool{FormatWP}%
12568         {\BlockClass[\LWR@print@mbox{text-align:right}]{flushright}}%
12569         {\BlockClass{flushright}}%
12570 }
12571 {\endBlockClass}
12572
12573 \LWR@formattedenv{flushright}
```

Env `flushleft`

```
12574 \newenvironment*{LWR@HTML@flushleft}
12575 {%
12576     \LWR@forcenewpage%
12577     \ifbool{FormatWP}%
12578         {\BlockClass[\LWR@print@mbox{text-align:left}]{flushleft}}%
12579         {\BlockClass{flushleft}}%
12580 }
12581 {\endBlockClass}
12582
12583 \LWR@formattedenv{flushleft}
```

`\centering`, `\raggedleft`, and `\raggedright` usually have no effect on the HTML output, but they may be used to compare with the next token to identify their use at the start of a float. See `\LWR@floatalignment`.

`\centering`

```
12584 \newcommand*{\LWR@HTML@centering}{%
12585     \ifbool{HTMLDebugComments}{%
12586         \LWR@htmlcomment{centering}%
12587     }{}%
12588 }
12589 \LWR@formatted{centering}
```

`\raggedleft`

```
12590 \newcommand*{\LWR@HTML@raggedleft}{%
12591     \ifbool{HTMLDebugComments}{%
12592         \LWR@htmlcomment{raggedleft}%
12593     }{}%
12594 }
12595 \LWR@formatted{raggedleft}
```

`\raggedright`

```
12596 \newcommand*{\LWR@HTML@raggedright}{%
12597     \ifbool{HTMLDebugComments}{%
12598         \LWR@htmlcomment{raggedright}%
12599     }{}%
12600 }
12601 \LWR@formatted{raggedright}
```

`\leftline` {⟨*text*⟩}

```
12602 \renewcommand{\leftline}[1]{\begin{flushleft}#1\end{flushleft}}
```

\centerline {⟨*text*⟩}

```
\renewcommand{\centerline}[1]{\begin{center}#1\end{center}}
```

\rightline {⟨*text*⟩}

```
\renewcommand{\rightline}[1]{\begin{flushright}#1\end{flushright}}
```

```
\end{warpHTML}
```

86 Preloaded packages

for HTML output:

```
\begin{warpHTML}
```

If the given package was loaded before or by lwarp, load the lwarp version as well.

\LWR@PreloadedPackage {⟨*packagename*⟩}

```
\newcommand*{\LWR@PreloadedPackage}[1]{%
    \IfPackageLoadedTF{#1}%
        {%
            \AtBeginDocument{
                \LWR@origRequirePackage{lwarp-#1}%
            }
        }%
        {}%
}
```

If inputtrc was loaded before lwarp, as is usually done, explicitly load the lwarp patches now:

```
\LWR@PreloadedPackage{inputtrc}
```

If textcomp was loaded before lwarp, perhaps as part of the font-related packages, explicitly load the lwarp patches now:

```
\LWR@PreloadedPackage{textcomp}
```

If xunicode was loaded before lwarp, perhaps as part of the font-related packages, explicitly load the lwarp patches now:

```
\LWR@PreloadedPackage{xunicode}
```

If graphics or graphicx were loaded before lwarp, perhaps by xunicode, explicitly load the lwarp patches now:

```
\LWR@PreloadedPackage{graphics}
\LWR@PreloadedPackage{graphicx}
```

scalefnt may have been preloaded by babel

```
\LWR@PreloadedPackage{scalefnt}
```

fontaxes must be preloaded so that lwarp may patch it for HTML.

```
\LWR@PreloadedPackage{fontaxes}
```

Various font packages which may be loaded before lwarp:

```
\LWR@PreloadedPackage{cmbright}
\LWR@PreloadedPackage{fourier}
\LWR@PreloadedPackage{kpfonts}
\LWR@PreloadedPackage{kpfonts-otf}
\LWR@PreloadedPackage{libertinust1math}
\LWR@PreloadedPackage{pxfonts}
\LWR@PreloadedPackage{txfonts}
\LWR@PreloadedPackage{txgreeks}
\LWR@PreloadedPackage{newpxmath}
\LWR@PreloadedPackage{newtxmath}
\LWR@PreloadedPackage{newtxsf}
\LWR@PreloadedPackage{mathalpha}
\LWR@PreloadedPackage{unicode-math}
```

nfssext-cfr may be preloaded by cfm-lm or related font packages.

```
\LWR@PreloadedPackage{nfssext-cfr}
```

ulem may be preloaded by ctex, ctexart, and related classes.

```
\LWR@PreloadedPackage{ulem}
```

```
\LWR@PreloadedPackage{xetexko}
```

geometry is preloaded by lwarp, and perhaps by various classes.

```
\LWR@PreloadedPackage{geometry}
```

plext is preloaded by some CJK classes.

```
\LWR@PreloadedPackage{plext}
```

stfloats is preloaded by ltj* classes.

```
\LWR@PreloadedPackage{stfloats}
```

lltjext is preloaded by ltj* classes.

```
\LWR@PreloadedPackage{lltjext}
```

luatexko must be loaded before lwarp.

```
\LWR@PreloadedPackage{luatexko}
```

```
\end{warpHTML}
```

87 siunitx

Pkg siunitx

A few HTML unit equivalents are defined here.

siunitx is well supported by lwarp.

Limitations Some general limitations:

fractions Due to *pdftotext* limitations, fraction output is replaced by symbol output for `per-mode` and `quotient-mode`.

`\cancel` is not currently supported for siunitx v3.

Negative values are not automatically colored.

⚠ `tabular` Tabular `S` and `s` columns are rendered as simple `c` columns, although key settings will be set. If using scientific notation, `table-format`, `table-align-uncertainty`, `drop-exponent`, etc.. use `\tablenum` for each cell. This is especially required for

⚠ `drop-exponent` `drop-exponent`, without which the value will be shown incorrectly.

⚠ `table-auto-round` `table-auto-round` is ignored.

Math rendering Math may be rendered in several ways in the same document:

For math mode with SVG display: The original siunitx code is used while generating the SVG image.

For HTML text mode: lwarp uses siunitx code patched for HTML, and simplified units.

For math expressions while using MathJax: A limited emulation is used. Most functions work reasonably well, but many options cannot be emulated. The result usually looks fine, and otherwise is enough to get the meaning across.

Custom units siunitx allows customized units:

`\DeclareSIUnit` `{`⟨*name*⟩`}` `{`⟨*definition*⟩`}`

`\DeclareSIUnit` declares a version of the unit for the print version. This is also used when the unit is printed in SVG math or a `lateximage`. It is also used for HTML if an HTML-specific version is not defined with `\HTMLDeclareSIUnit`.

```
\DeclareSIUnit\myunit{\ensuremath{\text{m}_y}}
```

`\HTMLDeclareSIUnit` `{`⟨*name*⟩`}` `{`⟨*definition*⟩`}`

⚠ v3 only! Use this after the print unit has been defined. For siunitx v3, `\HTMLDeclareSIUnit` declares a simplified version of the unit for HTML, for example if the print-mode unit uses TEX boxes or `\ensuremath`:

```
\HTMLDeclareSIUnit\myunit{\text{m}\textsubscript{\textit{y}}}
```

It is also possible to provide a custom unit for MathJax:

```
\CustomizeMathJax{\newcommand{\myunit}{\text{m}_y}}
```

Predefined units Most units work as-is with HTML. For the following units, lwarp has already set `\HTMLDeclareSIUnit`: `\celsius`, `\arcminute`, `\arcsecond`, `\elementarycharge`, `\clight`, `\bohr`, `\electronmass`, `\hartree`, `\planckbar`.

⚠ MathJax

Document modifications required for MathJax

⚠ `\sisetup`

- Place `\sisetup` in the preamble before `\begin{document}`. Changes made later may be ignored, especially with MathJax. The MathJax emulation also ignores most macro options.

⚠ complex numbers

- Complex numbers are displayed as entered, ignoring `output-complex-root`.

custom units

- Custom units may be added with `\CustomizeMathJax`. For example, from lwarp-common-mathjax-siunitx:

```
\CustomizeMathJax{\newcommand{\hartree}{\mathit{E}_{\mathrm{h}}}}
\CustomizeMathJax{\newcommand{\angstrom}{\mathrm{\unicode{x212B}}}}
```

⚠ unit spacing

- Units work better using ~ between units instead of using periods.

⚠ `\square, \cubic`

- To square or cube compound units, enclose the following compound units in braces:

```
\cubic{\centi\meter}
```

  Single units do not require braces.

- For `\numlist`, the argument is printed as text as-is, so use space between semicolons for improved readability.

⚠ `Missing $ inserted`

- If using `parse-numbers = false`, also use `\num` or `\qty`. siunitx=siunitx>Missing $ inserted.

Also see MathJax option, section 8.7.4.

for HTML output:

```
\begin{warpHTML}
```

Options for siunitx:

```
\newrobustcmd{\LWR@siunitx@textcelsius}{\HTMLentity{deg}C}
\newrobustcmd{\LWR@siunitx@textdegree}{\HTMLentity{deg}}
\newrobustcmd{\LWR@siunitx@textprime}{\HTMLunicode{2032}}
\newrobustcmd{\LWR@siunitx@textdblprime}{\HTMLunicode{2033}}
\newrobustcmd{\LWR@siunitx@textplanckbar}{\text{\textit{\HTMLunicode{210F}}}}

\appto\LWR@restoreorigformatting{%
\renewrobustcmd{\LWR@siunitx@textcelsius}{\text{\ensuremath{^\circ}C}}%
\renewrobustcmd{\LWR@siunitx@textdegree}{\text{\ensuremath{^\circ}}}%
\renewrobustcmd{\LWR@siunitx@textprime}{\text{\ensuremath{^\prime}}}%
\renewrobustcmd{\LWR@siunitx@textdblprime}{\text{\ensuremath{^{\prime\prime}}}}%
\renewrobustcmd{\LWR@siunitx@textplanckbar}{\text{\ensuremath{\hbar}}}%
}

\end{warpHTML}
```

for PRINT output: The print version of `\HTMLDeclareSIUnit`.

```
\begin{warpprint}
\NewDocumentCommand{\HTMLDeclareSIUnit}{o +m m}{}
\end{warpprint}
```

88 Graphics print-mode modifications

88.1 General limitations

file extensions

Per table 9, image filenames may be specified either with or without an extension. If an extension is given it will be used as-is, for either print or HTML output. If no extension is given, a list of possible extensions is tried, which depends on whether print or HTML is being generated. This allows a PDF file for print and a SVG file for HTML, for example. If no extension is given, the automatic search will only return lowercase extensions, even if the filename actually has an uppercase extension, and lwarp cannot get around this problem, so image file extensions must be lowercase to be seen by the HTML browser with lwarp. For example, name the image file `image.pdf` instead of `image.PDF`, but refer to it in the source as `image`, without an extension. For images which may be used as-is with either print or HTML, such as JPG or PNG, you may use a capitalized extension if it is specified in the source, such as `image.JPG`.

⚠ case sensitive

`\includegraphics` file formats

For `\includegraphics` with `.pdf` or `.eps` files, the user must provide a `.pdf` or `.eps` image file for use in print mode, and also a `.svg`, `.png`, or `.jpg` version of the same image for use in HTML.

```
\includegraphics{filename} % print:.pdf/.eps HTML:.svg, etc.
```

For print output, lwarp will automatically choose the `.pdf` or `.eps` format if available, or some other format otherwise. For HTML, one of the other formats is used instead.

If a `.pdf` or `.eps` image is referred to with its file extension, the extension will be changed to `.svg` for HTML:

```
\includegraphics{filename.pdf} % uses .svg in html
\includegraphics{filename.eps} % uses .svg in html
```

Prog pdftocairo

PDF to SVG

To convert a PDF image to SVG, use the utility *pdftocairo*:

Enter ⇒ **`pdftocairo -svg filename.pdf`**

Prog lwarpmk pdftosvg

For a large number of images, use *lwarpmk*:

Enter ⇒ **`lwarpmk pdftosvg *.pdf`** **(or a list of filenames)**

Prog lwarpmk epstopdf

Prog epstopdf

epstopdf package

For EPS images converted to PDF using the package epstopdf, use

Enter ⇒ **`lwarpmk pdftosvg *.PDF`**

to convert to SVG images.

DVI LaTeX

When using DVI *latex*, it is necessary to convert EPS to PDF and then to SVG:

Enter ⇒ **`lwarpmk epstopdf *.eps`** **(or a list of filenames)**

Enter ⇒ **`lwarpmk pdftosvg *.pdf`** **(or a list of filenames)**

PNG and JPG

For PNG or JPGwhile using *pdflatex*, *lualatex*, or *xelatex*, the same file may be used in both print or HTML versions, and may be used with a file extension, but will also be used without the file extension if it is the only file of its base name.

GIF — GIF files may be used for HTML, but another format must also be provided for print output.

file extension priorities — If a file extension is not used, for HTML the file extension priorities are: SVG, GIF, PNG, then JPG.

duplicate files / ⚠ image not displayed — A complication occurs if a file of the same name exists elsewhere in the TEX tree, such as a test image from some LATEX package. TEX looks in the local document directory before considering the directories specified by `\graphicspath`, but the TEX tree is found as "local", so any file in the tree is found before the directories in `\graphicspath`. To use such an image, it must be copied to the document's directory to be used for HTML, and furthermore must be in the document's base directory instead of an images subdirectory.

⚠ graphics vs. graphicx — If using the older graphics syntax, use both optional arguments for `\includegraphics`. A single optional parameter is interpreted as the newer graphicx syntax. Note that

⚠ viewport — viewports are not supported by lwarp — the entire image will be shown.

units — For `\includegraphics`, avoid `px` and % units for width and height, or enclose them inside `warpHTML` environments. For font-proportional image sizes, use `ex` or `em`. For fixed-sized images, use `cm`, `mm`, `in`, `pt`, or `pc`. Use the keys `width=.5\linewidth`, or similar for `\textwidth` or `\textheight` to give fixed-sized images proportional to a 6 by 9 inch text area. Do not use the `scale` option, since it is not well supported by HTML browsers.

options — `\includegraphics` accepts `width` and `height`, `origin`, `rotate` and `scale`, plus new `class` and `alt` keys. (`alt` has recently been incorportated into graphicx itself.)

HTML class — With HTML output, `\includegraphics` accepts an optional `class=xyz` keyval combination, and if this is given then the HTML output will include that class for the image. The class is ignored for print output.

HTML `alt` tags — Likewise, the `\includegraphics` `alt` key adds an HTML `alt` tag to an image, and is ignored for print output. If not assigned, each image is given an `alt` tag according to `\ImageAltText`.

⚠ `scale` — Avoid using the `\includegraphics` `scale` option. Change:

```
\includegraphics[scale=<xx>]{ . . . }
```

to:

```
\includegraphics[width=<yy>\linewidth]{ . . . }
```

`\rotatebox` — `\rotatebox` accepts the optional `origin` key.

⚠ browser support — `\rotatebox`, `\scalebox`, and `\reflectbox` depend on modern browser support. The CSS3 standard declares that when an object is transformed the whitespace which they occupied is preserved, unlike LATEX, so expect some ugly results for scaling and rotating.

88.2 Print-mode modifications

for PRINT output: For print output, accept and then discard the new `class` key:

```
\begin{warpprint}
\define@key{Gin}{class}{}
```

Print-mode additions for the overpic package. See section 460 for the HTML version.

```
\AtBeginDocument{
\IfPackageLoadedTF{overpic}{
\newcommand*{\overpicfontsize}{12}
\newcommand*{\overpicfontskip}{14}
}{}
}
\end{warpprint}
```

89 xcolor boxes

Pkg xcolor

A few new definitions are provided for enhanced HTML colored boxes, and \fcolorbox is slightly modified. Print-mode version are also provided.

Print-mode versions of new xcolor defintions. These are defined inside warpall because they are also used for HTML while inside a lateximage. They are defined \AtBeginDocument so that the xcolor originals may first be loaded and saved for reuse.

The framed versions are modified to allow a background color of none, in which case only the frame is drawn, allowing the background page color to show.

for HTML & PRINT:

```
\begin{warpall}
```

After xparse may have been loaded …

```
\AtBeginDocument{
```

… and *only* if xcolor was loaded:

```
\IfPackageLoadedTF{xcolor}{
\LWR@traceinfo{patching xcolor}
```

The print version:

\colorboxBlock

\colorboxBlock is the same as \colorbox:

```
\LetLtxMacro\colorboxBlock\colorbox
```

The original definition is reused by the new versions:

```
\LetLtxMacro\LWR@orig@print@fcolorbox\fcolorbox
```

\fcolorbox [⟨*framemodel*⟩] {⟨*framecolor*⟩} [⟨*boxmodel*⟩] {⟨*boxcolor*⟩} {⟨*text*⟩}

In print mode, \fcolorbox is modified to accept a background color of none.

(\fcolorbox is particular about its optional arguments, thus the elaborate combinations of \ifthenelse.)

```
\newsavebox{\LWR@colorminipagebox}

\NewDocumentCommand{\LWR@print@fcolorbox}{o m o m +m}{%
    \LWR@traceinfo{LWR@print@fcolorbox #2 #4}%
```

Pre-load the contents into an LR box so that they can be used inside a \fcolorbox:

```
    \begin{lrbox}{\LWR@colorminipagebox}%
    #5%
    \end{lrbox}%
```

Sort out the various optional arguments and the background color of none. In each case, the LRbox is placed inside a \fcolorbox.

The current color is remembered, then set to the frame, then the current color is used for the contents.

```
    \ifstrequal{#4}{none}%
    {% #4 none
        \LWR@traceinfo{background is none}%
        {% scope the \colorlet
            \colorlet{LWR@currentcolor}{.}%
            \color{#2}%
            \fbox{%
                \color{LWR@currentcolor}%
                \usebox{\LWR@colorminipagebox}%
            }% fbox
        }% colorlet
    }% #4 none
    {% #4 not none
    \LWR@traceinfo{background not none}%
    \IfValueTF{#1}%
    {%
        \IfValueTF{#3}%
     {\LWR@orig@print@fcolorbox[#1]{#2}[#3]{#4}{\usebox{\LWR@colorminipagebox}}}%
     {\LWR@orig@print@fcolorbox[#1]{#2}{#4}{\usebox{\LWR@colorminipagebox}}}%
    }%
    {% no value #1
        \IfValueTF{#3}%
     {\LWR@orig@print@fcolorbox{#2}[#3]{#4}{\usebox{\LWR@colorminipagebox}}}%
      {\LWR@orig@print@fcolorbox{#2}{#4}{\usebox{\LWR@colorminipagebox}}}%
    }% no value #1
    }% #4 not none
    \LWR@traceinfo{LWR@print@fcolorbox done}%
}
```

```
\renewrobustcmd*{\fcolorbox}{\LWR@print@fcolorbox}%
```

\fcolorboxBlock [⟨*framemodel*⟩] {⟨*framecolor*⟩} [⟨*boxmodel*⟩] {⟨*boxcolor*⟩} {⟨*text*⟩}

In print mode, \fcolorboxBlock is the same as \fcolorbox.

```
\newcommand*{\LWR@print@fcolorboxBlock}{\LWR@print@fcolorbox}
```

```
\newrobustcmd*{\fcolorboxBlock}{\LWR@print@fcolorboxBlock}
```

Env fcolorminipage [⟨*1:framemodel*⟩] {⟨*2:framecolor*⟩} [⟨*3:boxmodel*⟩] {⟨*4:boxcolor*⟩} [⟨*5:align*⟩] [⟨*6:height*⟩] [⟨*7:inner-align*⟩] {⟨*8:width*⟩}

In print mode, becomes a \fcolorbox containing a minipage:

```
\NewDocumentEnvironment{fcolorminipage}{o m o m O{c} O{} o m}
```

```
{%
    \LWR@traceinfo{*** fcolorminipage: #2 #4 #8}%
```

Pre-load the contents into an LR box so that they can be used inside a \fcolorbox:

```
    \begin{lrbox}{\LWR@colorminipagebox}%
```

If inner alignment is not given, use the outer alignment instead:

```
    \IfValueTF{#7}%
    {\begin{minipage}[#5][#6][#7]{#8}}%
    {\begin{minipage}[#5][#6][#5]{#8}}%
}%
{%
    \end{minipage}%
    \end{lrbox}%
    \LWR@traceinfo{*** starting end fcolorminipage #1 #2 #3 #4 #8}%
```

Sort out the various optional arguments and the background color of none. In each case, the LRbox is placed inside a \fcolorbox.

The current color is remembered, then set to the frame, then the current color is used for the contents.

```
    \ifstrequal{#4}{none}%
    {% #4 none
        {% scope the \colorlet
            \colorlet{LWR@currentcolor}{.}%
            \color{#2}%
            \fbox{%
                \color{LWR@currentcolor}%
                \usebox{\LWR@colorminipagebox}%
            }% fbox
        }% colorlet
    }% #4 none
    {% #4 not none
        \IfValueTF{#1}%
        {%
        \IfValueTF{#3}%
     {\LWR@orig@print@fcolorbox[#1]{#2}[#3]{#4}{\usebox{\LWR@colorminipagebox}}}%
     {\LWR@orig@print@fcolorbox[#1]{#2}{#4}{\usebox{\LWR@colorminipagebox}}}%
        }%
        {% no value #1
        \IfValueTF{#3}%
     {\LWR@orig@print@fcolorbox{#2}[#3]{#4}{\usebox{\LWR@colorminipagebox}}}%
      {\LWR@orig@print@fcolorbox{#2}{#4}{\usebox{\LWR@colorminipagebox}}}%
        }% no value #1
    }% #4 not none
    \LWR@traceinfo{*** finished end fcolorminipage}%
}
```

xcolor is known to have been loaded, and provided HTML versions of the following, and the print versions are provide above, so now they may be \LW@formatted.

```
\LWR@formatted{colorbox}
\LWR@formatted{colorboxBlock}
\LWR@formatted{fcolorbox}
\LWR@formatted{fcolorboxBlock}
\LWR@formattedenv{fcolorminipage}
```

```
\LWR@traceinfo{xcolor patches done}
}{}% xcolor loaded
}% AtBeginDocument

\end{warpall}
```

90 chemmacros environments

\makepolymerdelims and redox reactions must be enclosed in a lateximage during HTML output. These environments are provided here in print mode, and in the chemmacros code in HTML mode, as a high-level semantic syntax which automatically embeds the contents in a lateximage with an appropriate alt tag.

for PRINT output:

```
\begin{warpprint}

\AtBeginDocument{
\IfPackageLoadedTF{chemmacros}{
```

Env polymerdelims

```
\DeclareDocumentEnvironment{polymerdelims}{}
    {}{}
```

Env redoxreaction {⟨*space above*⟩} {⟨*space below*⟩}

For print output, extra space is include above and below the image, and a lateximage is not necessary. This extra space must be enforced, even inside a float, so zero-width rules are used.

For the HTML version, see section 193.5.

```
\DeclareDocumentEnvironment{redoxreaction}{m m}
    {\rule{0pt}{#1}}{\rule[-#2]{0pt}{#2}}

}{}% chemmacros
}% AtBeginDocument

\end{warpprint}
```

91 cleveref

loading order

cleveref and lwarp-cleveref with its associated macro patches are automatically preloaded at the end of the preamble via \AtEndPreamble and \AfterEndPreamble. This is done because the HTML conversion requires cleveref. The user's document may not require cleveref, thus the user may never explicitly load it, so during HTML output lwarp loads it last. If the user's document preamble uses cleveref options, or functions such as \crefname, then cleveref may be loaded in the user's preamble near the end, and lwarp's additional loading of cleveref will have no effect.

\AtEndPreable forces cleveref to be loaded last, if it has not yet been loaded by the user.

for HTML output:

```
\begin{warpHTML}
```

```
12774
12775 \AtEndPreamble{
12776     \RequirePackage{cleveref}
12777 }
12778
12779 \end{warpHTML}
```

92 Preexisting label and reference definitions

Remember and patch some label-related defintions. These will be further encased and patched by other packages later.

`\label` and `\pageref` do NOT change their behavior according to print or HTML output, and thus do not use the `\LWR@formatted` system.

for HTML output:

```
12780 \begin{warpHTML}
12781
12782 \LetLtxMacro\LWR@orig@label\label% includes memoir, before cleveref
12783 \LetLtxMacro\label\LWR@new@label
12784
12785 \LetLtxMacro\LWR@orig@pageref\pageref
12786 \LetLtxMacro\pageref\LWR@new@pageref
12787
12788 \end{warpHTML}
```

93 `picture` environment

Env `picture`

The `picture` environment is enclosed inside a `\lateximage`.

for HTML output:

```
12789 \begin{warpHTML}
```

Env `picture`

```
12790 \BeforeBeginEnvironment{picture}{\begin{lateximage}[picture]}
12791
12792 \AfterEndEnvironment{picture}{\end{lateximage}}
```

```
12793 \end{warpHTML}
```

94 Minipages and Boxes

A CSS flexbox is used for minipages and parboxes, allowing external and internal vertical positioning.

⚠ inline

A line of text with an inline `minipage` or `\parbox` will have the `minipage` or `\parbox` placed onto its own line, because a paragraph is a block element and cannot be made `inline-block`.

placement

`minipages` and `\parboxes` will be placed side-by-side in HTML unless you place a `\newline` between them.

side-by-side Side-by-side `minipages` may be separated by `\quad`, `\qquad`, `\enskip`, `\hspace`, `\hfill`, or a `\rule`. When inside a `center` environment, the result is similar in print and HTML. Paragraph tags are suppressed between side-by-side `minipages` and these spacing commands, but not at the start or end of the paragraph.

⚠ minipage in a span There is limited support for `minipages` inside an HTML . An HTML cannot appear inside a . While in a , `minipages`, and `\parboxes`, and any enclosed lists have limited HTML tags, resulting in an "inline" format, without markup except for HTML breaks. Use `\newline` or `\par` for an HTML break.

⚠ minipage size When using `minipage`, `\parbox`, and `fminipage`, a virtual 6×9 inch text area is used for `\linewidth`, `\textwidth`, and `\textheight`, both for sizing the minipage, and also for its contents.

if width is `\linewidth` If a `minipage` or `\parbox` is assigned a width of exactly `\linewidth`, in HTML it is automatically given no HTML width, thus allowed to fill the line as needed, similar to how it appears in print output.

full-width if HTML A new macro `\minipagefullwidth` requests that, during HTML output, the next single `minipage` or `\parbox` be generated without an HTML `width` attribute, allowing it to be the full width of the display rather than the declared print-output width. This may be useful where the printed version's width makes no sense in HTML.

⚠ `tabular`, `multicols` Inside a `tabular` or `multicols` environment, where the width depends on the browser window, `\minipagefullwidth` is effectively used by default for every `minipage` or `\parbox` inside the environment. `\UseMinipageWidths` may be used to tell lwarp to honor the specified widths of all following `minipages` and `\parboxes` until the end of the local scope, and `\IgnoreMinipageWidths` may be used to tell lwarp to ignore the specified widths.

`\UseMinipageWidths`
`\IgnoreMinipageWidths`

⚠ multicol Inside a `multicols`, `\linewidth` is divided by the specified number of columns.

⚠ text alignment Nested `minipages` adopt their parent's text alignment in HTML, whereas in regular LaTeX PDF output they do not. Use a `flushleft` or similar environment in the child `minipage` to force a text alignment.

for HTML output:
```
\begin{warpHTML}
```

94.1 Computed lengths

Len `\LWR@minipagewidth` Used to convert the width into printable units.

```
\newlength{\LWR@minipagewidth}
```

Len `\LWR@minipageheight` Used to convert the height into printable units.

```
\newlength{\LWR@minipageheight}
```

94.2 Virtual page size

Ctr `LWR@virtualpagedepth` Used to only reset the line width at the outermost minipage.

```
\newcounter{LWR@virtualpagedepth}
\setcounter{LWR@virtualpagedepth}{0}
```

Env LWR@setvirtualpage * [⟨*columns*⟩]

If not nesting a minipage, adjust \linewidth, \textwidth, and \textheight for a virtual 6×9 page, and start on a new PDF page to help prevent page overflows.

If starred, force a new page in the PDF before generating more HTML. This may be done to reduce the chance of page overflow when starting a new minipage.

The optional number of columns defaults to 1.

```
\NewDocumentEnvironment{LWR@setvirtualpage}{s O{1}}{%
    \ifnumequal{\value{LWR@virtualpagedepth}}{0}{%
        \IfBooleanT{#1}{\LWR@maybe@orignewpage}%
        \setlength{\linewidth}{6in/#2}%
        \setlength{\textwidth}{6in}%
        \setlength{\textheight}{9in}%
    }{}%
    \addtocounter{LWR@virtualpagedepth}{1}%
}
{\addtocounter{LWR@virtualpagedepth}{-1}}
```

94.3 Footnote handling

Also see section 60 for other forms of footnotes. Minipage footnotes are gathered in section 60.5, and then placed into the document in section 94.4.

94.4 Minipage handling

Bool LWR@minipagefullwidth Should the next minipage have no HTML width?

```
\newbool{LWR@minipagefullwidth}
\boolfalse{LWR@minipagefullwidth}
```

Bool LWR@forceminipagefullwidth Should the next minipage have no HTML width? Used to force full width for all minipages in an environment such as tabular or multicols, where the actual width depends on the browser width. Controlled by \useminipagewidths and \ignoreminipagewidths.

```
\newbool{LWR@forceminipagefullwidth}
\boolfalse{LWR@forceminipagefullwidth}
```

\minipagefullwidth Requests that the next minipage have no width tag in HTML:

for HTML output:

```
\newcommand*{\minipagefullwidth}{\global\booltrue{LWR@minipagefullwidth}}
```

\UseMinipageWidths Locally requests that minipage widths be honored.

```
\newcommand*{\UseMinipageWidths}{\boolfalse{LWR@forceminipagefullwidth}}
```

\IgnoreMinipageWidths Locally requests that minipage widths be ignored.

```
\newcommand*{\IgnoreMinipageWidths}{\booltrue{LWR@forceminipagefullwidth}}
\end{warpHTML}
```

for PRINT output:
```
\begin{warpprint}
\newcommand*{\minipagefullwidth}{}
\newcommand*{\UseMinipageWidths}{}
\newcommand*{\IgnoreMinipageWidths}{}
\end{warpprint}
```

for HTML output:
```
\begin{warpHTML}
```

Bool `LWR@minipagethispar` Has a minipage been seen this paragraph? If true, prevents paragraph tags around horizontal space between minipages.

```
\newbool{LWR@minipagethispar}
\boolfalse{LWR@minipagethispar}
```

Ctr `LWR@minipage@depth` Used to track whether to change footnote styles in a `lateximage` inside an HTML minipage.

```
\newcounter{LWR@minipage@depth}
\setcounter{LWR@minipage@depth}{0}
```

Ctr `LWR@mpfootnote@store` Used to maintain minipage footnote number while nesting inside a `lateximage`.

```
\newcounter{LWR@mpfootnote@store}
```

Env `minipage` `[`⟨*vert position*⟩`]` `[`⟨*height*⟩`]` `[`⟨*inner vert position*⟩`]` `{`⟨*width*⟩`}`

The vertical positions may be 'c', 't', or 'b'. The inner position may also be 's'.

When using `\linewidth`, `\textwidth`, or `\textheight`, these are scaled proportionally to a 6×9 inch text area.

```
\NewDocumentEnvironment{LWR@HTML@sub@minipage}{m m m m}
{%
\LWR@traceinfo{minipage}%
```

Start an environment, in which width and height is computed based on a virtual page size instead of the extra-large PDF page used during HTML tag generation.

```
\begin{LWR@setvirtualpage}*%
```

Save the requested width now that `\linewidth`, etc. are adjusted to virtual size.

```
\setlength{\LWR@minipagewidth}{#4}%
\ifnumequal{\value{LWR@virtualpagedepth}}{1}{%
    \addtolength{\LWR@minipagewidth}{3em}% room for frames
}{}%
\LWR@traceinfo{computed width is \LWR@printlength{\LWR@minipagewidth}}%
```

Compute height:

```
\setlength{\LWR@minipageheight}{\textheight}% default unless specified
\ifblank{#2}{}{\setlength{\LWR@minipageheight}{#2}}%
```

LaTeX wants to start a paragraph for the virtual minipage, then start a paragraph again for the contents of the minipage, so cancel the paragraph tag handling until the minipage has begun.

```
\ifbool{FormatWP}{\newline}{}%
\LWR@stoppars%
```

If FormatWP, add a text frame:

```
\ifbool{FormatWP}{%

\addtocounter{LWR@thisautoidWP}{1}%
\LWR@htmltag{%
    div id=\textquotedbl%
        \LWR@print@mbox{autoidWP-\arabic{LWR@thisautoidWP}}%
    \textquotedbl\ % space
    class=\textquotedbl{}wpminipage\textquotedbl%
}%

}{}%
```

Create the tag with optional alignment style:

```
\LWR@traceinfo{minipage: creating div class}%
\LWR@htmltag{div class=\textquotedbl{}minipage\textquotedbl\ style=\textquotedbl%
\ifthenelse{\equal{#1}{t}}{\LWR@print@mbox{vertical-align:bottom} ; }{}%
\ifthenelse{\equal{#1}{c}}{\LWR@print@mbox{vertical-align:middle} ; }{}%
\ifthenelse{\equal{#1}{b}}{\LWR@print@mbox{vertical-align:top} ; }{}%
\ifthenelse{\equal{#3}{t}}{\LWR@print@mbox{justify-content:flex-start} ; }{}%
\ifthenelse{\equal{#3}{c}}{\LWR@print@mbox{justify-content:center} ; }{}%
\ifthenelse{\equal{#3}{b}}{\LWR@print@mbox{justify-content:flex-end} ; }{}%
\ifthenelse{\equal{#3}{s}}{\LWR@print@mbox{justify-content:space-between} ; }{}%
```

Print the width and optional height styles:

```
\LWR@traceinfo{minipage: about to print the width of \LWR@printlength{\LWR@minipagewidth}}%
\ifbool{LWR@minipagefullwidth}%
{\global\boolfalse{LWR@minipagefullwidth}}%
{%
    \ifbool{LWR@forceminipagefullwidth}%
        {}%
        {%
            \ifdimequal{#4}{\linewidth}%
                {}%
                {width:\LWR@printlength{\LWR@minipagewidth} ; }%
        }%
}%
\LWR@traceinfo{minipage: about to print the height}%
\ifblank{#2}{}{height:\LWR@printlength{\LWR@minipageheight} ; }%
\textquotedbl%
}%
```

Finish with an empty line to start the contents on a new line.

```

% The preceding empty line is required.
```

Set the user-accessible line and text width and height values inside the virtual minipage. These do not affect the actual size of the PDF output, but are used by any reference to \linewidth, etc. inside the virtual minipage being created here. \LWR@minipagewidth was the original then padded by 3em, which is restored here.

This is done instead of settings back to #4, in case #4 was \linewidth, which was changed to 6in above.

```
\ifnumequal{\value{LWR@virtualpagedepth}}{1}{%
    \addtolength{\LWR@minipagewidth}{-3em}% undo frame padding
}{}%
\setlength{\linewidth}{\LWR@minipagewidth}%
```

\raggedright cancels hyphenation, which will be done by HTML instead.

```
\LWR@print@raggedright%
```

```
    \LWR@newautopagelabel{page}%
```

Set minipage footnotes:

```
\def\@mpfn{mpfootnote}%
\def\thempfn{\thempfootnote}\c@mpfootnote\z@%
\let\@footnotetext\@mpfootnotetext%
```

Track depth for lateximage footnote type:

```
\addtocounter{LWR@minipage@depth}{1}%
```

Resume paragraph tag handling for the contents of the minipage:

```
\LWR@startpars%
\ifboolexpr{bool{FormatWP} and bool{WPMarkMinipages}}{%

=== begin minipage ===

}{}%
\LWR@traceinfo{minipage: finished starting the minipage}%
}% finished \minipage
{% \endminipage
```

Print pending minipage footnotes:

```
\LWR@printpendingmpfootnotes%
```

End the environment with closing tag:

```
\ifboolexpr{bool{FormatWP} and bool{WPMarkMinipages}}{%

=== end minipage ===

}{}%
\LWR@stoppars%

\ifbool{FormatWP}{%

\LWR@htmlelementend{div}%

}{}%
```

Wrapup:

```
\addtocounter{LWR@minipage@depth}{-1}%
```

```
\LWR@htmldivclassend{minipage}%

\end{LWR@setvirtualpage}%
\LWR@startpars%
\ifbool{FormatWP}{\newline}{}%
```

Prevent paragraph tags around horizontal white space until the start of the next paragraph:

```
\global\booltrue{LWR@minipagethispar}%
\LWR@traceinfo{LWR@minipage: done}%
}

\NewDocumentEnvironment{LWR@HTML@minipage}{O{t} O{} O{t} m}
    {\LWR@HTML@sub@minipage{#1}{#2}{#3}{#4}}
    {\endLWR@HTML@sub@minipage}

\LWR@formattedenv{minipage}
```

94.5 \parbox, \mbox, \makebox, \framebox, \fbox, \raisebox

for HTML output:

\parbox [⟨*pos*⟩] [⟨*height*⟩] [⟨*inner-pos*⟩] {⟨*width*⟩} {⟨*text*⟩}

A parbox uses the minipage code:

```
\NewDocumentCommand{\LWR@HTML@parbox}{O{t} O{} O{t} m +m}
{
\LWR@traceinfo{parbox of width #4}%
\begin{minipage}[#1][#2][#3]{#4}%
#5
\end{minipage}%
}

\LWR@formatted{parbox}
```

\mbox {⟨*text*⟩} Nullified for HTML.

```
\newcommand*{\LWR@HTML@mbox}[1]{{#1}}

\LWR@formatted{mbox}
```

\LWR@@makebox@paren {⟨*width*⟩} , {⟨*height*⟩}

Adds to the style in \LWR@temptwo.

```
\NewDocumentCommand{\LWR@@makebox@paren}{m m}{%
\IfValueTF{#2}{%
    \setlength{\LWR@tempwidth}{#1\unitlength}%
    \setlength{\LWR@tempheight}{#2\unitlength}%
    \appto{\LWR@temptwo}{%
        \LWR@print@mbox{width:\LWR@printlength{\LWR@tempwidth}} ; % space
       \LWR@print@mbox{height:\LWR@printlength{\LWR@tempheight}} ; % space
    }%
}{%
```

```
    \PackageError{lwarp}%
        {(width,height) is missing a comma ',' character}%
        {\protect\makebox\space and \protect\framebox\space accept
            a size in the format (width,height).}%
}%
}
```

`\LWR@@makebox@align` {⟨*alignment character*⟩}

Adds to the style in `\LWR@temptwo`.

```
\newcommand*{\LWR@@makebox@align}[1]{%
    \def\LWR@align{center}%
    \ifstrequal{#1}{l}{\def\LWR@align{left}}{}%
    \ifstrequal{#1}{r}{\def\LWR@align{right}}{}%
    \ifstrequal{#1}{s}{\def\LWR@align{justify}}{}%
    \appto{\LWR@temptwo}{%
        \LWR@print@mbox{text-align:\LWR@align} ; %
    }%
}
```

`\makebox` (⟨*width,height*⟩) [⟨*width*⟩] [⟨*pos*⟩] {⟨*text*⟩}

```
\NewDocumentCommand{\LWR@HTML@makebox}{>{\SplitArgument{1}{,}}d() o o +m}{%
```

Build the style depending on arguments:

```
    \begin{LWR@setvirtualpage}%
        \def\LWR@temptwo{}%
        \IfValueTF{#1}%
        {% (width,height) ..
            \LWR@@makebox@paren #1%
            \IfValueT{#2}%
            {% (width,height) [posn]
                \LWR@@makebox@align{#2}%
            }%
        }%
        {% [width]
            \IfValueT{#2}% [width]
            {%
                \setlength{\LWR@tempwidth}{#2}%
                \ifdimgreater{\LWR@tempwidth}{0pt}{%
                    \appto{\LWR@temptwo}{%
                        width:\LWR@printlength{\LWR@tempwidth} ; % space
                    }%
                }{}%
            }%
        }%
        \IfValueT{#3}%
        {% [width] [posn]
            \LWR@@makebox@align{#3}%
        }%
        \InlineClass[%
            \LWR@print@mbox{display:inline-block} ; %
            \LWR@temptwo%
        ]%
        {makebox}%
        {#4}%
```

```
12994     \end{LWR@setvirtualpage}%
12995 }
12996 \LWR@formatted{makebox}
```

\framebox (⟨*width,height*⟩) [⟨*width*⟩] [⟨*pos*⟩] {⟨*text*⟩}

```
12997 \NewDocumentCommand{\LWR@HTML@framebox}{d() o o +m}{%
12998     \fbox{\makebox(#1)[#2][#3]{#4}}%
12999 }
13000
13001 \LWR@formatted{framebox}
```

\LWR@forceminwidth {⟨*legth*⟩}

Sets \LWR@atleastonept to be at least 1pt.

```
13002 \newlength{\LWR@atleastonept}
13003
13004 \newcommand*{\LWR@forceminwidth}[1]{%
13005 \setlength{\LWR@atleastonept}{#1}%
13006 \ifthenelse{%
13007     \lengthtest{\LWR@atleastonept>0pt}\AND%
13008     \lengthtest{\LWR@atleastonept<1pt}%
13009 }%
13010     {\setlength{\LWR@atleastonept}{1pt}}%
13011     {}%
13012 }
```

\LWR@fboxstyle Prints the HTML attributes for a black border and padding.

\LWR@forceminwidth must be used first in order to set the border width.

```
13013 \newcommand*{\LWR@fboxstyle}{%
13014 \LWR@findcurrenttextcolor%
13015 \LWR@traceinfo{LWR@fboxstyle B}%
13016 border:\LWR@printlength{\LWR@atleastonept} solid \LWR@origpound\LWR@tempcolor ; %
13017 padding:\LWR@printlength{\fboxsep} ; %
13018 color:\LWR@origpound\LWR@tempcolor%
13019 }
```

\fbox {⟨*text*⟩}

Creates a framed inline span enclosing the text.

Create a new HTML version, but don't use it until after xcolor may have loaded:

```
13020 \newcommand{\LWR@HTML@fbox}[1]{%
13021     \LWR@traceinfo{HTML fbox}%
13022     \LWR@forceminwidth{\fboxrule}%
13023     \LWR@traceinfo{HTML fbox B}%
13024     \InlineClass[%
13025         \LWR@print@mbox{display:inline-block} ; %
13026         \LWR@fboxstyle%
13027     ]{fbox}{#1}%
13028     \LWR@traceinfo{HTML fbox: done}%
13029 }
```

xcolor `\lets` things to `\fbox` when it is loaded, and this must remain even for HTML output while in a `lateximage`, so `\fbox` is not modified until `\AtBeginDocument`:

```
\AtBeginDocument{\LWR@formatted{fbox}}
```

`\fboxBlock` {⟨*text*⟩} Creates a framed HTML of the text.

First, a print-mode version. This is newly defined for print mode, so it is defined inside `warpall`.

for HTML & PRINT:

```
\end{warpHTML}

\begin{warpall}
\let\fboxBlock\fbox
\end{warpall}

\begin{warpHTML}
```

for HTML output: Next, an HTML version:

```
\newcommand{\LWR@HTML@fboxBlock}[1]{%
\LWR@forceminwidth{\fboxrule}%
\LWR@stoppars%
\begin{BlockClass}[\LWR@fboxstyle]{fboxBlock}
#1
\end{BlockClass}
\LWR@startpars%
}

\LWR@formatted{fboxBlock}

\end{warpHTML}
```

Env `fminipage` [⟨*align*⟩] [⟨*height*⟩] [⟨*align*⟩] {⟨*width*⟩}

Creates a framed HTML around its contents.

for HTML & PRINT: Print version:

```
\begin{warpall}

\newsavebox{\LWR@fminipagebox}

\NewDocumentEnvironment{fminipage}{O{t} o O{t} m}
{%
```

An outer minipage will be used for vertical alignment. An inner minipage will be framed with `\fbox`.

If the optional inner alignment is not given, use the outer instead:

```
\IfValueTF{#3}%
{\def\LWR@thisalign{#3}}
{\def\LWR@thisalign{#1}}%
```

Form the outer minipage depending on whether a height was given. Make the outer minipage larger to compensate for the frame.

```
\IfValueTF{#2}%
```

```
{\minipage[#1][#2+2\fboxsep+2\fboxrule][\LWR@thisalign]{#4+2\fboxsep+2\fboxrule}}%
{\minipage[#1]{#4+2\fboxsep+2\fboxrule}}%
```

Capture the contents of the environment:

```
\begin{lrbox}{\LWR@fminipagebox}%
```

Nest the contents inside an inner minipage of the desired size:

```
\IfValueTF{#2}%
{\minipage[#1][#2][\LWR@thisalign]{#4}}%
{\minipage[#1]{#4}}%
}
{%
```

Close the inner minipage and the LR box with the contents:

```
\endminipage%
\end{lrbox}%
```

Create a frame around the contents of the environment:

```
\fbox{\usebox{\LWR@fminipagebox}}%
```

The entire thing is placed inside the outer minipage:

```
\endminipage%
}
\end{warpall}
```

HTML version:

for HTML output:

```
\begin{warpHTML}

\NewDocumentEnvironment{LWR@HTML@fminipage}{O{t} o O{t} m}
{%
\LWR@traceinfo{fminipage #1 #2 #3 #4}%
```

Locally change to the virtual page size before processing the requested sizes:

```
\begin{LWR@setvirtualpage}*%
\setlength{\LWR@tempwidth}{#4}%
\IfValueT{#2}{\setlength{\LWR@tempheight}{#2}}%
```

Use a rule of at least one pixel in width:

```
\LWR@forceminwidth{\fboxrule}%


\LWR@stoppars%


\begin{BlockClass}[%
\LWR@fboxstyle ; %
\IfValueT{#2}{height:\LWR@printlength{\LWR@tempheight} ; }%
\ifbool{LWR@minipagefullwidth}%
{\global\boolfalse{LWR@minipagefullwidth}}%
{%
    \ifbool{LWR@forceminipagefullwidth}%
```

```
        {}%
        {%
            \ifdimequal{\LWR@tempwidth}{\linewidth}%
                {}%
                {width:\LWR@printlength{\LWR@tempwidth} ; }%
        }%
}%
]{fminipage}%
}
{%
\end{BlockClass}%
\end{LWR@setvirtualpage}%
```

Prevent paragraph tags around horizontal white space until the start of the next paragraph:

```
\global\booltrue{LWR@minipagethispar}%
\LWR@traceinfo{fminipage done}%
}

\LWR@formattedenv{fminipage}
```

`\raisebox` `{⟨raiselen⟩}` `[⟨height⟩]` `[⟨depth⟩]` `{⟨text⟩}`

```
\NewDocumentCommand{\LWR@HTML@raisebox}{m o o m}{%
#4%
}

\LWR@formatted{raisebox}
```

```
\end{warpHTML}
```

95 Direct formatting

⚠ `\bfseries, etc.` — `\textbf`, etc. are supported, but `\bfseries`, etc. work only in some situations.

⚠ HTML special chars — &, <, and > have special meanings in HTML. If `\&`, `\textless`, and `\textgreater` are used, proper HTML entities will be used, but there may be HTML parsing problems if these special characters occur unescaped in program listings or other verbatim text.

program listings — For program listings, the listings package is supported, and its `literate` option is used to convert &, <, and > to proper HTML entities.

verbatim — The various `verbatim`-related environments do not convert &, <, and >, so care must be taken to avoid accidentally including valid HTML code inside these environments. Adding a space on either side may be sufficient.

For high-level block and inline custom CSS classes, see section 52.10.

for HTML & PRINT:

```
\begin{warpall}
```

Bool `FixSmallCaps` — User may set `FixSmallCaps` to `true` if small caps are being incorrectly rendered as all caps.

```
\newbool{FixSmallCaps}
\boolfalse{FixSmallCaps}

\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

\emph {⟨*text*⟩}

```
\DeclareRobustCommand{\LWR@HTML@emph}[1]{%
    {%
        \LWR@HTML@itshape%
        \LWR@htmlspan{em}{#1}%
    }%
}

\LWR@formatted{emph}
```

\textmd {⟨*text*⟩}

```
\DeclareRobustCommand{\LWR@HTML@textmd}[1]{%
    {%
        \LWR@HTML@mdseries%
        \InlineClass(font-weight:normal){textmd}{#1}%
    }%
}

\LWR@formatted{textmd}
```

\textbf {⟨*text*⟩}

```
\DeclareRobustCommand{\LWR@HTML@textbf}[1]{%
    {%
        \LWR@HTML@bfseries%
        \LWR@htmlspan{b}{#1}%
    }%
}

\LWR@formatted{textbf}
```

\texteb {⟨*text*⟩} From nfssext-cfr.

```
\IfPackageLoadedTF{nfssext-cfr}{
\DeclareRobustCommand{\LWR@HTML@texteb}[1]{%
    {%
        \LWR@HTML@ebweight%
        \InlineClass{texteb}{#1}%
    }%
}

\LWR@formatted{texteb}
}{% if not loaded
    \providerobustcmd{\texteb}[1]{}
}
```

`\textlg` {⟨*text*⟩} From nfssext-cfr.

```
\IfPackageLoadedTF{nfssext-cfr}{
\DeclareRobustCommand{\LWR@HTML@textlg}[1]{%
    {%
        \LWR@HTML@lgweight%
        \InlineClass{textlg}{#1}%
    }%
}

\LWR@formatted{textlg}
}{% if not loaded
    \providerobustcmd{\textlg}[1]{}
}
```

`\textrm` {⟨*text*⟩}

```
\DeclareRobustCommand{\LWR@HTML@textrm}[1]{%
    {%
        \LWR@HTML@rmfamily%
        \InlineClass(font-family:serif){textrm}{#1}%
    }%
}

\LWR@formatted{textrm}
```

`\textsf` {⟨*text*⟩}

```
\DeclareRobustCommand{\LWR@HTML@textsf}[1]{%
    {%
        \LWR@HTML@sffamily%
        \InlineClass(font-family:sans){textsf}{#1}%
    }%
}

\LWR@formatted{textsf}
```

`\texttt` {⟨*text*⟩}

```
\DeclareRobustCommand{\LWR@HTML@texttt}[1]{%
    {%
        \LWR@HTML@ttfamily%
        \LWR@htmlspan{kbd}{#1}%
    }%
}

\LWR@formatted{texttt}
```

`\textup` {⟨*text*⟩}

```
\DeclareRobustCommand{\LWR@HTML@textup}[1]{%
    {%
        \LWR@HTML@upshape%
        \InlineClass(font-style:normal){textup}{#1}%
    }%
}

\LWR@formatted{textup}
```

`\textit` {⟨*text*⟩}

```
\DeclareRobustCommand{\LWR@HTML@textit}[1]{%
    {%
        \LWR@HTML@itshape%
        \LWR@htmlspan{i}{#1}%
    }%
}

\LWR@formatted{textit}
```

`\textsc` {⟨*text*⟩}

```
\DeclareRobustCommand{\LWR@HTML@textsc}[1]{%
    {%
        \LWR@HTML@scshape%
        \InlineClass{textsc}{#1}%
    }%
}

\LWR@formatted{textsc}
```

`\textulc` {⟨*text*⟩} From fontaxes.

```
\DeclareRobustCommand{\LWR@HTML@textulc}[1]{%
    {%
        \LWR@HTML@ulcshape%
        \InlineClass{textulc}{#1}%
    }%
}

\LWR@formatted{textulc}
```

`\textsi` {⟨*text*⟩}

```
\@ifundefined{textsi}{
    \LetLtxMacro\LWR@print@textsi\LWR@print@textsc
}{}

\DeclareRobustCommand{\LWR@HTML@textsi}[1]{%
    {%
        \LWR@HTML@sishape%
        \textsc{\textit{#1}}%
%         \InlineClass(
%             font-style: italic;
%             font-variant: small-caps ;
%             font-variant-numeric: oldstyle-nums ;
%         ){textsi}{#1}%
    }%
}

\LWR@formatted{textsi}
```

`\textsl` {⟨*text*⟩}

```
\DeclareRobustCommand{\LWR@HTML@textsl}[1]{%
    {%
```

```
        \slshape%
        \InlineClass(font-style:oblique){textsl}{#1}%
    }%
}

\LWR@formatted{textsl}
```

`\textssc` {⟨*text*⟩}

```
\newrobustcmd{\LWR@HTML@textssc}[1]{\textsc{#1}}
\LWR@formatted{textssc}
```

`\textnormal` {⟨*text*⟩}

```
\DeclareRobustCommand{\LWR@HTML@textnormal}[1]{%
        \LWR@HTML@mdseries%
        \LWR@HTML@rmfamily%
        \LWR@HTML@upshape%
        \LWR@HTML@ulcshape%
        \InlineClass(%
            font-weight: normal;
            font-family: serif;
            font-style: normal;
            font-variant: normal;
            font-variant-numeric: normal ;
        ){textnormal}{#1}%
}

\LWR@formatted{textnormal}
```

```
\FilenameNullify{%
    \LetLtxMacro\emph\@firstofone%
    \LetLtxMacro\textmd\@firstofone%
    \LetLtxMacro\textbf\@firstofone%
    \LetLtxMacro\texteb\@firstofone%
    \LetLtxMacro\textlg\@firstofone%
    \LetLtxMacro\textrm\@firstofone%
    \LetLtxMacro\textsf\@firstofone%
    \LetLtxMacro\texttt\@firstofone%
    \LetLtxMacro\textup\@firstofone%
    \LetLtxMacro\textit\@firstofone%
    \LetLtxMacro\textsc\@firstofone%
    \LetLtxMacro\textulc\@firstofone%
    \LetLtxMacro\textsi\@firstofone%
    \LetLtxMacro\textsl\@firstofone%
    \LetLtxMacro\textssc\@firstofone%
    \LetLtxMacro\textnormal\@firstofone%
}
```

Remembers the current font family, series, and shape. fontaxes support is integrated here.

```
\newcommand*{\LWR@f@family}{rm}
\newcommand*{\LWR@f@series}{md}
\newcommand*{\LWR@f@shape}{up}
\newcommand*{\LWR@f@shapecaps}{ulc}
```

`\LWR@textcurrentfont` {⟨*text*⟩}

Prints the text with the current font choices. Avoids nesting repeated font selections.

```
\newcounter{LWR@textcurrentfontdepth}
\setcounter{LWR@textcurrentfontdepth}{0}

\newcommand*{\LWR@textcurrentfont}[1]{%
    \ifnumcomp{\value{LWR@textcurrentfontdepth}}{>}{0}%
        {%
            \addtocounter{LWR@textcurrentfontdepth}{1}%
            #1%
            \addtocounter{LWR@textcurrentfontdepth}{-1}%
        }%
        {%
            \addtocounter{LWR@textcurrentfontdepth}{1}%
            \ifboolexpr{%
                test {\ifdefstring{\LWR@f@family}{rm}} and
                test {\ifdefstring{\LWR@f@series}{md}} and
                test {\ifdefstring{\LWR@f@shape}{up}} and
                test {\ifdefstring{\LWR@f@shapecaps}{ulc}}
            }%
                {\InlineClass{textnormal}{#1}}%
                {%
                    \InlineClass{%
                            text\LWR@f@family\LWR@origtilde{}%
                            text\LWR@f@series\LWR@origtilde{}%
                            text\LWR@f@shape\LWR@origtilde{}%
                            text\LWR@f@shapecaps%
                        }%
                        {#1}%
                }%
            \addtocounter{LWR@textcurrentfontdepth}{-1}%
        }%
}
```

Env LWR@blocktextcurrentfont Prints the contents with the current font choices.

```
\newenvironment*{LWR@blocktextcurrentfont}{%
\LWR@stoppars%
\BlockClass{%
        text\LWR@f@family\LWR@origtilde{}%
        text\LWR@f@series\LWR@origtilde{}%
        text\LWR@f@shape\LWR@origtilde{}%
        text\LWR@f@shapecaps%
    }%
}{\endBlockClass\LWR@startpars}
```

\mdseries

```
\newrobustcmd*{\LWR@HTML@mdseries}{%
    \LWR@print@mdseries%
    \renewcommand*{\LWR@f@series}{md}%
}
\LWR@formatted{mdseries}
```

\bfseries

```
\newrobustcmd*{\LWR@HTML@bfseries}{%
    \LWR@print@bfseries%
    \renewcommand*{\LWR@f@series}{bf}%
}
\LWR@formatted{bfseries}
```

\ebweight From nfssext-cfr.

```
\IfPackageLoadedTF{nfssext-cfr}{
\newrobustcmd*{\LWR@HTML@ebweight}{%
    \LWR@print@ebweight%
    \renewcommand*{\LWR@f@series}{eb}%
}
\LWR@formatted{ebweight}
}{}
```

\lgweight From nfssext-cfr.

```
\IfPackageLoadedTF{nfssext-cfr}{
\newrobustcmd*{\LWR@HTML@lgweight}{%
    \LWR@print@lgweight%
    \renewcommand*{\LWR@f@series}{lg}%
}
\LWR@formatted{lgweight}
}{}
```

\rmfamily

```
\newrobustcmd*{\LWR@HTML@rmfamily}{%
    \LWR@print@rmfamily%
    \renewcommand*{\LWR@f@family}{rm}%
}
\LWR@formatted{rmfamily}
```

\sffamily

```
\newrobustcmd*{\LWR@HTML@sffamily}{%
    \LWR@print@sffamily%
    \renewcommand*{\LWR@f@family}{sf}%
}
\LWR@formatted{sffamily}
```

\ttfamily

```
\newrobustcmd*{\LWR@HTML@ttfamily}{%
    \LWR@print@ttfamily%
    \renewcommand*{\LWR@f@family}{tt}%
}
\LWR@formatted{ttfamily}
```

The following use \AtBeginDocument due to the LaTeX core \reinstall@nfss@defs, which redefines these \AtBeginDocument. See **texdoc source2e**.

\upshape

```
\newrobustcmd*{\LWR@HTML@upshape}{%
    \LWR@print@upshape%
    \renewcommand*{\LWR@f@shape}{up}%
}
\AtBeginDocument{\LWR@formatted{upshape}}
```

\itshape

```
\newrobustcmd*{\LWR@HTML@itshape}{%
    \LWR@print@itshape%
    \renewcommand*{\LWR@f@shape}{it}%
}
\AtBeginDocument{\LWR@formatted{itshape}}
```

\scshape Note: \LWR@print@scshape is not used here since some fonts, such as erewhon, copy/paste as all-caps.

```
\newrobustcmd*{\LWR@HTML@scshape}{%
    \ifbool{FixSmallCaps}{}{%
        \LWR@print@scshape%
    }%
    \renewcommand*{\LWR@f@shapecaps}{sc}%
}
\AtBeginDocument{\LWR@formatted{scshape}}
```

\ulcshape From fontaxes.

```
\@ifundefined{ulcshape}{
    \LetLtxMacro\ulcshape\upshape
}{}
\newrobustcmd*{\LWR@HTML@ulcshape}{%
    \LWR@print@ulcshape%
    \renewcommand*{\LWR@f@shapecaps}{ulc}%
}
\AtBeginDocument{\LWR@formatted{ulcshape}}
```

\sishape

```
\@ifundefined{sishape}{
    \LetLtxMacro\sishape\scshape
}{}
\newrobustcmd*{\LWR@HTML@sishape}{%
    \ifbool{FixSmallCaps}{}{%
        \LWR@print@sishape%
    }%
    \renewcommand*{\LWR@f@shape}{it}
    \renewcommand*{\LWR@f@shapecaps}{sc}%
}
\AtBeginDocument{\LWR@formatted{sishape}}
```

\slshape

```
\newrobustcmd*{\LWR@HTML@slshape}{%
    \LWR@print@slshape%
    \renewcommand*{\LWR@f@shape}{sl}%
}
\AtBeginDocument{\LWR@formatted{slshape}}
```

\sscshape

```
\newrobustcmd{\LWR@HTML@sscshape}{\LWR@HTML@scshape}
\AtBeginDocument{\LWR@formatted{sscshape}}
```

\normalfont

```
\newrobustcmd*{\LWR@HTML@normalfont}{\rmfamily\mdseries\upshape\ulcshape}
\LWR@formatted{normalfont}

\FilenameNullify{%
    \LetLtxMacro\rmfamily\@empty%
    \LetLtxMacro\sffamily\@empty%
    \LetLtxMacro\ttfamily\@empty%
    \LetLtxMacro\bfseries\@empty%
    \LetLtxMacro\ebweight\@empty%
    \LetLtxMacro\lgweight\@empty%
    \LetLtxMacro\mdseries\@empty%
    \LetLtxMacro\upshape\@empty%
    \LetLtxMacro\slshape\@empty%
    \LetLtxMacro\sishape\@empty%
    \LetLtxMacro\scshape\@empty%
    \LetLtxMacro\itshape\@empty%
    \LetLtxMacro\ulcshape\@empty%
    \LetLtxMacro\sscshape\@empty%
    \LetLtxMacro\normalfont\@empty%
}
```

\sp {⟨*text*⟩}

For siunitx. Must work in math mode.

```
\renewcommand{\sp}[1]{\text{<sup>#1</sup>}{}}
```

\sb {⟨*text*⟩}

For siunitx. Must work in math mode.

```
\renewcommand{\sb}[1]{\text{<sub>#1</sub>}{}}
```

\textsuperscript {⟨*text*⟩}

```
\newrobustcmd{\LWR@HTML@textsuperscript}[1]{\LWR@htmlspan{sup}{#1}}
\LWR@formatted{textsuperscript}
```

\@textsuperscript {⟨*text*⟩}

```
\newcommand{\LWR@HTML@@textsuperscript}[1]{\LWR@htmlspan{sup}{#1}}
\LWR@formatted{@textsuperscript}
```

\textsubscript {⟨*text*⟩}

```
    \newrobustcmd{\LWR@HTML@textsubscript}[1]{\LWR@htmlspan{sub}{#1}}
    \LWR@formatted{textsubscript}
```

\@textsubscript {⟨*text*⟩}

```
\newcommand{\LWR@HTML@@textsubscript}[1]{\LWR@htmlspan{sub}{#1}}
\LWR@formatted{@textsubscript}
```

\up {⟨*text*⟩} Prints superscript.

This is \let at the beginning of the document in case some other package has changed the definition.

```
\AtBeginDocument{\let\up\textsuperscript}
```

\fup {⟨*text*⟩} Prints superscript.

Supports fmtcount package.

This is \let at the beginning of the document in case some other package has changed the definition.

```
\AtBeginDocument{\let\fup\textsuperscript}
```

\underline {⟨*text*⟩}

```
\renewcommand{\underline}[1]{%
    \InlineClass%
        (text-decoration:underline; text-decoration-skip: auto)%
        {underline}{#1}%
}
```

\LWR@overline {⟨*text*⟩}

```
\newcommand{\LWR@overline}[1]{%
    \InlineClass%
        (text-decoration:overline; text-decoration-skip: auto)%
        {overline}{#1}%
}
```

\LWR@currenttextcolor The color to use for text and \rule, defaulting to black:

```
\newcommand*{\LWR@currenttextcolor}{black}
```

\LWR@tempcolor
\LWR@tempcolortwo
\LWR@tempcolorthree The color converted to HTML colorspace.

```
\newcommand*{\LWR@tempcolor}{}
\newcommand*{\LWR@tempcolortwo}{}
\newcommand*{\LWR@tempcolorthree}{}
```

\LWR@findcurrenttextcolor Sets \LWR@tempcolor to the current color.

```
\newcommand*{\LWR@findcurrenttextcolor}{%
    \renewcommand{\LWR@tempcolor}{000000}%
}
```

\LWR@textcurrentcolor {⟨*text*⟩} Like \textcolor but uses the current \color instead.

```
\NewDocumentCommand{\LWR@textcurrentcolor}{m}{%
    \renewcommand*{\LWR@currenttextcolor}{black}%
    #1%
}
```

```
\end{warpHTML}
```

for PRINT output:

```
\begin{warpprint}
```

\LWR@textcurrentfont {⟨*text*⟩}

Prints the text with the current font choices.

```
\newcommand*{\LWR@textcurrentfont}[1]{#1}
```

Env LWR@blocktextcurrentfont Prints the contents with the current font choices.

```
\newenvironment*{LWR@blocktextcurrentfont}{}{}
```

\FilenameNullify {⟨*macros to nullify*⟩}

```
\newcommand*{\FilenameNullify}[1]{}
```

```
\end{warpprint}
```

96 Skips, spaces, font sizes

for HTML output:

```
\begin{warpHTML}
```

\, and \thinspace may be redefined by other packages, so are redefined \AtBeginDocument here.

Direct-formatting space commands become HTML entities:

```
\AtBeginDocument{
\renewrobustcmd*{\,}{\HTMLunicode{202f}} % HTML thin non-breakable space
\renewrobustcmd*{\thinspace}{\HTMLunicode{202f}}   % HTML thin non-breakable space
\renewrobustcmd*{\negthinspace}{\HTMLunicode{202f}}   % HTML thin non-breakable space
\renewrobustcmd*{~}{\HTMLentity{nbsp}}
\renewrobustcmd*{\textellipsis}{\HTMLunicode{2026}}
\renewrobustcmd*{\vdots}{\HTMLunicode{22EE}}
}
```

Direct-formatting font sizes are remembered for future use:

```
\newcommand*{\LWR@font@size}{normalsize}

\newrobustcmd*{\LWR@HTML@normalsize}{\renewcommand*{\LWR@font@size}{normalsize}}
\LWR@formatted{normalsize}

\newrobustcmd*{\LWR@HTML@small}{\renewcommand*{\LWR@font@size}{small}}
```

```
\LWR@formatted{small}

\newrobustcmd*{\LWR@HTML@footnotesize}{\renewcommand*{\LWR@font@size}{footnotesize}}
\LWR@formatted{footnotesize}

\newrobustcmd*{\LWR@HTML@scriptsize}{\renewcommand*{\LWR@font@size}{scriptsize}}
\LWR@formatted{scriptsize}

\newrobustcmd*{\LWR@HTML@tiny}{\renewcommand*{\LWR@font@size}{tiny}}
\LWR@formatted{tiny}

\newrobustcmd*{\LWR@HTML@large}{\renewcommand*{\LWR@font@size}{large}}
\LWR@formatted{large}

\newrobustcmd*{\LWR@HTML@Large}{\renewcommand*{\LWR@font@size}{Large}}
\LWR@formatted{Large}

\newrobustcmd*{\LWR@HTML@LARGE}{\renewcommand*{\LWR@font@size}{LARGE}}
\LWR@formatted{LARGE}

\newrobustcmd*{\LWR@HTML@huge}{\renewcommand*{\LWR@font@size}{huge}}
\LWR@formatted{huge}

\newrobustcmd*{\LWR@HTML@Huge}{\renewcommand*{\LWR@font@size}{Huge}}
\LWR@formatted{Huge}


\DeclareDocumentCommand{\onecolumn}{}{}

\DeclareDocumentCommand{\twocolumn}{O{}}{
#1

}
```

\hfill

```
\newcommand*{\LWR@HTML@hfill}{\qquad}
\LWR@formatted{hfill}
```

\hrulefill

```
\newcommand*{\LWR@HTML@hrulefill}{%
    \ifbool{LWR@doingapar}%
        {\rule{1in}{1pt}}%
        {%
            \LWR@findcurrenttextcolor%
            \ifdefstring{\LWR@tempcolor}{000000}%
            {%
                \begin{BlockClass}{hrule}%
                \end{BlockClass}%
            }%
            {%
                \begin{BlockClass}[%
                 border-top: 1px solid \LWR@origpound\LWR@tempcolor % space
                ]{hrule}%
                \end{BlockClass}%
            }%
        }%
```

```
}%
\LWR@formatted{hrulefill}
```

\dotfill

```
\newcommand*{\LWR@HTML@dotfill}{\dots}
\LWR@formatted{dotfill}
```

\newpage

```
\renewcommand*{\newpage}{
}
```

\newline Uses the HTML <br /> element.

```
\newrobustcmd*{\LWR@newlinebr}{\unskip\LWR@htmltag{br /}\LWR@orignewline}%
\LetLtxMacro\newline\LWR@newlinebr
```

\\ Redefined to \LWR@endofline or \LWR@tabularendofline.

\LWR@endofline * [⟨*len*⟩]

\\ is assigned to \LWR@endofline at \LWR@LwarpStart.

Inside tabular, \\ is temporarily changed to \LWR@tabularendofline.

```
\LetLtxMacro\LWR@origendofline\\
\NewDocumentCommand{\LWR@endofline}{s O{0pt}}
{%
\newline%

\setlength{\LWR@templengthone}{#2}%
\ifdimgreater{\LWR@templengthone}{0pt}{\newline}{}%
}
```

\LWR@minipagestartpars Minipages are often placed side-by-side inside figures, with a bit of horizontal space to separate them. Since HTML does not allow a to be inside a p, paragraphs must be turned off during the generation of the minipage, then turned on after the minipage is complete. When this occurs between side-by-side minipages, lwarp correctly suppresses the paragraph tags between the minipages, unless some other text is between the minipages. Such text forms its own paragraph, resulting in text after a minipage to be on its own line. Since people often place small horizontal space between minipages, it is desirable to maintain this space if possible. lwarp tries to do this by remembering that a minipage has been seen, in which case paragraph tags are suppressed around \hspace, \enskip, \quad, and \qquad until the end of the paragraph, when the closing p tag is created.

\hspace
\enskip
\quad
\qquad

When a minipage is seen, the boolean LWR@minipagethispar is set, telling the following horizontal whitespace commands to try to suppress their surrounding paragraph tags. LWR@minipagethispar is cleared at the next end of paragraph, when the HTML paragraph closing tag is generated.

Placed just before \hspace, \quad, or \qquad's HTML output.

```
\newcommand*{\LWR@minipagestartpars}{%
    \ifbool{LWR@minipagethispar}{\LWR@startpars}{}%
}
```

\LWR@minipagestoppars Placed just after \hspace, \quad, or \qquad's HTML output.

```
\newcommand*{\LWR@minipagestoppars}{%
    \ifbool{LWR@minipagethispar}{\LWR@stoppars}{}%
}
```

\quad Handles special minipage & horizontal space interactions. Uses 2003 EM SPACE to pass validation.

```
\renewrobustcmd*{\quad}{%
    \LWR@minipagestoppars%
    \HTMLunicode{2003}%
    \LWR@minipagestartpars%
}
```

\qquad Handles special minipage & horizontal space interactions.

```
\renewrobustcmd*{\qquad}{\quad\quad}
```

\enskip Handles special minipage & horizontal space interactions.

```
\renewrobustcmd*{\enskip}{%
    \LWR@minipagestoppars%
    \HTMLunicode{2002}%
    \LWR@minipagestartpars%
}
```

Len \LWR@tempwidth
Len \LWR@tempheight
Len \LWR@tempraise

Used to compute span width, height, raise for \hspace and \rule:

```
\newlength{\LWR@tempwidth}
\newlength{\LWR@tempheight}
\newlength{\LWR@tempraise}
```

\LWR@select@html@hspace
\hspace * {⟨*length*⟩} * {⟨*length*⟩}

Handles special minipage & horizontal space interactions.

Prints a span of a given width. Ignores the optional star.

\hspace{\fill} is converted to \hspace{2em}, equal to \qquad.

```
\newcommand{\LWR@select@html@hspace}{%
\RenewDocumentCommand{\hspace}{s m}{%
\setlength{\LWR@tempwidth}{##2}%
```

If \fill, change to \qquad:

```
\ifnum\gluestretchorder\LWR@tempwidth>0%
\setlength{\LWR@tempwidth}{2em}%
\fi%
```

Only if the width is greater than zero:

```
\ifdimcomp{\LWR@tempwidth}{>}{0pt}{%
```

If had a minipage this paragraph, try to inline the white space without generating paragraph tags:

```
    \LWR@minipagestoppars%
```

Support the HTML thin wrappable space:

```
    \ifdimcomp{\LWR@tempwidth}{=}{.16667em}%
    {%
        \HTMLunicode{2009}% thin breakable space
    }%
```

Print the span with the converted width. Not rounded.

```
    {%
        \LWR@htmltagc{%
        span style=\textquotedbl{}width:\LWR@printlength{\LWR@tempwidth}; % extra space
                display:inline-block\textquotedbl%
        }%
```

If formatting for a word processor, approximate with a number of \quads, in case a span of a given width is not supported:

```
        \ifbool{FormatWP}{%
            \setlength{\LWR@templengthone}{\LWR@tempwidth}%
            \whiledo{\lengthtest{\LWR@templengthone>1em}}{%
                \quad%
                \addtolength{\LWR@templengthone}{-1em}%
            }%
        }%
```

If NOT formatting for a word processor, include an empty comment to avoid an empty span:

```
        {\LWR@htmlcomment{}}%
```

Close the span:

```
        \LWR@htmltagc{/span}%
    }%
```

If had a minipage this paragraph, try to inline the white space without generating paragraph tags:

```
    \LWR@minipagestartpars%
}{}% width greater than 0
}%
}
```

\LWR@select@html@nohspace
\hspace

* {⟨*length*⟩}

Used to disable \hspace while creating description \items.

```
\newcommand{\LWR@select@html@nohspace}{%
    \RenewDocumentCommand{\hspace}{s m}{}%
}
```

`\LWR@select@print@hspace`

```
\newcommand*{\LWR@select@print@hspace}{%
    \renewrobustcmd\hspace{\@ifstar\@hspacer\@hspace}%
}
```

`\hspace` * {⟨*length*⟩}

Handles special minipage & horizontal space interactions.

```
\LWR@select@html@hspace
```

`\LWR@vspace` * {⟨*length*⟩} Nullified vspace.

```
\NewDocumentCommand{\LWR@HTML@vspace}{s m}{}

\LWR@formatted{vspace}
```

`\linebreak` [⟨*num*⟩] Inserts an HTML `br` tag.

```
\renewcommand*{\linebreak}[1][]{\newline}
```

`\nolinebreak` [⟨*num*⟩]

```
\renewcommand*{\nolinebreak}[1][]{}
```

`\pagebreak` [⟨*num*⟩] Starts a new paragraph.

```
\renewcommand*{\pagebreak}[1][]{

}
```

`\nopagebreak` [⟨*num*⟩]

```
\renewcommand*{\nopagebreak}[1][]{}
```

`\enlargethispage` * {⟨*len*⟩}

```
\RenewDocumentCommand{\enlargethispage}{s m}{}
```

`\clearpage`
`\cleardoublepage`

```
\renewcommand*{\clearpage}{}
\renewcommand*{\cleardoublepage}{}
```

`\rule` [⟨*raise*⟩] {⟨*width*⟩} {⟨*height*⟩}

Handles special minipage & horizontal space interactions.

Creates a span of a given width and height. Ignores the optional star.

`\fill` is zero-width, so `\hspace{\fill}` is ignored.

```
\newcommand*{\LWR@HTML@rule}[3][]{%
```

The width is copied into a temporary LaTeX length, from which comparisons and conversions may be made:

```
\setlength{\LWR@tempwidth}{#2}%
```

If it's zero-width then skip the entire rule:

```
\ifthenelse{\lengthtest{\LWR@tempwidth=0pt}}%
{}% zero- width
{% non-zero width
```

If it's non-zero width, set a minimal thickness so that it more reliably shows in the browser:

```
    \ifthenelse{%
        \lengthtest{\LWR@tempwidth>0pt}\AND%
        \lengthtest{\LWR@tempwidth<1pt}%
    }%
        {\setlength{\LWR@tempwidth}{1pt}}%
        {}%
```

Likewise with height:

```
    \setlength{\LWR@tempheight}{#3}%
    \ifthenelse{%
        \lengthtest{\LWR@tempheight>0pt}\AND%
        \lengthtest{\LWR@tempheight<1pt}%
    }%
        {\setlength{\LWR@tempheight}{1pt}}%
        {}%
```

If had a minipage this paragraph, try to inline the rule without generating paragraph tags:

```
    \LWR@minipagestoppars%
```

Print the span with the converted width and height. The width and height are NOT rounded, since a height of less than 1pt is quite common in LaTeX code.

```
    \LWR@findcurrenttextcolor%
    \LWR@htmltagc{%
    span\LWR@indentHTML%
    style=\textquotedbl%
```

The HTML background color is used to draw the filled rule according to the LaTeX foreground color set by `\textcolor`.

```
    \ifbool{FormatWP}{}{background:\LWR@currenttextcolor ; }%
```

The width and height are printed, converted to PT:

```
    width:\LWR@printlength{\LWR@tempwidth} ; %
    height:\LWR@printlength{\LWR@tempheight} ; %
```

The raise height is converted to a CSS transform. The *2 raise multiplier is to approximately match HTML output's X height. Conversion to a LaTeX length allows a typical LaTeX expression to be used as an argument for the raise, whereas printing the raise argument directly to HTML output without conversion to a LaTeX length limits the allowable syntax. To do: A superior method would compute a ratio of LaTeX ex height, then print that to HTML with an ex unit.

```
    \ifblank{#1}%
    {}%
    {%
        \setlength{\LWR@tempraise}{0pt-#1}%
        \setlength{\LWR@tempraise}{\LWR@tempraise*2}%
        \LWR@indentHTML%
        -ms-transform: translate(0pt,\LWR@printlength{\LWR@tempraise}); %
        \LWR@indentHTML%
      -webkit-transform: translate(0pt,\LWR@printlength{\LWR@tempraise}); %
        \LWR@indentHTML%
        transform: translate(0pt,\LWR@printlength{\LWR@tempraise}); %
        \LWR@indentHTML%
    }%
```

Display inline-block to place the span inline with the text:

```
    display:inline-block;\textquotedbl\LWR@orignewline%
    }%
```

If formatting for a word processor, approximate with a number of underscores, in case a span of a given width is not supported:

```
        \ifbool{FormatWP}{%
            \setlength{\LWR@templengthone}{\LWR@tempwidth}%
            \whiledo{\lengthtest{\LWR@templengthone>1em}}{%
                \_{}%
                \addtolength{\LWR@templengthone}{-1em}%
            }%
        }%
```

If NOT formatting for a word processor, add a comment to avoid an empty :

```
        {\LWR@htmlcomment{}}%
```

Close the span:

```
    \LWR@htmltagc{/span}%
```

If had a minipage this paragraph, try to inline the white space without generating paragraph tags:

```
    \LWR@minipagestartpars%
}% non-zero width
}

\LWR@formatted{rule}
```

```
\end{warpHTML}
```

97 \phantomsection

for HTML output:

```
\begin{warpHTML}
```

\LWR@phantomsection

Emulate the hyperref \phantomsection command, often used to insert the bibliography into the table of contents. Ignores \ForceHTMLTOC.

```
\newrobustcmd*{\LWR@phantomsection}{%
    \begingroup%
    \boolfalse{LWR@forcinghtmltoc}%
    \section*{}%
    \endgroup%
}
```

```
\end{warpHTML}
```

98 \LaTeX and other logos

Logos for HTML and print modes:

Some of these logos may be redefined in a later package, so after loading other packages, and at the beginning of the document, their definitions are finally set by \LWR@formatted.

For CSS conversions, see:
http://edward.oconnor.cx/2007/08/tex-poshlet
http://nitens.org/taraborelli/texlogo
and the spacing described in the metafont package documentation.

for HTML & PRINT:

```
\begin{warpall}
\newbool{LWR@warnXe}
\boolfalse{LWR@warnXe}

\newrobustcmd*{\Xe}
    {%
        X\hspace{-.1667em}\raisebox{-.5ex}{E}%
        \global\booltrue{LWR@warnXe}%
    }

\AtBeginDocument{
    \IfPackageLoadedTF{graphics}{
        \IfPackageLoadedTF{metalogo}{}{
            \renewrobustcmd*{\Xe}
                {X\hspace{-.1667em}\raisebox{-.5ex}{\reflectbox{E}}}
        }
    }{}
}

\AtEndDocument{
    \ifbool{LWR@warnXe}{
        \PackageNoteNoLine{lwarp}{Load graphicx or graphics
```

```
            for improved XeTeX logo}
    }{}
}

\providerobustcmd*{\XeTeX}{\mbox{\Xe\hspace{-.125em}\TeX}}
\providerobustcmd*{\XeLaTeX}{\mbox{\Xe\hspace{-.125em}\LaTeX}}
\providerobustcmd*{\AmS}{%
    \leavevmode\hbox{$\mathcal A\kern-.2em\lower.376ex%
    \hbox{$\mathcal M$}\kern-.2em\mathcal S$}%
}
\newrobustcmd*{\LyX}{\textsf{LyX}}
\providerobustcmd*{\LuaTeX}{\mbox{Lua\TeX}}
\providerobustcmd*{\LuaLaTeX}{\mbox{Lua\LaTeX}}
\providerobustcmd*{\BibTeX}{\mbox{B\textsc{ib}\TeX}}
\providerobustcmd*{\MakeIndex}{\mbox{\textit{MakeIndex}}}
\providerobustcmd*{\ConTeXt}{\mbox{Con\TeX{}t}}
\providerobustcmd*{\MiKTeX}{\mbox{MiK\TeX}}
\end{warpall}
```

for HTML output:

```
\begin{warpHTML}
```

The print-mode versions of the following may be changed by metalogo, so their print formatting is recorded `\AtBeginDocument`.

`\TeX` TEX

`latexlogo` is a css class used to properly typeset the E and A in LATEX and friends.

`latexlogofont` is a css class used to select the font for the rest of the logo in LATEX, LuaTEX, ConTEXt, etc.

```
\newrobustcmd*{\LWR@HTML@TeX}
{%
    \InlineClass{latexlogofont}%
    {%
        \InlineClass{latexlogo}%
        {%
            T%
            \InlineClass{latexlogosub}{e}%
            X%
        }%
    }%
}
\AtBeginDocument{\LWR@formatted{TeX}}% may have been patched by metalogo
```

`\LaTeX` LATEX, LATEX 2_ε
`\LaTeXe`

```
\newrobustcmd*{\LWR@HTML@LaTeX}
{%
    \InlineClass{latexlogofont}%
    {%
        \InlineClass{latexlogo}%
        {%
            L%
            \InlineClass{latexlogosup}{a}%
            T%
            \InlineClass{latexlogosub}{e}%
            X%
```

```
        }%
    }%
}

\AtBeginDocument{\LWR@formatted{LaTeX}}% may have been patched by metalogo


\newrobustcmd*{\LWR@HTML@LaTeXe}
{%
    \LaTeX%
    \InlineClass{latexlogofont}{%
        \InlineClass{latexlogotwoe}{%
            2%
            \InlineClass{latexlogotwoesub}{\HTMLunicode{03B5}}%
        }%
    }%
}
\AtBeginDocument{\LWR@formatted{LaTeXe}}% may have been patched by metalogo
```

\LuaTeX \LuaLaTeX LuaTEX, LuaLATEX

```
\newrobustcmd*{\LWR@HTML@LuaTeX}{\InlineClass{latexlogofont}{Lua}\TeX}
\AtBeginDocument{\LWR@formatted{LuaTeX}}% may have been patched by metalogo

\newrobustcmd*{\LWR@HTML@LuaLaTeX}{\InlineClass{latexlogofont}{Lua}\LaTeX}
\AtBeginDocument{\LWR@formatted{LuaLaTeX}}% may have been patched by metalogo
```

\XeTeX \XeLaTeX XETEX, XELATEX

xetexlogo is a css class which aligns the backwards E in XETEX and spaces TEX appropriately.

xelatexlogo is a css class which aligns the backwards E in XELATEX and spaces LATEX appropriately.

```
\newrobustcmd*{\LWR@HTML@Xe}
    {%
        X%
        \InlineClass{xelatexlogosub}{\HTMLunicode{18e}}%
    }
\AtBeginDocument{\LWR@formatted{Xe}}% may have been patched by metalogo

\newrobustcmd*{\LWR@HTML@XeTeX}{\InlineClass{xelatexlogo}{\Xe}\TeX}
\AtBeginDocument{\LWR@formatted{XeTeX}}% may have been patched by metalogo

\newrobustcmd*{\LWR@HTML@XeLaTeX}{\InlineClass{xelatexlogo}{\Xe}\LaTeX}
\AtBeginDocument{\LWR@formatted{XeLaTeX}}% may have been patched by metalogo
```

\ConTeXt ConTEXt

```
\newrobustcmd*{\LWR@HTML@ConTeXt}{%
    \InlineClass{latexlogofont}{Con}\TeX{}%
    \InlineClass{latexlogofont}{t}%
}
\LWR@formatted{ConTeXt}
```

\BibTeX \MakeIndex BIBTEX, *MakeIndex*

```
\newrobustcmd*{\LWR@HTML@BibTeX}
    {\InlineClass{latexlogofont}{B\textsc{ib}}\TeX}
\LWR@formatted{BibTeX}

\newrobustcmd*{\LWR@HTML@MakeIndex}
    {\InlineClass{latexlogofont}{\textit{MakeIndex}}}
\LWR@formatted{MakeIndex}
```

`\AmS` $\mathcal{AMS}$

amslogo is a CSS class used for the $\mathcal{AMS}$ logo.

```
\AtBeginDocument{%
\newrobustcmd*{\LWR@HTML@AmS}
{%
    \InlineClass{amslogo}{%
        \textit{%
            A%
            \InlineClass{latexlogosub}{M}%
            S%
        }%
    }%
}%
\LWR@formatted{AmS}
}
```

`\MiKTeX` MiKTEX

```
\newrobustcmd*{\LWR@HTML@MiKTeX}{\InlineClass{latexlogofont}{MiK}\TeX}
\LWR@formatted{MiKTeX}
```

`\LyX` LyX

lyxlogo is a CSS class used for the LyX logo.

```
\newrobustcmd*{\LWR@HTML@LyX}{\InlineClass{lyxlogo}{LyX}}
\LWR@formatted{LyX}

\end{warpHTML}
```

99 Starting and stopping lwarp

for HTML output:

```
\begin{warpHTML}
```

`\LWR@LwarpStart` `\LWR@LwarpEnd` Automatically sets up the HTML-related actions for the start and end of the document.

```
\AfterEndPreamble{\LWR@LwarpStart}
\AtEndDocument{\LWR@LwarpEnd}

\end{warpHTML}
```

100 Loading array

array is required for lwarp's column parsing. It and its patches are now loaded.

for HTML output:
```
\begin{warpHTML}
\RequirePackage{array}
```

The following are compared with the tabular preamble > to add css classes to adjust tabular cells. Defined here now that \arraybackslash is defined after array is loaded.

```
\edef\LWR@detect@centeringarraybackslash{\centering\arraybackslash}
\edef\LWR@detect@raggedrightarraybackslash{\raggedright\arraybackslash}
\edef\LWR@detect@raggedleftarraybackslash{\raggedleft\arraybackslash}
\def\LWR@detect@itshape{\itshape}
\def\LWR@detect@bfseries{\bfseries}
\def\LWR@detect@bfit{\bfseries\itshape}
\end{warpHTML}
```

101 Loading everyshi patches

everyshi is emulated by the LaTeX core, so its patches are loaded here. \AtBeginDocument is used in case an older verison of LaTeX is used.

for HTML output:
```
\begin{warpHTML}
\AtBeginDocument{
    \IfPackageLoadedTF{everyshi}{
        \RequirePackage{lwarp-everyshi}
    }{}
}
\end{warpHTML}
```

102 Loading textcomp patches

textcomp has now been integrated into the LaTeX core, so its patches are loaded now.

for HTML output:
```
\begin{warpHTML}
\RequirePackage{lwarp-textcomp}
\end{warpHTML}
```

103 Loading amsmath, amsthm patches, centernot

amsmath, amsthm, and centernot may have been preloaded, such as by newtx, so their patches are loaded now.

for HTML output:
```
\begin{warpHTML}
\IfPackageLoadedTF{amsthm}{
    \RequirePackage{lwarp-amsthm}
}{}
```

```
\IfPackageLoadedTF{amsmath}{
    \RequirePackage{lwarp-amsmath}
}{}
```

amsthm may load centernot, so centernot must be checked second.

```
\IfPackageLoadedTF{centernot}{
    \RequirePackage{lwarp-centernot}
}{}
\end{warpHTML}
```

104 Loading KOMA-SCRIPT class patches

Load patches to koma-script.

for HTML output:

```
\begin{warpHTML}
```

```
\IfClassLoadedTF{scrbook}{\RequirePackage{lwarp-patch-komascript}}{}
\IfClassLoadedTF{scrartcl}{\RequirePackage{lwarp-patch-komascript}}{}
\IfClassLoadedTF{scrreprt}{\RequirePackage{lwarp-patch-komascript}}{}
```

```
\end{warpHTML}
```

105 Loading MEMOIR class patches

Load patches to memoir.

for PRINT output:

```
\begin{warpprint}
\IfClassLoadedTF{memoir}{\LWR@origRequirePackage{xcolor}}{}
\end{warpprint}
```

for HTML output:

```
\begin{warpHTML}
\IfClassLoadedTF{memoir}{\RequirePackage{lwarp-patch-memoir}}{}
\end{warpHTML}
```

106 ut* class patches

Load patches to uj* and ut* classes, as well as ltj* classes.

for HTML output:

```
\begin{warpHTML}
```

```
\newcommand*{\LWR@patchujtclasses}{
```

uj/t does not use \partname

```
    \def\@partnameformat{}
```

```
    \def\@partcntformat##1{%
        \prepartname%
        \csname the##1\endcsname%
```

```
        \postpartname%
        \quad%
    }
    \@ifundefined{chapter}{}{
        \def\@chapcntformat##1{%
            \prechaptername%
            \csname the##1\endcsname%
            \postchaptername%
            \quad%
        }
    }
    \renewcommand*{\LWR@printchaptername}{}
```

Use decimal points instead of centered dots:

```
    \renewcommand{\thepart}{\@Roman\c@part}
    \@ifundefined{chapter}{
        \renewcommand{\thesection}{\@arabic\c@section}
    }{
        \renewcommand{\thechapter}{\@arabic\c@chapter}
        \renewcommand{\thesection}{\thechapter.\@arabic\c@section}
    }
    \renewcommand{\thesubsection}{\thesection.\@arabic\c@subsection}
    \renewcommand{\thesubsubsection}{%
    \thesubsection.\@arabic\c@subsubsection}
    \renewcommand{\theparagraph}{%
    \thesubsubsection.\@arabic\c@paragraph}
    \renewcommand{\thesubparagraph}{%
    \theparagraph.\@arabic\c@subparagraph}
    \@ifundefined{chapter}{
        \renewcommand{\thefigure}{\@arabic\c@figure}
        \renewcommand{\thetable}{\@arabic\c@table}
    }{
        \renewcommand{\thefigure}{%
        \ifnum\c@chapter>\z@\thechapter.\fi\@arabic\c@figure}
        \renewcommand{\thetable}{%
        \ifnum\c@chapter>\z@\thechapter.\fi\@arabic\c@table}
    }
}

\IfClassLoadedTF{ujarticle}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{ujbook}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{ujreport}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{utarticle}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{utbook}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{utreport}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{ltjarticle}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{ltjbook}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{ltjreport}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{ltjsarticle}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{ltjsbook}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{ltjsreport}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{ltjskiyou}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{ltjspf}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{ltjtarticle}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{ltjtbook}{\LWR@patchujtclasses}{}
\IfClassLoadedTF{ltjtreport}{\LWR@patchujtclasses}{}

\end{warpHTML}
```

107 CTEX patches

Patches for ctex and related classes, which are loaded before lwarp.

All CTEX classes and the ctex package seem to load ctexpatch, so its presence is used to decide whether to have lwarp patch CTEX.

for HTML output:
```
\begin{warpHTML}
```

`\AtBeginDocument` in case the user set `FileSectionNames` in the preamble.

```
\AtBeginDocument{
    \IfPackageLoadedTF{ctexpatch}{%
        \def\@partcntformat#1{%
            \LWR@isolate{\CTEX@partname}~%
            \CTEX@part@aftername%
        }%

        \def\@partnameformat{}

        \def\@chapcntformat#1{%
            \LWR@isolate{\CTEX@chaptername}~%
            \CTEX@chapter@aftername%
        }%

        \renewcommand*{\LWR@printchaptername}{}
    }{}
}
```

```
\end{warpHTML}
```

108 kotexutf patches

Patch for kotexutf, which is loaded before lwarp.

kotexutf's `\@setref` was conflicting with lwarp's cross references.

for HTML output:
```
\begin{warpHTML}
```

If kotexutf's version of `\@setref` is detected, it is reverted to the original.

```
\AtBeginDocument{
\IfPackageLoadedTF{kotexutf}{%
    \def\LWR@kotexutf@setref#1#2#3{%
        \@setref@dhucs@orig{#1}{#2}{#3}%
      \ifx#1\relax\else
        \bgroup
        \dhucs@make@cjkchar@null
        \edef\@temp{\expandafter#2#1}\global\josatoks\expandafter{\@temp}%
        \egroup
      \fi%
    }%

    \ifdefequal{\@setref}{\LWR@kotexutf@setref}{
        \let\@setref\@setref@dhucs@orig
```

```
    }{}
}{}
}
```

```
\end{warpHTML}
```

109 babel and polyglossia warnings

lwarp prints a message instructing the user how to avoid the following error.

(These are not \PackageWarnings because there may not be a problem.)

lwarp uses cleveref, which has some limitations when using polyglossia, possibly resulting in the error

```
! Undefined control sequence. . . . \__hook begindocument
```

To test compatibility, add

```
\usepackage{cleveref}
```

near the end of the preamble (as the last package to be loaded), and try to compile the print version. It may be necessary to set

```
\setdefaultlanguage{english}
```

or some other language supported by cleveref, then select other languages using \setotherlanguages.

Once the print version works with cleveref and polyglossia, the HTML version should work as well using lwarp.

for HTML output:

```
\begin{warpHTML}
\AtBeginDocument{

\IfPackageLoadedTF{polyglossia}{
    \PackageNoteNoLine{lwarp}
    {%
       Polyglossia has been loaded.  Lwarp also uses cleveref.\MessageBreak
        See the cleveref documentation regarding\MessageBreak
       polyglossia support.  Some languages are not supported.\MessageBreak
        --- \MessageBreak
        If the error\MessageBreak
        \space\space Undefined control sequence ...
        \protect\__hook begindocument\MessageBreak
        occurs here, use the polyglossia macro:\MessageBreak
        \space\space\protect\setmainlanguage\protect{...\protect}
    }
}{
    \IfPackageLoadedTF{babel}{
        \PackageNoteNoLine{lwarp}
        {%
            Babel has been loaded.  Lwarp also uses cleveref.\MessageBreak
            See the cleveref documentation regarding\MessageBreak
            babel support.  Some languages are not supported%
        }
    }{}
}
```

```
13983
13984 }
13985 \end{warpHTML}
```

110 MathJax warnings

\LWR@mathjaxwarn {⟨*packagename*⟩} {⟨*More text.*⟩}

Issue a warning that MathJax is emulated. To be done \AtBeginDocument.

```
13986 \newcommand*{\LWR@mathjaxwarn}[2]{%
13987     \IfPackageLoadedTF{lwarp-#1}{%
13988         \ifblank{#2}{%
13989             \PackageWarningNoLine{lwarp}
13990                 {%
13991                 Lwarp provides emulation for MathJax when used\MessageBreak
13992                     with the #1 package%
13993                 }
13994         }{%
13995             \PackageWarningNoLine{lwarp}
13996                 {%
13997                 Lwarp provides emulation for MathJax when used\MessageBreak
13998                     with the #1 package.\MessageBreak
13999                     #2%
14000                 }
14001         }%
14002     }{}%
14003 }
14004
14005 % \begin{macro}{\LWR@nomathjaxwarn} \marg{packagename} \marg{More text.}
14006 %
14007 % Issue a warning that \MathJax\ is not supported.
14008 % To be done \cs{AtBeginDocument}.
14009 %
14010 % \changes{v0.894}{2020/12/22}{Warn if using packages not supported by \MathJax.}
14011 % \changes{v0.895}{2021/01/08}{Improved \MathJax\ warning.}
14012 %    \begin{macrocode}
14013 \newcommand*{\LWR@nomathjaxwarn}[2]{%
14014     \IfPackageLoadedTF{lwarp-#1}{%
14015         \ifblank{#2}{%
14016             \PackageWarningNoLine{lwarp}
14017                 {%
14018                 Lwarp does not provide MathJax support for #1.\MessageBreak
14019                     Use SVG math by removing the Lwarp mathjax option%
14020                 }
14021         }{%
14022             \PackageWarningNoLine{lwarp}
14023                 {%
14024                 Lwarp does not provide MathJax support for #1.\MessageBreak
14025                     #2%
14026                 }
14027         }%
14028     }{}%
14029 }
```

\LWR@forceSVGmessage {⟨*packagename*⟩}

```
\newcommand*{\LWR@forceSVGmessage}[1]{%
    SVG math output may be enabled for select math\MessageBreak
    expressions to preserve #1 visual\MessageBreak
    features for those particular expressions.\MessageBreak
   Before the chosen inline math, use \protect\inlinemathother\MessageBreak
    to begin using SVG math, and \protect\inlinemathnormal\MessageBreak
    afterward to resume using MathJax math.\MessageBreak
    Before display math, use \protect\displaymathother\MessageBreak
   to begin using SVG math, and use \protect\displaymathnormal\MessageBreak
    after to resume using MathJax for the following math.\MessageBreak
    Or, use SVG math for all expressions by removing\MessageBreak
    the mathjax option for the lwarp package%
}
```

If MathJax is being used, issue a warning for certain packages.

```
\AtBeginDocument{
    \ifbool{mathjax}{
        \LWR@nomathjaxwarn{aligned-overset}{}
        \LWR@nomathjaxwarn{amscdx}{\LWR@forceSVGmessage{amscdx}}
        \LWR@mathjaxwarn{arydshln}
           {In a math array, do not use the optional argument\MessageBreak
            for \protect\cdashline.\space\space
            Furthermore, \protect\cline\space is not\MessageBreak
            supported by MathJax}
        \LWR@nomathjaxwarn{autoaligne}{}
        \LWR@mathjaxwarn{autonum}
            {MathJax does not support equation+.\MessageBreak
            You may use the warpprint and warpHTML\MessageBreak
            environments to isolate the package load\MessageBreak
            and the equation+ environments}
        \LWR@mathjaxwarn{bigdelim}
            {Delimiters appear only of the first line}
        \LWR@nomathjaxwarn{boldtensors}{}
        \LWR@mathjaxwarn{booktabs}
            {\protect\cmidrule\space is not displayed}
        \LWR@mathjaxwarn{breqn}
            {Each environment becomes an SVG image}
        \LWR@mathjaxwarn{colortbl}
            {Colors are ignored in MathJax.\MessageBreak
            (Text mode tabular does support colortbl.)\MessageBreak
            \LWR@forceSVGmessage{colortbl}}
        \LWR@mathjaxwarn{delarray}{\LWR@forceSVGmessage{delarray}}
        \LWR@nomathjaxwarn{gauss}{\LWR@forceSVGmessage{gauss}}
        \LWR@mathjaxwarn{hhline}
            {A simple \protect\hline\space is used}
        \LWR@mathjaxwarn{isomath}
        {Some of the symbol font macros such as \protect\mathsfbfit\MessageBreak
             do not use a sans font because MathJax does not yet\MessageBreak
                 have sans Greek.  Tensors may look like vectors%
            }
        \LWR@nomathjaxwarn{jkmath}{\LWR@forceSVGmessage{jkmath}}
        \LWR@mathjaxwarn{libertinust1math}
        {Some of the symbol font macros such as \protect\mathsfbfit\MessageBreak
             do not use a sans font because MathJax does not yet\MessageBreak
                 have sans Greek.  Tensors may look like vectors%
            }
```

```
        \LWR@mathjaxwarn{mathtools}
           {See the Lwarp manual regarding the disallowspaces\MessageBreak
           and showonlyrefs options, the alignat environment,\MessageBreak
            and \protect\DeclarePairedDelimiter\space and related%
            }
        \LWR@mathjaxwarn{mathspec}
            {Double quotes are removed, even inside \protect\text}
        \LWR@mathjaxwarn{multirow}
            {Multirow works as expected in text mode, but\MessageBreak
            limited emulation is provided for MathJax math.\MessageBreak
          \protect\multirow\space ignores all arguments except\MessageBreak
            the text}
        \LWR@mathjaxwarn{nicematrix}
            {Keys/values are ignored in MathJax.\MessageBreak
            \protect\Cdots, etc. do not span multiple cells.\MessageBreak
           AutoNiceMatrix, etc. are not supported for MathJax.\MessageBreak
         \protect\CodeBefore\space cannot be done with MathJax.\MessageBreak
            \LWR@forceSVGmessage{nicematrix}%
            }
        \LWR@nomathjaxwarn{pb-diagram}{\LWR@forceSVGmessage{pb-diagram}}
%         \LWR@mathjaxwarn{physics}
% %             {The third-party extension is not used.\MessageBreak
%             {The MathJax v3 extension is used.\MessageBreak
%             See the Lwarp manual for details}
        \LWR@mathjaxwarn{siunitx}
        {Place \protect\sisetup\space before \protect\begin{document}.\MessageBreak
            Many optional arguments are ignored}
        \LWR@nomathjaxwarn{tensind}{}
        \LWR@mathjaxwarn{unicode-math}
            {Do not use embedded Unicode characters.\MessageBreak
            (Not all characters are encoded correctly.)\MessageBreak
            Some symbol fonts are not supported by MathJax,\MessageBreak
            and are only approximated.\MessageBreak
        Greek macros such as \protect\alpha\space respond to the math-style\MessageBreak
            option.  Latin symbols does not, per MathJax\MessageBreak
         limitations, unless placed inside \protect\symbit\space or similar}
        \LWR@nomathjaxwarn{unitsdef}{}
        \LWR@mathjaxwarn{witharrows}
            {Arrows can only point to the next line.\MessageBreak
            Text is only placed on a single line}
        \LWR@nomathjaxwarn{xy}
        {In text, xy works as-is.  SVG images will be generated.\MessageBreak
            \LWR@forceSVGmessage{xy}}
    }{}
}
```

File 2 **lwarp-2in1.sty**

§ 111 Package 2in1

Pkg 2in1

2in1 is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{2in1}
```

File 3 **lwarp-2up.sty**

§ 112 Package 2up

Pkg 2up

2up is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{2up}[2010/05/15]
\def\source#1#2#3{}
\def\target#1#2#3{}
\def\targetlayout#1{}
\newdimen\pageseplength
\newdimen\pagesepwidth
\newdimen\pagesepoffset
\def\twoupemptypage{}
\def\twoupclearpage{}
\def\twoupeject{}
\def\twouparticle{}
\def\twoupplain{}
\def\twouplegaltarget{}
\def\twouplandscape{}
\def\TwoupWrites{}
```

File 4 **lwarp-a4.sty**

§ 113 Package a4

Pkg a4

a4 is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{a4}[2004/04/15]
\newcommand*{\WideMargins}{}
```

File 5 **lwarp-a4wide.sty**

§ 114 Package a4wide

Pkg a4wide

a4wide is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{a4wide}[1994/08/30]
```

File 6 **lwarp-a5comb.sty**

§ 115 Package

a5comb

Pkg a5comb

a5comb is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{a5comb}
```

File 7 **lwarp-abstract.sty**

§ 116 Package

abstract

(*Emulates or patches code by* Peter Wilson.)

Pkg abstract

abstract is supported and patched by lwarp.

⚠ missing TOC

If using the number option with file splits, be sure to place the table of contents before the abstract. The number option causes a section break which may cause a file split, which would put a table of contents out of the home page if it is after the abstract.

for HTML output:

memoir provides an abstract environment even though it is not an article or report class. Meanwhile, lwarp loads book to emulate memoir, but book does not have an abstract environment, so when the abstract package is loaded for emulation there is no pre-existing abstract to redefine, which would cause an error. Thus, a null abstract is provide here:

```
\ProvideDocumentEnvironment{abstract}{}{}{}
```

Accept all options for lwarp-abstract:

```
\LWR@ProvidesPackagePass{abstract}[2009/06/08]

\AtBeginDocument{
\BeforeBeginEnvironment{abstract}{
\LWR@forcenewpage
\BlockClass{abstract}
}
\AfterEndEnvironment{abstract}{\endBlockClass}
}

\renewcommand{\@bsrunintitle}{%
\hspace*{\abstitleskip}%
{\abstractnamefont%
\InlineClass{abstractrunintitle}{\abstractname}%
\@bslabeldelim}%
}

\IfClassLoadedTF{memoir}
{
  \renewenvironment{abstract}{%
```

```
% %     \titlepage
%     \null\vfil
%     \@beginparpenalty\@lowpenalty
  \setup@bstract
    \if@bsrunin
    \else
%       \if@bsstyle
%         \abstitlestyle{\BlockClassSingle{abstracttitle}{\abstractname}}
%       \else
        \ifnumber@bs
          \num@bs
        \else
          \begin{\absnamepos}%
  \abstractnamefont \BlockClassSingle{abstracttitle}{\abstractname}
%             \@endparpenalty\@M
          \end\absnamepos%
       \vspace{\abstitleskip}%
        \fi
%       \fi
%       \vspace{\abstitleskip}%
    \fi
    \put@bsintoc%
    \begin{@bstr@ctlist}\if@bsrunin\@bsrunintitle\fi\abstracttextfont}%
    {\par\end{@bstr@ctlist}%\vfil\null%\endtitlepage
    }
}{% not memoir
\if@titlepage
  \renewenvironment{abstract}{%
%     \titlepage
    \null\vfil
    \@beginparpenalty\@lowpenalty
    \if@bsrunin
    \else
      \if@bsstyle
        \abstitlestyle{\BlockClassSingle{abstracttitle}{\abstractname}}
      \else
        \ifnumber@bs
          \num@bs
        \else
          \begin{\absnamepos}%
  \abstractnamefont \BlockClassSingle{abstracttitle}{\abstractname}
            \@endparpenalty\@M
          \end\absnamepos%
%%        \vspace{\abstitleskip}%
        \fi
      \fi
      \vspace{\abstitleskip}%
    \fi
    \put@bsintoc%
    \begin{@bstr@ctlist}\if@bsrunin\@bsrunintitle\fi\abstracttextfont}%
    {\par\end{@bstr@ctlist}\vfil\null%\endtitlepage
    }
\else
  \renewenvironment{abstract}{%
    \if@bsrunin
    \else
      \if@bsstyle
        \abstitlestyle{\BlockClassSingle{abstracttitle}{\abstractname}}
      \else
        \ifnumber@bs
```

```
          \num@bs
        \else
\begin{\absnamepos}%
\abstractnamefont\BlockClassSingle{abstracttitle}{\abstractname}%
\end\absnamepos%
%%        \vspace{\abstitleskip}%
        \fi
      \fi
      \vspace{\abstitleskip}%
    \fi
    \put@bsintoc%
    \begin{@bstr@ctlist}\if@bsrunin\@bsrunintitle\fi\abstracttextfont}%
    {\par\end{@bstr@ctlist}}
\fi
}% not memoir
```

File 8 **lwarp-academicons.sty**

§ 117 Package

academicons

(*Emulates or patches code by* Diogo A. B. Fernandes.)

Pkg academicons

academicons is patched for use by lwarp.

If \aiicon is used, the name of the icon is used in the alt tag. Otherwise, for each of the individual icon macros, a generic alt tag is used.

for HTML output:

```
\LWR@ProvidesPackagePass{academicons}[2018/06/27]

\LetLtxMacro\LWR@orig@symbol\symbol

\let\LWR@academicons@orig@AI\AI

\newcommand*{\LWR@academicons@symbol}[1]{%
    \begin{lateximage}*[academicon][academicons#1]%
    \begingroup%
    \LWR@academicons@orig@AI%
    \LWR@orig@symbol{#1}%
    \endgroup%
    \end{lateximage}%
}

\renewcommand*{\AI}{%
    \LetLtxMacro\symbol\LWR@academicons@symbol%
}

\renewcommand*{\aiicon}[1]
{%
    \begin{lateximage}*[#1 icon][academicons#1]%
    \AI\csname aiicon@#1\endcsname%
    \end{lateximage}%
}
```

File 9 **lwarp-accents.sty**

§ 118 Package

accents

(*Emulates or patches code by* Javier Bezos.)

Pkg accents

accents is used as-is for SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{accents}[2006/05/12]
```

For MathJax:

```
\begin{warpMathJax}
\LWR@infoprocessingmathjax{accents}

\CustomizeMathJax{\newcommand{\ring}[1]{\mathring{#1}}}
\CustomizeMathJax{\newcommand{\accentset}[2]{\overset{#1{}}{#2}}}
```

As of this writing, MathJax v3 does not yet support groups for macros, so for \underaccent, the originals are remembered here, then they are temporarily redefined and used inside \underaccent, then restored to their originals. \LARGE gives a reasonable size, and \raise is used to adjust vertically without introducing extra line space.

```
\CustomizeMathJax{\let\LWRgrave\grave}
\CustomizeMathJax{\let\LWRacute\acute}
\CustomizeMathJax{\let\LWRcheck\check}
\CustomizeMathJax{\let\LWRbreve\breve}
\CustomizeMathJax{\let\LWRbar\bar}
\CustomizeMathJax{\let\LWRhat\hat}
\CustomizeMathJax{\let\LWRdot\dot}
\CustomizeMathJax{\let\LWRtilde\tilde}
\CustomizeMathJax{\let\LWRddot\ddot}
\CustomizeMathJax{\let\LWRvec\vec}
\CustomizeMathJax{\let\LWRwidetilde\widetilde}

\CustomizeMathJax{\newcommand{\underaccent}[2]{%
    {%
    \renewcommand{\grave}[1]{{\LARGE\LWRgrave{##1}}}%
    \renewcommand{\acute}[1]{{\LARGE\LWRacute{##1}}}%
    \renewcommand{\check}[1]{{\LARGE\LWRcheck{##1}}}%
    \renewcommand{\breve}[1]{{\LARGE\LWRbreve{##1}}}%
    \renewcommand{\bar}[1]{{\LARGE\LWRbar{##1}}}%
    \renewcommand{\hat}[1]{{\LARGE\LWRhat{##1}}}%
    \renewcommand{\dot}[1]{{\LARGE\LWRdot{##1}}}%
    \renewcommand{\tilde}[1]{{\LARGE\LWRtilde{##1}}}%
    \renewcommand{\ddot}[1]{{\LARGE\LWRddot{##1}}}%
    \renewcommand{\vec}[1]{{\LARGE\LWRvec{##1}}}%
    \renewcommand{\widetilde}[1]{{\LARGE\LWRwidetilde{\hphantom{#2}}}}%
    \underset{\raise 2pt {#1{}}}{#2}%
    \let\grave\LWRgrave%
    \let\acute\LWRacute%
    \let\check\LWRcheck%
    \let\breve\LWRbreve%
    \let\bar\LWRbar%
```

```
    \let\hat\LWRhat%
    \let\dot\LWRdot%
    \let\tilde\LWRtilde%
    \let\ddot\LWRddot%
    \let\vec\LWRvec%
    \let\widetilde\LWRwidetilde%
    }%
}}

\CustomizeMathJax{\newcommand{\undertilde}[1]{%
    \underset{\raise 3pt {\widetilde{\hphantom{#1}}}}{#1}%
}}
\end{warpMathJax}
```

File 10 **lwarp-accessibility.sty**

§ 119 Package accessibility

Pkg accessibility

accessibility is emulated.

for HTML output:

Discard all options for lwarp-accessibility:

```
\LWR@ProvidesPackageDrop{accessibility}[2019/10/14]

\newcommand{\alt}[1]{\ThisAltText{#1}}
\newcommand{\newhref}[3]{\ThisAltText{#2}\LWR@href{#1}{#3}}%
\providecommand{\thead}[1]{\textbf{#1}}
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\alt}[1]{}}
\CustomizeMathJax{\newcommand{\thead}[1]{\text{\textbf{#1}}}}
\end{warpMathJax}
```

File 11 **lwarp-accsupp.sty**

§ 120 Package accsupp

Pkg accsupp

accsupp is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{accsupp}[2018/03/28]

\newcommand*{\BeginAccSupp}[1]{}
\newcommand*{\EndAccSupp}[1]{}
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\BeginAccSupp}[1]{}}
\CustomizeMathJax{\newcommand{\EndAccSupp}[1]{}}
\end{warpMathJax}
```

File 12 **lwarp-acro.sty**

§ 121 Package

acro

(*Emulates or patches code by* Clemens Niederberger.)

Pkg acro

acro is patched for use by lwarp.

⚠ formats

Define acronymn formats using `\textbf` instead of `\bfseries` etc.

for HTML output:

```
\LWR@ProvidesPackagePass{acro}[2019/10/12]
```

`\DeclareAcronym` is used in the preamble, where lwarp has not yet made the dollar active, so temporarily enable lwarp math catcode just for this definition:

```
\ExplSyntaxOn
\NewDocumentCommand \LWR@DeclareAcronym {mm}
{
    \acro_declare_acronym:nn {#1} {#2}
    \catcode`\$=3% lwarp
}
\ExplSyntaxOff

\RenewDocumentCommand{\DeclareAcronym}{}{
    \catcode`\$=\active% lwarp
    \LWR@DeclareAcronym
}
```

Replace dot fill with simple dots:

```
\ExplSyntaxOn
\cs_new_protected:Npn \LWR@HTML@acro_dot_fill: {\dots\space}
\LWR@formatted{acro_dot_fill:}
\ExplSyntaxOff
```

Modified to activate the current font:

```
\ExplSyntaxOn
\IfPackageAtLeastTF{acro}{2020/04/29}%
{}% v3 or later
{% before v3
\IfPackageAtLeastTF{acro}{2019/09/23}%
{% v2.10 or later
\cs_gset_protected:Npn \__acro_typeset:nn #1#2
  {
    \mode_if_horizontal:F { \leavevmode }
    \group_begin:
      \use:x
        {
          \bool_if:cTF {l__acro_custom_#1_format_bool}
            { \exp_not:v {l__acro_custom_#1_format_tl} }
            { \exp_not:v {l__acro_#1_format_tl} }
            {\exp_not:N\LWR@textcurrentfont{#2}}%   lwarp
        }
    \group_end:
```

```
  }

\cs_gset_protected:Npn \__acro_ending_format:nn #1#2
  {
    \bool_if:NTF \l__acro_include_endings_format_bool
      {
        \str_case:nn {#1}
          {
            {long}
            {
              \bool_if:NTF \l__acro_custom_long_format_bool
                { \l__acro_custom_long_format_tl }
                {
                  \bool_if:NTF \l__acro_first_instance_bool
                    { \l__acro_first_long_format_tl }
                    { \l__acro_long_format_tl }
                }
            }
            {short}
            {
              \bool_if:NTF \l__acro_custom_short_format_bool
                { \l__acro_custom_short_format_tl }
                { \l__acro_short_format_tl }
            }
            {alt}
            {
              \bool_if:NTF \l__acro_custom_alt_format_bool
                { \l__acro_custom_alt_format_tl }
                { \l__acro_alt_format_tl }
            }
          }
      }
      { \use:n }
      {\exp_not:N\LWR@textcurrentfont{#2}}% lwarp
  }
}% v2.10 or later
{% before v2.10
\cs_gset_protected:Npn \acro_write_short:nn #1#2
  {
    \mode_if_horizontal:F { \leavevmode }
    \group_begin:
      \bool_if:NTF \l__acro_custom_format_bool
        { \l__acro_custom_format_tl }
        { \l__acro_short_format_tl }
      {\LWR@textcurrentfont{#2}}% lwarp
    \group_end:
  }

\cs_gset_protected:Npn \acro_write_alt:nn #1#2
  {
    \mode_if_horizontal:F { \leavevmode }
    \group_begin:
      \bool_if:NTF \l__acro_custom_format_bool
        { \l__acro_custom_format_tl }
        { \l__acro_alt_format_tl }
      {\LWR@textcurrentfont{#2}}% lwarp
    \group_end:
  }

\cs_gset_protected:Npn \acro_write_long:nn #1#2
```

```
{
  \mode_if_horizontal:F { \leavevmode }
  \group_begin:
    \bool_if:NTF \l__acro_custom_long_format_bool
      { \l__acro_custom_long_format_tl }
      { \use:n }
    {
      \use:x
        {
          \exp_not:n {#1}
          {
            \bool_if:NTF \l__acro_first_upper_bool
              { \exp_not:N \__acro_first_upper_case:n { \exp_not:n {
                  \LWR@textcurrentfont{#2}% lwarp
              } } }
              { \exp_not:n {\LWR@textcurrentfont{#2}} }% lwarp
          }
        }
    }
  \group_end:
}
}% before v2.10
}% before v3
\ExplSyntaxOff
```

File 13 **lwarp-acronym.sty**

§ 122 Package

acronym

(*Emulates or patches code by* Tobias Oetiker.)

Pkg acronym

acronym is patched for use by lwarp.

⚠ multiply-defined labels

\acresetall does not work with cleveref, causing multiply-defined labels. lwarp patches acronym for HTML, but not for print mode.

for HTML output:

```
\LWR@ProvidesPackagePass{acronym}[2015/03/21]
```

Uses \textit instead of \itshape:

```
\renewcommand{\acfia}[1]{%
  {\textit{\AC@acl{#1}}} (\ifAC@starred\acs*{#1}\else\acs{#1}\fi)}
```

Removes the mbox to allow math inside:

```
\renewcommand*\AC@acs[1]{%
%     \mbox{
 \expandafter\AC@get\csname fn@#1\endcsname\@firstoftwo{#1}}
% }
```

Fix for acronym labels in the captions of floats.

```
\renewcommand{\@starttoc}[1]{%
    \LWR@htmlelementclass{nav}{#1}
    \LetLtxMacro\@verridelabel\@gobble
    \LWR@orig@starttoc{#1}
    \LWR@htmlelementclassend{nav}{#1}
```

```
}
```

Modified for cleveref and lwarp:

```
\renewcommand*\AC@und@newl@bel[3]{%
    \@ifundefined{#1@#3}%
    {%
        \global\expandafter\let\csname#2@#3\endcsname\@nnil
        \global\expandafter\let\csname#2@#3@lwarp\endcsname\@nnil% lwarp
        \global\expandafter\let\csname#2@#3@cref\endcsname\@nnil% lwarp
    }%
    {%
        \global\expandafter\let\csname#1@#3\endcsname\relax
        \global\expandafter\let\csname#1@#3@lwarp\endcsname\relax% lwarp
        \global\expandafter\let\csname#1@#3@cref\endcsname\relax% lwarp
    }%
}%
```

File 14 **lwarp-adjmulticol.sty**

§ 123 Package

adjmulticol

(*Emulates or patches code by* Boris Veytsman.)

Pkg adjmulticol

adjmulticol is emulated.

Emulation similar to multicols is used, with adjusted margins. If the number of columns is specified as 1, it is set so, but if two or greater are used, lwarp allows a variable number of columns up to three.

for HTML output:

```
\LWR@ProvidesPackageDrop{adjmulticol}[2012/01/20]
```

```
\RequirePackage{multicol}
```

adjmulticols * {⟨*numcols*⟩} {⟨*left margi*⟩} {⟨*right margin*⟩}

```
\NewDocumentEnvironment{adjmulticols}{s m m m}
{%
```

Compute the margins, and limit to positive only:

```
\setlength{\LWR@templengthone}{#3}%
\ifdimcomp{\LWR@templengthone}{<}{0pt}{\setlength{\LWR@templengthone}{0pt}}{}%
\setlength{\LWR@templengthtwo}{#4}
\ifdimcomp{\LWR@templengthtwo}{<}{0pt}{\setlength{\LWR@templengthtwo}{0pt}}{}%
```

If one column is specified, use a of class singlecolumn, else use multicols:

```
\newcommand*{\LWR@mcolstype}{multicols}%
\ifnumcomp{#2}{=}{1}{\renewcommand*{\LWR@mcolstype}{singlecolumn}}{}%
```

Help avoid page overflow:

```
\LWR@forcenewpage%
```

Create the with the given margin and class:

```
\BlockClass[%
    \LWR@print@mbox{margin-left:\LWR@printlength{\LWR@templengthone}} ; %
    \LWR@print@mbox{margin-right:\LWR@printlength{\LWR@templengththwo}}%
]{\LWR@mcolstype}%
}
{\endBlockClass}
```

File 15 **lwarp-addlines.sty**

§ 124 Package addlines

(*Emulates or patches code by* Will Robertson.)

Pkg addlines addlines is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{addlines}[2018/12/05]

\newcommand\addlines{\@ifstar\addlines@a\addlines@a}
\newcommand\addlines@a[1][1]{}
\let\addline\addlines
\newcommand\removelines{\@ifstar\removelines@a\removelines@a}
\newcommand\removelines@a[1][1]{}
\let\removeline\removelines
\newcommand\squeezepage[1][0]{}
```

File 16 **lwarp-afterpage.sty**

§ 125 Package afterpage

(*Emulates or patches code by* David Carlisle.)

Pkg afterpage afterpage is emulated.

for HTML output: Discard all options for lwarp-afterpage:

```
\LWR@ProvidesPackageDrop{afterpage}[2014/10/28]

\newcommand{\afterpage}[1]{#1}
```

File 17 **lwarp-algorithm2e.sty**

§ 126 Package algorithm2e

(*Emulates or patches code by* Christophe Fiorio.)

Pkg algorithm2e algorithm2e is patched for use by lwarp.

For print output, captions are placed according to package options, but for HTML output captions are placed where used. Therefore, to have captions appear at the

top of the algorithms for both print and HTML, place each captions at the top of each algorithm.

for HTML output:

```
\LWR@ProvidesPackagePass{algorithm2e}[2017/07/18]
```

For the list-of entries:

```
\renewcommand{\l@algocf}[2]{\hypertocfloat{1}{algocf}{loa}{#1}{#2}}
```

Select the lwarp float style according to the algorithm2e style:

```
\newcommand*{\LWR@floatstyle@algocf}{ruled}

\ifdefstring{\algocf@style}{boxed}{%
\renewcommand*{\LWR@floatstyle@algocf}{boxed}
}{}

\ifdefstring{\algocf@style}{boxruled}{%
\renewcommand*{\LWR@floatstyle@algocf}{boxruled}
}{}

\ifdefstring{\algocf@style}{plain}{%
\renewcommand*{\LWR@floatstyle@algocf}{plain}
}{}
```

Paragraph handling to allow line numbers under certain conditions:

```
\renewcommand{\algocf@everypar}{%
    \ifbool{LWR@algocf@dopars}{%
        \ifbool{LWR@doingstartpars}{%
            \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
                {}%
                {%
```

algorithm2e uses `\everypar`, so the open paragraph tag is generated here instead of `\LWR@openparagraph`:

```
                  \LWR@htmltagc{\LWR@tagregularparagraph}\LWR@orignewline%

                    \algocf@everyparnl\algocf@everyparhanging%
                }%
        }{}%
    }{}%
}
```

lwarp caption handling:

```
\renewcommand{\algocf@makecaption}[2]{%
    \LWR@HTML@caption@begin{algocf}%
    \LWR@isolate{\algocf@captiontext{#1}{#2}}%
    \LWR@HTML@caption@end%
}
```

Print any caption where it is declared:

```
\renewcommand{\algocf@makecaption@plain}[2]{%
    \LWR@HTML@caption@begin{algocf}%
    \LWR@isolate{\algocf@captiontext{#1}{#2}}%
```

```
    \LWR@HTML@caption@end%
}

\renewcommand{\algocf@makecaption@boxed}[2]{%
    \LWR@HTML@caption@begin{algocf}%
    \LWR@isolate{\algocf@captiontext{#1}{#2}}%
    \LWR@HTML@caption@end%
}

\renewcommand{\algocf@makecaption@ruled}[2]{%
    \LWR@HTML@caption@begin{algocf}%
    \LWR@isolate{\algocf@captiontext{#1}{#2}}%
    \LWR@HTML@caption@end%
}
```

Turn off line numbering while making the caption:

```
\long\def\algocf@latexcaption#1[#2]#3{% original definition of caption
\boolfalse{LWR@algocf@dopars}%      lwarp
  \par%
  \addcontentsline{\csname ext@#1\endcsname}{#1}%
 {\protect\numberline{\csname the#1\endcsname}{\ignorespaces \LWR@isolate{#2}}}%
  \begingroup%
  \@parboxrestore%
  \if@minipage%
    \@setminipage%
  \fi%
  \normalsize%
  \@makecaption{\csname fnum@#1\endcsname}{\ignorespaces #3}\par%
  \endgroup%
\booltrue{LWR@algocf@dopars}%       lwarp
}
```

Line numbers are printed in a of class `alg2elinenumber`:

```
\renewcommand{\algocf@printnl}[1]{%
    \InlineClass{alg2elinenumber}{\NlSty{#1}}~%
}%
```

While initializing an algorithm environment, locally declare the style of a regular figure to be the same as the algorithm style, in case the `figure` option was used.

```
\preto\@algocf@init{%
  \edef\LWR@floatstyle@figure{\LWR@floatstyle@algocf}%
}
```

For lwarp, the algorithm is not assembled inside a box, since `latexi`mages would not work, so the captions are printed where declared.

```
\renewcommand{\@algocf@start}{%
   \let\@mathsemicolon=\;\def\;{\ifmmode\@mathsemicolon\else\@endalgoln\fi}%
%     \raggedright%
    \AlFnt{}%
    \booltrue{LWR@algocf@dopars}% lwarp
}

\renewcommand{\@algocf@finish}{%
    \boolfalse{LWR@algocf@dopars}% lwarp
    \lineskip\normallineskip\setlength{\skiptotal}{\@defaultskiptotal}%
```

```
    \let\;=\@mathsemicolon%
    \let\]=\@emathdisplay%
}
```

Use an HTML break:

```
\renewcommand{\BlankLine}{%
\LWR@stoppars%
\LWR@htmltagc{br /}%
\LWR@startpars%
}
```

Simplified for HTML. The paragraph handling must be preserved.

```
\renewcommand{\SetKwInOut}[2]{%
  \algocf@newcommand{#1}[1]{%
    \ifthenelse{\boolean{algocf@hanginginout}}%
        {\relax}%
        {\algocf@seteveryparhanging{\relax}}%
    \ifthenelse{\boolean{algocf@inoutnumbered}}%
        {\relax}%
        {\algocf@seteveryparnl{\relax}}%
    {%
            \KwSty{#2\algocf@typo:}%
        ~##1\par%
    }%
    \algocf@linesnumbered% reset the numbering of the lines
    \ifthenelse{\boolean{algocf@hanginginout}}%
        {\relax}%
        {\algocf@reseteveryparhanging}%
  }%
}%

\renewcommand{\ResetInOut}[1]{}%
```

Each of the following creates a of a given class, and turns off line numbering while creating the tags:

```
\renewcommand{\algocf@Vline}[1]{%
    \boolfalse{LWR@algocf@dopars}%
    \begin{BlockClass}{alg2evline}
    \booltrue{LWR@algocf@dopars}%
    #1
    \boolfalse{LWR@algocf@dopars}%
    \end{BlockClass}
    \booltrue{LWR@algocf@dopars}%
}

\renewcommand{\algocf@Vsline}[1]{%
    \boolfalse{LWR@algocf@dopars}%
    \begin{BlockClass}{alg2evsline}
    \booltrue{LWR@algocf@dopars}%
    #1
    \boolfalse{LWR@algocf@dopars}%
    \end{BlockClass}
    \booltrue{LWR@algocf@dopars}%
}

\renewcommand{\algocf@Noline}[1]{%
```

```
    \boolfalse{LWR@algocf@dopars}%
    \begin{BlockClass}{alg2enoline}
    \booltrue{LWR@algocf@dopars}%
    #1
    \boolfalse{LWR@algocf@dopars}%
    \end{BlockClass}
    \booltrue{LWR@algocf@dopars}%
}
```

The [H] environment is converted to a regular float, which in HTML is placed where declared. Reusing the regular float allows the [H] version to reuse the ruled and boxed options.

```
\LetLtxMacro\algocf@Here\algocf
\LetLtxMacro\endalgocf@Here\endalgocf
```

File 18 **lwarp-algorithmicx.sty**

§ 127 Package algorithmicx

(*Emulates or patches code by* Szász János.)

Pkg algorithmicx

algorithmicx is supported with minor adjustments.

for HTML output:

```
\LWR@ProvidesPackagePass{algorithmicx}[2005/04/27]
```

Inside the algorithmic environment, level indenting is converted to a of the required length, and comments are placed inside a which is floated right.

⚠ package conflicts

If using \newfloat, trivfloat, and/or algorithmicx together, see section 636.1.

```
\AtBeginEnvironment{algorithmic}{%
%
\let\origALG@doentity\ALG@doentity%
%
\renewcommand*{\ALG@doentity}{%
\origALG@doentity%
\LWR@htmltagc{%
    span style=\textquotedbl{}%
        width:\LWR@printlength{\ALG@thistlm}; display:inline-block;%
    \textquotedbl%
}%
\ifbool{FormatWP}{%
\setlength{\LWR@templengthone}{\the\ALG@thistlm}%
\whiledo{\lengthtest{\LWR@templengthone>1em}}{%
\quad%
\addtolength{\LWR@templengthone}{-1em}%
}%
}{}%
\LWR@htmltagc{/span}%
}%

\let\LWR@origComment\Comment%

\renewcommand{\Comment}[1]{%
    \InlineClass{floatright}{\LWR@origComment{#1}}%
```

```
}%
}

\renewcommand\algorithmiccomment[1]{%
\hfill\HTMLunicode{25B7} #1% white right triangle
}%
```

File 19 **lwarp-alltt.sty**

§ 128 Package alltt

(*Emulates or patches code by* Johannes Braams.)

Pkg alltt alltt is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{alltt}[1997/06/16]

\AfterEndPreamble{
\LWR@traceinfo{Patching alltt.}

\AtBeginEnvironment{alltt}{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {}%
        {%
            \LWR@forcenewpage
```

Vertical spacing changes if inside a list.

```
            \LWR@atbeginverbatim{alltt}%
        }%
}

\AfterEndEnvironment{alltt}{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {}%
        {%
```

Vertical spacing changes if inside a list.

```
            \LWR@afterendverbatim%
        }%
}

}
```

File 20 **lwarp-amscdx.sty**

§ 129 Package amscdx

(*Emulates or patches code by* Martin Vermeer.)

Pkg amscdx amscdx is used as-is for SVG math.

⚠ MathJax For MathJax, a warning notes that the CD environment must be enclosed between

\displaymathother and \displaymathnormal.

for HTML output:

```
\LWR@ProvidesPackagePass{amscdx}[2019/07/02]

\begin{warpMathJax}
\CustomizeMathJax{%
    \renewenvironment{CD}
     {\text{(Use \unicode{x005C}displaymathother before the CD enviroment.) \quad}}
     {\quad \text{(Use \unicode{x005C}displaymathnormal after the CD enviroment.)}}
}

\CustomizeMathJax{\newcommand{\CDfattrue}{}}
\CustomizeMathJax{\newcommand{\CDfatfalse}{}}
\CustomizeMathJax{\newcommand{\CDashtrue}{}}
\CustomizeMathJax{\newcommand{\CDashfalse}{}}
\CustomizeMathJax{\newcommand{\CDlor}[1]{}}
\end{warpMathJax}
```

File 21 **lwarp-amsmath.sty**

§ 130 Package amsmath

(*Emulates or patches code by* American Mathematical Society, LaTeX3 Project.)

Pkg amsmath

amsmath is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{amsmath}[2017/09/02]
```

\dotso

An HTML text-mode version.

```
\newcommand*{\LWR@HTML@dotso}{\textellipsis\ }
\LWR@formatted{dotso}
```

Patches to allow \eqref inside a caption:

```
\def\maketag@@@#1{\text{#1}}
\def\tagform@#1{\maketag@@@{(\ignorespaces#1\unskip)}}
```

Patches for $\mathcal{AMS}$ math \tag macro to remember the first tag:

```
\ifbool{mathjax}{}{% not mathjax

\LetLtxMacro\LWR@origmake@df@tag@@\make@df@tag@@
\LetLtxMacro\LWR@origmake@df@tag@@@\make@df@tag@@@

\renewcommand*{\make@df@tag@@}[1]{%
    \LWR@remembertag{#1}%
    \LWR@origmake@df@tag@@{#1}%
}

\renewcommand*{\make@df@tag@@@}[1]{%
    \LWR@remembertag{#1}%
    \LWR@origmake@df@tag@@@{#1}%
}

}% not mathjax
```

For nesting $\mathcal{AMS}$ environments:

```
\newcounter{LWR@amsmathdepth}
\setcounter{LWR@amsmathdepth}{0}
```

The following $\mathcal{AMS}$ environments are patched in-place:

Ctr LWR@maxfields@

A copy of maxfields@ as it was passed. This is used to generate the mandatory argument for alignat and alignat* when using MathJax.

```
\newcounter{LWR@maxfields@}

\xpatchcmd{\start@align}
    {\maxfields@#3\relax}
    {%
        \maxfields@#3\relax%
        \setcounter{LWR@maxfields@}{#3}%
    }
    {}
    {\LWR@patcherror{amsmath}{start@align}}
```

\LWR@amsmathenv@@before * {⟨*environment name*⟩}

* if the environment was starred.

Embeds the environment inside a lateximage.

```
\NewDocumentCommand{\LWR@amsmathenv@@before}{s m}{%
    \IfBooleanTF{#1}{
        \begin{BlockClass}{displaymath}
    }{
        \begin{BlockClass}{displaymathnumbered}
    }
    \LWR@newautoidanchor%
    \booltrue{LWR@indisplaymathimage}%
    \begin{lateximage}[\LWR@amsmathbodynumbered{#2}]*%
    \LWR@applyxfakebold%
}
```

\LWR@amsmathenv@before * {⟨*environment name*⟩}

* if the environment was starred.

Embeds the environment with MathJax or a lateximage.

```
\NewDocumentCommand{\LWR@amsmathenv@before}{s m}{%
    \ifnumequal{\value{LWR@amsmathdepth}}{0}{%
        \LWR@stoppars%
     \ifboolexpr{bool{mathjax} or ( bool{FormatWP} and bool{WPMarkMath} ) }%
       {
           \LWR@syncmathjax
           \boolfalse{LWR@amsmultline}
           \ifstrequal{#2}{multline}{\booltrue{LWR@amsmultline}}{}
           \ifstrequal{#2}{multline*}{\booltrue{LWR@amsmultline}}{}
```

⚠ autonum's "+" environments are not supported by MathJax.

```
           \LWR@beginhideamsmath
       }
       {
           \IfBooleanTF{#1}{
               \LWR@amsmathenv@@before*{#2}
```

```
            }{
                \LWR@amsmathenv@@before{#2}
            }
        }
    }{}
    \addtocounter{LWR@amsmathdepth}{1}
}
```

\LWR@amsmathenv@@after

Embeds the environment inside a `lateximage`.

```
\newcommand*{\LWR@amsmathenv@@after}{%
    \end{lateximage}\end{BlockClass}\LWR@startpars%
}
```

\LWR@amsmathenv@after * {⟨*environment name*⟩}

`*` if the environment was starred. Ignored here, only used for a consistent syntax.

Embeds the environment with MathJax or a `lateximage`.

```
\NewDocumentCommand{\LWR@amsmathenv@after}{s m}{%
    \ifnumequal{\value{LWR@amsmathdepth}}{1}{%
      \ifboolexpr{bool{mathjax} or ( bool{FormatWP} and bool{WPMarkMath} ) }%
        {
            \LWR@endhideamsmath
            \boolfalse{LWR@amsmultline}
            \LWR@addmathjax{#2}{\the\@envbody}
        }
        {\LWR@amsmathenv@@after}
```

Clear the single-use `alt` text:

```
        \gdef\LWR@ThisAltText{}%
    }{}
    \addtocounter{LWR@amsmathdepth}{-1}
}
```

Env multline

```
\BeforeBeginEnvironment{multline}{\LWR@amsmathenv@before{multline}}

\AfterEndEnvironment{multline}{\LWR@amsmathenv@after{multline}}
```

Env multline*

```
\BeforeBeginEnvironment{multline*}{\LWR@amsmathenv@before*{multline*}}

\AfterEndEnvironment{multline*}{\LWR@amsmathenv@after*{multline*}}

```

Env gather

```
\BeforeBeginEnvironment{gather}{\LWR@amsmathenv@before{gather}}

\AfterEndEnvironment{gather}{\LWR@amsmathenv@after{gather}}
```

Env gather*

```
\BeforeBeginEnvironment{gather*}{\LWR@amsmathenv@before*{gather*}}

\AfterEndEnvironment{gather*}{\LWR@amsmathenv@after*{gather*}}
```

Env align

```
\BeforeBeginEnvironment{align}{\LWR@amsmathenv@before{align}}

\AfterEndEnvironment{align}{\LWR@amsmathenv@after{align}}
```

Env align*

```
\BeforeBeginEnvironment{align*}{\LWR@amsmathenv@before*{align*}}

\AfterEndEnvironment{align*}{\LWR@amsmathenv@after*{align*}}
```

Env flalign

```
\BeforeBeginEnvironment{flalign}{\LWR@amsmathenv@before{flalign}}

\AfterEndEnvironment{flalign}{\LWR@amsmathenv@after{flalign}}
```

Env flalign*

```
\BeforeBeginEnvironment{flalign*}{\LWR@amsmathenv@before*{flalign*}}

\AfterEndEnvironment{flalign*}{\LWR@amsmathenv@after*{flalign*}}
```

Env alignat

```
\BeforeBeginEnvironment{alignat}{\LWR@amsmathenv@before{alignat}}

\AfterEndEnvironment{alignat}{\LWR@amsmathenv@after{alignat}}
```

Env alignat*

```
\BeforeBeginEnvironment{alignat*}{\LWR@amsmathenv@before*{alignat*}}

\AfterEndEnvironment{alignat*}{\LWR@amsmathenv@after*{alignat*}}


\AtBeginEnvironment{subequations}{
    \renewcommand*{\theMathJaxsubequations}{1}
    \renewcommand*{\theMathJaxsection}{\theparentequation}
    \renewcommand*{\theMathJaxequation}{\arabic{equation}}
}
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\intertext}[1]{\text{#1}\notag \\}}
\CustomizeMathJax{\let\Hat\hat}
\CustomizeMathJax{\let\Check\check}
\CustomizeMathJax{\let\Tilde\tilde}
\CustomizeMathJax{\let\Acute\acute}
```

```
\CustomizeMathJax{\let\Grave\grave}
\CustomizeMathJax{\let\Dot\dot}
\CustomizeMathJax{\let\Ddot\ddot}
\CustomizeMathJax{\let\Breve\breve}
\CustomizeMathJax{\let\Bar\bar}
\CustomizeMathJax{\let\Vec\vec}
\end{warpMathJax}
```

File 22 **lwarp-amsthm.sty**

§ 131 Package

amsthm

(*Emulates or patches code by* Publications Technical Group — American Mathematical Society.)

The original source code is located in amsclass.dtx, and printed in amsclass.pdf.

Pkg amsthm

amsthm is patched for use by lwarp.

Table 19: amsthm package — css styling of theorems and proofs

Theorem: of class amsthmbody<theoremstyle>

Theorem Name: of class amsthmname<theoremtyle>

Theorem Number: of class amsthmnumber<theoremstyle>

Theorem Note: of class amsthmnote<theoremstyle>

Proof: of class amsthmproof

Proof Name: of class amsthmproofname

where <theoremstyle> is plain, definition, etc.

for HTML output:

amsthm must be loaded before mdframed:

```
\IfPackageLoadedTF{mdframed}{
    \PackageError{lwarp}
    {%
        Package mdframed must be loaded after package amsthm.\MessageBreak
        Enter 'H' for solutions%
    }
    {%
        Move ``\protect\usepackage{amsthm}'' before
        ``\protect\usepackage{mdframed}''.\MessageBreak
        Package amsthm may be loaded by something else,\MessageBreak
        which must also be moved before mdframed.%
    }
}
{\relax}
```

Necessary for \text, used by \openbox, etc., below:

```
\RequirePackage{amsmath}
```

```
\LWR@ProvidesPackagePass{amsthm}[2017/10/31]
```

Storage for the style being used for new theorems:

```
\newcommand{\LWR@newtheoremstyle}{plain}
```

Patched to remember the style being used for new theorems:

```
\renewcommand{\theoremstyle}[1]{%
  \@ifundefined{th@#1}{%
    \PackageWarning{amsthm}{Unknown theoremstyle `#1'}%
    \thm@style{plain}%
    \renewcommand{\LWR@newtheoremstyle}{plain}% lwarp
  }{%
    \thm@style{#1}%
    \renewcommand{\LWR@newtheoremstyle}{#1}% lwarp
  }%
}
```

Patched to remember the style for this theorem type:

```
\def\@xnthm#1#2{%
  \csedef{LWR@thmstyle#2}{\LWR@newtheoremstyle}% lwarp
  \let\@tempa\relax
  \@xp\@ifdefinable\csname #2\endcsname{%
    \global\@xp\let\csname end#2\endcsname\@endtheorem
    \ifx *#1% unnumbered, need to get one more mandatory arg
      \edef\@tempa##1{%
        \gdef\@xp\@nx\csname#2\endcsname{%
          \@nx\@thm{\@xp\@nx\csname th@\the\thm@style\endcsname}%
            {}{##1}}}%
    \else % numbered theorem, need to check for optional arg
      \def\@tempa{\@oparg{\@ynthm{#2}}[]}%
    \fi
    \AtBeginEnvironment{#2}{%                                  lwarp
        \edef\LWR@thisthmstyle{\@nameuse{LWR@thmstyle#2}}%  lwarp
    }%                                                         lwarp
  }%
  \@tempa%
}
```

Patched to enclose with css:

```
\newcommand{\LWR@haveamsthmname}{
    \renewcommand{\thmname}[1]{%
        \InlineClass{amsthmname\LWR@thisthmstyle}{##1}%
    }
}

\newcommand{\LWR@haveamsthmnumber}{
    \renewcommand{\thmnumber}[1]{%
        \InlineClass{amsthmnumber\LWR@thisthmstyle}{##1}%
    }
}

\newcommand{\LWR@haveamsthmnote}{
    \renewcommand{\thmnote}[1]{%
        \InlineClass{amsthmnote\LWR@thisthmstyle}{##1}%
    }
}

```

```
\LWR@haveamsthmname
\LWR@haveamsthmnumber
\LWR@haveamsthmnote
```

Patched for css:

```
\def\@begintheorem#1#2[#3]{%
    \GetTitleString{#3}%                                    lwarp
    \let\@currentlabelname\GetTitleStringResult%            lwarp
    \item[%
    \LWR@newautopagelabel{page}\LWR@orignewline%
%   \deferred@thm@head{
%     \the\thm@headfont \thm@indent
    \@ifempty{#1}{\let\thmname\@gobble}{\LWR@haveamsthmname}%       lwarp
    \@ifempty{#2}{\let\thmnumber\@gobble}{\LWR@haveamsthmnumber}%   lwarp
    \@ifempty{#3}{\let\thmnote\@gobble}{\LWR@haveamsthmnote}%       lwarp
    \thm@swap\swappedhead\thmhead{#1}{#2}{#3}%
    \the\thm@headpunct % space
    \thmheadnl % possibly a newline.
    \hskip\thm@headsep
%   }%
    ]%
  \ignorespaces}
```

Patched for css:

```
\def\@thm#1#2#3{%
  \ifhmode\unskip\unskip\par\fi
  \normalfont
  \LWR@forcenewpage%                                lwarp
  \LWR@printpendingfootnotes%                       lwarp
  \BlockClass{amsthmbody\LWR@thisthmstyle}%         lwarp
  \trivlist
  \let\thmheadnl\relax
  \let\thm@swap\@gobble
  \thm@notefont{\fontseries\mddefault\upshape}%
  \thm@headpunct{.}% add period after heading
  \thm@headsep 5\p@ plus\p@ minus\p@\relax
  \thm@space@setup
  #1% style overrides
  \@topsep \thm@preskip               % used by thm head
  \@topsepadd \thm@postskip           % used by \@endparenv
  \def\@tempa{#2}\ifx\@empty\@tempa
    \def\@tempa{\@oparg{\@begintheorem{#3}{}}[]}%
  \else
    \refstepcounter{#2}%
    \def\@tempa{\@oparg{\@begintheorem{#3}{\csname the#2\endcsname}}[]}%
  \fi
  \@tempa%
}
```

cleveref patches \@thm to do \cref@thmoptarg if an optional argument is given. lwarp then patches \cref@thmoptarg \AtBeginDocument.

```
\AtBeginDocument{%
\def\cref@thmoptarg[#1]#2#3#4{%
    \ifhmode\unskip\unskip\par\fi%
    \normalfont%
    \LWR@forcenewpage%                          lwarp

    \LWR@printpendingfootnotes%                   lwarp

    \BlockClass{amsthmbody\LWR@thisthmstyle}%   lwarp
    \trivlist%
    \let\thmheadnl\relax%
    \let\thm@swap\@gobble%
    \thm@notefont{\fontseries\mddefault\upshape}%
    \thm@headpunct{.}% add period after heading
    \thm@headsep 5\p@ plus\p@ minus\p@\relax%
    \thm@space@setup%
    #2% style overrides
    \@topsep \thm@preskip               % used by thm head
    \@topsepadd \thm@postskip           % used by \@endparenv
    \def\@tempa{#3}\ifx\@empty\@tempa%
        \def\@tempa{\@oparg{\@begintheorem{#4}{}}[]}%
    \else%
        \refstepcounter[#1]{#3}%  <<< cleveref modification
      \def\@tempa{\@oparg{\@begintheorem{#4}{\csname the#3\endcsname}}[]}%
    \fi%
    \@tempa
}%
}% AtBeginDocument

\def\@endtheorem{%
    \endtrivlist%

  \LWR@printpendingfootnotes%                   lwarp

    \endBlockClass%
    \@endpefalse%
}
```

Proof QED symbol:

```
\AtBeginDocument{
\@ifundefined{LWR@orig@openbox}{
\LetLtxMacro\LWR@orig@openbox\openbox
\LetLtxMacro\LWR@orig@blacksquare\blacksquare
\LetLtxMacro\LWR@orig@Box\Box

\def\openbox{\text{\HTMLunicode{25A1}}}% UTF-8 white box
\def\blacksquare{\text{\HTMLunicode{220E}}}% UTF-8 end-of-proof
\def\Box{\text{\HTMLunicode{25A1}}}% UTF-8 white box

\appto\LWR@restoreorigformatting{%
    \LetLtxMacro\openbox\LWR@orig@openbox%
    \LetLtxMacro\blacksquare\LWR@orig@blacksquare%
    \LetLtxMacro\Box\LWR@orig@Box%
}% appto
```

```
}{}% @ifundefined
}% AtBeginDocument
```

Patched to add a :

```
\DeclareRobustCommand{\qed}{%
  \ifmmode \mathqed
  \else
%     \leavevmode\unskip\penalty9999 \hbox{}\nobreak\hfill
%     \quad\hbox{\qedsymbol}%
        \InlineClass{theoremendmark}{\qedsymbol}%   lwarp
  \fi
}
```

Patched for css:

```
\renewenvironment{proof}[1][\proofname]{\par
  \LWR@forcenewpage% lwarp

  \LWR@printpendingfootnotes%                  lwarp

    \BlockClass{amsthmproof}% lwarp
    \LWR@newautopagelabel{page}%
  \pushQED{\qed}%
  \normalfont \topsep6\p@\@plus6\p@\relax
  \trivlist
  \item[
     \InlineClass{amsthmproofname}{#1\@addpunct{.}}]\ignorespaces% changes
}{%
  \popQED\endtrivlist%

  \LWR@printpendingfootnotes%                  lwarp

  \endBlockClass% lwarp
  \@endpefalse
}
```

File 23 **lwarp-anonchap.sty**

§ 132 Package

anonchap

(*Emulates or patches code by* Peter Wilson.)

Pkg anonchap

anonchap is emulated.

Pkg tocloft

⚠ tocloft & other packages

If using tocloft with tocbibind, anonchap, fncychap, or other packages which change chapter title formatting, load tocloft with its `titles` option, which tells tocloft to use standard LaTeX commands to create the titles, allowing other packages to work with it.

The code is shared by tocbibind.

for HTML output:

```
\LWR@ProvidesPackageDrop{anonchap}[2009/08/03]
```

```
\newcommand{\simplechapter}[1][\@empty]{%
    \def\@chapcntformat##1{%
        #1~\csname the##1\endcsname\simplechapterdelim\quad%
    }%
}

\newcommand{\restorechapter}{%
\let\@chapcntformat\@seccntformat%
}
```

File 24 **lwarp-anysize.sty**

§ 133 Package anysize

(*Emulates or patches code by* Michael Salzenberg, Thomas Esser.)

Pkg anysize

anysize is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{anysize}[1994/08/13]

\def\papersize#1#2{}
\def\marginsize#1#2#3#4{}
```

File 25 **lwarp-appendix.sty**

§ 134 Package appendix

(*Emulates or patches code by* Peter Wilson.)

Pkg appendix

appendix is patched for use by lwarp.

⚠ incorrect TOC link

During HTML conversion, the option `toc` without the option `page` results in a TOC link to whichever section was before the `appendices` environment. It is recommended to use both `toc` and also `page` at the same time.

for HTML output:

```
\LWR@ProvidesPackagePass{appendix}[2009/09/02]

\renewcommand*{\@chap@pppage}{%
\part*{\appendixpagename}
 \if@dotoc@pp
 \addappheadtotoc
 \fi
}

\renewcommand*{\@sec@pppage}{%
\part*{\appendixpagename}
 \if@dotoc@pp
 \addappheadtotoc
 \fi
}
```

File 26 **lwarp-ar.sty**

§ 135 Package **ar**

(*Emulates or patches code by* Agostino De Marco.)

Pkg ar

ar is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{ar}[2012/01/23]
```

Measure and print the width of the supplied glyph.

```
\newlength{\LWR@ar@width}

\newcommand*{\LWR@ar@printwidth}[1]{%
    \setlength{\LWR@ar@width}{\widthof{#1}}%
    width:%
    \LWR@convertto{em}{\the\LWR@ar@width}em%
}
```

The HTML version of \AR:

```
\newrobustcmd*{\LWR@HTML@AR}{%
```

Start a hashed lateximage, additionally hashed by the font series, with a width depending on the given glyph:

```
  \begin{lateximage}*[AR][\LWR@f@series][\LWR@ar@printwidth{\LWR@print@AR}]%
```

For text mode, set the font series according to the HTML font series:

```
    \ifmmode\else\csuse{LWR@orig\LWR@f@series series}\fi%
```

Print the original glyph using the newly set font series:

```
    \LWR@print@AR%
```

Done.

```
    \end{lateximage}%
}
```

Combine the print and HTML versions:

```
\LWR@formatted{AR}

\newrobustcmd*{\LWR@HTML@ARb}{%
    \begin{lateximage}*[AR][b][\LWR@ar@printwidth{\LWR@print@ARb}]%
    \LWR@print@ARb%
    \end{lateximage}%
}
\LWR@formatted{ARb}
```

```
\newrobustcmd*{\LWR@HTML@ARss}{%
  \begin{lateximage}*[ARss][\LWR@f@series][\LWR@ar@printwidth{\LWR@print@ARss}]%
    \ifmmode\else\csuse{LWR@orig\LWR@f@series series}\fi%
    \LWR@print@ARss%
    \end{lateximage}%
}
\LWR@formatted{ARss}

\newrobustcmd*{\LWR@HTML@ARssb}{%
    \begin{lateximage}*[AR][ssb][\LWR@ar@printwidth{\LWR@print@ARssb}]%
    \LWR@print@ARssb%
    \end{lateximage}%
}
\LWR@formatted{ARssb}

\newrobustcmd*{\LWR@HTML@ARtt}{%
    \begin{lateximage}*[AR][tt][\LWR@ar@printwidth{\LWR@print@ARtt}]%
    \LWR@print@ARtt%
    \end{lateximage}%
}
\LWR@formatted{ARtt}
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\AR}{\mathit{A\!\!R}}}
\CustomizeMathJax{\newcommand{\ARb}{\boldsymbol{A\!\!R}}}
\end{warpMathJax}
```

File 27 **lwarp-arabicfront.sty**

§ 136 Package arabicfront

Pkg arabicfront

arabicfront is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{arabicfront}[2006/09/03]
```

File 28 **lwarp-array.sty**

§ 137 Package array

Pkg array

array is used as-is for print output, and emulated for HTML.

plarray and plextarray do not affect `\firsthline` or `\lasthline`, and so are not affected by the following.

for HTML output:

If array is not yet loaded, remove the default nullfied macros:

```
\IfPackageLoadedTF{array}{}{%
    \let\firsthline\relax
    \let\lasthline\relax
}

\LWR@ProvidesPackagePass{array}[2018/12/30]
```

Provide simplified column types for HTML:

```
\HTMLnewcolumntype{w}[2]{#1}
\HTMLnewcolumntype{W}[2]{#1}
```

More HTML versions:

```
\newcommand*{\LWR@HTML@firsthline}{\LWR@HTMLhline}%
\LWR@expandableformatted{firsthline}

\newcommand*{\LWR@HTML@lasthline}{\LWR@HTMLhline}%
\LWR@expandableformatted{lasthline}


\let\tabularnewline\\
\providecommand*{\LWR@HTML@tabularnewline}{\LWR@tabularendofline}
\LWR@formatted{tabularnewline}
```

For MathJax:

```
\CustomizeMathJax{
    \newcommand{\multicolumn}[3]{#3}% only uses one cell
}
```

File 29 **lwarp-arydshln.sty**

§ 138 Package

arydshln

(*Emulates or patches code by* Hiroshi Nakashima.)

Pkg arydshln

arydshln heavily patches tabular code, so the actual package is not used. arydshln is emulated for HTML `tabular`, and reverts to solid rules for SVG math `array` and `tabular` in a `lateximage`.

CSS is not able to display a double-dashed border, so a single-dashed rule is displayed as a single-dashed border, and a double-dashed rule is displayed as a thicker single-dashed border.

For MathJax, limited emulation is provided for math mode.

for HTML output:

array is required to allow `\newcolumn` below.

```
\RequirePackage{array}
```

```
\LWR@ProvidesPackageDrop{arydshln}[2018/09/26]
```

Ignored, but included for source compatibility:

```
\newdimen\dashlinedash \dashlinedash4pt %
\newdimen\dashlinegap \dashlinegap4pt %
\let\hdashlinewidth\dashlinedash
\let\hdashlinegap\dashlinegap

\def\ADLnullwide{}
\def\ADLsomewide{}
\def\ADLnullwidehline{}
```

```
\def\ADLsomewidehline{}

\def\ADLactivate{}
\def\ADLinactivate{}
\newcommand*{\ADLdrawingmode}[1]{}
\newcommand*{\ADLnoshorthanded}{}
\newcommand*{\dashgapcolor}[2][]{}
\newcommand*{\nodashgapcolor}{}
```

In a `lateximage`, revert to solid vertical rules:

```
\appto\LWR@restoreorigformatting{%
\newcolumntype{:}{|}%
\newcolumntype{;}[1]{|}%
\LetLtxMacro\hdashline\hline%
}
```

Some of these macros are already defined as temporary placeholders in the lwarp core, so they must be redefined here.

The emulated defaults also work for an emulated print mode inside a `lateximage`:

```
\def\hdashline{
%     \adl@hdashline\adl@ihdashline
    \adl@hdashline\adl@inactivehdl
}
\def\adl@hdashline#1{\noalign{\ifnum0=`}\fi
%         \ifadl@zwhrule \vskip-\arrayrulewidth
%         \else
%             \adl@hline\adl@connect\arrayrulewidth
                \hrule \@height \arrayrulewidth% lwarp
%         \fi
        \@ifnextchar[%]
                    {#1}%
                    {#1[%
%                         \dashlinedash/\dashlinegap
                       1pt/1pt
                    ]}}
% \def\adl@ihdashline[#1/#2]{\ifnum0=`{\fi}%
%         \multispan{\adl@columns}\unskip \adl@hcline\z@[#1/#2]%
%         \noalign{\ifnum0=`}\fi
%         \futurelet\@tempa\adl@xhline}
\def\adl@inactivehdl[#1/#2]{
%         \ifadl@zwhrule \vskip-\arrayrulewidth \fi
        \hrule\@height\arrayrulewidth
        \futurelet\@tempa\adl@xhline}
\def\adl@xhline{\ifx\@tempa\hline \adl@ixhline\fi
        \ifx\@tempa\hdashline \adl@ixhline\fi
        \ifnum0=`{\fi}}
\def\adl@ixhline{\vskip\doublerulesep \adl@hline\relax\doublerulesep}
\def\adl@hline#1#2{%
% \@tempcnta#2
%         \global\advance\adl@totalheight\@tempcnta
%         \xdef\adl@rowsL{\adl@rowsL
%                 (#1/\number\@tempcnta);}%
%         \xdef\adl@rowsR{\adl@rowsR
%                 (#1/\number\@tempcnta);}
}

\def\cdashline#1{\noalign{\ifnum0=`}\fi
```

```
        \@ifnextchar[%]
% {\adl@cdline[#1]}%
% {\adl@cdline[#1][\dashlinedash/\dashlinegap]}
                    {\adl@inactivecdl[#1]}%
                    {\adl@inactivecdl[#1][\dashlinedash/\dashlinegap]}
}

\def\adl@inactivecdl[#1-#2][#3]{\ifnum0=‘{\fi}\cline{#1-#2}}


\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\firsthdashline}[1][]{\hdashline}}
\CustomizeMathJax{\let\lasthdashline\firsthdashline}
\CustomizeMathJax{\let\cdashline\cline}
\end{warpMathJax}
```

File 30 **lwarp-asymptote.sty**

§ 139 Package asymptote

(*Emulates or patches code by* Andy Hammerlindl, John Bowman, Tom Prince.)

Pkg asymptote

asymptote is patched for use by lwarp.

To compile:

```
pdflatex project.tex
asy project-*.asy
pdflatex project.tex

lwarpmk print
asy project-*.asy
lwarpmk print1
lwarpmk print1

lwarpmk html
asy project_html-*.asy
lwarpmk html1
lwarpmk html1
lwarpmk limages
```

for HTML output:

```
\LWR@ProvidesPackagePass{asymptote}[2016/11/26]

\BeforeBeginEnvironment{asy}{%
    \begin{lateximage}[-asymptote-~\PackageDiagramAltText]%
}
\AfterEndEnvironment{asy}{\end{lateximage}}

\xpatchcmd{\asyinclude}
    {\begingroup}
    {\begin{lateximage}[-asymptote-~\PackageDiagramAltText]}
    {}
    {\LWR@patcherror{asymptote}{asyinclude-begingroup}}

\xpatchcmd{\asyinclude}
    {\endgroup}
    {\end{lateximage}}
```

```
    {}
    {\LWR@patcherror{asymptote}{asyinclude-endgroup}}
```

File 31 **lwarp-atbegshi.sty**

§ 140 Package atbegshi

(*Emulates or patches code by* Heiko Oberdiek.)

Pkg atbegshi

atbegshi is ignored.

for HTML output:

Discard all options for lwarp-atbegshi:

```
\LWR@ProvidesPackageDrop{atbegshi}[2011/10/05]

\let\AtBeginShipout\relax
\let\AtBeginShipoutNext\relax
\let\AtBeginShipoutFirst\relax
\let\AtBeginShipoutDiscard\relax
\let\AtBeginShipoutInit\relax
\let\AtBeginShipoutAddToBox\relax
\let\AtBeginShipoutAddToBoxForeground\relax
\let\AtBeginShipoutUpperLeft\relax
\let\AtBeginShipoutUpperLeftForeground\relax
\let\AtBeginShipoutOriginalShipout\relax

\newcommand*{\AtBeginShipout}[1]{}
\newbox\AtBeginShipoutBox
\newcommand*{\AtBeginShipoutNext}[1]{}
\newcommand*{\AtBeginShipoutFirst}[1]{}
\newcommand*{\AtBeginShipoutDiscard}{}
\newcommand*{\AtBeginShipoutInit}{}
\newcommand*{\AtBeginShipoutAddToBox}[1]{}
\newcommand*{\AtBeginShipoutAddToBoxForeground}[1]{}
\newcommand*{\AtBeginShipoutUpperLeft}[1]{}
\newcommand*{\AtBeginShipoutUpperLeftForeground}[1]{}
\newcommand*{\AtBeginShipoutOriginalShipout}[1]{}
\def\AtBeginShipoutBoxWidth{0pt}
\def\AtBeginShipoutBoxHeight{0pt}
\def\AtBeginShipoutBoxDepth{0pt}
```

File 32 **lwarp-attachfile.sty**

§ 141 Package attachfile

(*Emulates or patches code by* Scott Pakin.)

Pkg attachfile

attachfile is patched for use by lwarp.

⚠ Metadata is ignored for now.

for HTML output:

```
\LWR@ProvidesPackagePass{attachfile}[2016/09/18]
```

Encloses each icon:

```
\newenvironment*{LWR@attachfile@icon}
{
    \begin{lateximage}*%
        [-attachfile-]%
        [%
            \detokenize\expandafter{\atfi@icon@icon}-%
            \detokenize\expandafter{\atfi@color@rgb}%
        ]%
}
{
    \end{lateximage}
}
```

Each icon is enclosed inside a `LWR@attachfile@icon` environment:

```
\xpretocmd{\atfi@acroGraph}{\LWR@attachfile@icon}{}{}
\xapptocmd{\atfi@acroGraph}{\endLWR@attachfile@icon}{}{}

\xpretocmd{\atfi@acroPaperclip}{\LWR@attachfile@icon}{}{}
\xapptocmd{\atfi@acroPaperclip}{\endLWR@attachfile@icon}{}{}

\xpretocmd{\atfi@acroPushPin}{\LWR@attachfile@icon}{}{}
\xapptocmd{\atfi@acroPushPin}{\endLWR@attachfile@icon}{}{}

\xpretocmd{\atfi@acroTag}{\LWR@attachfile@icon}{}{}
\xapptocmd{\atfi@acroTag}{\endLWR@attachfile@icon}{}{}
```

Disable PDF file embedding:

```
\DeclareRobustCommand{\atfi@embedfile}[1]{}
```

The displayed output for an `\attachfile` reference:

```
\newcommand*{\LWR@attachfile@appearance}{}

\DeclareRobustCommand{\atfi@set@appearance}[1]{%
    \def\LWR@attachfile@appearance{#1}%
}
```

A file annotation becomes a reference:

```
\DeclareRobustCommand{\atfi@insert@file@annot}[1]{%
    \LWR@href{#1}{\LWR@attachfile@appearance}%
}
```

File 33 **lwarp-attachfile2.sty**

§ 142 Package

attachfile2

(*Emulates or patches code by* Heiko Oberdiek.)

Pkg attachfile2

attachfile2 is patched for use by lwarp.

⚠ Metadata is ignored for now.

for HTML output:

```
\LWR@ProvidesPackagePass{attachfile2}[2016/05/16]
```

Adds memory of the selected color:

```
\def\LWR@attachfiletwo@color{}%

\define@key{AtFi}{color}{%
    \def\LWR@attachfiletwo@color{#1}%   lwarp
  \HyColor@AttachfileColor{#1}%
          \atfi@color@tex\atfi@color@inline\atfi@color@annot
          {attachfile2}{color}%
}
```

Encloses each icon:

```
\newenvironment*{LWR@attachfile@icon}
{
    \begin{lateximage}*%
        [-attachfile-]%
        [%
            \detokenize\expandafter{\atfi@icon@icon}-%
            \detokenize\expandafter{\LWR@attachfiletwo@color}%
        ]%
}
{
    \end{lateximage}
}
```

Each icon is enclosed inside a `LWR@attachfile@icon` environment:

```
\xpretocmd{\atfi@acroGraph}{\LWR@attachfile@icon}{}{}
\xapptocmd{\atfi@acroGraph}{\endLWR@attachfile@icon}{}{}

\xpretocmd{\atfi@acroPaperclip}{\LWR@attachfile@icon}{}{}
\xapptocmd{\atfi@acroPaperclip}{\endLWR@attachfile@icon}{}{}

\xpretocmd{\atfi@acroPushPin}{\LWR@attachfile@icon}{}{}
\xapptocmd{\atfi@acroPushPin}{\endLWR@attachfile@icon}{}{}

\xpretocmd{\atfi@acroTag}{\LWR@attachfile@icon}{}{}
\xapptocmd{\atfi@acroTag}{\endLWR@attachfile@icon}{}{}
```

Disable PDF file embedding:

```
\DeclareRobustCommand{\atfi@embedfile}[1]{}
```

The displayed output for an `\attachfile` reference:

```
\newcommand*{\LWR@attachfile@appearance}{}

\def\atfi@set@appearance@icon{%
    \atfi@set@appearance{\csname atfi@acro\atfi@icon@icon\endcsname}%
}

\DeclareRobustCommand{\atfi@set@appearance}[1]{%
    \def\LWR@attachfile@appearance{#1}%
}
```

A file annotation becomes a reference:

```
\DeclareRobustCommand{\atfi@insert@file@annot}[1]{%
```

```
    \LWR@href{#1}{\LWR@attachfile@appearance}%
}
```

Modified for text color:

```
\DeclareRobustCommand{\notextattachfile}[2][]{%
  \begingroup
    \atfi@setup{#1}%
    \ifatfi@print
      \leavevmode
      \begingroup
        \HyColor@UseColor\atfi@color@tex
        \LWR@textcurrentcolor{#2}%      lwarp
% \strut
      \endgroup
%     \else
%       \sbox\ltx@zero{#2\strut}%
%       \makebox[\wd0]{}%
    \fi
  \endgroup
}
```

Modified to draw the icon:

```
\DeclareRobustCommand{\noattachfile}[1][]{%
  \begingroup
    \atfi@setup{#1}%
    \atfi@set@appearance@icon
    \ifatfi@print
        \LWR@attachfile@appearance%     lwarp
%       \expandafter
%       \atfi@refxform\csname atfi@appobj@\atfi@icon@icon\endcsname
%     \else
%       \makebox[\atfi@appearancewidth]{}%
    \fi
  \endgroup
}
```

File 34 **lwarp-authblk.sty**

§ 143 Package

authblk

(*Emulates or patches code by* Patrick W. Daly.)

Pkg authblk

authblk is patched for HTML.

package support

⚠ load order

lwarp supports the native LaTeX titling commands, and also supports the packages authblk and titling. If both are used, authblk should be loaded before titling.

\published and \subtitle

If using the titling package, additional titlepage fields for \published and \subtitle may be added by using \AddSubtitlePublished in the preamble. See section 69.8.

(*Emulates or patches code by* Patrick W. Daly.)

for HTML output:

Require that authblk be loaded before titling:

```
\IfPackageLoadedTF{titling}{
```

```
    \PackageError{lwarp-authblk}
        {Package authblk must be loaded before titling}
        {%
            Titling appends authblk's author macro,
            so authblk must be loaded first.%
        }
}
{\relax}
```

Load authblk:

```
\LWR@ProvidesPackagePass{authblk}[2001/02/27]
```

Patch to add a class for the affiliation:

```
\LetLtxMacro\LWRAB@affil\affil

\renewcommand{\affil}[2][]{%
\LWRAB@affil[#1]{\protect\InlineClass{affiliation}{#2}}
}
```

Create an HTML break for an \authorcr:

```
\renewcommand*{\authorcr}{\protect\LWR@newlinebr}
```

File 35 **lwarp-autobreak.sty**

§ 144 Package autobreak

(*Emulates or patches code by* Takahiro Ueda.)

Pkg autobreak

autobreak is used as-is for SVG math, and nullified for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{autobreak}[2017/02/23]
```

For MathJax. The modified align environment is used for SVG math, but is reverted to its original for MathJax. (Extraneous commas were appearing in the result.)

```
\begin{warpMathJax}
\renewenvironment{autobreak}{\newcommand{\MoveEqLeft}[1]{}}{}
\let\start@align\@autobreak@oldstart@align
\let\endalign\@autobreak@oldendalign
\CustomizeMathJax{\newenvironment{autobreak}{}{}}
\CustomizeMathJax{\newcommand{\MoveEqLeft}[1][]{}}
\CustomizeMathJax{\newcommand{\everybeforeautobreak}[1]{}}
\CustomizeMathJax{\newcommand{\everyafterautobreak}[1]{}}
\end{warpMathJax}
```

File 36 **lwarp-autonum.sty**

§ 145 Package autonum

Pkg autonum

autonum is ignored.

⚠ numbering, + All equations are numbered in HTML output. MathJax does not support the "+" environments.

for HTML output:

```
\LWR@ProvidesPackageDrop{autonum}[2015/01/18]

\RequirePackage{amsmath}


\newenvironment{equation+}{\equation}{\endequation}


\newenvironment{gather+}{\gather}{\endgather}

\BeforeBeginEnvironment{gather+}{\LWR@amsmathenv@@before{gather+}}

\AfterEndEnvironment{gather+}{\LWR@amsmathenv@@after}


\newenvironment{multline+}{\multline}{\endmultline}

\BeforeBeginEnvironment{multline+}{\LWR@amsmathenv@@before{multline+}}

\AfterEndEnvironment{multline+}{\LWR@amsmathenv@@after}


\newenvironment{flalign+}{\flalign}{\endflalign}

\BeforeBeginEnvironment{flalign+}{\LWR@amsmathenv@@before{flalign+}}

\AfterEndEnvironment{flalign+}{\LWR@amsmathenv@@after}


\newenvironment{align+}{\align}{\endalign}

\BeforeBeginEnvironment{align+}{\LWR@amsmathenv@@before{aline+}}

\AfterEndEnvironment{align+}{\LWR@amsmathenv@@after}


\newenvironment{alignat+}{\alignat}{\endalignat}

\BeforeBeginEnvironment{alignat+}{\LWR@amsmathenv@@before{alineat+}}

\AfterEndEnvironment{alignat+}{\LWR@amsmathenv@@after}


\newenvironment{split+}{\split}{\endsplit}
```

File 37 **lwarp-awesomebox.sty**

§ 146 Package awesomebox

(*Emulates or patches code by* Étienne Deparis.)

Pkg awesomebox awesomebox is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{awesomebox}[2019/07/27]
```

```
\newcommand*{\LWR@awesomebox@boxborders}{}%
\newcommand*{\LWR@awesomebox@contentsborders}{}%

\newcommand*{\LWR@awesomebox@ruleborders}{%
    border-top: 1px solid black ;
    border-bottom: 1px solid black%
}

% \awesomebox[1:vrulecolor][2:hrule][3:title]{4:vrulewidth}{5:icon}{6:iconcolor}{7:content}
\RenewDocumentCommand \awesomebox { O{abvrulecolor} O{} o m m m +m }{%
    \begin{awesomeblock}[#1][#2][#3]{#4}{#5}{#6}
    #7
    \end{awesomeblock}
}

% \begin{awesomeblock}[1:vrulecolor][2:hrule][3:title]{4:vrulewidth}{5:icon}{6:iconcolor}
% <contents>
% \end{awesomeblock}
\RenewDocumentEnvironment{awesomeblock}{ O{abvrulecolor} O{} o m m m }
{%
    \LWR@forceminwidth{#4}%
    \convertcolorspec{named}{#1}{HTML}\LWR@tempcolor%
    \renewcommand*{\LWR@awesomebox@boxborders}{}%
    \renewcommand*{\LWR@awesomebox@contentsborders}{}%
    \ifdefstrequal{\abShortLine}{#2}{%
      \renewcommand*{\LWR@awesomebox@contentsborders}{\LWR@awesomebox@ruleborders}%
    }{}%
    \ifdefstrequal{\abLongLine}{#2}{%
      \renewcommand*{\LWR@awesomebox@boxborders}{\LWR@awesomebox@ruleborders}%
    }{}%
    \begin{BlockClass}[\LWR@awesomebox@boxborders]{awesomebox}
    \begin{BlockClass}[%
        margin-left: 2\% ;
        vertical-align: top
    ]{minipage}
        \color{#6}\Huge #5
    \end{BlockClass}
    \begin{BlockClass}[%
        width:75\% ;
        vertical-align: top ;
        padding-left: 1em ;
        \LWR@awesomebox@contentsborders ;
        border-left: \LWR@printlength{\LWR@atleastonept} %
            solid \LWR@origpound\LWR@tempcolor%
    ]{minipage}
        \IfValueTF{#3}{#3\newline}{}
}
{%
    \end{BlockClass}
    \end{BlockClass}
}
```

File 38 **lwarp-axessibility.sty**

§ 147 Package axessibility

Pkg axessibility

axessibility is ignored.

for HTML output:

```
\PackageInfo{lwarp}{Using the lwarp version of package ‘axessibility’.}%
\ProvidesPackage{lwarp-axessibility}% no date is declared by the original

\newif\iftagpdfopt

\DeclareOption{accsupp}{
  \tagpdfoptfalse
}

\DeclareOption{tagpdf}{
  \tagpdfopttrue
}

\ProcessOptions\relax

\iftagpdfopt
    \RequirePackage{tagpdf}
\else
    \RequirePackage{accsupp}
\fi


\long\def\wrap#1{}
\long\def\wrapml#1{}
\long\def\wrapmlstar#1{}
\long\def\wrapmlalt#1{}
```

For MathJax. These usually will not be needed.

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\wrap}[1]{}}
\CustomizeMathJax{\newcommand{\wrapml}[1]{}}
\CustomizeMathJax{\newcommand{\wrapmlstar}[1]{}}
\CustomizeMathJax{\newcommand{\wrapmlalt}[1]{}}
\end{warpMathJax}
```

File 39 **lwarp-axodraw2.sty**

§ 148 Package axodraw2

(*Emulates or patches code by* John C. Collins, J.A.M. Vermaseren.)

Pkg axodraw2

axodraw2 is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{axodraw2}[2018/02/15]

\BeforeBeginEnvironment{axopicture}{%
    \begin{lateximage}[-axopicture-~\PackageDiagramAltText]%
}

\AfterEndEnvironment{axopicture}{\end{lateximage}}
```

File 40 **lwarp-backnaur.sty**

§ 149 Package

backnaur

(*Emulates or patches code by* Adrian P. Robson.)

Pkg backnaur

backnaur is patched for use by lwarp, and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{backnaur}[2019/06/18]

\renewenvironment{bnf}{\eqnarray}{\endeqnarray}
\renewenvironment{bnf*}{\csuse{eqnarray*}}{\csuse{endeqnarray*}}
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\bnfpn}[1]{\langle \text{\textrm{#1}} \rangle}}
\CustomizeMathJax{\newcommand{\bnfor}{\; \mid \;}}
\CustomizeMathJax{\newcommand{\bnfsp}{\;}}
\IfPackageLoadedWithOptionsTF{backnaur}{perp}{
    \CustomizeMathJax{\newcommand{\bnfes}{\perp}}
}{
    \IfPackageLoadedWithOptionsTF{backnaur}{epsilon}{
        \CustomizeMathJax{\newcommand{\bnfes}{\epsilon}}
    }{
        \CustomizeMathJax{\newcommand{\bnfes}{\lambda}}
    }
}
\IfPackageLoadedWithOptionsTF{backnaur}{tsrm}{
    \CustomizeMathJax{\newcommand{\bnfts}[1]{\text{#1}}}
}{
    \CustomizeMathJax{\newcommand{\bnfts}[1]{\text{\texttt{#1}}}}
}
\CustomizeMathJax{\newcommand{\bnftd}[1]{\text{\textit{#1}}}}
\CustomizeMathJax{\newcommand{\bnfsk}{\dots}}
\IfPackageLoadedWithOptionsTF{backnaur}{altpo}{
    \CustomizeMathJax{\newcommand{\bnfpo}{::=}}
}{
    \CustomizeMathJax{\newcommand{\bnfpo}{\models}}
}
\CustomizeMathJax{\newcommand{\bnfprod}{\ifstar{\LWRbnfprodnn}{\LWRbnfprodyn}}}
\CustomizeMathJax{\newcommand{\LWRbnfprodyn}[2]{\bnfpn{#1} & \bnfpo & #2}}
\CustomizeMathJax{\newcommand{\LWRbnfprodnn}[2]{\nonumber \bnfpn{#1} & \bnfpo & #2}}
\CustomizeMathJax{\newcommand{\bnfmore}{\ifstar{\LWRbnfmorenn}{\LWRbnfmoreyn}}}
\CustomizeMathJax{\newcommand{\LWRbnfmoreyn}[1]{ &  & #1}}
\CustomizeMathJax{\newcommand{\LWRbnfmorenn}[1]{\nonumber &  & #1}}
\end{warpMathJax}
```

File 41 **lwarp-backref.sty**

§ 150 Package

backref

(*Emulates or patches code by* David Carlisle and Sebastian Rahtz.)

Pkg backref

backref is patched for use by lwarp.

⚠ loading

Note that backref must be explicitly loaded, and is not automatically loaded by hyperref when generating HTML output.

for HTML output:

```
\LWR@ProvidesPackagePass{backref}[2016/05/21]
```

Force the hyperref option:

```
\def\backref{}

\long\def\hyper@section@backref#1#2#3{%
    \LWR@refwithsection{#3}%
}

\let\backrefxxx\hyper@section@backref
```

File 42 **lwarp-balance.sty**

§ 151 Package

balance

(*Emulates or patches code by* Patrick W. Daly.)

Pkg balance

balance is ignored.

for HTML output:

Discard all options for lwarp-balance:

```
\LWR@ProvidesPackageDrop{balance}[1999/02/23]

\newcommand*{\balance}{}
\newcommand*{\nobalance}{}
```

File 43 **lwarp-bbding.sty**

§ 152 Package

bbding

(*Emulates or patches code by* Karel Horak, Peter Møller Neergaard.)

Pkg bbding

bbding is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{bbding}[1999/04/15]

\newcommand*{\LWR@bbdingsymbol}[2]{\HTMLunicode{#2}}

\newcommand{\LWR@HTML@ScissorRightBrokenBottom}{\LWR@bbdingsymbol{000}   {2701}}
\newcommand{\LWR@HTML@ScissorRight}{\LWR@bbdingsymbol{001}           {2702}}
\newcommand{\LWR@HTML@ScissorRightBrokenTop}{\LWR@bbdingsymbol{002}     {2703}}
\newcommand{\LWR@HTML@ScissorLeftBrokenBottom}{\LWR@bbdingsymbol{003}   {2701}}
\newcommand{\LWR@HTML@ScissorLeft}{\LWR@bbdingsymbol{004}            {2702}}
\newcommand{\LWR@HTML@ScissorLeftBrokenTop}{\LWR@bbdingsymbol{005}     {2703}}
\newcommand{\LWR@HTML@ScissorHollowRight}{\LWR@bbdingsymbol{006}       {2704}}
\newcommand{\LWR@HTML@ScissorHollowLeft}{\LWR@bbdingsymbol{007}        {2704}}
\newcommand{\LWR@HTML@Phone}{\LWR@bbdingsymbol{010}                  {260E}}
\newcommand{\LWR@HTML@PhoneHandset}{\LWR@bbdingsymbol{011}           {2706}}
```

```
\newcommand{\LWR@HTML@Tape}{\LWR@bbdingsymbol{012}                  {2707}}
\newcommand{\LWR@HTML@Plane}{\LWR@bbdingsymbol{013}                 {2708}}
\newcommand{\LWR@HTML@Envelope}{\LWR@bbdingsymbol{014}              {2709}}
\newcommand{\LWR@HTML@HandCuffRight}{\LWR@bbdingsymbol{015}          {261B}}
\newcommand{\LWR@HTML@HandCuffLeft}{\LWR@bbdingsymbol{016}           {261A}}
\newcommand{\LWR@HTML@HandCuffRightUp}{\LWR@bbdingsymbol{017}        {261D}}
\newcommand{\LWR@HTML@HandCuffLeftUp}{\LWR@bbdingsymbol{020}         {261F}}
\newcommand{\LWR@HTML@HandRight}{\LWR@bbdingsymbol{021}             {261E}}
\newcommand{\LWR@HTML@HandLeft}{\LWR@bbdingsymbol{022}              {261C}}
\newcommand{\LWR@HTML@HandRightUp}{\LWR@bbdingsymbol{023}           {261D}}
\newcommand{\LWR@HTML@HandLeftUp}{\LWR@bbdingsymbol{024}            {261F}}
\newcommand{\LWR@HTML@Peace}{\LWR@bbdingsymbol{025}                 {270C}}
\newcommand{\LWR@HTML@HandPencilLeft}{\LWR@bbdingsymbol{026}         {270D}}
\newcommand{\LWR@HTML@PencilRight}{\LWR@bbdingsymbol{027}           {270F}}
\newcommand{\LWR@HTML@PencilLeft}{\LWR@bbdingsymbol{030}            {270F}}
\newcommand{\LWR@HTML@PencilRightUp}{\LWR@bbdingsymbol{031}          {2710}}
\newcommand{\LWR@HTML@PencilLeftUp}{\LWR@bbdingsymbol{032}           {2710}}
\newcommand{\LWR@HTML@PencilRightDown}{\LWR@bbdingsymbol{033}        {270E}}
\newcommand{\LWR@HTML@PencilLeftDown}{\LWR@bbdingsymbol{034}         {270E}}
\newcommand{\LWR@HTML@NibRight}{\LWR@bbdingsymbol{035}              {2711}}
\newcommand{\LWR@HTML@NibLeft}{\LWR@bbdingsymbol{036}               {2711}}
\newcommand{\LWR@HTML@NibSolidRight}{\LWR@bbdingsymbol{037}          {2712}}
\newcommand{\LWR@HTML@NibSolidLeft}{\LWR@bbdingsymbol{040}           {2712}}
\newcommand{\LWR@HTML@Checkmark}{\LWR@bbdingsymbol{041}             {2713}}
\newcommand{\LWR@HTML@CheckmarkBold}{\LWR@bbdingsymbol{042}          {2714}}
\newcommand{\LWR@HTML@XSolid}{\LWR@bbdingsymbol{043}                {2715}}
\newcommand{\LWR@HTML@XSolidBold}{\LWR@bbdingsymbol{044}            {2716}}
\newcommand{\LWR@HTML@XSolidBrush}{\LWR@bbdingsymbol{045}           {2717}}
\newcommand{\LWR@HTML@PlusOutline}{\LWR@bbdingsymbol{046}           {2719}}
\newcommand{\LWR@HTML@Plus}{\LWR@bbdingsymbol{047}                  {271A}}
\newcommand{\LWR@HTML@PlusCenterOpen}{\LWR@bbdingsymbol{050}         {271C}}
\newcommand{\LWR@HTML@PlusThinCenterOpen}{\LWR@bbdingsymbol{051}      {271B}}
\newcommand{\LWR@HTML@Cross}{\LWR@bbdingsymbol{052}                 {271D}}
\newcommand{\LWR@HTML@CrossOpenShadow}{\LWR@bbdingsymbol{053}        {271E}}
\newcommand{\LWR@HTML@CrossOutline}{\LWR@bbdingsymbol{054}          {271F}}
\newcommand{\LWR@HTML@CrossBoldOutline}{\LWR@bbdingsymbol{055}       {271F}}
\newcommand{\LWR@HTML@CrossMaltese}{\LWR@bbdingsymbol{056}          {2720}}
\newcommand{\LWR@HTML@DavidStarSolid}{\LWR@bbdingsymbol{057}        {2721}}
\newcommand{\LWR@HTML@DavidStar}{\LWR@bbdingsymbol{060}             {2721}}
\newcommand{\LWR@HTML@FourAsterisk}{\LWR@bbdingsymbol{061}          {2722}}
\newcommand{\LWR@HTML@JackStar}{\LWR@bbdingsymbol{062}              {2723}}
\newcommand{\LWR@HTML@JackStarBold}{\LWR@bbdingsymbol{063}          {2724}}
\newcommand{\LWR@HTML@CrossClowerTips}{\LWR@bbdingsymbol{064}        {2725}}
\newcommand{\LWR@HTML@FourStar}{\LWR@bbdingsymbol{065}              {2726}}
\newcommand{\LWR@HTML@FourStarOpen}{\LWR@bbdingsymbol{066}          {2727}}
\newcommand{\LWR@HTML@FiveStarLines}{\LWR@bbdingsymbol{067}         {2729}}
\newcommand{\LWR@HTML@FiveStar}{\LWR@bbdingsymbol{070}              {2605}}
\newcommand{\LWR@HTML@FiveStarOpen}{\LWR@bbdingsymbol{071}          {2729}}
\newcommand{\LWR@HTML@FiveStarOpenCircled}{\LWR@bbdingsymbol{072}     {272A}}
\newcommand{\LWR@HTML@FiveStarCenterOpen}{\LWR@bbdingsymbol{073}      {272B}}
\newcommand{\LWR@HTML@FiveStarOpenDotted}{\LWR@bbdingsymbol{074}      {272C}}
\newcommand{\LWR@HTML@FiveStarOutline}{\LWR@bbdingsymbol{075}        {272D}}
\newcommand{\LWR@HTML@FiveStarOutlineHeavy}{\LWR@bbdingsymbol{076}    {272E}}
\newcommand{\LWR@HTML@FiveStarConvex}{\LWR@bbdingsymbol{077}         {272F}}
\newcommand{\LWR@HTML@FiveStarShadow}{\LWR@bbdingsymbol{100}         {2730}}
\newcommand{\LWR@HTML@AsteriskBold}{\LWR@bbdingsymbol{101}          {2731}}
\newcommand{\LWR@HTML@AsteriskCenterOpen}{\LWR@bbdingsymbol{102}      {2732}}
\newcommand{\LWR@HTML@AsteriskThin}{\LWR@bbdingsymbol{103}          {273B}}
\newcommand{\LWR@HTML@AsteriskThinCenterOpen}{\LWR@bbdingsymbol{104}   {273C}}
\newcommand{\LWR@HTML@EightStarTaper}{\LWR@bbdingsymbol{105}         {2733}}
```

```
\newcommand{\LWR@HTML@EightStarConvex}{\LWR@bbdingsymbol{106}         {2735}}
\newcommand{\LWR@HTML@SixStar}{\LWR@bbdingsymbol{107}               {2736}}
\newcommand{\LWR@HTML@EightStar}{\LWR@bbdingsymbol{110}             {2737}}
\newcommand{\LWR@HTML@EightStarBold}{\LWR@bbdingsymbol{111}          {2738}}
\newcommand{\LWR@HTML@TwelweStar}{\LWR@bbdingsymbol{112}            {2739}}
\newcommand{\LWR@HTML@SixteenStarLight}{\LWR@bbdingsymbol{113}        {273A}}
\newcommand{\LWR@HTML@SixFlowerPetalRemoved}{\LWR@bbdingsymbol{114}     {273B}}
\newcommand{\LWR@HTML@SixFlowerOpenCenter}{\LWR@bbdingsymbol{115}      {273C}}
\newcommand{\LWR@HTML@Asterisk}{\LWR@bbdingsymbol{116}               {273D}}
\newcommand{\LWR@HTML@SixFlowerAlternate}{\LWR@bbdingsymbol{117}       {273E}}
\newcommand{\LWR@HTML@FiveFlowerPetal}{\LWR@bbdingsymbol{120}         {273F}}
\newcommand{\LWR@HTML@SixFlowerPetalDotted}{\LWR@bbdingsymbol{121}     {2740}}
\newcommand{\LWR@HTML@FiveFlowerOpen}{\LWR@bbdingsymbol{122}          {2740}}
\newcommand{\LWR@HTML@EightFlowerPetal}{\LWR@bbdingsymbol{123}        {2741}}
\newcommand{\LWR@HTML@SunshineOpenCircled}{\LWR@bbdingsymbol{124}      {2742}}
\newcommand{\LWR@HTML@SixFlowerAltPetal}{\LWR@bbdingsymbol{125}       {2743}}
\newcommand{\LWR@HTML@FourClowerOpen}{\LWR@bbdingsymbol{126}          {273F}}
\newcommand{\LWR@HTML@FourClowerSolid}{\LWR@bbdingsymbol{127}         {273F}}
\newcommand{\LWR@HTML@AsteriskRoundedEnds}{\LWR@bbdingsymbol{130}      {2749}}
\newcommand{\LWR@HTML@EightFlowerPetalRemoved}{\LWR@bbdingsymbol{131}   {274A}}
\newcommand{\LWR@HTML@EightAsterisk}{\LWR@bbdingsymbol{132}           {274B}}
\newcommand{\LWR@HTML@SixFlowerRemovedOpenPetal}{\LWR@bbdingsymbol{133}  {2740}}
\newcommand{\LWR@HTML@SparkleBold}{\LWR@bbdingsymbol{134}            {2748}}
\newcommand{\LWR@HTML@Sparkle}{\LWR@bbdingsymbol{135}               {2747}}
\newcommand{\LWR@HTML@SnowflakeChevron}{\LWR@bbdingsymbol{136}        {2744}}
\newcommand{\LWR@HTML@SnowflakeChevronBold}{\LWR@bbdingsymbol{137}     {2746}}
\newcommand{\LWR@HTML@Snowflake}{\LWR@bbdingsymbol{140}              {2744}}
\newcommand{\LWR@HTML@CircleSolid}{\LWR@bbdingsymbol{141}            {25CF}}
\newcommand{\LWR@HTML@Ellipse}{\LWR@bbdingsymbol{142}                {274D}}
\newcommand{\LWR@HTML@EllipseSolid}{\LWR@bbdingsymbol{143}           {25CF}}
\newcommand{\LWR@HTML@CircleShadow}{\LWR@bbdingsymbol{144}           {274D}}
\newcommand{\LWR@HTML@EllipseShadow}{\LWR@bbdingsymbol{145}          {274D}}
\newcommand{\LWR@HTML@Square}{\LWR@bbdingsymbol{146}                 {25A1}}
\newcommand{\LWR@HTML@SquareSolid}{\LWR@bbdingsymbol{147}            {25A0}}
\newcommand{\LWR@HTML@SquareShadowBottomRight}{\LWR@bbdingsymbol{150}   {2751}}
\newcommand{\LWR@HTML@SquareShadowTopRight}{\LWR@bbdingsymbol{151}     {2752}}
\newcommand{\LWR@HTML@SquareShadowTopLeft}{\LWR@bbdingsymbol{152}      {2752}}
\newcommand{\LWR@HTML@SquareCastShadowBottomRight}{\LWR@bbdingsymbol{153} {2751}}
\newcommand{\LWR@HTML@SquareCastShadowTopRight}{\LWR@bbdingsymbol{154}   {2752}}
\newcommand{\LWR@HTML@SquareCastShadowTopLeft}{\LWR@bbdingsymbol{155}   {2752}}
\newcommand{\LWR@HTML@TriangleUp}{\LWR@bbdingsymbol{156}             {25B2}}
\newcommand{\LWR@HTML@TriangleDown}{\LWR@bbdingsymbol{157}           {25BC}}
\newcommand{\LWR@HTML@DiamondSolid}{\LWR@bbdingsymbol{160}           {25C6}}
\newcommand{\LWR@HTML@OrnamentDiamondSolid}{\LWR@bbdingsymbol{161}     {2756}}
\newcommand{\LWR@HTML@HalfCircleRight}{\LWR@bbdingsymbol{162}         {25D7}}
\newcommand{\LWR@HTML@HalfCircleLeft}{\LWR@bbdingsymbol{163}          {25D6}}
\newcommand{\LWR@HTML@RectangleThin}{\LWR@bbdingsymbol{164}           {2758}}
\newcommand{\LWR@HTML@Rectangle}{\LWR@bbdingsymbol{165}              {2759}}
\newcommand{\LWR@HTML@RectangleBold}{\LWR@bbdingsymbol{166}           {275A}}
\newcommand{\LWR@HTML@ArrowBoldRightStrobe}{\LWR@bbdingsymbol{167}     {27A0}}
\newcommand{\LWR@HTML@ArrowBoldUpRight}{\LWR@bbdingsymbol{170}        {27A6}}
\newcommand{\LWR@HTML@ArrowBoldDownRight}{\LWR@bbdingsymbol{171}       {27A5}}
\newcommand{\LWR@HTML@ArrowBoldRightShort}{\LWR@bbdingsymbol{172}      {27A7}}
\newcommand{\LWR@HTML@ArrowBoldRightCircled}{\LWR@bbdingsymbol{173}     {27B2}}


\LWR@formatted{ScissorRightBrokenBottom}
\LWR@formatted{ScissorRight}
\LWR@formatted{ScissorRightBrokenTop}
\LWR@formatted{ScissorLeftBrokenBottom}
```

```
\LWR@formatted{ScissorLeft}
\LWR@formatted{ScissorLeftBrokenTop}
\LWR@formatted{ScissorHollowRight}
\LWR@formatted{ScissorHollowLeft}
\LWR@formatted{Phone}
\LWR@formatted{PhoneHandset}
\LWR@formatted{Tape}
\LWR@formatted{Plane}
\LWR@formatted{Envelope}
\LWR@formatted{HandCuffRight}
\LWR@formatted{HandCuffLeft}
\LWR@formatted{HandCuffRightUp}
\LWR@formatted{HandCuffLeftUp}
\LWR@formatted{HandRight}
\LWR@formatted{HandLeft}
\LWR@formatted{HandRightUp}
\LWR@formatted{HandLeftUp}
\LWR@formatted{Peace}
\LWR@formatted{HandPencilLeft}
\LWR@formatted{PencilRight}
\LWR@formatted{PencilLeft}
\LWR@formatted{PencilRightUp}
\LWR@formatted{PencilLeftUp}
\LWR@formatted{PencilRightDown}
\LWR@formatted{PencilLeftDown}
\LWR@formatted{NibRight}
\LWR@formatted{NibLeft}
\LWR@formatted{NibSolidRight}
\LWR@formatted{NibSolidLeft}
\LWR@formatted{Checkmark}
\LWR@formatted{CheckmarkBold}
\LWR@formatted{XSolid}
\LWR@formatted{XSolidBold}
\LWR@formatted{XSolidBrush}
\LWR@formatted{PlusOutline}
\LWR@formatted{Plus}
\LWR@formatted{PlusCenterOpen}
\LWR@formatted{PlusThinCenterOpen}
\LWR@formatted{Cross}
\LWR@formatted{CrossOpenShadow}
\LWR@formatted{CrossOutline}
\LWR@formatted{CrossBoldOutline}
\LWR@formatted{CrossMaltese}
\LWR@formatted{DavidStarSolid}
\LWR@formatted{DavidStar}
\LWR@formatted{FourAsterisk}
\LWR@formatted{JackStar}
\LWR@formatted{JackStarBold}
\LWR@formatted{CrossClowerTips}
\LWR@formatted{FourStar}
\LWR@formatted{FourStarOpen}
\LWR@formatted{FiveStarLines}
\LWR@formatted{FiveStar}
\LWR@formatted{FiveStarOpen}
\LWR@formatted{FiveStarOpenCircled}
\LWR@formatted{FiveStarCenterOpen}
\LWR@formatted{FiveStarOpenDotted}
\LWR@formatted{FiveStarOutline}
\LWR@formatted{FiveStarOutlineHeavy}
\LWR@formatted{FiveStarConvex}
```

```
\LWR@formatted{FiveStarShadow}
\LWR@formatted{AsteriskBold}
\LWR@formatted{AsteriskCenterOpen}
\LWR@formatted{AsteriskThin}
\LWR@formatted{AsteriskThinCenterOpen}
\LWR@formatted{EightStarTaper}
\LWR@formatted{EightStarConvex}
\LWR@formatted{SixStar}
\LWR@formatted{EightStar}
\LWR@formatted{EightStarBold}
\LWR@formatted{TwelweStar}
\LWR@formatted{SixteenStarLight}
\LWR@formatted{SixFlowerPetalRemoved}
\LWR@formatted{SixFlowerOpenCenter}
\LWR@formatted{Asterisk}
\LWR@formatted{SixFlowerAlternate}
\LWR@formatted{FiveFlowerPetal}
\LWR@formatted{SixFlowerPetalDotted}
\LWR@formatted{FiveFlowerOpen}
\LWR@formatted{EightFlowerPetal}
\LWR@formatted{SunshineOpenCircled}
\LWR@formatted{SixFlowerAltPetal}
\LWR@formatted{FourClowerOpen}
\LWR@formatted{FourClowerSolid}
\LWR@formatted{AsteriskRoundedEnds}
\LWR@formatted{EightFlowerPetalRemoved}
\LWR@formatted{EightAsterisk}
\LWR@formatted{SixFlowerRemovedOpenPetal}
\LWR@formatted{SparkleBold}
\LWR@formatted{Sparkle}
\LWR@formatted{SnowflakeChevron}
\LWR@formatted{SnowflakeChevronBold}
\LWR@formatted{Snowflake}
\LWR@formatted{CircleSolid}
\LWR@formatted{Ellipse}
\LWR@formatted{EllipseSolid}
\LWR@formatted{CircleShadow}
\LWR@formatted{EllipseShadow}
\LWR@formatted{Square}
\LWR@formatted{SquareSolid}
\LWR@formatted{SquareShadowBottomRight}
\LWR@formatted{SquareShadowTopRight}
\LWR@formatted{SquareShadowTopLeft}
\LWR@formatted{SquareCastShadowBottomRight}
\LWR@formatted{SquareCastShadowTopRight}
\LWR@formatted{SquareCastShadowTopLeft}
\LWR@formatted{TriangleUp}
\LWR@formatted{TriangleDown}
\LWR@formatted{DiamondSolid}
\LWR@formatted{OrnamentDiamondSolid}
\LWR@formatted{HalfCircleRight}
\LWR@formatted{HalfCircleLeft}
\LWR@formatted{RectangleThin}
\LWR@formatted{Rectangle}
\LWR@formatted{RectangleBold}
\LWR@formatted{ArrowBoldRightStrobe}
\LWR@formatted{ArrowBoldUpRight}
\LWR@formatted{ArrowBoldDownRight}
\LWR@formatted{ArrowBoldRightShort}
\LWR@formatted{ArrowBoldRightCircled}
```

File 44 **lwarp-beamerarticle.sty**

§ 153 Package

beamerarticle

(*Emulates or patches code by* Till Tantau, Vedran Miletić, Louis Stuart, Joseph Wright.)

Pkg beamerarticle

beamerarticle is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{beamerarticle}[2021/05/26]

\renewcommand<>{\textcolor}{\only#1{\beameroriginal{\textcolor}}}

\AtBeginDocument{

\renewcommand<>{\LWR@listitem}{%
    \only#1{%
        \beameroriginal{\LWR@listitem}%
    }%
}

\renewcommand<>{\LWR@itemizeitem}{%
    \only#1{%
        \beameroriginal{\LWR@itemizeitem}%
    }%
}

\renewcommand<>{\LWR@descitem}{%
    \only#1{%
        \beameroriginal{\LWR@descitem}%
    }%
}

\renewcommand<>{\abstract}{%
    \only#1{%
        \beameroriginal{\abstract}%
    }%
}

\renewcommand<>{\LWR@includegraphicsb}{%
    \only#1{%
        \beameroriginal{\LWR@includegraphicsb}%
    }%
}

\xpretocmd\frame
    {
            \LWR@forcenewpage
            \BlockClass{beamerframe}%
    }
    {}
    {\LWR@patcherror{beamerarticle}{frame}}

\xapptocmd\beamer@endframe
    {\endBlockClass}
    {}
    {\LWR@patcherror{beamerarticle}{beamer@endframe}}
```

```
48
49 % An example in the beamer docs for \cs{includegraphics}
50 % shows the use of \cs{llap} in a frame.
51 \xpretocmd\beamer@article@startframe
52     {\LWR@nulllistfills}
53     {}
54     {\LWR@patcherror{beamerarticle}{beamer@article@startframe}}
55
56 }% AtBeginDocument
57
58 \let\beamer@@tmpop@frametitle@default\relax
59 \defbeamertemplate<article>*{frametitle}{default}{%
60     \paragraph*{\insertframetitle}\ \par%
61     \ifdefempty{\insertframesubtitle}{}{%
62         \noindent\emph{\insertframesubtitle}\par%
63     }%
64 }
65
66
67 \NewDocumentCommand{\LWR@beamer@itemize}{o}{%
68     \LWR@itemizestart\LWR@origitemize%
69 }%
70 \NewDocumentCommand{\LWR@beamer@description}{o o}{%
71     \LWR@descriptionstart\LWR@origdescription%
72 }%
73
74 \xapptocmd{\LWR@patchlists}
75     {%
76         \LetLtxMacro\itemize\LWR@beamer@itemize%
77         \LetLtxMacro\description\LWR@beamer@description%
78     }
79     {}
80     {\LWR@patcherror{beamerarticle}{LWR@patchlists}}
81
82
83 \LetLtxMacro\maketitle\LWR@maketitle
84
85 \renewcommand{\subtitle}[2][]{
86     \gdef\@subtitle{#2}
87     \def\insertsubtitle{#2}
88 }
89
90 \xpatchcmd{\@maketitle}
91     {%
92         \LWR@htmltag{\LWR@tagtitleend}%
93         \LWR@startpars%
94     }%
95     {%
96         \LWR@htmltag{\LWR@tagtitleend}%
97         \ifdefvoid{\@subtitle}{}{%
98             \begin{BlockClass}{subtitle}%
99             \@subtitle%
100            \end{BlockClass}%
101        }%
102        \LWR@startpars%
103    }%
104    {}
105    {\LWR@patcherror{beamerarticle}{@maketitle}}
106
107 \RequirePackage{fancyvrb}
```

```
\DefineVerbatimEnvironment{semiverbatim}{Verbatim}{commandchars=\\\{\}}
```

File 45 **lwarp-biblatex.sty**

§ 154 Package

biblatex

(*Emulates or patches code by* Philipp Lehman.)

Pkg biblatex

When biblatex is used, modifications from newfloat may have to be undone.

for HTML output:

1. lwarp uses newfloat.
2. For classes with chapters which newfloat does not know about, such as CTEX-related classes, newfloat may modify `\addtocontents`.
3. biblatex, though, wants to patch `\addtocontents`, which causes an error if `\addtocontents` has been changed.
4. Therefore, `\addtocontents` is restored to its original here, since biblatex is about to be loaded.
5. This means that the newfloat's `chapterlistsgaps` option may no longer work.

```
\ifdef{\newfloat@addtocontents@ORI}{
    \let\addtocontents\newfloat@addtocontents@ORI
}{}
```

hyperref emulation is loaded `\AtBeginDocument` to avoid an options clash.

```
\AtBeginDocument{\RequirePackage{hyperref}}

\LWR@ProvidesPackagePass{biblatex}[2018/03/04]
```

The following create hyperlinks to the references. The original code to use hyperref is recreated here, because hyperref is emulated.

```
\AfterPreamble{

\let\blx@anchors\@empty
\protected\def\blx@anchor{%
    \xifinlist{\the\c@refsection @\abx@field@entrykey}{\blx@anchors}
        {}
        {\listxadd\blx@anchors{\the\c@refsection @\abx@field@entrykey}%
        \hypertarget{cite.\the\c@refsection @\abx@field@entrykey}{}}}

\protected\def\blx@imc@bibhyperref{%
    \@ifnextchar[%]
      {\blx@bibhyperref}
      {\blx@bibhyperref[\abx@field@entrykey]}}%

\long\def\blx@bibhyperref[#1]#2{%
%        \blx@sfsave
        \hyperlink{cite.\the\c@refsection @#1}{%
%             \blx@sfrest
         #2%
```

```
%         \blx@sfsave
         }%
% \blx@sfrest%
}%% \def\blx@nohyperref[#1]#2{#2}%

\protected\long\def\blx@imc@bibhyperlink#1#2{%
%         \blx@sfsave
         \hyperlink{cite.\the\c@refsection:#1}{%
%          \blx@sfrest
          #2%
%         \blx@sfsave
         }%
%          \blx@sfrest%
}%

\protected\long\def\blx@imc@bibhypertarget#1#2{%
%         \blx@sfsave%
         \hypertarget{cite.\the\c@refsection:#1}{%
%          \blx@sfrest
          #2%
%         \blx@sfsave%
         }%
%          \blx@sfrest%
}

\let\blx@imc@ifhyperref\@firstoftwo
```

Ensure that an autopage reference is current where each `\cite` is used, although this is nullified inside footnotes since they now use a LaTeX box.

```
\xpretocmd{\blx@citecmdinit}
    {\LWR@newautopagelabel{page}}%
    {}
    {\LWR@patcherror{biblatex}{blx@citecmdinit}}
```

Ensure that an autopage reference is current for each backref. If the citation is in a footnote, the backref will point to whatever preceeded the footnotes.

```
\xpatchcmd{\blx@addbackref@i}
    {\thepage}
    {\theLWR@previousautopagelabel}% ref to the most recent object
    {}
    {\LWR@patcherror{biblatex}{blx@addbackref@i A}}

\xpatchcmd{\blx@addbackref@i}
    {\c@page}
    {\c@LWR@previousautopagelabel}% ref to the most recent object
    {}
    {\LWR@patcherror{biblatex}{blx@addbackref@i B}}
```

The following patches are for back page references.

```
\DeclareListFormat{pageref}{%
  \ifnumless{\abx@pagerefstyle}{0}
    {\usebibmacro{list:plain}%
     \ifhyperref
       {%
%             \hyperlink{page.#1}{#1}%
            \LWR@refwithsection{\BaseJobname-autopage-#1}%  lwarp
```

```
      }
      {#1}}
   {\ifnumequal{\value{listcount}}{1}
      {\usebibmacro{pageref:init}}
      {}%
    \usebibmacro{pageref:comp}{#1}%
    \ifnumequal{\value{listcount}}{\value{liststop}}
      {\usebibmacro{pageref:dump}}
      {}}}

\renewbibmacro*{pageref:comp}[1]{%
  \numdef\abx@range@prev{\abx@range@prev+1}%
  \ifinteger{#1}
    {\def\abx@range@num{#1}%
     \def\abx@range@this{1}%
     \ifnumequal{\abx@range@this}{\abx@range@last}
       {}
       {\def\abx@range@prev{-1}}}
    {\ifrmnum{#1}
       {\numdef\abx@range@num{\rmntonum{#1}}%
        \def\abx@range@this{2}%
        \ifnumequal{\abx@range@this}{\abx@range@last}
          {}
          {\def\abx@range@prev{-1}}}
       {\undef\abx@range@num
        \def\abx@range@this{0}%
        \def\abx@range@prev{-1}}}%
  \ifdef\abx@range@num
    {\ifnumequal{\abx@range@num}{\abx@range@prev}
       {\def\abx@range@hold{#1}%
        \numdef\abx@range@diff{\abx@range@diff+1}}
       {\usebibmacro{pageref:dump}%
        \ifnumgreater{\abx@range@last}{-1}
          {\printdelim{multilistdelim}}
          {}%
        \ifhyperref
%           {\hyperlink{page.#1}{#1}}
          {\LWR@refwithsection{\BaseJobname-autopage-#1}}%  lwarp
          {#1}}%
     \edef\abx@range@prev{\abx@range@num}}
    {\usebibmacro{pageref:dump}%
     \ifnumgreater{\abx@range@last}{-1}
       {\printdelim{multilistdelim}}
       {}%
     \ifhyperref
%        {\hyperlink{page.#1}{#1}}
       {\LWR@refwithsection{\BaseJobname-autopage-#1}}%  lwarp
       {#1}%
     \def\abx@range@prev{-1}}%
  \edef\abx@range@last{\abx@range@this}}

\renewbibmacro*{pageref:dump}{%
  \ifnumgreater{\abx@range@diff}{0}
    {\ifcase\abx@pagerefstyle\relax % two
       \bibrangedash
       \ifhyperref
%          {\hyperlink{page.\abx@range@hold}{\abx@range@hold}}
       {\LWR@refwithsection{\BaseJobname-autopage-\abx@range@hold}}% lwarp
         {\abx@range@hold}%
     \or % three
```

```
      \ifnumless{\abx@range@diff}{2}
        {\printdelim{multilistdelim}}
        {\bibrangedash}%
      \ifhyperref
%         {\hyperlink{page.\abx@range@hold}{\abx@range@hold}}
       {\LWR@refwithsection{\BaseJobname-autopage-\abx@range@hold}}% lwarp
        {\abx@range@hold}%
    \or % two+
      \ifnumless{\abx@range@diff}{2}
        {\sqspace
         \ifhyperref
%             {\hyperlink{page.\abx@range@hold}{\bibstring{sequens}}}
        {\LWR@refwithsection{\BaseJobname-autopage-\abx@range@hold}}% lwarp
            {\bibstring{sequens}}}
        {\bibrangedash
         \ifhyperref
%             {\hyperlink{page.\abx@range@hold}{\abx@range@hold}}
        {\LWR@refwithsection{\BaseJobname-autopage-\abx@range@hold}}% lwarp
            {\abx@range@hold}}%
    \or % three+
      \ifnumless{\abx@range@diff}{2}
        {\sqspace
         \ifhyperref
%             {\hyperlink{page.\abx@range@hold}{\bibstring{sequens}}}
        {\LWR@refwithsection{\BaseJobname-autopage-\abx@range@hold}}% lwarp
            {\bibstring{sequens}}}
        {\ifnumless{\abx@range@diff}{3}
           {\sqspace
            \ifhyperref
%                {\hyperlink{page.\abx@range@hold}{\bibstring{sequentes}}}
          {\LWR@refwithsection{\BaseJobname-autopage-\abx@range@hold}}% lwarp
               {\bibstring{sequentes}}}
           {\bibrangedash
            \ifhyperref
%                {\hyperlink{page.\abx@range@hold}{\abx@range@hold}}
          {\LWR@refwithsection{\BaseJobname-autopage-\abx@range@hold}}% lwarp
               {\abx@range@hold}}}%
    \else % all+
      \ifnumless{\abx@range@diff}{2}
        {\sqspace
         \ifhyperref
%             {\hyperlink{page.\abx@range@hold}{\bibstring{sequens}}}
        {\LWR@refwithsection{\BaseJobname-autopage-\abx@range@hold}}% lwarp
            {\bibstring{sequens}}}
        {\sqspace
         \ifhyperref
%             {\hyperlink{page.\abx@range@hold}{\bibstring{sequentes}}}
        {\LWR@refwithsection{\BaseJobname-autopage-\abx@range@hold}}% lwarp
            {\bibstring{sequentes}}}%
    \fi
    \def\abx@range@diff{0}}
   {}}

}% \AfterPreamble
```

File 46 **lwarp-bibunits.sty**

§ 155 Package

bibunits

(*Emulates or patches code by* Thorsten Hansen.)

Pkg bibunits

bibunits is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{bibunits}[2004/05/12]
\def\bu@bibdata{\BaseJobname}
```

File 47 **lwarp-bigdelim.sty**

§ 156 Package

bigdelim

(*Emulates or patches code by* Piet van Oostrum, Øystein Bache, Jerry Leichter.)

Pkg bigdelim

bigdelim is used as-is for print or `lateximage`, and patched for HTML.

The delimiters are displayed in HTML by printing the delimiter, the text, and a thick border across the side of the `\multirow` which indicates the actual height of the delimiter. The delimiter character is given a `<span>` class of `ldelim` or `rdelim`, and the default CSS sets this to `font-size:200%`

⚠ use \mrowcell

`\ldelim` and `\rdelim` use `\multirow`, so `\mrowcell` must be used in the proper number of empty cells in the same column below `\ldelim` or `\rdelim`, but not in cells which are above or below the delimiter:

```
\begin{tabular}{lll}
<empty> & a & b \\
\ldelim{\{}{3}{.25in}[left ] & c & d \\
\mrowcell & e & f \\
\mrowcell & g & h \\
<empty> & i & j \\
\end{tabular}
```

<-> a b

left { c d
e f
g h

<-> i j

For MathJax, limited emulation is provided which merely prints the delimter and optional text in the first row.

for HTML output:

First, remove the temporary definitions of `\ldelim` and `\rdelim`, which were previously defined for tabular scanning in case bigdelim was not loaded:

```
\let\ldelim\relax
\let\rdelim\relax
```

Next, load the package's new definitions:

```
\LWR@ProvidesPackagePass{bigdelim}[2021/03/15]
```

`\ldelim` {⟨*1:delimiter*⟩} {⟨*2:#rows*⟩} [⟨*3: vmove*⟩] {⟨*4:width*⟩} [⟨*5:text*⟩]
`\rdelim`

```
\NewDocumentCommand{\LWR@HTML@ldelim}{m m o m O{}}{%
\renewcommand{\LWR@multirowborder}{right}%
\multirow{#2}{#4}{#5 \InlineClass{ldelim}{#1}}%
}

\LWR@formatted{ldelim}

\NewDocumentCommand{\LWR@HTML@rdelim}{m m o m O{}}{%
\renewcommand{\LWR@multirowborder}{left}%
\multirow{#2}{#4}{\InlineClass{rdelim}{#1} #5}%
}

\LWR@formatted{rdelim}
```

Limited emulation for MathJax. The delimiter is printed on the first row, along with any optional text.

```
\begin{warpMathJax}
% \ldelim ( {n}{width}[text]
\CustomizeMathJax{\newcommand{\LWRldelimtwo}[1][]{\text{#1}~\LWRbigdelim}}
\CustomizeMathJax{\newcommand{\LWRldelimone}[2][]{\LWRldelimtwo}}
\CustomizeMathJax{\def\ldelim#1#2{\def\LWRbigdelim{#1}\LWRldelimone}}
% \rdelim ) {n}{width}[text]
\CustomizeMathJax{\newcommand{\LWRrdelimtwo}[1][]{\LWRbigdelim~\text{#1}}}
\CustomizeMathJax{\newcommand{\LWRrdelimone}[2][]{\LWRrdelimtwo}}
\CustomizeMathJax{\def\rdelim#1#2{\def\LWRbigdelim{#1}\LWRrdelimone}}
\end{warpMathJax}
```

File 48 **lwarp-bigfoot.sty**

§ 157 Package

bigfoot

Pkg bigfoot

bigfoot is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{bigfoot}[2015/08/30]

\RequirePackage{manyfoot}
\RequirePackage{perpage}

\def\RestyleFootnote#1#2{}
\def\FootnoteSpecific#1{}
\def\DefineFootnoteStack#1{}
\def\PushFootnoteMark#1{}
\def\PopFootnoteMark#1{}
\def\hfootfraction{0.9}
\def\vtypefraction{0.7}
\def\FootnoteMinimum{1sp}
```

```
\def\FootnoteMainMinimum{0pt}
\newcount\bigfoottolerance
\bigfoottolerance=100
\providecommand\footnotecarryratio{2}
```

File 49 **lwarp-bigstrut.sty**

§ 158 Package bigstrut

(*Emulates or patches code by* Piet van Oostrum, Øystein Bache, Jerry Leichter.)

Pkg bigstrut

bigstrut is used as-is for print or lateximage, and patched for HTML.

for HTML output:

```
\LWR@ProvidesPackagePass{bigstrut}[2018/08/03]

\LetLtxMacro\LWR@origbigstrut\bigstrut

\renewcommand\bigstrut[1][x]{}

\appto\LWR@restoreorigformatting{%
\LetLtxMacro\bigstrut\LWR@origbigstrut%
}


\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\bigstrut}[1][]{}}
\end{warpMathJax}
```

File 50 **lwarp-bitpattern.sty**

§ 159 Package bitpattern

(*Emulates or patches code by* Jean-Marc Bourguet.)

Pkg bitpattern

bitpattern is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{bitpattern}[2015/12/11]

\xpatchcmd{\bitpattern}
    {\begingroup}
    {\begin{lateximage}[-bitpattern-~\PackageDiagramAltText]}
    {}
    {\LWR@patcherror{bitpattern}{bitpattern}}

\xpatchcmd{\bp@Done}
    {\endgroup}
    {\end{lateximage}}
    {}
    {\LWR@patcherror{bitpattern}{bp@Done}}
```

File 51 **lwarp-blowup.sty**

§ 160 Package blowup

Pkg blowup

blowup is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{blowup}[2018/01/02]

\newcommand*\blowUp[1]{}
```

File 52 **lwarp-bm.sty**

§ 161 Package bm

(*Emulates or patches code by* David Carlisle, Frank Mittelbach.)

Pkg bm

bm is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{bm}[2019/07/24]
```

\DeclareBoldMathCommand must only be used in the preamble, since it adds to the MathJax setup code.

```
\begin{warpMathJax}
\LetLtxMacro\LWR@orig@DeclareBoldMathCommand\DeclareBoldMathCommand

\renewcommand\DeclareBoldMathCommand[3][bold]{%
    \LWR@orig@DeclareBoldMathCommand[#1]{#2}{#3}%
    \CustomizeMathJax{\newcommand{#2}{\boldsymbol{#3}}}%
}

\@onlypreamble\DeclareBoldMathCommand

\CustomizeMathJax{\newcommand{\bm}[1]{\boldsymbol{#1}}}
\end{warpMathJax}
```

File 53 **lwarp-booklet.sty**

§ 162 Package booklet

(*Emulates or patches code by* Peter Wilson.)

Pkg booklet

booklet is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{booklet}[2009/09/02]

\newdimen\pageseplength
\newdimen\pagesepwidth
\newdimen\pagesepoffset
```

```
\newif\ifsidebyside     \sidebysidetrue
\newif\ifuselandscape   \uselandscapefalse
\newif\ifprintoption    \printoptionfalse
\newcommand*{\pagespersignature}[1]{}
\def\magstepminus#1{}
\newcommand*{\target}[3]{}
\newcommand*{\source}[3]{}
\newcommand*{\setpdftargetpages}{}
\newcommand*{\setdvipstargetpages}{}
\newcommand*{\targettopbottom}{}
\newcommand*{\twoupemptypage}{}
\newcommand*{\twoupclearpage}{}
\newcommand*{\checkforlandscape}{}
```

File 54 **lwarp-bookmark.sty**

§ 163 Package bookmark

(*Emulates or patches code by* Heiko Oberdiek.)

Pkg bookmark

bookmark is ignored.

for HTML output:

Discard all options for lwarp-bookmark:

```
\LWR@ProvidesPackageDrop{bookmark}[2016/05/17]
```

```
\newcommand*{\bookmarksetup}[1]{}
\newcommand*{\bookmarksetupnext}[1]{}
\newcommand*{\bookmark}[2][]{}
\newcommand*{\bookmarkdefinestyle}[2]{}
\newcommand*{\bookmarkget}[1]{}
\newcommand{\BookmarkAtEnd}[1]{}
```

File 55 **lwarp-booktabs.sty**

§ 164 Package booktabs

(*Emulates or patches code by* Simon Fear.)

Pkg booktabs

booktabs is emulated during HTML output, and used as-is during print output and inside an HTML `latexmage`.

⚠ `\cmidrule`

For MathJax, emulation is provided in math mode, but `\cmidrule` trim must not be used.

for HTML output:

If booktabs has already been loaded before lwarp, such as by memoir, use it as-is. If not, the lwarp core will have placed some dummy macros which should be removed before loading the actual booktabs definitions.

```
\IfPackageLoadedTF{booktabs}{}{
    \LetLtxMacro\toprule\relax
    \LetLtxMacro\midrule\relax
    \LetLtxMacro\cmidrule\cline
    \LetLtxMacro\bottomrule\relax
    \LetLtxMacro\addlinespace\relax
```

```
    \LetLtxMacro\morecmidrules\relax
    \LetLtxMacro\specialrule\relax
}
```

Next, load the booktabs package:

```
\LWR@ProvidesPackagePass{booktabs}[2019/10/08]
```

Adjust to work even if xltabular is loaded:

```
% \def\LWR@HTML@@BLTrule{\@BTnormal}
%
% \LWR@formatted{@BLTrule}
\LetLtxMacro\@BLTrule\@BTnormal


\DeclareDocumentCommand{\LWR@HTML@toprule}{o d()}%
    {%
        \IfValueTF{#1}%
            {\LWR@docmidrule[#1](){1-\arabic{LWR@tabletotalLaTeXcols}}}%
            {%
                \ifbool{FormatWP}%
              {\LWR@docmidrule[#1](){1-\arabic{LWR@tabletotalLaTeXcols}}}%
                {\booltrue{LWR@doingtbrule}}%
            }%
    \LWR@getmynexttoken}

\LWR@expandableformatted{toprule}

\DeclareDocumentCommand{\LWR@HTML@midrule}{o d()}%
    {%
        \IfValueTF{#1}%
            {\LWR@docmidrule[#1](){1-\arabic{LWR@tabletotalLaTeXcols}}}%
            {%
                \ifbool{FormatWP}%
              {\LWR@docmidrule[#1](){1-\arabic{LWR@tabletotalLaTeXcols}}}%
                {\defaddtocounter{LWR@hlines}{1}}%
            }%
    \LWR@getmynexttoken}

\LWR@expandableformatted{midrule}

\DeclareDocumentCommand{\LWR@HTML@cmidrule}{O{\LWR@cmidrulewidth} d() m}{%
    \LWR@docmidrule[#1](#2){#3}%
    \LWR@getmynexttoken%
}%

\LWR@expandableformatted{cmidrule}

\DeclareDocumentCommand{\LWR@HTML@bottomrule}{o d()}{%
    \IfValueTF{#1}%
        {\LWR@docmidrule[#1](){1-\arabic{LWR@tabletotalLaTeXcols}}}%
        {%
            \ifbool{FormatWP}%
            {\LWR@docmidrule[#1](){1-\arabic{LWR@tabletotalLaTeXcols}}}%
            {\booltrue{LWR@doingtbrule}}%
        }%
    \LWR@getmynexttoken%
}%

```

```
\LWR@expandableformatted{bottomrule}

\DeclareDocumentCommand{\LWR@HTML@addlinespace}{o}{}%

\LWR@expandableformatted{addlinespace}

\DeclareDocumentCommand{\LWR@HTML@morecmidrules}{}{}%

\LWR@expandableformatted{morecmidrules}

\DeclareDocumentCommand{\LWR@HTML@specialrule}{m m m d()}%
  {\LWR@docmidrule[#1](){1-\arabic{LWR@tabletotalLaTeXcols}}\LWR@getmynexttoken}%

\LWR@expandableformatted{specialrule}
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\toprule}[1][]{\hline}}
\CustomizeMathJax{\let\midrule\toprule}
\CustomizeMathJax{\let\bottomrule\toprule}
\CustomizeMathJax{\def\LWRbooktabscmidruleparen(#1)#2{}}
\CustomizeMathJax{\newcommand{\LWRbooktabscmidrulenoparen}[1]{}}
\CustomizeMathJax{\newcommand{\cmidrule}[1][]{%
    \ifnextchar(\LWRbooktabscmidruleparen\LWRbooktabscmidrulenoparen%
}}
\CustomizeMathJax{\newcommand{\morecmidrules}{}}
\CustomizeMathJax{\newcommand{\specialrule}[3]{\hline}}
\CustomizeMathJax{\newcommand{\addlinespace}[1][]{}}
\end{warpMathJax}
```

File 56 **lwarp-bophook.sty**

§ 165 Package

bophook

Pkg bophook

bophook is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{bophook}[2001/03/29]

\newcommand*{\AtBeginPage}[1]{}
\newcommand*{\PageLayout}[1]{}
```

File 57 **lwarp-bounddvi.sty**

§ 166 Package

bounddvi

Pkg bounddvi

bounddvi is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{bounddvi}[2016/12/28]
```

File 58 **lwarp-boxedminipage.sty**

§ 167 Package boxedminipage

(*Emulates or patches code by* Scott Pakin.)

Pkg boxedminipage

boxedminipage is emulated for HTML, and used as-is for lateximages.

for HTML output:

```
\LWR@ProvidesPackagePass{boxedminipage}[2020/04/19]

\newenvironment{LWR@HTML@boxedminipage}{%
    \LWR@stoppars%
    \begin{BlockClass}{framebox}%
    \minipage%
}
{%
    \endminipage%
    \end{BlockClass}%
    \LWR@startpars%
}
\LWR@formattedenv{boxedminipage}
```

File 59 **lwarp-boxedminipage2e.sty**

§ 168 Package boxedminipage2e

(*Emulates or patches code by* Scott Pakin.)

Pkg boxedminipage2e

boxedminipage2e has been renamed boxedminipage by the author.

for HTML output:

Automatically loads boxedminipage:

```
\LWR@ProvidesPackagePass{boxedminipage2e}
```

File 60 **lwarp-braket.sty**

§ 169 Package braket

(*Emulates or patches code by* Donald Arseneau.)

Pkg braket

braket works as-is for HTML with SVG math. For MathJax, the MathJax extension is used.

for HTML output:

```
\LWR@ProvidesPackagePass{braket}% No date is provided by the file.

\begin{warpMathJax}
    \CustomizeMathJax{\require{braket}}
\end{warpMathJax}
```

File 61 **lwarp-breakurl.sty**

§ 170 Package

breakurl

(*Emulates or patches code by* Vilar Camara Neto.)

Pkg breakurl

breakurl is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{breakurl}[2013/04/10]

\LetLtxMacro\burl\LWR@url

\NewDocumentCommand{\LWR@burlaltb}{O{} +m m}{%
    \LWR@ensuredoingapar%
    \LWR@subhyperref{#2}%
    \LWR@subhyperreftext{#3}%
    \endgroup% restore catcodes
}

\newrobustcmd*{\burlalt}{%
    \begingroup%
    \LWR@linkcatcodes%
    \LWR@burlaltb%
}

\LetLtxMacro\urlalt\burlalt
```

File 62 **lwarp-breqn.sty**

§ 171 Package

breqn

(*Emulates or patches code by* Michael J. Downes, Morten Høgholm.)

Pkg breqn

breqn is patched for use by lwarp.

⚠ darray

darray is not supported, and in fact does not work in the print version either.

While using MathJax, breqn objects are converted to SVG images.

for HTML output:

```
\LWR@ProvidesPackagePass{breqn}[2017/01/27]

\setkeys{breqn}{spread={5pt}}

\def\eqnumside{R}
% \def\eqnumplace{T}

\BeforeBeginEnvironment{dmath}{
    \begin{BlockClass}{displaymathnumbered}
    \LWR@newautoidanchor%
    \booltrue{LWR@indisplaymathimage}%
    \begin{lateximage}[-breqn dmath- \MathImageAltText]
}

```

```
\AfterEndEnvironment{dmath}{
    \end{lateximage}\end{BlockClass}
}

\BeforeBeginEnvironment{dmath*}{
    \begin{BlockClass}{displaymath}
    \LWR@newautoidanchor%
    \booltrue{LWR@indisplaymathimage}%
    \begin{lateximage}[-breqn dmath*- \MathImageAltText]
}

\AfterEndEnvironment{dmath*}{
    \end{lateximage}\end{BlockClass}
}

\BeforeBeginEnvironment{dseries}{
    \begin{BlockClass}{displaymathnumbered}
    \LWR@newautoidanchor%
    \booltrue{LWR@indisplaymathimage}%
    \begin{lateximage}[-breqn dseries- \MathImageAltText]
}

\AfterEndEnvironment{dseries}{
    \end{lateximage}\end{BlockClass}
}

\BeforeBeginEnvironment{dseries*}{
    \begin{BlockClass}{displaymath}
    \LWR@newautoidanchor%
    \booltrue{LWR@indisplaymathimage}%
    \begin{lateximage}[-breqn dseries*- \MathImageAltText]
}

\AfterEndEnvironment{dseries*}{
    \end{lateximage}\end{BlockClass}
}

\BeforeBeginEnvironment{dgroup}{
    \begin{BlockClass}{displaymath}
    \LWR@newautoidanchor%
    \booltrue{LWR@indisplaymathimage}%
    \begin{lateximage}[-breqn dgroup- \MathImageAltText]
}

\AfterEndEnvironment{dgroup}{
    \end{lateximage}\end{BlockClass}
}

\BeforeBeginEnvironment{dgroup*}{
    \begin{BlockClass}{displaymath}
    \LWR@newautoidanchor%
    \booltrue{LWR@indisplaymathimage}%
    \begin{lateximage}[-breqn dgroup*- \MathImageAltText]
}

\AfterEndEnvironment{dgroup*}{
    \end{lateximage}\end{BlockClass}
}
```

File 63 **lwarp-bsheaders.sty**

§ 172 Package

bsheaders

Pkg bsheaders

bsheaders is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{bsheaders}[1997/10/06]
```

File 64 **lwarp-bussproofs.sty**

§ 173 Package

bussproofs

(*Emulates or patches code by* Samuel R. Buss.)

Pkg bussproofs

bussproofs is used as-is for HTML, and emulated by MathJax's extension.

⚠ \DisplayProof

If not using MathJax, inline proofs with \DisplayMath must be placed inside a math expression.

If using MathJax, only the prooftree environment may be used, not \DisplayProof.

for HTML output:

```
\LWR@ProvidesPackagePass{bussproofs}% no date in file

\ifbool{mathjax}{
    \CustomizeMathJax{\require{bussproofs}}

    \NewEnviron{LWR@HTML@prooftree}%
        {\LWR@doequation{\BODY}{prooftree}}%
        [\LWR@doendequation{prooftree}]
    \LWR@formattedenv{prooftree}
}{% SVG HTML
    \BeforeBeginEnvironment{prooftree}{%
        \begin{lateximage}[-bussproofs-~\PackageDiagramAltText]%
    }
    \AfterEndEnvironment{prooftree}{\end{lateximage}}
}
```

File 65 **lwarp-bxpapersize.sty**

§ 174 Package

bxpapersize

Pkg bxpapersize

bxpapersize is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{bxpapersize}[2017/10/08]

\providecommand*\papersizesetup{\bxpapersizesetup}
\newcommand*\bxpapersizesetup[1]{}
```

File 66 **lwarp-bytefield.sty**

§ 175 Package

bytefield

(*Emulates or patches code by* Scott Pakin.)

Pkg bytefield

bytefield is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{bytefield}[2017/09/15]

\BeforeBeginEnvironment{bytefield}{%
    \begin{lateximage}[-bytefield-~\PackageDiagramAltText]%
}

\AfterEndEnvironment{bytefield}{\end{lateximage}}
```

File 67 **lwarp-cancel.sty**

§ 176 Package

cancel

Pkg cancel

cancel is used as-is for SVG math, and emulated for HTML text output.

for HTML output:

```
\LWR@origRequirePackage{lwarp-xcolor}% for \convertcolorspec
\LWR@ProvidesPackagePass{cancel}[2013/04/12]
```

\cancelto is math-only, so is used as-is.

\LWR@cancelcolor {⟨*text*⟩} {⟨*color*⟩} {⟨*class*⟩} {⟨*colorstyle*⟩} {⟨*FormatWPstyle*⟩}

Add colors if not empty:

```
\newcommand{\LWR@cancelcolor}[5]{%
\ifcsempty{#2}%
{\InlineClass(#5){#3}{#1}}%
{\LWR@htmlspanclass[#5;#4:\LWR@origpound\LWR@tempcolor]{#3}{#1}}%
}
```

\cancel {⟨*text*⟩}

```
\DeclareRobustCommand{\LWR@HTML@cancel}[1]{%
\begingroup%
\CancelColor%
\LWR@findcurrenttextcolor%
\color{black}%
\LWR@cancelcolor{#1}{LWR@tempcolor}{sout}{text-decoration-color}%
    {text-decoration:line-through}%
\endgroup%
}
\LWR@formatted{cancel}%

\LetLtxMacro\bcancel\cancel
\LetLtxMacro\xcancel\cancel
```

For MathJax:

```
\begin{warpMathJax}
\PackageNoteNoLine{lwarp, cancel}{The MathJax v3 extension will be used}
\CustomizeMathJax{\require{cancel}}
\end{warpMathJax}
```

File 68 **lwarp-canoniclayout.sty**

§ 177 Package canoniclayout

Pkg canoniclayout

canoniclayout is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{canoniclayout}[2011/11/05]

\newcommand*{\currentfontletters}{}
\newcommand*{\charactersperpage}{}
```

File 69 **lwarp-caption.sty**

§ 178 Package caption

(*Emulates or patches code by* Axel Sommerfeldt.)

Pkg caption

caption is patched for use by lwarp.

for HTML output:

```
\typeout{---}
\typeout{Packages lwarp and caption:}
\typeout{If a ``Missing \protect\begin\protect{document\protect}'' error occurs here,}
\typeout{try using: \space \protect\usepackage\protect{caption\protect}\space%
    \protect\captionsetup{options}}
\typeout{instead of: \protect\usepackage[options]\protect{caption\protect}.}
\typeout{---}

\LWR@ProvidesPackagePass{caption}[2020/10/26]

\long\def\caption@iibox@#1#2#3#4{%
%   \setbox\@tempboxa\hbox{#4}%
  \caption@iiibox{#1}{#2}{#3}%
%         [\wd\@tempboxa]%
        []%                              lwarp
        [\captionbox@hj@default]%
%         {\unhbox\@tempboxa}%
        {{#4}}%                          lwarp
}

\long\def\caption@iiiibox#1#2#3#4#5[#6][#7]#8{%
  \begingroup
  #1*% set \caption@position
  \caption@iftop{%
    \endgroup

    \minipagefullwidth%                  lwarp
    \parbox[t]{\linewidth}{%
```

```
      #1\relax
      \caption@setposition t%
%       #2%
            {\caption#4{#5}}%
%       \captionbox@hrule
%       \csname caption@hj@#7\endcsname
      #8%
    }%
  }{%
    \endgroup

%     \parbox[b]{#6}{%
    \minipagefullwidth%                 lwarp
    \parbox[b]{\linewidth}{%            lwarp
      #1\relax
      \caption@setposition b%
%       \csname caption@hj@#7\endcsname
      #8%
%       \captionbox@hrule
%       #3
            {\caption#4{#5}}%
    }%
  }%
}
```

\caption@makecaption

```
\long\def\caption@makecaption#1#2{%
%   \caption@make@above
  \caption@@make{#1}{#2}%
%   \caption@make@below
}

\AtBeginDocument{
    \let\@makecaption\caption@makecaption
}
```

Appended to look ahead to the next token for \centering, etc:

```
\AtBeginDocument{
\xapptocmd{\@xfloat}
    {\LWR@futurenonspacelet\LWR@mynexttoken\LWR@floatalignment}
    {}
    {\LWR@patcherror{caption}{@xfloat}}

\xapptocmd{\@xdblfloat}
    {\LWR@futurenonspacelet\LWR@mynexttoken\LWR@floatalignment}
    {}
    {\LWR@patcherror{caption}{@xdblfloat}}
}


\long\def\caption@@@text#1#2#3[#4]#5{%
    \begin{BlockClass}{figurecaption}%      lwarp
  \begingroup
    #3{\csname c@#1\endcsname #4\relax}%
    #2{\caption@fnum{#1}}{#5}%
  \endgroup%
    \end{BlockClass}%                       lwarp
}
```

Updates for late patches for scrextend:

```
\caption@AtBeginDocument{
\IfPackageLoadedTF{lwarp-scrextend}{
    \LetLtxMacro\captionbelow\caption
    \LetLtxMacro\captionabove\caption
    \LetLtxMacro\captionofbelow\captionof
    \LetLtxMacro\captionofabove\captionof
}{}
}
```

File 70 **lwarp-caption3.sty**

§ 179 Package

caption3

(*Emulates or patches code by* Axel Sommerfeldt.)

Pkg caption3

caption3 is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{caption3}[2020/10/21]
```

\caption@@@make {⟨*caption label*⟩} {⟨*caption text*⟩}

```
\IfPackageAtLeastTF{caption3}{2020/08/23}{
\renewcommand\caption@@@make[2]{%
\LWR@traceinfo{caption@@@make}%
    \LWR@stoppars%                                lwarp
%   \sbox\@tempboxa{#1}%
%   \ifdim\wd\@tempboxa=\z@
%     \caption@set{labelseparator}{none}%
%   \fi
  \caption@ifempty{#2}{%
    \caption@set{labelseparator}{none}%
    \caption@set{textformat}{simple}%
  }%
  \caption@labelseparator % defines \caption@iflabelfont,
%       \caption@labelsep and \caption@labelsep@name
%       (the latter is needed by \caption@fmt)
%
%   \@setpar{\@@par\caption@@par}\caption@@par
  \caption@applyfont
```

\caption@fmt with plain format is defined as {#1#2#3\par}:

```
%   \caption@fmt
    {\ifcaption@star\else
       \begingroup
         \captionlabelfont
         \LWR@isolate{#1}%                        lwarp
       \endgroup
     \fi}%
    {\ifcaption@star\else
       \begingroup
         \caption@iflabelfont\captionlabelfont
```

```
30          \relax\caption@labelsep
31        \endgroup
32      \fi}%
33     {{\captiontextfont

34         \let\\\newline%                          lwarp
35 %
36       \caption@textstart

37 %       \caption@ifstrut
38 %         {\vrule\@height\ht\strutbox\@width\z@}%
39 %         {}%
40 %       \nobreak\hskip\z@skip % enable hyphenation

41       \LWR@isolate{\caption@textformat{#2}}%    lwarp

42 %       \caption@ifstrut
43 %         {\ifhmode\@finalstrut\strutbox\fi}%
44 %         {}%
45       \caption@textend}}%

46     \LWR@startpars%                              lwarp
47 \LWR@traceinfo{caption@@@make done}%
48 }
49 }% later than 2020/08/23
50 {% earlier than 2020/08/23
51 \renewcommand\caption@@@make[2]{%
52 \LWR@traceinfo{caption@@@make}%
53     \LWR@stoppars%                               lwarp
54 %   \sbox\@tempboxa{#1}%
55 %   \ifdim\wd\@tempboxa=\z@
56 %     \let\caption@lsep\relax
57 %   \fi
58   \caption@ifempty{#2}{%
59     \let\caption@lsep\@empty
60     \let\caption@tfmt\@firstofone
61   }%
62 %   \@setpar{\@@par\caption@@par}\caption@@par
63   \caption@applyfont
```

\caption@fmt with plain format is defined as {#1#2#3\par}:

```
64 %     \caption@fmt
65     {\ifcaption@star\else
66        \begingroup
67         \captionlabelfont
68          \LWR@isolate{#1}%                       lwarp
69        \endgroup
70      \fi}%
71     {\ifcaption@star\else
72        \begingroup
73          \caption@iflf\captionlabelfont
74          \relax
75         \caption@lsep
76        \endgroup
77      \fi}%
78     {{%
79         \captiontextfont
80         \let\\\newline%                          lwarp
81 %       \caption@ifstrut
82 %         {\vrule\@height\ht\strutbox\@width\z@}%
83 %         {}%
```

```
%       \nobreak\hskip\z@skip % enable hyphenation
        \LWR@isolate{\caption@tfmt{#2}}%        lwarp
%       \caption@ifstrut
%         {\ifhmode\@finalstrut\strutbox\fi}%
%         {}%
      }}%
    \LWR@startpars%                              lwarp
\LWR@traceinfo{caption@@@make done}%
}
}% earlier than 2020/08/23
```

\caption@@make@ {⟨⟩}{⟨⟩}

```
\renewcommand{\caption@@make@}[2]{%
  \caption@stepthecounter%
  \caption@beginhook%
%   \caption@box\hsize{%
%   \caption@singlelinecheck{\caption@slc{#1}{#2}\caption@singleline\caption@multiline}{\caption@m
%     \caption@calcmargin
%     \caption@make@leftmargin
%     \caption@make@parbox{%
%       \caption@make@indention
      \caption@@@make{#1}{#2}%
%     }
%     \caption@make@rightmargin
%   }%
  \caption@endhook%
}

\DeclareCaptionBox{none}{#2}
\DeclareCaptionBox{parbox}{%
    #2%
}

\DeclareCaptionBox{colorbox}{%
    #2%
}
```

File 71 **lwarp-cases.sty**

§ 180 Package

cases

(*Emulates or patches code by* Donald Arseneau.)

Pkg cases

cases is patched for use by lwarp.

While using MathJax, cases objects are converted to svg math images. The MathJax 3.2 cases package does not yet work with lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{cases}[2020/03/29]

\BeforeBeginEnvironment{numcases}{
    \begin{BlockClass}{displaymathnumbered}
    \LWR@newautoidanchor%
    \booltrue{LWR@indisplaymathimage}%
    \begin{lateximage}[-cases- \MathImageAltText]
```

```
}

\AfterEndEnvironment{numcases}{
    \end{lateximage}\end{BlockClass}
}

\BeforeBeginEnvironment{subnumcases}{
    \begin{BlockClass}{displaymathnumbered}
    \LWR@newautoidanchor%
    \booltrue{LWR@indisplaymathimage}%
    \begin{lateximage}[-cases- \MathImageAltText]
}

\AfterEndEnvironment{subnumcases}{
    \end{lateximage}\end{BlockClass}
}
```

Patch to fix bug for cases when used with microtype:

```
\makeatletter
\begin{warpHTML}
\AtBeginDocument{
    \@ifpackageloaded{amsmath}
    {
        \xpatchcmd{\tagform@}{\leftprotrusion{()}{()}
            {}
            {\LWR@patcherror{cases}{tagform@ A}}%
        \xpatchcmd{\tagform@}{\rightprotrusion{()}}{()}
            {}
            {\LWR@patcherror{cases}{tagform@ B}}%
    }
    {
        \xpatchcmd{\@eqnnum}{\leftprotrusion{()}{()}
            {}
            {\LWR@patcherror{cases}{@eqnnum A}}%
        \xpatchcmd{\@eqnnum}{\rightprotrusion{()}}{()}
            {}
            {\LWR@patcherror{cases}{@eqnnum A}}%
    }%
}
\end{warpHTML}
\makeatother
```

File 72 **lwarp-ccicons.sty**

§ 181 Package

ccicons

(*Emulates or patches code by* Michael Ummels.)

Pkg ccicons

ccicons is used as SVG images for HTML.

for HTML output:

Discard all options for lwarp-ccicons:

```
\LWR@ProvidesPackagePass{ccicons}[2017/10/30]

\newcommand{\LWR@ccicons}[2]{%
    {\begin{lateximage}*[#1]\ccicons@font\char#2\end{lateximage}}
```

```
}
\renewcommand{\ccicons@logo}{\LWR@ccicons{ccLogo}{0}}
\renewcommand{\ccicons@by}{\LWR@ccicons{ccAttribution}{1}}
\renewcommand{\ccicons@sa}{\LWR@ccicons{ccShareAlike}{2}}
\renewcommand{\ccicons@nd}{\LWR@ccicons{ccNoDerivatives}{3}}
\renewcommand{\ccicons@nc}{\LWR@ccicons{ccNonCommercial}{4}}
\renewcommand{\ccicons@nceu}{\LWR@ccicons{ccNonCommercialEU}{5}}
\renewcommand{\ccicons@ncjp}{\LWR@ccicons{ccNonCommercialJP}{6}}
\renewcommand{\ccicons@pd}{\LWR@ccicons{ccPublicDomain}{7}}
\renewcommand{\ccicons@zero}{\LWR@ccicons{ccZero}{8}}
\renewcommand{\ccicons@sampling}{\LWR@ccicons{ccSampling}{9}}
\renewcommand{\ccicons@share}{\LWR@ccicons{ccShare}{10}}
\renewcommand{\ccicons@remix}{\LWR@ccicons{ccRemix}{11}}
\renewcommand{\ccicons@copy}{\LWR@ccicons{ccCopy}{12}}
\renewcommand{\ccicons@pdalt}{\LWR@ccicons{ccPublicDomainAlt}{13}}
```

File 73 **lwarp-centerlastline.sty**

§ 182 Package centerlastline

Pkg centerlastline

centerlastline is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{centerlastline}[2020/10/12]

\providecommand{\centerlastline}{}
\def\endcenterlastline{\par}
```

File 74 **lwarp-centernot.sty**

§ 183 Package centernot

(*Emulates or patches code by* Heiko Oberdiek.)

Pkg centernot

centernot is used as-is for SVG math, and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{centernot}[2016/05/16]

\begin{warpMathJax}
\CustomizeMathJax{\require{centernot}}
\end{warpMathJax}
```

File 75 **lwarp-changebar.sty**

§ 184 Package changebar

Pkg changebar

changebar is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{changebar}[2018/03/09]
```

```
\newcommand*{\cbstart}{}
\newcommand*{\cbend}{}
\newenvironment*{\changebar}{}{}
\newcommand*{\cbdelete}{}
\newcommand*{\nochnagebars}{}
\newcommand*{\cbcolor}[1]{}
\newlength{\changebarwidth}
\newlength{\deletebarwidth}
\newlength{\changebarsep}
\newcounter{changebargrey}
```

File 76 **lwarp-changelayout.sty**

§ 185 Package changelayout

(*Emulates or patches code by* Ahmed Musa.)

Pkg changelayout changelayout is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{changelayout}[2009/10/07]

\renewrobustcmd\cpl@backtodefaults{}

\renewrobustcmd\cpl@checkifoddpage{%
  \cpl@oddpagefalse%
}

\renewrobustcmd\changepagelayout[1]{%
  \setkeys[KV]{changelay}{#1}%
}

\renewrobustcmd{\changetextlayout}[1]{\changepagelayout{#1}}

\renewrobustcmd\adjustpagelayout[1]{%
  \setkeys[KV@X]{changelay}{#1}%
}

\renewrobustcmd{\adjusttextlayout}[1]{\adjustpagelayout{#1}}

\renewrobustcmd\adjusttextwidth[1]{%
  \setkeys[KV]{changelay}{#1}%
   \begin{BlockClass}[color:\LWR@colorstyle{named}{\cpl@textcolor}]{changelayout}
        \color{\cpl@textcolor}%
        \cpl@content
    \end{BlockClass}
}
```

File 77 **lwarp-changepage.sty**

§ 186 Package changepage

(*Emulates or patches code by* Peter Wilson.)

Pkg changepage changepage is ignored.

for HTML output: Discard all options for lwarp-changepage:

```
\LWR@ProvidesPackageDrop{changepage}[2009/10/20]

\newif\ifoddpage
\DeclareRobustCommand{\checkoddpage}{\oddpagetrue}
\DeclareRobustCommand{\changetext}[5]{}
\DeclareRobustCommand{\changepage}[9]{}

\@ifundefined{adjustwidth}{
\newenvironment{adjustwidth}[2]{}{}
\newenvironment{adjustwidth*}[2]{}{}
}{
\renewenvironment{adjustwidth}[2]{}{}
\renewenvironment{adjustwidth*}[2]{}{}
}

\DeclareDocumentCommand{\strictpagecheck}{}{}
\DeclareDocumentCommand{\easypagecheck}{}{}
```

File 78 **lwarp-changes.sty**

§ 187 Package

changes

(*Emulates or patches code by* Ekkart Kleinod.)

Pkg changes changes is patched for use by lwarp.

⚠ \comment Use commandnameprefix=ifneeded to avoid a conflict with the \comment command when using lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{changes}[2021/07/15]
```

\BaseJobname is added to the label in case xr or xr-hyper are used.

```
\renewcommand{\ChangesListline}[4]{%
    \IfIsInList{#1}{\Changes@loc@show}{%
        \LWR@startpars%
        #2: #3 \qquad
        \nameref{\BaseJobname-autopage-#4}%
        \LWR@stoppars%
    }{}%
}

\renewcommand{\listofchanges}[1][\@empty]{%
\setkeys{Changes@loc}{#1}%
\ifbool{Changes@optiondraft}%
{%
\IfIsInList{\Changes@loc@style}{list|summary|compactsummary}%
{}%
{%
\PackageWarning{changes}{Wrong style for list of changes: '\Changes@loc@style', using 'list' instead.}%
\def\Changes@loc@style{}%
}%
\IfIsEmpty{\Changes@loc@style}%
{\def\Changes@loc@style{list}}%
```

```
{}%
\IfStrEq{\Changes@loc@show}{all}%
{\def\Changes@loc@show{added|deleted|replaced|highlight|comment}}%
{}%
\IfIsInList{\Changes@loc@show}{added|deleted|replaced|highlight|comment}%
{}%
{%
\PackageWarning{changes}{Wrong show-value for list of changes: '\Changes@loc@show', using 'all' instea
\def\Changes@loc@show{}%
}%
\IfIsEmpty{\Changes@loc@show}%
{\def\Changes@loc@show{added|deleted|replaced|highlight|comment}}%
{}%
\IfIsEmpty{\Changes@loc@title}%
{%
\IfStrEq{\Changes@loc@style}{list}%
{\def\Changes@heading{\listofchangesname}}{}%
\IfStrEq{\Changes@loc@style}{summary}%
{\def\Changes@heading{\summaryofchangesname}}{}%
\IfStrEq{\Changes@loc@style}{compactsummary}%
{\def\Changes@heading{\compactsummaryofchangesname}}{}%
}%
{\def\Changes@heading{\Changes@loc@title}}%
\section*{\Changes@heading}
\IfIsInList{\Changes@loc@style}{list}%
{%
\IfFileExists{\jobname.\Changes@locextension}%
{%
\newread\Changes@InFile%
\openin\Changes@InFile=\jobname.\Changes@locextension%
\loop\unless\ifeof\Changes@InFile%
\read\Changes@InFile to \Changes@Line%
\ifeof\Changes@InFile\else%
\Changes@Line%
\fi
\repeat
\closein\Changes@InFile%
}{%
\emph{\changesnoloc}%
\PackageWarning{changes}{LaTeX rerun needed for list of changes}%
}%
}{}%
\IfIsInList{\Changes@loc@style}{summary|compactsummary}%
{%
\IfFileExists{\jobname.\Changes@socextension}%
{%
\newread\Changes@InFile%
\openin\Changes@InFile = \jobname.\Changes@socextension%
\loop\unless\ifeof\Changes@InFile%
\read\Changes@InFile to \Changes@Line%
\ifeof\Changes@InFile\else%
\expandafter\changes@chopline\Changes@Line\\%
\textbf{%
\IfIsColored%
{\color{\Changes@Incolor}}%
{}%
\IfIsAnonymous{\Changes@Inid}%
{%
    \LWR@textcurrentcolor{%     lwarp
        \changesauthorname: \changesanonymousname%
```

```
    }%  lwarp
}%
{%
    \LWR@textcurrentcolor{%     lwarp
\changesauthorname: \Changes@Inid%
    }%  lwarp
\IfIsEmpty{\Changes@Inname}%
{}%
{ %
    \LWR@textcurrentcolor{%     lwarp
(\Changes@Inname)%
    }%  lwarp
}%
}%
}\\%
\numdef{\Changes@InSum}{0}%
\renewcommand*{\do}[1]{%
\numdef{\Changes@InSum}{\Changes@InSum + \csuse{Changes@In########1}}%
}%
\expandafter\dopsvlist\expandafter{\Changes@loc@show}%
\ifnumcomp{\Changes@InSum}{=}{0}%
{%
% \parbox{\Changes@summary@width}{% lwarp
    \changesnochanges%
% }%    lwarp
% \\[1ex]%    lwarp
    \par%   \lwarp
}%
{%
\numdef{\Changes@InCount}{0}%
\renewcommand*{\do}[1]{%
\numdef{\Changes@InCount}{\Changes@InCount + \csuse{Changes@In########1}}%
\ifboolexpr{%
not test {\IfStrEq{\Changes@loc@style}{compactsummary}} or%
test {\ifnumgreater{\csuse{Changes@In########1}}{0}}%
}%
{%
% \parbox{\Changes@summary@width}{%  lwarp
\csuse{changes########1name}~%
% \let\cleaders\leaders\dotfill~%   lwarp
\dotfill~%   \lwarp
\csuse{Changes@In########1}%
% }%    lwarp
% \ifnumless{\Changes@InCount}{\Changes@InSum}%     lwarp
{\\}%
% {\\[1ex]}%    lwarp
}%
{}%
}%
\expandafter\dopsvlist\expandafter{\Changes@loc@show}%
    \par%   lwarp
}%
\fi%
\repeat
\closein\Changes@InFile%
}{%
\emph{\changesnosoc}%
\PackageWarning{changes}{LaTeX rerun needed for summary of changes}%
}%
}{}%
```

```
}{}%
}


\renewcommand{\Changes@Markup@comment}[3]{%
\IfStrEq{\Changes@optioncommentmarkup}{todo}%
{%
\IfIsColored%
{\colorlet{Changes@todocolor}{authorcolor}}%
{\colorlet{Changes@todocolor}{black}}%
\todo[color=Changes@todocolor!10, bordercolor=Changes@todocolor, linecolor=Changes@todocolor!70, no
}{}%
\IfStrEq{\Changes@optioncommentmarkup}{margin}%
{%
\marginpar{%
\IfIsColored%
{\leavevmode\color{authorcolor}}%
{}%
    \LWR@textcurrentcolor{%     lwarp
\textbf{[\IfIsAnonymous{#2}{}{#3~}\arabic{Changes@commentCount#2}]:} #1%
    }%  lwarp
}%
}{}%
\IfStrEq{\Changes@optioncommentmarkup}{footnote}%
{%
\footnote{%
    \LWR@textcurrentcolor{%     lwarp
\textbf{[\IfIsAnonymous{#2}{}{#3~}\arabic{Changes@commentCount#2}]:} #1%
    }%  lwarp
}%
}{}%
\IfStrEq{\Changes@optioncommentmarkup}{uwave}%
{%
{%
\IfIsColored%
{\color{authorcolor}}%
{}%
\allowbreak%
\uwave{%
\textbf{[\IfIsAnonymous{#2}{}{#3~}\arabic{Changes@commentCount#2}]:} #1%
}%
}%
}{}%
}

\renewrobustcmd{\Changes@output}[7]{%
\ifbool{Changes@optiondraft}%
{%
\Changes@check@author{#2}%
\Changes@set@color{#2}%
{%
\IfIsInList{#1}{added|deleted|replaced|highlight}%
{%
\IfIsEmpty{#5}%
{%
\IfIsAuthorEmptyAtPosition{#2}{left}%
{}%
{{%
\IfIsColored%
{\color{authorcolor}}%
```

```
{}%
    \LWR@textcurrentcolor{%     lwarp
\Changes@Markup@author{\Changes@output@author@position{#2}{left}}%
    }%  lwarp
}}%
}{}%
{%
\IfStrEq{#1}{highlight}%
{}{%
\IfIsColored%
{\color{authorcolor}}%
{}%
}%
    \LWR@textcurrentcolor{%     lwarp
\IfStrEq{#1}{added}{\Changes@Markup@added{#3}}{}%
\IfStrEq{#1}{deleted}{\Changes@Markup@deleted{#4}}{}%
\IfStrEq{#1}{replaced}{{\Changes@Markup@added{#3}}\allowbreak\Changes@Markup@deleted{#4}}{}%
\IfStrEq{#1}{highlight}{\Changes@Markup@highlight{#3}}{}%
    }%  lwarp
}%
\IfIsEmpty{#5}%
{%
\IfIsAuthorEmptyAtPosition{#2}{right}%
{}%
{{%
\IfIsColored%
{\color{authorcolor}}%
{}%
    \LWR@textcurrentcolor{%     lwarp
\Changes@Markup@author{\Changes@output@author@position{#2}{right}}%
    }%  lwarp
}}%
}{}%
\stepcounter{Changes@#1Count#2}%
}{}%
\IfIsEmpty{#5}%
{}%
{%
\stepcounter{Changes@commentCount#2}%
\Changes@set@commentcount{#2}%
\Changes@Markup@comment%
{#5}%
{#2}%
{\Changes@output@author{#2}}%
}%
}%
\IfIsEmpty{#2}%
{\def\Changes@locid{}}%
{\def\Changes@locid{~(#2)}}%
\addtocontents{\Changes@locextension}{\protect\ChangesListline{#1}{#6\Changes@locid}{#7}{\thepage}}
}%
{%
\IfIsEmpty{#3}%
{\@bsphack\@esphack}%
{#3}%
}%
}
```

File 79 **lwarp-chappg.sty**

§ 188 Package

chappg

(*Emulates or patches code by* Robin Fairbairns.)

Pkg chappg

chappg is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{chappg}[2006/05/09]

\renewcommand{\pagenumbering}[2][]{}
\providecommand{\chappgsep}{--}
```

File 80 **lwarp-chapterbib.sty**

§ 189 Package

chapterbib

(*Emulates or patches code by* Donald Arseneau.)

Pkg chapterbib

chapterbib is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{chapterbib}[2010/09/18]

\xdef\@savedjobname{\BaseJobname}
\let\@currentipfile\@savedjobname
```

File 81 **lwarp-chemfig.sty**

§ 190 Package

chemfig

(*Emulates or patches code by* Christian Tellechea.)

Pkg chemfig

chemfig is patched for use by lwarp.

If using `\polymerdelim` to add delimiters to a `\chemfig`, wrap both inside a single `lateximage`:

```
\begin{lateximage}[-chemfig-~\PackageDiagramAltText]
\chemfig{. . . }
\polymerdelim[. . . ]{. . . }
\end{lateximage}
```

The images are not hashed because they depend on external settings which may be changed at any time, and are unlikely to be reused inline anyhow.

for HTML output:

```
\LWR@ProvidesPackagePass{chemfig}[2021/02/28]

\catcode`\_=11

\IfPackageAtLeastTF{chemfig}{2020/03/05}
```

```
{
    \xpretocmd\charge{\begin{lateximage}[-chemfig-~\PackageDiagramAltText]}
        {}{\LWR@patcherror{chemfig}{charge}}
    \xpretocmd\Charge{\begin{lateximage}[-chemfig-~\PackageDiagramAltText]}
        {}{\LWR@patcherror{chemfig}{Charge}}
    \xapptocmd\charge_c{\end{lateximage}}
        {}{\LWR@patcherror{chemfig}{charge_c}}
}{}

\IfPackageAtLeastTF{chemfig}{2019/04/18}%
{% 2019/04/18 or newer


    \xpretocmd{\CF_chemfiga}
        {\begin{lateximage}[-chemfig-~\PackageDiagramAltText]}
        {}{\LWR@patcherror{chemfig}{CF_chemfiga}}

    \xpatchcmd{\CF_chemfigb}
        {\let\CF_flipstate\CF_zero}
        {\end{lateximage}\let\CF_flipstate\CF_zero}
        {}{\LWR@patcherror{chemfig}{CF_chemfigb}}

    \GlobalLetLtxMacro\LWR@chemfig@origCF_lewisc\CF_lewisc
    \gdef\CF_lewisc#1,#2\_nil{%
    \begin{lateximage}[-chemfig-~\PackageDiagramAltText]%
    \LWR@chemfig@origCF_lewisc#1,#2\_nil
    \end{lateximage}
    }

    \gpreto{\schemestart}{%
        \begin{lateximage}[-chemfig-~\PackageDiagramAltText]%
    }
    \gappto{\CF_schemestop}{\end{lateximage}}

}% 2019/04/18 or newer
{% older than 2019/04/18

    \LetLtxMacro\LWR@chemfig@origchemfig\chemfig

    \DeclareDocumentCommand\chemfig{s O{} O{} m}{%
        \begin{lateximage}[-chemfig-~\PackageDiagramAltText]%
        \IfBooleanTF{#1}{%
            \LWR@chemfig@origchemfig*[#2][#3]{#4}%
        }{%
            \LWR@chemfig@origchemfig[#2][#3]{#4}%
        }
        \end{lateximage}%
    }

    \LetLtxMacro\LWR@chemfig@origCF@lewis@b\CF@lewis@b

    \def\CF@lewis@b#1#2{%
    \begin{lateximage}[-chemfig-~\PackageDiagramAltText]%
    \LWR@chemfig@origCF@lewis@b{#1}{#2}%
    \end{lateximage}%
    }

    \preto{\schemestart}{%
        \begin{lateximage}[-chemfig-~\PackageDiagramAltText]%
    }
    \appto{\CF@schemestop}{\end{lateximage}}
```

```
64
65 }% older than 2019/04/18
66
67 \catcode`\_=8%
68
69
70
71 \LetLtxMacro\LWR@chemfig@origchemleft\chemleft
72
73 \def\chemleft#1#2\chemright#3{%
74 \begin{lateximage}[-chemfig-~\PackageDiagramAltText]%
75 \LWR@chemfig@origchemleft#1#2\chemright#3%
76 \end{lateximage}%
77 }
78
79 \LetLtxMacro\LWR@chemfig@origchemup\chemup
80
81 \def\chemup#1#2\chemdown#3{%
82 \begin{lateximage}[-chemfig-~\PackageDiagramAltText]%
83 \LWR@chemfig@origchemup#1#2\chemdown#3%
84 \end{lateximage}%
85 }
```

File 82 **lwarp-chemformula.sty**

§ 191 Package

chemformula

(*Emulates or patches code by* Clemens Niederberger.)

Pkg chemformula

chemformula is patched for use by lwarp.

The svg images are hashed according to contents and local options. Global options are assumed to be constant document-wide.

⚠ chemformula with MathJax

chemformula works best without MathJax. If MathJax is used, `\displaymathother` must be used before `array`, and then `\displaymathnormal` may be used after. (The chemformula package adapts to `array`, but does not know about MathJax, and MathJax does not know about chemformula.)

While using MathJax, `\displaymathother` may also be used for other forms of display and inline math which contain chemformula expressions.

for HTML output:

```
1 \LWR@ProvidesPackagePass{chemformula}[2022/01/23]

2 \ExplSyntaxOn
```

`\ch`

Enclose in an inline svg image or MathJax. The `alt` tag is is the contents of the `\ch` expression. The filename is hashed, and also has additional hashing information based on the local options.

```
3 \RenewDocumentCommand \ch { O{}m }
4  {%
```

To work inside `align` with `\displaymathother`, a simple version must be used to work with chemformula's adaptation to `align`.

```
5    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%  lwarp
```

```
    {
        \chemformula_ch:nn {#1} {#2}%   original
    }
```

If used as the outer level, must temporarily ensure MathJax is disabled:

```
    {
        \begingroup%
        \boolfalse{mathjax}%
```

An inline image is used, adjusted for the baseline:

```
        \LWR@subsingledollar*{% lwarp
            \textbackslash{}%
            ch%
            \{%
                \LWR@HTMLsanitizedetokenized{\detokenize{#2}}%
            \}% alt text
        }{%
           \protect\LWR@HTMLsanitizedetokenized{%
                \detokenize\expandafter{#1}%
            }% add'l hashing
        }%
        {%
            \chemformula_ch:nn {#1} {#2}%   original
        }%
        \endgroup%
    }
}
```

\chcpd

Similar to \ch.

```
\IfPackageAtLeastTF{chemformula}{2019/10/13}{
\cs_gset_protected:Npn \chemformula_chcpd:nn #1#2
  {
    \begingroup%
    \boolfalse{mathjax}%
    \LWR@subsingledollar*{% lwarp
        \textbackslash{}%
        chcpd%
        \{%
            \LWR@HTMLsanitizedetokenized{\detokenize{#2}}%
        \}%
    }{%
        \protect\LWR@HTMLsanitizedetokenized{\detokenize\expandafter{#1}}%
    }{% original
    \group_begin:
      \tl_if_blank:nF {#2}
        {
          \keys_set:nn {chemformula} {#1}
          \__chemformula_save_catcodes:
          \__chemformula_sanitize:Nn
            \l__chemformula_chemformula_tmpa_tl
            {#2}
          \__chemformula_input_compound_no_check:NV
            \l__chemformula_compound_tl
            \l__chemformula_chemformula_tmpa_tl
          \__chemformula_prepare_output:NV
            \l__chemformula_compound_tl
            \l__chemformula_catcodes_tl
          \chemformula_write:V \l__chemformula_compound_tl
        }
```

```
    \group_end:
    }
    \endgroup
  }
}% later than 2019/10/13
{% earlier than 2019/10/13
% \changes{v0.903}{2021/12/18}{\pkg{chemformula}: Improved alt tag sanitization.}
\cs_gset_protected:Npn \chemformula_chcpd:nn #1#2
  {
    \begingroup%
    \boolfalse{mathjax}%
    \LWR@subsingledollar*{% lwarp
        \textbackslash{}%
        chcpd%
        \{%
            \LWR@HTMLsanitizedetokenized{\detokenize{#2}}%
        \}%
    }{%
        \protect\LWR@HTMLsanitizedetokenized{\detokenize\expandafter{#1}}%
    }{% original
    \group_begin:
      \tl_if_blank:nF {#2}
        {
          \keys_set:nn {chemformula} {#1}
          \__chemformula_save_catcodes:
          \__chemformula_sanitize:Nn
            \l__chemformula_chemformula_tmpa_tl
            {#2}
          \__chemformula_input_compound_no_check:NV
            \l__chemformula_compound_tl
            \l__chemformula_chemformula_tmpa_tl
          \__chemformula_prepare_output:N \l__chemformula_compound_tl
          \chemformula_write:V \l__chemformula_compound_tl
        }
    \group_end:
    }
    \endgroup
  }
}% earlier than 2019/10/13
```

\charrow

If standalone, appears in a regular `lateximage`.

```
\RenewDocumentCommand \charrow { mO{}O{} }
{
    \begin{lateximage}[-chemformula- charrow]
    \group_begin:
      \__chemformula_draw_arrow:nnn {#1} {#2} {#3}
    \group_end:
    \end{lateximage}
}
```

\chname

If standalone, appears in a regular `lateximage`, hashed according to contents.

```
\RenewDocumentCommand \chname { R(){}R(){} }
  {
    \begin{lateximage}*[%
        \textbackslash{}%
        chname%
        (\LWR@HTMLsanitizedetokenized{\detokenize{#1}})%
        (\LWR@HTMLsanitizedetokenized{\detokenize{#2}})%
```

```
    ]*%
        \chemformula_chwritebelow:nn {#1} {#2}
    \end{lateximage}
  }
```

\chlewis

Placed inline, hashed according to contents and options.

```
\RenewDocumentCommand \chlewis { O{}mm }
  {
    \begingroup%
    \boolfalse{mathjax}%
    \LWR@subsingledollar*{\textbackslash{}chlewis\{#2\}\{#3\}}%
    {
        \protect\LWR@HTMLsanitizedetokenized{\detokenize\expandafter{#1}}%
    }{
        \chemformula_lewis:nnn {#1} {#2} {#3}
    }
    \endgroup%
  }
```

lwarp redefines the $ character, so special handling is required to escape math expressions inside \ch.

This boolean tracks a new kind of escaped math:

```
\bool_new:N       \l__chemformula_first_last_LWRdollar_bool
```

\chemformula_input_escape_math

Adds additional escaping for the new dollar definition:

```
\cs_gset_protected:Npn \__chemformula_input_escape_math:n #1
  {
    \__chemformula_first_last_math:n {#1}
    \bool_if:NT \l__chemformula_first_last_dollar_bool
      {
        \bool_set_true:N \l__chemformula_first_last_math_bool
        \__chemformula_read_escape_dollar:w #1 \q_nil
      }
    \bool_if:NT \l__chemformula_first_last_mathbraces_bool
      {
        \bool_set_true:N \l__chemformula_first_last_math_bool
        \__chemformula_read_escape_mathbraces:w #1 \q_nil
      }
```

Added by lwarp:

```
    \bool_if:NT \l__chemformula_first_last_LWRdollar_bool%      lwarp
      {
        \bool_set_true:N \l__chemformula_first_last_math_bool%  lwarp
        \__chemformula_read_escape_LWRdollar:w #1 \q_nil%       lwarp
      }
  }
```

\chemformula_read_escape_LWRdollar

The following parses the contents inside the new dollars.

lwarp keeps the dollar as its original math shift until the document starts. While chemmacros is being patched, the dollar must temporarily be set to its new meaning during the following definition.

```
\begingroup
\catcode`\$=\active

\cs_new_protected:Npn \__chemformula_read_escape_LWRdollar:w $#1$ \q_nil
{
    \__chemformula_read_escape_math:n {#1}
}

\endgroup
```

\chemformula_bool_set_if_first_last

The following looks at the first and last tokens for delimiters to escape math inside \ch. The original definition is modified to look for the control sequences which are used by the new meaning of $.

```
\cs_new_protected:Npn \__chemformula_bool_cs_set_if_first_last:NnNN #1#2#3#4
  {
    \int_zero:N \l__chemformula_tmpa_int
    \int_zero:N \l__chemformula_tmpb_int
    \int_set:Nn \l__chemformula_tmpa_int { \tl_count:n {#2} }
    \tl_map_inline:nn {#2}
      {
        \int_incr:N \l__chemformula_tmpb_int
        \int_compare:nT { \l__chemformula_tmpb_int = 1 }
          {
```

At the start, the cs_ version compares control sequences:

```
            \ifdefstrequal{##1}{#3}% lwarp
                {
                    \bool_set_true:N #1
                }% lwarp
                {}
          }
```

At the end, compare more control sequences:

```
      \int_compare:nT { \l__chemformula_tmpb_int = \l__chemformula_tmpa_int }
          {
            \ifdefstrequal{##1}{#4}
                {}
                {
                    \bool_set_false:N #1
                }
          }
      }
  }
```

\chemformula_first_last_math

Modified to check for the new meaning of $ at first/last:

```
\cs_gset_protected:Npn \__chemformula_first_last_math:n #1
  {
    \bool_set_false:N \l__chemformula_first_last_math_bool
```

```
    \bool_set_false:N \l__chemformula_first_last_dollar_bool
    \bool_set_false:N \l__chemformula_first_last_LWRdollar_bool%    lwarp
    \bool_set_false:N \l__chemformula_first_last_mathbraces_bool
    \__chemformula_bool_set_if_first_last:Nnnn
      \l__chemformula_first_last_dollar_bool
      {#1}
      { $ } { $ }
    \bool_if:NF \l__chemformula_first_last_dollar_bool
      {
        \__chemformula_bool_set_if_first_last:Nnnn
          \l__chemformula_first_last_mathbraces_bool
          {#1}
          { \( } { \) }
```

Added by lwarp:

```
          \bool_if:NF \l__chemformula_first_last_mathbraces_bool%   lwarp
            {
                \__chemformula_bool_cs_set_if_first_last:NnNN
                \l__chemformula_first_last_LWRdollar_bool
                {#1}
                { \LWR@newsingledollar } { \LWR@newsingledollar }
            }%  lwarp
      }
}

\ExplSyntaxOff
```

File 83 **lwarp-chemgreek.sty**

§ 192 Package

chemgreek

(*Emulates or patches code by* Clemens Niederberger.)

Pkg chemgreek

chemgreek is patched for use by lwarp.

Greek symbols

⚠ package selection

To use text-mode symbols, use packages textalpha or textgreek. Using the other packages supported by chemgreek will result in math-mode greek characters, which will result in SVG images being used. These images will be hashed.

⚠ XeLaTeX, LuaLaTeX

If using XeLaTeX or LuaLaTeX, select the fontspec mapping:

```
\selectchemgreekmapping{fontspec}
```

for HTML output:

```
\LWR@ProvidesPackagePass{chemgreek}[2020/01/16]

\ExplSyntaxOn

\cs_gset_protected:Npn \chemgreek_text:n #1
  { { \text {#1} } }

\appto\LWR@restoreorigformatting{%
\cs_set_protected:Npn \chemgreek_text:n #1%
  { \ensuremath { \text {#1} } }%
}

\ExplSyntaxOff
```

File 84 **lwarp-chemmacros.sty**

§ 193 Package

chemmacros

(*Emulates or patches code by* Clemens Niederberger.)

Pkg chemmacros

chemmacros is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{chemmacros}[2022/02/13]
```

svg file hashing assumes that the relevent options are constant for the entire document.

§ 193.1 Changes to the user's document

⚠ \makepolymerdelims

When using \makepolymerdelims, enclose the entire expression inside a polymerdelims environment, such as (from the chemmacros manual):

```
\begin{polymerdelims}
\chemfig{-[@{op,.75}]CH_2-CH(-[6]Cl)-[@{cl,0.25}]}
\makepolymerdelims{5pt}[27pt]{op}{cl}
\end{polymerdelims}
```

⚠ redox reactions

Redox reactions must be enclosed inside a redoxreaction environment. For print output, extra space must be included above and/or below the result, so they are declared as arguments to the environment, instead of being manually entered as per the chemmacros manual. For HTML output, the extra space is ignored and a lateximage is used instead.

```
\begin{redoxreaction}{7mm}{7mm}
\OX{a,Na} $\rightarrow$ \OX{b,Na}\pch\redox(a,b){oxidation}
\end{redoxreaction}
```

§ 193.2 Code

```
\ExplSyntaxOn
```

§ 193.3 Loading packages

Also accept the lwarp version:

```
\prg_set_conditional:Npnn \chemmacros_if_package_loaded:n #1 {p,T,F,TF}
 {
   \cs_if_exist:cTF {ver@#1.sty}
     { \prg_return_true: }
     {
       \cs_if_exist:cTF {ver@lwarp-#1.sty}
           { \prg_return_true: }
           { \prg_return_false: }
     }
 }
```

Nullify hyperref detection:

```
\hook_gput_code:nnn {begindocument/end} {chemmacros}
 {
     \bool_set_false:N \l__chemmacros_hyperref_bool
 }
```

§ 193.4 Loading modules

Patching chemmacros modules must be done `\AtBeginDocument`, since modules are invoked by the user in the preamble, and each patch is only done if the module is loaded.

§ 193.5 New environments

`\makepolymerdelims` and redox reactions must be enclosed in a `lateximage` during HTML output. These environments are provided here in HTML mode, and in the lwarp core in print mode, as a high-level semantic syntax which automatically embeds the contents in a `lateximage` with an appropriate `alt` tag.

Env `polymerdelims`

```
\DeclareDocumentEnvironment{polymerdelims}{}
{\begin{lateximage}[-chemmacros- polymer]}
{\end{lateximage}}
```

Env `redoxreaction` {⟨*space above*⟩} {⟨*space below*⟩}

For HTML output, the above and below space is ignored, and a `lateximage` is used instead. For the print output version, see section 90.

```
\DeclareDocumentEnvironment{redoxreaction}{m m}
{\begin{lateximage}[-chemmacros- redoxreaction]}
{\end{lateximage}}
```

§ 193.6 Acid-base

```
\AtBeginDocument{
\chemmacros_module_if_loaded:nTF{{acid-base}}{
\PackageInfo{lwarp}{Patching~chemmacros~module~acid-base}

\cs_gset_protected:Npn \chemmacros_p:n #1
 {
   \begingroup
   \boolfalse{mathjax}
   \LWR@subsingledollar*{
       \textbackslash{}%
       p%
       \{%
           \LWR@HTMLsanitizedetokenized{\detokenize{#1}}%
       \}
   }{
       chemmacrosp%
       \protect\LWR@HTMLsanitizedetokenized{\detokenize\expandafter{#1}}%
   }{
   \group_begin:
     \mbox
       {
         \chemmacros_p_style:n {p}
```

```
          \ensuremath {#1}
        }
    \group_end:
    }
    \endgroup
  }

\RenewDocumentCommand \pH  {} {
    \begingroup
    \boolfalse{mathjax}
    \LWR@subsingledollar*{\textbackslash{}pH}{chemmacros}{
        \chemmacros_p:n { \chemmacros_formula:n {H} }
    }
    \endgroup
}

\RenewDocumentCommand \pOH {} {
    \begingroup
    \boolfalse{mathjax}
    \LWR@subsingledollar*{\textbackslash{}pOH}{chemmacros}{
        \chemmacros_p:n { \chemmacros_formula:n {OH} }
    }
    \endgroup
}

\RenewDocumentCommand \pKa {O{}}
  {
    \begingroup
    \boolfalse{mathjax}
    \LWR@subsingledollar*{\textbackslash{}pKa{[}#1{]}}{chemmacros #1}{
        \chemmacros_p:n
        {
            \Ka \ifblank {#1} {}
            { {} \c_math_subscript_token { \chemmacros_bold:n {#1} } }
        }
    }
    \endgroup
  }

\RenewDocumentCommand \pKb {O{}}
  {
    \begingroup
    \boolfalse{mathjax}
    \LWR@subsingledollar*{\textbackslash{}pKb{[}#1{]}}{chemmacros #1}{
        \chemmacros_p:n
        {
            \Kb \ifblank {#1} {}
            { {} \c_math_subscript_token { \chemmacros_bold:n {#1} } }
        }
    }
    \endgroup
  }

\LetLtxMacro\LWR@chemmacros@origKa\Ka
\renewcommand*{\Ka}{%
    \begingroup
    \boolfalse{mathjax}
    \LWR@subsingledollar*{\textbackslash{}Ka}{chemmacros}{%
        \LWR@chemmacros@origKa%
    }%
```

```
    \endgroup
}

\LetLtxMacro\LWR@chemmacros@origKb\Kb
\renewcommand*{\Kb}{%
    \begingroup
    \boolfalse{mathjax}
    \LWR@subsingledollar*{\textbackslash{}Kb}{chemmacros}{%
        \LWR@chemmacros@origKb%
    }%
    \endgroup
}

\LetLtxMacro\LWR@chemmacros@origKw\Kw
\renewcommand*{\Kw}{%
    \begingroup
    \boolfalse{mathjax}
    \LWR@subsingledollar*{\textbackslash{}Kw}{chemmacros}{
        \LWR@chemmacros@origKw
    }
    \endgroup
}

}{}% module loaded
}% AtBeginDocument
```

§ 193.7 Charges

```
\AtBeginDocument{
\chemmacros_module_if_loaded:nTF{{charges}}{
\PackageInfo{lwarp}{Patching~chemmacros~module~charges}

\cs_gset_protected:Npn \fplus  {
    \begingroup
    \boolfalse{mathjax}
    \LWR@subsingledollar*{\textbackslash{}fplus}{chemmacros}
    { \LWR@origensuredmath{\chemformula_fplus:}  }
    \endgroup
}
\cs_gset_protected:Npn \fminus {
    \begingroup
    \boolfalse{mathjax}
    \LWR@subsingledollar*{\textbackslash{}fminus}{chemmacros}
    { \LWR@origensuredmath{\chemformula_fminus:} }
    \endgroup
}

}{}% Module loaded.
}% AtBeginDocument
```

§ 193.8 Nomenclature

```
\AtBeginDocument{
\chemmacros_module_if_loaded:nTF{{nomenclature}}{
\PackageInfo{lwarp}{Patching~chemmacros~module~nomenclature}

\cs_gset_protected:Npn \chemmacros_charge:n #1
  {
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}
    {\chemmacros_formula:n { {}^{#1} }}
```

```
    {
        \ifmmode
            {\chemmacros_formula:n { {}^{#1} }}
        \else
            { \textsuperscript{\ensuremath{#1}} }
        \fi
    }
  }


\LetLtxMacro\LWR@chemmacros@origchemprime\chemprime

\protected\def\chemprime { \HTMLunicode{2032} }

\appto\LWR@restoreorigformatting{%
\LetLtxMacro\chemprime\LWR@chemmacros@origchemprime%
}

\cs_gset_protected:Npn \__chemmacros_cip:n #1
  {
    \tl_set:Nn \l__chemmacros_tmpa_tl {#1}
    \int_step_inline:nnnn {0} {1} {9}
      {
        \tl_replace_all:Nnn \l__chemmacros_tmpa_tl
          {##1}
          { { \l__chemmacros_cip_number_tl ##1} }
      }
    {
        \l__chemmacros_cip_inner_tl
        \LWR@textcurrentcolor{\LWR@textcurrentfont{% lwarp
            \l__chemmacros_tmpa_tl
        }}% lwarp
    }
  }

\RenewDocumentCommand \Sconf { O{S} } {
\begin{lateximage}[\textbackslash{}Sconf{[}#1{]}]*
    \chemmacros_sconf:n {#1}
\end{lateximage}
}

\RenewDocumentCommand \Rconf { O{R} } {
\begin{lateximage}[\textbackslash{}Rconf{[}#1{]}]*
    \chemmacros_rconf:n {#1}
\end{lateximage}
}

\cs_gset_protected:Npn \chemmacros_hapto:n #1
  {
    \begingroup
    \boolfalse{mathjax}
    \LWR@subsingledollar*{\textbackslash{}hapto\{#1\}}{chemmacros}{
        \chemmacros_coordination_symbol:nnnn
        { \l__chemmacros_coord_use_hyphen_bool }
        {
            { \c_true_bool }
        }
        { \chemeta }
        {#1}
    }
```

```
    \endgroup
  }

\cs_gset_protected:Npn \chemmacros_dento:n #1
  {
    \begingroup
    \boolfalse{mathjax}
    \LWR@subsingledollar*{\textbackslash{}dento\{#1\}}{chemmacros}{
        \chemmacros_coordination_symbol:nnnn
        { \l__chemmacros_coord_use_hyphen_bool }
        {
            { \c_true_bool }
        }
        { \chemkappa }
        {#1}
    }
    \endgroup
  }

\cs_gset_protected:Npn \chemmacros_bridge:n #1
  {
    \begingroup
    \boolfalse{mathjax}
    \LWR@subsingledollar*{\textbackslash{}bridge\{#1\}}{chemmacros}{
        \chemmacros_coordination_symbol:nnnn
        { \l__chemmacros_coord_use_hyphen_bool }
        { \l__chemmacros_bridge_super_bool }
        { \chemmu }
        {#1}
    }
    \endgroup
  }
}{}% Module loaded.
}% AtBeginDocument
```

§ 193.9 Particles

```
\AtBeginDocument{
\chemmacros_module_if_loaded:nTF{{particles}}{
\PackageInfo{lwarp}{Patching~chemmacros~module~particles}

\cs_gset_protected:Npn \chemmacros_declare_nucleophile:Nn #1#2
  {
   \cs_set_protected:cpn {__chemmacros_ \chemmacros_remove_backslash:N #1:}
     {
       \bool_if:NTF \l__chemmacros_nucleophile_elpair_bool
         {
           \chemmacros_elpair:n { #2 }
             { \skip_horizontal:N \l__chemmacros_nucleophile_dim }
           \chemmacros_formula:n { {}^{-} }
         }
         { \chemmacros_formula:n { #2^{-} } }
     }
   \DeclareDocumentCommand #1 {o}
     {%
       \begin{leximage}%
       \group_begin:%
         \IfNoValueF {##1}%
           { \chemmacros_set_keys:nn {particles} {##1} }%
         \use:c {__chemmacros_ \chemmacros_remove_backslash:N #1:}%
```

```
        \group_end:%
        \end{lateximage}%
      }
  }

\RenewChemNucleophile \Nuc {Nu}
\RenewChemNucleophile \ba  {ba}

}{}% Module loaded.
}% AtBeginDocument
```

§ 193.10 Phases

```
\AtBeginDocument{
\chemmacros_module_if_loaded:nTF{{phases}}{
\PackageInfo{lwarp}{Patching~chemmacros~module~phases}

\cs_undefine:N \chemmacros_phase:n
\cs_new_protected:Npn \chemmacros_phase:n #1
  {

    \mode_leave_vertical:

    \bool_if:NTF \l__chemmacros_phases_sub_bool
      {
        \ifnumequal{\value{LWR@lateximagedepth}}{0}
        {
            \textsubscript{ (#1) }
        }
        {
            \chemformula_subscript:n { (#1) }
        }
      }
      {
        \skip_horizontal:N \l__chemmacros_phases_space_dim
        \chemmacros_text:n { (#1) }
      }
  }

}{}% Module loaded.
}% AtBeginDocument
```

§ 193.11 Mechanisms

```
\AtBeginDocument{
\chemmacros_module_if_loaded:nTF{{mechanisms}}{
\PackageInfo{lwarp}{Patching~chemmacros~module~mechanisms}

\chemmacros_define_keys:nn {textmechanisms}
  {
    type      .choice: ,
    type /    .code:n    =
      {
        \__chemmacros_set_mechanisms:nnn { S }
          {
              \textsubscript{N}
          }
          { }
      } ,
    type / 1  .code:n    =
```

```
325       {
326         \__chemmacros_set_mechanisms:nnn { S }
327           {
328               \textsubscript{N}
329             1
330           }
331           { }
332       } ,
333     type / 2  .code:n    =
334       {
335         \__chemmacros_set_mechanisms:nnn { S }
336           {
337               \textsubscript{N}
338             2
339           }
340           { }
341       } ,
342     type / se .code:n    =
343       {
344         \__chemmacros_set_mechanisms:nnn { S }
345           {
346               \textsubscript{E}
347           }
348           { }
349       } ,
350     type / 1e .code:n    =
351       {
352         \__chemmacros_set_mechanisms:nnn { S }
353           {
354               \textsubscript{E}
355             1
356           }
357           { }
358       } ,
359     type / 2e .code:n    =
360       {
361         \__chemmacros_set_mechanisms:nnn { S }
362           {
363               \textsubscript{E}
364             2
365           }
366           { }
367       } ,
368     type / ar .code:n    =
369       {
370         \__chemmacros_set_mechanisms:nnn { S }
371           {
372               \textsubscript{E}
373           }
374           { Ar - }
375       } ,
376     type / e  .code:n    =
377       { \__chemmacros_set_mechanisms:nnn { E } { } { } } ,
378     type / e1 .code:n    =
379       { \__chemmacros_set_mechanisms:nnn { E } { 1 } { } } ,
380     type / e2 .code:n    =
381       { \__chemmacros_set_mechanisms:nnn { E } { 2 } { } } ,
382     type / cb .code:n    =
383       {
384         \__chemmacros_set_mechanisms:nnn { E }
```

```
          {
            1
              \textsubscript{cb}
          }
          { }
      } ,
    type      .default:n =
  }

\cs_gset_protected:Npn \chemmacros_mechanisms:n #1
  {
    \tl_if_blank:nTF {#1}
      { \chemmacros_set_keys:nn {textmechanisms} { type } }
      { \chemmacros_set_keys:nn {textmechanisms} { type = #1 } }
    \mbox
      {
        \tl_use:N \l__chemmacros_mechanisms_ar_tl
        \tl_use:N \l__chemmacros_mechanisms_type_tl
        \tl_use:N \l__chemmacros_mechanisms_mol_tl
      }
  }

\appto\LWR@restoreorigformatting{%
\cs_set_protected:Npn \chemmacros_mechanisms:n #1%
  {%
    \tl_if_blank:nTF {#1}%
      { \chemmacros_set_keys:nn {mechanisms} { type } }%
      { \chemmacros_set_keys:nn {mechanisms} { type = #1 } }%
    \mbox%
      {%
        \tl_use:N \l__chemmacros_mechanisms_ar_tl%
        \tl_use:N \l__chemmacros_mechanisms_type_tl%
        \tl_use:N \l__chemmacros_mechanisms_mol_tl%
      }%
  }%
}

}{}% Module loaded.
}% AtBeginDocument
```

§ 193.12 Newman

There are so many options that it is hard to hash these images for reuse.

```
\AtBeginDocument{
\chemmacros_module_if_loaded:nTF{{newman}}{
\PackageInfo{lwarp}{Patching~chemmacros~module~newman}

\RenewDocumentCommand \newman {od()m}%
  {
    \IfValueTF{#2}
    {\begin{lateximage}[\textbackslash{}newman(#2)\{#3\}]*}
    {\begin{lateximage}[\textbackslash{}newman\{#3\}]*}
    \group_begin:
      \IfNoValueF  {#1} { \chemmacros_set_keys:nn {newman} {#1} }
      \IfNoValueTF {#2}
        { \chemmacros_newman:nn {  } {#3} }
        { \chemmacros_newman:nn {#2} {#3} }
    \group_end:
    \end{lateximage}
```

```
  }%

}{}% Module loaded.
}% AtBeginDocument
```

§ 193.13 Orbital

```
\AtBeginDocument{
\chemmacros_module_if_loaded:nTF{{orbital}}{
\PackageInfo{lwarp}{Patching~chemmacros~module~orbital}

\RenewDocumentCommand \orbital {om}
  {
    \IfValueTF{#1}
    {
        \begin{lateximage}[%
            \textbackslash{}%
            orbital{[}%
            \LWR@HTMLsanitizedetokenized{\detokenize{#1}}%
            {]}\{#2\}%
        ]*[][margin-left: 1em ; margin-right: 1em]
    }
    {
        \begin{lateximage}[%
            \textbackslash{}orbital\{#2\}%
        ]*[][margin-left: 1em ; margin-right: 1em]
    }
    \group_begin:
      \chemmacros_set_keys:nn {orbital/type} {#2}
      \IfNoValueTF {#1}
        { \chemmacros_orbital:n {  } }
        { \chemmacros_orbital:n {#1} }
    \group_end:
    \end{lateximage}
  }

}{}% Module loaded.
}% AtBeginDocument
```

§ 193.14 Reactions

`\chemmacros_declare_reaction_env` {⟨*chem*⟩} {⟨*math*⟩} {⟨*args number*⟩} {⟨*argument list ({#2}{#3}...)*⟩}

```
\AtBeginDocument{
\chemmacros_module_if_loaded:nTF{{reactions}}{
\PackageInfo{lwarp}{Patching~chemmacros~module~reactions}

% #1: chem
% #2: math
% #3: args number
% #4: argument list ({#2}{#3}...)
\cs_gset_protected:Npn \__chemmacros_declare_reaction_env:nnnn #1#2#3#4
  {
    \exp_args:Nnx \DeclareDocumentEnvironment {#1}
      { \int_compare:nT { #3+0 = 0 } {!} O{} \prg_replicate:nn {#3+0} {m} }
      {
        \boolfalse{mathjax}%                          lwarp
        \ifdefvoid{\LWR@ThisAltText}{%                lwarp
            \ThisAltText{-chemmacros-~reaction}%      lwarp
```

```
        }{}%                                        lwarp
        \chemmacros_add_reaction_description:n {##1}
        \__chemmacros_begin_reaction:
        \__chemmacros_reaction_read:nnw {#2} {#4}
      }
      {
        \__chemmacros_end_reaction:
        \gdef\LWR@ThisAltText{}%                    lwarp
        \ignorespacesafterend
      }
  }

\cs_generate_variant:Nn \chemmacros_declare_reaction_env:nnnn {nnnV}

\RenewChemReaction {reaction}   {equation}
\RenewChemReaction {reaction*}  {equation*}
\RenewChemReaction {reactions}  {align}
\RenewChemReaction {reactions*} {align*}

}{}% Module loaded.
}% AtBeginDocument
```

§ 193.15 Reactants

Recompiled for tabular ampersand processing, with the only change being `\StartDefiningTabulars`. `\xpatchcmd` does not work here.

```
\StartDefiningTabulars%     lwarp

% #1: star: include ID in table
\RenewDocumentCommand \printreactants {s}
  {
    \group_begin:
      \chemmacros_set_keys:nn {reactants} { switch = false }
      \int_step_variable:nNn
        { \seq_count:N \g_chemnum_initiated_compounds_seq }
        \l__chemmacros_reactants_tmpa_tl
        {
          \seq_put_right:Nx
            \l__chemmacros_reactants_tmpa_seq
            {
              \chemnum_cmpd:nnne { \c_false_bool } { \c_true_bool } {}
                {
                  \seq_item:NV
                    \g_chemnum_initiated_compounds_seq
                    \l__chemmacros_reactants_tmpa_tl
                }
              &
              \bool_if:nT {#1}
                {
                  \seq_item:NV
                    \g_chemnum_initiated_compounds_seq
                    \l__chemmacros_reactants_tmpa_tl
                  &
                }
              % TODO: expl3-command ??
              \solvent
                {
                  \seq_item:NV
                    \g_chemnum_initiated_compounds_seq
```

```
                \l__chemmacros_reactants_tmpa_tl
            }
          \tabularnewline
        }
      \tl_set:Nx
        \l__chemmacros_reactants_tmpb_tl
        {
          \seq_item:NV
            \g_chemnum_initiated_compounds_seq
            \l__chemmacros_reactants_tmpa_tl
        }
      \chemmacros_reactants_list_subreactant:Vn
        \l__chemmacros_reactants_tmpb_tl
        {#1}
    }
  % TODO: longtable ?
  %       table customizable?
  % first draft of two styles
  \par
  \noindent
  \bool_if:NTF \l__chemmacros_reactants_printreactants_style_bool
    {
      \str_case:Vn \l__chemmacros_reactants_printreactants_style_str
        {
          {xltabular}
          {
            \chemmacros_if_package_loaded:nTF {xltabular}
              {
                \bool_if:nTF {#1}
                  {
                    \begin {xltabular}
                      { \textwidth }
                      { @{}ll>{\raggedright\arraybackslash}X@{} }
                  }
                  {
                    \begin {xltabular}
                      { \textwidth }
                      { @{}l>{\raggedright\arraybackslash}X@{} }
                  }
                \seq_use:Nn \l__chemmacros_reactants_tmpa_seq { }
                \end{xltabular}
              }
              {
                \msg_expandable_error:nnnn
                  {chemmacros}
                  {package-not-loaded}
                  { \printreactants }
                  {xltabular}
              }
          }
          {longtable}
          {
            \chemmacros_if_package_loaded:nTF {longtable}
              {
                \bool_if:nTF {#1}
                  {
                    \begin {longtable}[l]
               { @{}ll>{\raggedright\arraybackslash}p{0.6\textwidth}@{} }
                  }
                  {
```

```
                        \begin {longtable}[l]
                  { @{}l>{\raggedright\arraybackslash}p{0.9\textwidth}@{} }
                      }
                    \seq_use:Nn \l__chemmacros_reactants_tmpa_seq { }
                    \end{longtable}
                  }
                  {
                    \msg_expandable_error:nnnn
                      {chemmacros}
                      {package-not-loaded}
                      { \printreactants }
                      {longtable}
                  }
              }
            }
    }
        {
            \msg_warning:nn {chemmacros} {missing-printreactants-style}
        }
    \group_end:
  }

% #1: full ID
% #2: star, include ID in table
\cs_gset_protected:Npn \chemmacros_reactants_list_subreactant:nn #1#2
  {
    \chemnum_if_subcompounds:nT {#1}
      {
        \int_step_variable:nNn
          { \chemnum_count_subcompounds:n {#1} }
          \l__chemmacros_reactants_tmpa_tl
          {
            \seq_put_right:Nx
            \l__chemmacros_reactants_tmpa_seq
              {
                \chemnum_cmpd:nnne { \c_false_bool } { \c_true_bool } {}
                  {
                    \exp_not:n {#1}
                    \exp_not:V \l_chemnum_compound_separator_tl
                    \chemnum_get_subcompound:nV
                      {#1}
                      \l__chemmacros_reactants_tmpa_tl
                  }
                &
                \bool_if:nT {#2}
                  {
                    #1
                    \l_chemnum_compound_separator_tl
                    \chemnum_get_subcompound:nV
                      {#1}
                      \l__chemmacros_reactants_tmpa_tl
                    &
                  }
                % TODO: expl3-command ??
                \solvent
                  {
                    #1
                    \l_chemnum_compound_separator_tl
                    \chemnum_get_subcompound:nV
                      {#1}
```

```
                    \l__chemmacros_reactants_tmpa_tl
                  }
                \tabularnewline
              }
          }
      }
  }
\cs_generate_variant:Nn \chemmacros_reactants_list_subreactant:nn {V}

\StopDefiningTabulars%      lwarp
```

§ 193.16 Redox

```
\AtBeginDocument{
\chemmacros_module_if_loaded:nTF{{redox}}{
\PackageInfo{lwarp}{Patching~chemmacros~module~redox}

\NewDocumentCommand \LWR@chemmacros@ox { s m >{\SplitArgument{1}{,}}m }
  {
    \IfBooleanTF {#1}
      { \chemmacros_ox:nnnn {#1} {#2} #3 }
      { \chemmacros_ox:nnnn {  } {#2} #3 }
  }

\RenewDocumentCommand \ox { s O{} m }
  {
    \begingroup
    \boolfalse{mathjax}
    \IfBooleanTF {#1}
      {
        \LWR@subsingledollar*{% yes hash
            \textbackslash{}%
            ox*%
            \{%
                \LWR@HTMLsanitizedetokenized{\detokenize{#3}}%
            \}% alt
        }{%
        star \protect\LWR@HTMLsanitizedetokenized{\detokenize\expandafter{#2}}%
        }{%
            \LWR@chemmacros@ox* {#2} {#3}% contents
        }%
      }
      {
        \LWR@subsingledollar*{% yes hash
            \textbackslash{}%
            ox%
            \{%
                \LWR@HTMLsanitizedetokenized{\detokenize{#3}}%
            \}% alt
        }{%
        \protect\LWR@HTMLsanitizedetokenized{\detokenize\expandafter{#2}}%
        }{%
            \LWR@chemmacros@ox {#2} {#3}% contents
        }%
      }
    \endgroup
  }

}{}% Module loaded.
}% AtBeginDocument
```

§ 193.17 Scheme

Fix for chemmacros as of v5.8b, when using newfloat and babel:

```
\AtBeginDocument{
\chemmacros_module_if_loaded:nTF{{scheme}}{
\PackageInfo{lwarp}{Patching~chemmacros~module~scheme}

\ifdefstring{\schemename}{los}{
\SetupFloatingEnvironment{scheme}{
name = \chemmacros_translate:n {scheme-name}
}
}{}

}{}% Module loaded.
}% AtBeginDocument
```

§ 193.18 Spectroscopy

```
\AtBeginDocument{
\chemmacros_module_if_loaded:nTF{{spectroscopy}}{
\PackageInfo{lwarp}{Patching~chemmacros~module~spectroscopy}

\cs_gset_protected:Npn \__chemmacros_nmr_base:nn #1#2
  {
    \group_begin:
      \tl_use:N \l__chemmacros_nmr_base_format_tl
      \tl_if_blank:VF \g__chemmacros_nmr_element_coupled_tl
        {
          \tl_put_left:Nn \g__chemmacros_nmr_element_coupled_tl { \{ }
          \tl_put_right:Nn \g__chemmacros_nmr_element_coupled_tl { \} }
        }
      \tl_put_left:Nn \g__chemmacros_nmr_element_coupled_tl {#2}
%       \chemmacros_formula:n { ^{#1} }
      \textsuperscript{#1}
      \tl_if_blank:VF \g__chemmacros_nmr_element_coupled_tl
        {
          \bool_if:NTF \l__chemmacros_nmr_parse_bool
            { \chemformula_ch:nV {} \g__chemmacros_nmr_element_coupled_tl }
            { \chemmacros_formula:V \g__chemmacros_nmr_element_coupled_tl }
        }
      \tl_use:N \l__chemmacros_nmr_element_method_connector_tl
      \tl_use:N \l__chemmacros_nmr_method_tl
    \group_end:
  }


\cs_gset_protected:Npn \chemmacros_nmr_position:n #1
  {
    \chemmacros_formula:x
      {
        \exp_not:V \g__chemmacros_nmr_element_tl
        \bool_if:NF \l__chemmacros_nmr_position_side_bool
          {
            \tl_if_eq:NnTF \l__chemmacros_nmr_position_tl {^}% lwarp
            { \textsuperscript{\exp_not:n { {#1} }} }% lwarp
            { \textsubscript{\exp_not:n { {#1} }} }% lwarp
%             \exp_not:V \l__chemmacros_nmr_position_tl
%             \exp_not:n { {#1} }
          }
```

```
      }
    \bool_if:NT \l__chemmacros_nmr_position_side_bool
      {
        \tl_use:N \l__chemmacros_nmr_position_tl
        \__chemmacros_nmr_position:n {#1}
      }
  }

\cs_gset_protected:Npn \__chemmacros_nmr_coupling:w (#1;#2)
  {
    \tl_set:Nn \l__chemmacros_nmr_coupling_bonds_tl
      {
        \l__chemmacros_nmr_coupling_bonds_pre_tl
        #1
        \l__chemmacros_nmr_coupling_bonds_post_tl
      }
    \bool_if:NTF \l__chemmacros_nmr_coupling_nuclei_sub_bool
      {
        \tl_set:Nn \l__chemmacros_nmr_coupling_nuclei_tl
          {
%             \c_math_subscript_token
            \textsubscript% lwarp
              {
                \l__chemmacros_nmr_coupling_nuclei_pre_tl
                \chemmacros_formula:n {#2}
                \l__chemmacros_nmr_coupling_nuclei_post_tl
              }
          }
      }
      {
        \tl_set:Nn \l__chemmacros_nmr_coupling_nuclei_tl
          {
            \l__chemmacros_nmr_coupling_nuclei_pre_tl
            \chemmacros_formula:n {#2}
            \l__chemmacros_nmr_coupling_nuclei_post_tl
          }
      }
    \__chemmacros_nmr_coupling_aux_i:w
  }
\AfterEndPreamble{% After \AtBeginDocument
% \NMR{<num>,<elem>}(<num>,<unit>)[<solvent>] ALL arguments are optional
% \NMR* same but without ": $\delta$" at end
\cs_gset_protected:Npn \chemmacros_nmr:nnnn #1#2#3#4
    {
    \bool_if:NT \l__chemmacros_nmr_list_bool { \item \scan_stop: }
    \group_begin:

        \mode_leave_vertical:

        \bool_set_false:N \l__chemmacros_nmr_frequency_bool
        \bool_set_false:N \l__chemmacros_nmr_solvent_bool
        \tl_if_empty:nF {#3}
        { \bool_set_true:N \l__chemmacros_nmr_frequency_bool }
        \tl_if_empty:nF {#4}
        { \bool_set_true:N \l__chemmacros_nmr_solvent_bool }
        \bool_if:nT
        {
            \l__chemmacros_nmr_frequency_bool
            ||
            \l__chemmacros_nmr_solvent_bool
```

```
        }
        { \bool_set_true:N \l__chemmacros_nmr_delimiters_bool }
        \bool_if:nT
        {
            \l__chemmacros_nmr_frequency_bool
            &&
            \l__chemmacros_nmr_solvent_bool
        }
        { \bool_set_true:N \l__chemmacros_nmr_comma_bool }
        \tl_if_empty:nTF {#2}
        {
            \__chemmacros_nmr_nucleus:VV
            \l__chemmacros_nmr_isotope_default_tl
            \l__chemmacros_nmr_element_default_tl
        }
        { \__chemmacros_nmr_nucleus:w #2 \q_stop }
        \mode_if_math:TF
        {
            \text
            {
                \group_begin:
                \tl_use:N \l__chemmacros_nmr_format_tl
\LWR@textcurrentcolor{\LWR@textcurrentfont{% lwarp
                \__chemmacros_nmr_base:VV
                    \g__chemmacros_nmr_isotope_tl
                    \g__chemmacros_nmr_element_tl
                \bool_if:NT \l__chemmacros_nmr_delimiters_bool
                    { ~ ( }
                \bool_if:NT \l__chemmacros_nmr_frequency_bool
                    { \__chemmacros_nmr_frequency:n {#3} }
                \bool_if:NT \l__chemmacros_nmr_comma_bool
                    { , ~ }
                \bool_if:NT \l__chemmacros_nmr_solvent_bool
                    { \chemmacros_formula:n {#4} }
                \bool_if:NT \l__chemmacros_nmr_delimiters_bool
                    { ) }
                \tl_if_blank:nT {#1} {:~}
}}% lwarp
                \group_end:
            }
            \tl_if_blank:nT {#1}
            {
                \delta
                \text { \l__chemmacros_nmr_delta_tl }
                \bool_if:NT \l__chemmacros_nmr_use_equal_bool {=}
            }
        }
        {
            \group_begin:
            \tl_use:N \l__chemmacros_nmr_format_tl
\LWR@textcurrentcolor{\LWR@textcurrentfont{% lwarp
            \__chemmacros_nmr_base:VV
                \g__chemmacros_nmr_isotope_tl
                \g__chemmacros_nmr_element_tl
            \bool_if:NT \l__chemmacros_nmr_delimiters_bool
                {~(}
            \bool_if:NT \l__chemmacros_nmr_frequency_bool
                { \__chemmacros_nmr_frequency:n {#3} }
            \bool_if:NT \l__chemmacros_nmr_comma_bool
                {,~}
```

```
            \bool_if:NT \l__chemmacros_nmr_solvent_bool
                {
                \bool_if:NTF \l__chemmacros_nmr_parse_bool

% lwarp
                      { \chemformula_ch:nn { } {#4} }%  original
                    {\ch{#4}}%  lwarp
                    {#4}
                }
            \bool_if:NT \l__chemmacros_nmr_delimiters_bool
                {()}
}}% lwarp
            \tl_if_blank:nT {#1} {:}
            \group_end:
            \tl_if_blank:nT {#1}
            {
                \tl_use:N \c_space_tl
                \c_math_toggle_token
                \delta
                \c_math_toggle_token
                \l__chemmacros_nmr_delta_tl
                \bool_if:NT \l__chemmacros_nmr_use_equal_bool {~=}
            }
        }
    \group_end:
    }
}% AfterEndPremble


\RenewDocumentCommand \chemmacros_data:w { smo }
  {
    \bool_if:NT \l__chemmacros_nmr_list_bool { \item }
      {
% lwarp
        \tl_use:N \l__chemmacros_nmr_format_tl #2
        \tl_use:N \l__chemmacros_nmr_format_tl
        \LWR@textcurrentcolor{\LWR@textcurrentfont{% lwarp
            #2
            \IfNoValueF {#3} { ~ ( #3 ) }
        \IfBooleanT {#1} { \bool_if:NT \l__chemmacros_nmr_use_equal_bool { : } }
        }}% lwarp
      }
   \IfBooleanF {#1} { \bool_if:NT \l__chemmacros_nmr_use_equal_bool { ~ = } }
  }

}{}% Module loaded.
}% AtBeginDocument
```

§ 193.19 Thermodynamics

```
\AtBeginDocument{
\chemmacros_module_if_loaded:nTF{{thermodynamics}}{
\PackageInfo{lwarp}{Patching~chemmacros~module~thermodynamics}

\cs_gset_protected:Npn \chemmacros_state:nnnnnn #1#2#3#4#5#6
  {
    \group_begin:
      \chemmacros_set_keys:ne {thermodynamics}
        {
          \exp_not:n {#1} ,
          \tl_if_novalue:nF {#2} { subscript-left = \exp_not:n {#2} , }
          \tl_if_novalue:nF {#3} { superscript-left = \exp_not:n {#3} , }
```

```
          \tl_if_novalue:nF {#5} { subscript-right = \exp_not:n {#5} , }
          \tl_if_novalue:nF {#6} { superscript-right = \exp_not:n {#6} }
        }
        \LWR@subsingledollar*{% yes hashing
            \textbackslash{}state%
            \{\LWR@HTMLsanitizedetokenized{\detokenize{#4}}\}% alt
        }{%
            chemmacros_state% add'l hashing
            #1% options
           LSP \tl_use:N \l__chemmacros_state_sp_left_tl% super/subscripts
            LSB \tl_use:N \l__chemmacros_state_sb_left_tl
            RSP \tl_use:N \l__chemmacros_state_sp_right_tl
            RSB \tl_use:N \l__chemmacros_state_sb_right_tl
        }
        {
            \LWR@origensuredmath
                {
                \chemmacros_text:V \l__chemmacros_state_pre_tl
                \c_math_superscript_token
                    { \chemmacros_text:V \l__chemmacros_state_sp_left_tl }
```

Only add the subscripts if they are being used. This avoids causing an incorrect depth, as the empty subscript will be measured by TEX but cropped out by *pdfcrop*.

```
                \tl_if_empty:NTF \l__chemmacros_state_sb_left_tl
                {}
                {
                    \c_math_subscript_token
                     { \chemmacros_text:V \l__chemmacros_state_sb_left_tl }
                }
                #4
                \c_math_superscript_token
                   { \chemmacros_text:V \l__chemmacros_state_sp_right_tl }
                \tl_if_empty:NTF \l__chemmacros_state_sb_right_tl
                {}
                {
                    \c_math_subscript_token
                   { \chemmacros_text:V \l__chemmacros_state_sb_right_tl }
                }
                \chemmacros_text:V \l__chemmacros_state_post_tl
                }
        }
    \group_end:
  }
\cs_generate_variant:Nn \chemmacros_state:nnnnnn { nVVVVV }

\cs_gset_protected:Npn \chemmacros_declare_state:Nn #1#2
  {
    \chemmacros_define_keys:xn
      {thermodynamics/\chemmacros_remove_backslash:N #1}
      {
       pre             .meta:nn = {chemmacros/thermodynamics} { pre = ##1 } ,
       post            .meta:nn = {chemmacros/thermodynamics} { post = ##1 } ,
     superscript-left  .meta:nn = {chemmacros/thermodynamics} { superscript-left = ##1 } ,
     superscript-right .meta:nn = {chemmacros/thermodynamics} { superscript-right = ##1 } ,
        superscript       .meta:n  = { superscript-right = ##1 } ,
     subscript-left   .meta:nn = {chemmacros/thermodynamics} { subscript-left = ##1 } ,
     subscript-right  .meta:nn = {chemmacros/thermodynamics} { subscript-right = ##1 } ,
        subscript         .meta:n     = { subscript-left = ##1 } ,
        subscript-pos     .choices:nn =
```

```
          { left , right }
        { \tl_set_eq:NN \l__chemmacros_state_sb_pos_tl \l_keys_choice_tl } ,
        symbol            .tl_set:N = \l__chemmacros_state_symbol_tl ,
        unit              .tl_set:N = \l__chemmacros_state_unit_tl
      }
    \DeclareDocumentCommand #1 { sO{}D(){}m }
      {
        \group_begin:
          \chemmacros_set_keys:en
            {thermodynamics/\chemmacros_remove_backslash:N #1}
            {#2}
          \tl_if_blank:nF {##3}
            {
              \chemmacros_set_keys:ne {thermodynamics}
             { subscript-\l__chemmacros_state_sb_pos_tl = \exp_not:n {##3} }
            }
%           \LWR@origensuredmath
%             {
              \chemmacros_state:nVVVVV
                {##2}
                \c_novalue_tl
                \c_novalue_tl
                \l__chemmacros_state_symbol_tl
                \c_novalue_tl
                \c_novalue_tl
         \chemmacros_set_keys_groups:nnn {thermodynamics} {variables} {##2}
          \IfBooleanF {##1} { = \qty {##4} { \l__chemmacros_state_unit_tl } }
%             }
        \group_end:
      }
  }
```

The pre-existing macros are redefined with the new definition:

```
\RenewChemState \enthalpy { symbol = H , unit = \kilo\joule\per\mole }
\RenewChemState \entropy  { symbol = S , unit = \joule\per\kelvin\per\mole , pre = }
\RenewChemState \gibbs    { symbol = G , unit = \kilo\joule\per\mole }

}{}% Module loaded.
}% AtBeginDocument

\ExplSyntaxOff
```

File 85 **lwarp-chemnum.sty**

§ 194 Package

chemnum

(*Emulates or patches code by* Clemens Niederberger.)

Pkg chemnum

chemnum is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{chemnum}[2016/04/14]

\ExplSyntaxOn

\cs_gset_protected:Npn \chemnum_compound_write:n #1
  {
```

```
    \chemnum_get_compound_property:nn {#1} {pre-main-label-code}
    \group_begin:
      \bool_if:NTF \l__chemnum_compound_local_bool
        { \l__chemnum_local_label_format_tl }
        { \chemnum_get_compound_property:nn {#1} {label-format} }
      {
        \LWR@textcurrentfont{
            \chemnum_get_compound_property:nn {#1} {counter-representation}
        }
      }
    \group_end:
    \chemnum_get_compound_property:nn {#1} {post-main-label-code}
  }

\cs_gset_protected:Npn \chemnum_subcompound_write:nn #1#2
  {
    \group_begin:
      \bool_if:NTF \l__chemnum_compound_local_bool
        { \l__chemnum_local_label_format_tl }
        { \chemnum_get_compound_property:nn {#1} {label-format} }
      {
        \LWR@textcurrentfont{
            \chemnum_get_subcompound_property:nnn {#1} {#2}
            {counter-representation}
        }
      }
    \group_end:
  }

\ExplSyntaxOff
```

File 86 **lwarp-chkfloat.sty**

§ 195 Package

chkfloat

Pkg chkfloat

chkfloat is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{chkfloat}[2012/08/19]
```

File 87 **lwarp-chngpage.sty**

§ 196 Package

chngpage

(*Emulates or patches code by* Peter Wilson.)

Pkg chngpage

chngpage is ignored.

for HTML output:

Discard all options for lwarp-chngpage:

```
\LWR@ProvidesPackageDrop{chngpage}[2009/10/20]
\LWR@origRequirePackage{lwarp-changepage}
```

File 88 **lwarp-cite.sty**

§ 197 Package cite

(*Emulates or patches code by* Donald Arseneau.)

Pkg cite

cite is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{cite}[2015/02/27]
```

For the [super] option, the \kern must be removed:

```
\def\LWRCT@biblabel#1{\@citess{#1}\kern-\labelsep\,}

\ifdefstrequal{\@biblabel}{\LWRCT@biblabel}
{
    \def\@biblabel#1{\@citess{#1}}
}{}
```

For the [super] option, \textsuperscript is used instead of math superscript:

```
\def\@citess#1{\textsuperscript{#1}}

\DeclareDocumentCommand\citepunct{}{,\,\relax}
```

File 89 **lwarp-citeref.sty**

§ 198 Package citeref

(*Emulates or patches code by* Björn Briel.)

Pkg citeref

citeref is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{citeref}[1999/27/05]

\def\@cprwrite#1={%
   \write\@auxout{\string\citepageref{#1}{\theLWR@previousautopagelabel}}%
}

\def\citepageref#1#2{%
    \xdef\cpr@testa{\@nameuse{cpr@last@#1}}%letzte Zitatstelle
    \xdef\cpr@testb{#2}% Seite dieser Zitatstelle
    \ifx\cpr@testa\cpr@testb%
        \relax% Konsekutive identische Seitenangaben weglassen
    \else%
        \@namexdef{cpr@last@#1}{#2}%
        \@ifundefined{cpr@#1}%
        {\@namexdef{cpr@#1}{\LWR@refwithsection{\BaseJobname-autopage-#2}}}%  lwarp
            {%      lwarp
                \@namexdef{cpr@#1}{\@nameuse{cpr@#1}, % space
                \LWR@refwithsection{\BaseJobname-autopage-#2}}%
            }%
```

```
    \fi
    }
```

File 90 **lwarp-CJK.sty**

§ 199 Package CJK

Pkg CJK

CJK does not work with lwarp unless called from ctex.

for HTML output:

```
\IfPackageLoadedTF{xeCJK}{}{
    \LWR@loadnever{CJK}{ctex, xeCJK}
}

\LWR@ProvidesPackagePass{CJK}[2015/04/18]
```

File 91 **lwarp-CJKutf8.sty**

§ 200 Package CJKutf8

Pkg CJKutf8

CJKutf8 does not work with lwarp unless called from ctex.

for HTML output:

```
\IfPackageLoadedTF{xeCJK}{}{
    \LWR@loadnever{CJKutf8}{ctex, xeCJK}
}

\LWR@ProvidesPackagePass{CJKutf8}[2015/04/18]
```

File 92 **lwarp-classicthesis.sty**

§ 201 Package classicthesis

(*Emulates or patches code by* André Miede and Ivo Pletikosić.)

Pkg classicthesis

classicthesis is emulated.

for HTML output:

Discard all options for lwarp-classicthesis:

```
\LWR@ProvidesPackageDrop{classicthesis}[2018/06/03]

\RequirePackage{scrlayer-scrpage} % provides headers and footers (KOMA Script)
\RequirePackage{scrtime} % time access
\PassOptionsToPackage{titles}{tocloft}
\RequirePackage{textcase} % for \MakeTextUppercase
\RequirePackage[newparttoc]{titlesec} % newparttoc to write \part to .toc with \numberline
\RequirePackage{tocloft}
\PassOptionsToPackage{headinclude,footinclude}{typearea} % for classes other than KOMA
\RequirePackage{typearea}
\PassOptionsToPackage{marginal}{footmisc}% marginal flushmargin
\RequirePackage{footmisc}%
\RequirePackage{prelim2e}
\RequirePackage{remreset}%

```

```
\DeclareRobustCommand{\spacedallcaps}[1]{\textsc{\MakeTextUppercase{#1}}}
\DeclareRobustCommand{\spacedlowsmallcaps}[1]{\textsc{\MakeTextLowercase{#1}}}
\newcommand{\ctparttext}[1]{}
\newcommand{\tocEntry}[1]{}
\DeclareRobustCommand*{\deactivateaddvspace}{}%
\newlength{\beforebibskip}
```

File 93 **lwarp-cleveref.sty**

§ 202 Package

cleveref

(*Emulates or patches code by* Toby Cubitt.)

Pkg cleveref

cleveref is patched for HTML, and limited MathJax emulation is added.

⚠ cleveref page numbers

cleveref and varioref are supported, but printed page numbers do not map to HTML, so a section name or a text phrase are used for \cpageref and \cpagerefrange. This phrase includes \cpagerefFor, which defaults to "for".

Ex:

```
    \cpageref{tab:first,tab:second}
in html becomes:
```
"pages **for** table 4.1 and **for** table 4.2"

See \cpagerefFor at page 728 to redefine the message which is printed for page number references.

Table 16 on page 491 shows the data structure of the label/reference system as revised by lwarp and cleveref.

⚠ multiple labels

For MathJax, each references is printed as an \eqref, without cleveref's description text. Page references are also printed as simple \eqrefs. Multiple labels in a single \cref will print as (???) in MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{cleveref}[2018/03/27]
```

The following patches are applied. Print-mode versions are not required since they all come down to \ref eventually, and \ref has a print-mode version.

\@@@setcref {⟨*kindofref*⟩} {⟨*label*⟩}

\@templabel becomes the section number.

```
\def\LWR@orig@@@setcref#1#2{\cref@getlabel{#2}{\@templabel}#1{\@templabel}{}{}}%

\ifdefequal{\@@setcref}{\LWR@orig@@@setcref}{% before v0.21
    \renewcommand*{\@@setcref}[2]{#1{\ref{#2}}{}{}}
}{
    \ifdefequal{\@@@setcref}{\LWR@orig@@@setcref}{% as of v0.21
        \renewcommand*{\@@@setcref}[2]{%
            #1{\ref{#2}}{}{}}
    }{
        \PackageWarningNoLine{lwarp-cleveref}{
            Unknown version of cleveref.
            \protect\cref\space will fail.
```

```
        }%
    }
}
```

`\@@@setcrefrange` {⟨*text*⟩} {⟨*label*⟩} {⟨*label*⟩}

```
\def\LWR@orig@@@setcrefrange#1#2#3{%
  \cref@getlabel{#2}{\@labela}%
  \cref@getlabel{#3}{\@labelb}%
  #1{\@labela}{\@labelb}{}{}{}{}%

\ifdefequal{\@@setcrefrange}{\LWR@orig@@@setcrefrange}{
    \renewcommand{\@@setcrefrange}[3]{%
        #1{\ref{#2}}{\ref{#3}}{}{}{}{}%
    }
}{
    \ifdefequal{\@@@setcrefrange}{\LWR@orig@@@setcrefrange}{
        \renewcommand{\@@@setcrefrange}[3]{%
            #1{\ref{#2}}{\ref{#3}}{}{}{}{}%
        }
    }{
        \PackageWarningNoLine{lwarp-cleveref}{
            Unknown version of cleveref.
            \protect\crefrange\space will fail.
        }
    }
}
```

`\cpagerefFor` Redefinable word between “page(s)” and the page numbers.

```
\newcommand*{\cpagerefFor}{for}
```

`\@@@setcpageref` {⟨*typeofref*⟩} {⟨*label*⟩}, where typeofref is “page” or “pages”

```
\def\LWR@orig@@setcpageref#1#2{% before v0.21
  \cref@getpageref{#2}{\@temppage}#1{\@temppage}{}{}}%

\def\LWR@orig@@@setcpageref#1#2{% as of v0.21
  \cpageref@getlabel{#2}{\@temppage}#1{\@temppage}{}{}}%

\ifdefequal{\@@setcpageref}{\LWR@orig@@setcpageref}{
    \renewcommand*{\@@setcpageref}[2]{%
        #1{\cpagerefFor\ \cref{#2}}{}{}%
    }
}{
    \ifdefequal{\@@@setcpageref}{\LWR@orig@@@setcpageref}{
        \renewcommand*{\@@@setcpageref}[2]{%
            #1{\cpagerefFor\ \cref{#2}}{}{}%
        }
    }
    {
        \PackageWarningNoLine{lwarp-cleveref}{
            Unknown version of cleveref.
            \protect\cpageref\space will fail.
        }
    }
}
```

```
\def\LWR@orig@@setcpagerefrange#1#2#3{% before v0.21
  \cref@getpageref{#2}{\@pagea}%
  \cref@getpageref{#3}{\@pageb}%
  #1{\@pagea}{\@pageb}{}{}{}{}%

\def\LWR@orig@@@setcpagerefrange#1#2#3{% as of v0.21
  \cpageref@getlabel{#2}{\@pagea}%
  \cpageref@getlabel{#3}{\@pageb}%
  #1{\@pagea}{\@pageb}{}{}{}{}%

\ifdefequal{\@@setcpagerefrange}{\LWR@orig@@setcpagerefrange}{
    \renewcommand*{\@@setcpagerefrange}[3]{%
        #1{\cpagerefFor\ \cref{#2}}{\cref{#3}}{}{}{}{}%
    }
}{
    \ifdefequal{\@@@setcpagerefrange}{\LWR@orig@@@setcpagerefrange}{
        \renewcommand*{\@@@setcpagerefrange}[3]{%
            #1{\cpagerefFor\ \cref{#2}}{\cref{#3}}{}{}{}{}%
        }
    }
    {
        \PackageWarningNoLine{lwarp-cleveref}{
            Unknown version of cleveref.
            \protect\cpagerefrange\space will fail.
        }
    }
}
```

If hyperref is loaded, cleveref defines starred versions of the following, but since hyperref is only emulated, starred versions are defined here:

```
\LWR@absorbstar{cref}
\LWR@absorbstar{Cref}
\LWR@absorbstar{crefrange}
\LWR@absorbstar{Crefrange}
\LWR@absorbstar{cpageref}
\LWR@absorbstar{Cpageref}
\LWR@absorbstar{cpagerefrange}
\LWR@absorbstar{Cpagerefrange}
\LWR@absorbstar{labelcref}
\LWR@absorbstar{labelcpageref}
```

If hyperref is loaded, cleveref also defines starred versions of varioref macros, so they are defined here.

```
\IfPackageLoadedTF{varioref}{
    \LWR@absorbstar{vref}
    \LWR@absorbstar{Vref}
    \LWR@absorbstar{vrefrange}
    \LWR@absorbstar{Vrefrange}
    \LWR@absorbstar{fullref}
    \LWR@absorbstar{Fullref}
}{}% varioref


\IfClassLoadedTF{memoir}{
\AtBeginDocument{
\def\sf@memsub@label(#1)#2{%
  \protected@edef\mem@currentlabelname{#1}%
  \sf@@memsub@label{#2}}
```

```
}
}{}

\IfPackageLoadedTF{subfig}{
\def\sf@sub@label(#1)#2{%
  \ifhyperrefloaded
    \protected@edef\@currentlabelname{%
      \expandafter\strip@period #1\relax.\relax\@@@}%
  \fi
  \sf@@sub@label{#2}}
}{}
```

File 94 **lwarp-clrdblpg.sty**

§ 203 Package clrdblpg

Pkg clrdblpg

clrdblpg is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{clrdblpg}[2018/04/21]
```

File 95 **lwarp-cmbright.sty**

§ 204 Package cmbright

(*Emulates or patches code by* Walter Schmidt.)

Pkg cmbright

cmbright is used as-is for SVG math, and is emulated for MathJax.

⚠ limitations

The MathJax emulation ignores all package options, except `slantedGreek` is honored, and `\mathbold` is available.

The dedicated macros for upright Greek letters do work correctly.

SVG math should appear the same as the printed output.

for HTML output:

```
\LWR@ProvidesPackagePass{cmbright}[2005/04/13]

\LWR@infoprocessingmathjax{cmbright}

\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}

\IfPackageLoadedWithOptionsTF{cmbright}{slantedGreek}
{
    \LWR@mathjax@addgreek@u@it*{}{}
}
{}

\LWR@mathjax@addgreek@u@up*{up}{}

\CustomizeMathJax{\newcommand{\mathbold}[1]{\boldsymbol{#1}}}

\end{warpMathJax}
```

File 96 **lwarp-cmdtrack.sty**

§ 205 Package cmdtrack

Pkg cmdtrack

cmdtrack is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{cmdtrack}[2012/12/18]

\newcommand{\untrack}[1]{}
```

File 97 **lwarp-colonequals.sty**

§ 206 Package colonequals

(*Emulates or patches code by* Heiko Oberdiek.)

Pkg colonequals

colonequals is used as-is for SVG math, and is emulated for MathJax.

Since Unicode symbols are not available for each of the following, only two are used for the single and double colons, and the other symbols are derived in a consistent manner. Occasional negative space is added as well. This may need to be undone for some fonts.

for HTML output:

```
\LWR@ProvidesPackagePass{colonequals}[2016/05/16]

\begin{warpMathJax}
\LWR@infoprocessingmathjax{colonequals}

\CustomizeMathJax{\newcommand{\ratio}{\mathrel{\unicode{x2236}}}}
\CustomizeMathJax{\newcommand{\coloncolon}{\mathrel{\unicode{x2237}}}}
\CustomizeMathJax{\newcommand{\colonequals}{\mathrel{\unicode{x2236}\!=}}}
\CustomizeMathJax{\newcommand{\coloncolonequals}{\mathrel{\unicode{x2237}\!=}}}
\CustomizeMathJax{\newcommand{\equalscolon}{\mathrel{=\!\unicode{x2236}}}}
\CustomizeMathJax{\newcommand{\equalscoloncolon}{\mathrel{=\!\unicode{x2237}}}}
\CustomizeMathJax{\newcommand{\colonminus}{\mathrel{\unicode{x2236}-}}}
\CustomizeMathJax{\newcommand{\coloncolonminus}{\mathrel{\unicode{x2237}-}}}
\CustomizeMathJax{\newcommand{\minuscolon}{\mathrel{-\unicode{x2236}}}}
\CustomizeMathJax{\newcommand{\minuscoloncolon}{\mathrel{-\unicode{x2237}}}}
\CustomizeMathJax{\newcommand{\colonapprox}{\mathrel{\unicode{x2236}\!\approx}}}
\CustomizeMathJax{\newcommand{\coloncolonapprox}{\mathrel{\unicode{x2237}\!\approx}}}
\CustomizeMathJax{\newcommand{\approxcolon}{\mathrel{\approx\!\unicode{x2236}}}}
\CustomizeMathJax{\newcommand{\approxcoloncolon}{\mathrel{\approx\!\unicode{x2237}}}}
\CustomizeMathJax{\newcommand{\colonsim}{\mathrel{\unicode{x2236}\!\sim}}}
\CustomizeMathJax{\newcommand{\coloncolonsim}{\mathrel{\unicode{x2237}\!\sim}}}
\CustomizeMathJax{\newcommand{\simcolon}{\mathrel{\sim\!\unicode{x2236}}}}
\CustomizeMathJax{\newcommand{\simcoloncolon}{\mathrel{\sim\!\unicode{x2237}}}}
\end{warpMathJax}
```

File 98 **lwarp-color.sty**

§ 207 Package

color

Pkg color

Allowed but ignored. xcolor is then required as well.

color is superceded by xcolor, and lwarp requires several of the features of xcolor. When color is requested, xcolor is loaded as well.

for HTML output:

```
\LWR@ProvidesPackageDrop{color}[2016/07/10]
\RequirePackage{xcolor}
```

\color@endgroup's \endgraf was conflicting with lwarp's paragraph handling.

```
\let\color@endgroup\endgroup
```

File 99 **lwarp-colortbl.sty**

§ 208 Package

colortbl

Pkg colortbl

colortbl is used as-is for print output, and emulated for HTML.

⚠ row/cell color

Only use \rowcolor and \cellcolor at the start of a row, in that order.

colortbl ignores the overhang arguments.

for HTML output:

A placeholder definition is forgotten first:

```
\let\rowcolor\relax

\LWR@ProvidesPackagePass{colortbl}[2018/12/12]
```

The following \LWR@HTML versions are used inside an HTML tabular.

\columncolor

[⟨*model*⟩] {⟨*color*⟩} [⟨*left overhang*⟩] [⟨*right overhang*⟩]

\LWR@getmynexttoken is not used here because \columncolor is not used inside the data area of the tabular.

\columncolor is provided here to satisfy \LWR@formatted's test for the existence of the print-mode macro.

```
\ProvideDocumentCommand{\columncolor}{O{named} m o o}{}%

\NewDocumentCommand{\LWR@HTML@columncolor}{O{named} m o o}{%
    \convertcolorspec{#1}{#2}{HTML}\LWR@columnHTMLcolor%
    \LWR@addtabularcellcolor%
}

\AtBeginDocument{\LWR@formatted{columncolor}}
```

\LWR@getmynexttoken is used for \rowcolor because it is used inside the data area of the tabular.

\rowcolor [⟨*model*⟩] {⟨*color*⟩} [⟨*left overhang*⟩] [⟨*right overhang*⟩]

```
\NewDocumentCommand{\LWR@HTML@rowcolor}{O{named} m o o}{%
    \convertcolorspec{#1}{#2}{HTML}\LWR@rowHTMLcolor%
    \LWR@getmynexttoken%
}

\AtBeginDocument{\LWR@expandableformatted{rowcolor}}
```

\cellcolor [⟨*model*⟩] {⟨*color*⟩} [⟨*left overhang*⟩] [⟨*right overhang*⟩]

```
\NewDocumentCommand{\LWR@HTML@cellcolor}{O{named} m o o}{%
    \convertcolorspec{#1}{#2}{HTML}\LWR@cellHTMLcolor%
    \LWR@addtabularcellcolor%
}

\AtBeginDocument{\LWR@formatted{cellcolor}}
```

\arrayrulecolor [⟨*model*⟩] {⟨*color*⟩}

The HTML version for use outside a `tabular`. Inside a `tabular`, `\LWR@HTML@arrayrulecolornexttoken` is used instead.

```
\newcommand{\LWR@HTML@arrayrulecolor}[2][named]{%
    \convertcolorspec{#1}{#2}{HTML}\LWR@ruleHTMLcolor%
}

\AtBeginDocument{\LWR@expandableformatted{arrayrulecolor}}
```

\LWR@arrayrulecolornexttoken [⟨*model*⟩] {⟨*color*⟩}

The HTML version for use inside a `tabular`.

```
\newcommand{\LWR@HTML@arrayrulecolornexttoken}[2][named]{%
    \convertcolorspec{#1}{#2}{HTML}\LWR@ruleHTMLcolor%
    \LWR@getmynexttoken%
}

\AtBeginDocument{\LWR@expandableformatted{arrayrulecolornexttoken}}
```

\doublerulesepcolor [⟨*model*⟩] {⟨*color*⟩}

The version for use outside a `tabular`.

```
\newcommand{\LWR@HTML@doublerulesepcolor}[2][named]{}

\AtBeginDocument{\LWR@expandableformatted{doublerulesepcolor}}
```

\LWR@doublerulesepcolornexttoken [⟨*model*⟩] {⟨*color*⟩}

The version for use inside a `tabular`.

```
\newcommand{\LWR@HTML@doublerulesepcolornexttoken}[2][named]{\LWR@getmynexttoken}

\AtBeginDocument{\LWR@expandableformatted{doublerulesepcolornexttoken}}
```

For MathJax, use the MathJax package. The unused macro options are ignored.

```
\begin{warpMathJax}
```

```
42
43 \CustomizeMathJax{\require{colortbl}}
44 \CustomizeMathJax{\let\LWRorigcolumncolor\columncolor}
45 \CustomizeMathJax{\renewcommand{\columncolor}[2][named]{%
46     \LWRorigcolumncolor[#1]{#2}%
47     \LWRabsorbtwooptions%
48 }}
49
50 \CustomizeMathJax{\let\LWRorigrowcolor\rowcolor}
51 \CustomizeMathJax{\renewcommand{\rowcolor}[2][named]{%
52     \LWRorigrowcolor[#1]{#2}%
53     \LWRabsorbtwooptions%
54 }}
55
56 \CustomizeMathJax{\let\LWRorigcellcolor\cellcolor}
57 \CustomizeMathJax{\renewcommand{\cellcolor}[2][named]{%
58     \LWRorigcellcolor[#1]{#2}%
59     \LWRabsorbtwooptions%
60 }}
61
62 \end{warpMathJax}
```

File 100 **lwarp-continue.sty**

§ 209 Package continue

Pkg continue

continue is ignored.

for HTML output:

```
1 \LWR@ProvidesPackageDrop{continue}}[2018/12/09]

2 \newcommand*{\flagcont}{}
3 \newcommand*{\flagend}{}
4 \newcommand*{\flagword}{}
5 \newcommand*{\preflagword}{}
6 \newcommand*{\postflagword}{}
7 \newlength\contsep
8 \newlength\contdrop
```

File 101 **lwarp-copyrightbox.sty**

§ 210 Package copyrightbox

(*Emulates or patches code by* Thomas Fischer, Ives van der Flaas.)

Pkg copyrightbox

copyrightbox is emulated for use by lwarp.

The entire copyright box is placed inside a of class copyrightbox.

The contents are placed inside a of class copyrightboxcontents.

The copyright notice is placed inside a of class copyrightboxnote.

for HTML output:

```
1 \LWR@ProvidesPackageDrop{copyrightbox}[2011/11/27]
```

```
\newcommand{\copyrightbox}[3][r]{%
\begin{BlockClass}[
    display: inline-flex;
    flex-direction: column ;
]{copyrightbox}
\begin{BlockClass}{copyrightboxcontents}
#2
\end{BlockClass}
\begin{BlockClass}{copyrightboxnote}
#3
\end{BlockClass}
\end{BlockClass}
}

\newcommand{\CRB@setcopyrightfont}{}
\newcommand{\CRB@setcopyrightparagraphstyle}{}
```

File 102 **lwarp-crop.sty**

§ 211 Package

crop

(*Emulates or patches code by* Melchior FRANZ.)

Pkg crop

crop is ignored.

for HTML output:

Discard all options for lwarp-crop:

```
\LWR@ProvidesPackageDrop{crop}[2003/05/20]

\newcommand*{\crop}[1][]{}
\newcommand*{\cropdef}[6][]{}
```

File 103 **lwarp-ctable.sty**

§ 212 Package

ctable

(*Emulates or patches code by* Wybo Dekker.)

Pkg ctable

ctable is patched for use by lwarp.

⚠ Misplaced alignment tab character &

Use `\StartDefiningTabulars` before one or more `\ctables`, and `\StopDefiningTabulars` after. These change the meaning of the ampersand & character.

for HTML output:

```
\LWR@ProvidesPackagePass{ctable}[2015/10/17]
```

The following is in the original:

```
\newcommand{\LWR@HTML@ctable}[4][]{%
   \let\@CTtaborfig  \@dfltCTtaborfig
   \let\@CTalign     \@dfltCTalign
   \let\@CTsideways  \@dfltCTsideways
   \let\@CTcontinued \empty
   \let\@CTpos       \@dfltCTpos
   \let\@CTcaption   \empty
```

```
\let\@CTcap       \undefined
\let\@CTlabel     \empty
\let\@CTbotcap    \@dfltCTbotcap
\let\@CTstarred   \@dfltCTstarred
\let\@CTsuper     \@dfltCTsuper
\let\@CTnotespar  \@dfltCTnotespar
\let\@CTdoinside  \@dfltCTdoinside
\let\@CTbgopacity \@dfltCTbgopacity
\@CTframerule     \@dfltCTframerule
\@CTcaptionskip   \@dfltCTcaptionskip
\@CTframesep      \@dfltCTframesep
\@CTwidth         \@dfltCTwidth
\@CTmaxwidth      \@dfltCTmaxwidth
\@CTmincapwidth   \@dfltCTmincapwidth
\@CTfooterwidth   \@dfltCTfooterwidth
\def\@CTfgactual {@dfltCTframefg}%
\def\@CTbgactual {@dfltCTframebg}%
\def\@CTbeg      {\begin{\@CTsideways\@CTtaborfig\@CTstarred}}%
\def\@CTbegin    {\@CTbeg}%
\def\@CTend      {\end{\@CTsideways\@CTtaborfig\@CTstarred}}%
\setkeys{CT}{#1}%
\ifx\@CTcap\undefined\let\@CTcap\@CTcaption\fi
\ifx\@CTcap\empty
  \if@CTcaptionloaded\else
    \PackageWarningNoLine{lwarp-ctable}{\MessageBreak
       An empty cap= option prevents lot/loc entry only\MessageBreak
       if the caption package is loaded!}
  \fi
\fi
\if@CTinmemoir\else
   \ifx\@CTbotcap\undefined
      \PackageError{lwarp-ctable}{\MessageBreak
       You can, currently, use the sidecap option only with\MessageBreak
         memoir documents. Use topcap or botcap only}
         {}
   \fi
\fi
\ifdim\@CTwidth=0pt\else
   \ifdim\@CTmaxwidth=0pt\else
      \PackageError{lwarp-ctable}{\MessageBreak
      You may not use the width and maxwidth options together\MessageBreak
         Use either width or maxwidth}
         {}
   \fi
\fi
\ifx\@CTpos\empty
   \ifx\@CTsideways\empty\else
   \PackageError{lwarp-ctable}{\MessageBreak
      You may not use the pos and sideways options together\MessageBreak
      Rotated tables and figures are always typeset on a separate page}
     {}
   \fi
\fi
\ifx\@CTcaption\empty
   \ifx\@CTlabel\empty\else
      \PackageError{lwarp-ctable}{\MessageBreak
         You may not label a captionless table\MessageBreak
         Such a label can't be referenced}
         {}
   \fi
```

```
  \fi
```

Some of the original, regarding computing the width of `\CT@t`, is removed here.

```
  \@CTbegin
     \ifx\@CTcontinued\empty\else\addtocounter{\@CTtaborfig}{-1}\fi
     \@CTalign
```

lwarp's patches begin here:

```
   \begin{center}
       \setlength{\fboxrule}{\@CTframerule}
       \setlength{\fboxsep}{\@CTframesep}
       \LWR@forceminwidth{\fboxrule}%  lwarp
       \convertcolorspec{named}{\@CTbgactual}{HTML}\LWR@tempcolor% lwarp
       \begin{BlockClass}[%                              lwarp
           border:
               \LWR@printlength{\LWR@atleastonept}
               solid
               \LWR@colorstyle{named}{\@CTfgactual} ; %
           padding:\LWR@printlength{\fboxsep} ; %
           \ifdefstring{\LWR@tempcolor}{FFFFFF}{}{%
               background: \LWR@colorstyle{named}{\@CTbgactual} ; %
           }%
       ]{fminipage}%       lwarp
        \ifx\@CTbotcap\@CTfalse\@CTcaption\vskip\@CTcaptionskip\fi
        \ifx\@CTbotcap\undefined%
            \begin{sidecaption}[\@CTcap]{\@CTcaption}[\@CTlabel]
        \fi
        \@CTdoinside
        \begin{tabularx}{\linewidth}{#2}%      lwarp
           #4%
        \end{tabularx}%                    lwarp
        \def\@CTfootnotes{#3}%
        \ifx#3\empty\else{% append footnotes, if any
           \begin{BlockClass}{tnotes}%     lwarp
           #3
           \end{BlockClass}%               lwarp
        }
        \fi
        \ifx\@CTbotcap\undefined\end{sidecaption}\fi
        \ifx\@CTbotcap\@CTtrue\vskip\@CTcaptionskip\@CTcaption\fi
       \end{BlockClass}
    \end{center}
   \@CTend
}
\LWR@formatted{ctable}
```

Required to properly detect the toprule:

```
\LetLtxMacro\FL\toprule
```

Table notes are redefined for HTML:

```
\newcommand{\LWR@HTML@tmark}[1][a]{%
   \textsuperscript{\textrm{\textit{#1}}}
}
\LWR@formatted{tmark}

```

```
\newcommand{\LWR@HTML@tnote}[2][a]{%
    \tmark[#1]\,#2\par
}
\LWR@formatted{tnote}
```

File 104 **lwarp-cuted.sty**

§ 213 Package cuted

(*Emulates or patches code by* Sigitas Tolušis.)

Pkg cuted

cuted is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{cuted}[2021/10/04]

\newenvironment{strip}{}{}
\newskip\stripsep
\newtoks\preCutedStrip \preCutedStrip{}
\newtoks\postCutedStrip \postCutedStrip{}
\def\oldcolsbreak#1{}
```

File 105 **lwarp-cutwin.sty**

§ 214 Package cutwin

(*Emulates or patches code by* Peter Wilson and Alan Hoenig.)

Pkg cutwin

cutwin is emulated.

for HTML output: Discard all options for lwarp-cutwin:

```
\LWR@ProvidesPackageDrop{cutwin}[2010/09/29]

\newcommand*{\opencutleft}{}
\newcommand*{\opencutright}{}
\newcommand*{\opencutcenter}{}
\newcommand*{\cutfuzz}{}

\newenvironment{cutout}[4]
{\marginpar{\windowpagestuff}}
{}

\newcommand*{\windowpagestuff}{}

\newcommand*{\pageinwindow}{%
% \begin{minipage}{.3\linewidth}
\windowpagestuff
% \end{minipage}
}

\newenvironment{shapedcutout}[3]
{\marginpar{\picinwindow}}
{}

```

```
\newcommand*{\putstuffinpic}{}

\newcommand*{\picinwindow}{%
\begin{picture}(0,0)
\putstuffinpic
\end{picture}}
```

File 106 **lwarp-dblfloatfix.sty**

§ 215 Package

dblfloatfix

Pkg dblfloatfix

dblfloatfix is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{dblfloatfix}[2012/12/31]
```

File 107 **lwarp-dblfnote.sty**

§ 216 Package

dblfnote

(*Emulates or patches code by* Hiroshi Nakashima.)

Pkg dblfnote

dblfnote is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{dblfnote}[1999/07/14]

\newcounter{DFNsloppiness}
\newdimen\DFNcolumnsep
\newdimen\DFNcolumnwidth
\def\DFNallowcbreak{}
\def\DFNinhibitcbreak{}
\def\DFNtrysingle{}
\def\DFNalwaysdouble{}
\def\DFNruleboth{}
\def\DFNruleleft{}
```

File 108 **lwarp-dcolumn.sty**

§ 217 Package

dcolumn

Pkg dcolumn

dcolumn is used as-is in a `lateximage`, and is emulated by the lwarp core.

dcolumn used to be `\LWR@ProvidesPackageDrop` in prior versions of lwarp, but is now supported for print mode.

```
\LWR@ProvidesPackagePass{dcolumn}[2014/10/28]
```

Due to how the `D` column is created, cannot use `\HTMLnewcolumntype` here. An HTML version neutralizes the lower-level macros, leaving a `c` column type.

```
\newcommand*{\LWR@HTML@DC@}[3]{}
```

```
\LWR@formatted{DC@}

\providecommand*{\DC@end}{}

\newcommand*{\LWR@HTML@DC@end}{}
\LWR@formatted{DC@end}
```

File 109 **lwarp-decimal.sty**

§ 218 Package decimal

(*Emulates or patches code by* A. Syropoulos and R. W. D. Nickalls.)

Pkg decimal

decimal works as-is for SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{decimal}[2011/06/03]

\begin{warpMathJax}
\CustomizeMathJax{\def\.{\mbox{.}}}
\end{warpMathJax}
```

File 110 **lwarp-decorule.sty**

§ 219 Package decorule

(*Emulates or patches code by* Peter Flynn.)

Pkg decorule

decorule is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{decorule}[2020/04/01]

\xpretocmd{\decorule}
    {\begin{lateximage}*[decorule]}
    {}
    {\LWR@patcherror{decorule}{decorule A}}

\xapptocmd{\decorule}
    {\end{lateximage}}
    {}
    {\LWR@patcherror{decorule}{decorule B}}
```

File 111 **lwarp-diagbox.sty**

§ 220 Package diagbox

(*Emulates or patches code by* Leo Liu.)

Pkg diagbox

diagbox is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{diagbox}[2016/12/28]
```

To restore print-mode inside a `lateximage`:

```
\LetLtxMacro\LWR@origdiagbox@double\diagbox@double
\LetLtxMacro\LWR@origdiagbox@triple\diagbox@triple

\appto\LWR@restoreorigformatting{%
\LetLtxMacro\diagbox@double\LWR@origdiagbox@double%
\LetLtxMacro\diagbox@triple\LWR@origdiagbox@triple%
}
```

`\LWR@diagbox@AB` {⟨*E/W*⟩} {⟨*A*⟩} {⟨*E/W*⟩} {⟨*B*⟩}

```
\newcommand{\LWR@diagbox@AB}[4]{
\begingroup%
\LetLtxMacro\\\newline%
\BlockClassSingle{diagbox#1}{#2}%
\BlockClassSingle{diagbox#3}{#4}%
\endgroup%
\LWR@stoppars%
}
```

`\LWR@diagboxNW` {⟨*A*⟩} {⟨*B*⟩}

```
\newcommand{\LWR@diagboxNW}[2]{%
\LWR@diagbox@AB{E}{#2}{W}{#1}%
}
```

Likewise for NE, SW, SE:

```
\newcommand{\LWR@diagboxNE}[2]{%
\LWR@diagbox@AB{W}{#1}{E}{#2}%
}

\let\LWR@diagboxSW\LWR@diagboxNE
\let\LWR@diagboxSE\LWR@diagboxNW
```

`\diagbox@double` {⟨*keys*⟩} {⟨*A*⟩} {⟨*B*⟩}

```
\def\diagbox@double#1#2#3{%
\setkeys{diagbox}{dir=NW,#1}%
\@nameuse{LWR@diagbox\diagbox@dir}{#2}{#3}%
}
```

`\LWR@diagboxTNW` {⟨*title*⟩} {⟨*A*⟩} {⟨*B*⟩}

```
\newcommand{\LWR@diagboxTNW}[3]{%
\BlockClassSingle{diagboxtitleN}{#1}
\LWR@diagboxNW{#2}{#3}
}
```

Likewise for NE, SW, SE:

```
\newcommand{\LWR@diagboxTNE}[3]{%
\BlockClassSingle{diagboxtitleN}{#1}
\LWR@diagboxNE{#2}{#3}
}

\newcommand{\LWR@diagboxTSW}[3]{%
```

```
\LWR@diagboxSW{#2}{#3}
\BlockClassSingle{diagboxtitleS}{#1}
\LWR@stoppars%
}

\newcommand{\LWR@diagboxTSE}[3]{%
\LWR@diagboxSE{#2}{#3}
\BlockClassSingle{diagboxtitleS}{#1}
\LWR@stoppars%
}
```

\diagbox@triple {⟨*keys*⟩} {⟨*A*⟩} {⟨*T*⟩} {⟨*B*⟩}

```
\def\diagbox@triple#1#2#3#4{%
\setkeys{diagbox}{dir=NW,#1}%
\@nameuse{LWR@diagboxT\diagbox@dir}{#3}{#2}{#4}%
}
```

File 112 **lwarp-dingbat.sty**

§ 221 Package

dingbat

(*Emulates or patches code by* Scott Pakin.)

Pkg dingbat

dingbat is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{dingbat}[2001/04/27]

\newcommand*{\LWR@dingbatsymbol}[1]{\HTMLunicode{#1}}

\newcommand{\LWR@HTML@rightpointright}{\LWR@dingbatsymbol{261E}}
\newcommand{\LWR@HTML@leftpointright}{\LWR@dingbatsymbol{261E}}
\newcommand{\LWR@HTML@leftthumbsdown}{\LWR@dingbatsymbol{1F44E}}
\newcommand{\LWR@HTML@leftthumbsup}{\LWR@dingbatsymbol{1F44D}}
\newcommand{\LWR@HTML@rightpointleft}{\LWR@dingbatsymbol{261C}}
\newcommand{\LWR@HTML@rightthumbsdown}{\LWR@dingbatsymbol{1F44E}}
\newcommand{\LWR@HTML@rightthumbsup}{\LWR@dingbatsymbol{1F44D}}
\newcommand{\LWR@HTML@squarewithdots}{\LWR@dingbatsymbol{25C7}}
\newcommand{\LWR@HTML@filledsquarewithdots}{\LWR@dingbatsymbol{25C6}}
\newcommand{\LWR@HTML@Sborder}{\LWR@dingbatsymbol{271A}}
\newcommand{\LWR@HTML@Zborder}{\LWR@dingbatsymbol{274B}}
\newcommand{\LWR@HTML@largepencil}{\LWR@dingbatsymbol{270E}}
\newcommand{\LWR@HTML@anchor}{\LWR@dingbatsymbol{2693}}
\newcommand{\LWR@HTML@carriagereturn}{\LWR@dingbatsymbol{23CE}}
\newcommand{\LWR@HTML@checkmark}{\LWR@dingbatsymbol{2713}}
\newcommand{\LWR@HTML@eye}{\LWR@dingbatsymbol{1F441}}
\newcommand{\LWR@HTML@satellitedish}{\LWR@dingbatsymbol{1F4E1}}
\newcommand{\LWR@HTML@smallpencil}{\LWR@dingbatsymbol{270E}}

\LWR@formatted{rightpointright}
\LWR@formatted{leftpointright}
\LWR@formatted{leftthumbsdown}
\LWR@formatted{leftthumbsup}
\LWR@formatted{rightpointleft}
\LWR@formatted{rightthumbsdown}
\LWR@formatted{rightthumbsup}
\LWR@formatted{squarewithdots}
```

```
\LWR@formatted{filledsquarewithdots}
\LWR@formatted{Sborder}
\LWR@formatted{Zborder}
\LWR@formatted{largepencil}
\LWR@formatted{anchor}
\LWR@formatted{carriagereturn}
\LWR@formatted{checkmark}
\LWR@formatted{eye}
\LWR@formatted{satellitedish}
\LWR@formatted{smallpencil}
```

File 113 **lwarp-DotArrow.sty**

§ 222 Package

DotArrow

(*Emulates or patches code by* Sven Schneider.)

Pkg DotArrow

DotArrow is patched for use by lwarp, and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{DotArrow}[2007/02/12]
```

The width must be recomputed each time, depending on print or HTML output.

```
\xpretocmd{\dotarrow}{\settowidth{\oneWidth}{\onePartX}}{}{}

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\dotarrow}[1]{\stackrel{#1}{\unicode{x21E2}}}}
\end{warpMathJax}
```

File 114 **lwarp-dotlessi.sty**

§ 223 Package

dotlessi

(*Emulates or patches code by* Javier Bezos.)

Pkg dotlessi

dotlessi is used as-is for SVG math, and is emulated for MathJax.

⚠ HTML \dotlessj

Use \usepackage{cmap} if \dotlessj does not appear in HTML in text mode. See section 7.4.

⚠ not bold

For MathJax, use \boldsymbol instead of \mathbf.

for HTML output:

```
\LWR@ProvidesPackagePass{dotlessi}[1999/10/12]
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\let\dotlessi\imath}
\CustomizeMathJax{\let\dotlessj\jmath}
\end{warpMathJax}
```

File 115 **lwarp-dprogress.sty**

§ 224 Package dprogress

Pkg dprogress

dprogress is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{dprogress}[2008/02/21]
```

File 116 **lwarp-draftcopy.sty**

§ 225 Package draftcopy

Pkg draftcopy

draftcopy is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{draftcopy}[2002/02/25]

\newcommand{\draftcopyVersion}[1]{}
\newcommand{\draftcopySetGrey}[1]{}
\newcommand{\draftcopySetScale}[1]{}
\newcommand{\draftcopySetScaleFactor}[1]{}
\newcommand{\draftcopyFirstPage}[1]{}
\newcommand{\draftcopyLastPage}[1]{}
\newcommand{\draftcopyName}[2]{}
\newcommand{\draftcopyPageTransform}[1]{}
\newcommand{\draftcopyBottomTransform}[1]{}
\newcommand{\draftcopyPageX}[1]{}
\newcommand{\draftcopyPageY}[1]{}
\newcommand{\draftcopyBottomX}[1]{}
\newcommand{\draftcopyBottomY}[1]{}
```

File 117 **lwarp-draftfigure.sty**

§ 226 Package draftfigure

Pkg draftfigure

draftfigure is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{draftfigure}[2017/07/19]
\RequirePackage{xkeyval}

\define@key{draftfigure}{code}{}
\define@key{draftfigure}{noframe}[true]{}
\define@key{draftfigure}{filename}[true]{}
\define@key{draftfigure}{content}[]{}
\define@key{draftfigure}{style}[normal]{}
\define@key{draftfigure}{position}[left]{}
\define@key{draftfigure}{size}[normal]{}
\newcommand\setdf[1]{\setkeys{draftfigure}{#1}}
```

File 118 **lwarp-draftwatermark.sty**

§ 227 Package draftwatermark

(*Emulates or patches code by* Sergio Callegari.)

Pkg draftwatermark draftwatermark is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{draftwatermark}[2020/03/14]

\newcommand{\DraftwatermarkOptions}[1]{}
\newcommand{\DraftwatermarkStdMark}{}
\newcommand{\SetWatermarkAngle}[1]{}
\newcommand{\SetWatermarkColor}[1]{}
\newcommand{\SetWatermarkLightness}[1]{}
\newcommand{\SetWatermarkFontSize}[1]{}
\newcommand{\SetWatermarkScale}[1]{}
\newcommand{\SetWatermarkHorCenter}[1]{}
\newcommand{\SetWatermarkVertCenter}[1]{}
\newcommand{\SetWatermarkText}[1]{}
```

File 119 **lwarp-drftcite.sty**

§ 228 Package drftcite

(*Emulates or patches code by* Donald Arseneau.)

Pkg drftcite drftcite is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{drftcite}[1995/01/23]

\def\@lbibitem[#1]#2{\global\@HighCite\z@
  \item[
    \textsuperscript{\@nameuse{DCN@#2\@extra@b@citeb}}~%     lwarp
    \@biblabel{\@ifundefined{DCN@#2\@extra@b@citeb}{\@warning
    {Reference `#2' on page \thepage\space was never cited}}{}%
%    \DC@llap{$^{\@nameuse{DCN@#2\@extra@b@citeb}}$\ \ }%%o
   \@citeverb{#2}}\hfil]\if@filesw{\def\protect##1{\string ##1\space}%
   \immediate\write\@auxout{\string\bibcite{#2}{#1}}}\fi\ignorespaces}
```

File 120 **lwarp-easy-todo.sty**

§ 229 Package easy-todo

(*Emulates or patches code by* Juan Rada-Vilela.)

Pkg easy-todo easy-todo is patched for use by lwarp.

To remove the "P." heading for HTML:

```
\warpHTMLonly{\renewcommand{\todoindexpagetitle}{}}
```

for HTML output:

```
\LWR@ProvidesPackagePass{easy-todo}[2014/01/01]
```

`\listoftodos` Modified to correct buggy use of `\flushright`.

```
\let\LWR@easytodo@origlistoftodos\listoftodos

\renewcommand{\listoftodos}{%
\begingroup
\renewcommand{\flushright}{}
\LWR@easytodo@origlistoftodos
\endgroup
}
```

`\todoii` Modified to use `\textcolor` instead of `\color`.

```
\renewcommand{\todoii}[2]{%
\ifthenelse{\equal{\@todoobeyfinal}{true}}%
    {%
        \ifoptionfinal{\todoenable{false}}{\todoenable{true}}%
    }%
    {}%
\ifthenelse{\equal{\@todoenable}{true}}%
    {%
        \refstepcounter{todos}%
        \noindent{%
            \todocolor%
            \LWR@textcurrentcolor{%
                \normalfont\scriptsize{\bfseries{\thetodos.#1}}%
            }%
        }%
      \addcontentsline{lod}{todos}{\protect{\thetodos. }\LWR@isolate{#2}}%
    }%
    {}%
}
```

File 121 **`lwarp-ebook.sty`**

§ 230 Package

ebook

(*Emulates or patches code by* Jørgen Steensgaard.)

Pkg ebook ebook is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{ebook}

\setcounter{secnumdepth}{0}
\setcounter{tocdepth}{2}

\providecommand{\pagefill}[1][0.001mm]{\noindent}

\providecommand{\ebook}{
\setcounter{secnumdepth}{0}
\setcounter{tocdepth}{2}
}
```

File 122 **lwarp-econometrics.sty**

§ 231 Package

econometrics

(*Emulates or patches code by* Erik Kole.)

Pkg econometrics

econometrics is used as-is for SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{econometrics}% no date specified in the original

\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}
\LWR@infoprocessingmathjax{econometrics}

\CustomizeMathJax{\newcommand{\SC}{\mathbb{C}}}
\CustomizeMathJax{\newcommand{\SN}{\mathbb{N}}}
\CustomizeMathJax{\newcommand{\SQ}{\mathbb{Q}}}
\CustomizeMathJax{\newcommand{\SR}{\mathbb{R}}}
\CustomizeMathJax{\newcommand{\SZ}{\mathbb{Z}}}

\CustomizeMathJax{\newcommand{\calA}{\mathcal{A}}}
\CustomizeMathJax{\newcommand{\calB}{\mathcal{B}}}
\CustomizeMathJax{\newcommand{\calC}{\mathcal{C}}}
\CustomizeMathJax{\newcommand{\calD}{\mathcal{D}}}
\CustomizeMathJax{\newcommand{\calE}{\mathcal{E}}}
\CustomizeMathJax{\newcommand{\calF}{\mathcal{F}}}
\CustomizeMathJax{\newcommand{\calG}{\mathcal{G}}}
\CustomizeMathJax{\newcommand{\calH}{\mathcal{H}}}
\CustomizeMathJax{\newcommand{\calI}{\mathcal{I}}}
\CustomizeMathJax{\newcommand{\calJ}{\mathcal{J}}}
\CustomizeMathJax{\newcommand{\calK}{\mathcal{K}}}
\CustomizeMathJax{\newcommand{\calL}{\mathcal{L}}}
\CustomizeMathJax{\newcommand{\calM}{\mathcal{M}}}
\CustomizeMathJax{\newcommand{\calN}{\mathcal{N}}}
\CustomizeMathJax{\newcommand{\calO}{\mathcal{O}}}
\CustomizeMathJax{\newcommand{\calP}{\mathcal{P}}}
\CustomizeMathJax{\newcommand{\calQ}{\mathcal{Q}}}
\CustomizeMathJax{\newcommand{\calR}{\mathcal{R}}}
\CustomizeMathJax{\newcommand{\calS}{\mathcal{S}}}
\CustomizeMathJax{\newcommand{\calT}{\mathcal{T}}}
\CustomizeMathJax{\newcommand{\calU}{\mathcal{U}}}
\CustomizeMathJax{\newcommand{\calV}{\mathcal{V}}}
\CustomizeMathJax{\newcommand{\calW}{\mathcal{W}}}
\CustomizeMathJax{\newcommand{\calX}{\mathcal{X}}}
\CustomizeMathJax{\newcommand{\calY}{\mathcal{Y}}}
\CustomizeMathJax{\newcommand{\calZ}{\mathcal{Z}}}

\LWR@mathjax@addlatin@u@bfit{m}% uppercase Latin, bold italic
\LWR@mathjax@addlatin@l@bfit{v}% lowercase Latin, bold italic

\LWR@mathjax@addgreek@l@bfit{v}{}% lowercase Greek bold italic
\LWR@mathjax@addgreek@u@bfit*{m}{}% uppercase Greek bold italic, capitalized macro names

\CustomizeMathJax{\newcommand{\rb}{\mathrm{b}}}
\CustomizeMathJax{\newcommand{\rB}{\mathrm{B}}}
```

```
\CustomizeMathJax{\newcommand{\rC}{\mathrm{C}}}
\CustomizeMathJax{\newcommand{\rD}{\mathrm{D}}}
\CustomizeMathJax{\newcommand{\rf}{\mathrm{f}}}
\CustomizeMathJax{\newcommand{\rF}{\mathrm{F}}}
\CustomizeMathJax{\newcommand{\rH}{\mathrm{H}}}
\CustomizeMathJax{\newcommand{\rL}{\mathrm{L}}}
\CustomizeMathJax{\newcommand{\rN}{\mathrm{N}}}
\CustomizeMathJax{\newcommand{\rt}{\mathrm{t}}}
\CustomizeMathJax{\newcommand{\rU}{\mathrm{U}}}
\CustomizeMathJax{\newcommand{\rGam}{\mathrm{Gam}}}
\CustomizeMathJax{\newcommand{\rBeta}{\mathrm{Beta}}}

\CustomizeMathJax{\newcommand{\Bin}{\mathrm{Bin}}}
\CustomizeMathJax{\newcommand{\eu}{\mathrm{e}}}
\CustomizeMathJax{\newcommand{\iu}{\mathrm{i}}}
\CustomizeMathJax{\newcommand{\LN}{\mathrm{LN}}}
\CustomizeMathJax{\newcommand{\IN}{\mathrm{IN}}}

\CustomizeMathJax{\newcommand{\Poi}{\mathrm{Poi}}}

\CustomizeMathJax{\newcommand{\ped}[1]{_\mathrm{#1}}}
\CustomizeMathJax{\newcommand{\ap}[1]{^\mathrm{#1}}}
\CustomizeMathJax{\renewcommand{\Re}{\mathrm{Re}}{\nolimits}}
\CustomizeMathJax{\renewcommand{\Im}{\mathrm{Im}}{\nolimits}}

\CustomizeMathJax{\newcommand{\deriv}[3][]{%
    \frac{\mathrm{d}^{#1}#2}{\mathrm{d}\,#3^{#1}}%
}}
\CustomizeMathJax{\newcommand{\pderiv}[3][]{%
    \frac{\partial^{#1}#2}{\partial #3^{#1}}%
}}

\CustomizeMathJax{\newcommand{\bias}{\operatorname{bias}}}
\CustomizeMathJax{\newcommand{\col}{\operatorname{col}}}
\CustomizeMathJax{\newcommand{\corr}{\operatorname{corr}}}
\CustomizeMathJax{\newcommand{\cov}{\operatorname{cov}}}
\CustomizeMathJax{\newcommand{\dg}{\operatorname{dg}}}
\CustomizeMathJax{\newcommand{\diag}{\operatorname{diag}}}
\CustomizeMathJax{\newcommand{\E}{\operatorname{E}}}
\CustomizeMathJax{\newcommand{\etr}{\operatorname{etr}}}
\CustomizeMathJax{\newcommand{\ip}{\mathrm{int}}{\nolimits}}
\CustomizeMathJax{\newcommand{\kur}{\operatorname{kur}}}
\CustomizeMathJax{\newcommand{\MSE}{\operatorname{MSE}}}
\CustomizeMathJax{\newcommand{\MSFE}{\operatorname{MSFE}}}
\CustomizeMathJax{\newcommand{\OLS}{\operatorname{OLS}}}
\CustomizeMathJax{\newcommand{\plim}{\operatorname{plim}}}
\CustomizeMathJax{\newcommand{\resid}{\operatorname{resid}}}
\CustomizeMathJax{\newcommand{\rk}{\operatorname{rk}}}
\CustomizeMathJax{\newcommand{\SE}{\operatorname{SE}}}
\CustomizeMathJax{\newcommand{\sgn}{\operatorname{sgn}}}
\CustomizeMathJax{\newcommand{\tr}{\operatorname{tr}}}
\CustomizeMathJax{\newcommand{\var}{\operatorname{var}}}
\CustomizeMathJax{\renewcommand{\vec}{\operatorname{vec}}}
\CustomizeMathJax{\newcommand{\vech}{\operatorname{vech}}}

\CustomizeMathJax{\newcommand{\distr}{\sim}}
\CustomizeMathJax{\newcommand{\adistr}{\stackrel{a}{\distr}}}
\CustomizeMathJax{\newcommand{\diff}{\Delta}}
\CustomizeMathJax{\newcommand{\fdiff}{\diff_{\rf}}}
\CustomizeMathJax{\newcommand{\bdiff}{\diff_{\rb}}}
```

```
\CustomizeMathJax{\newcommand{\eps}{\epsilon}}
\CustomizeMathJax{\newcommand{\epsi}{\varepsilon}}

\CustomizeMathJax{\newcommand{\longto}{\longrightarrow}}
\CustomizeMathJax{\newcommand{\pto}{\stackrel{p}{\longrightarrow}}}
\CustomizeMathJax{\newcommand{\dto}{\stackrel{d}{\longrightarrow}}}
\CustomizeMathJax{\newcommand{\wto}{\stackrel{w}{\longrightarrow}}}

\CustomizeMathJax{\newcommand{\Infmat}{\bm\calI}}
\CustomizeMathJax{\newcommand{\Hesmat}{\bm\calH}}
\CustomizeMathJax{\newcommand{\bcdot}{\bullet}}

\CustomizeMathJax{\newcommand{\vones}{\bm\imath}}
\CustomizeMathJax{\newcommand{\vzeros}{\boldsymbol{0}}}
\CustomizeMathJax{\newcommand{\mZeros}{\mathbf{O}}}

\CustomizeMathJax{\newcommand{\e}{\eu}}
\CustomizeMathJax{\newcommand{\mply}{\cdot}}
\CustomizeMathJax{\newcommand{\rW}{\ensuremath{\mathrm{W}}}}
\end{warpMathJax}
```

File 123 **lwarp-ed.sty**

§ 232 Package

ed

(*Emulates or patches code by* Michael Kohlhase.)

Pkg ed

ed is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{ed}[2012/01/29]
```

Bugs:

1. `todolist` fails with the `hide` option, as does `\edexplanation`.
2. `\edstubURI` is actually `\edstuURI`.

```
\RequirePackage{xcolor}

\renewenvironment{edstub}[2][The following blue text]
{%
    \def\@test{#1}%
    \begin{center}%
        \huge%
        \textcolor{red}{%
            #1 is only a provisional stub\\\Large
            the Office document
            \ifx\ed@stubURI\@empty{#2}\else\LWR@href{\ed@stubURI}{#2}\fi\
           contains more text\\which will be merged for the final document%
        }%
    \end{center}%
    \BlockClass[color:blue]{edstub}%
}
{\endBlockClass}
```

File 124 **lwarp-ellipsis.sty**

§ 233 Package

ellipsis

(*Emulates or patches code by* Peter J. Heslin.)

Pkg ellipsis

ellipsis is emulated.

```
\LWR@ProvidesPackageDrop{ellipsis}[2004/09/28]

\newcommand{\ellipsisgap}{0.1em}

\newcommand*{\midwordellipsis}{\,\textellipsis\,}
```

File 125 **lwarp-embrac.sty**

§ 234 Package

embrac

(*Emulates or patches code by* Clemens Niederberger.)

Pkg embrac

embrac is patched for HTML and used as-is for print.

for HTML output:

```
\LWR@ProvidesPackagePass{embrac}[2017/07/04]

\ExplSyntaxOn
\RenewDocumentCommand{\embrac_kern:n}{m}{}
\ExplSyntaxOff

\LetLtxMacro\LWR@orig@HTML@emph\LWR@HTML@emph
\RenewDocumentCommand{\LWR@HTML@emph}{s m}{\LWR@orig@HTML@emph{#2}}

\LetLtxMacro\LWR@orig@HTML@textit\LWR@HTML@textit
\RenewDocumentCommand{\LWR@HTML@textit}{s m}{\LWR@orig@HTML@textit{#2}}

\LetLtxMacro\LWR@orig@HTML@textsl\LWR@HTML@textsl
\RenewDocumentCommand{\LWR@HTML@textsl}{s m}{\LWR@orig@HTML@textsl{#2}}

\ifxetexorluatex
    \LetLtxMacro\LWR@orig@HTML@textsi\LWR@HTML@textsi
    \RenewDocumentCommand{\LWR@HTML@textsi}{s m}{%
    \LWR@orig@HTML@textsi{#2}}
\fi

\AtBeginDocument{
    \LWR@formatted{emph}
    \LWR@formatted{textit}
    \LWR@formatted{textsl}
    \ifxetexorluatex
        \LWR@formatted{textsi}
    \fi
}

```

```
\newcommand{\LWR@HTML@EmbracOff}{}
\LWR@formatted{EmbracOff}

\newcommand{\LWR@HTML@EmbracOn}{}
\LWR@formatted{EmbracOn}
```

File 126 **lwarp-emptypage.sty**

§ 235 Package

emptypage

Pkg emptypage

emptypage is ignored.

for HTML output: Discard all options for lwarp-emptypage:

```
\LWR@ProvidesPackageDrop{emptypage}[2010/05/30]
```

File 127 **lwarp-endfloat.sty**

§ 236 Package

endfloat

Pkg endfloat

endfloat is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{endfloat}[2019/04/15]

\newcommand\figureplace{}
\newcommand\tableplace{}
\newcommand\floatplace[1]{}
\newcounter{posttable}
\newcounter{postfigure}
\newcommand*{\theposttbl}{}
\newcommand*{\thepostfig}{}
\newcommand{\AtBeginFigures}[1]{}
\newcommand{\AtBeginTables}[1]{}
\newcommand{\AtBeginDelayedFloats}[1]{}
\newcommand*{\processdelayedfloats}{}
\newcommand*{\efloatseparator}{}
\def\efloattype{}
\providecommand\efloatheading[1]{}
\providecommand\efloatpreamble{}
\providecommand\efloatpostamble{}
\NewDocumentCommand{\addtodelayedfloat}{s m m}{}
\providecommand{\efloatbegin}{}
\providecommand{\efloatend}{}
\providecommand{\efloatbeginlist}{}
\providecommand{\efloatendlist}{}
```

File 128 **lwarp-endheads.sty**

§ 237 Package

endheads

Pkg endheads

endheads is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{endheads}[2017/04/06]
```

```
\newcommand{\changesinglepageabbrev}[1]{}
\newcommand{\changemultiplepageabbrev}[1]{}
\newcommand{\changenotesname}[1]{}
\newcommand{\changenotesheader}[1]{}
\newcommand{\changenotescontentsname}[1]{}
\newcommand{\changechapternotesline}[1]{}
\newcommand{\checknoteheaders}{}
\newif\ifnotesincontentson \notesincontentsonfalse
\newcommand{\notesincontents}{\notesincontentsontrue}
\newif\ifendnoteheaderson \endnoteheadersonfalse
\newcommand{\setupendnoteheaders}{%
    \endnoteheadersontrue%
}
\newif\iftitleinnotes \titleinnotestrue
\newcommand{\styleforchapternotebegin}{}
\newcommand{\styleforchapternoteend}{}
\newcommand{\setstyleforchapternotebegin}[1]{%
    \renewcommand{\styleforchapternotebegin}{#1}%
}
\newcommand{\setstyleforchapternoteend}[1]{%
    \renewcommand{\styleforchapternoteend}{#1}%
}
\newcommand{\resetendnotes}{}
\newif\ifnotesbychapteron \notesbychapteronfalse
\newcommand{\notesbychapter}{\notesbychapterontrue}
```

File 129 **lwarp-endnotes.sty**

§ 238 Package

endnotes

(*Emulates or patches code by* John Lavagnino.)

Pkg endnotes

Patched for HTML.

table of contents

To place the endnotes in the TOC, use:

```
\usepackage{endnotes}
\appto\enoteheading{\addcontentsline{toc}{section}{\notesname}}
\renewcommand*{\notesname}{Endnotes} % optional
```

HTML page

To additionally have the endnotes on their own HTML page, if `FileDepth` allows:

```
\ForceHTMLPage
\theendnotes
```

⚠ `\endnotemark` numbering

If using MathJax, see section 8.5.4 regarding the use of `\endnotemark` and `\endnotetext`.

for HTML output:

```
\LWR@ProvidesPackagePass{endnotes}
```

```
\def\enoteformat{%
% \rightskip\z@ \leftskip\z@ \parindent=1.8em
\leavevmode
% \llap{
\makeenmark
% }
}
```

```
\def\LWR@HTML@@makeenmark{\hbox{\LWR@htmlspan{sup}{\normalfont\theenmark}}}
\LWR@formatted{@makeenmark}

\def\makeenmark{\@makeenmark}
```

To nullify the endnotes:

```
\apptocmd{\LWR@nullifyfootnotes}{%
    \renewcommand{\endnote}[2][]{}%
    \renewcommand{\endnotemark}[1]{}%
}{}{}
```

For MathJax:

```
\begin{warpMathJax}
\def\endnotename{endnote}
\appto\LWR@syncnotenumbers{\LWR@synconenotenumber{LWRendnote}{\theendnote}}
\appto\LWR@syncnotenames{\LWR@synconenotename{LWRendnote}{\endnotename}}
\CustomizeMathJax{\def\LWRendnote{1}}
\CustomizeMathJax{\newcommand{\endnote}[2][\LWRendnote]{{}^{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\endnotemark}[1][\LWRendnote]{{}^{\mathrm{#1}}}}
\end{warpMathJax}
```

File 130 **lwarp-engtlc.sty**

§ 239 Package

engtlc

(*Emulates or patches code by* Claudio Fiandrino.)

Pkg engtlc

engtlc is patched for use by lwarp. MathJax is emulated.

⚠ For MathJax, `\signt`, `\signf`, `\signn`, and `\signz` do not force letter case as they do in SVG math.

for HTML output:

```
\LWR@ProvidesPackagePass{engtlc}[2012/12/18]

\newcommand{\LWR@HTML@finees}{%
    \begin{BlockClass}[text-align:right]{exerend}%
    \HTMLunicode{220E}%
    \end{BlockClass}%
}
\LWR@formatted{finees}

\newcommand{\LWR@HTML@exerend}{\finees}
\LWR@formatted{exerend}

\begin{warpMathJax}
\LWR@infoprocessingmathjax{engtlc}

\CustomizeMathJax{\newcommand{\unit}[1]{\,\mathrm{#1}}}
\CustomizeMathJax{\newcommand{\micro}{\mathrm{\unicode{x00B5}}}}
%
\CustomizeMathJax{\newcommand{\ho}{\unit{h}}}
\CustomizeMathJax{\newcommand{\s}{\unit{s}}}
\CustomizeMathJax{\newcommand{\ms}{\unit{ms}}}
\CustomizeMathJax{\newcommand{\us}{\unit{\micro s}}}
\CustomizeMathJax{\newcommand{\ns}{\unit{ns}}}
```

```
\CustomizeMathJax{\newcommand{\ps}{\unit{ps}}}
%
\CustomizeMathJax{\newcommand{\um}{\unit{\micro m}}}
\CustomizeMathJax{\newcommand{\mm}{\unit{mm}}}
\CustomizeMathJax{\newcommand{\cm}{\unit{cm}}}
\CustomizeMathJax{\newcommand{\dm}{\unit{dm}}}
\CustomizeMathJax{\newcommand{\m}{\unit{m}}}
\CustomizeMathJax{\newcommand{\km}{\unit{km}}}
%
\CustomizeMathJax{\newcommand{\MA}{\unit{MA}}}
\CustomizeMathJax{\newcommand{\kA}{\unit{kA}}}
\CustomizeMathJax{\newcommand{\A}{\unit{A}}}
\CustomizeMathJax{\newcommand{\mA}{\unit{mA}}}
\CustomizeMathJax{\newcommand{\uA}{\unit{\micro A}}}
\CustomizeMathJax{\newcommand{\nA}{\unit{nA}}}
%
\CustomizeMathJax{\newcommand{\MV}{\unit{MV}}}
\CustomizeMathJax{\newcommand{\kV}{\unit{kV }}}
\CustomizeMathJax{\newcommand{\V}{\unit{V}}}
\CustomizeMathJax{\newcommand{\mV}{\unit{mV}}}
\CustomizeMathJax{\newcommand{\uV}{\unit{\micro V}}}
%
\CustomizeMathJax{\newcommand{\mohm}{\unit{m\Omega}}}
\CustomizeMathJax{\newcommand{\ohm}{\unit{\Omega}}}
\CustomizeMathJax{\newcommand{\kohm}{\unit{k\Omega}}}
\CustomizeMathJax{\newcommand{\Mohm}{\unit{M\Omega}}}
%
\CustomizeMathJax{\newcommand{\pSi}{\unit{pS}}}
\CustomizeMathJax{\newcommand{\nSi}{\unit{nS}}}
\CustomizeMathJax{\newcommand{\uSi}{\unit{\micro S}}}
\CustomizeMathJax{\newcommand{\mSi}{\unit{mS}}}
\CustomizeMathJax{\newcommand{\Si}{\unit{S}}}
\CustomizeMathJax{\newcommand{\kSi}{\unit{kS}}}
\CustomizeMathJax{\newcommand{\MSi}{\unit{MS}}}
%
\CustomizeMathJax{\newcommand{\fFa}{\unit{fF}}}
\CustomizeMathJax{\newcommand{\pFa}{\unit{pF}}}
\CustomizeMathJax{\newcommand{\nFa}{\unit{nF}}}
\CustomizeMathJax{\newcommand{\uFa}{\unit{\micro F}}}
\CustomizeMathJax{\newcommand{\mFa}{\unit{mF}}}
\CustomizeMathJax{\newcommand{\Fa}{\unit{F}}}
%
\CustomizeMathJax{\newcommand{\fHe}{\unit{fH}}}
\CustomizeMathJax{\newcommand{\pHe}{\unit{pH}}}
\CustomizeMathJax{\newcommand{\nHe}{\unit{nH}}}
\CustomizeMathJax{\newcommand{\uHe}{\unit{\micro H}}}
\CustomizeMathJax{\newcommand{\mHe}{\unit{mH}}}
\CustomizeMathJax{\newcommand{\He}{\unit{H}}}
%
\CustomizeMathJax{\newcommand{\dB}{\unit{dB}}}
\CustomizeMathJax{\newcommand{\dBm}{\unit{dBm}}}
%
\CustomizeMathJax{\newcommand{\uW}{\unit{\micro W}}}
\CustomizeMathJax{\newcommand{\mW}{\unit{mW}}}
\CustomizeMathJax{\newcommand{\W}{\unit{W}}}
\CustomizeMathJax{\newcommand{\kW}{\unit{kW}}}
\CustomizeMathJax{\newcommand{\MW}{\unit{MW}}}
%
\CustomizeMathJax{\newcommand{\Hz}{\unit{Hz}}}
\CustomizeMathJax{\newcommand{\kHz}{\unit{kHz}}}
```

```
\CustomizeMathJax{\newcommand{\MHz}{\unit{MHz}}}
\CustomizeMathJax{\newcommand{\GHz}{\unit{GHz}}}
\CustomizeMathJax{\newcommand{\THz}{\unit{THz}}}
%
\CustomizeMathJax{\newcommand{\bit}{\unit{bit}}}
\CustomizeMathJax{\newcommand{\kbit}{\unit{Kib}}}
\CustomizeMathJax{\newcommand{\Mbit}{\unit{Mib}}}
\CustomizeMathJax{\newcommand{\Byte}{\unit{B}}}
\CustomizeMathJax{\newcommand{\kByte}{\unit{KiB}}}
\CustomizeMathJax{\newcommand{\MByte}{\unit{Mib}}}
\CustomizeMathJax{\newcommand{\GByte}{\unit{GiB}}}
\CustomizeMathJax{\newcommand{\TByte}{\unit{TiB}}}
\CustomizeMathJax{\newcommand{\bits}{\unit{bit/s}}}
\CustomizeMathJax{\newcommand{\kbits}{\unit{Kib/s}}}
\CustomizeMathJax{\newcommand{\Mbits}{\unit{Mib/s}}}
\CustomizeMathJax{\newcommand{\Bytes}{\unit{B/s}}}
\CustomizeMathJax{\newcommand{\kBytes}{\unit{KiB/s}}}
\CustomizeMathJax{\newcommand{\MBytes}{\unit{MiB/s}}}
\CustomizeMathJax{\newcommand{\GBytes}{\unit{GiB/s}}}
\CustomizeMathJax{\newcommand{\TBytes}{\unit{TiB/s}}}
\CustomizeMathJax{\newcommand{\chips}{\unit{chip/s}}}
\CustomizeMathJax{\newcommand{\kchips}{\unit{Ki\mkern2mu chip/s}}}
\CustomizeMathJax{\newcommand{\Mchips}{\unit{Mi\mkern2mu chip/s}}}
\CustomizeMathJax{\newcommand{\chipsubit}{\unit{chip/bit}}}
%
\CustomizeMathJax{\newcommand{\frecciadex}[1][0.5]{%
    \hspace{.25cm}\Longrightarrow \hspace{.25cm}}%
}
\CustomizeMathJax{\newcommand{\varianzarumore}{\frac{N_0}{2}}}
%
\CustomizeMathJax{\newcommand{\etsymbolbracearg}[2]{%
    #1\mathopen{}\left\lbrace#2\right\rbrace\mathclose{}}%
}
\CustomizeMathJax{\newcommand{\fourier}[1]{\etsymbolbracearg{\mathcal{F}}{#1}}}
\CustomizeMathJax{\newcommand{\invfourier}[1]{\etsymbolbracearg{\mathcal{F}^{-1}}{#1}}}
\CustomizeMathJax{\newcommand{\partereale}[1]{\etsymbolbracearg{\textbf{Re}}{#1}}}
\CustomizeMathJax{\newcommand{\parteimm}[1]{\etsymbolbracearg{\textbf{Im}}{#1}}}
\CustomizeMathJax{\newcommand{\Info}[1]{I\left(#1\right)}}
\CustomizeMathJax{\newcommand{\versore}[1]{\hat{#1}}}
\CustomizeMathJax{\newcommand{\vettore}[1]{\overrightarrow{#1}}}
\CustomizeMathJax{\newcommand{\coseno}[1]{\cos\left(2\pi#1t\right)}}
\CustomizeMathJax{\newcommand{\seno}[1]{\sin\left(2\pi#1t\right)}}
\CustomizeMathJax{\newcommand{\energia}[1]{\mathcal{E}_{#1}}}
\CustomizeMathJax{\newcommand{\moduloexp}[2]{\left\vert#1\right\vert^{#2}}}
\CustomizeMathJax{\newcommand{\modulo}[1]{\left\vert#1\right\vert}}
\CustomizeMathJax{\newcommand{\indB}[1]{%
    \mathopen{}\left.#1\right\vert_{\mathrm{dB}}\mathclose{}}}%
\CustomizeMathJax{\newcommand{\for}[2]{\left. #1 \right\vert_{#2}}}
\CustomizeMathJax{\newcommand{\massimo}[1]{\etsymbolbracearg{\max}{#1}}}
\CustomizeMathJax{\newcommand{\minimo}[1]{\etsymbolbracearg{\min}{#1}}}
\CustomizeMathJax{\newcommand{\valc}{3\cdot 10^8}}
\CustomizeMathJax{\newcommand{\loga}[2]{\log_{#1}#2}}
\CustomizeMathJax{\newcommand{\analitic}[1]{\mathring{#1}}}
\CustomizeMathJax{\newcommand{\diff}{\mathop{}\mathopen{\mathrm{d}}}}
\CustomizeMathJax{\newcommand{\intinf}[1]{\int_{-\infty}^{+\infty}{#1}}}
\CustomizeMathJax{\newcommand{\deltain}[1]{\delta\left(#1\right)}}
\CustomizeMathJax{\newcommand{\iu}{\mathrm{j}}}
\CustomizeMathJax{\newcommand{\ex}[1]{\mathrm{e}^{#1}}}
%
\CustomizeMathJax{\newcommand{\gammatens}{{}^{\mathrm{V}}\Gamma}}
```

```
\CustomizeMathJax{\newcommand{\gammacorr}{{}^{\mathrm{I}}\Gamma}}
\CustomizeMathJax{\newcommand{\gammatensin}[1]{{}^{\mathrm{V}}\Gamma_{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\gammacorrin}[1]{{}^{\mathrm{I}}\Gamma_{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\gammain}[1]{\Gamma_{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\gammak}{{}^{\mathrm{k}}\Gamma}}
%
\CustomizeMathJax{\newcommand{\lbvt}{\lambda_0}}
\CustomizeMathJax{\newcommand{\lbg}{\lambda_g}}
\CustomizeMathJax{\newcommand{\lbgvt}{\lambda_{g_0}}}
%
\CustomizeMathJax{\newcommand{\potin}[1]{P_{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\potdisp}[1][]{P_{\mathrm{disp}}^{#1}}}
\CustomizeMathJax{\newcommand{\potDC}[1][]{P_{\mathrm{DC}}^{#1}}}
\CustomizeMathJax{\newcommand{\potCC}[1][]{P_{\mathrm{CC}}^{#1}}}
\CustomizeMathJax{\newcommand{\potirr}[1][]{P_{\mathrm{irr}}^{#1}}}
\CustomizeMathJax{\newcommand{\potdiss}[1][]{P_{\mathrm{diss}}^{#1}}}
\CustomizeMathJax{\newcommand{\potinc}[1][]{P_{\mathrm{inc}}^{#1}}}
%
\CustomizeMathJax{\newcommand{\z}[1]{Z_{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\znorm}[1]{z_{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\y}[1]{Y_{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\ynorm}[1]{y_{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\zinf}[1][]{Z_{\infty#1}}}
\CustomizeMathJax{\newcommand{\zinfn}[1]{\zinf[#1]}}
\CustomizeMathJax{\newcommand{\yinf}[1][]{Y_{\infty#1}}}
\CustomizeMathJax{\newcommand{\yinfn}[1]{\yinf[#1]}}
\CustomizeMathJax{\newcommand{\zvt}{Z_0}}
\CustomizeMathJax{\newcommand{\yvt}{Y_0}}
%
\CustomizeMathJax{\newcommand{\campoe}{\underline{\mathcal{E}}(\underline{r},t)}}
\CustomizeMathJax{\newcommand{\campoefas}{\underline{E}(\underline{r})}}
\CustomizeMathJax{\newcommand{\campoh}{\underline{\mathcal{H}}(\underline{r},t)}}
\CustomizeMathJax{\newcommand{\campohfas}{\underline{H}(\underline{r})}}
%
\CustomizeMathJax{\newcommand{\signt}[1]{{#1}(t)}}
\CustomizeMathJax{\newcommand{\signf}[1]{{#1}(f)}}
\CustomizeMathJax{\newcommand{\signn}[1]{{#1}(n)}}
\CustomizeMathJax{\newcommand{\signz}[1]{{#1}(z)}}
%
\CustomizeMathJax{\newcommand{\prob}[1]{\mathcal{P}\left(#1\right)}}
\CustomizeMathJax{\newcommand{\valatt}[1]{\mathbb{E}\left[#1\right]}}
\CustomizeMathJax{\newcommand{\var}[1]{\mathrm{Var}\left[#1\right]}}
\CustomizeMathJax{\newcommand{\comma}{\, , \,}}
\CustomizeMathJax{\newcommand{\dato}{\,|\,}}
%
\CustomizeMathJax{\let\bfRe\partereale}
\CustomizeMathJax{\let\bfIm\parteimm}
\CustomizeMathJax{\let\noisevar\varianzarumore}
% \CustomizeMathJax{\let\exerend\finees}
\CustomizeMathJax{\let\Spimplies\frecciadex}
\CustomizeMathJax{\let\Downimplies\frecciadown}
\CustomizeMathJax{\let\unitvec\versore}
\CustomizeMathJax{\let\vector\vettore}
\CustomizeMathJax{\let\cosine\coseno}
\CustomizeMathJax{\let\sine\seno}
\CustomizeMathJax{\let\energy\energia}
\CustomizeMathJax{\let\Abs\modulo}
\CustomizeMathJax{\let\AbsPow\moduloexp}
\CustomizeMathJax{\let\Max\massimo}
\CustomizeMathJax{\let\Min\minimo}
```

```
\CustomizeMathJax{\let\clight\valc}
\CustomizeMathJax{\let\Log\loga}
\CustomizeMathJax{\let\analytic\analitic}
\CustomizeMathJax{\let\infint\intinf}
\CustomizeMathJax{\let\deltaimp\deltain}
\CustomizeMathJax{\let\Vgamma\gammatens}
\CustomizeMathJax{\let\Cgamma\gammacorr}
\CustomizeMathJax{\let\Vgammain\gammatensin}
\CustomizeMathJax{\let\Cgammain\gammacorrin}
\CustomizeMathJax{\let\Kgamma\gammak}
\CustomizeMathJax{\let\powerin\potin}
\CustomizeMathJax{\let\availpow\potdisp}
\CustomizeMathJax{\let\irrpow\potirr}
\CustomizeMathJax{\let\disspow\potdiss}
\CustomizeMathJax{\let\incpow\potinc}
\CustomizeMathJax{\let\potalim\potCC}
\CustomizeMathJax{\let\potDC\potCC}
\CustomizeMathJax{\let\Efield\campoe}
\CustomizeMathJax{\let\Hfield\campoh}
\CustomizeMathJax{\let\phasorEfield\campoefas}
\CustomizeMathJax{\let\phasorHfiled\campohfas}
\CustomizeMathJax{\let\given\dato}
\CustomizeMathJax{\let\expval\valatt}
\CustomizeMathJax{\let\rmexp\ex}
\end{warpMathJax}
```

File 131 **lwarp-enotez.sty**

§ 240 Package enotez

(*Emulates or patches code by* Clemens Niederberger.)

Pkg enotez

enotez is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{enotez}[2020/12/13]
```

Hyperref is emulated by lwarp, so it is forced on for enotez:

```
\ExplSyntaxOn
\AtBeginDocument{
    \bool_set_true:N \l__enotez_hyperref_bool
    \bool_set_true:N \l__enotez_hyperfootnotes_bool
}
```

Do not move or \hbox the \hypertarget:

```
% typeset the actual mark:
% #1: id
% #2: mark
\cs_gset_protected:Npn \enotez_write_mark:nn #1#2
  {
    \bool_if:NTF \l__enotez_hyperfootnotes_bool
      {
        \enotezwritemark { \hyperlink {enz.#1} { \enmarkstyle #2 } }
        \bool_if:NT \l__enotez_hyperbackref_bool
          {
%             \box_move_up:nn {1em} {
```

```
%                 \hbox:n {
                    \hypertarget {enz.#1.backref} { }
%                 }
%             }
          }
      }
      { \enotezwritemark { \enmarkstyle #2 } }
  }
\cs_generate_variant:Nn \enotez_write_mark:nn {x}
```

Do not move or \hbox the \hypertarget:

```
\cs_gset_protected:Npn \enotez_write_list_number:n #1
  {
    \bool_if:NT \l__enotez_hyperfootnotes_bool
      {
%         \box_move_up:nn {1em} { \hbox:n {
            \hypertarget {enz.#1} { }
%         } }
      }
    \tl_use:N \l__enotez_list_number_format_tl
    \tl_if_eq:nxTF {a} { \prop_item:Nn \g__enotez_endnote_man_prop {#1} }
      {
        \bool_if:nTF
         { \l__enotez_hyperfootnotes_bool && \l__enotez_hyperbackref_bool }
          {
            \exp_args:Nnx
            \hyperlink {enz.#1.backref}
              { \exp_not:V \l__enotez_endnote_mark_tl }
          }
          { \prop_item:Nn \g__enotez_endnote_mark_prop {#1} }
      }
      {
        \bool_if:nTF
         { \l__enotez_hyperfootnotes_bool && \l__enotez_hyperbackref_bool }
          {
            \exp_args:Nnx
            \hyperlink {enz.#1.backref}
              { \exp_not:V \l__enotez_endnote_mark_tl }
          }
          { \tl_use:N \l__enotez_endnote_mark_tl }
      }
  }
```

Do not move the label to the left:

```
\DeclareTemplateCode {enotez-list} {paragraph} {1}
  {
    heading       = \enotez_list_heading:n           ,
    format        = \l__enotez_list_format_tl        ,
    number        = \enotez_list_number:n            ,
    number-format = \l__enotez_list_number_format_tl ,
    notes-sep     = \l__enotez_list_notes_sep_dim
  }
  {
    \AssignTemplateKeys
    \enotez_set_totoc:
    \enotez_list_heading:n { \l__enotez_list_name_tl }
    \enotez_list_preamble:
    \enotez_build_print_list:nnnn {#1}
```

```
      {}
      {
        \par\noindent
        \group_begin:
          \tl_use:N \l__enotez_list_format_tl
%           \hbox_overlap_left:n
%             {
              \enotez_list_number:n
                { \enotez_write_list_number:n {##1} }
              \tl_use:N \c_space_tl
%             }
          % \cs_set:cpn {@currentlabel}
          %   { \p@endnote \l__enotez_endnote_mark_tl }
          \tl_use:N \g__enotez_endnote_text_tl
          \par
          \dim_compare:nT { \l__enotez_list_notes_sep_dim != 0pt }
            { \addvspace { \l__enotez_list_notes_sep_dim } }
        \group_end:
      }
      {}
    \enotez_list_postamble:
  }

\ExplSyntaxOff
```

For MathJax:

```
\begin{warpMathJax}
\def\endnotename{endnote}
\appto\LWR@syncnotenumbers{\LWR@synconenotenumber{LWRendnote}{\theendnote}}
\appto\LWR@syncnotenames{\LWR@synconenotename{LWRendnote}{\endnotename}}
\CustomizeMathJax{\def\LWRendnote{1}}
\CustomizeMathJax{\newcommand{\endnote}[2][\LWRendnote]{{}^{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\endnotemark}[1][\LWRendnote]{{}^{\mathrm{#1}}}}
\end{warpMathJax}
```

File 132 **lwarp-enumerate.sty**

§ 241 Package enumerate

Pkg enumerate

enumerate is supported with no changes.

This package is only required because it was used in the past to drop and then emulate the package. It cannot be removed because an older version which dropped the package may still remain, for example in a local vs. distribution directory, but it is now supported directly by lwarp and thus must no longer be dropped.

for HTML output:

```
\LWR@ProvidesPackagePass{enumerate}[2015/07/23]
```

File 133 **lwarp-enumitem.sty**

§ 242 Package enumitem

(*Emulates or patches code by* Javier Bezos.)

Pkg enumitem

enumitem is supported with minor adjustments.

for HTML output:

```
\LWR@ProvidesPackagePass{enumitem}[2018/11/30]
```

\newlist {⟨*name*⟩} {⟨*type*⟩} {⟨*maxdepth*⟩}
\renewlist {⟨*name*⟩} {⟨*type*⟩} {⟨*maxdepth*⟩}

For enumitem lists, new lists must have the start and end actions assigned to the new environment. Renewed lists already have their actions assigned, and thus need no changes.

```
\let\LWR@enumitem@orignewlist\newlist

\renewcommand*{\newlist}[3]{%
\LWR@enumitem@orignewlist{#1}{#2}{#3}%
\AtBeginEnvironment{#1}{\@nameuse{LWR@#2start}}%
\AtEndEnvironment{#1}{\@nameuse{LWR@#2end}}%
}

\def\DrawEnumitemLabel{}
```

File 134 **lwarp-epigraph.sty**

§ 243 Package

epigraph

(*Emulates or patches code by* Peter Wilson.)

Pkg epigraph

epigraph is emulated for HTML, and used as-is for print output.

Use CSS to format epigraphs.

for HTML output:

```
\LWR@ProvidesPackagePass{epigraph}[2020/01/02]


\DeclareDocumentCommand{\LWR@HTML@qitem}{m m}
{%
    \begin{BlockClass}{qitem}%
    #1%
    \LWR@stoppars%
    \ifbool{FormatWP}%
        {\begin{BlockClass}[border-top:1px solid gray]{epigraphsource}}%
        {\begin{BlockClass}{epigraphsource}}%
    #2%
    \end{BlockClass}%
    \end{BlockClass}%
}
\LWR@formatted{qitem}
```

epigraph: Added ARIA role.

```
\DeclareDocumentCommand{\LWR@HTML@epigraph}{m m}
{%
  \begin{LWR@BlockClassWP}{\LWR@print@mbox{text-align:right}}{}(note){epigraph}%
    \qitem{#1}{#2}%
    \end{LWR@BlockClassWP}%
}
\LWR@formatted{epigraph}
```

```
\DeclareDocumentEnvironment{LWR@HTML@epigraphs}{}
  {\LWR@BlockClassWP{\LWR@print@mbox{text-align:right}}{}(note){epigraph}}%
    {\endLWR@BlockClassWP}
\LWR@formattedenv{epigraphs}
```

The following cannot be used in print mode while generating HTML:

```
\renewcommand{\epigraphhead}[2][0]{#2}
\renewcommand{\dropchapter}[1]{}
\renewcommand*{\undodrop}{}
```

File 135 **lwarp-epsf.sty**

§ 244 Package

epsf

(*Emulates or patches code by* Tom Rokicki.)

Pkg epsf

epsf is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{epsf}% not date given

\xpretocmd{\epsfsetgraph}
    {\begin{lateximage}}
    {}
    {\LWR@patcherror{lwarp-epsf}{epsfsetgraph-begin}}

\xapptocmd{\epsfsetgraph}
    {\end{lateximage}}
    {}
    {\LWR@patcherror{lwarp-epsf}{epsfsetgraph-end}}
```

File 136 **lwarp-epsfig.sty**

§ 245 Package

epsfig

Pkg epsfig

epsfig is emulated for use by lwarp.



Only the LaTeX2e syntax is emulated.

for HTML output:

```
\LWR@ProvidesPackagePass{epsfig}[2017/06/25]
```

A few additional keys to capture the filename:

```
\RequirePackage{graphics}

\define@key{igraph}{file}{%
    \xdef\LWR@epsfig@filename{#1}%
}

\define@key{igraph}{figure}{%
    \xdef\LWR@epsfig@filename{#1}%
}

```

```
\define@key{igraph}{prolog}{}

\define@key{igraph}{silent}[]{}
```

The captured filename is used as the argument to `\includegraphics`:

```
\newcommand{\LWR@HTML@epsfig}[1]{\includegraphics[#1]{\LWR@epsfig@filename}}
\LWR@formatted{epsfig}

\newcommand{\LWR@HTML@psfig}[1]{\includegraphics[#1]{\LWR@epsfig@filename}}
\LWR@formatted{psfig}
```

File 137 **lwarp-epstopdf.sty**

§ 246 Package epstopdf

Pkg epstopdf

Previous versions of lwarp had a nullfied version, but now epstopdf-base is supported. lwarp-epstopdf becomes a placeholder to overwrite previous versions.

See package epstopdf-base for details.

for HTML output:

```
\LWR@ProvidesPackagePass{epstopdf}[2020-01-24]
```

File 138 **lwarp-epstopdf-base.sty**

§ 247 Package epstopdf-base

Pkg epstopdf-base

⚠ convert to .svg

Images with an .eps extension will be converted to .pdf. The HTML output uses the .svg version, so use

Enter ⇒ **lwarpmk pdftosvg <listofPDFfiles>**

to generate .svg versions.

for HTML output:

```
\LWR@ProvidesPackagePass{epstopdf-base}[2020-01-24]
```

Redefine to remember the image filename, replacing .pdf with .svg. Use the epstopdf print version inside a lateximage.

```
\newcommand*{\LWR@HTML@ETE@OrgGin@setfile}[3]{%
    \edef\LWR@tempone{#3}%
    \StrSubstitute{\LWR@tempone}{.pdf}{.svg}[\LWR@tempone]%
    \StrSubstitute{\LWR@tempone}{.PDF}{.SVG}[\LWR@tempone]%
    \xdef\LWR@parsedfilename{\LWR@tempone}%
}

\LWR@formatted{ETE@OrgGin@setfile}
```

`\includegraphics` in HTML mode redefines `\Gin@setfile` to be `\LWR@HTML@Gin@setfile`, which is now redirected to epstopdf's version:

```
\renewcommand*{\LWR@HTML@Gin@setfile}[3]{%
    \ETE@Gin@setfile{#1}{#2}{#3}%
}
```

Allow .eps images to be found if a suffix is not provided:

```
\AtBeginDocument{
\DeclareGraphicsExtensions{%
    .eps,.EPS,.svg,.SVG,.gif,.GIF,.png,.PNG,.jpg,.JPG,.jpeg,.JPEG%
}
\DeclareGraphicsRule{.svg}{svg}{.svg}{}
\DeclareGraphicsRule{.SVG}{svg}{.SVG}{}
}
```

Likewise when inside a `lateximage`:

```
\appto\LWR@restoreorigformatting{%
\DeclareGraphicsExtensions{%
    .eps,.EPS,.pdf,.PDF,.gif,.GIF,.png,.PNG,.jpg,.JPG,.jpeg,.JPEG%
}%
}
```

File 139 **lwarp-eqlist.sty**

§ 248 Package

eqlist

Pkg eqlist

eqlist is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{eqlist}[2002/08/15]
```

```
\newenvironment{eqlist}[1][]{\description}{\enddescription}
\newenvironment{eqlist*}[1][]{\description}{\enddescription}
\newenvironment{Eqlist}[2][]{\description}{\enddescription}
\newenvironment{Eqlist*}[2][]{\description}{\enddescription}
\newcommand*{\longitem}[1][]{\item[#1]}
\newcommand*{\eqlistinit}{}
\newcommand*{\eqliststarinit}{}
\newcommand*{\eqlistinitpar}{}
\def\eqlistlabel#1{#1}
\newcommand{\eqlistauto}[1]{}
\newcommand{\eqlistnoauto}{}
```

File 140 **lwarp-eqparbox.sty**

§ 249 Package

eqparbox

(*Emulates or patches code by* Scott Pakin.)

Pkg eqparbox

eqparbox is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{eqparbox}[2017/09/03]
```

```
\NewDocumentCommand{\LWR@HTML@eqparbox}{O{t} O{} O{t} m +m}{%
```

```
    {%
        \minipagefullwidth%
        \parbox[#1][#2][#3]{\linewidth}{#5}%
    }%
}
\LWR@formatted{eqparbox}

\NewDocumentCommand{\LWR@HTML@eqmakebox}{o o m}{%
    \makebox[#2]{#3}%
}
\LWR@formatted{eqmakebox}

\NewDocumentCommand{\LWR@HTML@eqframebox}{o o m}{%
    \framebox[#2]{#3}%
}
\LWR@formatted{eqframebox}

\NewDocumentEnvironment{LWR@HTML@eqminipage}{O{t} O{} O{t} m}
{%
    \begingroup%
    \minipagefullwidth%
    \minipage[#1][#2][#3]{\linewidth}%
}%
{%
    \endminipage%
    \endgroup%
}

\newcommand*{\LWR@HTML@eqboxwidth}[1]{.25\linewidth}
\LWR@formatted{eqboxwidth}

\newcommand*{\LWR@HTML@eqsetminwidth}[2]{}
\newcommand*{\LWR@HTML@eqsetmaxwidth}[2]{}

\newcommand*{\LWR@HTML@eqsetminwidthto}[2]{}
\newcommand*{\LWR@HTML@eqsetmaxwidthto}[2]{}
```

File 141 **lwarp-errata.sty**

§ 250 Package

errata

(*Emulates or patches code by* Michael Kohlhase.)

Pkg errata

errata is patched for use by lwarp.

This is for v0.3 of errata. A newer version of errata with more features is under development, at which time the lwarp version will have to be updated.

for HTML output:

Macros are being defined with the math dollar, so enable the HTML version during package loading:

```
\StartDefiningMath
```

Now load the package:

```
\LWR@ProvidesPackagePass{errata}[2006/11/12]
```

Patches for dynamic inline math:

```
\xpatchcmd{\erratumAdd}
    {$_a^{\arabic{erratum}}$}
%     {\inlinemathother$_a^{\arabic{erratum}}$\inlinemathnormal}
    {\textsubscript{a}\textsuperscript{\arabic{erratum}}}
    {}
    {\LWR@patcherror{erratum}{erratumAdd}}

\xpatchcmd{\erratumDelete}
    {$_d^{\arabic{erratum}}$}
%     {\inlinemathother$_d^{\arabic{erratum}}$\inlinemathnormal}
    {\textsubscript{d}\textsuperscript{\arabic{erratum}}}
    {}
    {\LWR@patcherror{erratum}{erratumDelete}}

\xpatchcmd{\erratumReplace}
    {$_r^{\arabic{erratum}}$}
%     {\inlinemathother$_r^{\arabic{erratum}}$\inlinemathnormal}
    {\textsubscript{r}\textsuperscript{\arabic{erratum}}}
    {}
    {\LWR@patcherror{erratum}{erratumReplace}}

\xpatchcmd{\erratum}
    {$_a$}
%     {\inlinemathother$_a$\inlinemathnormal}
    {\textsubscript{a}}
    {}
    {\LWR@patcherror{erratum}{erratumDelete}}

\xpatchcmd{\erratum}
    {$_d^{\@thefnmark}$}
%     {\inlinemathother$_d^{\@thefnmark}$\inlinemathnormal}
    {\textsubscript{d}\textsuperscript{\@thefnmark}}
    {}
    {\LWR@patcherror{erratum}{eDelete}}

\xpatchcmd{\erratum}
    {$_r^{\@thefnmark}$}
%     {\inlinemathother$_r^{\@thefnmark}$\inlinemathnormal}
    {\textsubscript{r}\textsuperscript{\@thefnmark}}
    {}
    {\LWR@patcherror{erratum}{eReplace}}
```

Finish the current page's errata before closing and reloading the list:

```
\preto\PrintErrata{\LWR@maybe@orignewpage}
```

No longer defining math macros with the HTML $:

```
\StopDefiningMath
```

File 142 **lwarp-eso-pic.sty**

§ 251 Package eso-pic

(*Emulates or patches code by* ROLF NIEPRASCHK.)

Pkg eso-pic

eso-pic is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{eso-pic}[2018/04/12]

\newcommand*{\LenToUnit}{}
\newcommand{\AtPageUpperLeft}[1]{}
\newcommand{\AtPageLowerLeft}[1]{}
\newcommand{\AtPageCenter}[1]{}
\newcommand{\AtStockLowerLeft}[1]{}
\newcommand{\AtStockUpperLeft}[1]{}
\newcommand{\AtStockCenter}[1]{}
\newcommand{\AtTextUpperLeft}[1]{}
\newcommand{\AtTextLowerLeft}[1]{}
\newcommand{\AtTextCenter}[1]{}
\NewDocumentCommand{\AddToShipoutPictureBG}{s +m}{}

\newcommand{\AddToShipoutPicture}{\AddToShipoutPictureBG}
\NewDocumentCommand{\AddToShipoutPictureFG}{s +m}{}
\newcommand*{\ClearShipoutPictureBG}{}
\newcommand*{\ClearShipoutPicture}{}
\newcommand*{\ClearShipoutPictureFG}{}
\newcommand{\gridSetup}[6][]{}
```

File 143 **lwarp-esvect.sty**

§ 252 Package esvect

(*Emulates or patches code by* Eddie Saudrais.)

Pkg esvect

esvect is used as-is for SVG math, and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{esvect}% no date given

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\LWResvectvv}[1]{\overrightarrow{#1}}}
\CustomizeMathJax{\newcommand{\LWResvectvvstar}[2]{\overrightarrow{#1}\!_{#2}}}
\CustomizeMathJax{\newcommand{\vv}{\ifstar\LWResvectvvstar\LWResvectvv}}
\end{warpMathJax}
```

File 144 **lwarp-etoc.sty**

§ 253 Package etoc

Pkg etoc

etoc is ignored. All commands are nullified.

⚠ `\tableofcontents` with `\ref`

The etoc package uses a non-standard syntax which looks ahead after a `\tableofcontents` for a following `\ref`. These `\ref`s appear in the HTML result unless they are removed. Where a `\tableofcontents` is followed by `\ref`, and perhaps also `\label` as well, enclose all of them inside `\warpprintonly`:

```
\warpprintonly{\tableofcontents                    \ref{toc:abc}
\label{toc:def}}
```

or place all code related to a local `\tableofcontents` inside a `warpprint` environment.

⚠ home page Be sure to keep the initial `\tableofcontents` on the home page, perhaps in its own `\warpHTMLonly` macro or `warpHTML` environment.

for HTML output:

```
\LWR@ProvidesPackageDrop{etoc}[2019/11/17]

\def\etocsetlevel#1#2{}
\def\etocskipfirstprefix{}
\let\etocthename   \@empty
\let\etocthenumber \@empty
\let\etocthepage   \@empty
\let\etocthelinkedname   \@empty
\let\etocthelinkednumber \@empty
\let\etocthelinkedpage   \@empty
\let\etocthelink   \@firstofone % prior to 1.08j its was \let to \@empty
\DeclareRobustCommand*{\etocname}  {}
\DeclareRobustCommand*{\etocnumber}{}
\DeclareRobustCommand*{\etocpage}  {}
\DeclareRobustCommand*{\etoclink}  {\@firstofone}
\DeclareRobustCommand*{\etocifnumbered}{\@firstoftwo}
\DeclareRobustCommand*{\etociffirst}{\@firstoftwo}
\DeclareRobustCommand*\etocifwasempty{\@firstoftwo}
\let\etocaftertitlehook    \@empty
\let\etocaftercontentshook \@empty
\def\etoctableofcontents{}
\newcommand*\localtableofcontents{}
\newcommand*\localtableofcontentswithrelativedepth[1]{}
\newcommand\etocsettocstyle[2]{}
\long\def\etocsetstyle#1#2#3#4#5{}
\def\etocfontminustwo {\normalfont \LARGE \bfseries}
\def\etocfontminusone {\normalfont \large \bfseries}
\def\etocfontzero     {\normalfont \large \bfseries}
\def\etocfontone      {\normalfont \normalsize \bfseries}
\def\etocfonttwo      {\normalfont \normalsize}
\def\etocfontthree    {\normalfont \footnotesize}
\def\etocsepminustwo  {4ex \@plus .5ex \@minus .5ex}
\def\etocsepminusone  {4ex \@plus .5ex \@minus .5ex}
\def\etocsepzero      {2.5ex \@plus .4ex \@minus .4ex}
\def\etocsepone       {1.5ex \@plus .3ex \@minus .3ex}
\def\etocseptwo       {.5ex \@plus .1ex \@minus .1ex}
\def\etocsepthree     {.25ex \@plus .05ex \@minus .05ex}
\def\etocbaselinespreadminustwo {1}
\def\etocbaselinespreadminusone {1}
\def\etocbaselinespreadzero     {1}
\def\etocbaselinespreadone      {1}
\def\etocbaselinespreadtwo      {1}
\def\etocbaselinespreadthree    {.9}
\def\etocminustwoleftmargin  {1.5em plus 0.5fil}
\def\etocminustworightmargin {1.5em plus -0.5fil}
\def\etocminusoneleftmargin  {1em}
\def\etocminusonerightmargin {1em}
\def\etoctoclineleaders
        {\hbox{\normalfont\normalsize\hb@xt@2ex {\hss.\hss}}}
\def\etocabbrevpagename {p.~}
\def\etocpartname       {Part}% modified 1.08b
\def\etocbookname       {Book}
\def\etocdefaultlines{}
\def\etocabovetocskip{3.5ex \@plus 1ex \@minus .2ex}
```

```
\def\etocbelowtocskip{3.5ex \@plus 1ex \@minus .2ex}
\def\etoccolumnsep{2em}
\def\etocmulticolsep{0ex}
\def\etocmulticolpretolerance{-1}
\def\etocmulticoltolerance{200}
\def\etocdefaultnbcol{2}
\def\etocinnertopsep{2ex}
\newcommand\etocmulticolstyle[2][]{}
\def\etocinnerbottomsep{3.5ex}
\def\etocinnerleftsep{2em}
\def\etocinnerrightsep{2em}
\def\etoctoprule{\hrule}
\def\etocleftrule{\vrule}
\def\etocrightrule{\vrule}
\def\etocbottomrule{\hrule}
\def\etoctoprulecolorcmd{\relax}
\def\etocbottomrulecolorcmd{\relax}
\def\etocleftrulecolorcmd{\relax}
\def\etocrightrulecolorcmd{\relax}
\newcommand*\etocruledstyle[2][]{}
\def\etocframedmphook{\relax}
\long\def\etocbkgcolorcmd{\relax}
\newcommand*\etocframedstyle[2][]{}
\def\etocmulticol{}
\def\etocruled{}
\def\etocframed{}
\def\etoclocalmulticol{}
\def\etoclocalruled{}
\def\etoclocalframed{}
\def\etocarticlestyle{}
\def\etocarticlestylenomarks{}
\def\etocbookstyle{}
\def\etocbookstylenomarks{}
\let\etocreportstyle\etocbookstyle
\let\etocreportstylenomarks\etocbookstylenomarks
\def\etocmemoirtoctotocfmt #1#2{}
\def\etocmemoirstyle{}
\def\etocscrartclstyle{}
\let\etocscrbookstyle\etocscrartclstyle
\let\etocscrreprtstyle\etocscrartclstyle
\def\etocstandarddisplaystyle{\etocarticlestyle}
\newcommand*\etocmarkboth[1]{}
\newcommand*\etocmarkbothnouc[1]{}
\newcommand\etoctocstyle[3][section]{}
\newcommand\etoctocstylewithmarks[4][section]{}
\newcommand\etoctocstylewithmarksnouc[4][section]{}
\def\etocignoretoctocdepth{}
\def\etocsettocdepth[1]{}
\def\etocdepthtag   #1#{\Etoc@depthtag }
\def\Etoc@depthtag  #1{}
\def\etocignoredepthtags {}
\def\etocobeydepthtags   {}
\def\etocsettagdepth #1#2{}
\def\invisibletableofcontents {}
\def\invisiblelocaltableofcontents{}
\def\etocsetnexttocdepth #1{}
\def\etocsetlocaltop #1#{\Etoc@set@localtop}
\def\Etoc@set@localtop #1{}
\def\etocstandardlines {}
\def\etoctoclines      {}
```

```
\let\etocaftertochook    \@empty
\let\etocbeforetitlehook \@empty
\appto\tableofcontents{\def\tableofcontents{}}
```

File 145 **lwarp-eurosym.sty**

§ 254 Package

eurosym

(*Emulates or patches code by* Henrik Theiling.)

Pkg eurosym

eurosym is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{eurosym}[1998/08/06]

\renewrobustcmd\officialeuro{\HTMLentity{euro}}
\let\geneuro\officialeuro
\let\geneuronarrow\officialeuro
\let\geneurowide\officialeuro
\let\euro\officialeuro
\renewrobustcmd\eurobars{}
\renewrobustcmd\eurobarsnarrow{}
\renewrobustcmd\eurobarswide{}
```

File 146 **lwarp-everypage.sty**

§ 255 Package

everypage

(*Emulates or patches code by* Sergio Callegari.)

Pkg everypage

everypage is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{everypage}[2007/06/20]

\newcommand*{\AddEverypageHook}[1]{}
\newcommand*{\AddThispageHook}[1]{}
```

File 147 **lwarp-everyshi.sty**

§ 256 Package

everyshi

(*Emulates or patches code by* Martin Schröder.)

Pkg everyshi

ignored.

for HTML output:

Discard all options for lwarp-everyshi:

```
\LWR@ProvidesPackageDrop{everyshi}[2001/05/15]

\let\EveryShipout\relax
\newcommand*{\EveryShipout}[1]{}

\let\AtNextShipout\relax
\newcommand*{\AtNextShipout}[1]{}
```

File 148 **lwarp-extarrows.sty**

§ 257 Package extarrows

(*Emulates or patches code by* Huynh Ky Anh.)

Pkg extarrows extarrows is used as-is for SVG math, and emulted for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{extarrows}[2008/05/15]

\begin{warpMathJax}
\CustomizeMathJax{\Newextarrow\xLongleftarrow{10,10}{0x21D0}}
\CustomizeMathJax{\Newextarrow\xLongrightarrow{10,10}{0x21D2}}
\CustomizeMathJax{\Newextarrow\xLongleftrightarrow{10,10}{0x21D4}}
\CustomizeMathJax{\Newextarrow\xLeftrightarrow{10,10}{0x21D4}}
\CustomizeMathJax{\Newextarrow\xlongleftrightarrow{10,10}{0x2194}}
\CustomizeMathJax{\Newextarrow\xleftrightarrow{10,10}{0x2194}}
\CustomizeMathJax{\let\xlongleftarrow\xleftarrow}
\CustomizeMathJax{\let\xlongrightarrow\xrightarrow}
\end{warpMathJax}
```

File 149 **lwarp-extramarks.sty**

§ 258 Package extramarks

(*Emulates or patches code by* Piet van Oostrum.)

Pkg extramarks extramarks is ignored.

for HTML output: Discard all options for lwarp-extramarks:

```
\LWR@ProvidesPackageDrop{extramarks}[2019/01/31]

\newcommand*{\extramarks}[2]{}
\newcommand*{\firstleftxmark}{}
\newcommand*{\lastleftxmark}{}
\newcommand*{\firstrightxmark}{}
\newcommand*{\lastrightxmark}{}
\newcommand*{\firstxmark}{}
\newcommand*{\lastxmark}{}
\newcommand*{\topxmark}{}
\newcommand*{\topleftxmark}{}
\newcommand*{\toprightxmark}{}
\newcommand*{\firstleftmark}{}
\newcommand*{\lastrightmark}{}
\newcommand*{\firstrightmark}{}
\newcommand*{\lastleftmark}{}
```

File 150 **lwarp-fancybox.sty**

§ 259 Package

fancybox

(*Emulates or patches code by* Timothy Van Zandt.)

Pkg fancybox

fancybox is supported with some patches.

framed equation example

fancybox's documentation has an example FramedEqn environment which combines math, \Sbox, a minipage, and an \fbox. This combination requires that the entire environment be enclosed inside a lateximage, which is done by adding \lateximage at the very start of FramedEqn's beginning code, and \endlateximage at the very end of the ending code. Unfortunately, the HTML alt attribute is not used here.

```
\newenvironmentFramedEqn
{
\lateximage% NEW
\setlength{\fboxsep}{15pt}
. . . }{. . .
\[\fbox{\TheSbox}\]
\endlateximage% NEW
}
```

framing alternatives

\fbox works with fancybox. Also see lwarp's \fboxBlock macro and fminipage environment for alternatives to \fbox for framing environments.

framed table example

The fancybox documentation's example of a framed table using an \fbox containing a tabular does not work with lwarp, but the FramedTable environment does work if \fbox is replaced by \fboxBlock. This method does lose some HTML formatting. A better method is to enclose the table's contents inside a fminipage environment. The caption may be placed either inside or outside the fminipage:

```
\begin{table}
\begin{fminipage}{\linewidth}
\begin{tabular}{lr}
. . .
\end{tabular}
\end{fminipage}
\end{table}
```

⚠ framed verbatim

lwarp does not support the verbatim environment inside a span, box, or fancybox's \Sbox, but a verbatim may be placed inside a fminipage. The fancybox documentation's example FramedVerb may be defined as:

```
\newenvironment{FramedVerb}[1] % width
{
  \VerbatimEnvironment
  \fminipage{#1}
  \beginVerbatim
}{
  \endVerbatim
  \endfminipage
}
```

framed \VerbBox

fancybox's \VerbBox may be used inside \fbox.

indented alignment

LVerbatim, \LVerbatimInput, and \LUseVerbatim indent with horizontal space which may not line up exactly with what *pdftotext* detects. Some lines may be off slightly in their left edge.

fancybox, fancyvrb
⚠ \VerbatimFootnotes
⚠ sectioning or displaymath

If using fancybox or fancyvrb with \VerbatimFootnotes, and using footnotes in a sectioning command or display math, use \footnotemark and \footnotetext:

```
\subsection[Subsection Name]
    {Subsection Name\protect\footnotemark}
\footnotetext{A footnote with \verb+verbtim+.}
```

and likewise for equations or display math.

At present there is a bug such that paragraph closing tags are not present in footnotes when \VerbatimFootnotes are selected. The browser usually compensates.

```
\LWR@ProvidesPackagePass{fancybox}[2010/05/15]
```

After the preamble is loaded, after any patches to Verbatim:

```
\AfterEndPreamble{
\LWR@traceinfo{Patching fancybox.}
```

\VerbatimFootnotes

Patched to use the new version.

```
\def\VerbatimFootnotes{%
\let\@footnotetext\V@footnotetext%
\let\LWR@footnotetext\V@footnotetext% lwarp
}
```

\V@@footnotetext

Patches in a subset of lwarp's \LWR@footnotetext to the fancyvrb version of \V@@footnotetext.

```
\def\V@@footnotetext{%
\LWR@traceinfo{V@footnotetext}%
```

Place an autopage marker so that back references to citations inside a footnote will link closer to the footnote text, if possible.

```
\LWR@newautopagelabel{page}%
```

Take the current footnote box, then append:

```
\global\setbox\LWR@footnotebox=\vbox\bgroup%
```

Add to any current footnotes:

```
    \unvbox\LWR@footnotebox%
```

Remember the footnote number for \ref:

```
    \protected@edef\@currentlabel{%
        \csname p@footnote\endcsname\@thefnmark%
    }% @currentlabel
```

Use HTML superscripts in the footnote even inside a lateximage:

```
    \renewrobustcmd{\textsuperscript}[1]{\LWR@htmlspan{sup}{##1}}%
```

Use paragraph tags if in a tabular data cell or a lateximage:

```
    \LWR@htmltagc{\LWR@tagregularparagraph}\LWR@orignewline%
```

Append the footnote to the list:

```
    \@makefntext{}%
```

The footnote text will follow after `\V@@@footnotetext` has completed.

```
  \bgroup%
  \aftergroup\V@@@footnotetext%
```

Do not generate autopages inside the footnotes, since they are accumulated at the moment before finally being used perhaps on a later page.

```
    \let\LWR@newautopagelabel\LWR@null@newautopagelabel%
  \ignorespaces%
}%
```

`\V@@@footnotetext`

```
\def\V@@@footnotetext{%
    \LWR@origtilde\LWR@orignewline%
    \LWR@htmltagc{/\LWR@tagregularparagraph}\LWR@orignewline%
    \strut\egroup%
}
```

```
}% AfterEndPreamble
```

```
\renewcommand*{\@shadowbox}[1]{%
\ifbool{FormatWP}%
{\InlineClass[border:1px solid black]{shadowbox}{#1}}%
{\InlineClass{shadowbox}{#1}}%
}

\renewcommand*{\@doublebox}[1]{%
\ifbool{FormatWP}%
{\InlineClass[border:1px double black]{doublebox}{#1}}%
{\InlineClass{doublebox}{#1}}%
}

\renewcommand*{\@ovalbox}[2]{%
\ifbool{FormatWP}%
{\InlineClass[border:1px solid black; border-radius:1ex]{ovalbox}{#2}}%
{%
    \ifthenelse{\isequivalentto{#1}{\thinlines}}%
        {\InlineClass{ovalbox}{#2}}%
        {\InlineClass{Ovalbox}{#2}}%
}%
}
```

Convert minipages, parboxes, and lists into linear text using the `LWR@nestspan` environment:

```
\let\LWR@origSbox\Sbox

\def\Sbox{\LWR@origSbox\LWR@nestspan}


\let\LWR@origendSbox\endSbox

\def\endSbox{\endLWR@nestspan\LWR@origendSbox}
```

`Beqnarray` is adapted for MathJax or enclosed inside a `lateximage`:

```
\RenewEnviron{Beqnarray}
{\LWR@eqnarrayfactor}

\csgpreto{Beqnarray*}{\boolfalse{LWR@numbereqnarray}}
```

`\GenericCaption` is enclosed in an HTML block:

```
\renewcommand{\GenericCaption}[1]{%
    \LWR@figcaption%
    \LWR@isolate{#1}%
    \endLWR@figcaption%
}
```

`Btrivlist` is enclosed in an HTML block. This is a tabular, and does not use `\item`.

`\trivlist` {⟨*l/c/r*⟩} [⟨*t/c/b*⟩]

```
\RenewDocumentEnvironment{Btrivlist}{m o}
{%
    \LWR@stoppars%
    \begin{BlockClass}{Btrivlist}%
    \tabular{#1}%
}
{%
    \endtabular%
    \end{BlockClass}%
    \LWR@startpars%
}
```

`Btrivlist` is also neutralized when used inside a span:

```
\AtBeginEnvironment{LWR@nestspan}{%
    \RenewDocumentEnvironment{Btrivlist}{m o}{}{}%
}
```

lwarp's handling of `\item` is patched to accept fancybox's optional arguments:

```
\let\LWRFB@origitemizeitem\LWR@itemizeitem
\let\LWRFB@origdescitem\LWR@descitem

\RenewDocumentCommand{\LWR@itemizeitem}{d()o}{%
    \IfValueTF{#2}{%
        \LWRFB@origitemizeitem[#2]%
    }{%
        \LWRFB@origitemizeitem%
    }%
}

\RenewDocumentCommand{\LWR@descitem}{d()o}{%
    \IfValueTF{#2}{%
        \LWRFB@origdescitem[#2]~%
    }{%
        \LWRFB@origdescitem%
    }%
}
```

```
\RenewDocumentCommand{\LWR@nestspanitem}{d()}{%
    \if@newlist\else{
        \LWR@htmltagc{br /}%
        \LWR@orignewline%
    }\fi%
    \LWR@origitem%
}
```

The various boxed lists become regular lists:

```
\renewenvironment{Bitemize}[1][]
    {%
        \LWR@spanwarnformat{Bitemize}%
        \booltrue{LWR@starting@fancybox}%
        \begin{itemize}%
        \boolfalse{LWR@starting@fancybox}%
    }
    {\end{itemize}}

\renewenvironment{Benumerate}[1][]
    {%
        \LWR@spanwarnformat{Benumerate}%
        \booltrue{LWR@starting@fancybox}%
        \begin{enumerate}%
        \boolfalse{LWR@starting@fancybox}%
    }
    {\end{enumerate}}

\renewenvironment{Bdescription}[1][]
    {%
        \LWR@spanwarnformat{Bdescription}%
        \booltrue{LWR@starting@fancybox}%
        \begin{description}%
        \boolfalse{LWR@starting@fancybox}%
    }
    {\end{description}}
```

\boxput simply prints one then the other argument, side-by-side instead of above and behind:

```
\RenewDocumentCommand{\boxput}{s d() m m}{%
    \IfBooleanTF{#1}{#3\quad#4}{#4\quad#3}%
}
```

Neutralized commands:

```
\RenewDocumentCommand{\fancyput}{s d() m}{}
\RenewDocumentCommand{\thisfancyput}{s d() m}{}

\RenewDocumentCommand{\fancypage}{m m}{}
\RenewDocumentCommand{\thisfancypage}{m m}{}

\def\LandScape#1{}
\def\endLandScape{}
\def\@Landscape#1#2#3{}
\def\endLandscape{}
```

Low-level patches for `UseVerbatim` and friends:

```
\let\LWRFB@UseVerbatim\UseVerbatim
\renewcommand*{\UseVerbatim}[1]{%
    \LWR@atbeginverbatim{Verbatim}%
    \LWRFB@UseVerbatim{#1}%
    \LWR@afterendverbatim%
}

\let\LWRFB@LUseVerbatim\LUseVerbatim

\renewcommand*{\LUseVerbatim}[1]{%
    \LWR@atbeginverbatim{LVerbatim}%
    \noindent%
    \LWRFB@LUseVerbatim{#1}%
    \LWR@afterendverbatim%
}

\def\@BUseVerbatim[#1]#2{%
    \LWR@atbeginverbatim{BVerbatim}%
    \LWRFB@UseVerbatim{#2}%
    \LWR@afterendverbatim%
}
```

File 151 **`lwarp-fancyhdr.sty`**

§ 260 Package

fancyhdr

(*Emulates or patches code by* Piet van Oostrum.)

Pkg `fancyhdr`

fancyhdr is ignored.

for HTML output:

Discard all options for lwarp-fancyhdr:

```
\LWR@ProvidesPackageDrop{fancyhdr}[2021/01/04]

\newcommand*{\fancyhead}[2][]{}
\newcommand*{\fancyfoot}[2][]{}
\newcommand*{\fancyhf}[2][]{}

\newcommand*{\lhead}[2][]{}
\newcommand*{\chead}[2][]{}
\newcommand*{\rhead}[2][]{}
\newcommand*{\lfoot}[2][]{}
\newcommand*{\cfoot}[2][]{}
\newcommand*{\rfoot}[2][]{}
\newcommand*{\headrulewidth}{}
\newcommand*{\footrulewidth}{}
\providecommand{\headruleskip}{0pt}
\providecommand{\footruleskip}{0pt}
\newcommand{\plainheadrulewidth}{0pt}
\newcommand{\plainfootrulewidth}{0pt}
\def\fancyplain#1#2{#1}
\newcommand*{\headrule}{}
\newcommand*{\footrule}{}
\newlength{\headwidth}
\newcommand*{\fancycenter}[1][1em]{}
```

```
\newcommand*{\fancyheadoffset}[2][]{}
\newcommand*{\fancyfootoffset}[2][]{}
\newcommand*{\fancyhfoffset}[2][]{}
\newcommand{\fancyheadinit}[1]{}
\newcommand{\fancyfootinit}[1]{}
\newcommand{\fancyhfinit}[1]{}
\newcommand*{\iffloatpage}[2]{#2}
\newcommand*{\ifftopfloat}[2]{#2}
\newcommand*{\iffbotfloat}[2]{#2}
\newcommand*{\iffootnote}[2]{#2}

\newcommand{\fancypagestyle}[1]{%
  \@ifnextchar[{\f@nch@pagestyle{#1}}{\f@nch@pagestyle{#1}[]}%
}
\long\def\f@nch@pagestyle#1[#2]#3{}
```

File 152 **lwarp-fancypar.sty**

§ 261 Package

fancypar

(*Emulates or patches code by* Gonzalo Medina.)

Pkg fancypar

fancypar is used as-is for print output, and emulated for HTML.

⚠ css classes

\NotebookPar and related are used as-is inside a lateximage, but for HTML these are emulated as a of class NotebookPar, etc. For HTML, the package options and the macro optional arguments are ignored. The user must provide custom CSS for each if visual effects are required. See section 7.7.

⚠ custom styles

If using a custom paragraph style, such as \MyStylePar from the documentation, use the following to generate an HTML of class MyStylePar:

```
... (existing definiton of \MyStylePar, print version) ...
\begin{warpHTML}
\AddFancyparClass{MyStyle}
\end{warpHTML}
```

\MyStylePar is then modified to emulate HTML. An optional argument is allowed, which is ignored.

for HTML output:

```
\LWR@ProvidesPackagePass{fancypar}[2019/01/18]

\begin{warpHTML}
\makeatletter

\newcommand{\LWR@fancypar}[2]{%
    \begin{BlockClass}{#1Par}
    #2
    \end{BlockClass}
}

\newcommand{\LWR@HTML@NotebookPar}[2][]{\LWR@fancypar{Notebook}{#2}}
\LWR@formatted{NotebookPar}

\newcommand{\LWR@HTML@ZebraPar}[2][]{\LWR@fancypar{Zebra}{#2}}
\LWR@formatted{ZebraPar}
```

```
16
17 \newcommand{\LWR@HTML@DashedPar}[2][]{\LWR@fancypar{Dashed}{#2}}
18 \LWR@formatted{DashedPar}
19
20 \newcommand{\LWR@HTML@MarkedPar}[2][]{\LWR@fancypar{Marked}{#2}}
21 \LWR@formatted{MarkedPar}
22
23 \newcommand{\LWR@HTML@UnderlinedPar}[2][]{\LWR@fancypar{Underlined}{#2}}
24 \LWR@formatted{UnderlinedPar}
25
26
27 \newcommand{\LWR@HTML@add@fancy@format}{}
28 \LWR@formatted{add@fancy@format}
29
30
31 \newcommand{\AddFancyparClass}[1]{%
32     \expandafter\newcommand\csname LWR@HTML@#1Par\endcsname[2][]{%
33         \LWR@fancypar{#1}{##2}%
34     }
35     \LWR@formatted{#1Par}
36 }
37
38 \makeatother
39 \end{warpHTML}
```

File 153 **lwarp-fancyref.sty**

§ 262 Package fancyref

(*Emulates or patches code by* Axel Reichert.)

Pkg fancyref

fancyref is modifed for HTML output.

for HTML output:

```
1 \LWR@ProvidesPackagePass{fancyref}[1999/02/03]
```

Hook [fancyref] \fancyrefhook

To remove the `margin` option, if `\fancyrefhook` is anything other than the `paren` option, then force it to the default instead. (Comparing to the `margin` option was not possible since lwarp has revised the meaning of `\mbox` so the comparison failed.)

```
2 \newcommand*{\LWRfref@parenfancyrefhook}[1]{(#1)}
3
4 \ifdefstrequal{\fancyrefhook}{\LWRfref@parenfancyrefhook}
5 {}{
6     \renewcommand*{\fancyrefhook}[1]{#1}%
7 }
```

File 154 **lwarp-fancytabs.sty**

§ 263 Package fancytabs

Pkg fancytabs

fancytabs is ignored.

for HTML output:

```
1 \LWR@ProvidesPackageDrop{fancytabs}[2016/03/29]
```

```
\newcommand{\fancytab}[3][RIGHT]{}
\newcommand{\fancytabsStyle}[1]{}
\newcommand{\fancytabsHeight}[1]{}
\newcommand{\fancytabsWidth}[1]{}
\newcommand{\fancytabsCount}[1]{}
\newcommand{\fancytabsLeftColor}[1]{}
\newcommand{\fancytabsRightColor}[1]{}
\newcommand{\fancytabsTop}[1]{}
\newcommand{\fancytabsTextVPos}[1]{}
\newcommand{\fancytabsTextHPos}[1]{}
\newcommand{\fancytabsGap}[1]{}
\newcommand{\fancytabsFloor}[1]{}
\newcommand{\fancytabsRotate}[1]{}
```

File 155 **lwarp-fancyvrb.sty**

§ 264 Package

fancyvrb

(*Emulates or patches code by* Timothy Van Zandt.)

Pkg fancyvrb

fancyvrb is supported with some patches.

HTML classes

The fancy verbatim environment is placed inside a of class fancyvrb. The label is placed inside a of class fancyvrblabel. The verbatim text itself is placed inside a of class verbatim.

fancybox, fancyvrb
⚠ \VerbatimFootnotes
⚠ sectioning or displaymath

If using fancybox or fancyvrb with \VerbatimFootnotes, and using footnotes in a sectioning command or display math, use \footnotemark and \footnotetext:

```
\subsection[Subsection Name]
    {Subsection Name\protect\footnotemark}
\footnotetext{A footnote with \verb+verbtim+.}
```

and likewise for equations or display math.

At present there is a bug such that paragraph closing tags are not present in footnotes when \VerbatimFootnotes are selected. The browser usually compensates.

```
\AtBeginDocument{\RequirePackage{xcolor}}% for \convertcolorspec

\LWR@ProvidesPackagePass{fancyvrb}[2008/02/07]
```

Initial default patch for fancyvrb:

```
\fvset{frame=none}%
```

After the preamble is loaded, after any patches to Verbatim:

```
\AfterEndPreamble{
\LWR@traceinfo{Patching fancyvrb.}
```

\VerbatimFootnotes

Patched to use the new version.

```
\def\VerbatimFootnotes{%
    \let\@footnotetext\V@footnotetext%
```

```
    \let\footnote\V@footnote%
    \let\LWR@footnotetext\V@footnotetext% lwarp
}
```

\V@@footnotetext

Patches in a subset of lwarp's \LWR@footnotetext to the fancyvrb version of \V@@footnotetext.

```
\def\V@@footnotetext{%
\LWR@traceinfo{V@footnotetext}%
```

Place an autopage marker so that back references to citations inside a footnote will link closer to the footnote text, if possible.

```
    \LWR@newautopagelabel{page}%
```

Take the current footnote box, then append:

```
    \global\setbox\LWR@footnotebox=\vbox\bgroup%
```

Add to any current footnotes:

```
    \unvbox\LWR@footnotebox%
```

Remember the footnote number for \ref:

```
    \protected@edef\@currentlabel{%
        \csname p@footnote\endcsname\@thefnmark%
    }% @currentlabel
```

Use HTML superscripts in the footnote even inside a lateximage:

```
    \renewrobustcmd{\textsuperscript}[1]{\LWR@htmlspan{sup}{##1}}%
```

Use paragraph tags if in a tabular data cell or a lateximage:

```
    \LWR@htmltagc{\LWR@tagregularparagraph}\LWR@orignewline%
```

Append the footnote mark to the list:

```
    \@makefntext{}%
```

The footnote text will follow after \V@@@footnotetext has completed.

```
    \bgroup%
    \aftergroup\V@@@footnotetext%
```

Do not generate autopages inside the footnotes, since they are accumulated at the moment before finally being used perhaps on a later page.

```
    \let\LWR@newautopagelabel\LWR@null@newautopagelabel%

    \ignorespaces%
}%
```

\V@@@footnotetext

```
\def\V@@@footnotetext{%
    \LWR@origtilde\LWR@orignewline%
    \LWR@htmltagc{/\LWR@tagregularparagraph}\LWR@orignewline%
    \strut\egroup%
}

\preto\FVB@Verbatim{\LWR@forcenewpage}
\preto\FVB@LVerbatim{\LWR@forcenewpage}
% \preto\FVB@BVerbatim{\LWR@forcenewpage}% Fails, so done below.
```

Simplified to remove PDF formatting:

```
\def\FV@BeginListFrame@Single{%
  \FV@SingleFrameLine{\z@}%
}

\def\FV@EndListFrame@Single{%
  \FV@SingleFrameLine{\@ne}%
}

\def\FV@BeginListFrame@Lines{%
  \FV@SingleFrameLine{\z@}%
}

\def\FV@EndListFrame@Lines{%
    \FV@SingleFrameLine{\@ne}%
}

\renewcommand*{\FV@SingleFrameSep}{}
```

Adds HTML formatting:

```
\def\FV@BUseVerbatim#1{%
    \FV@BVerbatimBegin#1\FV@BVerbatimEnd%
}
```

`\LWR@FVstyle` Holds the style of the verbatim.

```
\newcommand*{\LWR@FVstyle}{}
```

The following patches to `Verbatim` are executed at the start and end of the environment, depending on the choice of `frame`. Original code is from the fancyvrb package.

```
\newcommand*{\LWR@fvstartnone}{%
\LWR@traceinfo{fvstartnone}%
% \hbox to\z@{
\BlockClass[\LWR@FVstyle]{fancyvrb}
\LWR@stoppars
\ifx\FV@LabelPositionTopLine\relax\else
    \ifx\FV@LabelBegin\relax\else
        \FancyVerbRuleColor{\LWR@FVfindbordercolor}
        \LWR@htmltagc{%
            div class=\textquotedbl{}fancyvrblabel\textquotedbl\ % space
           style=\textquotedbl{}color: \LWR@origpound\LWR@tempcolor\textquotedbl%
        }
        \LWR@print@textrm{\FV@LabelBegin}% \textrm preserves emdash
        \LWR@htmltagc{/div}\LWR@orignewline%
    \fi
\fi
\LWR@atbeginverbatim{verbatim}%
% }%
}

\newcommand*{\LWR@fvendnone}{%
\LWR@traceinfo{fvendnone}%
% \hbox to\z@{
\LWR@afterendverbatim%
```

```
\LWR@stoppars%
\ifx\FV@LabelPositionBottomLine\relax\else
    \ifx\FV@LabelEnd\relax\else
        \FancyVerbRuleColor{\LWR@FVfindbordercolor}
        \LWR@htmltagc{%
            div class=\textquotedbl{}fancyvrblabel\textquotedbl\ % space
           style=\textquotedbl{}color: \LWR@origpound\LWR@tempcolor\textquotedbl%
        }
        \LWR@print@textrm{\FV@LabelEnd}
        \LWR@htmltagc{/div}\LWR@orignewline%
    \fi
\fi
\endBlockClass
}

\newcommand*{\LWR@fvstartsingle}{%
\LWR@traceinfo{fvstartsingle}%
\LWR@fvstartnone%
\FV@BeginListFrame@Single%
}

\newcommand*{\LWR@fvendsingle}{%
\LWR@traceinfo{fvendsingle}%
\FV@EndListFrame@Single%
\LWR@fvendnone%
}

\newcommand*{\LWR@fvstartline}{%
\LWR@traceinfo{fvstartline}%
\LWR@fvstartnone%
% \setlength{\LWR@templengthone}{\baselineskip}%
\FV@BeginListFrame@Lines%
% \setlength{\baselineskip}{\LWR@templengthone}%
% \setlength{\baselineskip}{5pt}%
}

\newcommand*{\LWR@fvendline}{%
\LWR@traceinfo{fvendline}%
\FV@EndListFrame@Lines%
\LWR@fvendnone%
}
```

The following patches select the start/left/right/end behaviors depending on `frame`. Original code is from the fancyvrb package.

```
\newcommand*{\LWR@FVfindbordercolor}{%
\FancyVerbRuleColor%
\LWR@findcurrenttextcolor%
\color{black}%
}

% border width of \FV@FrameRule
\newcommand*{\LWR@FVborderstyle}[1]{%
padding#1: \strip@pt\dimexpr \FV@FrameSep\relax\relax pt ; % space
\LWR@FVfindbordercolor\LWR@indentHTMLtwo%
border#1: \strip@pt\dimexpr \FV@FrameRule\relax\relax pt % space
solid {\FancyVerbRuleColor{\LWR@origpound\LWR@tempcolor}} ; % space
}

\def\FV@Frame@none{%
```

```
\renewcommand*{\LWR@FVstyle}{\LWR@currenttextcolorstyle}%
\let\FV@BeginListFrame\LWR@fvstartnone%
\let\FV@LeftListFrame\relax%
\let\FV@RightListFrame\relax%
\let\FV@EndListFrame\LWR@fvendnone}

\FV@Frame@none% default values

\def\FV@Frame@single{%
\renewcommand*{\LWR@FVstyle}{%
    \LWR@currenttextcolorstyle\LWR@indentHTMLtwo%
    \LWR@FVborderstyle{}%
}%
\let\FV@BeginListFrame\LWR@fvstartsingle%
\let\FV@LeftListFrame\FV@LeftListFrame@Single%
\let\FV@RightListFrame\FV@RightListFrame@Single%
\let\FV@EndListFrame\LWR@fvendsingle}

\def\FV@Frame@lines{%
\renewcommand*{\LWR@FVstyle}{%
    \LWR@currenttextcolorstyle\LWR@indentHTMLtwo%
    \LWR@FVborderstyle{-top}%
    \LWR@indentHTMLtwo%
    \LWR@FVborderstyle{-bottom}%
}%
\let\FV@BeginListFrame\LWR@fvstartline%
\let\FV@LeftListFrame\relax%
\let\FV@RightListFrame\relax%
\let\FV@EndListFrame\LWR@fvendline}

\def\FV@Frame@topline{%
\renewcommand*{\LWR@FVstyle}{%
    \LWR@currenttextcolorstyle\LWR@indentHTMLtwo%
    \LWR@FVborderstyle{-top}%
}%
\let\FV@BeginListFrame\LWR@fvstartline%
\let\FV@LeftListFrame\relax%
\let\FV@RightListFrame\relax%
\let\FV@EndListFrame\LWR@fvendnone}

\def\FV@Frame@bottomline{%
\renewcommand*{\LWR@FVstyle}{%
    \LWR@currenttextcolorstyle\LWR@indentHTMLtwo%
    \LWR@FVborderstyle{-bottom}%
}%
\let\FV@BeginListFrame\LWR@fvstartnone%
\let\FV@LeftListFrame\relax%
\let\FV@RightListFrame\relax%
\let\FV@EndListFrame\LWR@fvendline}
```

Seems to be required in some situations:

```
\def\FV@FrameFillLine{}%

\def\FV@Frame@leftline{%
\renewcommand*{\LWR@FVstyle}{%
    \LWR@currenttextcolorstyle\LWR@indentHTMLtwo%
    \LWR@FVborderstyle{-left}%
}%
% To define the \FV@FrameFillLine macro (from \FV@BeginListFrame)
```

```
\ifx\FancyVerbFillColor\relax%
\let\FV@FrameFillLine\relax%
\else%
\@tempdima\FV@FrameRule\relax%
\multiply\@tempdima-\tw@%
\edef\FV@FrameFillLine{%
{\noexpand\FancyVerbFillColor{\vrule\@width\number\@tempdima sp}%
\kern-\number\@tempdima sp}}%
\fi%
\let\FV@BeginListFrame\LWR@fvstartnone%
\let\FV@LeftListFrame\FV@LeftListFrame@Single%
\let\FV@RightListFrame\relax%
\let\FV@EndListFrame\LWR@fvendnone}
```

Adds the optional label to the top and bottom edges. Original code is from the fancyvrb package.

```
\def\FV@SingleFrameLine#1{%
%   \hbox to\z@{%
%     \kern\leftmargin
    \ifnum#1=\z@\relax
      \let\FV@Label\FV@LabelBegin
    \else
      \let\FV@Label\FV@LabelEnd
    \fi
    \ifx\FV@Label\relax
%      \FancyVerbRuleColor{\vrule \@width\linewidth \@height\FV@FrameRule}%
    \else
      \ifnum#1=\z@
%         \setbox\z@\hbox{\strut\enspace\FV@LabelBegin\enspace\strut}%
        \ifx\FV@LabelPositionTopLine\relax
        \else
        \fi
      \else
%         \setbox\z@\hbox{\strut\enspace\FV@LabelEnd\enspace\strut}%
        \ifx\FV@LabelPositionBottomLine\relax
        \else
        \fi
      \fi
    \fi
%     \hss
%     }
}
```

Processes each line, adding optional line numbers. Original code is from the fancyvrb package.

```
\def\FV@ListProcessLine#1{%
   \hbox to \hsize{%
%      \kern\leftmargin
      \hbox to \VerbatimHTMLWidth {%
       \ifcsvoid{FV@LeftListNumber}{}{\kern 2.5em}%
        \FV@LeftListNumber%
%       \FV@LeftListFrame
      \FancyVerbFormatLine{#1}%
      \hss%
%       \FV@RightListFrame
      \FV@RightListNumber%
    }%
```

```
      \hss% required to avoid underfull hboxes
}
}

\def\FV@ListProcessLine@i#1{%
%   \hbox{%
    \ifvoid\@labels\else
      \hbox to \z@{\kern\@totalleftmargin\box\@labels\hss}%
    \fi
    \FV@ListProcessLine{#1}%
%   }%
%   \let\FV@ProcessLine\FV@ListProcessLine@ii%
}

\def\FV@ListProcessLastLine{}
```

Env BVerbatim

```

\xpretocmd{\FV@BeginVBox}
    {%
        \LWR@forcenewpage% instead of \preto
        \LWR@atbeginverbatim{bverbatim}%
    }
    {}
    {\LWR@patcherror{fancyvrb}{FV@BeginVBox}}

\xapptocmd{\FV@EndVBox}
    {%
        \LWR@afterendverbatim%
    }
    {}
    {\LWR@patcherror{fancyvrb}{FV@EndVBox}}
```

End of the modifications to make at the end of the preamble:

```
} % \AfterEndPreamble
```

File 156 **lwarp-fbox.sty**

§ 265 Package

fbox

(*Emulates or patches code by* Herbert Voss.)

Pkg fbox

fbox is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{fbox}[2022/02/20]
```

This will be \LWR@formatted when \AtBeginDocument:

```
\LetLtxMacro\LWR@HTML@fbox\fbox
```

Instead of using the original, the new version is used with all borders:

```
\renewcommand*{\orig@fbox}{\FBox@i[tblr]}
```

\WR@fboxpkg@border {⟨*1: top/bottom/left/right*⟩} {⟨*2: t/b/l/r*⟩} {⟨*3: padding, or empty*⟩}

Accumulates HTML styles for border, and padding if given:

```
\newcommand*{\LWR@fboxpkg@border}[3]{%
    \colorlet{LWR@border@color}{\csuse{fbox@#2color}}%
  \protect\convertcolorspec{named}{LWR@border@color}{HTML}\LWR@tempbordercolor\relax%
    \appto\LWR@tempone{%
        border-#1: % space
        \LWR@printlength{\LWR@atleastonept} % space
        solid \LWR@origpound%
    }%
  \expandafter\appto\expandafter\LWR@tempone\expandafter{\LWR@tempbordercolor}%
    \appto\LWR@tempone{ ;\LWR@indentHTML}%
    \ifblank{#3}{}{%
        \appto\LWR@tempone{%
            padding-#1: \LWR@printlength{#3} ;\LWR@indentHTML
        }%
    }%
}
```

A hack to reuse the same code for inline and blocks:

```
\newbool{LWR@fboxpkg@ispar}
\boolfalse{LWR@fboxpkg@ispar}
```

Acculumate HTML styles for left and right padding, depending on `\if@fbox@space@left`, `\if@fbox@space@right`:

```
\newcommand{\LWR@fboxpkg@lrpadding}[1]{%
    \csuse{if@fbox@space@#1}%
        \appto\LWR@tempone{%
            padding-#1: \LWR@printlength{\fbox@@sep};\LWR@indentHTML
        }
    \else%
        \appto\LWR@tempone{%
            padding-#1: 0pt;\LWR@indentHTML
        }
    \fi%
}
```

The HTML version, modified to use HTML styles and either an `\InlineClass` or `BlockClass`:

```
\newcommand{\LWR@HTML@FBox@iii}[1]{%
```

Find and set the text color, rule width, margin:

```
    \LWR@forceminwidth{\fbox@@rule}%
    \LWR@findcurrenttextcolor%
    \def\LWR@tempone{%
        color: \LWR@origpound\LWR@tempcolor ; \LWR@indentHTML
        margin: 1ex ; \LWR@indentHTML
    }%
```

Add left/right padding:

```
    \LWR@fboxpkg@lrpadding{left}%
    \LWR@fboxpkg@lrpadding{right}%
```

Per the original to decode the borders, in a new way:

```
    \ifnum\the\@tempcntb>8\relax
        \advance\@tempcntb by -8\relax
        \LWR@fboxpkg@border{top}{t}{\fbox@@sep}%
    \fi
    \ifnum\@tempcntb>3
        \advance\@tempcntb by -4\relax
        \LWR@fboxpkg@border{left}{l}{}%
    \fi
    \ifnum\@tempcntb>1\relax
        \LWR@fboxpkg@border{right}{r}{}%
    \fi
    \ifodd\@tempcntb
        \LWR@fboxpkg@border{bottom}{b}{\fbox@@sep}%
    \fi
```

Generate a `BlockClass` or `\InlineClass` with the contents:

```
    \color@begingroup
    \ifbool{LWR@fboxpkg@ispar}%
        {%
            \begin{BlockClass}[\LWR@tempone]{fboxpkg}%
                #1%
            \end{BlockClass}%
        }%
        {%
            \InlineClass[\LWR@tempone]{fboxpkg}{%
                #1%
            }%
        }%
    \color@endgroup
    \boolfalse{LWR@fboxpkg@ispar}% globally
}
\LWR@formatted{FBox@iii}
```

For `\fparbox`, set the use of `BlockClass`, then reuse the above:

```
\long\def\LWR@HTML@FParBox@i[#1]#2{%
    \booltrue{LWR@fboxpkg@ispar}%
    \FBox@i[#1]{#2}
}
\LWR@formatted{FParBox@i}

\long\def\LWR@HTML@FParBox@ii#1{%
    \booltrue{LWR@fboxpkg@ispar}%
    \FBox@i[tblr]{#1}%
}
\LWR@formatted{FParBox@ii}
```

For MathJax, absorb and ignore star and optional arguments:

```
\CustomizeMathJax{\let\LWRorigfbox\fbox}
\CustomizeMathJax{\newcommand{\LWRfboxpkgtwo}[2][]{\LWRorigfbox{#2}}}
\CustomizeMathJax{\renewcommand{\fbox}{\ifstar\LWRfboxpkgtwo\LWRfboxpkgtwo}}
\CustomizeMathJax{\newcommand{\fparbox}{\fbox}}
```

File 157 **lwarp-fewerfloatpages.sty**

§ 266 Package

fewerfloatpages

Pkg fewerfloatpages

fewerfloatpages is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{fewerfloatpages}[2020/02/14]

\newcommand\floatpagekeepfraction{\textfraction}
\newcounter{floatpagedeferlimit}
\newcounter{floatpagekeeplimit}
```

File 158 **lwarp-figcaps.sty**

§ 267 Package

figcaps

(*Emulates or patches code by* Patrick W. Daly.)

Pkg figcaps

figcaps is ignored.

for HTML output:

Discard all options for lwarp-figcaps:

```
\LWR@ProvidesPackageDrop{figcaps}[1999/02/23]

\newcommand*{\figcapson}{}
\newcommand*{\figcapsoff}{}
\newcommand*{\printfigures}{}
\newcommand*{\figmarkon}{}
\newcommand*{\figmarkoff}{}
\def\figurecapname{Figure Captions}
\def\tablepagename{Tables}
\def\figurepagename{Figures}
```

File 159 **lwarp-figsize.sty**

§ 268 Package

figsize

(*Emulates or patches code by* Anthony A. Tanbakuchi.)

Pkg figsize

figsize is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{figsize}[2002/03/18]
```

Emulates a virtual 6×9 inch textsize.

```
\newlength{\figwidth}
\newlength{\figheight}

\newcommand{\SetFigLayout}[3][0]{%
```

```
\setlength{\figheight}{8in}%
\setlength{\figheight}{\figheight / #2}%
%
\setlength{\figwidth}{5.5in}%
\setlength{\figwidth}{\figwidth / #3}%
}
```

File 160 **lwarp-fitbox.sty**

§ 269 Package

fitbox

Pkg fitbox

fitbox is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{fitbox}[2019/02/20]

\NewDocumentCommand{\fitbox}{s o m}{%
    \begin{BlockClass}{fitbox}
    #3
    \end{BlockClass}
}

\newcommand*{\fitboxset}[1]{}

\newdimen\fitboxnatheight
\newdimen\fitboxnatwidth

\newcommand\SetFitboxLayout[3][]{}
```

File 161 **lwarp-fix2col.sty**

§ 270 Package

fix2col

Pkg fix2col

fix2col is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{fix2col}[2015/11/13]
```

File 162 **lwarp-fixmath.sty**

§ 271 Package

fixmath

(*Emulates or patches code by* Walter Schmidt.)

Pkg fixmath

fixmath is used as-is for SVG math, and emulated for MathJax.

⚠ limitations

MathJax does not have full font support for bold italic Greek.

for HTML output:

```
\LWR@ProvidesPackagePass{fixmath}[2000/04/11]

\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}
```

```
\LWR@mathjax@addgreek@u@it*{}{}
\LWR@mathjax@addletter{\BooleanTrue}{up}{}{delta}{0394}
\LWR@mathjax@addletter{\BooleanTrue}{up}{}{omega}{03A9}
\CustomizeMathJax{\newcommand{\mathbold}[1]{\boldsymbol{#1}}}
\end{warpMathJax}
```

File 163 **lwarp-fixme.sty**

§ 272 Package

fixme

(*Emulates or patches code by* Didier Verna.)

Pkg fixme

fixme is patched for use by lwarp.

⚠ external layouts

External layouts (`\fxloadlayouts`) are not supported.

Customized layouts are overwritten by lwarp's versions `\AtBeginDocument` in order to provide the HTML conversion. If creating a new layout, see lwarp's changes to provide similar for the new layout, inside a `warpHTML` environment.

User control is provided for setting the HTML styling of the "faces". The defaults are as follows, and may be changed in the preamble after fixme is loaded:

```
\def\FXFaceInlineHTMLStyle{font-weight:bold}
\def\FXFaceEnvHTMLStyle{font-weight:bold}
\def\FXFaceSignatureHTMLStyle{font-style:italic}
\def\FXFaceTargetHTMLStyle{font-style:italic}
```

for HTML output:

```
\LWR@ProvidesPackagePass{fixme}[2019/01/03]
```

Restore lwarp's version of `\@wrindex`, ignoring the fixme package's `target` option:

```
\let\@wrindex\LWR@wrindex
```

Float-related macros required by lwarp:

```
\newcommand{\ext@fixme}{lox}

\renewcommand{\l@fixme}[2]{%
    \hypertocfloat{1}{fixme}{lox}%
     {\LWR@nameref{\BaseJobname-autopage-\arabic{LWR@nextautopage}} --- #1}%
        {#2}
}
```

Other modifications. Done `\AtBeginDocument` to hopefully work if the user customizes the layouts.

```
\AtBeginDocument{

\def\FXFaceInlineHTMLStyle{font-weight:bold}

\renewcommand*\FXLayoutInline[3]{ % space
    \InlineClass[\FXFaceInlineHTMLStyle]{fixmeinline}%
        {\@fxtextstd{#1}{#2}{#3}}%
}

```

```
\def\FXFaceEnvHTMLStyle{font-weight:bold}

\renewcommand*\FXEnvLayoutPlainBegin[2]{%
    \BlockClass[\FXFaceEnvHTMLStyle]{fixmebold}
    \ignorespaces#2 \fxnotename{#1}: \ignorespaces%
}

\renewcommand*\FXEnvLayoutPlainEnd[2]{\endBlockClass}

\renewcommand*\FXEnvLayoutSignatureBegin[2]{%
    \BlockClass[\FXFaceEnvHTMLStyle]{fixmebold}
    \fxnotename{#1}: \ignorespaces%
}

\renewcommand*\FXEnvLayoutSignatureEnd[2]{\@fxsignature{#2}\endBlockClass}

\def\FXFaceSignatureHTMLStyle{font-style:italic}

\DeclareRobustCommand*\@fxsignature[1]{%
    \ifthenelse{\equal{#1}{}}%
        {}%
       { -- {\InlineClass[\FXFaceSignatureHTMLStyle]{fixmesignature}{#1}}}%
}


\def\FXFaceTargetHTMLStyle{font-style:italic}

\renewcommand\FXTargetLayoutPlain[2]{%
    \InlineClass[\FXFaceTargetHTMLStyle]{fixmetarget}{#2}%
}

}% \AtBeginDocument
```

File 164 **lwarp-fixmetodonotes.sty**

§ 273 Package

fixmetodonotes

(*Emulates or patches code by* Gioele Barabucci.)

Pkg fixmetodonotes

fixmetodonotes is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{fixmetodonotes}[2013/04/28]

\renewcommand{\NOTES@addtolist}[2]{%
    \refstepcounter{NOTES@note}%
%   \phantomsection% REMOVED
    \addcontentsline{notes}{NOTES@note}{%
        \protect\numberline{\theNOTES@note}{{#1}: {#2}}%
    }%
}

\renewcommand{\NOTES@marker}[2]{\fbox{%
    \textcolor{#2}{% WAS \color
        \textbf{#1}}%
    }}

\renewcommand{\NOTES@colorline}[2]{%
```

```
  \bgroup%
    \ULon{\LWR@backgroundcolor{#1}{#2}}%
}
```

File 165 **lwarp-flafter.sty**

§ 274 Package

flafter

Pkg flafter

flafter is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{flafter}[2018/01/08]
\providecommand\fl@trace[1]{}
```

File 166 **lwarp-flippdf.sty**

§ 275 Package

flippdf

Pkg flippdf

flippdf is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{flippdf}[2006/06/30]

\newcommand\FlipPDF{}
\newcommand\UnFlipPDF{}
```

File 167 **lwarp-float.sty**

§ 276 Package

float

(*Emulates or patches code by* Anselm Lingnau.)

Pkg float

float is emulated.

Float styles `boxed` and `ruled` are emulated by CSS and a float class according to style.

The HTML `<figure>` `class` is set to the float type, so CSS may also be used to format the float and its caption, according to float type. Furthermore, an additional class is set to the float style: `plain`, `plaintop`, `boxed`, or `ruled`, so CSS may be used to format by float style as well. Default formatting by CSS is provided for `ruled` and `boxed` styles.

⚠ not seem to be a floating environment

Always declare a `\newfloat` before modifying it with `\floatname`, etc.

for HTML output:

```
\LWR@ProvidesPackageDrop{float}[2001/11/08]
```

`\LWR@floatstyle` The default float style.

```
\newcommand*{\LWR@floatstyle}{plain}
```

`\newfloat` {⟨*1: type*⟩} {⟨*2: placement*⟩} {⟨*3: ext*⟩} [⟨*4: within*⟩]

Emulates the `\newfloat` command from the float package.

"placement" is ignored.

```
\NewDocumentCommand{\newfloat}{m m m o}{%
    \IfValueTF{#4}%
        {\DeclareFloatingEnvironment[fileext=#3,within=#4]{#1}}%
        {\DeclareFloatingEnvironment[fileext=#3]{#1}}%
```

Remember the float style:

```
    \csedef{LWR@floatstyle@#1}{\LWR@floatstyle}%
```

newfloat package automatically creates the `\listof` command for new floats, but float does not, so remove `\listof` here in case it is manually created later.

```
    \cslet{listof#1s}\relax%
    \cslet{listof#1es}\relax%
```

Likesize, newfloat also creates `\l@<type>`, but float does not, so remove it here:

```
    \cslet{l@#1}\relax%
}
```

`\floatname` {⟨*type*⟩} {⟨*name*⟩}

Sets the text name of the float, such as "Figure". Avoids trying to set a recursive name, from trivfloat.

```
\NewDocumentCommand{\floatname}{m +m}{%
    \def\LWR@tempone{#2}%
    \def\LWR@temptwo{\@nameuse{#1name}}%
    \ifdefequal{\LWR@tempone}{\LWR@temptwo}{}{%
        \SetupFloatingEnvironment{#1}{name=#2}%
    }%
}
```

`\floatplacement` {⟨*type*⟩} {⟨*placement*⟩}

Float placement is ignored.

```
\newcommand*{\floatplacement}[2]{%
    \SetupFloatingEnvironment{#1}{placement=#2}%
}
```

`\floatstyle` {⟨*style*⟩}

Remember the style for future floats:

```
\newcommand{\floatstyle}[1]{%
    \def\LWR@floatstyle{#1}%
}%
```

`\restylefloat` * {⟨*type*⟩}

Remember the style for this float:

```
\NewDocumentCommand{\restylefloat}{s m}{%
    \csedef{LWR@floatstyle@#2}{\LWR@floatstyle}%
}
```

\listof

See section 78.2 for the \LWR@listof command in the lwarp core.

```
\newcommand{\listof}{\LWR@listof}
```

File 168 **lwarp-floatflt.sty**

§ 277 Package

floatflt

(*Emulates or patches code by* Mats Dahlgren.)

Pkg floatflt

floatflt is emulated.

for HTML output:

Discard all options for lwarp-floatflt:

```
\LWR@ProvidesPackageDrop{floatflt}[1997/07/16]
```

Env [⟨⟩]

offset {⟨*type*⟩} {⟨*width*⟩} Borrowed from the lwarp version of keyfloat:

```
\NewDocumentEnvironment{KFLTfloatflt@marginfloat}{O{-1.2ex} m m}
{%
    \begin{LWR@setvirtualpage}*%
    \ifblank{#3}{%
        \LWR@BlockClassWP{%
            float:right; %
            width: 1.5in; % reasonable dummy width for word processor
            margin:10pt%
        }{}%
        (note)%
        {marginblock}%
    }{%
        \setlength{\LWR@templengthone}{#3}%
        \LWR@BlockClassWP{%
            float:right; %
            width:\LWR@printlength{\LWR@templengthone};  % extra space
            margin:10pt%
        }{%
            width:\LWR@printlength{\LWR@templengthone}%
        }%
        (note)%
        {marginblock}%
    }%
    \renewcommand*{\@captype}{#2}%
}
{%
    \endLWR@BlockClassWP%
    \end{LWR@setvirtualpage}%
}
```

Env floatingfigure

[⟨*placement*⟩] {⟨*width*⟩}

```
\DeclareDocumentEnvironment{floatingfigure}{o m}
  {\begin{KFLTfloatflt@marginfloat}{figure}{#2}}
  {\end{KFLTfloatflt@marginfloat}}
```

Env floatingtable

[⟨*placement*⟩]

```
\DeclareDocumentEnvironment{floatingtable}{o}
```

```
{\begin{KFLTfloatflt@marginfloat}{table}{}}
{\end{KFLTfloatflt@marginfloat}}
```

File 169 **lwarp-floatpag.sty**

§ 278 Package

floatpag

(*Emulates or patches code by* Vytas Statulevičius and Sigitas Tolušis.)

Pkg floatpag

floatpag is ignored.

for HTML output:

Discard all options for lwarp-floatpag:

```
\LWR@ProvidesPackageDrop{floatpag}[2012/05/29]
```

```
\newcommand*{\floatpagestyle}[1]{}
\newcommand*{\rotfloatpagestyle}[1]{}
\newcommand*{\thisfloatpagestyle}[1]{}
```

File 170 **lwarp-floatrow.sty**

§ 279 Package

floatrow

(*Emulates or patches code by* Olga Lapko.)

Pkg floatrow

floatrow is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{floatrow}[2008/08/02]
```

⚠ Misplaced alignment tab character &

Use `\StartDefiningTabulars` and `\StopDefiningTabulars` before and after defining macros using `\ttabbox` with a tabular inside. See section 8.10.1.

⚠ subfig package

When combined with the subfig package, while inside a `subfloatrow` `\ffigbox` and `\ttabbox` must have the caption in the first of the two of the mandatory arguments.

⚠ `\FBwidth`, `\FBheight`

The emulation of floatrow does not support `\FBwidth` or `\FBheight`. These values are pre-set to `.3\linewidth` and `2in`. Possible solutions include:

- Use fixed lengths. lwarp will scale the HTML lengths appropriately.
- Use `warpprint` and `warpHTML` environments to select appropriate values for each case.
- Inside a `warpHTML` environment, manually change `\FBwidth` or `\FBheight` before the `\ffigbox` or `\ttabbox`. Use `\FBwidth` or `\FBheight` normally afterwards; it will be used as expected in print output, and will use your custom-selected value in HTML output. This custom value will be used repeatedly, until it is manually changed to a new value.

After everything has loaded, remember whether subcaption was loaded. If not, it is assumed that subfig is used instead:

```
\newbool{LWR@subcaptionloaded}

\AtBeginDocument{
\IfPackageLoadedTF{subcaption}
    {\booltrue{LWR@subcaptionloaded}}
    {\boolfalse{LWR@subcaptionloaded}}
}
```

\floatbox [⟨*1 preamble*⟩] {⟨*2 captype*⟩} [⟨*3 width*⟩] [⟨*4 height*⟩] [⟨*5 vert pos*⟩] {⟨*6 caption*⟩} {⟨*7 object*⟩}

Only parameters for captype, width, caption, and object are used.

LWR@insubfloatrow is true if inside a subfloatrow environment.

There are two actions, depending on the use of subcaption or subfig.

```
\NewDocumentCommand{\floatbox}{o m o o o +m +m}{%
\ifbool{LWR@subcaptionloaded}%
{% subcaption
```

For subcaption:

```
    \ifbool{LWR@insubfloatrow}%
    {% subcaption in a subfloatrow
```

subfigure and subtable environments take width as an argument.

```
        \IfValueTF{#3}%
        {\@nameuse{sub#2}{#3}}%
        {\@nameuse{sub#2}{\linewidth}}%
    }% subcaption in a subfloatrow
    {% subcaption not in subfloatrow
```

figure and table environments do not take a width argument.

```
        \@nameuse{#2}%
    }% subcaption not in subfloatrow
    #6

    #7
```

End the environments:

```
    \ifbool{LWR@insubfloatrow}%
    {\@nameuse{endsub#2}}%
    {\@nameuse{end#2}}%
}% subcaption
{% assume subfig
```

For subfig:

```
\ifbool{LWR@insubfloatrow}%
{% subfig in a subfloatrow
```

\subfloat is a macro, not an environment.

Package subfig's \subfloat command takes an optional argument which is the caption, but \floatbox argument #6 contains commands to create the caption and label, not the caption itself. Thus, \caption is temporarily disabled to return its own argument without braces.

```
    \begingroup
    \let\caption\@firstofone
    \subfloat[#6]{#7}
    \endgroup
}% subfig in a subfloatrow
```

```
{% subfig package, but not a subfig
```

`figure` and `table` are environments:

```
\@nameuse{#2}
#6

#7
\@nameuse{end#2}
}% subfig package, but not a subfig
}% assume subfig
}
```

Not used:

```
\newcommand*{\nocapbeside}{}
\newcommand*{\capbeside}{}
\newcommand*{\captop}{}
\newlength{\FBwidth}
\setlength{\FBwidth}{.3\linewidth}
\newlength{\FBheight}
\setlength{\FBheight}{2in}
\newcommand*{\useFCwidth}{}
\newcommand{\floatsetup}[2][]{}
\newcommand{\thisfloatsetup}[1]{}
\newcommand{\clearfloatsetup}[1]{}
\newcommand*{\killfloatstyle}{}
```

`\newfloatcommand` {⟨*1 command*⟩} {⟨*2 captype*⟩} [⟨*3 preamble*⟩] [⟨*4 default width*⟩]

Preamble and default width are ignored.

```
\NewDocumentCommand{\newfloatcommand}{m m o o}{%
\@namedef{#1}{
\floatbox{#2}
}
}
```

`\renewfloatcommand` {⟨*1 command*⟩} {⟨*2 captype*⟩} [⟨*3 preamble*⟩] [⟨*4 default width*⟩]

Preamble and default width are ignored.

```
\NewDocumentCommand{\renewfloatcommand}{m m o o}{%
\@namedef{#1}{%
\floatbox{#2}
}
}
```

`\ffigbox` [⟨*width*⟩] [⟨*height*⟩] [⟨*vposn*⟩] {⟨*caption commands*⟩} {⟨*contents*⟩}

```
\newfloatcommand{ffigbox}{figure}[\nocapbeside][]
```

`\ttabbox` [⟨*width*⟩] [⟨*height*⟩] [⟨*vposn*⟩] {⟨*caption commands*⟩} {⟨*contents*⟩}

```
\newfloatcommand{ttabbox}{table}[\captop][\FBwidth]
```

`\fcapside` [⟨*width*⟩] [⟨*height*⟩] [⟨*vposn*⟩] {⟨*caption commands*⟩} {⟨*contents*⟩}

```
\newfloatcommand{fcapside}{figure}[\capbeside][]
```

Env floatrow [⟨*numfloats*⟩]

The row of floats is placed into a of class floatrow.

```
\newenvironment*{floatrow}[1][2]
{%
    \begin{LWR@setvirtualpage}*%
    \BlockClass{floatrow}%
}
{
    \endBlockClass%
    \end{LWR@setvirtualpage}%
}
```

Keys for \DeclareNewFloatType:

```
\newcommand*{\LWR@frowkeyplacement}{}
\newcommand*{\LWR@frowkeyname}{}
\newcommand*{\LWR@frowkeyfileext}{}
\newcommand*{\LWR@frowkeywithin}{}
\newcommand*{\LWR@frowkeycapstyle}{}

\define@key{frowkeys}{placement}{}%
\define@key{frowkeys}{name}{\renewcommand{\LWR@frowkeyname}{#1}}%
\define@key{frowkeys}{fileext}{\renewcommand{\LWR@frowkeyfileext}{#1}}%
\define@key{frowkeys}{within}{\renewcommand{\LWR@frowkeywithin}{#1}}%
\define@key{frowkeys}{relatedcapstyle}{}%
```

\DeclareNewFloatType {⟨*type*⟩} {⟨*options*⟩}

Use \listof{type}{Title} to print a list of the floats.

```
\newcommand*{\DeclareNewFloatType}[2]{%
```

Reset key values:

```
\renewcommand*{\LWR@frowkeyplacement}{}%
\renewcommand*{\LWR@frowkeyname}{}%
\renewcommand*{\LWR@frowkeyfileext}{}%
\renewcommand*{\LWR@frowkeywithin}{}%
\renewcommand*{\LWR@frowkeycapstyle}{}%
```

Read new key values:

```
\LWR@traceinfo{about to setkeys frowkeys}%
\setkeys{frowkeys}{#2}%
\LWR@traceinfo{finished setkeys frowkeys}%
```

Create a new float with optional [within]:

```
\ifthenelse{\equal{\LWR@frowkeywithin}{}}%
{%
    \DeclareFloatingEnvironment[
        placement=\LWR@frowkeyplacement,
        fileext=\LWR@frowkeyfileext
    ]{#1}%
}%
{%
    \DeclareFloatingEnvironment[
        placement=\LWR@frowkeyplacement,
        fileext=\LWR@frowkeyfileext,
        within=\LWR@frowkeywithin
    ]{#1}%
%     \LWR@traceinfo{finished newfloat #1}%
```

```
}%
```

Rename the float if a name was given:

```
\ifthenelse{\equal{\LWR@frowkeyname}{}}%
    {}%
    {%
        \SetupFloatingEnvironment{#1}{name={\LWR@frowkeyname}}%
    }%
}
```

Not used:

```
\newcommand{\buildFBBOX}[2]{}
\newcommand*{\CenterFloatBoxes}{}
\newcommand*{\TopFloatBoxes}{}
\newcommand*{\BottomFloatBoxes}{}
\newcommand*{\PlainFloatBoxes}{}

\newcommand{\capsubrowsettings}{}

\NewDocumentCommand{\RawFloats}{o o}{}
```

`\RawCaption` {⟨*text*⟩}

To be used inside a minipage or parbox.

```
\newcommand{\RawCaption}[1]{#1}
```

`\floatfoot` {⟨*text*⟩}

Places additional text inside a float, inside a css `<div>` of class `floatfoot`.

```
\NewDocumentCommand{\floatfoot}{s +m}{%
    \begin{BlockClass}{floatfoot}
    #2
    \end{BlockClass}
}
```

Used to compute `\linewidth`.

```
\newbool{LWR@insubfloatrow}
\boolfalse{LWR@insubfloatrow}
```

Env `subfloatrow` [⟨*num_floats*⟩]

```
\newenvironment*{subfloatrow}[1][2]
{
```

The row of floats is placed into a `<div>` of class `floatrow`:

```
    \LWR@forcenewpage
    \BlockClass{floatrow}
```

While inside the floatrow, `LWR@insubfloatrow` is set true, which tells `\floatbox` to use `\subfigure` or `\subtable`.

```
    \begingroup%
    \booltrue{LWR@insubfloatrow}%
}
{%
    \endgroup%
```

```
    \endBlockClass%
    \boolfalse{LWR@insubfloatrow}%
}
```

File 171 **lwarp-fltrace.sty**

§ 280 Package

fltrace

Pkg fltrace

fltrace is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{fltrace}[2018/01/08]

\def\tracefloats{}
\def\tracefloatsoff{}
\def\tracefloatvals{}
```

File 172 **lwarp-flushend.sty**

§ 281 Package

flushend

(*Emulates or patches code by* Sigitas Tolušis.)

Pkg flushend

flushend is ignored.

for HTML output:

Discard all options for lwarp-flushend:

```
\LWR@ProvidesPackageDrop{flushend}[2021/10/04]

\newcommand*{\flushend}{}
\newcommand*{\raggedend}{}
\newcommand*{\flushcolsend}{}
\newcommand*{\raggedcolsend}{}
\newtoks\atColsBreak \atColsBreak={}
\newtoks\atColsEnd   \atColsEnd={}
\newcommand*{\showcolsendrule}{}
```

File 173 **lwarp-fnbreak.sty**

§ 282 Package

fnbreak

Pkg fnbreak

fnbreak is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{fnbreak}[2012/01/01]

\newcommand*{\fnbreakverbose}{}
\newcommand*{\fnbreaknonverbose}{}
\newcommand*{\fnbreaklabel}{}
\newcommand*{\fnbreaknolabel}{}
```

File 174 **lwarp-fncychap.sty**

§ 283 Package

fncychap

(*Emulates or patches code by* Ulf A. Lindgren.)

Pkg fncychap

fncychap is ignored.

for HTML output:

Discard all options for lwarp-fncychap:

```
\LWR@ProvidesPackageDrop{fncychap}[2007/07/30]

\def\mghrulefill#1{}
\def\ChNameLowerCase{}
\def\ChNameUpperCase{}
\def\ChNameAsIs{}
\def\ChTitleLowerCase{}
\def\ChTitleUpperCase{}
\def\ChTitleAsIs{}
\newcommand{\ChRuleWidth}[1]{}
\newcommand{\ChNameVar}[1]{}
\newcommand{\ChNumVar}[1]{}
\newcommand{\ChTitleVar}[1]{}
\newcommand{\TheAlphaChapter}{}
\newcommand{\DOCH}{}
\newcommand{\DOTI}[1]{}
\newcommand{\DOTIS}[1]{}
\newlength{\mylen}
\newlength{\myhi}
\newlength{\px}
\newlength{\py}
\newlength{\pyy}
\newlength{\pxx}
\newlength{\RW}
\newcommand{\FmN}[1]{#1}
\newcommand{\FmTi}[1]{#1}
```

File 175 **lwarp-fnlineno.sty**

§ 284 Package

fnlineno

Pkg fnlineno

fnlineno is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{fnlineno}[2011/01/07]
```

File 176 **lwarp-fnpara.sty**

§ 285 Package

fnpara

Pkg fnpara

fnpara is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{fnpara}
```

File 177 **lwarp-fnpos.sty**

§ 286 Package

fnpos

(*Emulates or patches code by* Hiroshi Nakashima.)

Pkg fnpos

fnpos is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{fnpos}[1999/07/14]

\newcommand*{\makeFNbottom}{}
\newcommand*{\makeFNmid}{}
\newcommand*{\makeFNbelow}{}
\newcommand*{\makeFNabove}{}
```

File 178 **lwarp-fontawesome.sty**

§ 287 Package

fontawesome

(*Emulates or patches code by* Xavier Danaux.)

Pkg fontawesome

fontawesome is patched for use by lwarp.

Hashed inline images are used, as there may not be Unicode support for all icons.

⚠ *poppler* syntax warning

If using pdf LaTeX, *poppler* may issue a syntax warning regarding parsing a ligature component. XeLaTeX or LuaLaTeX may be used to avoid this warning.

In the following, the general strategy is to intercept `\symbol` and embed it inside a `lateximage`. These changes are done inside a local group.

For pdf LaTeX, the `alt` tag includes the icon (symbol) number. For XeLaTeX and LuaLaTeX, the `alt` tag is generic.

for HTML output:

```
\LWR@ProvidesPackagePass{fontawesome}[2016/05/15]

\LetLtxMacro\LWR@orig@symbol\symbol

\ifxetexorluatex

\newfontfamily{\LWR@orig@FA}{FontAwesome}

\newcommand*{\LWR@fontawesome@xelatex@symbol}[1]{%
    \LWR@findcurrenttextcolor%
  \begin{lateximage}*[icon][fontawesomexetex#1SZ\LWR@font@size{}CL\LWR@tempcolor]%
    \csuse{\LWR@font@size}%
    \LWR@orig@FA%
    \LWR@orig@symbol{#1}%
    \end{lateximage}%
}

\RenewDocumentCommand{\FA}{}{%
```

```
    \LetLtxMacro\symbol\LWR@fontawesome@xelatex@symbol%
}

\else

\newcommand*{\LWR@fontawesome@symbolX}[2]{%
    \LWR@findcurrenttextcolor%
   \begin{lateximage}*[icon #1][fontawesome#2#1SZ\LWR@font@size{}CL\LWR@tempcolor]%
    \csuse{\LWR@font@size}%
    \fontencoding{U}\fontfamily{fontawesome#2}\selectfont%
    \LWR@orig@symbol{#1}%
    \end{lateximage}%
}

\newcommand*{\LWR@fontawesome@symbolone}[1]{%
    \LWR@fontawesome@symbolX{#1}{one}%
}

\newcommand*{\LWR@fontawesome@symboltwo}[1]{%
    \LWR@fontawesome@symbolX{#1}{two}%
}

\newcommand*{\LWR@fontawesome@symbolthree}[1]{%
    \LWR@fontawesome@symbolX{#1}{three}%
}

\renewrobustcmd\FAone{%
    \LetLtxMacro\symbol\LWR@fontawesome@symbolone%
}

\renewrobustcmd\FAtwo{%
    \LetLtxMacro\symbol\LWR@fontawesome@symboltwo%
}

\renewrobustcmd\FAthree{%
    \LetLtxMacro\symbol\LWR@fontawesome@symbolthree%
}
\fi
```

File 179 **lwarp-fontawesome5.sty**

§ 288 Package

fontawesome5

(*Emulates or patches code by* Marcel Krüger.)

Pkg fontawesome5

fontawesome5 is patched for use by lwarp.

Hashed inline images are used, as there may not be Unicode support for all icons.

The `alt` tag has the name of the icon.

for HTML output:

```
\LWR@ProvidesPackagePass{fontawesome5}[2018/07/27]

\ExplSyntaxOn
\cs_set:Nn\fontawesome_use_icon:nn{
    \LWR@findcurrenttextcolor
  \cs_if_exist:cTF{c__fontawesome_slot_#2_tl}{
```

```
  \begin{lateximage}*[#2][fontawesome5#1SZ\LWR@font@size{}CL\LWR@tempcolor]
    \csuse{\LWR@font@size}
    \exp_last_unbraced:Nv
      \__fontawesome_icon_at:nnnn
      {c__fontawesome_slot_#2_tl}
        {#1}{#2}
    \end{lateximage}
  }{
    \msg_error:nnxx{fontawesome5}{icon-not-found}{#2}{#1}
  }
}
\ExplSyntaxOff
```

File 180 **lwarp-fontaxes.sty**

§ 289 Package fontaxes

(*Emulates or patches code by* Andreas Bühmann, Michael Ummels.)

Pkg fontaxes

fontaxes is emulated for HTML, and used as-is for print output.

Functionality for small caps is in the lwarp core. Swashes and figure styles are ignored for HTML.

for HTML output:

```
\LWR@ProvidesPackagePass{fontaxes}[2014/03/23]

\ifdef{\LWR@HTML@swshape}{}{% duplicated by nfssext-cfr
    \newcommand{\LWR@HTML@swshape}{}
    \LWR@formatted{swshape}

    \newrobustcmd{\LWR@HTML@textsw}[1]{#1}
    \LWR@formatted{textsw}

    \FilenameNullify{%
        \LetLtxMacro\swshape\@empty%
        \LetLtxMacro\textsw\firstofone%
    }
}
```

File 181 **lwarp-fontenc.sty**

§ 290 Package fontenc

Pkg fontenc

If using PDF LaTeX, lwarp used to require fontenc be loaded before lwarp, but now lwarp itself loads `\fontenc` with T1 encoding, which lwarp requires. fontenc is now allowed to be loaded with another encoding after lwarp.

lwarp-fontenc is no longer necessary, but is still provided to overwrite older versions.

for HTML output:

```
\LWR@ProvidesPackagePass{fontenc}[2017/04/05]
```

File 182 **lwarp-footmisc.sty**

§ 291 Package

footmisc

(*Emulates or patches code by* Robin Fairbairns.)

Pkg footmisc

footmisc is emulated.

lwarp incidentally happens to emulate the `stable` option.

```
\LWR@ProvidesPackageDrop{footmisc}[2011/06/06]
```

Some nullified commands:

```
\newcommand{\footnotelayout}{}
\newcommand{\setfnsymbol}[1]{}
\NewDocumentCommand{\DefineFNsymbols}{s m o m}{}

\newdimen\footnotemargin
\footnotemargin1.8em\relax

\newcommand*\hangfootparskip{0.5\baselineskip}
\newcommand*\hangfootparindent{0em}%

\let\pagefootnoterule\footnoterule
\let\mpfootnoterule\footnoterule
\def\splitfootnoterule{\kern-3\p@ \hrule \kern2.6\p@}

\providecommand*{\multiplefootnotemarker}{3sp}
\providecommand*{\multfootsep}{,}
```

Using cleveref. `\labelcref` only prints the number of the object, not its type.

```
\providecommand*{\footref}[1]{\labelcref{#1}}
```

The following work as-is:

```
\newcommand\mpfootnotemark{%
  \@ifnextchar[%
    \@xmpfootnotemark%
    {%
      \stepcounter\@mpfn%
      \protected@xdef\@thefnmark{\thempfn}%
      \@footnotemark%
    }%
}
\def\@xmpfootnotemark[#1]{%
  \begingroup%
    \csname c@\@mpfn\endcsname #1\relax%
    \unrestored@protected@xdef\@thefnmark{\thempfn}%
  \endgroup%
  \@footnotemark%
}
```

File 183 **lwarp-footnote.sty**

§ 292 Package

footnote

(*Emulates or patches code by* Mark Wooding.)

Pkg footnote

footnote is used with minor patches.

for HTML output:

footnote patches \@makefntext in a strange way. It must be restored to the expected defintion before loading footnote, then replaced again after.

```
\long\def\@makefntext#1{\textsuperscript{\@thefnmark}~#1}

\LWR@ProvidesPackagePass{footnote}[1997/01/28]

\long\def\@makefntext#1{\textsuperscript{\@thefnmark}~{#1}}


\def\spewnotes{%
  \endgroup%
  \if@savingnotes\else\ifvoid\fn@notes\else\begingroup%
    \let\@makefntext\@empty%
    \let\@finalstrut\@gobble%
    \let\rule\@gobbletwo%
    \booltrue{LWR@spewingnotes}%        lwarp
    \@footnotetext{\unvbox\fn@notes}%
  \endgroup\fi\fi%
}
\let\endsavenotes\spewnotes


\def\fn@fntext#1{%
  \ifx\ifmeasuring@\@@undefined%
    \expandafter\@secondoftwo\else\expandafter\@iden%
  \fi%
  {\ifmeasuring@\expandafter\@gobble\else\expandafter\@iden\fi}%
  {%
    \global\setbox\fn@notes\vbox{%
      \unvbox\fn@notes%
      \LWR@htmltagc{\LWR@tagregularparagraph}%      lwarp
      \LWR@orignewline%                             lwarp
      \fn@startnote%
      \@makefntext{%
        \rule\z@\footnotesep%
        \ignorespaces%
        #1%
        \@finalstrut\strutbox%
      }%
      \fn@endnote%
    }%
  }%
}
```

Removed print-version formatting:

```
\def\fn@startnote{%
```

```
%   \@parboxrestore%
  \protected@edef\@currentlabel{\csname p@\@mpfn\endcsname\@thefnmark}%
%   \color@begingroup% *** conflicts with lwarp
}

% \let\fn@endnote\color@endgroup% *** conflicts with lwarp
\def\fn@endnote{%
    \LWR@origtilde\LWR@orignewline%
    \LWR@htmltagc{/\LWR@tagregularparagraph}\LWR@orignewline%
    \LWR@origtilde\LWR@orignewline%
}
```

Removed print-version formatting:

```
\def\fn@startfntext{%
  \setbox\z@\vbox\bgroup%
    \LWR@htmltagc{\LWR@tagregularparagraph}%    lwarp
    \LWR@orignewline%                           lwarp
    \fn@startnote%
    \fn@prefntext% Req'd for numbering.
%     \rule\z@\footnotesep%
    \ignorespaces%
}

```

Removed print-version formatting, added closing paragraph tag:

```
\def\fn@endfntext{%
    \fn@postfntext%
    \LWR@origtilde\LWR@orignewline%
    \LWR@htmltagc{/\LWR@tagregularparagraph}%
    \LWR@orignewline%
  \egroup%
  \begingroup%
    \let\@makefntext\@empty%
    \let\@finalstrut\@gobble%

    \LetLtxMacro\rule\@gobbletwo%
    \booltrue{LWR@spewingnotes}%    lwarp
    \@footnotetext{\unvbox\z@}%
  \endgroup%
}
```

These have been redefined, so re-`\let` them again:

```
\let\endfootnote\fn@endfntext
\let\endfootnotetext\endfootnote
```

File 184 **lwarp-footnotebackref.sty**

§ 293 Package

footnotebackref

Pkg footnotebackref

footnotebackref is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{footnotebackref}[2012/07/01]
```

File 185 **lwarp-footnotehyper.sty**

§ 294 Package

footnotehyper

Pkg footnotehyper

footnotehyper is a hyperref-safe version of footnote. For lwarp, footnotehyper is emulated.

for HTML output:

Discard all options for lwarp-footnotehyper:

```
\RequirePackage{footnote}

\LWR@ProvidesPackageDrop{footnotehyper}[2018/01/23]
```

File 186 **lwarp-footnoterange.sty**

§ 295 Package

footnoterange

(*Emulates or patches code by* H.-Martin Münch.)

Pkg footnoterange

footnoterange is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{footnoterange}[2012/02/17]

\csletcs{footnoterange}{footnoterange*}
\csletcs{endfootnoterange}{endfootnoterange*}
```

File 187 **lwarp-footnpag.sty**

§ 296 Package

footnpag

Pkg footnpag

footnpag is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{footnpag}
```

File 188 **lwarp-foreign.sty**

§ 297 Package

foreign

(*Emulates or patches code by* Philip G. Ratcliffe.)

Pkg foreign

foreign is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{foreign}[2012/09/25]

\renewcommand\foreignabbrfont{\emph}
```

File 189 **lwarp-forest.sty**

§ 298 Package

forest

(*Emulates or patches code by* Sašo Živanović.)

Pkg forest

forest is patched for use by lwarp.

⚠ \Forest*

The starred version of the macro \Forest* is not supported. lwarp encases each lateximage in an environment, so the global results of the starred \Forest* are lost.

for HTML output:

```
\LWR@ProvidesPackagePass{forest}[2017/07/14]

\BeforeBeginEnvironment{forest}{%
    \begin{lateximage}[-forest-~\PackageDiagramAltText]%
}

\AfterEndEnvironment{forest}{\end{lateximage}}

\RenewDocumentCommand{\Forest}{s D(){} m}{%
  \forest@config{#2}%
  \IfBooleanTF{#1}{%
        \PackageError{lwarp-forest}%
        {\protect\Forest* is not supported}%
        {Lwarp uses an environment for images,\MessageBreak
            but \protect\Forest* cannot work in an environment.}%
        \let\forest@next\forest@env%
    }{\let\forest@next\forest@group@env}%
    \begin{lateximage}[-forest-~\PackageDiagramAltTextlwarp]%
  \forest@next{#3}%
    \end{lateximage}%lwarp
}
```

File 190 **lwarp-fouridx.sty**

§ 299 Package

fouridx

(*Emulates or patches code by* Stefan Karrmann.)

Pkg fouridx

fouridx works as-is with SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{fouridx}[2013/11/21]

\begin{warpMathJax}
\CustomizeMathJax{%
    \newcommand{\fourIdx}[5]{%
        \vphantom{#5}^{\hphantom{#2}#1}_{\hphantom{#1}#2}{#5}^{#3}_{#4}%
    }%
}
\end{warpMathJax}
```

File 191 **lwarp-fourier.sty**

§ 300 Package

fourier

(*Emulates or patches code by* Michel Bovani.)

Pkg fourier

fourier is used as-is for SVG math, and is emulated for MathJax.

⚠ limitations

The MathJax emulation ignores all package options, except `sloped` and `upright` are honored for Greek characters, but MathJax cannot yet honor these for Latin characters.

The dedicated macros for upright and italic Greek letters do work correctly.

SVG math should appear the same as the printed output.

for HTML output:

```
\LWR@ProvidesPackagePass{fourier}[2020/03/03]

\LWR@infoprocessingmathjax{fourier}

\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\LWR@origRequirePackage{lwarp-common-mathjax-overlaysymbols}

\begin{warpMathJax}

\IfPackageLoadedWithOptionsTF{fourier}{sloped}
    {
        \LWR@mathjax@addgreek@l@up{other}{}
        \LWR@mathjax@addgreek@u@it*{other}{}
    }% sloped
    {% not sloped
        \IfPackageLoadedWithOptionsTF{fourier}{upright}
            {% upright option
                \LWR@mathjax@addgreek@l@up{}{}
                \LWR@mathjax@addgreek@u@up*{}{}
                \LWR@mathjax@addgreek@l@it{other}{}
                \LWR@mathjax@addgreek@u@it*{other}{}
            }
            {% neither sloped nor upright
                \LWR@mathjax@addgreek@l@up{other}{}
                \LWR@mathjax@addgreek@u@it*{other}{}
            }
    }

\CustomizeMathJax{\newcommand{\othergreek}[1]{#1}}
\CustomizeMathJax{\let\varvarrho\varrho}
\CustomizeMathJax{\let\varvarpi\varpi}
\CustomizeMathJax{\let\othervarvarpi\othervarpi}
\CustomizeMathJax{\let\othervarvarrho\othervarrho}
\CustomizeMathJax{\let\varpartialdiff\partial}
```

`lwarp_mathjax.txt` adds `\left`/`\right` support for delimiters.

```
\CustomizeMathJax{\let\llbracket\lBrack}
```

```
\CustomizeMathJax{\let\rrbracket\rBrack}
\CustomizeMathJax{\let\dblbrackleft\lBrack}
\CustomizeMathJax{\let\dblbrackright\rBrack}

\CustomizeMathJax{\let\VERT|}

\CustomizeMathJax{\newcommand{\parallelslant}{\mathrel{\unicode{x02AFD}}}}
\CustomizeMathJax{\newcommand{\thething}{\mathord{\unicode{x1F60E}}}}
\CustomizeMathJax{\newcommand{\nparallelslant}{%
    \mathrel{\LWRoverlaysymbols{-}{\unicode{x02AFD}}}%
}}
\CustomizeMathJax{\newcommand{\xswordsup}{\mathord{\unicode{x2694}}}}
\CustomizeMathJax{\newcommand{\xswordsdown}{\mathord{\unicode{x2694}}}}% up
\CustomizeMathJax{\newcommand{\notowns}{\mathrel{\unicode{x220C}}}}

\CustomizeMathJax{\newcommand{\iintop}{\mathop{\unicode{x222C}}\limits}}
\CustomizeMathJax{\newcommand{\iiintop}{\mathop{\unicode{x222D}}\limits}}
\CustomizeMathJax{\newcommand{\oiint}{\mathop{\unicode{x222F}}\limits}}
\CustomizeMathJax{\let\oiintop\oiint}
\CustomizeMathJax{\newcommand{\oiiint}{\mathop{\unicode{x2230}}\limits}}
\CustomizeMathJax{\let\oiiintop\oiiint}
\CustomizeMathJax{\newcommand{\slashint}{\mathop{\unicode{x2A0D}}\limits}}
\CustomizeMathJax{\let\slashintop\slashint}

\CustomizeMathJax{\let\overgroup\overparen}
\CustomizeMathJax{\let\wideparen\overparen}
\CustomizeMathJax{\let\widearc\overparen}
\CustomizeMathJax{\let\wideOarc\overrightarrow}
\CustomizeMathJax{\newcommand{\widering}[1]{\stackrel{\unicode{x2218}}{\overgroup{#1}}}}

\end{warpMathJax}
```

File 192 **lwarp-framed.sty**

§ 301 Package

framed

(*Emulates or patches code by* Donald Arseneau.)

Pkg framed

framed is supported and patched by lwarp.

for HTML output:

Accept all options for lwarp-framed:

```
\LWR@ProvidesPackagePass{framed}[2011/10/22]

\AtBeginDocument{\RequirePackage{xcolor}}% for \convertcolorspec

\renewenvironment{framed}
{%
    \LWR@forcenewpage
    \BlockClass{framed}%
}
{\endBlockClass}

\renewenvironment{oframed}
{%
    \LWR@forcenewpage
    \BlockClass{framed}%
}
```

```
{\endBlockClass}


\renewenvironment{shaded}
{%
    \convertcolorspec{named}{shadecolor}{HTML}\LWR@tempcolor%
    \LWR@forcenewpage
    \BlockClass[background: \LWR@origpound\LWR@tempcolor]{shaded}%
}
{\endBlockClass}

\renewenvironment{shaded*}
{%
    \convertcolorspec{named}{shadecolor}{HTML}\LWR@tempcolor%
    \LWR@forcenewpage
    \BlockClass[background: \LWR@origpound\LWR@tempcolor]{shaded}%
}
{\endBlockClass}


\renewenvironment{leftbar}{%
    \LWR@forcenewpage
    \BlockClass{framedleftbar}
    \def\FrameCommand{}%
    \MakeFramed {}
}%
{\endMakeFramed\endBlockClass}


\renewenvironment{snugshade}
{%
    \convertcolorspec{named}{shadecolor}{HTML}\LWR@tempcolor%
    \LWR@forcenewpage
    \BlockClass[background: \LWR@origpound\LWR@tempcolor]{snugframed}%
}
{\endBlockClass}

\renewenvironment{snugshade*}
{%
    \convertcolorspec{named}{shadecolor}{HTML}\LWR@tempcolor%
    \LWR@forcenewpage
    \BlockClass[background: \LWR@origpound\LWR@tempcolor]{snugframed}%
}
{\endBlockClass}

\let\oframed\framed
\let\endoframed\endframed


\RenewEnviron{titled-frame}[1]{%
    \CustomFBox{#1}{}{0pt}{0pt}{0pt}{0pt}{\BODY}
}
```

\CustomFBox {⟨*toptitle*⟩} {⟨*bottitle*⟩} {⟨*thicknesstop*⟩} {⟨*bottom*⟩} {⟨*left*⟩} {⟨*right*⟩} {⟨*text contents*⟩}

```
\renewcommand{\CustomFBox}[7]{%
    \convertcolorspec{named}{TFFrameColor}{HTML}\LWR@tempcolor%
    \LWR@forcenewpage
```

```
  \begin{BlockClass}[border: 3px solid \LWR@origpound\LWR@tempcolor]{framed}%
   \ifthenelse{\isempty{#1}}{}{% not empty
    \begin{BlockClass}[background: \LWR@origpound\LWR@tempcolor]{framedtitle}%
       \textcolor{TFTitleColor}{\textbf{#1}}%
       \end{BlockClass}%
   }% not empty

   #7

   \ifthenelse{\isempty{#2}}{}{% not empty
       \convertcolorspec{named}{TFFrameColor}{HTML}\LWR@tempcolor%
    \begin{BlockClass}[background: \LWR@origpound\LWR@tempcolor]{framedtitle}%
       \textcolor{TFTitleColor}{\textbf{#2}}%
       \end{BlockClass}%
   }% not empty
   \end{BlockClass}%
}
```

\TitleBarFrame [⟨*marker*⟩] {⟨*title*⟩} {⟨*contents*⟩}

```
\renewcommand\TitleBarFrame[3][]{%
    \CustomFBox%
        {#2}{}%
        \fboxrule\fboxrule\fboxrule\fboxrule%
        {#3}%
}

\renewcommand{\TF@Title}[1]{#1}
```

Env MakeFramed {⟨*settings*⟩}

```
\let\MakeFramed\relax
\let\endMakeFramed\relax

\NewEnviron{MakeFramed}[1]{%
    \FrameCommand{\begin{minipage}{\linewidth}\BODY\end{minipage}}%
}
```

\fb@put@frame {⟨*frame cmd no split*⟩} {⟨*frame cmd split*⟩}

```
\renewcommand*{\fb@put@frame}[2]{%
    \relax%
    \@tempboxa%
}
```

File 193 **lwarp-froufrou.sty**

§ 302 Package

froufrou

(*Emulates or patches code by* Nelson Lago.)

Pkg froufrou froufrou is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{froufrou}[2020/12/22]

\ExplSyntaxOn
```

```
\xpretocmd{\setfroufrou}
    {\edef\LWR@latestfroufrou{\detokenize{#1}}}
    {}
    {\LWR@patcherror{froufrou}{setfroufrou}}
\ExplSyntaxOff

\RenewDocumentCommand{\froufrou}{s O{}}{%
  \nopagebreak[4]\par

  \IfBooleanTF{#1}{\@afterindenttrue}{\@afterindentfalse}

  \nopagebreak[4]\@froufrouspacebefore\nopagebreak[4]

  \bgroup
    \setfroufrou{#2}%
    \normalsize
   \ifdefvoid{\setstretch}{}{\setstretch{\setspace@singlespace}}% normally 1
    \setlength{\parskip}{0pt}
    \noindent\centering\bgroup%
        \begin{center}%                                          lwarp
        \begin{lateximage}*[froufrou][\LWR@latestfroufrou]%      lwarp
        \@froufrouOrnament%
        \end{lateximage}%                                        lwarp
        \end{center}%                                            lwarp
    \egroup\par
  \egroup

  \nopagebreak[4]\@froufrouspaceafter\nopagebreak[4]

  \@froufrouFixSpacingAfter

  \nopagebreak[3]

  \@afterheading
}
```

File 194 **lwarp-ftcap.sty**

§ 303 Package

ftcap

Pkg ftcap

ftcap is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{ftcap}
```

File 195 **lwarp-ftnright.sty**

§ 304 Package

ftnright

Pkg ftnright

ftnright is ignored.

for HTML output:

Discard all options for lwarp-ftnright:

```
\LWR@ProvidesPackageDrop{ftnright}[2014/10/28]
```

File 196 **lwarp-fullminipage.sty**

§ 305 Package fullminipage

Pkg fullminipage

fullminipage is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{fullminipage}[2014/07/06]
\newenvironment{fullminipage}[1][]{}{}
```

File 197 **lwarp-fullpage.sty**

§ 306 Package fullpage

Pkg fullpage

fullpage is ignored.

for HTML output:

Discard all options for lwarp-fullpage:

```
\LWR@ProvidesPackageDrop{fullpage}[1994/06/01]
```

File 198 **lwarp-fullwidth.sty**

§ 307 Package fullwidth

(*Emulates or patches code by* Marco Daniel.)

Pkg fullwidth

fullwidth is emulated.

A minipage is used, of no HTML width.

for HTML output:

```
\LWR@ProvidesPackageDrop{fullwidth}[2011/11/18]
\newenvironment*{fullwidth}[1][]{%
\minipagefullwidth%
\minipage{\linewidth}%
}
{%
\endminipage%
}
```

File 199 **lwarp-fvextra.sty**

§ 308 Package fvextra

(*Emulates or patches code by* Geoffrey M. Poore.)

Pkg fvextra

fvextra is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{fvextra}[2019/02/04]
```

Ignored are highlight, showtabs, obeytabs, tab, tabcolor. Also ignored are all options regarding line breaking except breaklines, which is emulated as true.

tabsize is honored.

If line numbers on the right side are used along with breaklines, the line numbers will not be aligned.

```
\define@booleankey{FV}{obeytabs}%
%   {\let\FV@ObeyTabsInit\FV@@ObeyTabsInit}%
  {\let\FV@ObeyTabsInit\relax}
  {\let\FV@ObeyTabsInit\relax}

\define@key{FV}{tabcolor}%
 {}

\define@key{FV}{tab}{}

\define@booleankey{FV}{showtabs}%
%  {\def\FV@TabChar{\FV@TabColor{\FancyVerbTab}}}%
 {\let\FV@TabChar\relax}
 {\let\FV@TabChar\relax}

\newbool{LWR@FV@breaklines}

\define@booleankey{FV}{breaklines}%
  {\FV@BreakLinesfalse
    \booltrue{LWR@FV@breaklines}
    \let\FV@ListProcessLine\FV@ListProcessLine@NoBreak}
  {\FV@BreakLinesfalse
    \boolfalse{LWR@FV@breaklines}
    \let\FV@ListProcessLine\FV@ListProcessLine@NoBreak}
% \fvset{breaklines}

\define@key{FV}{breakanywheresymbolpre}{\def\FancyVerbBreakAnywhereSymbolPre{}}
\fvset{breakanywheresymbolpre={}}

\define@key{FV}{breakanywheresymbolpost}{\def\FancyVerbBreakAnywhereSymbolPost{}}
\fvset{breakanywheresymbolpost={}}

\define@key{FV}{breakbeforesymbolpre}{\def\FancyVerbBreakBeforeSymbolPre{}}
\fvset{breakbeforesymbolpre={}}

\define@key{FV}{breakbeforesymbolpost}{\def\FancyVerbBreakBeforeSymbolPost{}}
\fvset{breakbeforesymbolpost={}}

\define@key{FV}{breakaftersymbolpre}{\def\FancyVerbBreakAfterSymbolPre{}}
\fvset{breakaftersymbolpre={}}

\define@key{FV}{breakaftersymbolpost}{\def\FancyVerbBreakAfterSymbolPost{}}
\fvset{breakaftersymbolpost={}}

\define@key{FV}{breaksymbolleft}{\def\FancyVerbBreakSymbolLeft{}}

\define@key{FV}{breaksymbol}{\fvset{breaksymbolleft={}}}

\fvset{breaksymbolleft={}}

\define@key{FV}{breaksymbolright}{\def\FancyVerbBreakSymbolRight{}}
```

```
\fvset{breaksymbolright={}}

\def\FV@ListProcessLine@NoBreak#1{%
%   \hbox to \hsize{%
%     \kern\leftmargin
%     \hbox to \linewidth{%
      \FV@LeftListNumber%
      \FV@LeftListFrame%
      \FancyVerbFormatLine{%
        \FancyVerbHighlightLine{%
          \FV@ObeyTabs{\FancyVerbFormatText{#1}}}}%\hss
      \FV@RightListFrame%
      \FV@RightListNumber%
%     }%
%     \hss}%
\null\par%                    lwarp
}


\newcommand*{\LWR@FV@linethensep}{%
    \ifbool{LWR@FV@breaklines}%
        {\theFancyVerbLine\kern\FV@NumberSep}%
        {\hbox to\z@{\hss\theFancyVerbLine\kern\FV@NumberSep}}%
}

\newcommand*{\LWR@FV@septhenline}{%
    \ifbool{LWR@FV@breaklines}%
        {\kern\FV@NumberSep\theFancyVerbLine}%
        {\hbox to\z@{\kern\FV@NumberSep\theFancyVerbLine\hss}}%
}

\xpatchcmd{\FV@Numbers@left}
    {\hbox to\z@{\hss\theFancyVerbLine\kern\FV@NumberSep}}
    {\LWR@FV@linethensep}
    {}
    {\LWR@patcherror{fvextra}{FV@Numbers@left A}}

\xpatchcmd{\FV@Numbers@left}
    {\hbox to\z@{\hss\theFancyVerbLine\kern\FV@NumberSep}}
    {\LWR@FV@linethensep}
    {}
    {\LWR@patcherror{fvextra}{FV@Numbers@left B}}

\xpatchcmd{\FV@Numbers@left}
    {\hbox to\z@{\hss\theFancyVerbLine\kern\FV@NumberSep}}
    {\LWR@FV@linethensep}
    {}
    {\LWR@patcherror{fvextra}{FV@Numbers@left C}}

\xpatchcmd{\FV@Numbers@right}
    {\hbox to\z@{\kern\FV@NumberSep\theFancyVerbLine\hss}}
    {\LWR@FV@septhenline}
    {}
    {\LWR@patcherror{fvextra}{FV@Numbers@right A}}

\xpatchcmd{\FV@Numbers@right}
    {\hbox to\z@{\kern\FV@NumberSep\theFancyVerbLine\hss}}
    {\LWR@FV@septhenline}
    {}
    {\LWR@patcherror{fvextra}{FV@Numbers@right B}}
```

```
114
115 \xpatchcmd{\FV@Numbers@right}
116     {\hbox to\z@{\hss\theFancyVerbLine\kern\FV@NumberSep}}
117     {\LWR@FV@linethensep}
118     {}
119     {\LWR@patcherror{fvextra}{FV@Numbers@right C}}
120
121 \xpatchcmd{\FV@Numbers@both}
122     {\hbox to\z@{\hss\theFancyVerbLine\kern\FV@NumberSep}}
123     {\LWR@FV@linethensep}
124     {}
125     {\LWR@patcherror{fvextra}{FV@Numbers@both A}}
126
127 \xpatchcmd{\FV@Numbers@both}
128     {\hbox to\z@{\hss\theFancyVerbLine\kern\FV@NumberSep}}
129     {\LWR@FV@linethensep}
130     {}
131     {\LWR@patcherror{fvextra}{FV@Numbers@both B}}
132
133 \xpatchcmd{\FV@Numbers@both}
134     {\hbox to\z@{\hss\theFancyVerbLine\kern\FV@NumberSep}}
135     {\LWR@FV@linethensep}
136     {}
137     {\LWR@patcherror{fvextra}{FV@Numbers@both C}}
138
139 \xpatchcmd{\FV@Numbers@both}
140     {\hbox to\z@{\kern\FV@NumberSep\theFancyVerbLine\hss}}
141     {\LWR@FV@septhenline}
142     {}
143     {\LWR@patcherror{fvextra}{FV@Numbers@both D}}
144
145 \xpatchcmd{\FV@Numbers@both}
146     {\hbox to\z@{\kern\FV@NumberSep\theFancyVerbLine\hss}}
147     {\LWR@FV@septhenline}
148     {}
149     {\LWR@patcherror{fvextra}{FV@Numbers@both E}}
150
151 \xpatchcmd{\FV@Numbers@both}
152     {\hbox to\z@{\hss\theFancyVerbLine\kern\FV@NumberSep}}
153     {\LWR@FV@linethensep}
154     {}
155     {\LWR@patcherror{fvextra}{FV@Numbers@both F}}
```

File 200 **lwarp-fwlw.sty**

§ 309 Package

fwlw

Pkg fwlw

fwlw is ignored.

for HTML output:

```
1 \LWR@ProvidesPackageDrop{fwlw}

2 \newbox\FirstWordBox      \global\setbox\FirstWordBox\hbox{}
3 \newbox\NextWordBox       \global\setbox\NextWordBox\hbox{}
4 \newbox\LastWordBox       \global\setbox\LastWordBox\hbox{}
5 \def\ps@fwlwhead{}
6 \def\ps@NextWordFoot{}
```

File 201 **lwarp-gensymb.sty**

§ 310 Package gensymb

(*Emulates or patches code by* Walter Schmidt.)

Pkg gensymb

gensymb works as-is for SVG math, and uses the MathJax package.

for HTML output:

```
\LWR@ProvidesPackagePass{gensymb}[2003/07/02]

\begin{warpMathJax}
\CustomizeMathJax{\require{gensymb}}
\end{warpMathJax}
```

File 202 **lwarp-gentombow.sty**

§ 311 Package gentombow

Pkg gentombow

gentombow is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{gentombow}[2018/05/17]

\newcommand{\settombowbanner}[1]{}
\newcommand{\settombowbannerfont}[1]{}
\newcommand{\settombowwidth}[1]{}
\newcommand{\settombowbleed}[1]{}
\newcommand{\settombowcolor}[1]{}
```

File 203 **lwarp-geometry.sty**

§ 312 Package geometry

(*Emulates or patches code by* Hideo Umeki.)

Pkg geometry

geometry is preloaded by lwarp, but must be nullified as seen by the user's source code.

for HTML output:

Discard all options for lwarp-geometry:

```
\LWR@ProvidesPackageDropA{geometry}{2018/04/16}
```

If geometry is never loaded by the user, it will be loaded by lwarp `\AtBeginDocument`. If this is the case, the page layout should not be changed but the user macros should still be nullified.

```
\ifbool{LWR@allowanothergeometry}{%
```

Assign and set the selected geometry with `reset` prepended. `\AtEndPreamble` lwarp will save this, then set its own geometry.

```
    \edef\LWR@tempone{reset,\@ptionlist{\@currname.\@currext}}%
    \expandafter\LWR@origgeometry\expandafter{\LWR@tempone}%
}{}% LWR@allowanothergeometry
```

The user-level commands are nullified:

```
\renewcommand*{\geometry}[1]{}
\renewcommand*{\newgeometry}[1]{}
\renewcommand*{\restoregeometry}{}
\renewcommand*{\savegeometry}[1]{}
\renewcommand*{\loadgeometry}[1]{}
```

File 204 **lwarp-ghsystem.sty**

§ 313 Package ghsystem

(*Emulates or patches code by* Clemens Niederberger.)

Pkg ghsystem

ghsystem is patched for use by lwarp.

⚠ \ghspic images

Images must be provided in SVG format, unless JPG is specified. It is recommended to create a local `images` directory, copy into it the relevent PDF ghsystem images, and then convert them with

Enter ⇒ **lwarpmk pdftosvg images/*.pdf**

for HTML output:

```
\LWR@ProvidesPackagePass{ghsystem}[2020/02/17]

\ExplSyntaxOn

\cs_set_protected:Npn \ghsystem_filler:n #1
  { \emph { \textless #1 \textgreater } }

\cs_set_protected:Npn \ghsystem_pic:n #1
  {
    \__ghsystem_includegraphics:xn
      {
%         scale = \fp_to_tl:N \l__ghsystem_picture_scale_fp
        width = 1.25cm
        \exp_not:V \l__ghsystem_picture_includegraphics_tl
      }
      { ghsystem_ #1 . \l__ghsystem_picture_type_tl }
  }

\ExplSyntaxOff
```

File 205 **lwarp-gindex.sty**

§ 314 Package gindex

(*Emulates or patches code by* Javier Bezos.)

Pkg gindex

gindex is patched for use by lwarp.

See section 8.6.15.

for HTML output:

```
\LWR@ProvidesPackagePass{gindex}[2019/10/07]
```

Set the index page and range separators. These are set `\AtBeginDocument` to allow the user to change them. They are then protected so that the lwarp core looks for the tokens instead of their expanded contents, since the `*.ind` files will contain `\indexpagessep` and `\indexrangesep` instead of their literal contents. Finally, lwarp is told of the gindex macros.

```
\AtBeginDocument{
    \robustify{\indexpagessep}
    \robustify{\indexrangesep}
    \renewcommand*{\IndexPageSeparator}{\indexpagessep}
    \renewcommand*{\IndexRangeSeparator}{\indexrangesep}
}
```

`\hyperindexref` is added:

```
\def\addindexitem#1#2{%
  \indexflushitem
 \gix@getspecial#1\indexspecial\indexspecial\@@\indexitem{\hyperindexref{#2}}}

\def\addindexsubitem#1#2{%
  \stepcounter{indexsubitems}%
 \gix@getspecial#1\indexspecial\indexspecial\@@\indexsubitem{\hyperindexref{#2}}}

\def\addindexsubsubitem#1#2{%
 \gix@getspecial#1\indexspecial\indexspecial\@@\indexsubsubitem{\hyperindexref{#2}}}
```

Uses a of class indexheading:

```
\renewcommand\indexheading[1]{%
    \begin{BlockClass}{indexheading}
    \MakeUppercase{#1}%
    \end{BlockClass}
}
```

File 206 **lwarp-gloss.sty**

§ 315 Package

gloss

(*Emulates or patches code by* Jose Luis Díiaz, Javier Bezos.)

Pkg gloss

gloss is patched for use by lwarp.

To process the HTML glossary:

```
bibtex <projectname>_html.gls
```

for HTML output:

```
\LWR@ProvidesPackagePass{gloss}[2002/07/26]
```

`\BaseJobname` is added to the label in case xr or xr-hyper are used.

```
\xpatchcmd{\gls@gloss@iii}
   {\thepage}
   {\theLWR@previousautopagelabel}
   {}
   {\LWR@patcherror{gloss}{gls@gloss@iii}}

\def\gls@page@i#1#2{%
  \endgroup%
  \global\@namedef{glsp@#1}{\nameref{\BaseJobname-autopage-#2}}}%
```

File 207 **lwarp-glossaries.sty**

§ 316 Package

glossaries

(*Emulates or patches code by* Nicola L.C. Talbot.)

Pkg glossaries

processing glossaries

Opt GlossaryCmd

Default: makeglossaries

Opt [lwarpmk] printglossary

Opt [lwarpmk] htmlglossary

lwarpmk has the commands **lwarpmk printglossary** and **lwarpmk htmlglossary**, which process the glossaries created by the glossaries package using that package's *makeglossaries* program.

The shell command to execute is set by the lwarp option GlossaryCmd, which defaults to **makeglossaries**. The print or HTML glossary filename is appended to this command.

⚠ *makeglossaries* not found

In some situations it may be required to modify the default command, such as to add the **perl** command in front:

```
\usepackage[
   GlossaryCmd={perl makeglossaries},
] {lwarp}
```

xindy language

To set the language to use for processing glossaries with *xindy*:

```
\usepackage[
   GlossaryCmd={makeglossaries -L english},
] {lwarp}
```

Other options for *makeglossaries* may be set as well.

placement and TOC options

The glossaries may be placed in a numbered or unnumbered section, given a TOC entry, and placed inline or on their own HTML page:

Numbered section, on its own HTML page:

```
\usepackage[xindy,toc,numberedsection=nolabel]{glossaries}
...
\printglossaries
```

Unnumbered section, inline with the current HTML page:

```
\usepackage[xindy,toc]{glossaries}
...
\printglossaries
```

Unnumbered section, on its own HTML page:

```
\usepackage[xindy,toc]{glossaries}
...
\ForceHTMLPage
\printglossaries
```

⚠ glossary style — The default `style=item` option for glossaries conflicts with lwarp, so the style is forced to `index` instead.

⚠ number list — The page number list in the printed form would become `\namerefs` in HTML, which could become a very long string if many items are referenced. For now, the number list is simply turned off.

print/HTML versions — The print and HTML versions of the glossary differ in their internal page numbers. Separate commands for generating print and HTML glossaries are used, even though the page number is currently ignored.

for HTML output:

```
\PassOptionsToPackage{xindy}{glossaries}

\LWR@ProvidesPackagePass{glossaries}[2018/07/23]

\setupglossaries{nonumberlist}
\setglossarystyle{index}
```

Patched to fix TOC pointing to the previous page:

```
\renewcommand*{\@p@glossarysection}[2]{%
  \glsclearpage
  \LWR@phantomsection
  \ifdefempty\@@glossarysecstar
  {%
    \csname\@@glossarysec\endcsname{#2}%
  }%
  {%
```

In the original, the TOC entry was made before the section, thus linking to the phantomsection in the printed version, but for HTML, this caused the link to point to the page before the glossaries, which could be a different HTML file. Here, the TOC entry is made after the section is created:

```
      \csname\@@glossarysec\endcsname*{#2}%
    \@gls@toc{#1}{\@@glossarysec}% Moved after the previous line.
  }%
  \@@glossaryseclabel
}
```

lwarp's sectioning commands cannot handle robust macros when splitting HTML into named filenames. glossaries uses `\translate` in sectioning names, and `\translate` is robust and cannot be expanded. The following pre-expands the translations at this moment, making use of `\translatelet`.

```
\newcommand*{\LWR@comp@glossaryname}{\translate{Glossary}}

\ifdefstrequal{\glossaryname}{\LWR@comp@glossaryname}{
    \translatelet\LWR@translatetemp{Glossary}
    \edef\glossaryname{\LWR@translatetemp}
}{}

\newcommand*{\LWR@comp@acronymname}{\translate{Acronym}}

\ifdefstrequal{\acronymname}{\LWR@comp@acronymname}{
    \translatelet\LWR@translatetemp{Acronym}
    \edef\acronymname{\LWR@translatetemp}
}{}
```

```
\newcommand*{\LWR@comp@glssymbolsgroupname}{\translate{Symbols (glossaries)}}

\ifdefstrequal{\glssymbolsgroupname}{\LWR@comp@glssymbolsgroupname}{
    \translatelet\LWR@translatetemp{Symbols (glossaries)}
    \edef\glssymbolsgroupname{\LWR@translatetemp}
}{}

\newcommand*{\LWR@comp@glsnumbersgroupname}{\translate{Numbers (glossaries)}}

\ifdefstrequal{\glsnumbersgroupname}{\LWR@comp@glsnumbersgroupname}{
    \translatelet\LWR@translatetemp{Numbers (glossaries)}
    \edef\glsnumbersgroupname{\LWR@translatetemp}
}{}
```

File 208 **lwarp-gmeometric.sty**

§ 317 Package gmeometric

Pkg gmeometric

gmeometric is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{gmeometric}[2008/11/22]
\RequirePackageWithOptions{geometry}
```

File 209 **lwarp-graphics.sty**

§ 318 Package graphics

(*Emulates or patches code by* D. P. Carlisle.)

Pkg graphics

graphics is emulated.

for HTML output:

```
\LWR@ProvidesPackagePass{graphics}[2020/08/30]
```

§ 318.1 Graphics extensions

\DeclareGraphicsExtensions {⟨*list*⟩}

\AtBeginDocument allow svg files instead of pdf:

```
\AtBeginDocument{
\DeclareGraphicsExtensions{.svg,.SVG,.gif,.GIF,.png,.PNG,.jpg,.JPG,.jpeg,.JPEG}
\DeclareGraphicsRule{.svg}{svg}{.svg}{}
\DeclareGraphicsRule{.SVG}{svg}{.SVG}{}
}
```

Inside a lateximage, allow pdf instead of svg:

```
\ifpdf
\appto\LWR@restoreorigformatting{%
\DeclareGraphicsExtensions{.pdf,.PDF,.gif,.GIF,.png,.PNG,.jpg,.JPG,.jpeg,.JPEG}%
}
\else% \ifpdf
        \ifXeTeX
```

```
\appto\LWR@restoreorigformatting{%
\DeclareGraphicsExtensions{.pdf,.PDF,.gif,.GIF,.png,.PNG,.jpg,.JPG,.jpeg,.JPEG}%
}
        \else
\appto\LWR@restoreorigformatting{%
\DeclareGraphicsExtensions{.eps,.EPS,.gif,.GIF,.png,.PNG,.jpg,.JPG,.jpeg,.JPEG}%
}
        \fi
\fi
```

§ 318.2 Length conversions and graphics options

⚠ whitespace

A scaled image in LaTeX by default takes only as much space on the page as it requires, but HTML browsers use as much space as the original unscaled image would have taken, with the scaled image over- or under-flowing the area.

Used to store the user's selected dimensions and HTML class.

The class defaults to "inlineimage" unless changed by a `class=xyx` option.

```
\newlength{\LWR@igwidth}
\newlength{\LWR@igheight}
\newcommand*{\LWR@igwidthstyle}{}
\newcommand*{\LWR@igheightstyle}{}
\newcommand*{\LWR@igorigin}{}
\newcommand*{\LWR@igangle}{}
\newcommand*{\LWR@igxscale}{1}
\newcommand*{\LWR@igyscale}{1}

\newbool{LWR@igkeepaspectratio}
\boolfalse{LWR@igkeepaspectratio}

\newcommand*{\LWR@igclass}{inlineimage}


\newcommand*{\LWR@igalt}{\ImageAltText}
```

Set the actions of each of the key/value combinations for `\includegraphics`. Many are ignored.

If an optional width was given, set an HTML style:

```
\define@key{igraph}{width}{%
\setlength{\LWR@igwidth}{#1}%
\ifthenelse{\lengthtest{\LWR@igwidth > 0pt}}%
{%
```

Default to use the converted fixed length given:

```
  \renewcommand*{\LWR@igwidthstyle}{width:\LWR@printlength{\LWR@igwidth}}%
```

If ex or em dimensions were given, use those instead:

```
    \IfEndWith{#1}{ex}%
    {\renewcommand*{\LWR@igwidthstyle}{width:#1}}% yes ex
    {}% not ex
    \IfEndWith{#1}{em}%
    {\renewcommand*{\LWR@igwidthstyle}{width:#1}}% yes em
    {}% not em
```

```
    \IfEndWith{#1}{\%}%
    {\renewcommand*{\LWR@igwidthstyle}{width:#1}}% yes percent
    {}% not percent
    \IfEndWith{#1}{px}%
    {\renewcommand*{\LWR@igwidthstyle}{width:#1}}% yes px
    {}% not px
}{}% end of length > 0pt
}
```

If an optional height was given, set an HTML style:

```
\define@key{igraph}{height}{%
\setlength{\LWR@igheight}{#1}%
\ifthenelse{\lengthtest{\LWR@igheight > 0pt}}%
{%
```

Default to use the converted fixed length given:

```
    \renewcommand*{\LWR@igheightstyle}{%
    height:\LWR@printlength{\LWR@igheight} % extra space
    }%
```

If ex or em dimensions were given, use those instead:

```
    \IfEndWith{#1}{ex}%
    {\renewcommand*{\LWR@igheightstyle}{height:#1}}% yes ex
    {}% not ex
    \IfEndWith{#1}{em}%
    {\renewcommand*{\LWR@igheightstyle}{height:#1}}% yes em
    {}% not em
    \IfEndWith{#1}{\%}%
    {\renewcommand*{\LWR@igheightstyle}{height:#1}}% yes percent
    {}% not percent
    \IfEndWith{#1}{px}%
    {\renewcommand*{\LWR@igheightstyle}{height:#1}}% yes px
    {}% not px
}{}% end of length > 0pt
}
```

Handle `keepaspectratio` key:

```
\define@key{igraph}{keepaspectratio}[false]{%
    \booltrue{LWR@igkeepaspectratio}%
}
```

Handle `origin` key:

```
\define@key{igraph}{origin}[c]{%
    \renewcommand*{\LWR@igorigin}{#1}%
}
```

Handle `angle` key:

```
\define@key{igraph}{angle}{\renewcommand*{\LWR@igangle}{#1}}
```

Handle `class` key:

```
\define@key{igraph}{class}{\renewcommand*{\LWR@igclass}{#1}}
```

Handle `alt` key:

```
\define@key{igraph}{alt}{\renewcommand*{\LWR@igalt}{#1}}
```

It appears that graphicx does not have separate keys for `xscale` and `yscale`. `scale` adjusts both at the same time.

```
\define@key{igraph}{scale}{%
    \ifthenelse{\equal{#1}{1}}{}{%  must expand #1
        \PackageNote{lwarp}{%
        It is recommended to use ``[width=xx\protect\linewidth]''\MessageBreak
            instead of ``[scale=yy]'',%
        }%
    }%
    \renewcommand*{\LWR@igxscale}{#1}%
    \renewcommand*{\LWR@igyscale}{#1}%
}
```

Numerous ignored keys:

```
\define@key{igraph}{bb}{}
\define@key{igraph}{bbllx}{}
\define@key{igraph}{bblly}{}
\define@key{igraph}{bburx}{}
\define@key{igraph}{bbury}{}
\define@key{igraph}{natwidth}{}
\define@key{igraph}{natheight}{}
\define@key{igraph}{hiresbb}[true]{}
\define@key{igraph}{viewport}{}
\define@key{igraph}{trim}{}
\define@key{igraph}{totalheight}{}
\define@key{igraph}{clip}[true]{}
\define@key{igraph}{draft}[true]{}
\define@key{igraph}{type}{}
\define@key{igraph}{ext}{}
\define@key{igraph}{read}{}
\define@key{igraph}{command}{}
```

New in v1.1a:

```
\define@key{igraph}{quite}{}
\define@key{igraph}{page}{}
\define@key{igraph}{pagebox}{}
\define@key{igraph}{interpolate}[true]{}
```

New in v1.1b:

```
\define@key{igraph}{decodearray}{}
```

§ 318.3 Printing HTML styles

`\LWR@rotstyle` {⟨*prefix*⟩} {⟨*degrees*⟩}

Prints the rotate style with the given prefix.

`prefix` is `-ms-` or `-webkit-` or nothing, and is used to generate three versions of the `transform:rotate` style.

```
\newcommand*{\LWR@rotstyle}[2]{%
    \edef\LWR@tempone{#2}%
    \setcounter{LWR@tempcountone}{-1*\real{\LWR@tempone}} % space
    #1transform:rotate(\arabic{LWR@tempcountone}deg); % space
}
```

`\LWR@scalestyle` {⟨*prefix*⟩} {⟨*xscale*⟩} {⟨*yscale*⟩}

Prints the scale style with the given prefix.

`prefix` is `-ms-` or `-webkit-` or nothing, and is used to generate three versions of the `transform:scale` style.

```
\newcommand*{\LWR@scalestyle}[3]{%
    #1transform:scale(#2,#3);
}
```

§ 318.4 `\includegraphics`

`\LWR@opacity` For HTML, used only for `\includegraphics`.

`\LWR@opacity` may be set by the transparent package.

```
\def\LWR@opacity{1}
```

`\LWR@imagesizebox` Used to determine the actual image size if needed.

```
\newsavebox{\LWR@imagesizebox}
```

`\LWR@HTML@Gin@setfile` {⟨*w*⟩} {⟨*h*⟩} {⟨*filename*⟩} Sets the parsed filename for HTML output.

```
\newcommand*{\LWR@HTML@Gin@setfile}[3]{%
    \xdef\LWR@parsedfilename{#3}%
}
```

Key [Gin] `class` CSS class for the image.

Define the new class key for the print-mode version of `\includegraphics`, which is enabled inside a `lateximage`.

```
\AtBeginDocument{
\define@key{Gin}{class}{}
}
```

`\LWR@replaceEPSSVG`

Usually, references to EPS files become SVG files, but if the epstopdf package is being used, it automatically converts EPS to PDF, and the following must NOT be done.

```
\AtBeginDocument{
\IfPackageLoadedTF{epstopdf}
{
    \newcommand*{\LWR@replaceEPSSVG}{}
}{%
```

```
    \newcommand*{\LWR@replaceEPSSVG}{%
        \StrSubstitute{\LWR@tempone}{.eps}{.svg}[\LWR@tempone]%
        \StrSubstitute{\LWR@tempone}{.EPS}{.SVG}[\LWR@tempone]%
    }
}%
}
```

* [⟨*2: options*⟩] [⟨*3: options*⟩] {⟨*4: filename*⟩}

\LWR@ig@useactualimagesize

If formatting for a word processor, find and set the actual image size, without rotation, using PDF instead of SVG to find the original bounding box:

```
\newcommand*{\LWR@ig@useactualimagesize}[4]{%
    \begingroup%
    \LWR@restoreorigformatting%
    \ifpdf%
    \appto\LWR@restoreorigformatting{%
        \DeclareGraphicsExtensions{%
            .pdf,.PDF,.gif,.GIF,.png,.PNG,.jpg,.JPG,.jpeg,.JPEG%
        }%
    }%
    \else% \ifpdf
            \ifXeTeX%
    \appto\LWR@restoreorigformatting{%
        \DeclareGraphicsExtensions{%
            .pdf,.PDF,.gif,.GIF,.png,.PNG,.jpg,.JPG,.jpeg,.JPEG%
        }%
    }%
            \else%
    \appto\LWR@restoreorigformatting{%
        \DeclareGraphicsExtensions{%
            .eps,.EPS,.gif,.GIF,.png,.PNG,.jpg,.JPG,.jpeg,.JPEG%
        }%
    }%
            \fi%
    \fi% \ifpdf
```

For a word processor, do not use rotation:

```
    \ifbool{FormatWP}{\define@key{Gin}{angle}{}}{}%

    \IfBooleanTF{#1}%
    {% starred
        \IfValueTF{#3}%
        {%
            \global\sbox{\LWR@imagesizebox}{%
                \LWR@origincludegraphics*[#2][#3]{#4}%
            }%
        }%
        {%
            \IfValueTF{#2}%
            {%
                \global\sbox{\LWR@imagesizebox}{%
                    \LWR@origincludegraphics*[#2]{#4}%
                }%
            }{%
                \global\sbox{\LWR@imagesizebox}{%
                    \LWR@origincludegraphics*{#4}%
                }%
            }%
        }%
    }% starred
```

```
    {% not starred
        \IfValueTF{#3}%
        {%
            \global\sbox{\LWR@imagesizebox}{%
                \LWR@origincludegraphics[#2][#3]{#4}%
            }%
        }%
        {%
            \IfValueTF{#2}%
            {%
                \global\sbox{\LWR@imagesizebox}{%
                    \LWR@origincludegraphics[#2]{#4}%
                }%
            }{%
                \global\sbox{\LWR@imagesizebox}{%
                    \LWR@origincludegraphics{#4}%
                }%
            }%
        }%
    }% not starred
    \endgroup%
    \settowidth{\LWR@igwidth}{\usebox{\LWR@imagesizebox}}%
    \global\renewcommand*{\LWR@igwidthstyle}{%
        width:\LWR@printlength{\LWR@igwidth}%
    }%
    \settoheight{\LWR@igheight}{\usebox{\LWR@imagesizebox}}%
    \global\renewcommand*{\LWR@igheightstyle}{%
        height:\LWR@printlength{\LWR@igheight}%
    }%
}
```

\LWR@ig@htmltag

For the HTML reference, add the graphicspath, filename, extension, alt tag, style, and class.

```
\newcommand*{\LWR@ig@htmltag}{%
    img\LWR@indentHTML%
    src=\textquotedbl%

    \detokenize\expandafter{\LWR@parsedfilename}%

    \textquotedbl\LWR@indentHTML%
```

Only include a style tag if a width, height, angle, or scale was given:

```
    \ifthenelse{
        \NOT\equal{\LWR@igwidthstyle}{} \OR
        \NOT\equal{\LWR@igheightstyle}{} \OR
        \NOT\equal{\LWR@igorigin}{} \OR
        \NOT\equal{\LWR@igangle}{} \OR
        \NOT\equal{\LWR@igxscale}{1} \OR
        \NOT\equal{\LWR@igyscale}{1}
    }%
    {%
        style=\textquotedbl\LWR@indentHTML
        \ifthenelse{\NOT\equal{\LWR@igwidthstyle}{}}%
            {\LWR@igwidthstyle;\LWR@indentHTML}{}%
        \ifthenelse{\NOT\equal{\LWR@igheightstyle}{}}%
            {\LWR@igheightstyle;\LWR@indentHTML}{}%
        \ifthenelse{\NOT\equal{\LWR@igorigin}{}}%
            {%
                transform-origin: \LWR@originnames{\LWR@igorigin};%
```

```
                \LWR@indentHTML%
            }{}%
        \ifthenelse{\NOT\equal{\LWR@igangle}{}}%
        {%
            \LWR@rotstyle{-ms-}{\LWR@igangle}\LWR@indentHTML
            \LWR@rotstyle{-webkit-}{\LWR@igangle}\LWR@indentHTML
            \LWR@rotstyle{}{\LWR@igangle }\LWR@indentHTML
        }{}%
        \ifthenelse{%
            \NOT\equal{\LWR@igxscale}{1}\OR%
            \NOT\equal{\LWR@igyscale}{1}%
        }%
        {%
            \LWR@scalestyle{-ms-}{\LWR@igxscale}{\LWR@igyscale}%
            \LWR@indentHTML
            \LWR@scalestyle{-webkit-}{\LWR@igxscale}{\LWR@igyscale}%
            \LWR@indentHTML
            \LWR@scalestyle{}{\LWR@igxscale}{\LWR@igyscale}%
            \LWR@indentHTML
        }{}%
        %
        \ifthenelse{\NOT\equal{\LWR@opacity}{1}}%
            {opacity:\LWR@opacity;\LWR@indentHTML}{}%
        %
        \textquotedbl\LWR@indentHTML%
    }{}%
```

Set the class and alt tag:

```
    class=\textquotedbl\LWR@igclass\textquotedbl\LWR@indentHTML%
  alt=\textquotedbl\AltTextOpen\LWR@igalt\AltTextClose\textquotedbl\ \LWR@orignewline%
}% end of image tags
```

`\LWR@includegraphicsb` * [⟨*2: options*⟩] [⟨*3: options*⟩] {⟨*4: filename*⟩}

graphics syntax is `\includegraphics` * [⟨*llx,lly*⟩] [⟨*urx,ury*⟩] {⟨*filename*⟩}

graphicx syntax is `\includegraphics` [⟨*key values*⟩] {⟨*filename*⟩}

If `#3` is empty, only one optional argument was given, thus graphicx syntax.

If using `\epsfig` or `\psfig` from the epsfig package, `#4` will be `\LWR@epsfig@filename`, which will have been set by the `file` or `figure` keys. Therefore, `#4` must not be used until after the keys have been processed.

```
\NewDocumentCommand{\LWR@includegraphicsb}{s o o m}
{%
```

Start the image tag on a new line, allow PDF output word wrap:

```
    \LWR@origtilde \LWR@orignewline%
```

Temporarily compute `\linewidth`, `\textwidth`, `\textheight` arguments with a 6x9 inch size until the next `\endgroup`.

```
    \begin{LWR@setvirtualpage}%
```

For correct em sizing during the width and height conversions:

```
    \large%
```

Temporarily prevent underfull `\hbox` warnings.

```
    \hbadness=10000\relax%
```

Reset some defaults, possibly will be changed below if options were given:

```
    \setlength{\LWR@igwidth}{0pt}%
    \setlength{\LWR@igheight}{0pt}%
    \renewcommand*{\LWR@igwidthstyle}{}%
    \renewcommand*{\LWR@igheightstyle}{}%
    \renewcommand*{\LWR@igorigin}{}%
    \renewcommand*{\LWR@igangle}{}%
    \renewcommand*{\LWR@igxscale}{1}%
    \renewcommand*{\LWR@igyscale}{1}%
    \renewcommand*{\LWR@igclass}{inlineimage}%
    \boolfalse{LWR@igkeepaspectratio}%

    \ifdefvoid{\LWR@ThisAltText}{%
        \edef\LWR@igalt{\ImageAltText}%
    }{%
        \edef\LWR@igalt{\LWR@ThisAltText}%
    }%
```

If `#3` is empty, only one optional argument was given, thus graphicx syntax:

```
    \IfValueF{#3}{%
        \IfValueTF{#2}%
            {\setkeys{igraph}{#2}}%
            {\setkeys{igraph}{}}%
    }%
```

Fully expand and detokenize the filename, changing the file extension to `.svg` if necessary.

Note that uppercase file extensions are detected and reported as lowercase, so lwarp can only report to the browser lowercase extensions, so all images must have lowercase file extensions.

```
    \begingroup%
    \LetLtxMacro\Gin@setfile\LWR@HTML@Gin@setfile%
    \edef\LWR@tempone{#4}%
```

PDF extensions are removed to allow a search for another graphics format such as SVG or PNG.

```
    \StrSubstitute{\LWR@tempone}{.pdf}{}[\LWR@tempone]%
    \StrSubstitute{\LWR@tempone}{.PDF}{}[\LWR@tempone]%

    \LWR@replaceEPSSVG%
    \xdef\LWR@parsedfilename{\LWR@tempone}%
    \Ginclude@graphics{\detokenize\expandafter{\LWR@parsedfilename}}%
    \endgroup%
    \filename@parse{\LWR@parsedfilename}%
```

Remove doubled `//` in the directory path, from the 2020/10/01 LaTeX kernel change.

```
    \StrSubstitute{\LWR@parsedfilename}{//}{/}[\LWR@parsedfilename]%

    \LWR@traceinfo{LWR@parsedfilename is \LWR@parsedfilename}%
```

If formatting for a word processor, or if using `keepaspectratio`, find and set the actual image size, without rotation, using PDF instead of SVG to find the original bounding box:

```
    \ifboolexpr{
        bool {FormatWP} or
        bool {LWR@igkeepaspectratio}
    }{\LWR@ig@useactualimagesize{#1}{#2}{#3}{#4}}{}%
```

Create the HTML reference with the graphicspath, filename, extension, alt tag, style, and class:

```
    \LWR@traceinfo{LWR@includegraphicsb: about to create href}%
    \LWR@href{\LWR@parsedfilename}%
    {% start of href
        \LWR@traceinfo{LWR@includegraphicsb: about to LWR@htmltag}%
        \LWR@htmltag{\LWR@ig@htmltag}%
    }% end of href
```

Return to original page size and font size:

```
    \end{LWR@setvirtualpage}%
```

Clear the single-use `alt` text:

```
    \gdef\LWR@ThisAltText{}%
    \LWR@traceinfo{LWR@includegraphicsb done}%
}
```

`\includegraphics` `[`⟨*key=val*⟩`]` `{`⟨*filename*⟩`}`

Handles width and height, converted to fixed width and heights.

The user should always use no file suffix in the document source.

```
\AtBeginDocument{

\LWR@traceinfo{Patching includegraphics.}

\LetLtxMacro\LWR@origincludegraphics\includegraphics


\renewrobustcmd*{\includegraphics}
{%
```

This graphic should trigger an HTML paragraph even if alone, so ensure that are doing paragraph handling:

```
\LWR@traceinfo{includegraphics}%
\LWR@ensuredoingapar%
\LWR@includegraphicsb%
}% includegraphics
}% AtBeginDocument
```

§ 318.5 Boxes

`\LWR@rotboxorigin` Holds the origin key letters.

```
\newcommand*{\LWR@rotboxorigin}{}
```

`\LWR@originname` `{`⟨*letter*⟩`}`

Given one LaTeX origin key value, translate into an HTML origin word:

```
\newcommand*{\LWR@originname}[1]{%
    \ifthenelse{\equal{#1}{t}}{top}{}%
    \ifthenelse{\equal{#1}{b}}{bottom}{}%
    \ifthenelse{\equal{#1}{c}}{center}{}%
    \ifthenelse{\equal{#1}{l}}{left}{}%
    \ifthenelse{\equal{#1}{r}}{right}{}%
}
```

\LWR@originnames {⟨*letters*⟩}

Given one- or two-letter LaTeX origin key values, translate into HTML origin words:

```
\newcommand*{\LWR@originnames}[1]{%
\StrChar{#1}{1}[\LWR@strresult]%
\LWR@originname{\LWR@strresult}
\StrChar{#1}{2}[\LWR@strresult]%
\LWR@originname{\LWR@strresult}
}
```

Handle the `origin` key for `\rotatebox`:

```
\define@key{krotbox}{origin}{%
\renewcommand*{\LWR@rotboxorigin}{#1}%
}
```

These keys are ignored:

```
\define@key{krotbox}{x}{}
\define@key{krotbox}{y}{}
\define@key{krotbox}{units}{}
```

\rotatebox [⟨*keyval list*⟩] {⟨*angle*⟩} {⟨*text*⟩}

```
\AtBeginDocument{
```

The HTML version:

```
\NewDocumentCommand{\LWR@HTML@rotatebox}{O{} m +m}{%
```

Reset the origin to “none-given”:

```
\renewcommand*{\LWR@rotboxorigin}{}
```

Process the optional keys, which may set `\LWR@rotateboxorigin`:

```
\setkeys{krotbox}{#1}%
```

Select `inline-block` so that HTML will transform this span:

```
\LWR@htmltagc{%
    span\LWR@indentHTML
    style=\textquotedbl\LWR@indentHTML
    display: inline-block;\LWR@indentHTML
```

If an origin was given, translate and print the origin information:

```
    \ifthenelse{\NOT\equal{\LWR@rotboxorigin}{}}%
     {transform-origin: \LWR@originnames{\LWR@rotboxorigin};\LWR@indentHTML}%
        {}%
```

Print the rotation information:

```
    \LWR@rotstyle{-ms-}{#2}\LWR@indentHTML
    \LWR@rotstyle{-webkit-}{#2}\LWR@indentHTML
    \LWR@rotstyle{}{#2}\textquotedbl\LWR@orignewline%
}\LWR@orignewline%
```

Print the text to be rotated:

```
\begin{LWR@nestspan}%
#3%
```

Close the span:

```
\LWR@htmltagc{/span}%
\end{LWR@nestspan}%
}
```

The high-level interface:

```
\LWR@formatted{rotatebox}

}% AtBeginDocument
```

`\scalebox` {⟨*h-scale*⟩} [⟨*v-scale*⟩] {⟨*text*⟩}

```
\AtBeginDocument{
```

The HTML version:

```
\NewDocumentCommand{\LWR@HTML@scalebox}{m o m}{%
```

Select `inline-block` so that HTML will transform this span:

```
\LWR@htmltagc{%
    span\LWR@indentHTML
    style=\textquotedbl\LWR@indentHTML
    display: inline-block;\LWR@indentHTML
```

Print the scaling information:

```
    \LWR@scalestyle{-ms-}{#1}{\IfNoValueTF{#2}{#1}{#2}}\LWR@indentHTML
    \LWR@scalestyle{-webkit-}{#1}{\IfNoValueTF{#2}{#1}{#2}}\LWR@indentHTML
    \LWR@scalestyle{}{#1}{\IfNoValueTF{#2}{#1}{#2}}
    \textquotedbl\LWR@orignewline
}\LWR@orignewline%
```

Print the text to be scaled:

```
\begin{LWR@nestspan}%
#3%
```

Close the span:

```
\LWR@htmltagc{/span}%
\end{LWR@nestspan}%
}
```

The high-level interface:

```
\LWR@formatted{scalebox}

}% AtBeginDocument
```

\reflectbox {⟨*text*⟩}

```
\AtBeginDocument{

\newcommand{\LWR@HTML@reflectbox}[1]{%
    \scalebox{-1}[1]{#1}%
}% \reflectbox

\LWR@formatted{reflectbox}

}% AtBeginDocument
```

\resizebox {⟨*h-length*⟩} {⟨*v-length*⟩} {⟨*text*⟩}

Simply prints its text argument.

```
\AtBeginDocument{

\NewDocumentCommand{\LWR@HTML@resizebox}{s m m m}{%
    #4%
}

\LWR@formatted{resizebox}

}% AtBeginDocument
```

File 210 **lwarp-graphicx.sty**

§ 319 Package

graphicx

Pkg graphicx

graphicx is emulated.

graphicx loads graphics, which also loads lwarp-graphics, which remembers the original graphics definitions for use inside a `latexmage`, and then patches them `\AtBeginDocument` for HTML output.

lwarp-graphics handles the syntax of either graphics or graphicx.

for HTML output:

```
\LWR@ProvidesPackagePass{graphicx}[2020/09/09]
```

File 211 **lwarp-grffile.sty**

§ 320 Package

grffile

Pkg grffile

⚠ matching PDF and SVG

grffile is supported as-is. File types known to the browser are displayed, and unknown file types are given a link. Each PDF image for print mode should be accompanied by an SVG, PNG, or JPG version for HTML.

lwarp-grffile now exists as a placeholder since grffile used to be emulated by lwarp, and thus older versions of lwarp-grffile may exist and should be overwritten by this newer version.

for HTML output:

```
\LWR@ProvidesPackagePass{grffile}[2017/06/30]
```

File 212 **lwarp-grid.sty**

§ 321 Package grid

Pkg grid

grid is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{grid}[2009/06/16]

\newenvironment*{gridenv}{}{}
```

File 213 **lwarp-grid-system.sty**

§ 322 Package grid-system

(*Emulates or patches code by* Marcus Bitzl.)

Pkg grid-system

grid-system is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{grid-system}[2014/02/16]
```

(`\ifdef` is in case the older syntax is removed.)

```
\AtBeginEnvironment{Row}{\setlength{\linewidth}{6in}}

\ifdef{\endrow}{
    \AtBeginEnvironment{row}{\setlength{\linewidth}{6in}}
}{}

\renewcommand{\gridsystem@finishcell}{\hspace{\gridsystem@cellsep}}
```

File 214 **lwarp-gridset.sty**

§ 323 Package gridset

Pkg gridset

gridset is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{gridset}[2020-02-12]

\newcommand*{\gridbase}{}
\newcommand*{\gridinterval}{}
\newcommand*{\SavePos}[1]{}
\ifLuaTeX
\else
\let\savepos\SavePos
\fi
\newcommand*{\vskipnextgrid}{}
\newcommand*{\thegridinfo}[1]{(thegridinfo)}
\newcommand*{\theposinfo}[1]{(theposinfo)}
\newcommand*{\theypos}[1]{(theypos)}
```

File 215 **lwarp-hang.sty**

§ 324 Package

hang

(*Emulates or patches code by* Andreas Nolda.)

Pkg hang

hang is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{hang}[2017/02/18]

\newlength{\hangingindent}
\setlength{\hangingindent}{1em}
\newlength{\hangingleftmargin}
\setlength{\hangingleftmargin}{0em}

\newcommand*{\LWR@findhangingleftmargin}{%
\setlength{\LWR@templengthone}{\hangingleftmargin}%
\addtolength{\LWR@templengthone}{\hangingindent}%
}

\newenvironment{hangingpar}
{
    \LWR@findhangingleftmargin%
    \BlockClass[%
      \LWR@print@mbox{margin-left:\LWR@printlength{\LWR@templengthone}} ; %
        \LWR@print@mbox{text-indent:-\LWR@printlength{\hangingindent}}%
    ]%
    {hangingpar}%
}
{\endBlockClass}

\newenvironment{hanginglist}
{%
    \renewcommand*{\LWR@printcloselist}{\LWR@printcloseitemize}%
    \renewcommand*{\LWR@printopenlist}{%
        \LWR@findhangingleftmargin%
        ul style=\textquotedbl%
            \LWR@print@mbox{list-style-type:none;} % extra space
            \LWR@print@mbox{%
                margin-left:\LWR@printlength{\LWR@templengthone}%
            } ; % extra space
            \LWR@print@mbox{%
                text-indent:-\LWR@printlength{\hangingindent}%
            }%
        \textquotedbl%
    }%
    \LetLtxMacro\item\LWR@itemizeitem%
    \list{}{}%
}
{\endlist}

\newenvironment{compacthang}
{\hanginglist}
{\endhanginglist}

\newlength{\labeledleftmargin}
```

```
\setlength{\labeledleftmargin}{0em}

\newenvironment{labeledpar}[2]
{%
    \BlockClass[%
        \LWR@findhangingleftmargin%
      \LWR@print@mbox{margin-left:\LWR@printlength{\LWR@templengthone}} ; %
        \LWR@print@mbox{text-indent:-\LWR@printlength{\hangingindent}}%
    ]{labeledpar}#2%
}
{\endBlockClass}

\newenvironment{labeledlist}[1]
{\hanginglist}
{\endhanginglist}

\newenvironment{compactlabel}[1]
{\hanginglist}
{\endhanginglist}
```

File 216 **lwarp-hanging.sty**

§ 325 Package

hanging

Pkg hanging

hanging is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{hanging}[2009/09/02]

\IfClassLoadedTF{memoir}{
\let\hangpara\relax
\let\hangparas\relax
\let\endhangparas\relax
\let\hangpunct\relax
\let\endhangpunct\relax
}{}
```

\hangpara {⟨*indent*⟩} {⟨*afternum*⟩}

Use hangparas instead.

```
\newcommand*{\hangpara}[2]{}
```

Env hangparas {⟨*indent*⟩} {⟨*afternum*⟩}

```
\newenvironment*{hangparas}[2]
{%
    \BlockClass[%
        \LWR@print@mbox{margin-left:\LWR@printlength{#1}} ; %
        \LWR@print@mbox{text-indent:-\LWR@printlength{#1}}%
    ]%
    {hangingpar}%
}
{\endBlockClass}
```

Env hangpunct

```
\newenvironment*{hangpunct}
{\BlockClass{hangpunct}}
{\endBlockClass}

\newcommand{\nhpt}{.}
\newcommand{\nhlq}{‘}
\newcommand{\nhrq}{’}
```

File 217 **lwarp-hepunits.sty**

§ 326 Package

hepunits

(*Emulates or patches code by* Andy Buckley.)

Pkg hepunits

hepunits is used as-is, and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{hepunits}[2020/04/10]

\begin{warpMathJax}
\LWR@infoprocessingmathjax{hepunits}

\ifx\@HEPopt@sicmds\@yes
\CustomizeMathJax{\newcommand{\micron}{\micro\metre}}
\CustomizeMathJax{\newcommand{\mrad}{\milli\radian}}
\fi

\CustomizeMathJax{\newcommand{\gauss}{\mathrm{G}}}

\CustomizeMathJax{\newcommand{\invcmsq}{\centi\metre\tothe{-2}}}
\CustomizeMathJax{\newcommand{\invcmsqpersecond}{\invcmsq\second\tothe{-1}}}
\CustomizeMathJax{\newcommand{\invcmsqpersec}{\invcmsqpersecond}}

%% (Inverse) cross-sections
\CustomizeMathJax{\newcommand{\invbarn}{\barn\tothe{-1}}}

\ifx\@HEPopt@noprefixcmds\@empty
\CustomizeMathJax{\newcommand{\millibarn}{\milli\barn}}
\CustomizeMathJax{\newcommand{\microbarn}{\micro\barn}}
\CustomizeMathJax{\newcommand{\nanobarn}{\nano\barn}}
\CustomizeMathJax{\newcommand{\picobarn}{\pico\barn}}
\CustomizeMathJax{\newcommand{\femtobarn}{\femto\barn}}
\CustomizeMathJax{\newcommand{\attobarn}{\atto\barn}}
\CustomizeMathJax{\newcommand{\zeptobarn}{\zepto\barn}}
\CustomizeMathJax{\newcommand{\yoctobarn}{\yocto\barn}}
\CustomizeMathJax{\newcommand{\invnanobarn}{\nano\invbarn}}
\CustomizeMathJax{\newcommand{\invpicobarn}{\pico\invbarn}}
\CustomizeMathJax{\newcommand{\invfemtobarn}{\femto\invbarn}}
\CustomizeMathJax{\newcommand{\invattobarn}{\atto\invbarn}}
\CustomizeMathJax{\newcommand{\invzeptobarn}{\zepto\invbarn}}
\CustomizeMathJax{\newcommand{\invyoctobarn}{\yocto\invbarn}}
\CustomizeMathJax{\newcommand{\invnb}{\invnanobarn}}
\CustomizeMathJax{\newcommand{\invpb}{\invpicobarn}}
\CustomizeMathJax{\newcommand{\invfb}{\invfemtobarn}}
\CustomizeMathJax{\newcommand{\invab}{\invattobarn}}
\CustomizeMathJax{\newcommand{\invzb}{\invzeptobarn}}
\CustomizeMathJax{\newcommand{\invyb}{\invyoctobarn}}
\fi
```

```
41
42 \CustomizeMathJax{\newcommand{\electronvoltc}{\electronvolt\per\mathit{c}}}
43 \CustomizeMathJax{\newcommand{\electronvoltcsq}{\electronvolt\per\mathit{c}\squared}}
44 \CustomizeMathJax{\let\eVc\electronvoltc}
45 \CustomizeMathJax{\let\eVcsq\electronvoltcsq}
46
47 \ifx\@HEPopt@noprefixcmds\@empty
48 \CustomizeMathJax{\newcommand{\meV}{\milli\eV}}
49 \CustomizeMathJax{\newcommand{\keV}{\kilo\eV}}
50 \CustomizeMathJax{\newcommand{\MeV}{\mega\eV}}
51 \CustomizeMathJax{\newcommand{\GeV}{\giga\eV}}
52 \CustomizeMathJax{\newcommand{\TeV}{\tera\eV}}
53 \CustomizeMathJax{\newcommand{\meVc}{\milli\eVc}}
54 \CustomizeMathJax{\newcommand{\keVc}{\kilo\eVc}}
55 \CustomizeMathJax{\newcommand{\MeVc}{\mega\eVc}}
56 \CustomizeMathJax{\newcommand{\GeVc}{\giga\eVc}}
57 \CustomizeMathJax{\newcommand{\TeVc}{\tera\eVc}}
58 \CustomizeMathJax{\newcommand{\meVcsq}{\milli\eVcsq}}
59 \CustomizeMathJax{\newcommand{\keVcsq}{\kilo\eVcsq}}
60 \CustomizeMathJax{\newcommand{\MeVcsq}{\mega\eVcsq}}
61 \CustomizeMathJax{\newcommand{\GeVcsq}{\giga\eVcsq}}
62 \CustomizeMathJax{\newcommand{\TeVcsq}{\tera\eVcsq}}
63 \fi
64 \end{warpMathJax}
```

File 218 **lwarp-hhline.sty**

§ 327 Package

hhline

(*Emulates or patches code by* David Carlisle.)

Pkg hhline

hhline is patched for use by lwarp.

Only a rudimentary emulation is provided so far. If the argument contains any = characters, the result is a double \hline. If none, the result is a single \hline.

for HTML output:

```
1 \LWR@ProvidesPackagePass{hhline}[2014/10/28]

2 \newrobustcmd*{\LWR@HTML@hhline}[1]{%
3     \edef\LWR@tempone{\detokenize\expandafter{#1}}%
4     \IfSubStr[1]{\LWR@tempone}{=}{\hline\hline}{\hline}%
5 }
6 % ^^A or:
7 % ^^A \newrobustcmd*{\LWR@HTML@hhline}[1]{\LWR@getmynexttoken}
8
9 \AtBeginDocument{\LWR@expandableformatted{hhline}}
```

For MathJax. A simple \hline is used.

```
10 \begin{warpMathJax}
11 \CustomizeMathJax{\newcommand{\hhline}[1]{\hline}}
12 \end{warpMathJax}
```

File 219 **lwarp-hhtensor.sty**

§ 328 Package

hhtensor

(*Emulates or patches code by* Harald Harders.)

Pkg hhtensor

hhtensor is used as-is, and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{hhtensor}[2011/12/29]

\begin{warpMathJax}
\iftensor@bold
  \CustomizeMathJax{\newcommand{\vec}[1]{\boldsymbol{#1}}}
  \CustomizeMathJax{\newcommand{\matr}[1]{\boldsymbol{#1}}}
  \CustomizeMathJax{\newcommand{\tens}[2]{\boldsymbol{#1}}}
\else
  \iftensor@uline
    \CustomizeMathJax{\newcommand{\vec}[1]{\ushort{#1}}}
    \CustomizeMathJax{\newcommand{\matr}[1]{\ushortd{#1}}}
    \CustomizeMathJax{\newcommand{\tens}[2]{
        \underset{
            \raise{.5ex}{\underset{#2}{\sim}}
        }{#1}
    }}
  \else
    \CustomizeMathJax{\newcommand{\matr}[1]{\vec{\vec{#1}}}}
    \CustomizeMathJax{\newcommand{\tens}[2]{
        \underset{
            \raise{.5ex}{\underset{#2}{\sim}}
        }{#1}
    }}
  \fi
\fi
\CustomizeMathJax{\newcommand{\dcdot}{\mathrel{\cdot\mkern 0.0mu \cdot}}}
\CustomizeMathJax{\newcommand{\trans}{{}^{\mathrm{T}}}}
\end{warpMathJax}
```

File 220 **lwarp-hypbmsec.sty**

§ 329 Package

hypbmsec

Pkg hypbmsec

hypbmsec is emulated by the lwarp core.

for HTML output:

```
\LWR@ProvidesPackageDrop{hypbmsec}[2016/05/16]
```

File 221 **lwarp-hypcap.sty**

§ 330 Package

hypcap

Pkg hypcap

hypcap is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{hypcap}[2016/05/16]

\newcommand*{\capstart}{}
\newcommand*{\hypcapspace}{}
\newcommand*{\hypcapredef}[1]{}
\newcommand*{\capstartfalse}{}
\newcommand*{\capstarttrue}{}
```

File 222 **lwarp-hypdestopt.sty**

§ 331 Package hypdestopt

Pkg hypdestopt

hypdestopt is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{hypdestopt}[2016/05/21]
```

File 223 **lwarp-hypernat.sty**

§ 332 Package hypernat

Pkg hypernat

hypernat is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{hypernat}[2001/07/09]
```

File 224 **lwarp-hyperref.sty**

§ 333 Package hyperref

(*Emulates or patches code by* Sebastian Rahtz, Heiko Oberdiek, The LaTeX3 Project.)

Pkg hyperref

hyperref is emulated.

for HTML output:

```
% \LWR@ProvidesPackageDrop{hyperref}% not allowed
% \ProvidesPackage{lwarp-#1-#2}% not allowed
\PackageInfo{lwarp}{%
Using the lwarp HTML version of package ‘hyperref’,\MessageBreak
and discarding options except backref, pagebackref.\MessageBreak
(Not using \protect\ProvidesPackage, so that other packages\MessageBreak
do not attempt to patch lwarp’s version of ‘hyperref’.)\MessageBreak}

\SetupKeyvalOptions{family=LWR@hyperref,prefix=LWR@hyperref@}

\newcommand{\hypersetup}[1]{\setkeys{LWR@hyperref}{#1}}

\define@key{LWR@hyperref}{a4paper}[]{}
\define@key{LWR@hyperref}{a5paper}[]{}
\define@key{LWR@hyperref}{b5paper}[]{}
\define@key{LWR@hyperref}{letterpaper}[]{}
\define@key{LWR@hyperref}{legalpaper}[]{}
\define@key{LWR@hyperref}{executivepaper}[]{}
\define@key{LWR@hyperref}{implicit}[]{}
```

```
\define@key{LWR@hyperref}{draft}[]{}
\define@key{LWR@hyperref}{final}[]{}
\define@key{LWR@hyperref}{setpagesize}[]{}
\define@key{LWR@hyperref}{debug}[]{}
\define@key{LWR@hyperref}{linktocpage}[]{}
\define@key{LWR@hyperref}{linktoc}[]{}
\define@key{LWR@hyperref}{extension}[]{}
\define@key{LWR@hyperref}{verbose}[]{}
\define@key{LWR@hyperref}{typexml}[]{}
\define@key{LWR@hyperref}{raiselinks}[]{}
\define@key{LWR@hyperref}{breaklinks}[]{}
\define@key{LWR@hyperref}{localanchorname}[]{}
\define@key{LWR@hyperref}{pageanchor}[]{}
\define@key{LWR@hyperref}{plainpages}[]{}
\define@key{LWR@hyperref}{naturalnames}[]{}
\define@key{LWR@hyperref}{hypertexnames}[]{}
\define@key{LWR@hyperref}{nesting}[]{}
\define@key{LWR@hyperref}{destlabel}[]{}
\define@key{LWR@hyperref}{unicode}[]{}
\define@key{LWR@hyperref}{pdfencoding}[]{}
\define@key{LWR@hyperref}{psdextra}[]{}
\define@key{LWR@hyperref}{pdfversion}[]{}
\define@key{LWR@hyperref}{dvipdfmx-outline-open}[]{}
\define@key{LWR@hyperref}{driverfallback}[]{}
\define@key{LWR@hyperref}{customdriver}[]{}
\define@key{LWR@hyperref}{hyperfigures}[]{}
\define@key{LWR@hyperref}{hyperfootnotes}[]{}
\define@key{LWR@hyperref}{hyperindex}[]{}
\define@key{LWR@hyperref}{encap}[]{}
\define@key{LWR@hyperref}{colorlinks}[]{}
\define@key{LWR@hyperref}{ocgcolorlinks}[]{}
\define@key{LWR@hyperref}{frenchlinks}[]{}
\define@key{LWR@hyperref}{bookmarks}[]{}
\define@key{LWR@hyperref}{bookmarksopen}[]{}
\define@key{LWR@hyperref}{bookmarksdepth}[]{}
\define@key{LWR@hyperref}{bookmarksopenlevel}[]{}
\define@key{LWR@hyperref}{bookmarkstype}[]{}
\define@key{LWR@hyperref}{bookmarksnumbered}[]{}
\define@key{LWR@hyperref}{CJKbookmarks}[]{}
\define@key{LWR@hyperref}{link}[]{}
\define@key{LWR@hyperref}{anchor}[]{}
\define@key{LWR@hyperref}{cite}[]{}
\define@key{LWR@hyperref}{file}[]{}
\define@key{LWR@hyperref}{url}[]{}
\define@key{LWR@hyperref}{menu}[]{}
\define@key{LWR@hyperref}{run}[]{}
\define@key{LWR@hyperref}{linkbordercolor}[]{}
\define@key{LWR@hyperref}{anchorbordercolor}[]{}
\define@key{LWR@hyperref}{citebordercolor}[]{}
\define@key{LWR@hyperref}{filebordercolor}[]{}
\define@key{LWR@hyperref}{urlbordercolor}[]{}
\define@key{LWR@hyperref}{menubordercolor}[]{}
\define@key{LWR@hyperref}{runbordercolor}[]{}
\define@key{LWR@hyperref}{pagecolor}[]{}
\define@key{LWR@hyperref}{baseurl}[]{}
\define@key{LWR@hyperref}{linkfileprefix}[]{}
\define@key{LWR@hyperref}{pdfpagetransition}[]{}
\define@key{LWR@hyperref}{pdfpageduration}[]{}
\define@key{LWR@hyperref}{pdfpagehidden}[]{}
\define@key{LWR@hyperref}{pagebordercolor}[]{}
```

```
\define@key{LWR@hyperref}{allbordercolors}[]{}
\define@key{LWR@hyperref}{pdfhighlight}[]{}
\define@key{LWR@hyperref}{pdfborder}[]{}
\define@key{LWR@hyperref}{pdfborderstyle}[]{}
\define@key{LWR@hyperref}{pdfprintpagerange}[]{}
\define@key{LWR@hyperref}{pdfusetitle}[]{}
\define@key{LWR@hyperref}{pdftitle}[]{}
\define@key{LWR@hyperref}{pdfauthor}[]{}
\define@key{LWR@hyperref}{pdfproducer}[]{}
\define@key{LWR@hyperref}{pdfcreator}[]{}
\define@key{LWR@hyperref}{addtopdfcreator}[]{}
\define@key{LWR@hyperref}{pdfcreationdate}[]{}
\define@key{LWR@hyperref}{pdfmoddate}[]{}
\define@key{LWR@hyperref}{pdfsubject}[]{}
\define@key{LWR@hyperref}{pdfkeywords}[]{}
\define@key{LWR@hyperref}{pdftrapped}[]{}
\define@key{LWR@hyperref}{pdfinfo}[]{}
\define@key{LWR@hyperref}{pdfview}[]{}
\define@key{LWR@hyperref}{pdflinkmargin}[]{}
\define@key{LWR@hyperref}{pdfstartpage}[]{}
\define@key{LWR@hyperref}{pdfstartview}[]{}
\define@key{LWR@hyperref}{pdfremotestartview}[]{}
\define@key{LWR@hyperref}{pdfpagescrop}[]{}
\define@key{LWR@hyperref}{pdftoolbar}[]{}
\define@key{LWR@hyperref}{pdfmenubar}[]{}
\define@key{LWR@hyperref}{pdfwindowui}[]{}
\define@key{LWR@hyperref}{pdffitwindow}[]{}
\define@key{LWR@hyperref}{pdfcenterwindow}[]{}
\define@key{LWR@hyperref}{pdfdisplaydoctitle}[]{}
\define@key{LWR@hyperref}{pdfa}[]{}
\define@key{LWR@hyperref}{pdfnewwindow}[]{}
\define@key{LWR@hyperref}{pdflang}[]{}
\define@key{LWR@hyperref}{pdfpagelabels}[]{}
\define@key{LWR@hyperref}{pdfescapeform}[]{}
\define@key{LWR@hyperref}{english}[]{}
\define@key{LWR@hyperref}{UKenglish}[]{}
\define@key{LWR@hyperref}{british}[]{}
\define@key{LWR@hyperref}{USenglish}[]{}
\define@key{LWR@hyperref}{american}[]{}
\define@key{LWR@hyperref}{german}[]{}
\define@key{LWR@hyperref}{austrian}[]{}
\define@key{LWR@hyperref}{ngerman}[]{}
\define@key{LWR@hyperref}{naustrian}[]{}
\define@key{LWR@hyperref}{russian}[]{}
\define@key{LWR@hyperref}{brazil}[]{}
\define@key{LWR@hyperref}{brazilian}[]{}
\define@key{LWR@hyperref}{portuguese}[]{}
\define@key{LWR@hyperref}{spanish}[]{}
\define@key{LWR@hyperref}{catalan}[]{}
\define@key{LWR@hyperref}{afrikaans}[]{}
\define@key{LWR@hyperref}{french}[]{}
\define@key{LWR@hyperref}{frenchb}[]{}
\define@key{LWR@hyperref}{francais}[]{}
\define@key{LWR@hyperref}{acadian}[]{}
\define@key{LWR@hyperref}{canadien}[]{}
\define@key{LWR@hyperref}{italian}[]{}
\define@key{LWR@hyperref}{magyar}[]{}
\define@key{LWR@hyperref}{hungarian}[]{}
\define@key{LWR@hyperref}{greek}[]{}
\define@key{LWR@hyperref}{dutch}[]{}
```

```
\define@key{LWR@hyperref}{tex4ht}[]{}
\define@key{LWR@hyperref}{pdftex}[]{}
\define@key{LWR@hyperref}{luatex}[]{}
\define@key{LWR@hyperref}{nativepdf}[]{}
\define@key{LWR@hyperref}{dvipdfm}[]{}
\define@key{LWR@hyperref}{dvipdfmx}[]{}
\define@key{LWR@hyperref}{xetex}[]{}
\define@key{LWR@hyperref}{pdfmark}[]{}
\define@key{LWR@hyperref}{dvips}[]{}
\define@key{LWR@hyperref}{hypertex}[]{}
\define@key{LWR@hyperref}{vtex}[]{}
\define@key{LWR@hyperref}{vtexpdfmark}[]{}
\define@key{LWR@hyperref}{dviwindo}[]{}
\define@key{LWR@hyperref}{dvipsone}[]{}
\define@key{LWR@hyperref}{textures}[]{}
\define@key{LWR@hyperref}{latex2html}[]{}
\define@key{LWR@hyperref}{ps2pdf}[]{}
\define@key{LWR@hyperref}{vietnamese}[]{}
\define@key{LWR@hyperref}{vietnam}[]{}
\define@key{LWR@hyperref}{arabic}[]{}
\define@key{LWR@hyperref}{hidelinks}[]{}
\define@key{LWR@hyperref}{draft}[]{}
\define@key{LWR@hyperref}{nolinks}[]{}
\define@key{LWR@hyperref}{final}[]{}
\define@key{LWR@hyperref}{pdfa}[]{}
\define@key{LWR@hyperref}{pdfversion}[]{}
\define@key{LWR@hyperref}{typexml}[]{}
\define@key{LWR@hyperref}{tex4ht}[]{}
\define@key{LWR@hyperref}{pdftex}[]{}
\define@key{LWR@hyperref}{nativepdf}[]{}
\define@key{LWR@hyperref}{dvipdfm}[]{}
\define@key{LWR@hyperref}{dvipdfmx}[]{}
\define@key{LWR@hyperref}{dvipdfmx-outline-open}[]{}
\define@key{LWR@hyperref}{pdfmark}[]{}
\define@key{LWR@hyperref}{dvips}[]{}
\define@key{LWR@hyperref}{hypertex}[]{}
\define@key{LWR@hyperref}{vtex}[]{}
\define@key{LWR@hyperref}{vtexpdfmark}[]{}
\define@key{LWR@hyperref}{dviwindo}[]{}
\define@key{LWR@hyperref}{dvipsone}[]{}
\define@key{LWR@hyperref}{textures}[]{}
\define@key{LWR@hyperref}{latex2html}[]{}
\define@key{LWR@hyperref}{ps2pdf}[]{}
\define@key{LWR@hyperref}{xetex}[]{}
\define@key{LWR@hyperref}{driverfallback}[]{}
\define@key{LWR@hyperref}{customdriver}[]{}
\define@key{LWR@hyperref}{pdfversion}[]{}
\define@key{LWR@hyperref}{bookmarks}[]{}
\define@key{LWR@hyperref}{ocgcolorlinks}[]{}
\define@key{LWR@hyperref}{colorlinks}[]{}
\define@key{LWR@hyperref}{frenchlinks}[]{}
\define@key{LWR@hyperref}{backref}[]{}
\define@key{LWR@hyperref}{pagebackref}[]{}
\define@key{LWR@hyperref}{destlabel}[]{}
\define@key{LWR@hyperref}{pdfpagescrop}[]{}
\define@key{LWR@hyperref}{pdfpagemode}[]{}
\define@key{LWR@hyperref}{pdfnonfullscreenpagemode}[]{}
\define@key{LWR@hyperref}{pdfdirection}[]{}
\define@key{LWR@hyperref}{pdfviewarea}[]{}
\define@key{LWR@hyperref}{pdfviewclip}[]{}
```

```
\define@key{LWR@hyperref}{pdfprintarea}[]{}
\define@key{LWR@hyperref}{pdfprintclip}[]{}
\define@key{LWR@hyperref}{pdfprintscaling}[]{}
\define@key{LWR@hyperref}{pdfduplex}[]{}
\define@key{LWR@hyperref}{pdfpicktraybypdfsize}[]{}
\define@key{LWR@hyperref}{pdfprintpagerange}[]{}
\define@key{LWR@hyperref}{pdfnumcopies}[]{}
\define@key{LWR@hyperref}{pdfstartview}[]{}
\define@key{LWR@hyperref}{pdfstartpage}[]{}
\define@key{LWR@hyperref}{pdftoolbar}[]{}
\define@key{LWR@hyperref}{pdfmenubar}[]{}
\define@key{LWR@hyperref}{pdfwindowui}[]{}
\define@key{LWR@hyperref}{pdffitwindow}[]{}
\define@key{LWR@hyperref}{pdfcenterwindow}[]{}
\define@key{LWR@hyperref}{pdfdisplaydoctitle}[]{}
\define@key{LWR@hyperref}{pdfpagelayout}[]{}
\define@key{LWR@hyperref}{pdflang}[]{}
\define@key{LWR@hyperref}{baseurl}[]{}
\define@key{LWR@hyperref}{pdfusetitle}[]{}
\define@key{LWR@hyperref}{pdfpagelabels}[]{}
\define@key{LWR@hyperref}{hyperfootnotes}[]{}
\define@key{LWR@hyperref}{hyperfigures}[]{}
\define@key{LWR@hyperref}{hyperindex}[]{}
\define@key{LWR@hyperref}{encap}[]{}
\define@key{LWR@hyperref}{linkcolor}[]{}
\define@key{LWR@hyperref}{anchorcolor}[]{}
\define@key{LWR@hyperref}{citecolor}[]{}
\define@key{LWR@hyperref}{filecolor}[]{}
\define@key{LWR@hyperref}{urlcolor}[]{}
\define@key{LWR@hyperref}{menucolor}[]{}
\define@key{LWR@hyperref}{runcolor}[]{}
\define@key{LWR@hyperref}{allcolors}[]{}

\DeclareStringOption[false]{backref}[section]

\DeclareBoolOption{pagebackref}

\DeclareDefaultOption{}

\ProcessKeyvalOptions*\relax
```

Maybe load backref:

```
\ifdefstring{\LWR@hyperref@backref}{section}
    {\RequirePackage{backref}}
    {}

\ifdefstring{\LWR@hyperref@backref}{slide}
    {\RequirePackage{backref}}
    {}

\ifdefstring{\LWR@hyperref@backref}{page}
    {\RequirePackage{backref}}
    {}

\ifLWR@hyperref@pagebackref
    \RequirePackage{backref}
\fi
```

```
\LetLtxMacro\href\LWR@href
\LetLtxMacro\nolinkurl\LWR@nolinkurl
\LetLtxMacro\url\LWR@url
\LetLtxMacro\phantomsection\LWR@phantomsection

\newcommand*{\hyperbaseurl}[1]{}
```

No application for lwarp:

```
\newcommand*{\HyperDestNameFilter}[1]{#1}
\newcommand*{\HyperDestLabelReplace}[1]{#1}
\newcommand*{\HyperDestRename}[2]{}
```

No application for lwarp:

```
\newcommand*{\hyperget}[2]{}
```

\hyperimage {⟨*URL*⟩} {⟨*alt text*⟩}

Insert an image with alt text:

```
\NewDocumentCommand{\LWR@hyperimageb}{m +m}{%
    \LWR@ensuredoingapar%
    \def\LWR@templink{#1}%
    \@onelevel@sanitize\LWR@templink%
    \LWR@htmltag{%
        img src=\textquotedbl\LWR@templink\textquotedbl\ %
        alt=\textquotedbl#2\textquotedbl\ %
        class=\textquotedbl{}hyperimage\textquotedbl%
    }%
    \LWR@ensuredoingapar%
    \endgroup%
}

\newrobustcmd*{\hyperimage}{%
    \begingroup%
    \LWR@linkcatcodes%
    \LWR@hyperimageb%
}

```

\hyperdef {⟨*1: category*⟩} {⟨*2: name*⟩} {⟨*3: text*⟩}

Creates an HTML anchor to `category.name` with the given text.

```
\NewDocumentCommand{\LWR@hyperdefb}{m m +m}{%
    \LWR@ensuredoingapar%
    \LWR@label@createtag{#1.#2}%
    #3%
    \endgroup%
}

\newcommand*{\hyperdef}{%
    \begingroup%
    \LWR@linkcatcodes%
    \LWR@hyperdefb%
}

```

\LWR@hyperrefb {⟨*1: URL*⟩} {⟨*2: category*⟩} {⟨*3: name*⟩} {⟨*4: text*⟩}

Creates an HTML link to URL#category.name with the given text.

To avoid nested links, \ref is temporarily redefined to the print version.

```
\newcommand{\LWR@hyperreffinish}[1]{%
    \begingroup%
    \RenewDocumentCommand{\ref}{s m}{\LWR@print@ref{##2}}%
   #1%
    \endgroup%
    \LWR@htmltag{/a}%
}

\newcommand*{\LWR@hyperrefbb}[3]{%
    \LWR@htmltag{%
        a href=\textquotedbl%
            \detokenize\expandafter{#1}\LWR@hashmark%
            \detokenize\expandafter{#2}.\detokenize\expandafter{#3}%
        \textquotedbl%
        \LWR@addlinktitle%
    }%
    \endgroup%
    \LWR@hyperreffinish%
}

\newrobustcmd*{\LWR@hyperrefb}{%
    \begingroup%
    \LWR@linkcatcodes%
    \LWR@hyperrefbb%
}
```

\LWR@hyperrefc [⟨*label*⟩] {⟨*text*⟩}

Creates text as an HTML link to the LaTeX label.

```

\NewDocumentCommand{\LWR@hyperrefcb}{O{label}}{%
    \LWR@startref{#1}%
    \endgroup%
    \LWR@hyperreffinish%
}

\newcommand*{\LWR@hyperrefc}{%
    \begingroup%
    \LWR@linkcatcodes%
    \LWR@hyperrefcb%
}
```

\hyperref {⟨*1: URL*⟩} {⟨*2: category*⟩} {⟨*3: name*⟩} {⟨*4: text*⟩} — or — [⟨*1: label*⟩] {⟨*2: text*⟩}

```
\DeclareRobustCommand*{\hyperref}{%
    \LWR@ensuredoingapar%
    \@ifnextchar[\LWR@hyperrefc\LWR@hyperrefb%
}
```

\hypertarget {⟨*name*⟩} {⟨*text*⟩}

Creates an anchor to name with the given text.

```
\NewDocumentCommand{\LWR@hypertargetb}{m +m}{%
```

```
    \label{LWR-ht-#1}%
    #2%
    \endgroup%
}

\newcommand*{\hypertarget}{%
    \LWR@ensuredoingapar%
    \begingroup%
    \LWR@linkcatcodes%
    \LWR@hypertargetb%
}
```

\hyperlink {⟨*name*⟩} {⟨*text*⟩}

Creates a link to the anchor created by hypertarget, with the given link text.

Declared because also defined by memoir.

```
\DeclareDocumentCommand{\LWR@hyperlinkb}{m}{%
    \ifbool{LWR@insidemathcomment}%
        {\endgroup}%
        {\LWR@hyperrefcb[LWR-ht-#1]}%
}

\DeclareDocumentCommand{\hyperlink}{}{%
    \LWR@ensuredoingapar%
    \begingroup%
    \LWR@linkcatcodes%
    \LWR@hyperlinkb%
}
```

\autoref * {⟨*label*⟩}

For HTML, \cleveref is used instead.

```
\NewDocumentCommand{\autoref}{s m}{%
    \IfBooleanTF{#1}{\ref{#2}}{\cref{#2}}%
}
```

\autopageref {⟨*label*⟩}

For HTML, \cleveref is used instead.

```
\NewDocumentCommand{\autopageref}{s m}{%
    \IfBooleanTF{#1}{\cpageref{#2}}{\cref{#2}}%
}
```

Default names:

```
\def\equationautorefname{Equation}%
\def\footnoteautorefname{footnote}%
\def\itemautorefname{item}%
\def\figureautorefname{Figure}%
\def\tableautorefname{Table}%
\def\partautorefname{Part}%
\def\appendixautorefname{Appendix}%
\def\chapterautorefname{chapter}%
\def\sectionautorefname{section}%
\def\subsectionautorefname{subsection}%
\def\subsubsectionautorefname{subsubsection}%
\def\paragraphautorefname{paragraph}%
```

```
\def\subparagraphautorefname{subparagraph}%
\def\FancyVerbLineautorefname{line}%
\def\theoremautorefname{Theorem}%
\def\pageautorefname{page}%
```

\pdfstringdef {⟨*macroname*⟩} {⟨*TEXstring*⟩}

```
\newcommand{\pdfstringdef}[2]{}
```

\pdfbookmark [⟨*level*⟩] {⟨*text*⟩} {⟨*name*⟩}

```
\newcommand{\pdfbookmark}[3][]{}
```

\currentpdfbookmark {⟨*text*⟩} {⟨*name*⟩}

```
\newcommand{\currentpdfbookmark}[2]{}
```

\subpdfbookmark {⟨*text*⟩} {⟨*name*⟩}

```
\newcommand{\subpdfbookmark}[2]{}
```

\belowpdfbookmark {⟨*text*⟩} {⟨*name*⟩}

```
\newcommand{\belowpdfbookmark}[2]{}
```

\texorpdfstring {⟨*TEXstring*⟩} {⟨*PDFstring*⟩}

```
\let\texorpdfstring\relax
\newcommand{\texorpdfstring}[2]{#1}
```

{⟨*commands*⟩}

\pdfstringdefDisableCommands

```
\newcommand{\pdfstringdefDisableCommands}[1]{}
```

\hypercalcbp {⟨*dimen*⟩} From hyperref.

```
\def\hypercalcbp#1{%
    \strip@pt\dimexpr 0.99626401\dimexpr(#1)\relax\relax
}%
```

\Acrobatmenu {⟨*menuoption*⟩} {⟨*text*⟩}

```
\newcommand{\Acrobatmenu}[2]{}
```

\TextField [⟨*parameters*⟩] {⟨*label*⟩}

```
\DeclareRobustCommand{\TextField}[2][]{}
```

\CheckBox [⟨*parameters*⟩] {⟨*label*⟩}

```
\DeclareRobustCommand{\CheckBox}[2][]{}
```

\ChoiceMenu [⟨*parameters*⟩] {⟨*label*⟩} {⟨*choices*⟩}

```
\DeclareRobustCommand{\ChoiceMenu}[3][]{}
```

\PushButton [⟨*parameters*⟩] {⟨*label*⟩}

```
397 \DeclareRobustCommand{\PushButton}[2][]{}
```

\Submit [⟨*parameters*⟩] {⟨*label*⟩}

```
398 \DeclareRobustCommand{\Submit}[2][]{}
```

\Reset [⟨*parameters*⟩] {⟨*label*⟩}

```
399 \DeclareRobustCommand{\Reset}[2][]{}
```

\Gauge [⟨*parameters*⟩] {⟨*label*⟩}

```
400 \DeclareRobustCommand{\Gauge}[2][]{}
```

\LayoutTextField {⟨*label*⟩} {⟨*field*⟩}

```
401 \newcommand*{\LayoutTextField}[2]{}
```

\LayoutChoiceField {⟨*label*⟩} {⟨*field*⟩}

```
402 \newcommand*{\LayoutChoiceField}[2]{}
```

\LayoutCheckField {⟨*label*⟩} {⟨*field*⟩}

```
403 \newcommand*{\LayoutCheckField}[2]{}
```

\MakeRadioField {⟨*width*⟩} {⟨*height*⟩}

```
404 \newcommand*{\MakeRadioField}[2]{}
```

\MakeCheckField {⟨*width*⟩} {⟨*height*⟩}

```
405 \newcommand*{\MakeCheckField}[2]{}
```

\MakeTextField {⟨*width*⟩} {⟨*height*⟩}

```
406 \newcommand*{\MakeTextField}[2]{}
```

\MakeChoiceField {⟨*width*⟩} {⟨*height*⟩}

```
407 \newcommand*{\MakeChoiceField}[2]{}
```

\MakeFieldButton {⟨*text*⟩}

```
408 \newcommand{\MakeFieldButton}[1]{}
```

File 225 **lwarp-hyperxmp.sty**

§ 334 Package

hyperxmp

Pkg hyperxmp hyperxmp is ignored.

for HTML output: Discard all options for lwarp-hyperxmp:

```
\LWR@ProvidesPackageDrop{hyperxmp}[2018/11/27]

\define@key{LWR@hyperref}{pdfdate}[]{}
\define@key{LWR@hyperref}{pdfmetadate}[]{}
\define@key{LWR@hyperref}{pdfcopyright}[]{}
\define@key{LWR@hyperref}{pdftype}[]{}
\define@key{LWR@hyperref}{pdflicenseurl}[]{}
\define@key{LWR@hyperref}{pdfauthortitle}[]{}
\define@key{LWR@hyperref}{pdfcaptionwriter}[]{}
\define@key{LWR@hyperref}{pdfmetalang}[]{}
\define@key{LWR@hyperref}{pdfapart}[]{}
\define@key{LWR@hyperref}{pdfaconformance}[]{}
\define@key{LWR@hyperref}{pdfuapart}[]{}
\define@key{LWR@hyperref}{pdfxstandard}[]{}
\define@key{LWR@hyperref}{pdfsource}[]{}
\define@key{LWR@hyperref}{pdfdocumentid}[]{}
\define@key{LWR@hyperref}{pdfinstanceid}[]{}
\define@key{LWR@hyperref}{pdfversionid}[]{}
\define@key{LWR@hyperref}{pdfrendition}[]{}
\define@key{LWR@hyperref}{pdfpublication}[]{}
\define@key{LWR@hyperref}{pdfpubtype}[]{}
\define@key{LWR@hyperref}{pdfbytes}[]{}
\define@key{LWR@hyperref}{pdfnumpages}[]{}
\define@key{LWR@hyperref}{pdfissn}[]{}
\define@key{LWR@hyperref}{pdfeissn}[]{}
\define@key{LWR@hyperref}{pdfisbn}[]{}
\define@key{LWR@hyperref}{pdfbookedition}[]{}
\define@key{LWR@hyperref}{pdfpublisher}[]{}
\define@key{LWR@hyperref}{pdfvolumenum}[]{}
\define@key{LWR@hyperref}{pdfissuenum}[]{}
\define@key{LWR@hyperref}{pdfpagerange}[]{}
\define@key{LWR@hyperref}{pdfdoi}[]{}
\define@key{LWR@hyperref}{pdfurl}[]{}
\define@key{LWR@hyperref}{pdfidentifier}[]{}
\define@key{LWR@hyperref}{pdfsubtitle}[]{}
\define@key{LWR@hyperref}{pdfpubstatus}[]{}
\define@key{LWR@hyperref}{pdfcontactaddress}[]{}
\define@key{LWR@hyperref}{pdfcontactcity}[]{}
\define@key{LWR@hyperref}{pdfcontactregion}[]{}
\define@key{LWR@hyperref}{pdfcontactpostcode}[]{}
\define@key{LWR@hyperref}{pdfcontactcountry}[]{}
\define@key{LWR@hyperref}{pdfcontactphone}[]{}
\define@key{LWR@hyperref}{pdfcontactemail}[]{}
\define@key{LWR@hyperref}{pdfcontacturl}[]{}
\define@key{LWR@hyperref}{keeppdfinfo}[]{}
\define@key{LWR@hyperref}{pdfauthor}[]{}
\define@key{LWR@hyperref}{pdfkeywords}[]{}
```

File 226 **lwarp-hyphenat.sty**

§ 335 Package

hyphenat

Pkg hyphenat

hyphenat is emulated during HTML output, while the print-mode version is used inside a `lateximage`.

for HTML output:

```
\LWR@ProvidesPackagePass{hyphenat}[2009/09/02]
```

```
\LetLtxMacro\LWRHYNAT@origtextnhtt\textnhtt
\LetLtxMacro\LWRHYNAT@orignhttfamily\nhttfamily
\LetLtxMacro\LWRHYNAT@orignohyphens\nohyphens
\LetLtxMacro\LWRHYNAT@origbshyp\bshyp
\LetLtxMacro\LWRHYNAT@origfshyp\fshyp
\LetLtxMacro\LWRHYNAT@origdothyp\dothyp
\LetLtxMacro\LWRHYNAT@origcolonhyp\colonhyp
\LetLtxMacro\LWRHYNAT@orighyp\hyp

\LetLtxMacro\textnhtt\texttt
\LetLtxMacro\nhttfamily\ttfamily

\renewcommand{\nohyphens}[1]{#1}
\renewrobustcmd{\bshyp}{%
    \ifmmode\backslash\else\textbackslash\fi%
}
\renewrobustcmd{\fshyp}{/}
\renewrobustcmd{\dothyp}{.}
\renewrobustcmd{\colonhyp}{:}
\renewrobustcmd{\hyp}{-}

\appto\LWR@restoreorigformatting{%
\LetLtxMacro\textnhtt\LWRHYNAT@origtextnhtt%
\LetLtxMacro\nhttfamily\LWRHYNAT@orignhttfamily%
\LetLtxMacro\nohyphens\LWRHYNAT@orignohyphens%
\LetLtxMacro\bshyp\LWRHYNAT@origbshyp%
\LetLtxMacro\fshyp\LWRHYNAT@origfshyp%
\LetLtxMacro\dothyp\LWRHYNAT@origdothyp%
\LetLtxMacro\colonhyp\LWRHYNAT@origcolonhyp%
\LetLtxMacro\hyp\LWRHYNAT@orighyp%
}
```

File 227 **lwarp-idxlayout.sty**

§ 336 Package

idxlayout

(*Emulates or patches code by* Thomas Titz.)

Pkg idxlayout

idxlayout is emulated.

for HTML output:

Discard all options for lwarp-idxlayout:

```
\LWR@ProvidesPackageDrop{idxlayout}[2012/03/30]

\newcommand{\LWR@indexprenote}{}
```

`\AtBeginDocument` to help with package load order.

```
\AtBeginDocument{
    \preto\printindex{

    \LWR@maybe@orignewpage
    \LWR@startpars

    \LWR@indexprenote

    }
}
```

```
\newcommand{\setindexprenote}[1]{\renewcommand{\LWR@indexprenote}{#1}}
\newcommand*{\noindexprenote}{\renewcommand{\LWR@indexprenote}{}}

\newcommand{\idxlayout}[1]{}
\newcommand*{\indexfont}{}
\newcommand*{\indexjustific}{}
\newcommand*{\indexsubsdelim}{}
\newcommand*{\indexstheadcase}{}
```

File 228 **lwarp-ifoddpage.sty**

§ 337 Package ifoddpage

(*Emulates or patches code by* Martin Scharrer.)

Pkg ifoddpage

ifoddpage is emulated.

for HTML output:

Discard all options for lwarp-ifoddpage:

```
\LWR@ProvidesPackageDrop{ifoddpage}[2016/04/23]

\newif\ifoddpage

\newif\ifoddpageoroneside

\DeclareRobustCommand{\checkoddpage}{\oddpagetrue\oddpageoronesidetrue}

\def\oddpage@page{1}

\def\@ifoddpage{%
        \expandafter\@firstoftwo
}

\def\@ifoddpageoroneside{%
        \expandafter\@firstoftwo
}
```

File 229 **lwarp-imakeidx.sty**

§ 338 Package imakeidx

(*Emulates or patches code by* Enrico Gregorio.)

Pkg imakeidx

imakeidx is patched for use by lwarp.

letter headings

When using *makeindex*, to match the print and HTML output's display of index letter headings, specify the `lwarp.ist` style:

```
\makeindex[options={-s lwarp.ist}]
```

(For HTML the `lwarp.ist` style is used automatically, which displays letter headings. When using *xindy* the default style also displays letter headings.)

index setup

See section 8.6.18 for how to setup *lwarpmk* to process the indexes with imakeidx, both with and without shell escape.

for HTML output:

```
\LWR@ProvidesPackagePass{imakeidx}[2016/10/15]
```

Use the new HTML suffix:

```
\catcode`\_=12%
\define@key{imki}{name}{\def\imki@name{#1_html}}
\catcode`\_=8%
```

\printindex

The HTML version of \printindex:

```
\catcode`\_=12%

\renewcommand*{\printindex}[1][\imki@jobname]{%
\LWR@maybe@orignewpage%
\LWR@startpars%
\ifstrequal{#1}{\imki@jobname}{%
  \@ifundefined{#1@idxfile}{%
        \imki@error{#1}%
    }{%
        \imki@putindex{#1}%
    }%
}{%
 \@ifundefined{#1_html@idxfile}{\imki@error{#1_html}}{\imki@putindex{#1_html}}%
}%
}

\catcode`\_=8%
```

\@index

The HTML version of \@index:

```
\catcode`\_=12%

\def\@index[#1]{%
    \ifstrequal{#1}{\imki@jobname}%
    {%
        \@ifundefined{#1@idxfile}%
        {%
            \PackageWarning{lwarp-imakeidx}{Undefined index file `#1'}%
            \begingroup
            \@sanitize
            \imki@nowrindex%
        }%
        {%
            \edef\@idxfile{#1}%
            \begingroup
            \@sanitize
            \@wrindex\@idxfile%
        }%
    }%
    {%
        \@ifundefined{#1_html@idxfile}%
        {%
           \PackageWarning{lwarp-imakeidx}{Undefined index file `#1_html'}%
            \begingroup
            \@sanitize
            \imki@nowrindex%
        }%
        {%
            \edef\@idxfile{#1_html}%
```

```
            \begingroup
            \@sanitize
            \@wrindex\@idxfile%
        }%
    }%
}

\catcode`\_=8%
```

\item
\subitem
\subsubitem

HTML versions of \item, etc.:

```
\appto\theindex{%
    \LetLtxMacro\item\LWR@indexitem%
    \LetLtxMacro\subitem\LWR@indexsubitem%
    \LetLtxMacro\subsubitem\LWR@indexsubsubitem%
}
```

\imki@wrindexentrysplit {⟨*file*⟩} {⟨*entry*⟩} {⟨*page*⟩}
\imki@wrindexentryunique {⟨*file*⟩} {⟨*entry*⟩} {⟨*page*⟩}

While writing index entries, adds an HTML label, and writes the label's index instead of the page number:

```
\renewcommand\imki@wrindexentrysplit[3]{%
\addtocounter{LWR@autoindex}{1}%
\label{LWRindex-\arabic{LWR@autoindex}}%
  \expandafter\protected@write\csname#1@idxfile\endcsname{}%
    {\string\indexentry{#2}{\arabic{LWR@autoindex}}}%
}

\renewcommand\imki@wrindexentryunique[3]{%
\addtocounter{LWR@autoindex}{1}%
\label{LWRindex-\arabic{LWR@autoindex}}%
  \protected@write\@indexfile{}%
    {\string\indexentry[#1]{#2}{\arabic{LWR@autoindex}}}%
}

\def\imki@wrindexsplit#1#2{%
\imki@wrindexentrysplit{#1}{#2}{\thepage}%
\endgroup\imki@showidxentry{#1}{#2}%
  \@esphack%
}

\def\imki@wrindexunique#1#2{%
\imki@wrindexentryunique{#1}{#2}{\thepage}%
\endgroup\imki@showidxentry{#1}{#2}%
  \@esphack%
  }

```

\LWR@imki@setxdydefopts

Sets the *xindy* HTML options, ignoring the user's settings.

```
\newcommand*{\LWR@imki@setxdydefopts}{%
    \edef\imki@options{ \space %
        -M \space \LWR@xindyStyle\space %
```

```
93          -L \space \LWR@xindyLanguage\space %
94          -C \space \LWR@xindyCodepage\space %
95      }%
96  }
```

`\LWR@imki@setdefopts` {⟨*user options*⟩}

Sets the HTML options, added to the user's settings, depending on whether *makeindex* or *xindy* are used.

For *makeindex*, the user's choice is ignored, and only the lwarp version is used. (Only one style at a time is possible.)

For *xindy*, multiple modules may be specified, and the lwarp version is appended.

```
97  \newcommand*{\LWR@imki@setdefopts}[1]{%
98  \ifblank{#1}{%
99      \edef\imki@options{\space -s \space \LWR@makeindexStyle \space}%
100     \ifdefstring{\imki@progdefault}{xindy}{\LWR@imki@setxdydefopts}{}%
101     \ifdefstring{\imki@progdefault}{texindy}{\LWR@imki@setxdydefopts}{}%
102     \ifdefstring{\imki@progdefault}{truexindy}{\LWR@imki@setxdydefopts}{}%
103 }{%
104     \edef\imki@options{\space #1 \space}%
105 }%
106 }
```

`\imki@makeindex` Use the new HTML options:

```
107 \xpatchcmd{\imki@makeindex}
108     {\let\imki@options\space}
109     {\LWR@imki@setdefopts{}}%
110     {}
111     {\LWR@patcherror{imakeidx}{makeindex}}
```

Use the new HTML options.

```
112 \define@key{imki}{options}{\LWR@imki@setdefopts{#1}}
```

`\imki@resetdefaults` Use the new HTML options:

```
113 \xpatchcmd{\imki@resetdefaults}
114     {\def\imki@options{ }}
115     {\LWR@imki@setdefopts{}}
116     {}
117     {\LWR@patcherror{imakeidx}{resetdefaults}}
```

`theindex` was already defined `\AtBeginDocument` by the lwarp core, so it must be redefined here similarly, but patched for imakeidx:

Env `theindex`

```
118 \AtBeginDocument{
119 \renewenvironment*{theindex}{%
120     \imki@maybeaddtotoc
121      \imki@indexlevel{\indexname}
122     \LetLtxMacro\item\LWR@indexitem%
123     \LetLtxMacro\subitem\LWR@indexsubitem%
124     \LetLtxMacro\subsubitem\LWR@indexsubsubitem%
125 }{}
126 }% AtBeginDocument
```

Update to the new defaults:

```
\imki@resetdefaults
```

Update to the new patches:

`\AtBeginDocument` is because `\@wrindex` is previously defined as `\AtBeginDocument` in the lwarp core.

```
\ifimki@splitindex
  \let\imki@startidx\imki@startidxunique
  \AtBeginDocument{\let\@wrindex\imki@wrindexunique}
  \let\imki@putindex\imki@putindexunique
  \let\imki@wrindexentry\imki@wrindexentryunique
  \let\imki@startidxsplit\@undefined
  \let\imki@wrindexsplit\@undefined
  \let\imki@putindexsplit\@undefined
\else
  \let\imki@startidx\imki@startidxsplit
  \AtBeginDocument{\let\@wrindex\imki@wrindexsplit}
  \let\imki@putindex\imki@putindexsplit
  \let\imki@wrindexentry\imki@wrindexentrysplit
  \let\imki@startidxunique\@undefined
  \let\imki@wrindexunique\@undefined
  \let\imki@putindexunique\@undefined
\fi
```

File 230 **lwarp-impnattypo.sty**

§ 339 Package impnattypo

Pkg impnattypo

impnattypo is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{impnattypo}[2019/03/04]
```

File 231 **lwarp-index.sty**

§ 340 Package index

(*Emulates or patches code by* David M. Jones.)

Pkg index

index is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{index}[2004/01/20]
```

Use `\theLWR@autoindex` instead of `\thepage`. `\@tempswatrue` is used to force an immediate write to the index file instead of waiting until the end of the page.

```
\xpatchcmd{\newindex}
    {\x@newindex[thepage]}
    {%
        \@tempswatrue%
        \x@newindex[theLWR@autoindex]%
```

```
    }
    {}
    {\LWR@patcherror{index}{newindex}}

\xpatchcmd{\renewindex}
    {\x@renewindex[thepage]}
    {%
        \@tempswatrue%
        \x@renewindex[theLWR@autoindex]%
    }
    {}
    {\LWR@patcherror{index}{renewindex}}
```

Patched to set a new autoindex:

```
\xpatchcmd{\@wrindex}
    {\begingroup}
    {%
        \addtocounter{LWR@autoindex}{1}%                    lwarp
        \label{LWRindex-\arabic{LWR@autoindex}}%    lwarp
        \begingroup%
    }
    {}
    {\LWR@patcherror{index}{@wrindex}}
```

`\AtBeginDocument` lwarp core `\lets` `\@wrindex` to `\LWR@wrindex`. Since the index package has been loaded, `\let` to its version instead:

```
\let\LWR@index@wrindex\@wrindex

\AtBeginDocument{
\let\@wrindex\LWR@index@wrindex
}
```

Modified to add `\index@prologue`:

```
\AtBeginDocument{
\renewenvironment*{theindex}{%
    \LWR@indexsection{\indexname}%
    \ifx\index@prologue\@empty\else
        \index@prologue
        \bigskip
    \fi
    \LetLtxMacro\item\LWR@indexitem%
    \LetLtxMacro\subitem\LWR@indexsubitem%
    \LetLtxMacro\subsubitem\LWR@indexsubsubitem%
}{}
}% AtBeginDocument
```

Disabled:

```
\def\@showidx#1{}
\let\@texttop\relax
\renewcommand*{\raggedbottom}{}
\renewcommand*{\flushbottom}{}
\renewcommand*{\markboth}[2]{}
\renewcommand*{\markright}[1]{}
```

File 232 **lwarp-inputtrc.sty**

§ 341 Package inputtrc

(*Emulates or patches code by* Uwe Lück.)

Pkg inputtrc inputtrc is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{inputtrc}[2012/10/10]
```

Patched to remove extraneous spaces, which sometimes showed up in logos inside a `lateximage`.

```
\renewcommand*{\IT@prim@input}[1]{%
  \typeout{\IT@indent\IT@currfile INPUTTING #1}%
%% ... TODO: option to write to '.log' only.
  \xdef\IT@filestack{{\IT@currfile}\IT@filestack}%
  \xdef\IT@currfile{#1}%
  \expandafter \gdef\expandafter \IT@indent\expandafter{%
    \IT@indent \IT@indent@unit}%                lwarp
  \@@input#1%                                   lwarp
  \expandafter\IT@pop@indent\IT@indent   \@nil% lwarp
  \expandafter\IT@pop@file  \IT@filestack\@nil% lwarp
  \IT@maybe@returnmessage%% v0.2                lwarp
}
```

File 233 **lwarp-intopdf.sty**

§ 342 Package intopdf

Pkg intopdf intopdf is emulated.

The filespec, MIME type, and description are ignored for now.

for HTML output:

```
\LWR@ProvidesPackageDrop{intopdf}[2019/05/28]

\NewDocumentCommand{\attachandlink}{o m o m m}{%
    \LWR@href{#2}{#5}%
}
```

File 234 **lwarp-isomath.sty**

§ 343 Package isomath

(*Emulates or patches code by* Günter Milde.)

Pkg isomath isomath is used as-is for SVG math, and emulated for MathJax.

⚠ MathJax sans MathJax does not provide a sans math font, so sans is typeset as roman.

for HTML output:

```
\LWR@ProvidesPackagePass{isomath}[2012/09/04]
```

```
\begin{warpMathJax}
\CustomizeMathJax{\let\mathbfit\boldsymbol}
\CustomizeMathJax{\let\mathsfbfit\mathbfit}% not sans
\CustomizeMathJax{\let\mathsfit\mathit}% not sans
\CustomizeMathJax{\let\vectorsym\mathbfit}
\CustomizeMathJax{\let\matrixsym\mathbfit}
\CustomizeMathJax{\let\tensorsym\mathsfbfit}
\CustomizeMathJax{\let\mathboldsans\mathsfbfit}
\CustomizeMathJax{\let\mathbold\mathbfit}
\CustomizeMathJax{\let\mathsans\mathrm}% not sans
\end{warpMathJax}
```

File 235 **lwarp-isotope.sty**

§ 344 Package isotope

(*Emulates or patches code by* Heiko Bauke.)

Pkg isotope

isotope is patched for use by lwarp with SVG math, and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{isotope}[2011/08/26]

\newcommand{\LWR@HTML@isotope@two}[2][]{%
    \renewcommand{\isotope@atomicnumber}{#1}%
    \edef\LWR@isotope@alttag{%
        \textbackslash(
        \textbackslash{}isotope
        [\isotope@nucleonnumber]%
        [\isotope@atomicnumber]%
        \{#2\}
        \textbackslash)%
    }%
  \ifbool{mathjax}%
    {\LWR@isotope@alttag}%
    {% SVG
        \m@th%
        \LWR@subsingledollar*%
        {% alt tag
            \LWR@isotope@alttag%
        }%
        {isotope}% add'l hashing
        {% contents
            \settowidth\@tempdimb{%
                \ensuremath{\scriptstyle\isotope@nucleonnumber}%
            }%
            \settowidth\@tempdimc{%
                \ensuremath{\scriptstyle\isotope@atomicnumber}%
            }%
            \ifdim\@tempdimb<\@tempdimc\@tempdimb=\@tempdimc\fi%
            \ensuremath{
                {}%
                ^{\makebox[\@tempdimb][r]{%
                    \ensuremath{%
                    \scriptstyle\isotope@nucleonnumber%
                    }% ensuremath
                }}%
                _{\makebox[\@tempdimb][r]{%
```

```
                    \ensuremath{%
                        \scriptstyle\isotope@atomicnumber%
                    }% ensuremath
                }}%
                \isotopestyle{#2}%
            }% ensuremath
        }% contents
    }% SVG
  \endgroup%
}%
\LWR@formatted{isotope@two}

\begin{warpMathJax}
\CustomizeMathJax{%
    \newcommand{\LWRisotopetwo}[2][]{%
        {%
            \vphantom{\mathrm{#2}}%
            {}^{\LWRisotopenucleonnumber}_{#1}%
            \mathrm{#2}%
        }%
    }%
}

\CustomizeMathJax{%
    \newcommand{\isotope}[1][]{%
        \def\LWRisotopenucleonnumber{#1}%
        \LWRisotopetwo%
    }%
}
\end{warpMathJax}
```

File 236 **lwarp-jurabib.sty**

§ 345 Package

jurabib

(*Emulates or patches code by* Jens Berger.)

Pkg jurabib

jurabib is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{jurabib}[2004/01/25]

\renewrobustcmd{\jblangle}{\textless}

\renewrobustcmd{\jbrangle}{\textgreater}

\renewcommand*{\jb@biblaw@item}{%
    \hspace{0.5em}%
%     $\triangleright$
    \HTMLunicode{25B7}%     lwarp
    \hspace{0.5em}%
}

\renewrobustcmd{\jbarchsig}[2]{%
     \ifjbweareinbib
        \settowidth{\jb@subarchitemwidth}{\jbsamesubarchindent+#1}%
      \setlength{\jb@subarchentrywidth}{\textwidth-\jb@subarchitemwidth-4em}%
%       \begin{tabular}{@{}p{\jb@subarchitemwidth}@{}j{\jb@subarchentrywidth}@{}}%
```

```
            #1\ifjb@dot\unskip\unskip\unskip.\fi
%              &
             \quad%      lwarp
             \ifthenelse{\equal{#2}{}}{}{\jbarchnameformat{#2}}%
%           \end{tabular}
      \fi
}%


\xpatchcmd{\jb@do@post@item}
    {\begin{tabular}{p{\jb@biblaw@item@width}j{\jb@biblaw@entry@width}}}
    {}
    {}
    {\LWR@patcherror{jurabib}{jb@do@post@item 1}}

\xpatchcmd{\jb@do@post@item}
    {\multicolumn{2}{p{\columnwidth}}{\jb@@name}}
    {\jb@@name}
    {}
    {\LWR@patcherror{jurabib}{jb@do@post@item 2}}

\xpatchcmd{\jb@do@post@item}
    {\jb@biblaw@item & \jb@@fulltitle}
    {\jb@biblaw@item \quad \jb@@fulltitle}
    {}
    {\LWR@patcherror{jurabib}{jb@do@post@item 3}}

\xpatchcmd{\jb@do@post@item}
    {\end{tabular}}
    {}
    {}
    {\LWR@patcherror{jurabib}{jb@do@post@item 4}}

\xpatchcmd{\jb@do@post@item}
    {\begin{minipage}[t]{\bibnumberwidth}}
    {}
    {}
    {\LWR@patcherror{jurabib}{jb@do@post@item 5}}

\xpatchcmd{\jb@do@post@item}
    {\end{minipage}}
    {\quad}
    {}
    {\LWR@patcherror{jurabib}{jb@do@post@item 6}}
```

File 237 **lwarp-karnaugh-map.sty**

§ 346 Package

karnaugh-map

(*Emulates or patches code by* Mattias Jacobsson.)

Pkg karnaugh-map

karnaugh-map is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{karnaugh-map}[2017/02/20]
```

This patch is needed only because lwarp changes the definition of \&, and the original uses \ifnum to compare 0 with \&. It is hard to patch this environment,

so the entire thing is redefined here, with the lwarp modifications identified in comments.

```
\RenewDocumentEnvironment{karnaugh-map}{s O{4} O{4} O{1} O{$X_1X_0$} O{$X_3X_2$} O{$X_5X_4$}} {%
  \begingroup
    % store map size {[START]
      \renewcommand{\@karnaughmap@var@mapsizex@}{#2}%
      \renewcommand{\@karnaughmap@var@mapsizey@}{#3}%
      \renewcommand{\@karnaughmap@var@mapsizez@}{#4}%
    % [END]}
    % determinate if markings should be color or black and white
    \IfBooleanTF{#1}{%
      % should be black and white
      \renewcommand{\@karnaughmap@var@bw@}{1}%
    }{%
      % should be color
      \renewcommand{\@karnaughmap@var@bw@}{0}%
    }%
    %
    % find matching matrix template and alignment parameters {[START]
    \newcommand{\@karnaughmap@local@matrixtemplate@}{0}% '0' is considered as missing matrix template
      \newcommand{\@karnaughmap@local@maprealignmentx@}{0}%
      \newcommand{\@karnaughmap@local@maprealignmenty@}{0}%
    \ifnum\@karnaughmap@var@mapsizex@\@karnaughmap@var@mapsizey@\@karnaughmap@var@mapsizez@=221
        \renewcommand{\@karnaughmap@local@matrixtemplate@}{%
                 \&                0 \&                 1 \& \phantom{0} \\
              0 \& |(000000)|  \phantom{0} \& |(000001)|  \phantom{0} \&         \\
              1 \& |(000010)|  \phantom{0} \& |(000011)|  \phantom{0} \&         \\
         \phantom{0}  \&                  \&                   \&          \\
        }%
      \fi
    \ifnum\@karnaughmap@var@mapsizex@\@karnaughmap@var@mapsizey@\@karnaughmap@var@mapsizez@=241
        \renewcommand{\@karnaughmap@local@matrixtemplate@}{%
                 \&                0 \&                1 \& \phantom{00} \\
              00 \& |(000000)|  \phantom{0} \& |(000001)|  \phantom{0} \&         \\
              01 \& |(000010)|  \phantom{0} \& |(000011)|  \phantom{0} \&         \\
              11 \& |(000110)|  \phantom{0} \& |(000111)|  \phantom{0} \&         \\
              10 \& |(000100)|  \phantom{0} \& |(000101)|  \phantom{0} \&         \\
         \phantom{00} \&                  \&                   \&          \\
        }%
      \fi
    \ifnum\@karnaughmap@var@mapsizex@\@karnaughmap@var@mapsizey@\@karnaughmap@var@mapsizez@=421
        \renewcommand{\@karnaughmap@local@matrixtemplate@}{%
                \&               00 \&               01 \&               11 \&               10 \& \ph
              0  \& |(000000)|  \phantom{0} \& |(000001)|  \phantom{0} \& |(000011)|  \phantom{0} \& |(0
              1  \& |(000100)|  \phantom{0} \& |(000101)|  \phantom{0} \& |(000111)|  \phantom{0} \& |(0
       \phantom{00} \&                  \&                  \&                  \&                  \&
        }%
      \fi
    \ifnum\@karnaughmap@var@mapsizex@\@karnaughmap@var@mapsizey@\@karnaughmap@var@mapsizez@=441
        \renewcommand{\@karnaughmap@local@matrixtemplate@}{%
                \&               00 \&               01 \&               11 \&               10 \& \ph
              00 \& |(000000)|  \phantom{0} \& |(000001)|  \phantom{0} \& |(000011)|  \phantom{0} \& |(0
              01 \& |(000100)|  \phantom{0} \& |(000101)|  \phantom{0} \& |(000111)|  \phantom{0} \& |(0
              11 \& |(001100)|  \phantom{0} \& |(001101)|  \phantom{0} \& |(001111)|  \phantom{0} \& |(0
              10 \& |(001000)|  \phantom{0} \& |(001001)|  \phantom{0} \& |(001011)|  \phantom{0} \& |(0
       \phantom{00} \&                  \&                  \&                  \&                  \&
        }%
      \fi
    \ifnum\@karnaughmap@var@mapsizex@\@karnaughmap@var@mapsizey@\@karnaughmap@var@mapsizez@=442
```

```
      \renewcommand{\@karnaughmap@local@matrixtemplate@}{%
             \&               00 \&               01 \&               11 \&               10 \& \ph
           00 \& |(000000)| \phantom{0} \& |(000001)| \phantom{0} \& |(000011)| \phantom{0} \& |(0
           01 \& |(000100)| \phantom{0} \& |(000101)| \phantom{0} \& |(000111)| \phantom{0} \& |(0
           11 \& |(001100)| \phantom{0} \& |(001101)| \phantom{0} \& |(001111)| \phantom{0} \& |(0
           10 \& |(001000)| \phantom{0} \& |(001001)| \phantom{0} \& |(001011)| \phantom{0} \& |(0
    \phantom{00} \&                \&                \&                \&                \&
      }%
      \renewcommand{\@karnaughmap@local@maprealignmentx@}{2.5}%
    \fi
  \ifnum\@karnaughmap@var@mapsizex@\@karnaughmap@var@mapsizey@\@karnaughmap@var@mapsizez@=444
      \renewcommand{\@karnaughmap@local@matrixtemplate@}{%
             \&               00 \&               01 \&               11 \&               10 \& \ph
           00 \& |(000000)| \phantom{0} \& |(000001)| \phantom{0} \& |(000011)| \phantom{0} \& |(0
           01 \& |(000100)| \phantom{0} \& |(000101)| \phantom{0} \& |(000111)| \phantom{0} \& |(0
           11 \& |(001100)| \phantom{0} \& |(001101)| \phantom{0} \& |(001111)| \phantom{0} \& |(0
           10 \& |(001000)| \phantom{0} \& |(001001)| \phantom{0} \& |(001011)| \phantom{0} \& |(0
    \phantom{00} \&                \&                \&                \&                \&
           00 \& |(100000)| \phantom{0} \& |(100001)| \phantom{0} \& |(100011)| \phantom{0} \& |(1
           01 \& |(100100)| \phantom{0} \& |(100101)| \phantom{0} \& |(100111)| \phantom{0} \& |(1
           11 \& |(101100)| \phantom{0} \& |(101101)| \phantom{0} \& |(101111)| \phantom{0} \& |(1
           10 \& |(101000)| \phantom{0} \& |(101001)| \phantom{0} \& |(101011)| \phantom{0} \& |(1
    \phantom{00} \&                \&                \&                \&                \&
      }%
      \renewcommand{\@karnaughmap@local@maprealignmentx@}{2.5}%
      \renewcommand{\@karnaughmap@local@maprealignmenty@}{-2.5}%
    \fi
  % [END]}
 % test if a matrix template is found or not(aka "\@karnaughmap@local@matrixtemplate@" equals to '0')
  \ifdefstring{\@karnaughmap@local@matrixtemplate@}{0}{%  lwarp
%   \ifnum0=\@karnaughmap@local@matrixtemplate@%  original
    % print error if no template could be found
    \PackageError{lwarp-karnaugh-map}{%
      Can not find a template fitting your specification
     (\@karnaughmap@var@mapsizex@\space x \@karnaughmap@var@mapsizey@\space x
      \@karnaughmap@var@mapsizez@)%
    }{%
      Existing templates have the following dimensions:
      2x2x1, 2x4x1, 4x2x1, 4x4x1, 4x4x2, and 4x4x4.
    }%
%   \fi   original
  }{\relax}%    lwarp
  \begin{tikzpicture}
    % grid
    % for all dimensions
  \draw[color=black, ultra thin] (0,0) grid (\@karnaughmap@var@mapsizex@,\@karnaughmap@var@mapsize
    % when there are 2 sub maps
    \ifnum\@karnaughmap@var@mapsizez@=2
      \draw[color=black, ultra thin] (5,0) grid (9,4);
    \fi
    % when there are 4 sub maps
    \ifnum\@karnaughmap@var@mapsizez@=4
      \draw[color=black, ultra thin] (5,0) grid (9,4);
      \draw[color=black, ultra thin] (0,-5) grid (4,-1);
      \draw[color=black, ultra thin] (5,-5) grid (9,-1);
    \fi
    % labels
    % for all dimensions
  \node[above] at (\@karnaughmap@var@mapsizex@*0.5,\@karnaughmap@var@mapsizey@+0.9) {\small{#5}};
    \node[left] at (-0.9,\@karnaughmap@var@mapsizey@*0.5) {\small{#6}};
```

```
      % when there are 2 sub maps
      \ifnum\@karnaughmap@var@mapsizez@=2
        \node[above] at (7,4.9) {\small{#5}};
        % extra sub maps labels
        \node[below] at (2,-0.1) {\small{#7$=0$}};
        \node[below] at (7,-0.1) {\small{#7$=1$}};
      \fi
      % when there are 4 sub maps
      \ifnum\@karnaughmap@var@mapsizez@=4
        \node[above] at (7,4.9) {\small{#5}};
        \node[left] at (-0.9,-3) {\small{#6}};
        % extra sub maps labels
        \node[below] at (2,-0.1) {\small{#7$=00$}};
        \node[below] at (7,-0.1) {\small{#7$=01$}};
        \node[below] at (2,-5.1) {\small{#7$=10$}};
        \node[below] at (7,-5.1) {\small{#7$=11$}};
      \fi
      % data
      \matrix[
        matrix of nodes,
        ampersand replacement=\&,
        column sep={1cm,between origins},
        row sep={1cm,between origins},
    ] at (\@karnaughmap@var@mapsizex@*0.5+\@karnaughmap@local@maprealignmentx@,\@karnaughmap@var@ma
        \@karnaughmap@local@matrixtemplate@%
      };
}{
    \end{tikzpicture}
  \endgroup
}
```

File 238 **lwarp-keyfloat.sty**

§ 347 Package keyfloat

(*Emulates or patches code by* Brian Dunn.)

Pkg keyfloat

keyfloat is supported with a considerable amount of hacking. (It's a mashup of lwarp, keyfloat, and tocdata.)

⚠ keywrap

If placing a `\keyfig[H]` inside a `keywrap`, use an absolute width for `\keyfig`, instead of `lw`-proportional widths. (The `[H]` option forces the use of a minipage, which internally adjusts for a virtual 6-inch wide minipage, which then corrupts the `lw` option.)

For wrapped figures, overhang and number of lines are ignored.

for HTML output:

```
\LWR@ProvidesPackagePass{keyfloat}[2019/09/23]

\IfPackageAtLeastTF{keyfloat}{2019/09/23}{\relax}{
    \PackageError{lwarp-keyfloat}
    {%
        The keyfloat package is out of date.\MessageBreak
        Update to keyfloat v2.01 2019/09/23 or later%
    }
    {%
        Please update the keyfloat package.  It's worth it!%
```

```
    }
}
```

After keyfloat has loaded:

```
\AtBeginDocument{
```

Hook [keyfloat] \KFLT@LWR@hook@boxouter

Integration for keyfloat.

```
\providecommand*{\KFLT@LWR@hook@boxouter}{}

\renewcommand*{\KFLT@LWR@hook@boxouter}{%
    \ifbool{KFLT@keywrap}{%
    }{%
        \ifnumequal{\value{KFLT@keyfloatdepth}}{0}{%
            \setlength{\linewidth}{6in}%
            \setlength{\textwidth}{6in}%
            \setlength{\textheight}{9in}%
        }{}%
    }%
    \normalcolor%
}
```

Hook [keyfloat] \KFLT@LWR@hook@keysubfloats

Integration for keyfloat.

```
\LetLtxMacro\KFLT@LWR@hook@keysubfloats\KFLT@LWR@hook@boxouter
```

Hook [keyfloat] \KFLT@LWR@hook@keyfloatsminipage

Integration for keyfloat.

```
\let\KFLT@LWR@hook@keyfloatsminipage\relax
\let\endKFLT@LWR@hook@keyfloatsminipage\relax
\newenvironment*{KFLT@LWR@hook@keyfloatsminipage}[1]{}{}
```

Hook [keyfloat] \KFLT@LWR@hook@keyfloats

Integration for keyfloat.

```
\LetLtxMacro\KFLT@LWR@hook@keyfloats\KFLT@LWR@hook@boxouter

\renewcommand*{\KFLT@maybeendfloatrow}{%
    \ifnumless{\value{KFLT@thiscol}}{\value{KFLT@numcols}}%
        {}% thiscol < numcols
        {% >=
            \defcounter{KFLT@thiscol}{0}%
        }%
}%

\renewcommand{\KFLT@trackrows}%
{%
```

If are nested inside a keyfloats or a subfloat:

```
    \ifboolexpr{%
        test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{0}} or%
        bool{KFLT@inkeysubfloats}%
    }%
    {% nested
```

Tracks row start and end:

```
        \KFLT@maybestartfloatrow%
```

Possibly fill space between columns:

```
        \ifnumgreater{\value{KFLT@thiscol}}{1}%
            {%
% \hfill%
            }%
            {}%
    }% nested
    {}% not nested
}

\RenewDocumentCommand{\KFLT@onefigureimage}{m}
{%
\LWR@traceinfo{KFLT@onefigureimage}%
% \begin{lrbox}{\KFLT@envbox}%
\ifthenelse{\NOT\equal{\KFLT@lw}{}}%
    {%

        \ifdimgreater{\KFLT@h}{0pt}%
        {%
            \KFLT@frame{%
                \includegraphics%
                [%
                    scale=\KFLT@s,%
                    width=\KFLT@imagewidth,%
                    height=\KFLT@h,%
                    \KFLT@keepaspectratio,%
                ]{#1}%
            }%
        }%
        {%
            \KFLT@frame{\includegraphics%
            [scale=\KFLT@s,width=\KFLT@imagewidth]{#1}}%
        }%
    }%
    {% not linewidth
        \ifthenelse{\dimtest{\KFLT@w}{>}{0pt}}%
        {% width is given
            \ifthenelse{\dimtest{\KFLT@h}{>}{0pt}}%
            {% w and h
                \KFLT@frame{\includegraphics[%
                    scale=\KFLT@s,%
                    width=\KFLT@imagewidth,%
                    height=\KFLT@h,%
                    \KFLT@keepaspectratio,%
                ]{#1}}%
            }% w and h
            {% only w
                \KFLT@frame{\includegraphics%
                [scale=\KFLT@s,width=\KFLT@imagewidth]{#1}}%
            }% only w
        }% width is given
        {% width is not given
            \ifthenelse{\dimtest{\KFLT@h}{>}{0pt}}%
            {%
                \KFLT@frame{\includegraphics%
                [scale=\KFLT@s,height=\KFLT@h]{#1}}%
```

```
            }%
            {%
                \KFLT@frame{\includegraphics%
                [scale=\KFLT@s]{#1}}%
            }%
        }% width is not given
    }% not linewidth
% \end{lrbox}%
% \unskip%
% \KFLT@findenvboxwidth%
% \begin{turn}{\KFLT@r}%
% \KFLT@frame{\usebox{\KFLT@envbox}}%
% \unskip%
% \end{turn}%
\LWR@traceinfo{KFLT@onefigureimage: done}%
}

\RenewDocumentEnvironment{KFLT@boxinner}{}
{%
    \LWR@traceinfo{KFLT@boxinner}%
    \LWR@stoppars%
    \minipagefullwidth%
    \ifboolexpr{bool{KFLT@ft} or bool{KFLT@f}}{%
        \fminipage{\KFLT@imagewidth}%
    }{%
        \minipage{\KFLT@imagewidth}%
    }%
}
{%
    \ifboolexpr{bool{KFLT@ft} or bool{KFLT@f}}{%
        \endfminipage%
    }{%
        \endminipage%
    }%
    \LWR@startpars%
    \LWR@traceinfo{KFLT@boxinner: done}%
}

\newcommand*{\LWR@KFLT@settextalign}[1]{%
    \def\LWR@KFLT@textalign{justify}%
    \ifcsstring{KFLT@#1textalign}{\centering}%
        {\def\LWR@KFLT@textalign{center}}%
        {}%
    \ifcsstring{KFLT@#1textalign}{\raggedleft}%
        {\def\LWR@KFLT@textalign{right}}%
        {}%
    \ifcsstring{KFLT@#1textalign}{\raggedright}%
        {\def\LWR@KFLT@textalign{left}}%
        {}%
}

\renewcommand{\KFLT@addtext}[1]
{%
```

Is there text to add?

```
    \ifcsempty{KFLT@#1t}%
    {}% no text
    {% text to add
```

```
        {% local
```

Add some space, then create a to contain the text:

```
        \addvspace{\smallskipamount}%
        \LWR@KFLT@settextalign{#1}%
        \begin{BlockClass}[text-align:\LWR@KFLT@textalign]{floatnotes}%
```

Set the alignment and some text parameters:

```
%         \csuse{KFLT@#1textalign}%
%         \footnotesize%
        \setlength{\parskip}{1.5ex}%
        \setlength{\parindent}{0em}%
```

Typeset the actual text:

```
        \csuse{KFLT@#1t}%
```

Close it all out with a little more space:

```
        \end{BlockClass}%
%         \par\addvspace{2ex}%
        }% local
    }% text to add
}

\IfPackageLoadedTF{tocdata}
{}
{% tocdata not loaded

    \newcommand*{\LWR@KFLT@setnamealign}[1]{%
        \def\LWR@KFLT@textalign{justify}%
        \ifstrequal{#1}{\centering}%
            {\def\LWR@KFLT@textalign{center}}%
            {}%
        \ifstrequal{#1}{\raggedleft}%
            {\def\LWR@KFLT@textalign{right}}%
            {}%
        \ifstrequal{#1}{\raggedright}%
            {\def\LWR@KFLT@textalign{left}}%
            {}%
    }

    \renewcommand*{\KFLT@@addartisttext}[3]{%

```

Add space and create the name inside a :

```
%         \addvspace{\medskipamount}%
    %     \begin{minipage}{\linewidth}%
        \LWR@KFLT@setnamealign{#3}%
        \begin{BlockClass}[text-align:\LWR@KFLT@textalign]{floatnotes}%

```

Text alignment is #3, and depends on artist or author:

```
    %     #3%

```

#1 is empty or 'subgrp'
#2 is empty for artist, 'u' for author:

```
        \footnotesize\textsc{%
            \KFLT@optionalname{\csuse{KFLT@#1a#2p}}%
            \KFLT@optionalname{\csuse{KFLT@#1a#2f}}%
            \csuse{KFLT@#1a#2l}%
            \csuse{KFLT@#1a#2s}%
        }%
    %     \end{minipage}%
        \end{BlockClass}
% \par\addvspace{2ex}%
    }

}% tocdata not loaded
```

Env KFLT@marginfloat [⟨*offset*⟩] {⟨*type*⟩}

```
\DeclareDocumentEnvironment{KFLT@marginfloat}{O{-1.2ex} m}
{%
    \uselengthunit{PT}%
    \LWR@BlockClassWP%
        {float:right; width:2in; margin:10pt}%
        {}%
        (note)%
        {marginblock}%
    \renewcommand*{\@captype}{#2}%
    \minipage{1.2\LWR@usersmarginparwidth}%
    \setlength{\marginparwidth}{.95\LWR@usersmarginparwidth}%
}
{%
    \endminipage%
    \endLWR@BlockClassWP%
}

\DeclareDocumentEnvironment{marginfigure}{o}
    {\begin{KFLT@marginfloat}{figure}}
    {\end{KFLT@marginfloat}}

\DeclareDocumentEnvironment{margintable}{o}
    {\begin{KFLT@marginfloat}{table}}
    {\end{KFLT@marginfloat}}
```

Env keywrap {⟨*width*⟩} {⟨*keyfloat*⟩}

```
\DeclareDocumentEnvironment{keywrap}{m +m}
{%
    \begin{LWR@setvirtualpage}*
    \setlength{\LWR@templengthone}{#1}%
    \begin{LWR@BlockClassWP}%
        {%
        float:right; width:\LWR@printlength{\LWR@templengthone};  % extra space
            margin:10pt%
        }%
        {}%
        (note)%
        {marginblock}%
    \setlength{\linewidth}{.95\LWR@templengthone}%
    \booltrue{KFLT@keywrap}%
```

```
    #2%
    \end{LWR@BlockClassWP}%
    \end{LWR@setvirtualpage}%
}
{}

}% AtBeginDocument
```

File 239 **lwarp-keystroke.sty**

§ 348 Package

keystroke

(*Emulates or patches code by* Werner Fink.)

Pkg keystroke

keystroke is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{keystroke}[2010/04/23]

\newcommand*{\LWR@HTML@keystroke}[1]{
    \InlineClass{keystroke}{#1}
}
\LWR@formatted{keystroke}


\newcommand*{\LWR@HTML@Return}{\keystroke{\HTMLunicode{021A9}}}
\LWR@formatted{Return}

\newcommand*{\LWR@HTML@BSpace}{\keystroke{\HTMLunicode{027FB}}}
\LWR@formatted{BSpace}

\newcommand*{\LWR@HTML@Tab}{\keystroke{|\HTMLunicode{021C6}|}}
\LWR@formatted{Tab}

\newcommand*{\LWR@HTML@UArrow}{\keystroke{\HTMLunicode{02191}}}
\LWR@formatted{UArrow}

\newcommand*{\LWR@HTML@DArrow}{\keystroke{\HTMLunicode{02193}}}
\LWR@formatted{DArrow}

\newcommand*{\LWR@HTML@LArrow}{\keystroke{\HTMLunicode{02190}}}
\LWR@formatted{LArrow}

\newcommand*{\LWR@HTML@RArrow}{\keystroke{\HTMLunicode{02192}}}
\LWR@formatted{RArrow}

% Preserves the language options:
\LetLtxMacro\LWR@HTML@Shift\Shift
\xpatchcmd{\LWR@HTML@Shift}
    {$\Uparrow$}
    {\HTMLunicode{21D1}}
    {}
    {}
\LWR@formatted{Shift}

\LetLtxMacro\LWR@HTML@PgUp\PgUp
\xpatchcmd{\LWR@HTML@PgUp}
    {$\uparrow$}
```

```
    {\HTMLunicode{2191}}
    {}
    {}
\LWR@formatted{PgUp}

\LetLtxMacro\LWR@HTML@PgDown\PgDown
\xpatchcmd{\LWR@HTML@PgDown}
    {$\downarrow$}
    {\HTMLunicode{2193}}
    {}
    {}
\LWR@formatted{PgDown}
```

File 240 **lwarp-kpfonts.sty**

§ 349 Package

kpfonts

(*Emulates or patches code by* Christophe Caignaert.)

Pkg kpfonts

kpfonts is used as-is for SVG math, and is emulated for MathJax.

⚠ limitations

The MathJax emulation honors the options uprightRoman for \D only, classicReIm, frenchstyle for Greek only, upright for Greek only, uprightgreeks, slantedGreeks, and mathcalasscript.

The dedicated macros for Greek work correctly.

SVG math should appear the same as the printed output.

for HTML output:

```
\LWR@ProvidesPackagePass{kpfonts}[2010/08/20]

\LWR@infoprocessingmathjax{kpfonts}

\LWR@origRequirePackage{lwarp-common-mathjax-newpxtxmath}

\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}

\ifkp@calasscr
    \CustomizeMathJax{\let\LWRorigmathscr\mathscr}
    \CustomizeMathJax{\let\LWRorigmathcal\mathcal}
    \CustomizeMathJax{\let\mathscr\LWRorigmathcal}
    \CustomizeMathJax{\let\mathcal\LWRorigmathscr}
\fi

\ifkp@upgrk % lowercase
    \LWR@mathjax@addgreek@l@up{}{}
    \LWR@mathjax@addgreek@l@it{other}{}
\else
    \LWR@mathjax@addgreek@l@up{other}{}
\fi

\ifkp@slGrk
    \LWR@mathjax@addgreek@u@it*{}{}
    \LWR@mathjax@addgreek@u@up*{other}{}
    \LWR@mathjax@addgreek@u@up*{var}{}
\else
```

```
    \LWR@mathjax@addgreek@u@it*{other}{}
    \LWR@mathjax@addgreek@u@it*{var}{}
\fi

\LWR@mathjax@addgreek@u@up*{}{up}
\LWR@mathjax@addgreek@l@up{}{up}

\LWR@mathjax@addgreek@u@it*{}{sl}
\LWR@mathjax@addgreek@l@it{}{sl}

\CustomizeMathJax{\newcommand{\partialsl}{\mathord{\unicode{x1D715}}}}
\CustomizeMathJax{\let\partialup\uppartial}% not upright

\ifkp@oldReIm
\else
    \CustomizeMathJax{\renewcommand{\Re}{\mathfrak{Re}}}
    \CustomizeMathJax{\renewcommand{\Im}{\mathfrak{Im}}}
\fi

\ifkp@Dcommand
    \ifkp@upRm%
        \CustomizeMathJax{
            \def\D#1{\mathclose{\,\mathrm{d}}#1}
        }
    \else
        \CustomizeMathJax{
            \def\D#1{\mathclose{\,\mathit{d}}#1}
        }
    \fi
\fi

\CustomizeMathJax{\let\pounds\mathsterling}
\CustomizeMathJax{\let\kppounds\mathsterling}

\CustomizeMathJax{\newcommand{\mathup}[1]{\mathrm{#1}}}% never sans
\CustomizeMathJax{\let\mathupright\mathup}

\end{warpMathJax}
```

File 241 **lwarp-kpfonts-otf.sty**

§ 350 Package

kpfonts-otf

(*Emulates or patches code by* Daniel Flipo.)

Pkg kpfonts-otf

kpfonts-otf is used as-is for SVG math, and is emulated for MathJax.

⚠ limitations

The MathJax emulation honors the options `fancyReIm`, `mathcal`, `frenchstyle` for Greek only, and `mathcalasscript`.

Also see the options for unicode-math, which is loaded by kpfonts-otf.

The unicode-math dedicated macros for Greek work correctly.

⚠ `\mathversion`

The MathJax emulation does not change with the use of `\mathversion`. Whatever emulation is established at the begin of the document will remain.

SVG math should appear the same as the printed output.

for HTML output:

```
\LWR@ProvidesPackagePass{kpfonts-otf}[2020/06/20]

\LWR@infoprocessingmathjax{kpfonts-otf}

\LWR@origRequirePackage{lwarp-common-mathjax-nonunicode}

\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}

\ifkp@calasscr
    \CustomizeMathJax{\let\mathscr\mathcal}
\else
    \CustomizeMathJax{\let\mathcal\mathscr}
\fi

\ifkp@frenchstyle
    \LWR@mathjax@addgreek@l@up{}{}
    \LWR@mathjax@addgreek@u@up*{}{}
\fi

\ifkp@oldReIm
    \CustomizeMathJax{\renewcommand{\Re}{\mathfrak{Re}}}
    \CustomizeMathJax{\renewcommand{\Im}{\mathfrak{Im}}}
\else
\fi

\ifkp@Dcommand
    \CustomizeMathJax{
        \def\D#1{\mathclose{\,\mathrm{d}}#1}
    }
\fi

\CustomizeMathJax{\let\varint\int}
\CustomizeMathJax{\let\variint\iint}
\CustomizeMathJax{\let\variiint\iiint}
\CustomizeMathJax{\let\variiiint\iiiint}
\CustomizeMathJax{\let\varidotsint\idotsint}

\CustomizeMathJax{\newcommand{\varointctrclockwise}{%
    \mathop{\unicode{x2939}\!\!\unicode{x0222E}}%
}}

\CustomizeMathJax{\newcommand{\oiintclockwise}{%
    \mathop{\unicode{x0222F}\!\!\unicode{x2938}}%
}}

\CustomizeMathJax{\newcommand{\oiintctrclockwise}{%
    \mathop{\unicode{x2939}\!\!\unicode{x0222F}}%
}}

\CustomizeMathJax{\newcommand{\varoiintclockwise}{%
    \mathop{\unicode{x0222F}\!\!\unicode{x2938}}%
}}

\CustomizeMathJax{\newcommand{\varoiintctrclockwise}{%
    \mathop{\unicode{x2939}\!\!\unicode{x0222F}}%
}}

\CustomizeMathJax{\newcommand{\oiiintclockwise}{%
```

```
    \mathop{\unicode{x02230}\!\!\unicode{x2938}}%
}}

\CustomizeMathJax{\newcommand{\oiiintctrclockwise}{%
    \mathop{\unicode{x2939}\!\!\unicode{x02230}}%
}}

\CustomizeMathJax{\newcommand{\varoiiintclockwise}{%
    \mathop{\unicode{x02230}\!\!\unicode{x2938}}%
}}

\CustomizeMathJax{\newcommand{\varoiiintctrclockwise}{%
    \mathop{\unicode{x2939}\!\!\unicode{x02230}}%
}}

\CustomizeMathJax{\newcommand{\sqiint}{%
    \mathop{\unicode{x2A16}\!\!\unicode{x2A16}}%
}}

\CustomizeMathJax{\newcommand{\sqiiint}{%
    \mathop{\unicode{x2A16}\!\!\unicode{x2A16}\!\!\unicode{x2A16}}%
}}

\CustomizeMathJax{\let\widearc\overparen}
\CustomizeMathJax{\let\widearcarrow\overrightarrow}
\CustomizeMathJax{\let\overrightarc\overrightarrow}

\end{warpMathJax}
```

File 242 **lwarp-layaureo.sty**

§ 351 Package layaureo

Pkg layaureo

layaureo is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{layaureo}[2004/09/16]
```

File 243 **lwarp-layout.sty**

§ 352 Package layout

Pkg layout

layout is ignored.

for HTML output:

Discard all options for lwarp-layout:

```
\LWR@ProvidesPackageDrop{layout}[2014/10/28]

\NewDocumentCommand{\layout}{s}{}
```

File 244 **lwarp-layouts.sty**

§ 353 Package

layouts

Pkg layouts

layouts is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{layouts}[2009/09/02]

\newif\ifoddpagelayout
  \oddpagelayouttrue
\newif\iftwocolumnlayout
  \twocolumnlayoutfalse
\newif\ifdrawmarginpars
  \drawmarginparstrue
\newif\ifdrawparameters
  \drawparameterstrue
\newif\iflistaspara
  \listasparatrue
\newif\ifruninhead
  \runinheadfalse
\newif\ifprintparameters
  \printparameterstrue
\newif\ifdrawdimensions
  \drawdimensionsfalse
\newif\ifprintheadings
  \printheadingstrue
\newcommand{\testdrawdimensions}{}
\newcommand{\testprintparameters}{}
\newcommand{\setlabelfont}[1]{}
\newcommand{\setparametertextfont}[1]{}
\newcommand{\setvaluestextsize}[1]{}
\newcommand{\setlayoutscale}[1]{}
\newcommand{\setuplayouts}{}
\newcommand{\printinunitsof}[1]{}
\newcommand{\prntlen}[1]{}
\newcommand{\trypaperwidth}[1]{}
\newcommand{\trypaperheight}[1]{}
\newcommand{\tryhoffset}[1]{}
\newcommand{\tryvoffset}[1]{}
\newcommand{\trytopmargin}[1]{}
\newcommand{\tryheadheight}[1]{}
\newcommand{\tryheadsep}[1]{}
\newcommand{\trytextheight}[1]{}
\newcommand{\tryfootskip}[1]{}
\newcommand{\tryoddsidemargin}[1]{}
\newcommand{\tryevensidemargin}[1]{}
\newcommand{\trytextwidth}[1]{}
\newcommand{\trymarginparsep}[1]{}
\newcommand{\trymarginparwidth}[1]{}
\newcommand{\trymarginparpush}[1]{}
\newcommand{\trycolumnsep}[1]{}
\newcommand{\trycolumnseprule}[1]{}
\newcommand{\setfootbox}[2]{}
\newcommand{\currentpage}{}
\newcommand{\drawpage}{(draw page)}
\newcommand{\pagediagram}{(page diagram)}
```

```
\newcommand{\pagedesign}{(page design)}
\newcommand{\pagevalues}{(page values)}
\newcommand{\trystockwidth}[1]{}
\newcommand{\trystockheight}[1]{}
\newcommand{\trytrimedge}[1]{}
\newcommand{\trytrimtop}[1]{}
\newcommand{\tryuppermargin}[1]{}
\newcommand{\tryspinemargin}[1]{}
\newcommand{\currentstock}{}
\newcommand{\drawstock}{(draw stock)}
\newcommand{\stockdiagram}{(stock diagram)}
\newcommand{\stockdesign}{(stock design)}
\newcommand{\stockvalues}{(stock values)}
\newcommand{\tryitemindent}[1]{}
\newcommand{\trylabelwidth}[1]{}
\newcommand{\trylabelsep}[1]{}
\newcommand{\tryleftmargin}[1]{}
\newcommand{\tryrightmargin}[1]{}
\newcommand{\trylistparindent}[1]{}
\newcommand{\trytopsep}[1]{}
\newcommand{\tryparskip}[1]{}
\newcommand{\trypartopsep}[1]{}
\newcommand{\tryparsep}[1]{}
\newcommand{\tryitemsep}[1]{}
\newcommand{\currentlist}{}
\newcommand{\drawlist}{(draw list)}
\newcommand{\listdiagram}{(list diagram)}
\newcommand{\listdesign}{(list design)}
\newcommand{\listvalues}{(list values)}
\newcommand{\tryfootins}[1]{}
\newcommand{\tryfootnotesep}[1]{}
\newcommand{\tryfootnotebaseline}[1]{}
\newcommand{\tryfootruleheight}[1]{}
\newcommand{\tryfootrulefrac}[1]{}
\newcommand{\currentfootnote}{}
\newcommand{\drawfootnote}{(draw footnote)}
\newcommand{\footnotediagram}{(footnote diagram)}
\newcommand{\footnotedesign}{(footnote design)}
\newcommand{\footnotevalues}{(footnote values)}
\newcommand{\tryparindent}[1]{}
\newcommand{\tryparlinewidth}[1]{}
\newcommand{\tryparbaselineskip}[1]{}
\newcommand{\currentparagraph}{}
\newcommand{\drawparagraph}{(draw paragraph)}
\newcommand{\paragraphdiagram}{(paragraph diagram)}
\newcommand{\paragraphdesign}{(paragraph design)}
\newcommand{\paragraphvalues}{(paragraph values)}
\newcommand{\trybeforeskip}[1]{}
\newcommand{\tryafterskip}[1]{}
\newcommand{\tryindent}[1]{}
\newcommand{\currentheading}{}
\newcommand{\drawheading}[1]{(draw heading)}
\newcommand{\headingdiagram}[1]{(heading diagram)}
\newcommand{\headingdesign}[1]{(heading design)}
\newcommand{\headingvalues}{(heading values)}
\newcommand{\trytextfloatsep}[1]{}
\newcommand{\tryfloatsep}[1]{}
\newcommand{\tryintextsep}[1]{}
\newcommand{\trytopfigrule}[1]{}
\newcommand{\trybotfigrule}[1]{}
```

```
\newcommand{\currentfloat}{}
\newcommand{\drawfloat}{(draw float)}
\newcommand{\floatdiagram}{(float diagram)}
\newcommand{\floatdesign}{(float design)}
\newcommand{\floatvalues}{(float values)}
\newcommand{\trytotalnumber}[1]{}
\newcommand{\trytopnumber}[1]{}
\newcommand{\trybottomnumber}[1]{}
\newcommand{\trytopfraction}[1]{}
\newcommand{\trytextfraction}[1]{}
\newcommand{\trybottomfraction}[1]{}
\newcommand{\currentfloatpage}{}
\newcommand{\drawfloatpage}{(draw floatpage)}
\newcommand{\floatpagediagram}{(floatpage diagram)}
\newcommand{\floatpagedesign}{(floatpage design)}
\newcommand{\floatpagevalues}{(floatpage values)}
\newcommand{\trytocindent}[1]{}
\newcommand{\trytocnumwidth}[1]{}
\newcommand{\trytoclinewidth}[1]{}
\newcommand{\trytocrmarg}[1]{}
\newcommand{\trytocpnumwidth}[1]{}
\newcommand{\trytocdotsep}[1]{}
\newcommand{\currenttoc}{}
\newcommand{\drawtoc}{(draw toc)}
\newcommand{\tocdiagram}{(toc diagram)}
\newcommand{\tocdesign}{(toc design)}
\newcommand{\tocvalues}{(toc values)}
\newcommand{\drawaspread}[8][0]{(a spread)}
\newcommand{\drawfontframe}[1]{(font frame)}
\newcommand{\drawfontframelabel}[1]{}
```

File 245 **lwarp-leading.sty**

§ 354 Package leading

Pkg `leading`

leading is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{leading}[2008/12/11]
\newcommand\leading[1]{}
```

File 246 **lwarp-leftidx.sty**

§ 355 Package leftidx

(*Emulates or patches code by* Harald Harders.)

Pkg `leftidx`

leftidx works as-is with SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{leftidx}[2003/09/24]
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\leftidx}[3]{{\vphantom{#2}}#1#2#3}}
\CustomizeMathJax{\newcommand{\ltrans}[1]{\leftidx{^\mathrm{t}}{\!#1}{}}}
\end{warpMathJax}
```

File 247 **lwarp-letterspace.sty**

§ 356 Package letterspace

(*Emulates or patches code by* R Schlicht.)

Pkg letterspace

letterspace is a subset of microtype, which is pre-loaded by lwarp. All user options and macros are ignored and disabled.

for HTML output:

Discard all options for lwarp-letterspace:

```
\LWR@ProvidesPackageDrop{letterspace}[2018/01/14]

\newcommand*\lsstyle{}
\newcommand\textls[2][]{}
\def\textls#1#{}
\newcommand*\lslig[1]{#1}
```

File 248 **lwarp-lettrine.sty**

§ 357 Package lettrine

(*Emulates or patches code by* Daniel Flipo.)

Pkg lettrine

lettrine is emulated.

for HTML output:

Discard all options for lwarp-lettrine:

```
\LWR@ProvidesPackageDrop{lettrine}[2018-08-28]
```

The initial letter is in a of class `lettrine`, and the following text is in a of class `lettrinetext`. `\lettrine` [⟨*keys*⟩] {⟨*letter*⟩} {⟨*additional text*⟩}

```
\DeclareDocumentCommand{\lettrine}{o m m}{%
    \InlineClass{lettrine}{#2}\InlineClass{lettrinetext}{#3} % extra space
}

\newcounter{DefaultLines}
\setcounter{DefaultLines}{2}
\newcounter{DefaultDepth}
\newcommand*{\DefaultOptionsFile}{\relax}
\newcommand*{\DefaultLoversize}{0}
\newcommand*{\DefaultLraise}{0}
\newcommand*{\DefaultLhang}{0}
\newdimen\DefaultFindent
\setlength{\DefaultFindent}{\z@}
\newdimen\DefaultNindent
\setlength{\DefaultNindent}{0.5em}
\newdimen\DefaultSlope
\setlength{\DefaultSlope}{\z@}
\newdimen\DiscardVskip
\setlength{\DiscardVskip}{0.2\p@}
\newif\ifLettrineImage
```

```
\newif\ifLettrineOnGrid
\newif\ifLettrineRealHeight

\newcommand*{\LettrineTextFont}{\scshape}
\newcommand*{\LettrineFontHook}{}
\newcommand*{\LettrineFont}[1]{\InlineClass{lettrine}{#1}}
\newcommand*{\LettrineFontEPS}[1]{\includegraphics[height=1.5ex]{#1}}
```

File 249 **lwarp-libertinust1math.sty**

§ 358 Package

libertinust1math

(*Emulates or patches code by* Michael Sharpe.)

Pkg libertinust1math

libertinust1math is used as-is for svg math, and is emulated for MathJax.

The MathJax emulation honors frenchmath for Greek but not Latin characters, and slantedGreek, uprightGreek, and ISO also adjust Greek characters. MathJax cannot yet honor options for adjusting Latin characters.

The dedicated macros for upright and italic Greek letters do work correctly.

Some of the symbol font macros such as \mathsfbf do not use a sans font because MathJax does not yet have sans Greek.

svg math honors all font choices, and should appear the same as the printed output.

for HTML output:

```
\LWR@ProvidesPackagePass{libertinust1math}[2020/06/10]

\LWR@infoprocessingmathjax{libertinust1math}

\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}

\iflibus@slantedG
    \LWR@mathjax@addgreek@u@it*{}{}
\else
    \LWR@mathjax@addgreek@u@up*{}{}
\fi

\LWR@mathjax@addgreek@u@it*{}{it}
\LWR@mathjax@addgreek@u@up*{up}{}
\LWR@mathjax@addgreek@u@up*{}{up}

\iflibus@frenchm
    \LWR@mathjax@addgreek@l@up{}{}
\else
    \LWR@mathjax@addgreek@l@it{}{}
\fi

\LWR@mathjax@addgreek@l@it{}{it}
\LWR@mathjax@addgreek@l@up{}{up}
\LWR@mathjax@addgreek@l@up{up}{}

\CustomizeMathJax{\let\uppartial\partial}% not upright
```

```
\CustomizeMathJax{\let\mathsfbf\mathbf}% not sans
% \CustomizeMathJax{\newcommand{\mathsfbf}[1]{%
%     \mmlToken{mi}[mathvariant="bold-sans-serif"]{#1}% not greek
% }}% not sans

% \CustomizeMathJax{\newcommand{\mathbfit}[1]{\boldsymbol{#1}}}
\CustomizeMathJax{\let\mathbfit\boldsymbol}


% \CustomizeMathJax{\newcommand{\mathsfbfit}[1]{\boldsymbol{#1}}}% not sans
\CustomizeMathJax{\let\mathsfbfit\mathbfit}% not sans
% \CustomizeMathJax{\newcommand{\mathsfbfit}[1]{%
%     \mmlToken{mi}[mathvariant="sans-serif-bold-italic"]{#1}% not greek
% }}%


\CustomizeMathJax{\let\mathsfit\mathit}% not sans
% \CustomizeMathJax{\newcommand{\mathsfit}[1]{%
%     \mmlToken{mi}[mathvariant="sans-serif-italic"]{#1}% not greek
% }}

\CustomizeMathJax{\let\vectorsym\mathbfit}
\CustomizeMathJax{\let\matrixsym\mathbfit}
\CustomizeMathJax{\let\tensorsym\mathsfbfit}
\CustomizeMathJax{\let\mathboldsans\mathsfbfit}
\CustomizeMathJax{\let\mathbold\mathbfit}
```

`lwarp_mathjax.txt` adds `\left` / `\right` support for delimiters.

```
\CustomizeMathJax{\let\dlb\lBrack}
\CustomizeMathJax{\let\drb\rBrack}

\CustomizeMathJax{\let\sqrtsign\sqrt}

\CustomizeMathJax{\let\smallintsl\smallint}
\CustomizeMathJax{\newcommand{\smalliintsl}{\mathop{\unicode{x222C}}\limits}}
\CustomizeMathJax{\newcommand{\smalliiintsl}{\mathop{\unicode{x222D}}\limits}}
\CustomizeMathJax{\newcommand{\smalliiiintsl}{\mathop{\unicode{x2A0C}}\limits}}
\CustomizeMathJax{\newcommand{\smallointsl}{\mathop{\unicode{x222E}}\limits}}
\CustomizeMathJax{\newcommand{\smalloiintsl}{\mathop{\unicode{x222F}}\limits}}

\CustomizeMathJax{\let\smallintup\smallint}
\CustomizeMathJax{\newcommand{\smalliintup}{\mathop{\unicode{x222C}}\limits}}
\CustomizeMathJax{\newcommand{\smalliiintup}{\mathop{\unicode{x222D}}\limits}}
\CustomizeMathJax{\newcommand{\smalliiiintup}{\mathop{\unicode{x2A0C}}\limits}}
\CustomizeMathJax{\newcommand{\smallointup}{\mathop{\unicode{x222E}}\limits}}
\CustomizeMathJax{\newcommand{\smalloiintup}{\mathop{\unicode{x222F}}\limits}}

\CustomizeMathJax{\let\intslop\int}
\CustomizeMathJax{\newcommand{\iintslop}{\mathop{\unicode{x222C}}\limits}}
\CustomizeMathJax{\newcommand{\iiintslop}{\mathop{\unicode{x222D}}\limits}}
\CustomizeMathJax{\newcommand{\iiiintslop}{\mathop{\unicode{x2A0C}}\limits}}
\CustomizeMathJax{\let\ointslop\oint}
\CustomizeMathJax{\newcommand{\oiintslop}{\mathop{\unicode{x222F}}\limits}}
\CustomizeMathJax{\newcommand{\oiiintslop}{\mathop{\unicode{x2230}}\limits}}

\CustomizeMathJax{\let\intupop\int}
\CustomizeMathJax{\newcommand{\iintupop}{\mathop{\unicode{x222C}}\limits}}
\CustomizeMathJax{\newcommand{\iiintupop}{\mathop{\unicode{x222D}}\limits}}
\CustomizeMathJax{\newcommand{\iiiintupop}{\mathop{\unicode{x2A0C}}\limits}}
```

```
\CustomizeMathJax{\let\ointupop\oint}
\CustomizeMathJax{\newcommand{\oiintupop}{\mathop{\unicode{x222F}}\limits}}
\CustomizeMathJax{\newcommand{\oiiintupop}{\mathop{\unicode{x2230}}\limits}}

\CustomizeMathJax{\newcommand{\smalliint}{\mathop{\unicode{x222C}}\limits}}
\CustomizeMathJax{\newcommand{\smalliiint}{\mathop{\unicode{x222D}}\limits}}
\CustomizeMathJax{\newcommand{\smalliiiint}{\mathop{\unicode{x2A0C}}\limits}}
\CustomizeMathJax{\newcommand{\smalloint}{\mathop{\unicode{x222E}}\limits}}
\CustomizeMathJax{\newcommand{\smalloiint}{\mathop{\unicode{x222F}}\limits}}

\CustomizeMathJax{\let\intop\int}
\CustomizeMathJax{\newcommand{\iintop}{\mathop{\unicode{x222C}}\limits}}
\CustomizeMathJax{\newcommand{\iiintop}{\mathop{\unicode{x222D}}\limits}}
\CustomizeMathJax{\newcommand{\iiiintop}{\mathop{\unicode{x2A0C}}\limits}}
\CustomizeMathJax{\let\ointop\oint}
\CustomizeMathJax{\newcommand{\oiintop}{\mathop{\unicode{x222F}}\limits}}
\CustomizeMathJax{\newcommand{\oiiintop}{\mathop{\unicode{x2230}}\limits}}

\CustomizeMathJax{\newcommand{\oiint}{\mathop{\unicode{x222F}}\limits}}

\CustomizeMathJax{\newcommand{\bigcupdot}{\mathop{\unicode{x2A03}}}}
\CustomizeMathJax{\newcommand{\bigsqcap}{\mathop{\unicode{x2A05}}}}
\CustomizeMathJax{\newcommand{\xsol}{\mathop{\unicode{x29F8}}}}
\CustomizeMathJax{\newcommand{\xbsol}{\mathop{\unicode{x29F9}}}}
\CustomizeMathJax{\let\prodop\prod}
\CustomizeMathJax{\let\coprodop\coprod}
\CustomizeMathJax{\let\sumop\sum}
\CustomizeMathJax{\let\bigwedgeop\bigwedge}
\CustomizeMathJax{\let\bigveeop\bigvee}
\CustomizeMathJax{\let\bigcapop\bigcap}
\CustomizeMathJax{\let\bigcupop\bigcup}
\CustomizeMathJax{\let\xsolop\xsol}
\CustomizeMathJax{\let\xbsolop\xbsol}
\CustomizeMathJax{\let\bigodotop\bigodot}
\CustomizeMathJax{\let\bigoplusop\bigoplus}
\CustomizeMathJax{\let\bigotimesop\bigotimes}
\CustomizeMathJax{\let\bigcupdotop\bigcupdot}
\CustomizeMathJax{\let\biguplusop\biguplus}
\CustomizeMathJax{\let\bigsqcapop\bigsqcap}
\CustomizeMathJax{\let\bigsqcupop\bigsqcup}

\CustomizeMathJax{\newcommand{\ovhook}[1]{\mathord{#1\unicode{x00309}}}}
\CustomizeMathJax{\newcommand{\candra}[1]{\mathord{#1\unicode{x00310}}}}
\CustomizeMathJax{\newcommand{\oturnedcomma}[1]{\mathord{#1\unicode{x00312}}}}
\CustomizeMathJax{\newcommand{\ocommatopright}[1]{\mathord{#1\unicode{x00315}}}}
\CustomizeMathJax{\newcommand{\droang}[1]{\mathord{#1\unicode{x0031A}}}}
\CustomizeMathJax{\newcommand{\leftharpoonaccent}[1]{\mathord{#1\unicode{x020D0}}}}
\CustomizeMathJax{\newcommand{\rightharpoonaccent}[1]{\mathord{#1\unicode{x020D1}}}}
\CustomizeMathJax{\newcommand{\leftarrowaccent}[1]{\mathord{#1\unicode{x020D0}}}}
\CustomizeMathJax{\let\rightarrowaccent\vec}

\CustomizeMathJax{\newcommand{\leftrightarrowaccent}[1]{\mathord{#1\unicode{x020E1}}}}
\CustomizeMathJax{\newcommand{\annuity}[1]{\mathord{#1\unicode{x020E7}}}}
\CustomizeMathJax{\newcommand{\widebridgeabove}[1]{\mathord{#1\unicode{x020E9}}}}
\CustomizeMathJax{\newcommand{\asteraccent}[1]{\mathord{#1\unicode{x020F0}}}}

% neutralized:
\CustomizeMathJax{\newcommand{\braceld}{}}
\CustomizeMathJax{\newcommand{\bracerd}{}}
\CustomizeMathJax{\newcommand{\bracelu}{}}
```

```
\CustomizeMathJax{\newcommand{\braceru}{}}
\CustomizeMathJax{\newcommand{\braceex}{}}
\CustomizeMathJax{\newcommand{\bracemu}{}}
\CustomizeMathJax{\newcommand{\bracemd}{}}
\CustomizeMathJax{\newcommand{\parenld}{}}
\CustomizeMathJax{\newcommand{\parenrd}{}}
\CustomizeMathJax{\newcommand{\parenlu}{}}
\CustomizeMathJax{\newcommand{\parenru}{}}
\CustomizeMathJax{\newcommand{\bracketld}{}}
\CustomizeMathJax{\newcommand{\bracketrd}{}}
\CustomizeMathJax{\newcommand{\bracketlu}{}}
\CustomizeMathJax{\newcommand{\bracketru}{}}
\CustomizeMathJax{\newcommand{\bracketex}{}}
\CustomizeMathJax{\newcommand{\parenex}{}}

\CustomizeMathJax{\newcommand{lhook}{~}}
\CustomizeMathJax{\newcommand{rhook}{~}}
\CustomizeMathJax{\newcommand{relbar}{-}}
\CustomizeMathJax{\newcommand{Relbar}{=}}

\CustomizeMathJax{\newcommand{\mapstochar}{\mathrel{\unicode{x21A6}}}}

\CustomizeMathJax{\newcommand{\Zbar}{\mathord{\unicode{x0001B5}}}}
\CustomizeMathJax{\newcommand{\notchar}{\mathrel{\unicode{x000AC}}}}
\CustomizeMathJax{\newcommand{\upbackepsilon}{\mathord{\unicode{x03F6}}}}
\CustomizeMathJax{\newcommand{\smblkcircle}{\mathbin{\unicode{x02022}}}}
\CustomizeMathJax{\newcommand{\enleadertwodots}{\mathord{\unicode{x02025}}}}
\CustomizeMathJax{\newcommand{\unicodeellipsis}{\mathord{\unicode{x02026}}}}
\CustomizeMathJax{\newcommand{\mathellipsis}{\mathinner{\unicode{x02026}}}}
\CustomizeMathJax{\newcommand{\dprime}{\mathord{\unicode{x02033}}}}
\CustomizeMathJax{\newcommand{\trprime}{\mathord{\unicode{x02034}}}}
\CustomizeMathJax{\newcommand{\backdprime}{\mathord{\unicode{x02036}}}}
\CustomizeMathJax{\newcommand{\backtrprime}{\mathord{\unicode{x02037}}}}
\CustomizeMathJax{\newcommand{\caretinsert}{\mathord{\unicode{x02038}}}}
\CustomizeMathJax{\newcommand{\Exclam}{\mathord{\unicode{x0203C}}}}

\CustomizeMathJax{\newcommand{\hyphenbullet}{\mathord{\unicode{x02043}}}}
\CustomizeMathJax{\newcommand{\fracslash}{\mathbin{\unicode{x02044}}}}
\CustomizeMathJax{\newcommand{\Question}{\mathord{\unicode{x02047}}}}
\CustomizeMathJax{\newcommand{\closure}{\mathrel{\unicode{x02050}}}}
\CustomizeMathJax{\newcommand{\qprime}{\mathord{\unicode{x02057}}}}
\CustomizeMathJax{\newcommand{\vertoverlay}{\mathrel{\unicode{x020D2}}}}
\CustomizeMathJax{\newcommand{\enclosecircle}{\mathord{\unicode{x020DD}}}}
\CustomizeMathJax{\newcommand{\enclosesquare}{\mathord{\unicode{x020DE}}}}
\CustomizeMathJax{\newcommand{\enclosetriangle}{\mathord{\unicode{x020E4}}}}
\CustomizeMathJax{\newcommand{\Eulerconst}{\mathord{\unicode{x02107}}}}
\CustomizeMathJax{\newcommand{\turnediota}{\mathord{\unicode{x02129}}}}
\CustomizeMathJax{\newcommand{\Angstrom}{\mathord{\unicode{x0212B}}}}

\CustomizeMathJax{\newcommand{\sansLturned}{\mathord{\unicode{x02142}}}}
\CustomizeMathJax{\newcommand{\sansLmirrored}{\mathord{\unicode{x02143}}}}
\CustomizeMathJax{\newcommand{\Yup}{\mathord{\unicode{x02144}}}}
\CustomizeMathJax{\newcommand{\upand}{\mathbin{\unicode{x0214B}}}}
\CustomizeMathJax{\newcommand{\increment}{\mathord{\unicode{x02206}}}}
\CustomizeMathJax{\newcommand{\smallin}{\mathrel{\unicode{x0220A}}}}
\CustomizeMathJax{\newcommand{\nni}{\mathrel{\unicode{x0220C}}}}

\CustomizeMathJax{\newcommand{\smallni}{\mathrel{\unicode{x0220D}}}}
\CustomizeMathJax{\newcommand{\QED}{\mathord{\unicode{x0220E}}}}
\CustomizeMathJax{\newcommand{\vysmwhtcircle}{\mathbin{\unicode{x02218}}}}
```

```
\CustomizeMathJax{\newcommand{\vysmblkcircle}{\mathbin{\unicode{x02219}}}}
\CustomizeMathJax{\newcommand{\rightangle}{\mathord{\unicode{x0221F}}}}

\CustomizeMathJax{\newcommand{\Colon}{\mathrel{\unicode{x02237}}}}
\CustomizeMathJax{\newcommand{\dotminus}{\mathbin{\unicode{x02238}}}}
\CustomizeMathJax{\newcommand{\dashcolon}{\mathrel{\unicode{x02239}}}}
\CustomizeMathJax{\newcommand{\dotsminusdots}{\mathrel{\unicode{x0223A}}}}
\CustomizeMathJax{\newcommand{\kernelcontraction}{\mathrel{\unicode{x0223B}}}}
\CustomizeMathJax{\newcommand{\invlazys}{\mathbin{\unicode{x0223E}}}}

\CustomizeMathJax{\newcommand{\sinewave}{\mathord{\unicode{x0223F}}}}
\CustomizeMathJax{\newcommand{\nsime}{\mathrel{\unicode{x02244}}}}
\CustomizeMathJax{\newcommand{\simneqq}{\mathrel{\unicode{x02246}}}}
\CustomizeMathJax{\newcommand{\napprox}{\mathrel{\unicode{x02249}}}}
\CustomizeMathJax{\newcommand{\approxident}{\mathrel{\unicode{x0224B}}}}
\CustomizeMathJax{\newcommand{\backcong}{\mathrel{\unicode{x0224C}}}}

\CustomizeMathJax{\newcommand{\nasymp}{\mathrel{\unicode{x0226D}}}}
\CustomizeMathJax{\newcommand{\nlesssim}{\mathrel{\unicode{x02274}}}}
\CustomizeMathJax{\newcommand{\ngtrsim}{\mathrel{\unicode{x02275}}}}
\CustomizeMathJax{\newcommand{\nlessgtr}{\mathrel{\unicode{x02278}}}}
\CustomizeMathJax{\newcommand{\ngtrless}{\mathrel{\unicode{x02279}}}}

\CustomizeMathJax{\newcommand{\nsubset}{\mathrel{\unicode{x02284}}}}
\CustomizeMathJax{\newcommand{\nsupset}{\mathrel{\unicode{x02285}}}}

\CustomizeMathJax{\newcommand{\cupleftarrow}{\mathbin{\unicode{x0228C}}}}
\CustomizeMathJax{\newcommand{\cupdot}{\mathbin{\unicode{x0228D}}}}
\CustomizeMathJax{\newcommand{\circledequal}{\mathbin{\unicode{x0229C}}}}

\CustomizeMathJax{\newcommand{\assert}{\mathrel{\unicode{x022A6}}}}
\CustomizeMathJax{\newcommand{\VDash}{\mathrel{\unicode{x022AB}}}}
\CustomizeMathJax{\newcommand{\prurel}{\mathrel{\unicode{x022B0}}}}

\CustomizeMathJax{\newcommand{\origof}{\mathrel{\unicode{x022B6}}}}
\CustomizeMathJax{\newcommand{\smallprod}{\mathop{\unicode{x0220F}}}}% not small
\CustomizeMathJax{\newcommand{\smallcoprod}{\mathop{\unicode{x02210}}}}% not small
\CustomizeMathJax{\newcommand{\smallsum}{\mathop{\unicode{x02211}}}}% not small
\CustomizeMathJax{\newcommand{\Hfraktur}{\mathord{\unicode{x1D525}}}}
\CustomizeMathJax{\newcommand{\dsol}{\mathbin{\unicode{x029F6}}}}
\CustomizeMathJax{\newcommand{\rsolbar}{\mathbin{\unicode{x029F7}}}}

\CustomizeMathJax{\newcommand{\eqless}{\mathrel{\unicode{x022DC}}}}
\CustomizeMathJax{\newcommand{\eqgtr}{\mathrel{\unicode{x022DD}}}}
\CustomizeMathJax{\newcommand{\npreccurlyeq}{\mathrel{\unicode{x022E0}}}}
\CustomizeMathJax{\newcommand{\nsucccurlyeq}{\mathrel{\unicode{x022E1}}}}
\CustomizeMathJax{\newcommand{\nsqsubseteq}{\mathrel{\unicode{x022E2}}}}
\CustomizeMathJax{\newcommand{\nsqsupseteq}{\mathrel{\unicode{x022E3}}}}
\CustomizeMathJax{\newcommand{\sqsubsetneq}{\mathrel{\unicode{x022E4}}}}
\CustomizeMathJax{\newcommand{\sqsupsetneq}{\mathrel{\unicode{x022E5}}}}
\CustomizeMathJax{\newcommand{\nvartriangleleft}{\mathrel{\unicode{x022EA}}}}
\CustomizeMathJax{\newcommand{\nvartriangleright}{\mathrel{\unicode{x022EB}}}}

\CustomizeMathJax{\newcommand{\vdotsmath}{\mathrel{\unicode{x022EE}}}}
\CustomizeMathJax{\newcommand{\unicodecdots}{\mathord{\unicode{x022EF}}}}
\CustomizeMathJax{\newcommand{\adots}{\mathrel{\unicode{x022F0}}}}
\CustomizeMathJax{\newcommand{\succneq}{\mathrel{\unicode{x02AB2}}}}
\CustomizeMathJax{\newcommand{\preceqq}{\mathrel{\unicode{x02AB3}}}}
\CustomizeMathJax{\newcommand{\succeqq}{\mathrel{\unicode{x02AB4}}}}
\CustomizeMathJax{\newcommand{\precneq}{\mathrel{\unicode{x02AB1}}}}
```

```
\CustomizeMathJax{\newcommand{\mapsfrom}{\mathrel{\unicode{x021A4}}}}

\CustomizeMathJax{\newcommand{\longmapsfrom}{\mathrel{\unicode{x027FB}}}}

\CustomizeMathJax{\newcommand{\diameter}{\mathord{\unicode{x02300}}}}
\CustomizeMathJax{\newcommand{\coloneq}{\mathrel{\unicode{x02254}}}}
\CustomizeMathJax{\newcommand{\eqcolon}{\mathrel{\unicode{x02255}}}}
\CustomizeMathJax{\newcommand{\arceq}{\mathrel{\unicode{x02258}}}}
\CustomizeMathJax{\newcommand{\wedgeq}{\mathrel{\unicode{x02259}}}}
\CustomizeMathJax{\newcommand{\veeeq}{\mathrel{\unicode{x0225A}}}}

\CustomizeMathJax{\newcommand{\stareq}{\mathrel{\unicode{x0225B}}}}
\CustomizeMathJax{\newcommand{\eqdef}{\mathrel{\unicode{x0225D}}}}
\CustomizeMathJax{\newcommand{\measeq}{\mathrel{\unicode{x0225E}}}}
\CustomizeMathJax{\newcommand{\questeq}{\mathrel{\unicode{x0225F}}}}
\CustomizeMathJax{\newcommand{\nequiv}{\mathrel{\unicode{x02262}}}}
\CustomizeMathJax{\newcommand{\Equiv}{\mathrel{\unicode{x02263}}}}

\CustomizeMathJax{\newcommand{\house}{\mathord{\unicode{x02302}}}}

\CustomizeMathJax{\newcommand{\musicalnote}{\mathord{\unicode{x0266A}}}}
\CustomizeMathJax{\newcommand{\degree}{\mathord{\unicode{x000B0}}}}
\CustomizeMathJax{\newcommand{\mathsection}{\mathord{\unicode{x000A7}}}}
\CustomizeMathJax{\newcommand{\mathparagraph}{\mathord{\unicode{x000B6}}}}
\CustomizeMathJax{\newcommand{\checkmarkmath}{\mathord{\unicode{x02713}}}}
\CustomizeMathJax{\newcommand{\invnot}{\mathord{\unicode{x02310}}}}

\CustomizeMathJax{\newcommand{\mathvisiblespace}{\mathord{\unicode{x02423}}}}
\CustomizeMathJax{\newcommand{\mdlgblksquare}{\mathord{\unicode{x025A0}}}}
\CustomizeMathJax{\newcommand{\mdlgwhtsquare}{\mathord{\unicode{x025A1}}}}

\CustomizeMathJax{\newcommand{\bigblacktriangleup}{\mathord{\unicode{x025B2}}}}
\CustomizeMathJax{\newcommand{\varbigtriangleup}{\mathord{\unicode{x025B3}}}}

\CustomizeMathJax{\newcommand{\bigblacktriangledown}{\mathord{\unicode{x025BC}}}}
\CustomizeMathJax{\newcommand{\varbigtriangledown}{\mathord{\unicode{x025BD}}}}
\CustomizeMathJax{\newcommand{\Longmapsfrom}{\mathrel{\unicode{x027FD}}}}

% bug in print font:
\CustomizeMathJax{\newcommand{\mdlgblkdiamond}{\mathord{\unicode{x025C6}}}}

\CustomizeMathJax{\newcommand{\mdlgwhtdiamond}{\mathord{\unicode{x025C7}}}}
\CustomizeMathJax{\newcommand{\Longmapsto}{\mathrel{\unicode{x027FE}}}}
\CustomizeMathJax{\newcommand{\fisheye}{\mathord{\unicode{x025C9}}}}
\CustomizeMathJax{\newcommand{\mdlgwhtlozenge}{\mathord{\unicode{x025CA}}}}
\CustomizeMathJax{\newcommand{\mdlgwhtcircle}{\mathbin{\unicode{x025CB}}}}
\CustomizeMathJax{\newcommand{\bullseye}{\mathord{\unicode{x025CE}}}}
\CustomizeMathJax{\newcommand{\mdlgblkcircle}{\mathord{\unicode{x025CF}}}}

\CustomizeMathJax{\newcommand{\Nwarrow}{\mathrel{\unicode{x021D6}}}}
\CustomizeMathJax{\newcommand{\Nearrow}{\mathrel{\unicode{x021D7}}}}
\CustomizeMathJax{\newcommand{\Searrow}{\mathrel{\unicode{x021D8}}}}
\CustomizeMathJax{\newcommand{\Swarrow}{\mathrel{\unicode{x021D9}}}}

\CustomizeMathJax{\newcommand{\Mapsfrom}{\mathord{\unicode{x02906}}}}
\CustomizeMathJax{\newcommand{\smwhtcircle}{\mathord{\unicode{x025E6}}}}
\CustomizeMathJax{\newcommand{\smwhtdiamond}{\mathbin{\unicode{x022C4}}}}
\CustomizeMathJax{\newcommand{\Mapsto}{\mathord{\unicode{x02907}}}}

```

```
\CustomizeMathJax{\let\ngets\nleftarrow}
\CustomizeMathJax{\let\nsimeq\nsime}
\CustomizeMathJax{\let\nle\nleq}
\CustomizeMathJax{\let\nge\ngeq}

\end{warpMathJax}
```

File 250 **lwarp-lineno.sty**

§ 359 Package lineno

(*Emulates or patches code by* Stephan I. Böttcher.)

Pkg lineno

lineno is partly emulated, but mostly ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{lineno}[2005/11/02]

\newcommand*\resetlinenumber[1][\@ne]{}

\def\linenumbers{%
    \@ifnextchar[{\resetlinenumber}%]
                 {\@ifstar{\resetlinenumber}{}}%
    }

\newcommand*{\nolinenumbers}{}

\@namedef{linenumbers*}{\par\linenumbers*}
\@namedef{runninglinenumbers*}{\par\runninglinenumbers*}

\def\endlinenumbers{\par}
\let\endrunninglinenumbers\endlinenumbers
\let\endpagewiselinenumbers\endlinenumbers
\expandafter\let\csname endlinenumbers*\endcsname\endlinenumbers
\expandafter\let\csname endrunninglinenumbers*\endcsname\endlinenumbers
\let\endnolinenumbers\endlinenumbers

\def\pagewiselinenumbers{\linenumbers\setpagewiselinenumbers}

\def\runninglinenumbers{\setrunninglinenumbers\linenumbers}

\def\setpagewiselinenumbers{}

\def\setrunninglinenumbers{}

\def\linenomath{}%
\@namedef{linenomath*}{}%
\def\endlinenomath{}
\expandafter\let\csname endlinenomath*\endcsname\endlinenomath

\let\linelabel\label

\def\switchlinenumbers{\@ifstar{}{}}
\def\setmakelinenumbers#1{\@ifstar{}{}}

\def\leftlinenumbers{\@ifstar{}{}}
\def\rightlinenumbers{\@ifstar{}{}}

```

```
\newcounter{linenumber}
\newcount\c@pagewiselinenumber
\let\c@runninglinenumber\c@linenumber

\def\runningpagewiselinenumbers{}
\def\realpagewiselinenumbers{}


\NewDocumentCommand\modulolinenumbers{s o}{}

\chardef\c@linenumbermodulo=5
\modulolinenumbers[1]

\newcommand*\firstlinenumber[1]{}

\newcommand\internallinenumbers{}
\let\endinternallinenumbers\endlinenumbers
\@namedef{internallinenumbers*}{\internallinenumbers}
\expandafter\let\csname endinternallinenumbers*\endcsname\endlinenumbers

\newcommand*{\linenoplaceholder}[1]{% redefine per language
    (line number reference for \detokenize\expandafter{#1})
}

\newcommand*{\lineref}[2][]{\linenoplaceholder{#2}}
\newcommand*{\linerefp}[2][]{\linenoplaceholder{#2}}
\newcommand*{\linerefr}[2][]{\linenoplaceholder{#2}}

\newcommand\quotelinenumbers
   {\@ifstar\linenumbers{\@ifnextchar[\linenumbers{\linenumbers*}}}

\newdimen\linenumbersep
\newdimen\linenumberwidth
\newdimen\quotelinenumbersep

\quotelinenumbersep=\linenumbersep
\let\quotelinenumberfont\linenumberfont

\def\linenumberfont{\normalfont\tiny\sffamily}


\linenumberwidth=10pt
\linenumbersep=10pt

\def\thelinenumber{}

\def\LineNumber{}
\def\makeLineNumber{}
\def\makeLineNumberLeft{}
\def\makeLineNumberRight{}
\def\makeLineNumberOdd{}
\def\makeLineNumberEven{}
\def\makeLineNumberRunning{}


\newenvironment{numquote}     {\quote}{\endquote}
\newenvironment{numquotation} {\quotation}{\endquotation}
\newenvironment{numquote*}    {\quote}{\endquote}
\newenvironment{numquotation*}{\quotation}{\endquotation}

```

```
\newdimen\bframerule
\bframerule=\fboxrule

\newdimen\bframesep
\bframesep=\fboxsep

\newenvironment{bframe}
{%
    \LWR@forceminwidth{\bframerule}%
    \BlockClass[
        border:\LWR@printlength{\LWR@atleastonept} solid black ; %
        padding:\LWR@printlength{\bframesep}%
    ]{bframe}
}
{\endBlockClass}
```

File 251 **lwarp-lips.sty**

§ 360 Package lips

(*Emulates or patches code by* Matt Swift.)

Pkg lips

lips is emulated.

```
% \LWR@ProvidesPackageDrop{lips}
\PackageInfo{lwarp}{Using the lwarp version of package ‘lips’.}%
\ProvidesPackage{lwarp-lips}[2001/08/31]

\NewDocumentCommand{\Lips}{}{\textellipsis}

\NewDocumentCommand{\BracketedLips}{}{[\textellipsis]}

\let\lips\Lips
\let\olips\lips

\DeclareOption*{}
\DeclareOption{mla}{
\let\lips\BracketedLips
}
\ProcessOptions\relax

\newcommand \LPNobreakList {}
```

File 252 **lwarp-lipsum.sty**

§ 361 Package lipsum

(*Emulates or patches code by* Patrick Happel.)

Pkg lipsum

lipsum is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{lipsum}[2021-03-03]

\SetLipsumParListItemEnd{%
    \LWR@closeparagraph%
```

```
    \leavevmode\LWR@orignewline%
}
```

File 253 **lwarp-listings.sty**

§ 362 Package

listings

(*Emulates or patches code by* Carsten Heinz, Brooks Moses, Jobst Hoffmann.)

Pkg listings

listings is supported with some limitations. Text formatting and escape characters are not yet supported.

```
\LWR@ProvidesPackagePass{listings}[2018/09/02]
```

Force flexible columns. Fixed columns inserts spaces in the PDF output.

```
\lst@column@flexible
```

Patches to embed listings inside `pre` tags:

```
\let\LWR@origlst@Init\lst@Init
\let\LWR@origlst@DeInit\lst@DeInit

\let\LWR@origlsthkEveryPar\lsthk@EveryPar

\renewcommand{\l@lstlisting}[2]{\hypertocfloat{1}{lstlisting}{lol}{#1}{#2}}
```

\lstset {⟨*options*⟩}

Use the listings `literate` option to replace HTML entities:

```
\def\lstset@#1{\endgroup%
%  \ifx\@empty#1%
%         \@empty%
%     \else%
        \setkeys{lst}{%
            #1%
            ,literate=%
            {<}{\HTMLentity{lt}}{4}%
            {>}{\HTMLentity{gt}}{4}%
            {'}{\HTMLentity{apos}}{6}%
            {‘}{\HTMLentity{grave}}{7}%
```

The ampersand is not treated here, as the result is inconsistent spacing. It is nevertheless converted to `&` elsewhere. Sanitizing the double quote interferes with listings' conversion of visible spaces inside strings.

```
        }%
%     \fi%
}
```

\lst@Init {⟨*backslash-processing*⟩} Done at the start of a listing.

```
\renewcommand{\lst@Init}[1]{%
```

Perform the listings initialization:

```
\LWR@traceinfo{lst@Init}%
```

\LWR@forcenewpage is moved to the start to avoid a spurrious bug with paragraph handling and conditionals.

```
\lst@ifdisplaystyle%        lwarp
    \LWR@forcenewpage%      lwarp
\fi%                        lwarp
```

Escapes do not work yet, and are disabled:

```
\let\lst@ifmathescape\iffalse%      lwarp
\let\lst@DefEsc\relax%              lwarp
\def\lst@escapebegin{}%             lwarp
\def\lst@escapeend{}%               lwarp
```

```
\renewcommand*{\@captype}{lstlisting}%      lwarp
    \let\lst@aboveskip\z@\let\lst@belowskip\z@%     lwarp
    \gdef\lst@boxpos{t}%            lwarp
    \let\lst@frame\@empty%          lwarp
    \let\lst@frametshape\@empty%    lwarp
    \let\lst@framershape\@empty%    lwarp
    \let\lst@framebshape\@empty%    lwarp
    \let\lst@framelshape\@empty%    lwarp
    \lstframe@\lst@frameround ffff\relax%   lwarp
    \lst@multicols\@empty%  lwarp
    \begingroup%
```

Inside the listing, temporarily prevent underfull \hbox warnings.

```
            \hbadness=10000\relax%
```

```
    \ifx\lst@float\relax\else%
        \edef\@tempa{\noexpand\lst@beginfloat{lstlisting}[\lst@float]}%
        \expandafter\@tempa%
    \fi%
    \ifx\lst@multicols\@empty\else%
        \edef\lst@next{\noexpand\multicols{\lst@multicols}}%
        \expandafter\lst@next%
    \fi%
    \ifhmode\ifinner \lst@boxtrue \fi\fi%
    \lst@ifbox%
        \lsthk@BoxUnsafe%
        \hbox to\z@\bgroup%
             $\if t\lst@boxpos \vtop%
        \else \if b\lst@boxpos \vbox%
        \else \vcenter \fi\fi%
        \bgroup \par\noindent%
    \else%
        \lst@ifdisplaystyle%
            \lst@EveryDisplay%
            \par\penalty-50\relax%
            \vspace\lst@aboveskip%
        \fi%
    \fi%
    \normalbaselines%
    \abovecaptionskip\lst@abovecaption\relax%
    \belowcaptionskip\lst@belowcaption\relax%
    \lst@MakeCaption t%
```

Use the overall listing label instead of the line number label:

```
\LWR@traceinfo{lst@Init: defining current label !\@currentlabel!}%
    \let\LWR@listings@currentlabel\@currentlabel%            lwarp
\LWR@traceinfo{lst@Init: defining current label !\cref@currentlabel!}%
    \let\LWR@listings@cref@currentlabel\cref@currentlabel%   lwarp

\LWR@traceinfo{lst@Init: preinit and init}%
    \lsthk@PreInit \lsthk@Init%

    \let\@currentlabel\LWR@listings@currentlabel%            lwarp
    \let\cref@currentlabel\LWR@listings@cref@currentlabel%   lwarp

\LWR@traceinfo{lst@Init: M}%
    \lst@ifdisplaystyle
        \global\let\lst@ltxlabel\@empty
        \if@inlabel
            \lst@ifresetmargins
                \leavevmode
            \else
                \xdef\lst@ltxlabel{\the\everypar}%
                \lst@AddTo\lst@ltxlabel{%
                    \global\let\lst@ltxlabel\@empty
                    \everypar{\lsthk@EveryLine\lsthk@EveryPar}}%
            \fi
        \fi
        \everypar\expandafter{\lst@ltxlabel
                              \lsthk@EveryLine\lsthk@EveryPar}%
    \else
        \everypar{}
        \let\lst@NewLine\@empty
    \fi
\LWR@traceinfo{lst@Init: P}%
    \lsthk@InitVars \lsthk@InitVarsBOL
    \lst@Let{13}\lst@MProcessListing
    \let\lst@Backslash#1%
    \lst@EnterMode{\lst@Pmode}{\lst@SelectCharTable}%
    \lst@InitFinalize%
\LWR@traceinfo{lst@Init: S}%
```

Avoids extra horizontal space:

```
\def\lst@framelr{}%     lwarp

\LWR@traceinfo{lst@Init: finished origlst@Init}%
\lst@ifdisplaystyle%    lwarp
```

Creating a display.

Disable line numbers, produce the <pre>, then reenable line numbers.

```
    \LWR@traceinfo{lst@Init: About to create verbatim.}%  lwarp
    \let\lsthk@EveryPar\relax%                  lwarp

    \LWR@atbeginverbatim{programlisting}%       lwarp

    \let\lsthk@EveryPar\LWR@origlsthkEveryPar%  lwarp
\else%                                          lwarp
```

Inline, so open a :

```
    \ifbool{LWR@verbtags}{\LWR@htmltag{%        lwarp
      span class=\textquotedbl{}inlineprogramlisting\textquotedbl%   lwarp
    }}{}%                                       lwarp
\fi%                                            lwarp
\LWR@traceinfo{lst@Init: done}%
}
```

\lst@DeInit

Done at the end of a listing.

```
\renewcommand*{\lst@DeInit}{%
\LWR@traceinfo{lst@DeInit}%
\lst@ifdisplaystyle%
```

Creating a display.

Disable line numbers, produce the </pre>, then reenable line numbers:

```
    \let\lsthk@EveryPar\relax%
    \LWR@afterendverbatim%
    \let\lsthk@EveryPar\LWR@origlsthkEveryPar%
\else%
```

Inline, so create the closing :

```
    \ifbool{LWR@verbtags}{\noindent\LWR@htmltag{/span}}{}%
\fi%
```

Final listings deinit:

```
    \lst@XPrintToken \lst@EOLUpdate
    \global\advance\lst@newlines\m@ne
    \lst@ifshowlines
        \lst@DoNewLines
    \else
        \setbox\@tempboxa\vbox{\lst@DoNewLines}%
    \fi
    \lst@ifdisplaystyle \par\removelastskip \fi
    \lsthk@ExitVars\everypar{}\lsthk@DeInit\normalbaselines\normalcolor
    \lst@MakeCaption b%
    \lst@ifbox
        \egroup $\hss \egroup
        \vrule\@width\lst@maxwidth\@height\z@\@depth\z@
    \else
        \lst@ifdisplaystyle
            \par\penalty-50\vspace\lst@belowskip
        \fi
    \fi
    \ifx\lst@multicols\@empty\else
        \def\lst@next{\global\let\@checkend\@gobble
                      \endmulticols
                      \global\let\@checkend\lst@@checkend}
        \expandafter\lst@next
    \fi
    \ifx\lst@float\relax\else
        \expandafter\lst@endfloat
    \fi
    \endgroup
\LWR@traceinfo{lst@DeInit done}%
}
```

\lst@MakeCaption

{⟨*t/b*⟩}

This is called BOTH at the top and at the bottom of each listing.

Patched for lwarp.

```
\def\lst@MakeCaption#1{%
\LWR@traceinfo{lst@MakeCaption at #1}%
  \lst@ifdisplaystyle
\LWR@traceinfo{lst@MakeCaption: making a listings display caption}%
```

```
    \ifx #1t%
         \ifx\lst@@caption\@empty\expandafter\lst@HRefStepCounter \else
                                  \expandafter\refstepcounter
         \fi {lstlisting}%
% \LWR@traceinfo{About to assign label: !\lst@label!}%
%         \ifx\lst@label\@empty\else
% \label{\lst@label}\fi
% \LWR@traceinfo{Finished assigning the label.}%
        \let\lst@arg\lst@intname \lst@ReplaceIn\lst@arg\lst@filenamerpl
        \global\let\lst@name\lst@arg \global\let\lstname\lst@name
        \lst@ifnolol\else
            \ifx\lst@@caption\@empty
                \ifx\lst@caption\@empty
                    \ifx\lst@intname\@empty
                    \else
                        \def\lst@temp{ }%
                        \ifx\lst@intname\lst@temp \else
```

This code places a contents entry for a non-float. This would have to be modified for lwarp:

```
\LWR@traceinfo{lst@MakeCaption: addcontents lst@name: -\lst@name-}%
%                            \addcontentsline{lol}{lstlisting}{\lst@name}
                        \fi
                    \fi
                \fi
            \else
```

This would have to be modified for lwarp:

```
\LWR@traceinfo{lst@MakeCaption: addcontents lst@@caption: -\lst@@caption-}%
                 \addcontentsline{lol}{lstlisting}%
{\protect\numberline{\thelstlisting}%
{\protect\ignorespaces \LWR@isolate{\lst@@caption} \protect\relax}}%
            \fi
         \fi
     \fi
    \ifx\lst@caption\@empty\else
\LWR@traceinfo{lst@MakeCaption: lst@caption not empty-}%
        \lst@IfSubstring #1\lst@captionpos
            {\begingroup
\LWR@traceinfo{lst@MakeCaption: at the selected position}%
```

These space and box commands are not needed for HTML output:

```
%              \let\@@vskip\vskip
%              \def\vskip{\afterassignment\lst@vskip \@tempskipa}%
%              \def\lst@vskip{\nobreak\@@vskip\@tempskipa\nobreak}%
%              \par\@parboxrestore\normalsize\normalfont % \noindent (AS)
%              \ifx #1t\allowbreak \fi
             \ifx\lst@title\@empty
```

New lwarp code to create a caption:

```
                    \LWR@stoppars%      lwarp
              \lst@makecaption\fnum@lstlisting{\ignorespaces \lst@caption}
             \else
```

New lwarp code to create a title:

```
%                 \lst@maketitle\lst@title % (AS)
\LWR@traceinfo{lst@MakeCaption: Making title: \lst@title}%
\begin{BlockClass}{lstlistingtitle}%    lwarp
\lst@maketitle\lst@title%               lwarp
```

```
\end{BlockClass}%                       lwarp
            \fi%
\LWR@traceinfo{lst@MakeCaption: About to assign label: !\lst@label!}%
        \ifx\lst@label\@empty\else%
\leavevmode% gets rid of bad space factor error
\GetTitleStringExpand{\lst@caption}%
\edef\LWR@lntemp{\GetTitleStringResult}%
\edef\@currentlabelname{\detokenize\expandafter{\LWR@lntemp}}%
\label{\lst@label}\fi%
\LWR@traceinfo{lst@MakeCaption: Finished assigning the label.}%
```

Not needed for lwarp:

```
%             \ifx #1b\allowbreak \fi
             \endgroup}{}%
    \fi
\LWR@traceinfo{lst@MakeCaption: end of making a listings display caption}%
  \else
\LWR@traceinfo{lst@MakeCaption: INLINE}%
  \fi
\LWR@traceinfo{lst@MakeCaption: done at #1}%
}

\renewcommand{\lst@maketitle}[1]{%
    \LWR@isolate{#1}%
}%

```

line numbers Patched to keep left line numbers outside of the left margin, and place right line numbers in a field `\VerbatimHTMLWidth` wide.

```
\lst@Key{numbers}{none}{%
    \let\lst@PlaceNumber\@empty
    \lstKV@SwitchCases{#1}%
    {none:\\%
     left:\def\lst@PlaceNumber{%
```

For now, lwarp places left line numbers inline. Ideally the entire line would be moved to the right, but conflicts with list indenting occurs.

```
%         \LWR@origllap{
            \LWR@orignormalfont%
            \lst@numberstyle{\thelstnumber}\kern\lst@numbersep%
%         }
    }\\%
     right:\def\lst@PlaceNumber{\LWR@origrlap{\LWR@orignormalfont
                \kern 6in \kern\lst@numbersep
                \lst@numberstyle{\thelstnumber}}}%
    }{\PackageError{lwarp-listings}{Numbers #1 unknown}\@ehc}}
```

File 254 **lwarp-listliketab.sty**

§ 363 Package

listliketab

Pkg listliketab

listliketab is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{listliketab}[2005/01/09]
```

```
\newcommand*{\storestyleof}[1]{}
\newcommand*{\storeliststyle}{}
\newenvironment{listliketab}{}{}
```

File 255 **lwarp-lltjext.sty**

§ 364 Package

lltjext

(*Emulates or patches code by* The LuaTeX-ja project team.)

Pkg lltjext

lltjext is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{lltjext}[2018/10/07]

\protected\def\yoko{%
  \directlua{luatexja.direction.set_list_direction(4, 'yoko')}%
}
\protected\def\tate{\yoko}
\protected\def\dtou{\yoko}
\protected\def\utod{\yoko}

\define@key[ltj]{japaram}{direction}{}

\yoko

\DeclareExpandableDocumentCommand{\rensuji}{s o m}{#3}

\DeclareDocumentCommand{\layoutfloat}{d() o m}{}

\DeclareDocumentCommand{\DeclareLayoutCaption}{m d<> d() o}{}

\LetLtxMacro\pcaption\caption

\DeclareDocumentCommand{\layoutcaption}{d<> d() o}{}

\let\captiondir\relax
\RenewDocumentEnvironment{LWR@HTML@minipage}{d<> O{t} O{} O{t} m}
    {\LWR@HTML@sub@minipage{#2}{#3}{#4}{#5}}
    {\endLWR@HTML@sub@minipage}

\RenewDocumentCommand{\LWR@HTML@parbox}{d<> O{t} O{} O{t} m +m}
{
\LWR@traceinfo{parbox of width #4}%
\begin{minipage}[#2][#3][#4]{#5}%
#6
\end{minipage}%
}

\RenewDocumentCommand{\pbox}{d<> O{0pt} O{c} m}{%
\global\booltrue{LWR@minipagefullwidth}%
\parbox{#2}{#4}%
}
```

File 256 **lwarp-lltjp-siunitx.sty**

§ 365 Package

lltjp-siunitx

(*Emulates or patches code by* The LuaTeX-ja project team.)

Pkg lltjp-siunitx

lltjp-siunitx is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{lltjp-siunitx}% 2021-10-31, no date assigned in file
```

This is the siunitx v3 file, as patched by lltjp-siunitx.

```
\ExplSyntaxOn

\cs_set_protected:Npn \siunitx_print_text:n #1
 {
   \text
     {
       \ltj@allalchar % <--- LuaTeX-ja
       \bool_if:NT \l__siunitx_print_text_family_bool
         { \fontfamily { \familydefault } }
       \bool_if:NT \l__siunitx_print_text_series_bool
         { \fontseries { \seriesdefault } }
       \bool_if:NT \l__siunitx_print_text_shape_bool
         { \fontshape { \shapedefault } }
       \bool_lazy_any:nT
         {
           { \l__siunitx_print_text_family_bool }
           { \l__siunitx_print_text_series_bool }
           { \l__siunitx_print_text_shape_bool }
         }
         { \selectfont }
       \tl_use:N \l__siunitx_print_text_font_tl
    \exp_args:NnV \tl_if_head_eq_meaning:nNTF {#1} \l_siunitx_unit_fraction_tl
         {
           \__siunitx_print_text_fraction:Nnn #1
         }
         {
           \__siunitx_print_text_replace:n {#1}
         }
     }
 }

\ExplSyntaxOff
```

File 257 **lwarp-lltjp-tascmac.sty**

§ 366 Package

lltjp-tascmac

Pkg lltjp-tascmac

lltjp-tascmac is a patch for tascmac, and is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{lltjp-tascmac}[2020/12/24]
```

File 258 **lwarp-longtable.sty**

§ 367 Package

longtable

(*Emulates or patches code by* David Carlisle.)

Pkg longtable

longtable is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{longtable}[2014/10/28]
```

Use one of either \endhead or \endfirsthead for both print and HTML, and use a \warpprintonly macro to disable the other head phrase, and also the \endfoot and \endfirstfoot phrases. (See section 8.10.4 if using threeparttablex.)

```
\begin{longtable}{ [column specifiers] }
[ . . . ] \endfirsthead   % or \endhead, for print and HTML
\warpprintonly{          % not used in HTML
  [ . . . ] \endhead     % or \endfirsthead
  [ . . . ] \endfoot
  [ <lastfoot macros> ] \endlastfoot
}
. . .  table contents . . .
\warpHTMLonly{
  [ <lastfoot macros> ]   % HTML last footer, without \endfoot
                                          % or \endlastfoot.
}
\end{longtable}
```

⚠ Misplaced \noalign

Use the \warpprintonly macro instead of the warpprint environment. Doing so helps avoid "Misplaced \noalign." when using \begin{warpprint}.

⚠ \kill

\kill is ignored, place a \kill line inside

```
\begin{warpprint} . . .  \end{warpprint}
```

or place it inside \warpprintonly.

⚠ latexmage

longtable is not supported inside a latexmage.

See:
http://tex.stackexchange.com/questions/43006/why-is-input-not-expandable

Used to detect more than one of \endhead and \endfirsthead in use for HTML at the same time.

```
\newbool{LWR@longtable@havehead}
\boolfalse{LWR@longtable@havehead}
```

Env longtable

* [⟨*horizalignment*⟩] {⟨*colspec*⟩} Emulates the longtable environment.

Per the caption package, the starred version steps the counter per caption. The unstarred version steps the counter once at the beginning, but not at each caption.

Options [c], [l], and [r] are ignored.

```
\newenvironment{longtable*}[2][]{%
    \LWR@floatbegin{table}%
    \ifdef{\setcaptiontype}{% caption package:
        \setcaptiontype{\LTcaptype}%
        \caption@setoptions{longtable}%
        \caption@setoptions{@longtable}%
        \caption@LT@setup%
    }{% w/o caption package:
        \renewcommand*{\@captype}{\LTcaptype}%
    }%
    \booltrue{LWR@starredlongtable}%
    \boolfalse{LWR@longtable@havehead}%
    \let\captionlistentry\LWR@LTcaptionlistentry%
    \tabular{#2}%
}
{\endtabular\LWR@floatend}

\newenvironment{longtable}[2][]{%
    \LWR@floatbegin{table}%
    \ifdef{\setcaptiontype}{% caption package:
        \setcaptiontype{\LTcaptype}%
        \caption@setoptions{longtable}%
        \caption@setoptions{@longtable}%
        \caption@LT@setup%
    }{% w/o caption package:
        \renewcommand*{\@captype}{\LTcaptype}%
    }%
    \refstepcounter{\LTcaptype}%
    \boolfalse{LWR@longtable@havehead}%
    \let\captionlistentry\LWR@LTcaptionlistentry%
    \tabular{#2}%
}
{\endtabular\LWR@floatend}
```

Provided for compatibility, but ignored:

```
\newcounter{LTchunksize}
```

Error for heads which should have been in `\warpprintonly`:

```
\newcommand*{\LWR@longtable@headerror}{%
    \PackageError{lwarp-longtable}
    {For longtable:\MessageBreak
    1: Keep either one of an \protect\endhead\space or\MessageBreak
        \space\protect\endfirsthead\space phrase as-is,\MessageBreak
        \space to be used by both print and HTML.\MessageBreak
    2: Place any other \protect\end... phrases inside a\MessageBreak
        \space\protect\warpprintonly\space macro,
            to be ignored by HTML.\MessageBreak
    3: At the end of the table,\MessageBreak
        \space add a final footer for HTML\MessageBreak
        \space inside a \protect\warpHTMLonly\space macro.
            This can be\MessageBreak
        \space a copy of an \protect\endfoot\space or
            \protect\endfirstfoot\MessageBreak
       \space phrase, but without the actual \protect\endfoot\MessageBreak
        \space or \protect\endfirstfoot\space macros.\MessageBreak
```

```
        \space If using threeparttablex, add\MessageBreak
        \space \protect\insertTableNotes\space here,
            optionally with\MessageBreak
        \space \protect\UseMinipageWidths\space in front.\MessageBreak
    See the Lwarp documentation regarding\MessageBreak
    longtables and threeparttablex}
    {See the Lwarp documentation regading longtables and threeparttablex.}
}
```

Error if more than one of `\endhead` or `\endfirsthead` is outside of `warpprintonly`.

```
\newcommand*{\LWR@longtable@maybeheaderror}{%
\ifbool{LWR@longtable@havehead}%
    {\LWR@longtable@headerror}%
    {%
        \booltrue{LWR@longtable@havehead}
        \LWR@tabularendofline% throws away options //[dim] and //*
    }%
}
```

Error if more than one of these is outside of `warpprint`.

```
\def\endhead{\LWR@longtable@maybeheaderror}
\def\endfirsthead{\LWR@longtable@maybeheaderror}
```

Error if ANY of these is outside of `warpprint`.

```
\def\endfoot{\LWR@longtable@headerror}
\def\endlastfoot{\LWR@longtable@headerror}
```

```
\let\tabularnewline\\
\providecommand*{\LWR@HTML@tabularnewline}{\LWR@tabularendofline}
\LWR@formatted{tabularnewline}
```

```
\newcommand{\setlongtables}{}% Obsolete command, does nothing.
\newlength{\LTleft}
\newlength{\LTright}
\newlength{\LTpre}
\newlength{\LTpost}
\newlength{\LTcapwidth}
```

```
\LetLtxMacro\LWR@origkill\kill
\renewcommand*{\kill}{\LWR@tabularendofline}
\appto\LWR@restoreorigformatting{%
\LetLtxMacro\kill\LWR@origkill%
}
```

File 259 **lwarp-lpic.sty**

§ 368 Package

lpic

(*Emulates or patches code by* R. Matveyev.)

Pkg lpic

lpic is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{lpic}[2010/12/23]

\BeforeBeginEnvironment{lpic}{%
    \begin{lateximage}[-lpic-~\PackageDiagramAltText]%
}
\AfterEndEnvironment{lpic}{\end{lateximage}}
```

File 260 **lwarp-lscape.sty**

§ 369 Package

lscape

(*Emulates or patches code by* D. P. Carlisle.)

Pkg lscape lscape is ignored.

for HTML output: Discard all options for lwarp-lscape.

```
\LWR@ProvidesPackageDrop{lscape}[2000/10/22]

\newenvironment*{landscape}{}{}
```

File 261 **lwarp-ltablex.sty**

§ 370 Package

ltablex

(*Emulates or patches code by* Anil K. Goel.)

Pkg ltablex ltablex is emulated by lwarp.

for HTML output: Relies on tabularx.

```
\RequirePackage{longtable}
\RequirePackage{tabularx}

\LWR@ProvidesPackageDrop{ltablex}[2014/08/13]

\DeclareDocumentEnvironment{tabularx}{m o m}
{\longtable{#3}}
{\endlongtable}

\DeclareDocumentEnvironment{tabularx*}{m o m}
{\longtable{#3}}
{\endlongtable}

\newcommand*{\keepXColumns}{}
\newcommand*{\convertXColumns}{}
```

File 262 **lwarp-ltcaption.sty**

§ 371 Package

ltcaption

(*Emulates or patches code by* Axel Sommerfeldt.)

Pkg ltcaption

ltcaption is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{ltcaption}[2018/08/26]
```

`\LTcaptype` is already defined by lwarp.

`longtable*` is already defined by lwarp-longtable.

```
\newlength{\LTcapskip}
\newlength{\LTcapleft}
\newlength{\LTcapright}
\newcommand*{\LTcapmarginsfalse}{}
```

File 263 **lwarp-ltxgrid.sty**

§ 372 Package ltxgrid

Pkg ltxgrid

ltxgrid is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{ltxgrid}[2010/07/25]
```

```
\newcommand*{\onecolumngrid}{}
\newcommand*{\twocolumngrid}{}
\newcommand*{\removestuff}{}
\newcommand*{\addstuff}[2]{}
\newcommand*{\replacestuff}[2]{}
```

File 264 **lwarp-ltxtable.sty**

§ 373 Package ltxtable

Pkg ltxtable

ltxtable is emulated.

⚠ table numbering

The print version does not seem to honor `longtable*` from the caption package, while lwarp does.

for HTML output:

```
\RequirePackage{tabularx,longtable}
\LWR@ProvidesPackageDrop{ltxtable}[1995/12/11]
```

`\LTXtable` {⟨*width*⟩} {⟨*file*⟩}

```
\newcommand*{\LTXtable}[2]{%
    \input{#2}%
}
```

File 265 **lwarp-lua-check-hyphen.sty**

§ 374 Package lua-check-hyphen

Pkg lua-check-hyphen

lua-check-hyphen is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{lua-check-hyphen}[2018/04/19]
```

```
\newcommand*{\LuaCheckHyphen}[1]{}
```

File 266 **lwarp-lua-visual-debug.sty**

§ 375 Package

lua-visual-debug

Pkg lua-visual-debug

lua-visual-debug is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{lua-visual-debug}[2016/05/30]
```

File 267 **lwarp-luacolor.sty**

§ 376 Package

luacolor

Pkg luacolor

luacolor is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{luacolor}[2016/05/16]
```

```
\newcommand{\luacolorProcessBox}[1]{}
```

File 268 **lwarp-luamplib.sty**

§ 377 Package

luamplib

(*Emulates or patches code by* Hans Hagen, Taco Hoekwater, Elie Roux, Philipp Gesang, Kim Dohyun.)

Pkg luamplib

luamplib is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{luamplib}[2020/02/24]
```

```
\BeforeBeginEnvironment{mplibcode}{%
    \begin{lateximage}[-mplibcode-~\PackageDiagramAltText]%
}
\AfterEndEnvironment{mplibcode}{\end{lateximage}}
```

File 269 **lwarp-luatexko.sty**

§ 378 Package

luatexko

(*Emulates or patches code by* Dohyun Kim, Soojin Nam.)

Pkg luatexko

luatexko is patched for use by lwarp.

Modern HTML is used for \dotemph, \ruby, and offset and thickness control for \uline, etc.

for HTML output:

```
\LWR@ProvidesPackagePass{luatexko}[2021/07/10]
```

```
\protected\def\typesetvertical{}
\protected\def\typesethorizontal{}

\def\verticaltypesetting{\BlockClass{verticalrl}}
\def\beginverticaltypesetting{\BlockClass{verticalrl}}
\def\endverticaltypesetting{\endBlockClass}

\protected\def\vertical#1{\BlockClass{verticalrl}}
\protected\def\endvertical{\endBlockClass}
\protected\def\horizontal#1{\BlockClass{horizontaltb}}
\protected\def\endhorizontal{\endBlockClass}
\DeclareDocumentCommand{\vertlatin}{m}{#1}

\newcommand{\LWR@HTML@dotemph}[1]{%
%     \uline{#1}%
    \InlineClass[text-emphasis-style: dot]{dotemph}{#1}%
}
\LWR@formatted{dotemph}


\newcommand{\LWR@HTML@ruby}[2]{%
    \LWR@htmltagc{ruby}%
    #1%
    \LWR@htmltagc{rp}(\LWR@htmltagc{/rp}%
    \LWR@htmltagc{rt}#2\LWR@htmltagc{/rt}%
    \LWR@htmltagc{rp})\LWR@htmltagc{/rp}%
    \LWR@htmltagc{/ruby}%
}
\LWR@formatted{ruby}
```

The following is modified from lwarp-ulem:

```
\NewDocumentCommand{\LWR@HTML@uline}{+m}{%
    \InlineClass%
        (text-decoration:underline; text-decoration-skip: auto)%
        [%
            text-underline-offset: \ulinedown ;
            text-decoration-thickness: \ulinewidth%
        ]%
        {uline}{\LWR@isolate{#1}}%
}
\LWR@formatted{uline}

\NewDocumentCommand{\LWR@HTML@uuline}{+m}{%
    \InlineClass%
        (%
            text-decoration:underline; text-decoration-skip: auto;%
            text-decoration-style:double%
        )%
        [%
            text-underline-offset: \ulinedown ;
            text-decoration-thickness: \ulinewidth%
        ]%
        {uuline}{\LWR@isolate{#1}}%
}
\LWR@formatted{uuline}

\NewDocumentCommand{\LWR@HTML@uwave}{+m}{%
    \InlineClass%
        (%
```

```
            text-decoration:underline; text-decoration-skip: auto;%
            text-decoration-style:wavy%
        )%
        [%
            text-underline-offset: \ulinedown ;
            text-decoration-thickness: \ulinewidth%
        ]%
        {uwave}{\LWR@isolate{#1}}%
}
\LWR@formatted{uwave}

\NewDocumentCommand{\LWR@HTML@sout}{+m}{%
    \InlineClass%
        (text-decoration:line-through)%
        [text-decoration-thickness: \ulinewidth]%
        {sout}{\LWR@isolate{#1}}%
}
\LWR@formatted{sout}

\NewDocumentCommand{\LWR@HTML@xout}{+m}{%
    \InlineClass%
        (text-decoration:line-through)%
        [text-decoration-thickness: \ulinewidth]%
        {xout}{\LWR@isolate{#1}}%
}
\LWR@formatted{xout}

\NewDocumentCommand{\LWR@HTML@dashuline}{+m}{%
    \InlineClass%
        (%
            text-decoration:underline;%
            text-decoration-skip: auto;%
            text-decoration-style:dashed%
        )%
        [%
            text-underline-offset: \ulinedown ;
            text-decoration-thickness: \ulinewidth%
        ]%
        {dashuline}{\LWR@isolate{#1}}%
}
\LWR@formatted{dashuline}

\NewDocumentCommand{\LWR@HTML@dotuline}{+m}{%
    \InlineClass%
        (%
            text-decoration:underline;%
            text-decoration-skip: auto;%
            text-decoration-style: dotted%
        )%
        [%
            text-underline-offset: \ulinedown ;
            text-decoration-thickness: \ulinewidth%
        ]%
        {dotuline}{\LWR@isolate{#1}}%
}
\LWR@formatted{dotuline}
```

File 270 **lwarp-luatodonotes.sty**

§ 379 Package

luatodonotes

(*Emulates or patches code by* Fabian Lipp.)

Pkg luatodonotes

luatodonotes is emulated.

The documentation for todonotes and luatodonotes have an example with a todo inside a caption. If this example does not work it will be necessary to move the todo outside of the caption.

for HTML output:

```
\LWR@ProvidesPackagePass{luatodonotes}[2017/09/30]
```

Nullify options:

```
\@todonotes@additionalMarginEnabledfalse

\if@todonotes@disabled
\else

\newcommand{\ext@todo}{tdo}

\renewcommand{\l@todo}[2]{\hypertocfloat{1}{todo}{ldo}{#1}{#2}}

\let\LWRTODONOTES@orig@todototoc\todototoc

\renewcommand*{\todototoc}{%
\LWR@phantomsection%
\LWRTODONOTES@orig@todototoc%
}


\renewcommand{\@todonotes@drawMarginNoteWithLine}{%
\fcolorbox
    {\@todonotes@currentbordercolor}
    {\@todonotes@currentbackgroundcolor}
    {\arabic{@todonotes@numberoftodonotes}}
\marginpar{\@todonotes@drawMarginNote}
}

\renewcommand{\@todonotes@drawInlineNote}{%
\fcolorboxBlock%
    {\@todonotes@currentbordercolor}%
    {\@todonotes@currentbackgroundcolor}%
    {%
        \if@todonotes@authorgiven%
        {\@todonotes@author:\,}%
        \fi%
        \@todonotes@text%
    }%
}

\newcommand{\@todonotes@drawMarginNote}{%
```

```
    \if@todonotes@authorgiven%
        \@todonotes@author\par%
    \fi%
    \arabic{@todonotes@numberoftodonotes}: %
    \fcolorbox%
    {\@todonotes@currentbordercolor}%
    {\@todonotes@currentbackgroundcolor}%
    {%
        \@todonotes@sizecommand%
        \@todonotes@text %
    }%
}%

\renewcommand{\missingfigure}[2][]{%
\setkeys{todonotes}{#1}%
\addcontentsline{tdo}{todo}{\@todonotes@MissingFigureText: #2}%
\fcolorboxBlock%
    {\@todonotes@currentbordercolor}%
    {\@todonotes@currentfigcolor}%
    {%
        \setlength{\fboxrule}{4pt}%
        \fcolorbox{red}{white}{Missing figure} \quad #2%
    }
}

\LetLtxMacro\LWRTODONOTES@orig@todocommon\@todocommon

\RenewDocumentCommand{\@todocommon}{m m}{%
\begingroup%
\renewcommand*{\phantomsection}{}%
\LWRTODONOTES@orig@todocommon{#1}{#2}%
\endgroup%
}

\renewcommand{\@todoarea}[3][]{%
    \@todonotes@areaselectedtrue%
    \@todocommon{#1}{#2}%
    \todonotes@textmark@highlight{#3}%
    \zref@label{@todonotes@\arabic{@todonotes@numberoftodonotes}@end}%
}%


\DeclareDocumentCommand{\todonotes@textmark@highlight}{m}{%
\InlineClass[background:\LWR@origpound{}B3FFB3]{highlight}{#1}%
}

\fi% \if@todonotes@disabled
```

File 271 **lwarp-luavlna.sty**

§ 380 Package luavlna

(*Emulates or patches code by* Michal Hoftich, Miro Hrončok.)

Pkg luavlna

luavlna is patched for use by lwarp.

The package is disabled for HTML output, due to incompatibilities with lwarp's handling of math SVG images.

for HTML output:

```
\LWR@ProvidesPackagePass{luavlna}[2019/10/30]

\preventsingleoff
\LetLtxMacro\preventsingleon\preventsingleoff
```

File 272 **lwarp-lyluatex.sty**

§ 381 Package

lyluatex

(*Emulates or patches code by* Fr. Jacques Peron, Urs Liska, Br. Samuel Springuel.)

Pkg lyluatex

lyluatex is patched for use by lwarp.

For the first compile, to set *lwarpmk*'s configuration, use:

```
lualatex --shell-escape <filename>
```

⚠ images

After compiling the document with **lwarpmk html**, use **lwarpmk limages** to convert the Lilypond images for HTML.

CSS

The option insert=systems results in an image per system. Each music image "system" is placed inside a of class lyluatex, which defaults to display: inline-block.

⚠ insert=fullpage CSS

The option insert=fullpage results in a single image per page of printed output. Each music "fullpage" image is placed inside a of class lyluatex. To match the number of measures per line with the printed version, use the geometry package to select the page geometry, or use the lyluatex options for page and staff sizes.

⚠ options

To use \linewidth or \textwidth inside the package options for lyluatex, use the kvoptions-patch package first:

```
\usepackage{kvoptions-patch}
\usepackage[...,line-width-0.8\linewidth,...]{lyluatex}
```

⚠ raw-pdf

If using raw-pdf, the resulting PDF images must be converted to SVG:

Enter ⇒ **lwarpmk pdftosvg tmp-ly/*.pdf**

for HTML output:

```
\LWR@origRequirePackage{luacode}

\LWR@ProvidesPackagePass{lyluatex}[2019/05/27]
```

User-redefinable ALT tag:

```
\newcommand*{\LyluatexImageAltText}{-lilypond-~\PackageDiagramAltText}
```

\ly@compilescore {⟨*Lilypond object*⟩}

```
\LetLtxMacro\LWR@orig@ly@compilescore\ly@compilescore

\renewcommand*{\ly@compilescore}[1]{%
```

A local group holds a number of changes:

```
\begingroup%
```

The user's original geometry and font size are restored to match the print version. This allows for correct spacing in the musical score.

```
\LWR@maybe@orignewpage%
\LWR@origloadgeometry{LWR@usergeometry}%
\LWR@print@normalsize%
```

A local group holds a redefined `\includegraphics` which is used by *lyluatex.lua* to insert the *Lilypond* score if `insert=systems` is used. This is now placed inside a `lateximage`, which itself is placed inside a of class `lyluatex`.

`\LWR@addbaselinemarker` preserves the left margins.

```
\renewcommand{\includegraphics}[2][]{%
    \InlineClass{lyluatex}{%
        \begin{lateximage}[\LyluatexImageAltText]%
        \LWR@addbaselinemarker%
        \LWR@origincludegraphics{##2}%
        \end{lateximage}%
    }%
}%
```

From the original:

```
\ly@setunits%
\directlua{
    ly_opts:set_option('currfiledir', [[\currfiledir]])
    ly_opts:set_option('twoside', '\ly@istwosided')
    #1
}%
\ly@resetunits%
\ly@currentfonts%
```

The fullpage version is set inside an HTML :

```
\directlua{
    if (ly.score.insert == 'fullpage') then
        tex.print{[[\string\begin{BlockClass}{lyluatex}]]}
    end
}%
```

Generate the score:

```
\directlua{ly.score:process()}%
```

Close the :

```
\directlua{
    if (ly.score.insert == 'fullpage') then
        tex.print{[[\string\end{BlockClass}]]}
    end
}%
```

Move to a new page and renew the regular page geometry:

```
\LWR@maybe@orignewpage%
\LWR@origrestoregeometry%
```

End of the local group.

```
\endgroup%
}
```

In HTML the following generates an error, so is removed:

```
\xpatchcmd{\endly@bufferenv}
    {\hspace{0pt}\\}
    {}
    {}
    {\LWR@patcherror{lyluatex}{endly@bufferenv}}
```

File 273 **lwarp-magaz.sty**

§ 382 Package magaz

Pkg magaz

magaz is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{magaz}[2011/11/24]

\newcommand\FirstLine[1]{%
    \begingroup%
    \FirstLineFont{%
        \LWR@textcurrentcolor{%
            \LWR@textcurrentfont{%
                #1%
            }%
        }%
    }%
    \endgroup%
}

\providecommand\FirstLineFont{\scshape}
```

File 274 **lwarp-makeidx.sty**

§ 383 Package makeidx

(*Emulates or patches code by* LaTeX Project Team.)

Pkg makeidx

makeidx is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{makeidx}[2014/09/29]
```

\@wrindex is redefined \AtBeginDocument by the lwarp core.

\printindex

```
\preto\printindex{%
    \LWR@maybe@orignewpage%
    \LWR@startpars%
}
```

File 275 **lwarp-manyfoot.sty**

§ 384 Package

manyfoot

Pkg manyfoot

manyfoot is emulated.

bigfoot, manyfoot

⚠ verbatim

Verbatim footnotes are not yet supported.

If using the bigfoot package, and possibly also manyfoot, problems may occur with counter allocation because lwarp uses many counters, and there is a difference in how counters numbered 256 and up are handled in PDF LaTeX. With bigfoot this has been known to show up as an error related to one footnote insert being forbidden inside another. Another problem showed up as a input stack error, and which of these problems occurred depended on how many counters were allocated.

As a possible solution, try creating several new counters before defining bigfoot or manyfoot footnotes, hoping to shift the problematic counter above the 256 threshold. It may instead be necessary to use XeLaTeX or LuaLaTeX instead of PDF LaTeX.

lwarp's emulation of bigfoot uses manyfoot, so some of the bigfoot enhancements are included here.

The bigfoot "default" footnote is ignored, using the lwarp version instead.

for HTML output:

```
\LWR@ProvidesPackageDrop{manyfoot}[2005/09/11]

\RequirePackage{nccfoots}

\newcommand{\extrafootnoterule}{}

\let\defaultfootnoterule\footnoterule

\newcommand*{\SelectFootnoteRule}[2][0]{}

\newcommand{\footnoterulepriority}{1}

\newcommand{\SetFootnoteHook}[1]{}
\@onlypreamble\SetFootnoteHook

\newcommand{\SplitNote}{}

\newcommand*\ExtraParaSkip[1]{}

\newcommand*{\newfootnote}[2][plain]{%
    \ifstrequal{#2}{default}{}{% not "default"
        \expandafter\newbox\csname LWR@footnote#2box\endcsname%
        \appto{\LWR@printpendingfootnotes}{%
            \LWR@@printpendingfootnotes{footnote#2}%
        }
        \long\csdef{Footnotetext#2}##1##2{%
            \NCC@makefnmark{##1}%
            \LWR@@footnotetext{##2}{LWR@footnote#2box}%
        }%
```

```
        \long\csdef{Footnotetext#2+}##1##2{%
            \NCC@makefnmark{##1}%
            \LWR@@footnotetext{##2}{LWR@footnote#2box}%
        }%
    }% not "default"
}
\@onlypreamble\newfootnote

\newcommand*{\DeclareNewFootnote}[2][plain]{%
  \@ifnextchar[%
        {\LWR@manyfoot@declare{#1}{#2}}%
        {\LWR@manyfoot@declare{#1}{#2}[arabic]}%
}

\def\LWR@manyfoot@declare#1#2[#3]{%
\ifstrequal{#2}{default}{}{% not "default"
  \newfootnote[#1]{#2}%
  \newcounter{footnote#2}%
    \newcounter{footnote#2Reset}%
    \setcounter{footnote#2Reset}{0}%
    \csdef{thefootnote#2}{%
      \expandafter\noexpand\csname @#3\endcsname%
      \expandafter\noexpand\csname c@footnote#2\endcsname%
    }%
```

For bigfoot, the footnote commands may be appended with one or two plusses or one or two minuses, which are ignored in HTML.

```
   \expandafter\NewDocumentCommand\csname footnote#2\endcsname{t{+}t{+}t{-}t{-}}{%
        \stepcounter{footnote#2}%
        \protected@xdef\@thefnmark{\csname thefootnote#2\endcsname}%
        \@footnotemark%
        \csuse{Footnotetext#2}{\@thefnmark}% absorbs the footnote contents
    }%
    \csdef{footnotemark#2}{%
        \stepcounter{footnote#2}%
        \protected@xdef\@thefnmark{\csname thefootnote#2\endcsname}%
        \@footnotemark%
    }%
   \expandafter\NewDocumentCommand\csname footnotetext#2\endcsname{t{+}t{+}t{-}t{-}}{%
        \protected@xdef\@thefnmark{\csname thefootnote#2\endcsname}%
        \csuse{Footnotetext#2}{\@thefnmark}% absorbs the footnote contents
    }%
    \csdef{Footnotemark#2}{%
      \Footnotemark%
    }%
    \csdef{Footnote#2}##1{%
      \Footnotemark{##1}%
      \csuse{Footnotetext#2}{##1}%
    }%
}% not "default"
}
\@onlypreamble\DeclareNewFootnote
```

File 276 **lwarp-marginal.sty**

§ 385 Package marginal

Pkg marginal

marginal is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{marginal}

\newcommand*{\showlostmarginals}{}
\newcommand*{\enlargefreelist}{}
\newcommand*{\onesidemarginals}{}
```

File 277 **lwarp-marginfit.sty**

§ 386 Package marginfit

Pkg marginfit

marginfit is ignored.

for HTML output:

Discard all options for lwarp-marginfit:

```
\LWR@ProvidesPackageDrop{marginfit}[2018/06/08]
```

File 278 **lwarp-marginfix.sty**

§ 387 Package marginfix

(*Emulates or patches code by* Stephen Hicks.)

Pkg marginfix

marginfix is ignored.

for HTML output:

Discard all options for lwarp-marginfix:

```
\LWR@ProvidesPackageDrop{marginfix}[2013/09/08]

\newcommand*{\marginskip}[1]{}
\newcommand*{\clearmargin}{}
\newcommand*{\softclearmargin}{}
\newcommand*{\extendmargin}[1]{}
\newcommand*{\mparshift}[1]{}
\newdimen\marginheightadjustment
\newdimen\marginposadjustment
\newcommand*{\blockmargin}[1][]{}
\newcommand*{\unblockmargin}[1][]{}
\newcommand*{\marginphantom}[2][]{}
```

File 279 **lwarp-marginnote.sty**

§ 388 Package marginnote

(*Emulates or patches code by* Markus Kohm.)

Pkg marginnote

marginnote is emulated.

for HTML output:

Discard all options for lwarp-marginnote:

```
\LWR@ProvidesPackageDrop{marginnote}[2018/08/09]

\NewDocumentCommand{\marginnote}{+o +m o}{\marginpar{#2}}

\newcommand*{\marginnoteleftadjust}{}
\newcommand*{\marginnoterightadjust}{}
\newcommand*{\marginnotetextwidth}{}
\let\marginnotetextwidth\textwidth
\newcommand*{\marginnotevadjust}{}
\newcommand*{\marginfont}{}
\newcommand*{\raggedleftmarginnote}{}
\newcommand*{\raggedrightmarginnote}{}

\appto\LWR@restoreorigformatting{%
    \RenewDocumentCommand{\marginnote}{+o +m o}{}
}
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\LWRmarginnote}[1][]{}}
\CustomizeMathJax{\newcommand{\marginnote}[2][]{\qquad{\small\textrm{#2}}\LWRmarginnote}}
\end{warpMathJax}
```

File 280 **lwarp-marvosym.sty**

§ 389 Package marvosym

(*Emulates or patches code by* Thomas Henlich, Mojca Miklavec.)

Pkg marvosym

marvosym is patched for use by lwarp.

Hashed inline images are used, as there may not be Unicode support for all icons.

for HTML output:

```
\LWR@ProvidesPackagePass{marvosym}[2011/07/20]

\renewcommand{\mvchr}[1]{%
    \begin{lateximage}*[symbol #1][marvosym #1]%
    \mvs\char#1%
    \end{lateximage}%
}
```

```
7
8 \renewcommand{\textmvs}[1]{%
9     \begin{lateximage}%
10    \mvs #1%
11    \end{lateximage}%
12 }
```

File 281 **lwarp-mathalpha.sty**

§ 390 Package mathalpha

(*Emulates or patches code by* Michael Sharpe.)

Pkg mathalpha

mathalpha is used as-is for SVG math, and is emulated for MathJax.

⚠ limitations

The MathJax emulation ignores all package options, and some bold fonts may not be not supported by MathJax.

for HTML output:

```
1 \LWR@ProvidesPackagePass{mathalpha}[2021/11/18]
2
3 \begin{warpMathJax}
4 \CustomizeMathJax{\newcommand{\mathbfbb}[1]{\boldsymbol{\mathbb{#1}}}}% not bold
5 \CustomizeMathJax{\newcommand{\mathbfcal}[1]{\boldsymbol{\mathcal{#1}}}}
6 \CustomizeMathJax{\newcommand{\mathbffrak}[1]{\boldsymbol{\mathfrak{#1}}}}
7 \CustomizeMathJax{\newcommand{\mathbfscr}[1]{\boldsymbol{\mathscr{#1}}}}% not bold
8
9 \IfPackageLoadedWithOptionsTF{mathalpha}{oldbold}
10 {
11 \CustomizeMathJax{\newcommand{\mathbbb}[1]{\boldsymbol{\mathbb{#1}}}}% not bold
12 \CustomizeMathJax{\newcommand{\mathbcal}[1]{\boldsymbol{\mathcal{#1}}}}
13 \CustomizeMathJax{\newcommand{\mathbfrak}[1]{\boldsymbol{\mathfrak{#1}}}}
14 \CustomizeMathJax{\newcommand{\mathbscr}[1]{\boldsymbol{\mathscr{#1}}}}% not bold
15 }{}
16 \end{warpMathJax}
```

File 282 **lwarp-mathastext.sty**

§ 391 Package mathastext

(*Emulates or patches code by* Jean-François Burnol.)

Pkg mathastext

mathastext is used as-is for SVG math, and emulated for MathJax.

for HTML output:

```
1 \LWR@ProvidesPackagePass{mathastext}[2019/11/16]

2 \LWR@origRequirePackage{lwarp-common-mathjax-letters}
3
4 \begin{warpMathJax}
5 \ifmst@itgreek
6 %     \LWR@mathjax@addgreek@l@it{}{}
7 \else
8     \ifmst@upgreek
9         \LWR@mathjax@addgreek@l@up{}{}
10    \else
```

```
        \ifmst@frenchmath
            \LWR@mathjax@addgreek@l@up{}{}
        \else
            \ifmst@italic
%               \LWR@mathjax@addgreek@l@it{}{}
            \else
                \LWR@mathjax@addgreek@l@up{}{}
            \fi
        \fi
    \fi
\fi

\ifcase\mst@greek@select
    \or{\LWR@mathjax@addgreek@u@it*{}{}}
%     \or{\LWR@mathjax@addgreek@u@up*{}{}}
\fi

\CustomizeMathJax{\newcommand{\mathnormalbold}[1]{\boldsymbol{#1}}}
\CustomizeMathJax{\newcommand{\MathEulerBold}[1]{\boldsymbol{#1}}}
\CustomizeMathJax{\newcommand{\MathEuler}[1]{{#1}}}
\CustomizeMathJax{\newcommand{\MathPSymbol}[1]{{#1}}}
\CustomizeMathJax{\let\fouriervec\vec}
\CustomizeMathJax{\let\pmvec\vec}
\CustomizeMathJax{\let\inodot\imath}
\CustomizeMathJax{\let\jnodot\jmath}
\CustomizeMathJax{\let\shortiff\iff}
\CustomizeMathJax{\let\longto\longrightarrow}
\CustomizeMathJax{\newcommand{\inftypsy}{\mathord{\unicode{x221E}}}}
\CustomizeMathJax{\newcommand{\proptopsy}{\mathrel{\unicode{x221D}}}}
\CustomizeMathJax{\let\prodpsy\prod}
\CustomizeMathJax{\let\sumpsy\sum}
\CustomizeMathJax{\let\MToriginalprod\prod}
\CustomizeMathJax{\let\MToriginalsum\sum}
\CustomizeMathJax{\newcommand{\DotTriangle}{\mathord{\unicode{x2234}}}}
\end{warpMathJax}
```

File 283 **lwarp-mathcomp.sty**

§ 392 Package

mathcomp

(*Emulates or patches code by* Tilmann Böß.)

Pkg mathcomp

mathcomp is supported as-is for svg math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{mathcomp}[2001/01/07]

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\tcohm}{\mathrm{\Omega}}}
\CustomizeMathJax{\newcommand{\tccelsius}{\unicode{x2103}}}
\CustomizeMathJax{\newcommand{\tcmu}{\mathrm{\unicode{x00B5}}}}
\CustomizeMathJax{\newcommand{\tcperthousand}{\unicode{x2030}}}
\CustomizeMathJax{\newcommand{\tcpertenthousand}{\unicode{x2031}}}
\CustomizeMathJax{\newcommand{\tcdegree}{\mathrm{^\circ}}}
\CustomizeMathJax{\newcommand{\tcdigitoldstyle}[1]{\oldstyle{#1}}}
\end{warpMathJax}
```

File 284 **lwarp-mathdesign.sty**

§ 393 Package

mathdesign

(*Emulates or patches code by* Paul Pichaureau.)

Pkg mathdesign

mathdesign is used as-is for svg math, and is emulated for MathJax.

⚠ limitations

The MathJax emulation ignores all package options except `greekuppercase` and `greeklowercase`. The dedicated macros for upright and italic greek letters work correctly, although the user may wish to swap the definitions for epsilon and phi.

svg math should appear the same as the printed output.

for HTML output:

```
\LWR@ProvidesPackagePass{mathdesign}[2013/08/29]
```

For MathJax:

```
\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\LWR@origRequirePackage{lwarp-common-mathjax-overlaysymbols}

\begin{warpMathJax}
\LWR@infoprocessingmathjax{mathdesign}
```

Default greek upright or italicized:

```
\if@MD@grupright
\LWR@mathjax@addgreek@l@up{}{}
\fi

\if@MD@GRupright
\else
\LWR@mathjax@addgreek@u@it*{}{}
\fi
```

Upright:

```
\LWR@mathjax@addgreek@l@up{}{up}
\LWR@mathjax@addgreek@u@up*{}{up}
```

Italicized:

```
\LWR@mathjax@addgreek@l@it{}{it}
\LWR@mathjax@addgreek@u@it*{}{it}
```

Adapt to mathdesign inconsistency:

```
\CustomizeMathJax{\let\digammaup\Digammaup}
\CustomizeMathJax{\renewcommand{\digammait}{\mathit{\digammaup}}}
```

Extra symbols:

```
\CustomizeMathJax{\newcommand{\smallin}{\mathrel{\unicode{x220A}}}}
```

```
\CustomizeMathJax{\newcommand{\smallowns}{\mathrel{\unicode{x220D}}}}
\CustomizeMathJax{\newcommand{\notsmallin}{\mathrel{\LWRoverlaysymbols{/}{\unicode{x220A}}}}}
\CustomizeMathJax{\newcommand{\notsmallowns}{\mathrel{\LWRoverlaysymbols{/}{\unicode{x220D}}}}}
\CustomizeMathJax{\newcommand{\rightangle}{\mathord{\unicode{x221F}}}}
```

Integrals:

```
\CustomizeMathJax{\newcommand{\intclockwise}{\mathop{\unicode{x2231}}\limits}}
\CustomizeMathJax{\newcommand{\ointclockwise}{\mathop{\unicode{x2232}}\limits}}
\CustomizeMathJax{\newcommand{\ointctrclockwise}{\mathop{\unicode{x2233}}\limits}}
\CustomizeMathJax{\newcommand{\oiint}{\mathop{\unicode{x222F}}\limits}}
\CustomizeMathJax{\newcommand{\oiiint}{\mathop{\unicode{x2230}}\limits}}
```

Math and text mode:

```
\CustomizeMathJax{\newcommand{\ddag}{\unicode{x2021}}}
\CustomizeMathJax{\newcommand{\P}{\unicode{x00B6}}}
\CustomizeMathJax{\newcommand{\copyright}{\unicode{x00A9}}}
\CustomizeMathJax{\newcommand{\dag}{\unicode{x2020}}}
\CustomizeMathJax{\newcommand{\pounds}{\unicode{x00A3}}}
```

Extra symbols:

```
\CustomizeMathJax{\newcommand{\iddots}{\mathinner{\unicode{x22F0}}}}
\CustomizeMathJax{\newcommand{\utimes}{\mathbin{\overline{\times}}}}
\CustomizeMathJax{\newcommand{\dtimes}{\mathbin{\underline{\times}}}}
\CustomizeMathJax{\newcommand{\udtimes}{\mathbin{\overline{\underline{\times}}}}}
\CustomizeMathJax{\newcommand{\leftwave}{\left\{}}
\CustomizeMathJax{\newcommand{\rightwave}{\right\}}}

\end{warpMathJax}
```

File 285 **lwarp-mathdots.sty**

§ 394 Package

mathdots

(*Emulates or patches code by* Dan Luecking.)

Pkg mathdots

mathdots is used as-is for svg math, and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{mathdots}[2014/06/11]

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\iddots}{\mathinner{\unicode{x22F0}}}}
\CustomizeMathJax{\let\fixedddots\ddots}
\CustomizeMathJax{\let\fixedvdots\vdots}
\CustomizeMathJax{\let\fixediddots\iddots}
\CustomizeMathJax{\let\originalddots\ddots}
\CustomizeMathJax{\let\originalvdots\vdots}
\CustomizeMathJax{\let\originaliddots\iddots}
\CustomizeMathJax{\let\originaldddot\dddot}
\CustomizeMathJax{\let\originalddddot\ddddot}
\end{warpMathJax}
```

File 286 **lwarp-mathfixs.sty**

§ 395 Package mathfixs

(*Emulates or patches code by* Niklas Beisert.)

Pkg mathfixs

mathfixs is used as-is for SVG math, and is emulated for MathJax.

⚠ Greek letters are unchanged.

for HTML output:

```
\LWR@ProvidesPackagePass{mathfixs}[2018/12/30]

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\rfrac}[2]{\tfrac{#1}{#2}}}
\CustomizeMathJax{\newcommand{\vfrac}[2]{\mathinner{{}^{#1}\!/{}_{#2}}}}
\CustomizeMathJax{\newcommand{\ProvideMathFix}[1]{}}
\CustomizeMathJax{\newcommand{\mathbold}[1]{\boldsymbol{#1}}}
\CustomizeMathJax{\newcommand{\.}{\,}}
\end{warpMathJax}
```

File 287 **lwarp-mathpazo.sty**

§ 396 Package mathpazo

(*Emulates or patches code by* Walter Schmidt.)

Pkg mathpazo

mathpazo is used as-is for SVG math, and is emulated for MathJax.

⚠ limitations The MathJax emulation ignores all package options. The dedicated macros for upright greek letters do work correctly.

SVG math should appear the same as the printed output.

for HTML output:

```
\LWR@ProvidesPackagePass{mathpazo}[2020/03/25]
```

For MathJax:

```
\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}
\LWR@infoprocessingmathjax{mathpazo}

\ifpazo@slGreek
\LWR@mathjax@addgreek@u@it*{}{}
\fi

\LWR@mathjax@addgreek@u@up*{up}{}

\CustomizeMathJax{\newcommand{\mathbold}[1]{\boldsymbol{#1}}}
\end{warpMathJax}
```

File 288 **lwarp-mathptmx.sty**

§ 397 Package mathptmx

(*Emulates or patches code by* Walter Schmidt.)

Pkg mathptmx

mathptmx is used as-is for SVG math, and is emulated for MathJax.

⚠ limitations

The MathJax emulation ignores all package options. The dedicated macros for upright greek letters do work correctly.

SVG math should appear the same as the printed output.

for HTML output:

```
\LWR@ProvidesPackagePass{mathptmx}[2020/03/25]
```

For MathJax:

```
\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}
\LWR@infoprocessingmathjax{mathptmx}

\IfPackageLoadedWithOptionsTF{mathptmx}{slantedGreek}
    {\LWR@mathjax@addgreek@u@it*{}{}}
    {}

\LWR@mathjax@addgreek@u@up*{up}{}
\end{warpMathJax}
```

File 289 **lwarp-mathspec.sty**

§ 398 Package mathspec

(*Emulates or patches code by* Andrew Gilbert Moschou.)

Pkg mathspec

mathspec is used as-is with SVG math, and is emulated for MathJax.

⚠ quotes

Double quotes (\" and the " character) are removed during MathJax emulation, but this also includes inside \text.

for HTML output:

```
\LWR@ProvidesPackagePass{mathspec}[2016/12/22]
```

```
\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}
```

Neutralize double quotes (" and \"):

```
\booltrue{LWR@MathJax@silentquotes}
```

Sort options for out Greek emulation:

```
\AtBeginDocument{
\ifcase\eu@GreekUppercase@@value %% If Greek Uppercase Regular
    \LWR@mathjax@addgreek@u@up*{}{}
\or %% If Greek Uppercase Italic
    \LWR@mathjax@addgreek@u@it*{}{}
\or %% If Greek Uppercase Plain
    \LWR@mathjax@addgreek@u@up*{}{}
\fi
\ifcase\eu@GreekLowercase@@value %% If Greek Lowercase Regular
    \LWR@mathjax@addgreek@l@up{}{}
\or %% If Greek Lowercase Italic
    \LWR@mathjax@addgreek@l@it{}{}
\or %% If Greek Lowercase Plain
    \LWR@mathjax@addgreek@l@it{}{}
\fi
}
```

Swap definitions according the mathspec conditionals:

```
\newcommand*{\LWR@mathspec@varforms}{%
\eu@ifbooltrue{GreekLowercase}{
    \eu@ifbooltrue{exchangebetaforms}{
        \CustomizeMathJax{\let\LWRorigbeta\beta}
        \CustomizeMathJax{\let\beta\varbeta}
        \CustomizeMathJax{\let\varbeta\LWRorigbeta}
    }
    \eu@ifbooltrue{exchangeepsilonforms}{
        \CustomizeMathJax{\let\LWRorigepsilon\epsilon}
        \CustomizeMathJax{\let\epsilon\varepsilon}
        \CustomizeMathJax{\let\varepsilon\LWRorigepsilon}
    }
    \eu@ifbooltrue{exchangethetaforms}{
        \CustomizeMathJax{\let\LWRorigtheta\theta}
        \CustomizeMathJax{\let\theta\vartheta}
        \CustomizeMathJax{\let\vartheta\LWRorigtheta}
    }
    \eu@ifbooltrue{exchangekappaforms}{
        \CustomizeMathJax{\let\LWRorigkappa\kappa}
        \CustomizeMathJax{\let\kappa\varkappa}
        \CustomizeMathJax{\let\varkappa\LWRorigkappa}
    }
    \eu@ifbooltrue{exchangepiforms}{
        \CustomizeMathJax{\let\LWRorigpi\pi}
        \CustomizeMathJax{\let\pi\varpi}
        \CustomizeMathJax{\let\varpi\LWRorigpi}
    }
    \eu@ifbooltrue{exchangerhoforms}{
        \CustomizeMathJax{\let\LWRorigrho\rho}
        \CustomizeMathJax{\let\rho\varrho}
        \CustomizeMathJax{\let\varrho\LWRorigrho}
    }
    \eu@ifbooltrue{exchangephiforms}{
        \CustomizeMathJax{\let\LWRorigphi\phi}
        \CustomizeMathJax{\let\phi\varphi}
        \CustomizeMathJax{\let\varphi\LWRorigphi}
    }
}
\eu@ifbooltrue{GreekUppercase}{
    \eu@ifbooltrue{exhangeThetaforms}{
        \CustomizeMathJax{\let\LWRorigTheta\Theta}
```

```
        \CustomizeMathJax{\let\Theta\varTheta}
        \CustomizeMathJax{\let\varTheta\LWRorigTheta}
    }
}
}
```

Append new action to mathspec's `\AtBeginDocument` code:

```
\xapptocmd{\exchangeforms}
    {\AtBeginDocument{\LWR@mathspec@varforms}}
    {}
    {\LWR@patcherror{mathspec}{exchangeforms}}

\end{warpMathJax}
```

File 290 **lwarp-mathtools.sty**

§ 399 Package

mathtools

(*Emulates or patches code by* Morten Høgholm, Lars Madsen.)

Pkg mathtools

⚠ equation numbering

mathtools is patched for use by lwarp. Emulation macros are provided for MathJax.

showonlyrefs is disabled, as it conflicts with cleveref, which is used by lwarp. Equation numbers may not match the print version.

⚠ italic correction

mathic is not emulated for HTML.

⚠ MathJax

If using MathJax:

- mathtools disallowspaces does not work for MathJax. Protect brackets which are not optional arguments, such as:

  ```
  \begin{gathered}{}
  [p]=1 . . .
  \end{gathered}
  ```

- showonlyrefs does not work in MathJax, and will result in a difference in equation numbering compared to the print version.
- alignat in MathJax requires math mode, but in LaTeX it doesn't. It may be required to use warpHTML and warpprint to isolate a version for each mode.
- `\DeclarePairedDelimiter` and related must be in the preamble before `\begin{document}`.

for HTML output:

```
\LWR@ProvidesPackagePass{mathtools}[2018/01/08]

\RequirePackage{graphicx}

\MHInternalSyntaxOn
```

Forces showonlyrefs off because lwarp uses cleveref, which is not compatible with showonlyrefs.

```
\renewcommand*\MT_showonlyrefs_true:{%
    \PackageWarningNoLine{lwarp}
    {%
        Mathtools \space showonlyrefs \space conflicts \space
        with \space cleveref,\MessageBreak
        which \space is \space used \space by \space lwarp, \space
        so \space showonlyrefs \space is\MessageBreak
        forced \space off. \space\space
        Equation \space numbers \space may \space not \space match%
    }
    \MT_showonlyrefs_false:
}
\mathtoolsset{showonlyrefs=false}
```

Forces math italic correction off. Not patched for lwarp.

```
\renewcommand*{\MT_mathic_true:}{\MT_mathic_false:}
\mathtoolsset{mathic=false}

\MHInternalSyntaxOff
```

For MathJax.

The MathJax package is used, and improvements are added.

```
\begin{warpMathJax}
\CustomizeMathJax{\require{mathtools}}

\LWR@infoprocessingmathjax{mathtools}

\CustomizeMathJax{\newenvironment{crampedsubarray}[1]{}{}}

\CustomizeMathJax{\newcommand{\smashoperator}[2][]{#2\limits}}

\CustomizeMathJax{\newcommand{\SwapAboveDisplaySkip}{}}

\CustomizeMathJax{\newcommand{\LaTeXunderbrace}[1]{\underbrace{#1}}}
\CustomizeMathJax{\newcommand{\LaTeXoverbrace}[1]{\overbrace{#1}}}


\CustomizeMathJax{\newcommand{\LWRmultlined}[1][]{\begin{multline*}}}
\CustomizeMathJax{\newenvironment{multlined}[1][]{\LWRmultlined}{\end{multline*}}}

\CustomizeMathJax{\let\LWRorigshoveleft\shoveleft}
\CustomizeMathJax{\renewcommand{\shoveleft}[1][]{\LWRorigshoveleft}}
\CustomizeMathJax{\let\LWRorigshoveright\shoveright}
\CustomizeMathJax{\renewcommand{\shoveright}[1][]{\LWRorigshoveright}}

\CustomizeMathJax{\newcommand{\shortintertext}[1]{\text{#1}\notag \\}}

\LetLtxMacro\LWR@mathtools@orig@DeclarePairedDelimiter\DeclarePairedDelimiter
\renewcommand{\DeclarePairedDelimiter}[3]{
    \LWR@mathtools@orig@DeclarePairedDelimiter{#1}{#2}{#3}
% starred:
    \appto\LWR@customizedMathJax{\LWRbackslash()}
    \appto\LWR@customizedMathJax{%
      \LWRbackslash{}newcommand\{\LWRbackslash\macrotocsname{#1}LWRsubstar\}%
    }%
    \appto\LWR@customizedMathJax{[2][]}%
```

```
    \appto\LWR@customizedMathJax{\{\{}%
    \LWR@subcustomizedmathjax{##1\left#2##2##1\right#3}%
    \appto\LWR@customizedMathJax{\}\}}%
    \appto\LWR@customizedMathJax{\LWRbackslash)\par}%
% not starred:
    \appto\LWR@customizedMathJax{\LWRbackslash(}
    \appto\LWR@customizedMathJax{%
      \LWRbackslash{}newcommand\{\LWRbackslash\macrotocsname{#1}LWRsubnostar\}%
    }%
    \appto\LWR@customizedMathJax{[2][]}%
    \appto\LWR@customizedMathJax{\{\{}%
    \LWR@subcustomizedmathjax{##1#2##2##1#3}%
    \appto\LWR@customizedMathJax{\}\}}%
    \appto\LWR@customizedMathJax{\LWRbackslash)\par}%
% user macro:
    \appto\LWR@customizedMathJax{\LWRbackslash(}
    \appto\LWR@customizedMathJax{%
        \LWRbackslash{}newcommand\{\LWRbackslash{}\macrotocsname{#1}\}%
        \{\LWRbackslash{}ifstar%
            \LWRbackslash{}\macrotocsname{#1}LWRsubstar%
            \LWRbackslash{}\macrotocsname{#1}LWRsubnostar%
        \}%
    }%
    \appto\LWR@customizedMathJax{\LWRbackslash)\par}%
}
\@onlypreamble\DeclareParedDelimiter

% (DeclarePairedDelimiterX is already defined to use \DeclarePairedDelimiterXPP.)

\LetLtxMacro\LWR@mathtools@orig@DeclarePairedDelimiterXPP\DeclarePairedDelimiterXPP
\DeclareDocumentCommand{\DeclarePairedDelimiterXPP}{m O{1} m m m m}{
   \LWR@mathtools@orig@DeclarePairedDelimiterXPP{#1}[#2]{#3}{#4}{#5}{#6}{#7}
% subsubstar, second opt arg
    \appto\LWR@customizedMathJax{\LWRbackslash(}%
    \appto\LWR@customizedMathJax{%
      \LWRbackslash{}newcommand\{\LWRbackslash\macrotocsname{#1}LWRsubsubstar\}%
    }%
    \appto\LWR@customizedMathJax{[#2]}%
    \appto\LWR@customizedMathJax{\{\{\LWRbackslash{}left}%
    \LWR@subcustomizedmathjax{#3#4#7}%
    \appto\LWR@customizedMathJax{\LWRbackslash{}right}%
    \LWR@subcustomizedmathjax{#5#6}%
    \appto\LWR@customizedMathJax{\}\}}%
    \appto\LWR@customizedMathJax{\LWRbackslash)\par}%
% substar, first opt arg
    \appto\LWR@customizedMathJax{\LWRbackslash(}%
    \appto\LWR@customizedMathJax{%
      \LWRbackslash{}newcommand\{\LWRbackslash\macrotocsname{#1}LWRsubstar\}[1][]%
    }%
    \appto\LWR@customizedMathJax{%
        \{
        \LWRbackslash{}def\LWRbackslash{}delimsize\{\#1\}
        \LWRbackslash\macrotocsname{#1}LWRsubsubstar
        \}%
    }%
    \appto\LWR@customizedMathJax{\LWRbackslash)\par}%
% subsubnostar, second opt arg
    \appto\LWR@customizedMathJax{\LWRbackslash(}%
    \appto\LWR@customizedMathJax{%
      \LWRbackslash{}newcommand\{\LWRbackslash\macrotocsname{#1}LWRsubsubnostar\}%
```

```
    }%
    \appto\LWR@customizedMathJax{[#2]}%
    \appto\LWR@customizedMathJax{\{\{\LWRbackslash{}delimsize}%
    \LWR@subcustomizedmathjax{#3#4#7}%
    \appto\LWR@customizedMathJax{\LWRbackslash{}delimsize}%
    \LWR@subcustomizedmathjax{#5#6}%
    \appto\LWR@customizedMathJax{\}\}}%
    \appto\LWR@customizedMathJax{\LWRbackslash)\par}%
% subnostar, first opt arg
    \appto\LWR@customizedMathJax{\LWRbackslash(}%
    \appto\LWR@customizedMathJax{%
      \LWRbackslash{}newcommand\{\LWRbackslash\macrotocsname{#1}LWRsubnostar\}[1][]%
    }%
    \appto\LWR@customizedMathJax{%
        \{
        \LWRbackslash{}def\LWRbackslash{}delimsize\{\#1\}
        \LWRbackslash\macrotocsname{#1}LWRsubsubnostar
        \}%
    }%
    \appto\LWR@customizedMathJax{\LWRbackslash)\par}%
% user macro:
    \appto\LWR@customizedMathJax{\LWRbackslash(}
    \appto\LWR@customizedMathJax{%
        \LWRbackslash{}newcommand\{%
            \LWRbackslash{}\macrotocsname{#1}%
        \}%
            \{\LWRbackslash{}ifstar%
                \LWRbackslash{}\macrotocsname{#1}LWRsubstar%
                \LWRbackslash{}\macrotocsname{#1}LWRsubnostar%
            \}%
    }%
    \appto\LWR@customizedMathJax{\LWRbackslash)\par}%
}
\@onlypreamble\DeclareParedDelimiterXPP
\@onlypreamble\DeclareParedDelimiterX

\CustomizeMathJax{\newcommand{\vcentcolon}{\mathrel{\unicode{x2236}}}}

\LetLtxMacro\LWR@mathtools@orig@newgathered\newgathered
\renewcommand{\newgathered}[4]{%
    \LWR@mathtools@orig@newgathered{#1}{#2}{#3}{#4}%
    \appto\LWR@customizedMathJax{\LWRbackslash(}%
    \LWR@subcustomizedmathjax{%
        \newenvironment{#1}{\begin{gathered}}{\end{gathered}}%
    }%
    \appto\LWR@customizedMathJax{\LWRbackslash)}%
}
\@onlypreamble\newgathered

\end{warpMathJax}
```

File 291 **lwarp-mattens.sty**

§ 400 Package mattens

(*Emulates or patches code by* Danie Els.)

Pkg mattens

mattens is used as-is for SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{mattens}[2010/03/26]

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\LWRmattensnull}{}}

\CustomizeMathJax{\newcommand{\LWRmattensnostar}[2][]{%
  {#1{\LWRmattensundercmd{\LWRmattensovercmd{\LWRmattenscross{\boldsymbol{#2}}}}}}%
}}

\CustomizeMathJax{\newcommand{\LWRmattensstar}[2][]{%
    {#1{\LWRmattensundercmd{\LWRmattensovercmd{\LWRmattenscross{#2}}}}}%
}}

\CustomizeMathJax{\newcommand{\LWRmattens}{
    \ifstar\LWRmattensstar\LWRmattensnostar%
}}

\CustomizeMathJax{\newcommand{\aS}{%
    \let\LWRmattenscross\LWRmattensnull%
    \let\LWRmattensovercmd\overrightarrow%
    \let\LWRmattensundercmd\LWRmattensnull%
    \LWRmattens%
}}

\CustomizeMathJax{\newcommand{\Sa}{%
    \let\LWRmattenscross\LWRmattensnull%
    \let\LWRmattensovercmd\underrightarrow%
    \let\LWRmattensundercmd\LWRmattensnull%
    \LWRmattens%
}}

\CustomizeMathJax{\newcommand{\bS}{%
    \let\LWRmattenscross\LWRmattensnull%
    \let\LWRmattensovercmd\overline%
    \let\LWRmattensundercmd\LWRmattensnull%
    \LWRmattens%
}}

\CustomizeMathJax{\newcommand{\Sb}{%
    \let\LWRmattenscross\LWRmattensnull%
    \let\LWRmattensovercmd\underline%
    \let\LWRmattensundercmd\LWRmattensnull%
    \LWRmattens%
}}

\CustomizeMathJax{\newcommand{\aSa}{%
    \let\LWRmattenscross\LWRmattensnull%
    \let\LWRmattensovercmd\overrightarrow%
    \let\LWRmattensundercmd\underrightarrow%
    \LWRmattens%
}}

\CustomizeMathJax{\newcommand{\aSb}{%
    \let\LWRmattenscross\LWRmattensnull%
    \let\LWRmattensovercmd\overrightarrow%
    \let\LWRmattensundercmd\underline%
    \LWRmattens%
}}

\CustomizeMathJax{\newcommand{\bSa}{%
```

```
    \let\LWRmattenscross\LWRmattensnull%
    \let\LWRmattensovercmd\overline%
    \let\LWRmattensundercmd\underrightarrow%
    \LWRmattens%
}}

\CustomizeMathJax{\newcommand{\bSb}{%
    \let\LWRmattenscross\LWRmattensnull%
    \let\LWRmattensovercmd\overline%
    \let\LWRmattensundercmd\underline%
    \LWRmattens%
}}

\CustomizeMathJax{\newcommand{\aCSa}{%
    \let\LWRmattenscross\tilde%
    \let\LWRmattensovercmd\overrightarrow%
    \let\LWRmattensundercmd\underrightarrow%
    \LWRmattens%
}}

\CustomizeMathJax{\newcommand{\bCSb}{%
    \let\LWRmattenscross\tilde%
    \let\LWRmattensovercmd\overline%
    \let\LWRmattensundercmd\underline%
    \LWRmattens%
}}
\end{warpMathJax}
```

File 292 **lwarp-maybemath.sty**

§ 401 Package maybemath

(*Emulates or patches code by* Andy Buckley.)

Pkg maybemath

maybemath is used as-is for SVG math, and is emulated for MathJax.

⚠ no effect

MathJax is not able to detect the surrounding text font, so all maybemath macros are ignored.

for HTML output:

```
\LWR@ProvidesPackagePass{maybemath}[2005/2/22]

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\mayberm}[1]{{#1}}}
\CustomizeMathJax{\let\maybebm\mayberm}
\CustomizeMathJax{\let\maybeit\mayberm}
\CustomizeMathJax{\let\maybeitrm\mayberm}
\CustomizeMathJax{\let\maybeitsubscript\mayberm}
\CustomizeMathJax{\let\maybesf\mayberm}
\CustomizeMathJax{\let\maybebmsf\mayberm}
\end{warpMathJax}
```

File 293 **lwarp-mcaption.sty**

§ 402 Package mcaption

(*Emulates or patches code by* Stephan Hennig.)

Pkg mcaption

mcaption is ignored.

for HTML output:

Discard all options for lwarp-mcaption:

```
\LWR@ProvidesPackageDrop{mcaption}[2009/03/13]

\newenvironment{margincap}{}{}
\newcommand*{\margincapalign}{}
\newlength{\margincapsep}
```

File 294 **lwarp-mdframed.sty**

§ 403 Package mdframed

(*Emulates or patches code by* Marco Daniel, Elke Schubert.)

Pkg mdframed

mdframed is loaded with options forced to `framemethod=none`.

§ 403.1 Limitations

support

Most basic functionality is supported, including frame background colors and single-border colors and thickness, title and subtitle background colors and borders and thickness, border radius, and shadow. CSS classes are created for mdframed environments and frame titles.

⚠ loading

When used, lwarp loads mdframed in HTML with `framemethod=none`.

font

For title font, use

```
frametitlefont=\textbf,
```

instead of

```
frametitlefont=\bfseries,
```

where `\textbf` must appear just before the comma and will receive the following text as its argument (since the text happens to be between braces in the mdframed source). Since lwarp does not support `\bfseries` and friends, only one font selection may be made at a time.

theoremtitlefont

`theoremtitlefont` is not supported, since the following text is not in braces in the mdframed source.

ignored options

`userdefinedwidth` and `align` are currently ignored.

css classes

Environments created or encapsulated by mdframed are enclosed in a `<div>` of class `mdframed`, and also class `md<environmentname>` for new environments.

Frame titles are placed in a of class |mdframedtitle|. Subtitles are in a of class |mdframedsubtitle|, and likewise for subsubtitles.

Pre-existing hooks are used to patch extra functions before and after the frames.

§ 403.2 Package loading

for HTML output:

```
\RequirePackage{xcolor}% for \convertcolorspec

\LWR@ProvidesPackageDrop{mdframed}[2013/07/01]
```

Do not require Ti*k*z or pstricks:

```
\LWR@origRequirePackage[framemethod=none]{mdframed}
```

§ 403.3 Patches

Patch to remove PDF formatting and add HTML tags:

```
\AtBeginDocument{
\def\mdf@trivlist#1{%
  \edef\mdf@temp{%
%     \topsep=\the\topsep\relax%
%     \partopsep=\the\partopsep\relax%
%     \parsep=\the\parsep\relax%
  }%
%   \setlength{\topsep}{#1}%
%   \topskip\z@%
%   \partopsep\z@%
%   \parsep\z@%
%   \@nmbrlistfalse%
%   \@trivlist%
%   \labelwidth\z@%
%   \leftmargin\z@%
%   \itemindent\z@%
  \let\@itemlabel\@empty%
  \def\makelabel##1{##1}%
%   \item\relax\mdf@temp\relax%
}

\renewcommand*{\endmdf@trivlist}{%
\LWR@traceinfo{endmdf@trivlist}%
% \endtrivlist%
\LWR@listend%
}
}% AtBeginDocument
```

§ 403.4 Initial setup

To handle css and paragraphs, patch code at start and end of environment and contents. \LWR@print@raggedright helps avoid hyphenation.

```
\mdfsetup{
startcode={\LWR@mdframedstart\LWR@print@raggedright},
endcode={\LWR@mdframedend},
startinnercode={\LWR@startpars\LWR@print@raggedright},
endinnercode={\LWR@stoppars},
}
```

§ 403.5 Color and length HTML conversion

\LWR@mdfprintcolor {⟨*mdfcolorkey*⟩}

Given the mdframed key, print the color.

```
\newcommand*{\LWR@mdfprintcolor}[1]{%
\convertcolorspec{named}{\@nameuse{mdf@#1}}{HTML}\LWR@tempcolor%
\LWR@origpound\LWR@tempcolor
}
```

\LWR@mdfprintlength {⟨*mdflengthkey*⟩}

Given the mdframed key, print the length.

```
\newcommand*{\LWR@mdfprintlength}[1]{%
\LWR@forceminwidth{\@nameuse{mdf@#1@length}}%
\LWR@printlength{\LWR@atleastonept}%
}
```

§ 403.6 Environment encapsulation

\LWR@mdframedstart Actions before an mdframe starts.

Encapsulate a frame inside a of the desired class.

```
\newcommand*{\LWR@mdframedstart}{%
\LWR@traceinfo{LWR@mdframedstart start}%
```

Warn if starting a frame inside a :

```
    \LWR@spanwarninvalid{mdframe}%
```

Turn off paragraph handling during the generation of the encapsulating tags:

```
\LWR@stoppars%
```

Open a and with custom class and custom style. A BlockClass environment is not used because this is created by the mdframed startcode and endcode settings, which do not properly nest the inside the mdframed environment.

```
\LWR@htmltagc{div class=\textquotedbl%
mdframed%
\ifdefstring{\LWR@mdthisenv}{mdframed}{}{ \LWR@mdthisenv}%
\textquotedbl \LWR@orignewline
style=\textquotedbl\LWR@orignewline
```

Convert and print the background color:

```
background: \LWR@mdfprintcolor{backgroundcolor} ; \LWR@orignewline
```

Convert and print the border color and width:

```
border: \LWR@mdfprintlength{linewidth} solid
\LWR@mdfprintcolor{linecolor} ; \LWR@orignewline
```

Convert and print the border radius:

```
border-radius: \LWR@mdfprintlength{roundcorner} ; \LWR@orignewline
```

Convert and print the shadow:

```
\ifbool{mdf@shadow}{%
    box-shadow:
    \LWR@mdfprintlength{shadowsize}
    \LWR@mdfprintlength{shadowsize}
    \LWR@mdfprintlength{shadowsize}
```

```
    \LWR@mdfprintcolor{shadowcolor} ;
}
{box-shadow: none ;}
\LWR@orignewline

\textquotedbl}
% \LWR@htmldivclass{\LWR@mdthisenv}
```

mdframed environment may not work with the HTML versions of the following, so restore them to their originals while inside mdframed:

```
\LWR@select@print@hspace%
\renewcommand*{\rule}{\LWR@print@rule}
\LetLtxMacro\makebox\LWR@print@makebox%

\LWR@startpars%
\LWR@traceinfo{LWR@mdframedstart done}%
}
```

\LWR@mdframedend Actions after an mdframe ends.

After closing the , globally restore to the default environment type:

```
\newcommand*{\LWR@mdframedend}{
\LWR@traceinfo{LWR@mdframedend start}%
```

Close the custom :

```
\LWR@htmldivclassend{\LWR@mdthisenv}
```

Reset future custom class to the default:

```
\gdef\LWR@mdthisenv{mdframed}
```

Resume paragraph handling:

```
\LWR@startpars%
\LWR@traceinfo{LWR@mdframedend done}%
}
```

§ 403.7 Mdframed environment

```
\renewenvironment{mdframed}[1][]{%
 \color@begingroup%
   \mdfsetup{userdefinedwidth=\linewidth,#1}%
   \mdf@startcode%
   \mdf@preenvsetting%
   \ifdefempty{\mdf@firstframetitle}{}%
            {\let\mdf@frametitlesave\mdf@frametitle%
             \let\mdf@frametitle\mdf@firstframetitle%
            }%
   \ifvmode\nointerlineskip\fi%
        \ifdefempty{\mdf@frametitle}{}%
            {\mdfframedtitleenv{\mdf@frametitle}%
% \mdf@@frametitle@use%
            }%
   \mdf@trivlist{\mdf@skipabove@length}%%
   \mdf@settings%
%    \mdf@lrbox{\mdf@splitbox@one}%
%    \mdf@startinnercode%
  }%
  {%
%    \mdf@@ignorelastdescenders%
   \par%
```

```
%     \unskip\ifvmode\nointerlineskip\hrule \@height\z@ \@width\hsize\fi%%
   \ifmdf@footnoteinside%
      \def\mdf@reserveda{%
        \mdf@footnoteoutput%
%         \mdf@endinnercode%
%         \endmdf@lrbox%
%         \ifdefempty{\mdf@frametitle}{}%
%             {\mdfframedtitleenv{\mdf@frametitle}\mdf@@frametitle@use}%
%         \detected@mdf@put@frame
      }%
   \else%
      \def\mdf@reserveda{%
%         \mdf@endinnercode%
%         \endmdf@lrbox%
%         \ifdefempty{\mdf@frametitle}{}%
%             {\mdfframedtitleenv{\mdf@frametitle}\mdf@@frametitle@use}%
%         \detected@mdf@put@frame%
        \mdf@footnoteoutput%
        }%
   \fi%
   \mdf@reserveda%
  \aftergroup\endmdf@trivlist%
 \color@endgroup%
 \mdf@endcode%
}
```

\mdf@footnoteoutput

```
\renewrobustcmd*\mdf@footnoteoutput{%
    \LWR@printpendingmpfootnotes%
}
```

§ 403.8 Titles and subtitles

\mdfframedtitleenv {⟨*title*⟩}

Place the title inside a of class mdframedtitle:

```
\newlength{\LWR@titleroundcorner}

\renewrobustcmd\mdfframedtitleenv[1]{%
\LWR@traceinfo{LWR@mdframedtitleenv start}%
```

Open a with a custom class and custom style:

```
\begin{BlockClass}[%
```

Convert and print the title background color:

```
background:
\LWR@mdfprintcolor{frametitlebackgroundcolor}
; \LWR@orignewline
```

Convert and print the title rule:

```
\ifbool{mdf@frametitlerule}{%
    border-bottom:
    \LWR@mdfprintlength{frametitlerulewidth}
    solid
    \LWR@mdfprintcolor{frametitlerulecolor}
    ; \LWR@orignewline
}{}%
```

Finish the custom style and the opening tag:

```
148 ]{mdframedtitle}%
```

Print the title inside the :

```
149 \mdf@frametitlefont{\LWR@textcurrentfont{#1}}%
```

Close the :

```
150 \end{BlockClass}%
151 \LWR@traceinfo{LWR@mdframedtitleenv end}%
152 }
```

\LWR@mdfsubtitlecommon {⟨*sub — or — subsub*⟩} [⟨*options*⟩] {⟨*title*⟩}

Common code for \LWR@mdfsubtitle and \LWR@mdfsubsubtitle.

Encapsulate the subtitle inside a of class mdframedsubtitle:

```
153 \NewDocumentCommand{\LWR@mdfsubtitlecommon}{m o m}
154 {% the following empty line is required
155
156 \LWR@traceinfo{LWR@mdframedsubtitlecommon start}%
```

Open a with a custom class and custom style:

```
157 \begin{BlockClass}[%
```

Convert and print the background color:

```
158 background:
159 \LWR@mdfprintcolor{#1titlebackgroundcolor}
160 ; \LWR@orignewline
```

Convert and print the above line:

```
161 \ifbool{mdf@#1titleaboveline}{%
162     border-top:
163     \LWR@mdfprintlength{#1titleabovelinewidth}
164     solid
165     \LWR@mdfprintcolor{#1titleabovelinecolor}
166     ; \LWR@orignewline
167 }{}%
```

Convert and print the below line:

```
168 \ifbool{mdf@#1titlebelowline}{%
169     border-bottom:
170     \LWR@mdfprintlength{#1titlebelowlinewidth}
171     solid
172     \LWR@mdfprintcolor{#1titlebelowlinecolor}
173     ; \LWR@orignewline
174 }{}%
```

Finish the custom style and the opening tag:

```
175 ]{mdframed#1title}%
```

Perform the original subtitle action:

```
176 \IfNoValueTF{#2}
177 {\@nameuse{LWR@origmdf#1title}{\csuse{mdf@#1titlefont}{\LWR@textcurrentfont{#3}}}}%
178 {\@nameuse{LWR@origmdf#1title}[#2]{\csuse{mdf@#1titlefont}{\LWR@textcurrentfont{#3}}}}%
```

Close the :

```
179 \end{BlockClass}%
180 \LWR@traceinfo{LWR@mdframedsubtitlecommon end}%
181 }
```

\LWR@mdfsubtitle [⟨*options*⟩] {⟨*title*⟩}

```
\newcommand*{\LWR@mdfsubtitle}{%
\LWR@mdfsubtitlecommon{sub}%
}
\let\mdfsubtitle\LWR@mdfsubtitle
```

\LWR@mdfsubsubtitle [⟨*options*⟩] {⟨*title*⟩}

```
\newcommand*{\LWR@mdfsubsubtitle}{%
\LWR@mdfsubtitlecommon{subsub}%
}
\let\mdfsubsubtitle\LWR@mdfsubsubtitle
```

§ 403.9 New environments

\LWR@mdthisenv Stores the environment of the frame about to be created:

```
\newcommand*{\LWR@mdthisenv}{mdframed}
```

\newmdenv [⟨*options*⟩] {⟨*env-name*⟩}

Modified from the original to remember the environment.

```
\renewrobustcmd*\newmdenv[2][]{%
\newenvironment{#2}%
{%
\mdfsetup{#1}%
\renewcommand*{\LWR@mdthisenv}{md#2}%
\begin{mdframed}%
}
{\end{mdframed}}%
}
```

\surroundwithmdframed [⟨*options*⟩] {⟨*environment*⟩}

Modified from the original to remember the environment.

```
\renewrobustcmd*{\surroundwithmdframed}[2][]{%
\BeforeBeginEnvironment{#2}{%
\renewcommand*{\LWR@mdthisenv}{md#2}%
\begin{mdframed}[#1]}%
\AfterEndEnvironment{#2}{\end{mdframed}}%
}
```

\mdtheorem [⟨*mdframed-options*⟩] {⟨*envname*⟩} [⟨*numberedlike*⟩] {⟨*caption*⟩} [⟨*within*⟩]

Modified from the original to remember the environment.

```
\DeclareDocumentCommand{\mdtheorem}{ O{} m o m o }%
 {\ifcsdef{#2}%
   {\mdf@PackageWarning{Environment #2 already exits\MessageBreak}}%
   {%
    \IfNoValueTF {#3}%
     {%#3 not given -- number relationship
      \IfNoValueTF {#5}%
        {%#3+#5 not given
        \@definecounter{#2}%
        \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}%
        \newenvironment{#2}[1][]{%
```

```
      \refstepcounter{#2}%
      \ifstrempty{##1}%
        {\let\@temptitle\relax}%
        {%
         \def\@temptitle{\mdf@theoremseparator%
                         \mdf@theoremspace%
                         \mdf@theoremtitlefont%
                         \LWR@textcurrentfont{##1}}% lwarp
         \mdf@thm@caption{#2}{{#4}{\csname the#2\endcsname}{##1}}%
         }%
     \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname%
                                     \@temptitle}]}%
      {\end{mdframed}}%
    \newenvironment{#2*}[1][]{%
     \ifstrempty{##1}{\let\@temptitle\relax}{\def\@temptitle{:\ ##1}}%
      \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]}%
      {\end{mdframed}}%
    }%
    {%#5 given -- reset counter
    \@definecounter{#2}\@newctr{#2}[#5]%
    \expandafter\xdef\csname the#2\endcsname{\@thmcounter{#2}}%
    \expandafter\xdef\csname the#2\endcsname{%
         \expandafter\noexpand\csname the#5\endcsname \@thmcountersep%
             \@thmcounter{#2}}%
    \newenvironment{#2}[1][]{%
      \refstepcounter{#2}%
      \ifstrempty{##1}%
        {\let\@temptitle\relax}%
        {%
         \def\@temptitle{\mdf@theoremseparator%
                         \mdf@theoremspace%
                         \mdf@theoremtitlefont%
                         \LWR@textcurrentfont{##1}}% lwarp
         \mdf@thm@caption{#2}{{#4}{\csname the#2\endcsname}{##1}}%
         }
     \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname%
                                     \@temptitle}]}%
      {\end{mdframed}}%
    \newenvironment{#2*}[1][]{%
      \ifstrempty{##1}%
        {\let\@temptitle\relax}%
        {%
         \def\@temptitle{\mdf@theoremseparator%
                         \mdf@theoremspace%
                         \mdf@theoremtitlefont%
                         \LWR@textcurrentfont{##1}}% lwarp
         \mdf@thm@caption{#2}{{#4}{\csname the#2\endcsname}{##1}}%
         }%
      \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]}%
      {\end{mdframed}}%
    }%
  }%
  {%#3 given -- number relationship
    \global\@namedef{the#2}{\@nameuse{the#3}}%
    \newenvironment{#2}[1][]{%
      \refstepcounter{#3}%
      \ifstrempty{##1}%
        {\let\@temptitle\relax}%
        {%
         \def\@temptitle{\mdf@theoremseparator%
```

```
                              \mdf@theoremspace%
                              \mdf@theoremtitlefont%
                              \LWR@textcurrentfont{##1}}% lwarp
            \mdf@thm@caption{#2}{{#4}{\csname the#2\endcsname}{##1}}%
            }
        \begin{mdframed}[#1,frametitle={\strut#4\ \csname the#2\endcsname%
                                        \@temptitle}]}%
         {\end{mdframed}}%
        \newenvironment{#2*}[1][]{%
         \ifstrempty{##1}{\let\@temptitle\relax}{\def\@temptitle{:\ ##1}}%
         \begin{mdframed}[#1,frametitle={\strut#4\@temptitle}]}%
         {\end{mdframed}}%
     }%
  \BeforeBeginEnvironment{#2}{\renewcommand*{\LWR@mdthisenv}{md#2}}% lwarp
  \BeforeBeginEnvironment{#2*}{\renewcommand*{\LWR@mdthisenv}{md#2}}% lwarp
   }%
}
```

\newmdtheoremenv `[`⟨*1: mdframed-options*⟩`]` {⟨*2: envname*⟩} `[`⟨*3: numberedlike*⟩`]` {⟨*4: caption*⟩} `[`⟨*5: within*⟩`]`

Modified from the original to remember the environment.

```
\DeclareDocumentCommand\newmdtheoremenv{O{} m o m o }{%
 \ifboolexpr{ test {\IfNoValueTF {#3}} and test {\IfNoValueTF {#5}} }%
    {\newtheorem{#2}{#4}}%
    {%
     \IfValueT{#3}{\newtheorem{#2}[#3]{#4}}%
     \IfValueT{#5}{\newtheorem{#2}{#4}[#5]}%
    }%
\BeforeBeginEnvironment{#2}{%
\renewcommand*{\LWR@mdthisenv}{md#2}%
\begin{mdframed}[#1]}%
\AfterEndEnvironment{#2}{%
\end{mdframed}}%
}
```

File 295 **lwarp-mdwmath.sty**

§ 404 Package mdwmath

(*Emulates or patches code by* Mark Wooding.)

Pkg mdwmath

mdwmath is used as-is for SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{mdwmath}[1996/04/11]

\begin{warpMathJax}
\CustomizeMathJax{\let\LWRmdwmathsqrt\sqrt}
\CustomizeMathJax{\renewcommand{\sqrt}{\ifstar\LWRmdwmathsqrt\LWRmdwmathsqrt}}
\CustomizeMathJax{\newcommand{\bitand}{\mathbin\&}}
\CustomizeMathJax{\def\bitor{\mathbin\mid}}
\CustomizeMathJax{\def\dblor{\mathbin{\mid\mid}}}
\CustomizeMathJax{\def\dbland{\mathbin{\mathrel\bitand\mathrel\bitand}}}
\end{warpMathJax}
```

File 296 **lwarp-media9.sty**

§ 405 Package

media9

Pkg media9

media9 is emulated.

The packages multimedia, movie15, and media9 are supported.

HTML5 <audio> and <video> objects are created for .mp3 and .mp4 files.

HTML5 <embed> objects are created for http and ftp links.

\href links are created for other media types. (Unfortunately, there is not much overlap between the file types supported for print output and the file types supported by HTML5.)

For media9, a multimedia object is inserted for each addresource=, as well as each flashvars source= and src=. This may result in duplicate objects.

Undesired objects may be nullified by placing them inside \warpprintonly or the warpprint environment.

Each HTML multimedia object includes the poster text, except for <embed> objects. For movie15, the text option is supported to specify the poster text.

The width, height, and totalheight options are supported. The HTML object is scaled according to the display width, correctly compensating for either tall or wide viewports.

Other options are ignored.

media9 \addmediapath is supported. It is assumed that the same path structure will exist for the HTML document.

HTML5 media controls are always specified for each <audio> and <video> object.

media9 slideshows are not supported.

\hyperlinkmovie, \movieref, and \mediabutton are not supported.

3D objects are not supported.

If using a YouTube™ video, use an "embedded" URL with .../embed/... instead of .../v/...

⚠ & in a URL

Many special characters are converted to regular catcode 12 characters for use inside a URL. & is used in the flash variables fields, which are split with xparse \SplitList, which does not seem to work with a catcode 12 divider token, so & is not converted to catcode 12, and will not work in a URL with media9. Using & in a URL in a flashvars field may also cause parsing problems with print output, as well.

for HTML output:

```
1 \LWR@ProvidesPackageDrop{media9}[2019/02/21]
2 \LWR@origRequirePackage{lwarp-common-multimedia}
```

```
3
4 \RequirePackage{xkeyval}
```

\addmediapath {⟨*path*⟩}

Supported.

```
5 \newcommand*{\LWR@medianine@path}{}
6
7 \newcommand*{\addmediapath}[1]{\appto\LWR@medianine@path{{#1}}}
```

The options and poster text are reused in several places.

```
8 \newcommand*{\LWR@medianine@postertext}{}
9 \newcommand*{\LWR@medianine@options}{}
```

Each addresource can generate a multimedia object.

```
10 \define@key{LWR@medianine}{addresource}{%
11     \expandafter\LWR@multimedia\expandafter[\LWR@medianine@options]
12         {\LWR@medianine@postertext}
13         {#1}
14 }
```

Each flashvars source can generate a multimedia object.

```
15 \newcommand*{\LWR@medianine@flashvarsb}[1]{%
16     \IfBeginWith{#1}{source=}{%
17         \StrGobbleLeft{#1}{7}[\LWR@tempone]%
18         \expandafter\LWR@multimedia\expandafter[\LWR@medianine@options]%
19             {\LWR@medianine@postertext}%
20             {\LWR@tempone}%
21     }{}%
22     \IfBeginWith{#1}{src=}{%
23         \StrGobbleLeft{#1}{4}[\LWR@tempone]%
24         \expandafter\LWR@multimedia\expandafter[\LWR@medianine@options]%
25             {\LWR@medianine@postertext}%
26             {\LWR@tempone}%
27     }{}%
28 }
29
30 \NewDocumentCommand{\LWR@medianine@flashvars}{ >{\SplitList{&}} m }{%
31     \ProcessList {#1}{\LWR@medianine@flashvarsb}%
32 }
33
34 \define@key{LWR@medianine}{flashvars}{%
35     \LWR@medianine@flashvars{#1}%
36 }
```

\includemedia [⟨*options*⟩] {⟨*poster text*⟩} {⟨*file or url*⟩}

```
37 \newcommand*{\LWR@includemediab}[3][]{%
38     \let\input@path\LWR@medianine@path%
39     \renewcommand*{\LWR@medianine@options}{#1}%
40     \renewcommand*{\LWR@medianine@postertext}{#2}%
41     \setkeys*{LWR@medianine}{#1}%
42     \IfBeginWith{#3}{http}{\LWR@multimedia[#1]{#2}{#3}}{%
43     \IfBeginWith{#3}{HTTP}{\LWR@multimedia[#1]{#2}{#3}}{%
44     \IfBeginWith{#3}{ftp}{\LWR@multimedia[#1]{#2}{#3}}{%
```

```
    \IfBeginWith{#3}{FTP}{\LWR@multimedia[#1]{#2}{#3}}{%
    }}}}%
    \endgroup%
}

\newrobustcmd*{\includemedia}{%
    \begingroup%
    \LWR@linkmediacatcodes%
    \LWR@includemediab%
}
```

`\mediabutton` `[`⟨*options*⟩`]` `{`⟨*text*⟩`}`

Ignored.

```
\newcommand*{\mediabutton}[2][]{}
```

File 297 **lwarp-memhfixc.sty**

§ 406 Package

memhfixc

Pkg `memhfixc`

memhfixc is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{memhfixc}[2013/05/30]
```

File 298 **lwarp-menukeys.sty**

§ 407 Package

menukeys

(*Emulates or patches code by* Tobias Weh.)

Pkg `menukeys`

menukeys is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{menukeys}[2020/12/19]
```

Patch to use a `lateximage` whose `alt` text is the contents of this use of the macro. A hash on these contents allows the reuse of the image for each instance of the same contents.

```
\xpatchcmd{\tw@define@menu@macro@}
    {\@nameuse{tw@style@#4@pre}}
    {%
        \begin{lateximage}*[\detokenize{##2}]%
        \@nameuse{tw@style@#4@pre}%
    }
    {}
    {\LWR@patcherror{menukeys}{tw@define@menu@macro@}}

\xpatchcmd{\tw@define@menu@macro@}
    {\@nameuse{tw@style@#4@post}}
    {%
        \@nameuse{tw@style@#4@post}%
        \end{lateximage}%
    }
```

```
    {}
    {\LWR@patcherror{menukeys}{tw@define@menu@macro@ B}}
```

Patch the existing macros:

```
\renewmenumacro{\menu}[>]{menus}
\renewmenumacro{\directory}[/]{paths}
\renewmenumacro{\keys}[+]{roundedkeys}
```

File 299 **lwarp-metalogo.sty**

§ 408 Package metalogo

(*Emulates or patches code by* Andrew Gilbert Moschou.)

Pkg metalogo

metalogo is used in print mode, and emulated in HTML.

for HTML output:

```
\LWR@ProvidesPackagePass{metalogo}[2010/05/29]

\newcommand*{\LWR@HTML@setlogokern}[2]{}
\newcommand*{\LWR@HTML@setlogodrop}[2][XeTeX]{}
\newcommand*{\LWR@HTML@setLaTeXa}[1]{}
\newcommand*{\LWR@HTML@setLaTeXee}[1]{}
\newcommand*{\LWR@HTML@seteverylogo}[1]{}
\newcommand*{\LWR@HTML@everylogo}[1]{}

\LWR@formatted{setlogokern}
\LWR@formatted{setlogodrop}
\LWR@formatted{setLaTeXa}
\LWR@formatted{setLaTeXee}
\LWR@formatted{seteverylogo}
\LWR@formatted{everylogo}
```

File 300 **lwarp-metalogox.sty**

§ 409 Package metalogox

(*Emulates or patches code by* Brian Dunn.)

Pkg metalogox

metalogox is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{metalogox}[2019/01/20]
```

\AtBeginDocument, adjust the logo setting according to the font which is active at that moment.

```
\AtBeginDocument{
    \let\LWR@metalogox@currentformatting\LWR@formatting
    \renewcommand*{\LWR@formatting}{print}%
    \autoadjustlogos*
    \let\LWR@formatting\LWR@metalogox@currentformatting
}
```

File 301 **lwarp-mhchem.sty**

§ 410 Package

mhchem

(*Emulates or patches code by* Martin Hensel.)

Pkg mhchem

mhchem is patched for use by lwarp.

without MathJax

Without MathJax, mhchem expressions are converted to svg math. Inline expressions use hashed filenames to allow reuse, and assume that any mhchem options are global.

MathJax with mhchem extension

For MathJax, the mhchem extension is used if the mhchem expression is used inside a math expression:

```
$\ce{C6H5-CHO}$
```

To force the use of svg math for an expression which does not work with MathJax, place the expression between `\displaymathother` and `\displaymathnormal`:

```
\displaymathother
\[ \ce{ . . . } \]     . . .     $ \ce { . . . } $
\displaymathnormal
```

not inside math

If *not* used inside a math expression, lwarp converts standalone mhchem expressions into svg math images.

⚠ nested math

When producing html output without the MathJax mhchem extension, lwarp does not support the use of nested dollar signs in mhchem expressions.

For some examples from the mhchem manual, change as follows:

```
$\ce{NaOH(aq,$\infty$)}$            % old
$\ce{NaOH(aq,\infty)}$              % new

$\ce{Fe(CN)_{$\frac{6}{2}$}$}$      % old
$\ce{Fe(CN)_{\frac{6}{2}}}$         % new

$\ce{NO_$x$}$                       % old
$\ce{NO_x}$                         % new

$\ce{NO_${x}$}$                     % old
$\ce{NO_{x}}$                       % new

$\ce{$cis${-}[PtCl2(NH3)2]}$        % old
$\ce{\mathit{cis}{-}[PtCl2(NH3)2]}$ % new
```

for HTML output:

```
\LWR@ProvidesPackagePass{mhchem}[2018/06/22]
```

The original definition of `\ce`:

```
\LetLtxMacro\LWR@mhchem@origce\ce
```

The new definition, called from the new \ce after math shift is set. The starred lateximage uses a hashed filename for the SVG image. The alt tag is set to the mhchem expression.

```
\newcommand{\LWR@mhchem@HTML@ce}[1]{%
    \LWR@findcurrenttextcolor% sets \LWR@tempcolor
    \ifbool{LWR@xfakebold}%
        {\def\LWR@tempone{Y}}%
        {\def\LWR@tempone{N}}%
    \begin{lateximage}%
        *%
        [%
            \textbackslash{}%
            ce%
            \{\LWR@HTMLsanitizedetokenized{\detokenize{#1}}\}%
        ]%
        *%
        [%
            FM\LWR@f@family%
            SR\LWR@f@series%
            SH\LWR@f@shape%
            SHC\LWR@f@shapecaps%
            CL\LWR@tempcolor%
            FB\LWR@tempone% xfakebold
        ]%
    \LWR@setcurrentfont%
    \LWR@mhchem@origce{#1}%
    \end{lateximage}%
    \endgroup%
    \addtocounter{LWR@mhchem@cedepth}{-1}%
}
```

Only set math shift if outer depth:

```
\newcounter{LWR@mhchem@cedepth}
\setcounter{LWR@mhchem@cedepth}{0}
```

The new \ce. Sets math shift then continues.

```
\renewcommand{\ce}{%
    \begingroup%
    \ifnumequal{\value{LWR@mhchem@cedepth}}{0}{%
        \catcode`\$=3% math shift
    }{}%
    \addtocounter{LWR@mhchem@cedepth}{1}%
    \LWR@mhchem@HTML@ce%
}
```

The original definition of \cesplit:

```
\LetLtxMacro\LWR@mhchem@origcesplit\cesplit
```

The new definition, called from the new \cesplit after math shift is set. The starred lateximage uses a hashed filename for the SVG image. The alt tag is set to the mhchem expression.

```
\newcommand*{\LWR@mhchem@HTML@cesplit}[2]
{%
    \LWR@findcurrenttextcolor% sets \LWR@tempcolor
```

```
    \ifbool{LWR@xfakebold}%
        {\def\LWR@tempone{Y}}%
        {\def\LWR@tempone{N}}%
    \begin{lateximage}%
        *%
        [%
            \textbackslash{}%
            cesplit%
            \{\LWR@HTMLsanitizedetokenized{\detokenize{#2}}\}%
        ]%
        *%
        [%
            FM\LWR@f@family%
            SR\LWR@f@series%
            SH\LWR@f@shape%
            SHC\LWR@f@shapecaps%
            CL\LWR@tempcolor%
            FB\LWR@tempone% xfakebold
        ]%
    \LWR@setcurrentfont%
    \LWR@mhchem@origcesplit{#1}{#2}%
    \end{lateximage}%
    \endgroup%
}
```

Only set math shift if outer depth:

```
\newcounter{LWR@mhchem@cesplitdepth}
\setcounter{LWR@mhchem@cesplitdepth}{0}
```

The new `\cesplit`. Sets math shift then continues.

```
\renewcommand{\cesplit}{%
    \begingroup%
    \ifnumequal{\value{LWR@mhchem@cesplitdepth}}{0}{%
        \catcode`\$=3% math shift
    }{}%
    \addtocounter{LWR@mhchem@cesplitdepth}{1}%
    \LWR@mhchem@HTML@cesplit%
}
```

Resore originals inside a `lateximage`:

```
\appto\LWR@restoreorigformatting{%
\LetLtxMacro\ce\LWR@mhchem@origce%
\LetLtxMacro\cesplit\LWR@mhchem@origcesplit%
}

\begin{warpMathJax}
\CustomizeMathJax{\require{mhchem}}
\end{warpMathJax}
```

File 302 **lwarp-microtype.sty**

§ 411 Package microtype

(*Emulates or patches code by* R Schlicht.)

Pkg microtype

microtype is pre-loaded by lwarp. All user options and macros are ignored and disabled.

for HTML output: Discard all options for lwarp-microtype:

```
\LWR@ProvidesPackageDrop{microtype}[2018/01/14]

\DeclareDocumentCommand{\DeclareMicrotypeSet}{o m m}{}
\DeclareDocumentCommand{\UseMicrotypeSet}{o m}{}
\DeclareDocumentCommand{\DeclareMicrotypeSetDefault}{o m}{}
\DeclareDocumentCommand{\SetProtrusion}{o m m}{}
\DeclareDocumentCommand{\SetExpansion}{o m m}{}
\DeclareDocumentCommand{\SetTracking}{o m m}{}
\DeclareDocumentCommand{\SetExtraKerning}{o m m}{}
\DeclareDocumentCommand{\SetExtraSpacing}{o m m}{}
\DeclareDocumentCommand{\DisableLigatures}{o m}{}
\DeclareDocumentCommand{\DeclareCharacterInheritance}{o m m}{}
\DeclareDocumentCommand{\DeclareMicrotypeVariants}{m}{}
\DeclareDocumentCommand{\DeclareMicrotypeAlias}{m m}{}
\DeclareDocumentCommand{\LoadMicrotypeFile}{m}{}
\DeclareDocumentCommand{\DeclareMicrotypeBabelHook}{m m}{}
\DeclareDocumentCommand{\microtypesetup}{m}{}
\DeclareDocumentCommand{\microtypecontext}{m}{}
\DeclareDocumentCommand{\textmicrotypecontext}{m m}{#2}
\IfPackageLoadedTF{letterspace}{\let\MT@textls\relax}{%
\DeclareDocumentCommand{\lsstyle}{}{}
\DeclareDocumentCommand{\textls}{o +m}{}
\DeclareDocumentCommand{\lslig}{m}{#1}
}
\def\DeclareMicrotypeSet#1#{\@gobbletwo}
\def\DeclareMicrotypeVariants#1#{\@gobble}
\@onlypreamble\DeclareMicrotypeSet
\@onlypreamble\UseMicrotypeSet
\@onlypreamble\DeclareMicrotypeSetDefault
\@onlypreamble\DisableLigatures
\@onlypreamble\DeclareMicrotypeVariants
\@onlypreamble\DeclareMicrotypeBabelHook
```

File 303 **lwarp-midfloat.sty**

§ 412 Package midfloat

(*Emulates or patches code by* Sigitas Tolušis.)

Pkg midfloat

midfloat is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{midfloat}[2012/05/29]

\newenvironment{strip}[1][]{}{}
\newskip\stripsep
```

File 304 **lwarp-midpage.sty**

§ 413 Package midpage

Pkg midpage

midpage is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{midpage}[2009/09/03]

\newenvironment{midpage}
{\begin{BlockClass}[%
    \LWR@print@mbox{margin-top:6ex} ; \LWR@print@mbox{margin-bottom:6ex}%
]{midpage}}
{\end{BlockClass}}
```

File 305 **lwarp-minibox.sty**

§ 414 Package minibox

(*Emulates or patches code by* Will Robertson.)

Pkg minibox

minibox is patched for use by lwarp.

Due to HTML limitations regarding paragraphs and s, miniboxes inline with other text will appear on their own line.

for HTML output:

```
\LWR@ProvidesPackagePass{minibox}[2013/06/21]

\ExplSyntaxOn
\newcommand\LWR@HTML@minibox[2][]{%
    \LWR@stoppars%
    \group_begin:
    \keys_set:nn {minibox} {#1}
    \bool_if:NTF \l_minibox_frame_bool
    {
        \setlength\fboxrule{\l_minibox_rule_dim}
        \setlength\fboxsep{\l_minibox_pad_dim}
        \fboxBlock{%
            \begin{tabular}[\l_minibox_tabular_valign_tl]%
              {\l_minibox_tabular_preamble_tl}
                {#2}
            \end{tabular}
        }%
    }
    {
        \begin{BlockClass}[display:inline-block]{minibox}
        \begin{tabular}[\l_minibox_tabular_valign_tl]%
          {\l_minibox_tabular_preamble_tl}
            {#2}
        \end{tabular}
        \end{BlockClass}
    }
    \group_end:
```

```
    \LWR@startpars%
}
\ExplSyntaxOff

\LWR@formatted{minibox}
```

File 306 **lwarp-minitoc.sty**

§ 415 Package minitoc

Pkg minitoc

minitoc is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{minitoc}[2018/07/12]
```

mtcoff disables minitoc.

```
\usepackage{mtcoff}
```

File 307 **lwarp-minted.sty**

§ 416 Package minted

(*Emulates or patches code by* Geoffrey M. Poore.)

Pkg minted

minted is patched for use by lwarp.

⚠ limitations

mathescape and highlightlines don't work. Line numbers on the right will not be aligned. Due to *pdftotext*, extra spaces may appear in broken lines if other formatting is included.

for HTML output:

```
\LWR@ProvidesPackagePass{minted}[2021/12/24]

\xpatchcmd{\minted}
    {\setkeys{minted@opt@cmd}{#1}}
    {%
        \setkeys{minted@opt@cmd}{%
            #1,%
          mathescape=false,breaklines,texcomments=false,highlightlines={}%
        }%
    }
    {}
    {\LWR@patcherror{minted}{minted}}

\xpatchcmd{\mintinline}
    {\setkeys{minted@opt@cmd}{#1}}
    {\setkeys{minted@opt@cmd}{%
            #1,%
          mathescape=false,breaklines,texcomments=false,highlightlines={}%
        }%
    }
    {}
    {\LWR@patcherror{minted}{mintinline}}

\xpatchcmd{\mint}
```

```
    {\setkeys{minted@opt@cmd}{#1}}
    {%
        \setkeys{minted@opt@cmd}{%
            #1,%
          mathescape=false,breaklines,texcomments=false,highlightlines={}%
        }%
    }
    {}
    {\LWR@patcherror{minted}{mint}}

\xpatchcmd{\inputminted}
    {\setkeys{minted@opt@cmd}{#1}}
    {\setkeys{minted@opt@cmd}{%
            #1,%
          mathescape=false,breaklines,texcomments=false,highlightlines={}%
        }%
    }
    {}
    {\LWR@patcherror{minted}{inputminted}}

\renewenvironment{minted@snugshade*}[1]%
{%
    \colorlet{shadecolor}{#1}%
    \begin{snugshade*}%
}
{%
    \end{snugshade*}%
}
```

File 308 **lwarp-mismath.sty**

§ 417 Package

mismath

(*Emulates or patches code by* Antoine Missier.)

Pkg mismath

mismath is patched for SVG math, and emulated for MathJax.

⚠ MathJax

`\enumber`, `\inumber`, `\jnumber`, and `\pinumber` are ignored for MathJax, except that `\itpi` is made available as a clone of `\pi`.

For MathJax, `\boldvect` and `\arrowvect` are honored if in the preamble.

If `\boldvectcommand` is set to `\mathbf` in the preamble, it will be used for MathJax, otherwise it will default to `\mathit`. `\boldvectcommand` may also be set with `\CustomizeMathJax` in the preamble. See section 8.7.6. Note that as of this writing there is not a bold italic font across all MathJax fonts.

If `\probastyle` is set to `\mathbb` in the preamble, it will be used for MathJax, otherwise it will default to `\mathrm`. `\probastyle` may be set with `\CustomizeMathJax` in the preamble.

If `\mathset` is set to `\mathbb` in the preamble, it will be used for MathJax, otherwise it will default to `\mathbf`. `\mathset` may be set with `\CustomizeMathJax` in the preamble.

for HTML output:

```
\LWR@ProvidesPackagePass{mismath}[2019/12/27]
```

For MathJax, used in the HTML comment before the environment.

```
\ifbool{mathjax}{
    \RenewEnviron{mathcols}{%
        \preto\BODY{\begin{aligned}\displaystyle}
        \appto\BODY{\end{aligned}}
        \expandafter\(\BODY\)
    }
}% mathjax
```

For SVG math. The `lateximage` restores the original defintion of the `math` environment.

```
{% svg
    \renewenvironment{mathcols}{
        \begin{lateximage}
        \begin{math}
        \begin{aligned}\displaystyle
    }{
        \end{aligned}%
        \end{math}
        \end{lateximage}
    }
}% svg

\renewcommand{\changecol}{
    \end{aligned}   \qquad
    \begin{aligned}\displaystyle
}

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\mathup}[1]{\mathrm{#1}}}
\CustomizeMathJax{\newcommand{\e}{\mathrm{e}}}
\CustomizeMathJax{\newcommand{\i}{\mathrm{i}}}
\CustomizeMathJax{\newcommand{\j}{\mathrm{j}}}

\CustomizeMathJax{\newcommand{\boldvect}{}}
\CustomizeMathJax{\newcommand{\arrowvect}{}}
\CustomizeMathJax{\newcommand{\pinumber}[1][]{}}
\CustomizeMathJax{\newcommand{\hvect}[1]{\vec{\vphantom{h}#1}}}
\CustomizeMathJax{\newcommand{\hvec}[1]{\vec{\vphantom{t}#1}}}
\CustomizeMathJax{%
    \newcommand{\norm}[1]{\left\vert\left\vert#1\right\vert\right\vert}
}
\CustomizeMathJax{\newcommand{\di}{\mathop{}\!\mathrm{d}}}

\CustomizeMathJax{\newcommand{\P}{\operatorname{\probastyle{P}}}}
\CustomizeMathJax{\newcommand{\E}{\operatorname{\probastyle{E}}}}
\CustomizeMathJax{\newcommand{\V}{\operatorname{\probastyle{V}}}}
\CustomizeMathJax{\newcommand{\Par}{\unicode{x00B6}}}

\CustomizeMathJax{\DeclareMathOperator{\adj}{adj}}
\CustomizeMathJax{\DeclareMathOperator{\Aut}{Aut}}
\CustomizeMathJax{\DeclareMathOperator{\Conv}{Conv}}
\CustomizeMathJax{\DeclareMathOperator{\cov}{cov}}
\CustomizeMathJax{\DeclareMathOperator{\Cov}{Cov}}
\CustomizeMathJax{\newcommand{\curl}{\operatorname{\vect{\mathrm{curl}}}}}
\CustomizeMathJax{\DeclareMathOperator{\divg}{div}}
\CustomizeMathJax{\DeclareMathOperator{\End}{End}}

```

```
\CustomizeMathJax{\DeclareMathOperator{\erf}{erf}}
\CustomizeMathJax{\newcommand{\grad}{\operatorname{\vect{\mathrm{grad}}}}}
\CustomizeMathJax{\DeclareMathOperator{\id}{id}}
\CustomizeMathJax{\DeclareMathOperator{\Id}{Id}}
\CustomizeMathJax{\DeclareMathOperator{\im}{im}}
\CustomizeMathJax{\let\oldIm\Im}
\CustomizeMathJax{\renewcommand{\Im}{\operatorname{Im}}}
\CustomizeMathJax{\DeclareMathOperator{\lb}{lb}}
\CustomizeMathJax{\DeclareMathOperator{\lcm}{lcm}}

\CustomizeMathJax{\DeclareMathOperator{\rank}{rank}}
\CustomizeMathJax{\let\oldRe\Re}
\CustomizeMathJax{\renewcommand{\Re}{\operatorname{Re}}}
\CustomizeMathJax{\newcommand{\rot}{\operatorname{\vect{\mathrm{rot}}}}}
\CustomizeMathJax{\DeclareMathOperator{\sgn}{sgn}}
\CustomizeMathJax{\DeclareMathOperator{\spa}{span}}
\CustomizeMathJax{\DeclareMathOperator{\tr}{tr}}
\CustomizeMathJax{\DeclareMathOperator{\Var}{Var}}
\CustomizeMathJax{\DeclareMathOperator{\Zu}{Z}}

\CustomizeMathJax{\DeclareMathOperator{\arccot}{arccot}}
\CustomizeMathJax{\DeclareMathOperator{\sech}{sech}}
\CustomizeMathJax{\DeclareMathOperator{\csch}{csch}}
\CustomizeMathJax{\DeclareMathOperator{\arsinh}{arsinh}}
\CustomizeMathJax{\DeclareMathOperator{\arcosh}{arcosh}}
\CustomizeMathJax{\DeclareMathOperator{\artanh}{artanh}}
\CustomizeMathJax{\DeclareMathOperator{\arcoth}{arcoth}}
\CustomizeMathJax{\DeclareMathOperator{\arsech}{arsech}}
\CustomizeMathJax{\DeclareMathOperator{\arcsch}{arcsch}}

\CustomizeMathJax{\DeclareMathOperator{\bigO}{\mathcal{O}}}
\CustomizeMathJax{\DeclareMathOperator{\bigo}{O}}
\CustomizeMathJax{\DeclareMathOperator{\lito}{o}}

\CustomizeMathJax{\newcommand{\R}{\mathset{R}}}
\CustomizeMathJax{\newcommand{\C}{\mathset{C}}}
\CustomizeMathJax{\newcommand{\N}{\mathset{N}}}
\CustomizeMathJax{\newcommand{\Z}{\mathset{Z}}}
\CustomizeMathJax{\newcommand{\Q}{\mathset{Q}}}
\CustomizeMathJax{\newcommand{\F}{\mathset{F}}}
\CustomizeMathJax{\newcommand{\K}{\mathset{K}}}

\CustomizeMathJax{\newcommand{\ds}{\displaystyle}}
\CustomizeMathJax{\newcommand{\dlim}{\lim\limits}}
\CustomizeMathJax{\newcommand{\dsum}{\sum\limits}}
\CustomizeMathJax{\newcommand{\dprod}{\prod\limits}}
\CustomizeMathJax{\newcommand{\dcup}{\bigcup\limits}}
\CustomizeMathJax{\newcommand{\dcap}{\bigcap\limits}}
\CustomizeMathJax{\newcommand{\lbar}{\overline}}
\CustomizeMathJax{\newcommand{\hlbar}[1]{\overline{\vphantom{h}#1}}}
\CustomizeMathJax{\newcommand{\eqdef}{\stackrel{\mathrm{def}}{=}}}
\CustomizeMathJax{\newcommand{\unbr}{\underbrace}}
\CustomizeMathJax{\newcommand{\iif}{if and only if }}

\CustomizeMathJax{\newcommand{\mul}{\mathord{\times}}}
\CustomizeMathJax{\newcommand{\then}{\ \Longrightarrow \ \mbox{} }}
\CustomizeMathJax{\newcommand{\txt}[1]{\quad\text{#1}\quad}}
\CustomizeMathJax{\newcommand{\paren}[1]{\mathopen{\left(#1\right)}}}
\CustomizeMathJax{\newcommand{\pow}[2]{\left( #1 \right)^{\!#2}}}
\CustomizeMathJax{\newcommand{\abs}[1]{\left\vert#1\right\vert}}
```

```
\CustomizeMathJax{\newcommand{\lfrac}[2]{\frac{\:#1\:}{\:#2\:}}}

\CustomizeMathJax{\newenvironment{system}[1][l]%
    {\left\{\begin{array}{@{.15em}#1@{}}}
    {\end{array}\right.}
}

\CustomizeMathJax{\newenvironment{spmatrix}
    {\left(\begin{smallmatrix}}
    {\end{smallmatrix}\right)}
}

\CustomizeMathJax{%
    \newenvironment{mathcols}
        {\begin{aligned}\displaystyle}
        {\end{aligned}}
}
\CustomizeMathJax{\newcommand{\changecol}{\end{aligned}\qquad\begin{aligned}}}
```

User-adjustable settings, detected if in the preamble.

```
\AtBeginDocument{
\ifdef{\itpi}{
    \CustomizeMathJax{\let\itpi\pi}
}{}
\ifdefstring{\boldvectcommand}{\mathbf}{
    \CustomizeMathJax{\newcommand{\boldvectcommand}[1]{\mathbf{#1}}}
}{
    \CustomizeMathJax{\newcommand{\boldvectcommand}[1]{\boldsymbol{#1}}}
}
\ifbool{arrowvect}{
    \CustomizeMathJax{\newcommand{\vect}[1]{\overrightarrow{#1}}}
}{
    \CustomizeMathJax{\newcommand{\vect}[1]{\boldvectcommand{#1}}}
}
\ifdefstring{\probastyle}{\mathbb}{
    \CustomizeMathJax{\newcommand{\probastyle}[1]{\mathbb{#1}}}
}{
    \CustomizeMathJax{\newcommand{\probastyle}[1]{\mathrm{#1}}}
}
\ifdefstring{\mathset}{\mathbb}{
    \CustomizeMathJax{\newcommand{\mathset}[1]{\mathbb{#1}}}
}{
    \CustomizeMathJax{\newcommand{\mathset}[1]{\mathbf{#1}}}
}
}
\end{warpMathJax}
```

File 309 **lwarp-mleftright.sty**

§ 418 Package mleftright

(*Emulates or patches code by* Heiko Oberdiek.)

Pkg mleftright

mleftright is used as-is, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{mleftright}[2019/12/03]
```

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\mleft}{\left}}
\CustomizeMathJax{\newcommand{\mright}{\right}}
\CustomizeMathJax{\newcommand{\mleftright}{}}
\CustomizeMathJax{\newcommand{\mleftrightrestore}{}}
\end{warpMathJax}
```

File 310 **lwarp-morefloats.sty**

§ 419 Package morefloats

Pkg morefloats

morefloats is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{morefloats}[2015/07/22]
```

File 311 **lwarp-moreverb.sty**

§ 420 Package moreverb

(*Emulates or patches code by* Robin Fairbairns.)

Pkg moreverb

moreverb is supported with some patches.

```
\LWR@ProvidesPackagePass{moreverb}[2008/06/03]

\BeforeBeginEnvironment{verbatimtab}{%
\LWR@forcenewpage
\LWR@atbeginverbatim{Verbatim}%
}
\AfterEndEnvironment{verbatimtab}{%
\LWR@afterendverbatim%
}


\LetLtxMacro\LWRMV@orig@verbatimtabinput\@verbatimtabinput

\renewcommand{\@verbatimtabinput}[2][]{%
\LWR@forcenewpage
\LWR@atbeginverbatim{Verbatim}%
\LWRMV@orig@verbatimtabinput[#1]{#2}%
\LWR@afterendverbatim%
}

\BeforeBeginEnvironment{listing}{%
\LWR@forcenewpage
\LWR@atbeginverbatim{programlisting}%
}

\AfterEndEnvironment{listing}{%
\LWR@afterendverbatim%
}

\BeforeBeginEnvironment{listingcont}{%
\LWR@forcenewpage
```

```
\LWR@atbeginverbatim{programlisting}%
}

\AfterEndEnvironment{listingcont}{%
\LWR@afterendverbatim%
}

\LetLtxMacro\LWRMV@@listinginput\@listinginput

\renewcommand{\@listinginput}[3][]{
\LWR@forcenewpage
\LWR@atbeginverbatim{programlisting}%
\LWRMV@@listinginput[#1]{#2}{#3}%
\LWR@afterendverbatim%
}


\renewenvironment*{boxedverbatim}
{
\LWR@forcenewpage
\LWR@atbeginverbatim{boxedverbatim}%
\verbatim%
}
{
\endverbatim%
\LWR@afterendverbatim%
}
```

File 312 **lwarp-movie15.sty**

§ 421 Package

movie15

Pkg movie15

movie15 is emualted.

The packages multimedia, movie15, and media9 are supported.

HTML5 <audio> and <video> objects are created for .mp3 and .mp4 files.

HTML5 <embed> objects are created for http and ftp links.

\href links are created for other media types. (Unfortunately, there is not much overlap between the file types supported for print output and the file types supported by HTML5.)

For media9, a multimedia object is inserted for each addresource=, as well as each flashvars source= and src=. This may result in duplicate objects.

Undesired objects may be nullified by placing them inside \warpprintonly or the warpprint environment.

Each HTML multimedia object includes the poster text, except for <embed> objects. For movie15, the text option is supported to specify the poster text.

The width, height, and totalheight options are supported. The HTML object is scaled according to the display width, correctly compensating for either tall or wide viewports.

Other options are ignored.

media9 `\addmediapath` is supported. It is assumed that the same path structure will exist for the HTML document.

HTML5 media controls are always specified for each `<audio>` and `<video>` object.

media9 slideshows are not supported.

`\hyperlinkmovie`, `\movieref`, and `\mediabutton` are not supported.

3D objects are not supported.

If using a YouTube™ video, use an "embedded" URL with …`/embed/`… instead of …`/v/`…

for HTML output:

```
\LWR@ProvidesPackageDrop{movie15}[2012/05/16]

\LWR@origRequirePackage{lwarp-common-multimedia}

\RequirePackage{xkeyval}

\newcommand*{\LWR@moviefifteen@text}{}

\define@key{LWR@moviefifteen}{text}{\renewcommand{\LWR@moviefifteen@text}{#1}}

\newcommand*{\LWR@includemovieb}[4][]{%
    \renewcommand{\LWR@moviefifteen@text}{(multimedia)}
    \setkeys*{LWR@moviefifteen}{#1}%
    \LWR@multimediab[#1,width=#2,height=#3]{\LWR@moviefifteen@text}{#4}%
}

\newrobustcmd*{\includemovie}{%
    \begingroup%
    \LWR@linkmediacatcodes%
    \LWR@includemovieb%
}


\newcommand*{\movieref}[3][]{}

\LetLtxMacro\movie\LWR@multimedia
% \LetLtxMacro\sound\LWR@multimedia% not in media15

\newcommand{\hyperlinkmovie}[3][]{}
```

File 313 **`lwarp-mparhack.sty`**

§ 422 Package mparhack

Pkg mparhack

mparhack is ignored.

for HTML output:

Discard all options for lwarp-mparhack:

```
\LWR@ProvidesPackageDrop{mparhack}[2005/04/17]
```

File 314 **lwarp-multibib.sty**

§ 423 Package multibib

(*Emulates or patches code by* Thorsten Hansen.)

Pkg multibib

multibib is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{multibib}[2008/12/10]

\xpatchcmd{\newcites}
    {{\@suffix}}
    {{\@suffix_html}}
    {}
    {\LWR@patcherror{multibib}{newcites}}
```

File 315 **lwarp-multicap.sty**

§ 424 Package multicap

Pkg multicap

multicap is emualted.

for HTML output:

```
\LWR@ProvidesPackageDrop{multicap}[2002/05/04]

\newcommand*{\mfcaption}{\captionof{figure}}
\newcommand*{\mtcaption}{\captionof{table}}
\newcounter{mcapsize}
\newcounter{mcapskip}
\newlength{\abvmcapskip}
\newlength{\blwmcapskip}
```

File 316 **lwarp-multicol.sty**

§ 425 Package multicol

(*Emulates or patches code by* Frank Mittelbach.)

Pkg multicol

multicol is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{multicol}[2021/10/28]
```

Multicols are converted into a 1–3 column display, browser-supported.

The optional multicols heading is placed inside a of class multicolsheading.

The content is placed inside a of class multicols.

Env multicols

* {⟨*numcols*⟩} [⟨*heading*⟩]

```
\NewDocumentEnvironment{multicols}{s m o}
```

HTML class to contain everything:

```
{
    \LWR@forcenewpage
    \BlockClass{multicols}
```

Optional HTML class for the heading:

```
    \IfValueT{#3}{\begin{BlockClass}{multicolsheading}#3\end{BlockClass}}%
```

Change \linewidth to compensate for expected size:

```
    \setlength{\linewidth}{\linewidth/#2}
```

Locally force any minipages to be fullwidth:

```
    \booltrue{LWR@forceminipagefullwidth}
}
```

When done with the environment, close the :

```
{\endBlockClass}
```

Emulated null functions which are not used in HTML:

```
\newcommand*{\columnbreak}{}
\newcommand*{\newcolumn}{}
\newcommand*{\RLmulticolcolumns}{}
\newcommand*{\LRmulticolcolumns}{}

\newlength{\premulticols}
\newlength{\postmulticols}
\newlength{\multicolsep}
\newlength{\multicolbaselineskip}
\newlength{\multicoltolerance}
\newlength{\multicolpretolerance}
\newcommand*{\columnseprulecolor}{\normalcolor}
\newcounter{columnbadness}
\newcounter{finalcolumnbadness}
\newcounter{collectmore}
\newcounter{unbalance}
\newlength{\multicolovershoot}
\newlength{\multicolundershoot}


\NewDocumentCommand{\docolaction}{s o m m m}{%
    \IfValueTF{#2}{#2}{#3}%
}
```

File 317 **lwarp-multicolrule.sty**

§ 426 Package

multicolrule

Pkg multicolrule

multicolrule is ignored.

for HTML output:

```
\RequirePackage{multicol}

\LWR@ProvidesPackageDrop{multicolrule}[2019/01/01]

\newcommand*{\SetMCRule}[1]{}
\NewDocumentCommand{\DeclareMCRulePattern}{m m}{}
```

File 318 **lwarp-multimedia.sty**

§ 427 Package

multimedia

Pkg multimedia

multimedia is emulated.

The packages multimedia, movie15, and media9 are supported.

HTML5 <audio> and <video> objects are created for .mp3 and .mp4 files.

HTML5 <embed> objects are created for http and ftp links.

\href links are created for other media types. (Unfortunately, there is not much overlap between the file types supported for print output and the file types supported by HTML5.)

For media9, a multimedia object is inserted for each addresource=, as well as each flashvars source= and src=. This may result in duplicate objects.

Undesired objects may be nullified by placing them inside \warpprintonly or the warpprint environment.

Each HTML multimedia object includes the poster text, except for <embed> objects. For movie15, the text option is supported to specify the poster text.

The width, height, and totalheight options are supported. The HTML object is scaled according to the display width, correctly compensating for either tall or wide viewports.

Other options are ignored.

media9 \addmediapath is supported. It is assumed that the same path structure will exist for the HTML document.

HTML5 media controls are always specified for each <audio> and <video> object.

media9 slideshows are not supported.

\hyperlinkmovie, \movieref, and \mediabutton are not supported.

3D objects are not supported.

If using a YouTube™ video, use an "embedded" URL with .../embed/... instead of .../v/...

for HTML output:

```
\LWR@ProvidesPackageDrop{multimedia}[2012/05/02]

\LWR@origRequirePackage{lwarp-common-multimedia}

\LetLtxMacro\movie\LWR@multimedia
\LetLtxMacro\sound\LWR@multimedia

\newcommand{\hyperlinkmovie}[3][]{}

\newcommand{\hyperlinksound}[3][]{}

```

```
\newcommand{\hyperlinkmute}
```

File 319 **lwarp-multiobjective.sty**

§ 428 Package multiobjective

(*Emulates or patches code by* Luis Martí.)

Pkg multiobjective

multiobjective is used as-is for SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{multiobjective}[2008/08/19]

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\dom}{\prec}}
\CustomizeMathJax{\newcommand{\negdom}{\not\prec}}
\CustomizeMathJax{\newcommand{\weakdom}{\preccurlyeq}}
\CustomizeMathJax{\newcommand{\negweakdom}{\not\preccurlyeq}}

\CustomizeMathJax{\newcommand{\strictdom}{\mathord{\prec}\!\!\!\mathord{\prec}}}
\CustomizeMathJax{\newcommand{\negstrictdom}{\mathord{\not\prec}\!\!\!\mathord{\prec}}}
\CustomizeMathJax{\newcommand{\multepsilondom}{\preccurlyeq_{\epsilon\cdot}}}
\CustomizeMathJax{\newcommand{\addiepsilondom}{\preccurlyeq_{\epsilon +}}}
\CustomizeMathJax{\newcommand{\better}{\triangleleft}}
\CustomizeMathJax{\def\vec#1{%
    \mathchoice%
        {{\displaystyle\boldsymbol{#1}}%
        {{\textstyle\boldsymbol{#1}}%
        {{\scriptstyle\boldsymbol{#1}}%
        {{\scriptscriptstyle\boldsymbol{#1}}%
}}

\CustomizeMathJax{\newcommand{\set}[1]{%
    \mathchoice%
        {{\displaystyle\mathcal{#1}}%
        {{\textstyle\mathcal{#1}}%
        {{\scriptstyle\mathcal{#1}}%
        {{\scriptscriptstyle\mathcal{#1}}%
}}
\CustomizeMathJax{\def\argmax{\mathop{{\mathrm{arg}}\,\max}}}
\CustomizeMathJax{\def\argmin{\mathop{{\mathrm{arg}}\,\min}
}}
\end{warpMathJax}
```

File 320 **lwarp-multirow.sty**

§ 429 Package multirow

(*Emulates or patches code by* Piet van Oostrum, Øystein Bache, Jerry Leichter.)

Pkg multirow

multirow is emulated during HTML output, and used as-is while inside a `lateximage`.

vposn

- Note that recent versions of multirow include a new optional vposn argument.

multirow cells

- For multirow, insert `\mrowcell` into any empty multi-row cells. This will be a null function for the print output, and is a placeholder for parsing the table for HTML output. An error is generated if this is missed.

```
. . . &  \multirow{2}{.5in}{text}  & . . .
. . . &  \mrowcell                 & . . .
```

colored cells

- The multirow documentation regarding colored cells recommends using a negative number of rows. This will not work with lwarp, so `\warpprintonly` and `\warpHTMLonly` must be used to make versions for print and HTML.

with `\multicolumn`

- See section 429.2 for `\multicolumrow`.

⚠ `\multicolumn` & `\multirow`

lwarp does not support directly combining `\multicolumn` and `\multirow`. Use `\multicolumnrow` instead. To create a 2 column, 3 row cell:

```
\multicolumnrow{2}{c}[c]{3}[0]{1in}[0pt]{Text}
```

The two arguments for `\multicolumn` come first, followed by the five arguments for `\multirow`, many of which are optional, followed by the contents.

⚠ skipped cells

⚠ empty cells

As per `\multirow`, skipped cells to the right of the `\multicolumnrow` statement are not included in the source code on the same line. On the following lines, `\mcolrowcell` must be used for each cell of each column and each row to be skipped. An error is generated if this is missed.

```
. . . &  \multicolumnrow{2}{c}[c]{3}[0]{1in}[0pt]{Text}  & . . .
. . . &  \mcolrowcell          &          \mcolrowcell   & . . .
. . . &  \mcolrowcell          &          \mcolrowcell   & . . .
```

⚠ MathJax

- MathJax does not support multirow, so it is emulated to only print its text on the first row. `\multirow` works as expected in text `tabulars` or SVG math.

In a `latexmage`, the print versions are restored.

See section 75.24 for the print-mode versions.

for HTML output:

Remove the placeholder macro which was used if multirow was not loaded:

```
\LetLtxMacro\multirow\relax
```

```
\LWR@ProvidesPackagePass{multirow}[2021/03/15]
```

`\LWR@multirowborder`

Set to `left` or `right` to create a thick border for the cell, for use by bigdelim:

```
\newcommand{\LWR@multirowborder}{}
```

§ 429.1 Multirow

\LWR@multirow@par

\par inside a \multirow.

```
\newcommand*{\LWR@multirow@par}{%
    \LWR@htmltag{br /}%
}%
```

\multirow

[⟨*1: vpos*⟩] {⟨*2: numrows*⟩} [⟨*3:bigstruts*⟩] {⟨*4: width*⟩} [⟨*5: vmove*⟩] {⟨*6: text*⟩}

```
\NewDocumentCommand{\LWR@HTML@multirow}{O{c} m o m o +m}%
{%
    \LWR@traceinfo{LWR@HTML@multirow #1 #2 #4}%
    \booltrue{LWR@usedmultirow}%
    \LWR@maybenewtablerow%
    \LWR@tabularleftedge%
```

Print the start of a new table data cell:

```
    \LWR@htmltag{%
        td rowspan=\textquotedbl#2\textquotedbl\ %
```

A class adds the column spec and the rule:

```
        class=\textquotedbl{}td%
```

Append this column's spec:

```
      \LWR@getexparray{LWR@tablecolspec}{\arabic{LWR@tableLaTeXcolindex}}%
```

If this column has a cmidrule, add "rule" to the end of the HTML class tag. Also add the vertical bar class.

```
        \LWR@addcmidruletrim%
        \LWR@addleftmostbartag%
        \LWR@printbartag{\arabic{LWR@tableLaTeXcolindex}}%
        \textquotedbl%
        \LWR@tdstartstyles%
```

The vertical alignment, if given:

```
    \ifstrequal{#1}{c}{\LWR@tdaddstyle\LWR@print@mbox{vertical-align:middle}}{}%
    \ifstrequal{#1}{b}{\LWR@tdaddstyle\LWR@print@mbox{vertical-align:bottom}}{}%
    \ifstrequal{#1}{t}{\LWR@tdaddstyle\LWR@print@mbox{vertical-align:top}}{}%
```

The left/right border, if given:

```
        \ifdefvoid{\LWR@multirowborder}{}{%
            \LWR@tdaddstyle%
          \LWR@print@mbox{border-\LWR@multirowborder:} 2px dotted black ; %
            \LWR@print@mbox{padding-\LWR@multirowborder:} 2px%
        }%
```

Additional style elements:

```
        \LWR@addcmidrulewidth%
        \LWR@addcdashline%
        \LWR@addtabularrulecolors%
        \LWR@tdendstyles%
    }%
```

The column's < spec:

```
    \LWR@getexparray{LWR@colbeforespec}{\arabic{LWR@tableLaTeXcolindex}}%
```

While printing the text, redefine `\\` to generate a new line. If a nested `tabular` occurs, `\\` is redefined to `\LWR@tabularendofline` at the start of the `tabular`, then `\LWR@endofline` before again printing any `\multirow` contents inside the nested `tabular`.

`\par` is redefined to insert an HTML break, and if `tabular` is nested, it is redefined at the start of `tabular`.

```
    \begingroup%
        \LetLtxMacro{\\}{\LWR@endofline}%
        \booltrue{LWR@in@multirow@par}%
        #6%
    \endgroup%
    \LWR@stoppars%
    \boolfalse{LWR@intabularmetadata}%
    \renewcommand{\LWR@multirowborder}{}%
    \LWR@traceinfo{LWR@HTML@multirow done}%
}%

\LWR@formatted{multirow}
```

§ 429.2 Combined multicolumn and multirow

`\multicolumnrow` {⟨*1:cols*⟩} {⟨*2:halign*⟩} [⟨*3:vpos*⟩] {⟨*4:numrows*⟩} [⟨*5:bigstruts*⟩] {⟨*6:width*⟩} [⟨*7:fixup*⟩] {⟨*8:text*⟩}

`\IfPackageLoadedTF{multirow}` determines if v2.0 or later of multirow was used, which included the `\ProvidesPackage` macro.

The HTML version follows.

`\AtBeginDocument` because the print version had to see if multirow was loaded before determining how to define `\LWR@print@multicolumnrow`.

```
\AtBeginDocument{

\NewExpandableDocumentCommand{\LWR@HTML@multicolumnrow}{m m O{} m O{} m O{} +m}{%

\booltrue{LWR@usedmultirow}%
```

Figure out how many extra HTML columns to add for `@` and `!` columns:

```
\LWR@tabularhtmlcolumns{\arabic{LWR@tableLaTeXcolindex}}{#1}
```

Create the multicolumn/multirow tag, temporarily redefining the end of line. (Using a group caused problems with a nested `tabular`.

```
\LetLtxMacro{\\}{\LWR@endofline}%
\LWR@domulticolumn[#3][#4]{#1}{\arabic{LWR@tabhtmlcoltotal}}{#2}{#8}%
\LetLtxMacro{\\}{\LWR@tabularendofline}%
```

Move to the next LaTeX column:

```
\defaddtocounter{LWR@tableLaTeXcolindex}{#1}%
\defaddtocounter{LWR@tableLaTeXcolindex}{-1}%
```

Skip any trailing `@` or `!` columns for this cell:

```
\booltrue{LWR@skipatbang}%
}

\LWR@expandableformatted{multicolumnrow}

}% \AtBeginDocument
```

For MathJax. Only the text is used. All other parameters are ignored.

```
\begin{warpMathJax}
% \multirow[vpos]{num}[bigstruts]{width}[vmove]{text}
\CustomizeMathJax{\newcommand{\LWRsubmultirow}[2][]{#2}}
\CustomizeMathJax{\newcommand{\LWRmultirow}[2][]{\LWRsubmultirow}}
\CustomizeMathJax{\newcommand{\multirow}[2][]{\LWRmultirow}}
%
\CustomizeMathJax{\newcommand{\mrowcell}{}}
\CustomizeMathJax{\newcommand{\mcolrowcell}{}}
\CustomizeMathJax{\newcommand{\STneed}[1]{}}
\end{warpMathJax}
```

File 321 **lwarp-multitoc.sty**

§ 430 Package multitoc

Pkg multitoc

multitoc is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{multitoc}[1999/06/08]

\newcommand{\multicolumntoc}{2}
\newcommand{\multicolumnlot}{2}
\newcommand{\multicolumnlof}{2}
\newcommand*{\immediateaddtocontents}[2]{}
```

File 322 **lwarp-musicography.sty**

§ 431 Package musicography

(*Emulates or patches code by* Andrew A. Cashner.)

Pkg musicography

musicography is patched for use by lwarp.

Images are used for the meter symbols and fingered bass, since the HTML fonts tend not to be the correct size and HTML cannot stack items. The HTML `alt` tag copies `C` and `3/2`, etc. Hashes are used for the meter images, which are then reused as necessary.

⚠ Note that browser support for musical symbols may be buggy. ALT text and copy/paste into a text editor work well.

for HTML output:

```
\LWR@ProvidesPackagePass{musicography}[2019/05/28]

\NewDocumentCommand{\LWR@HTML@musSymbol}{ O{\musFont} m m m m }{%
\begin{lateximage}%
{#1\kern#2\raisebox{#3}{#5}\kern#4}%
\end{lateximage}%
}

\LWR@formatted{musSymbol}

\NewDocumentCommand{\LWR@HTML@musStemmedNote}{ m }{%
\begin{lateximage}%
\musSymbol{0.05em}{0.5ex}{0.2em}{#1\musStem}%
\end{lateximage}%
}

\LWR@formatted{musStemmedNote}

\NewDocumentCommand{\LWR@HTML@musFlaggedNote}{ m m }{%
\begin{lateximage}%
\musSymbol{0.05em}{0.5ex}{0pt}{#1\musStem}%
\musSymbol{0pt}{0pt}{0.9em}{#2}%
\end{lateximage}%
}

\LWR@formatted{musFlaggedNote}

\NewDocumentCommand{\LWR@HTML@musDottedNote}{ m }{%
\begin{lateximage}%
#1\musDot%
\end{lateximage}%
}

\LWR@formatted{musDottedNote}

\NewDocumentCommand{\LWR@HTML@musMeter}{ m m }{%
\begin{lateximage}*[#1/#2][#1#2]*%
\musStack{#1 #2}\kern0.05em%
\end{lateximage}%
}

\LWR@formatted{musMeter}

\NewDocumentCommand{\LWR@HTML@meterCplus}{ m }{%
\begin{lateximage}*[C#1]*%
    \meterC{}\kern-0.7pt#1%
\end{lateximage}%
}

\LWR@formatted{meterCplus}
```

```
\NewDocumentCommand{\LWR@HTML@meterC}{}{%
\begin{lateximage}*[C]*%
\musSymbolMeter{\symbol{83}}%
\end{lateximage}%
}

\LWR@formatted{meterC}

\NewDocumentCommand{\LWR@HTML@meterCutC}{}{%
\begin{lateximage}*[C|]*%
\musSymbolMeter{\symbol{82}}%
\end{lateximage}%
}

\LWR@formatted{meterCutC}

\NewDocumentCommand{\LWR@HTML@meterCThreeTwo}{}{%
\begin{lateximage}*[C3/2]*%
\meterCplus{\musStack{3 2}}%
\end{lateximage}%
}

\LWR@formatted{meterCThreeTwo}

\NewDocumentCommand{\LWR@HTML@meterO}{}{\HTMLunicode{25EF}}

\LWR@formatted{meterO}

\newcommand{\LWR@null@noFig}[1][]{}%

\NewDocumentCommand{\LWR@HTML@musFig}{ m }{%
\begin{lateximage}*[%
    {% ALT text for copy/paste
        \LetLtxMacro\noFig\LWR@null@noFig%
        \LetLtxMacro\musSharp\LWR@HTML@musSharp%
        \LetLtxMacro\musDoubleSharp\LWR@HTML@musDoubleSharp%
        \LetLtxMacro\musFlat\LWR@HTML@musFlat%
        \LetLtxMacro\musDoubleFlat\LWR@HTML@musDoubleFlat%
        \LetLtxMacro\musNatural\LWR@HTML@musNatural%
        {#1}% braces here because \noFig uses []
    }%
]*%
    \musStack[\musFigFont]{#1}%
\end{lateximage}%
}

\LWR@formatted{musFig}

\NewDocumentCommand{\LWR@HTML@musFlat}       {}{\HTMLunicode{266D}}
\NewDocumentCommand{\LWR@HTML@musDoubleFlat} {}{\HTMLunicode{1D12B}}
\NewDocumentCommand{\LWR@HTML@musSharp}      {}{\HTMLunicode{266F}}
\NewDocumentCommand{\LWR@HTML@musDoubleSharp}{}{\HTMLunicode{1D12A}}
\NewDocumentCommand{\LWR@HTML@musNatural}    {}{\HTMLunicode{266E}}

\LWR@formatted{musFlat}
\LWR@formatted{musDoubleFlat}
\LWR@formatted{musSharp}
\LWR@formatted{musDoubleSharp}
\LWR@formatted{musNatural}
```

```
\NewDocumentCommand{\LWR@HTML@musWhole}         {}{\HTMLunicode{1D15D}}
\NewDocumentCommand{\LWR@HTML@musHalf}          {}{\HTMLunicode{1D15E}}
\NewDocumentCommand{\LWR@HTML@musQuarter}       {}{\HTMLunicode{1D15F}}
\NewDocumentCommand{\LWR@HTML@musEighth}        {}{\HTMLunicode{1D160}}
\NewDocumentCommand{\LWR@HTML@musSixteenth}     {}{\HTMLunicode{1D161}}
\NewDocumentCommand{\LWR@HTML@musThirtySecond}  {}{\HTMLunicode{1D162}}
\NewDocumentCommand{\LWR@HTML@musSixtyFourth}   {}{\HTMLunicode{1D163}}

\LWR@formatted{musWhole}
\LWR@formatted{musHalf}
\LWR@formatted{musQuarter}
\LWR@formatted{musEighth}
\LWR@formatted{musSixteenth}
\LWR@formatted{musThirtySecond}
\LWR@formatted{musSixtyFourth}

\NewDocumentCommand{\LWR@HTML@musWholeDotted}{}
    {\HTMLunicode{1D15D}\HTMLunicode{1D16D}}
\NewDocumentCommand{\LWR@HTML@musHalfDotted}{}
    {\HTMLunicode{1D15E}\HTMLunicode{1D16D}}
\NewDocumentCommand{\LWR@HTML@musQuarterDotted}{}
    {\HTMLunicode{1D15F}\HTMLunicode{1D16D}}
\NewDocumentCommand{\LWR@HTML@musEighthDotted}{}
    {\HTMLunicode{1D160}\HTMLunicode{1D16D}}
\NewDocumentCommand{\LWR@HTML@musSixteenthDotted}{}
    {\HTMLunicode{1D161}\HTMLunicode{1D16D}}
\NewDocumentCommand{\LWR@HTML@musThirtySecondDotted}{}
    {\HTMLunicode{1D162}\HTMLunicode{1D16D}}
\NewDocumentCommand{\LWR@HTML@musSixtyFourthDotted}{}
    {\HTMLunicode{1D163}\HTMLunicode{1D16D}}

\LWR@formatted{musWholeDotted}
\LWR@formatted{musHalfDotted}
\LWR@formatted{musQuarterDotted}
\LWR@formatted{musEighthDotted}
\LWR@formatted{musSixteenthDotted}
\LWR@formatted{musThirtySecondDotted}
\LWR@formatted{musSixtyFourthDotted}
```

File 323 **lwarp-mwe.sty**

§ 432 Package mwe

(*Emulates or patches code by* Martin Scharrer.)

Pkg mwe

mwe is used as-is, but a warning is issued to copy the images to the local directory.

for HTML output:

```
\LWR@ProvidesPackagePass{mwe}[2018/03/30]

\AtEndDocument{%
    \PackageWarningNoLine{lwarp}{%
        For package mwe, copy any mwe images to be used for\MessageBreak
        HTML, such as PNG or JPG, to the document's base\MessageBreak
        directory.  Neither a subdirectory nor the mwe\MessageBreak
        directory will work, due to the TeX file search\MessageBreak
        algorithm%
```

```
    }%
}%
```

File 324 **lwarp-nameauth.sty**

§ 433 Package nameauth

(*Emulates or patches code by* Charles P. Schaum.)

Pkg nameauth

nameauth is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{nameauth}[2017/03/22]
```

Hook [nameauth]
\@nameauth@Hook

lwarp formatting is inserted.

```
\renewcommand*\@nameauth@Hook[1]
{%
  \if@nameauth@Lock
    \@nameauth@InHooktrue%
    \protected@edef\test{#1}%
    \expandafter\@nameauth@TestDot\expandafter{\test}%
    \if@nameauth@InAKA
      \if@nameauth@AlwaysFormat
        \@nameauth@FirstFormattrue%
      \else
        \unless\if@nameauth@AKAFormat
        \@nameauth@FirstFormatfalse\fi
      \fi
      \if@nameauth@MainFormat
        \if@nameauth@FirstFormat
          \bgroup\NamesFormat{%
            \LWR@textcurrentcolor{\LWR@textcurrentfont{#1}}%    lwarp
          }\egroup%
        \else
          \bgroup\MainNameHook{%
            \LWR@textcurrentcolor{\LWR@textcurrentfont{#1}}%    lwarp
          }\egroup%
        \fi
      \else
        \if@nameauth@FirstFormat
          \bgroup\FrontNamesFormat{%
            \LWR@textcurrentcolor{\LWR@textcurrentfont{#1}}%    lwarp
          }\egroup%
        \else
          \bgroup\FrontNameHook{%
            \LWR@textcurrentcolor{\LWR@textcurrentfont{#1}}%    lwarp
          }\egroup%
        \fi
      \fi
    \else
      \if@nameauth@AlwaysFormat
        \@nameauth@FirstFormattrue%
      \fi
      \if@nameauth@MainFormat
        \if@nameauth@FirstFormat
          \bgroup\NamesFormat{%
            \LWR@textcurrentcolor{\LWR@textcurrentfont{#1}}%    lwarp
```

```
          }\egroup%
        \else
          \bgroup\MainNameHook{%
            \LWR@textcurrentcolor{\LWR@textcurrentfont{#1}}%    lwarp
          }\egroup%
        \fi
      \else
        \if@nameauth@FirstFormat
          \bgroup\FrontNamesFormat{%
            \LWR@textcurrentcolor{\LWR@textcurrentfont{#1}}%    lwarp
          }\egroup%
        \else
          \bgroup\FrontNameHook{%
            \LWR@textcurrentcolor{\LWR@textcurrentfont{#1}}%    lwarp
          }\egroup%
        \fi
      \fi
    \fi
    \@nameauth@FirstFormatfalse%
    \@nameauth@InHookfalse%
  \fi
}
```

File 325 **lwarp-nameref.sty**

§ 434 Package nameref

Pkg nameref

nameref is emulated by lwarp.

for HTML output: Discard all options for lwarp-nameref:

```
\PackageInfo{lwarp}{%
Using the lwarp HTML version of package ‘nameref’,\MessageBreak
and discarding options.\MessageBreak
(Not using \protect\ProvidesPackage, so that other packages\MessageBreak
do not attempt to patch lwarp’s version of ‘nameref’.)\MessageBreak
}
\DeclareOption*{}
\ProcessOptions\relax
```

File 326 **lwarp-natbib.sty**

§ 435 Package natbib

(*Emulates or patches code by* Patrick W. Daly.)

Pkg natbib

natbib is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{natbib}[2010/09/13]
```

Replace math < and > with \textless and \textgreater:

A macro to compare:

```
\newcommand{\LWRNB@NAT@open}{$<$}
```

To patch \NAT@open and \NAT@close

```
\newcommand{\LWRNB@patchnatbibopenclose}{
\ifdefstrequal{\NAT@open}{\LWRNB@NAT@open}
{
    \renewcommand{\NAT@open}{\textless}
    \renewcommand{\NAT@close}{\textgreater}
}{}
}
```

Do it now in case angle was selected as an option:

```
\LWRNB@patchnatbibopenclose
```

Also patch \setcitestyle to patch after settings are made:

```
\let\LWRNB@origsetcitestyle\setcitestyle

\renewcommand{\setcitestyle}[1]{%
\LWRNB@origsetcitestyle{#1}%
\LWRNB@patchnatbibopenclose%
}
```

Syncronize the autopage labels:

```
\xpretocmd{\NAT@reset@parser}
    {\LWR@newautopagelabel{page}}%
    {}
    {\LWR@patcherror{natbib}{NAT@reset@parser}}
```

File 327 **lwarp-nccfancyhdr.sty**

§ 436 Package

nccfancyhdr

(*Emulates or patches code by* Alexander I. Rozhenko.)

Pkg nccfancyhdr

nccfancyhdr is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{nccfancyhdr}[2004/12/07]

\newcommand*{\headrulewidth}{}
\newcommand*{\footrulewidth}{}
\newcommand{\headstrutheight}{}
\newcommand{\footstrutheight}{}
\newcommand*{\headrule}{}
\newcommand*{\footrule}{}

\newdimen\headwidth
\newcommand*{\extendedheaders}{}
\newcommand*{\normalheaders}{}

\newcommand*{\fancyhead}[2][]{}
\newcommand*{\fancyfoot}[2][]{}
\newcommand*{\fancyhf}[2][]{}
\newcommand*{\fancypagestyle}[2]{}
\newcommand*{\lhead}[2][]{}
```

```
\newcommand*{\chead}[2][]{}
\newcommand*{\rhead}[2][]{}
\newcommand*{\lfoot}[2][]{}
\newcommand*{\cfoot}[2][]{}
\newcommand*{\rfoot}[2][]{}

\newcommand{\nouppercase}[1]{#1}

\NewDocumentCommand{\fancycenter}{o o m m m}{}

\NewDocumentCommand{\newpagestyle}{m o m}{}

\newcommand*{\iffloatpage}[2]{#2}
\newcommand*{\ifftopfloat}[2]{#2}
\newcommand*{\iffbotfloat}[2]{#2}
```

File 328 **lwarp-nccfoots.sty**

§ 437 Package nccfoots

(*Emulates or patches code by* Alexander I. Rozhenko.)

Pkg nccfoots

nccfoots is used as-is, and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{nccfoots}[2005/02/03]
```

To nullify the footnotes where necessary:

```
\apptocmd{\LWR@nullifyfootnotes}{%
    \renewcommand*{\Footnote}[1]{}%
    \renewcommand*{\Footnotemark}[1]{}%
}{}{}
```

⚠ For MathJax. There is no way to test for an empty argument, so the mark is not automatically duplicated.

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\Footnotemark}[1]{{}^{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\Footnote}[2]{\Footnotemark{#1}}}
\end{warpMathJax}
```

File 329 **lwarp-nccmath.sty**

§ 438 Package nccmath

(*Emulates or patches code by* Alexander I. Rozhenko.)

Pkg nccmath

nccmath is patched for use by lwarp, and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{nccmath}[2006/01/20]

\let\LWR@origeqnarray\eqnarray
\let\LWR@origendeqnarray\endeqnarray

```

```
\csletcs{LWR@origeqnarraystar}{eqnarray*}
\csletcs{LWR@origendeqnarraystar}{endeqnarray*}

\RenewEnviron{eqnarray}
{%

    \LWR@eqnarrayfactor

}

\RenewEnviron{eqnarray*}
{%

    \begingroup
    \csletcs{LWR@origeqnarray}{LWR@origeqnarraystar}
    \csletcs{LWR@origendeqnarray}{LWR@origendeqnarraystar}
    \boolfalse{LWR@numbereqnarray}
    \LWR@eqnarrayfactor
    \endgroup

}

\def\eqs{%
    \@ifstar\LWR@nccmath@eqsstar\LWR@nccmath@eqs%
}
\newcommand*{\LWR@nccmath@eqsstar}[2][]{\begin{eqnarray*}#2\end{eqnarray*}}
\newcommand*{\LWR@nccmath@eqs}[2][]{\begin{eqnarray}#2\end{eqnarray}}

\begin{warpMathJax}

\CustomizeMathJax{\renewcommand{\intertext}[2][]{\text{#2}\notag \\}}
\CustomizeMathJax{\newenvironment{fleqn}[1][]{}{}}
\CustomizeMathJax{\newenvironment{ceqn}{}{}}
\CustomizeMathJax{\newenvironment{darray}[2][c]{\begin{array}[#1]{#2}}{\end{array}}}
\CustomizeMathJax{\newcommand{\dmulticolumn}[3]{#3}}
```

As of v0.86, MathJax v3 does not offer `\\*`, so the unstarred version is used here.

```
\CustomizeMathJax{\newcommand{\LWRnrnostar}[1][0.5ex]{\\[#1]}}
\CustomizeMathJax{\newcommand{\nr}{\ifstar\LWRnrnostar\LWRnrnostar}}

\CustomizeMathJax{\newcommand{\mrel}[1]{\begin{aligned}#1\end{aligned}}}
\CustomizeMathJax{\newcommand{\underrel}[2]{\underset{#2}{#1}}}
\CustomizeMathJax{\newcommand{\medmath}[1]{#1}}
\CustomizeMathJax{\newcommand{\medop}[1]{#1}}
\CustomizeMathJax{\newcommand{\medint}[1]{#1}}
\CustomizeMathJax{\newcommand{\medintcorr}[1]{#1}}
\CustomizeMathJax{\newcommand{\mfrac}[2]{\frac{#1}{#2}}}
\CustomizeMathJax{\newcommand{\mbinom}[2]{\binom{#1}{#2}}}
\CustomizeMathJax{\newenvironment{mmatrix}{\begin{matrix}}{\end{matrix}}}

\CustomizeMathJax{\newcommand{\displaybreak}[1][]{}}
```

`\eq`, `\eqs`, `\eqalign` are created by LaTeX, not MathJax.

```
\end{warpMathJax}
```

File 330 **lwarp-needspace.sty**

§ 439 Package needspace

(*Emulates or patches code by* Peter Wilson.)

Pkg needspace

needspace is ignored.

for HTML output:

Discard all options for lwarp-needspace:

```
\LWR@ProvidesPackageDrop{needspace}[2010/09/12]

\DeclareDocumentCommand{\needspace}{m}{}
\DeclareDocumentCommand{\Needspace}{s m}{}
```

File 331 **lwarp-newpxmath.sty**

§ 440 Package newpxmath

(*Emulates or patches code by* Michael Sharpe.)

Pkg newpxmath

newpxmath is used as-is for SVG math, and is emulated for MathJax.

⚠ limitations

The MathJax emulation ignores all package options, except `slantedGreek` is honored. The dedicated macros for upright and italic Greek do work correctly.

SVG math should appear the same as the printed output.

for HTML output:

The MathJax code from newtxmath is used:

```
\LWR@ProvidesPackagePass{newpxmath}[2020/01/09]

\LWR@infoprocessingmathjax{newpxmath}

\LWR@origRequirePackage{lwarp-common-mathjax-newpxtxmath}

\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}

%   * \marg{2: prefix} \marg{3: postfix} \marg{4: i/u: italic/upright}
\LWR@mathjax@addgreek@u@up*{}{up}
\LWR@mathjax@addgreek@u@up*{up}{}
\LWR@mathjax@addgreek@l@up{up}{}
\LWR@mathjax@addgreek@l@up{}{up}
\LWR@mathjax@addgreek@u@it*{}{it}
\LWR@mathjax@addgreek@l@it{}{it}
```

Optional slanted Greek:

```
\ifpx@slantedG
    \LWR@mathjax@addgreek@u@it*{}{}
\fi

```

```
\end{warpMathJax}
```

File 332 **lwarp-newtxmath.sty**

§ 441 Package

newtxmath

(*Emulates or patches code by* Michael Sharpe.)

Pkg newtxmath

newtxmath is used as-is for SVG math, and is emulated for MathJax.

⚠ limitations

The MathJax emulation ignores all package options, except `slantedGreek` is honored, and except that bold italic Latin letters are not defined for MathJax if the option is not selected.

The dedicated macros for upright and italic Greek and bold italic Latin letters do work correctly.

SVG math should appear the same as the printed output.

for HTML output:

```
\LWR@ProvidesPackagePass{newtxmath}[2020/08/04]

\LWR@infoprocessingmathjax{newtxmath}

\LWR@origRequirePackage{lwarp-common-mathjax-newpxtxmath}

\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}

%   * \marg{2: prefix} \marg{3: postfix} \marg{4: i/u: italic/upright}
\LWR@mathjax@addgreek@u@up*{}{up}
\LWR@mathjax@addgreek@u@up*{up}{}
\LWR@mathjax@addgreek@l@up{up}{}
\LWR@mathjax@addgreek@l@up{}{up}
\LWR@mathjax@addgreek@u@it*{}{it}
\LWR@mathjax@addgreek@l@it{}{it}

% only newtxmath, not newpxmath:
\LWR@mathjax@addgreek@u@it*{it}{}
\LWR@mathjax@addgreek@l@it{it}{}

% only newtxmath, not newpxmath:
\ifdef{\iftx@BI}{
    \iftx@BI
        \LWR@mathjax@addlatin@u@bfit{BI}
        \LWR@mathjax@addlatin@l@bfit{BI}
    \fi
}{}
```

Optional slanted Greek:

```
\iftx@slantedG
    \LWR@mathjax@addgreek@u@it*{}{}
\fi

\end{warpMathJax}
```

File 333 **lwarp-newtxsf.sty**

§ 442 Package

newtxsf

(*Emulates or patches code by* Michael Sharpe.)

Pkg newtxsf

newtxsf is used as-is for SVG math, and is emulated for MathJax.

⚠ limitations

The MathJax emulation ignores all package options, except `slantedGreek` is honored. The dedicated macros for upright and italic Greek and bold italic Latin letters do work correctly.

SVG math should appear the same as the printed output.

for HTML output:

```
\LWR@ProvidesPackagePass{newtxsf}[2020/05/02]

\LWR@infoprocessingmathjax{newtxsf}

\LWR@origRequirePackage{lwarp-common-mathjax-newpxtxmath}

\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}

%   * \marg{2: prefix} \marg{3: postfix} \marg{4: i/u: italic/upright}
\LWR@mathjax@addgreek@u@up*{}{up}
\LWR@mathjax@addgreek@u@up*{up}{}
\LWR@mathjax@addgreek@l@up{up}{}
\LWR@mathjax@addgreek@l@up{}{up}
\LWR@mathjax@addgreek@u@it*{}{it}
\LWR@mathjax@addgreek@l@it{}{it}

% only newtxmath, not newpxmath:
\LWR@mathjax@addgreek@u@it*{it}{}
\LWR@mathjax@addgreek@l@it{it}{}
%
% only newtxmath, not newpxmath:
\ifdef{\iftx@BI}{
    \iftx@BI
        \LWR@mathjax@addlatin@u@bfit{BI}
        \LWR@mathjax@addlatin@l@bfit{BI}
    \fi
}{}
```

Optional slanted Greek:

```
\iftx@slantedG
    \LWR@mathjax@addgreek@u@it*{}{}
\fi

\end{warpMathJax}
```

File 334 **lwarp-nextpage.sty**

§ 443 Package nextpage

(*Emulates or patches code by* Peter Wilson.)

Pkg nextpage

nextpage is ignored.

for HTML output:

Discard all options for lwarp-nextpage.

```
\LWR@ProvidesPackageDrop{nextpage}[2009/09/03]

\DeclareDocumentCommand{\cleartoevenpage}{o}{}
\DeclareDocumentCommand{\movetoevenpage}{o}{}
\DeclareDocumentCommand{\cleartooddpage}{o}{}
\DeclareDocumentCommand{\movetooddpage}{o}{}
```

File 335 **lwarp-nfssext-cfr.sty**

§ 444 Package nfssext-cfr

(*Emulates or patches code by* Clea F. Rees.)

Pkg nfssext-cfr

nfssext-cfr is emulated in HTML, and used as-is in print output.

Results depend on the browser's font.

for HTML output:

```
\LWR@ProvidesPackagePass{nfssext-cfr}[2017/03/28]
```

Macros which are present in the lwarp core are commented out here.

```
\newrobustcmd{\LWR@HTML@lnstyle}{}
\newrobustcmd{\LWR@HTML@osstyle}{\LWR@HTML@scshape}
\newrobustcmd{\LWR@HTML@instyle}{}
\newrobustcmd{\LWR@HTML@sustyle}{}
\newrobustcmd{\LWR@HTML@swstyle}{}
\newrobustcmd{\LWR@HTML@pstyle}{}
\newrobustcmd{\LWR@HTML@tistyle}{}
\newrobustcmd{\LWR@HTML@ostyle}{\LWR@HTML@scshape}
\newrobustcmd{\LWR@HTML@postyle}{\LWR@HTML@scshape}
\newrobustcmd{\LWR@HTML@ltstyle}{}
\newrobustcmd{\LWR@HTML@ofstyle}{}
\newrobustcmd{\LWR@HTML@altstyle}{}
\newrobustcmd{\LWR@HTML@regstyle}{}
\newrobustcmd{\LWR@HTML@embossstyle}{}
\newrobustcmd{\LWR@HTML@ornamentalstyle}{}
\newrobustcmd{\LWR@HTML@qtstyle}{}
\newrobustcmd{\LWR@HTML@shstyle}{}
\newrobustcmd{\LWR@HTML@swashstyle}{}
\newrobustcmd{\LWR@HTML@tmstyle}{\renewcommand*{\LWR@f@family}{tt}}
\newrobustcmd{\LWR@HTML@tvstyle}{\renewcommand*{\LWR@f@family}{tt}}
\newrobustcmd{\LWR@HTML@tstyle}{}
\newrobustcmd{\LWR@HTML@lstyle}{}
```

```
\newrobustcmd{\LWR@HTML@tlstyle}{}
\newrobustcmd{\LWR@HTML@plstyle}{}
\newrobustcmd{\LWR@HTML@tostyle}{\LWR@HTML@scshape}
% \newrobustcmd{\LWR@HTML@sishape}{}
\newrobustcmd{\LWR@HTML@olshape}{}
\newrobustcmd{\LWR@HTML@scolshape}{}
\newrobustcmd{\LWR@HTML@ushape}{}
\newrobustcmd{\LWR@HTML@scushape}{}
\newrobustcmd{\LWR@HTML@uishape}{\LWR@HTML@itshape}
\newrobustcmd{\LWR@HTML@rishape}{}
\newrobustcmd{\LWR@HTML@regwidth}{}
\newrobustcmd{\LWR@HTML@nwwidth}{}
\newrobustcmd{\LWR@HTML@cdwidth}{}
\newrobustcmd{\LWR@HTML@ecwidth}{}
\newrobustcmd{\LWR@HTML@ucwidth}{}
\newrobustcmd{\LWR@HTML@etwidth}{}
\newrobustcmd{\LWR@HTML@epwidth}{}
\newrobustcmd{\LWR@HTML@exwidth}{}
\newrobustcmd{\LWR@HTML@uxwidth}{}
\newrobustcmd{\LWR@HTML@mbweight}{\renewcommand*{\LWR@f@series}{md}}
\newrobustcmd{\LWR@HTML@dbweight}{\renewcommand*{\LWR@f@series}{db}}
\newrobustcmd{\LWR@HTML@sbweight}{\renewcommand*{\LWR@f@series}{sb}}
% \newrobustcmd{\LWR@HTML@ebweight}{\renewcommand*{\LWR@f@series}{eb}}
\newrobustcmd{\LWR@HTML@ubweight}{\renewcommand*{\LWR@f@series}{ub}}
% \newrobustcmd{\LWR@HTML@lgweight}{\renewcommand*{\LWR@f@series}{lg}}
\newrobustcmd{\LWR@HTML@elweight}{\renewcommand*{\LWR@f@series}{el}}
\newrobustcmd{\LWR@HTML@ulweight}{\renewcommand*{\LWR@f@series}{ul}}
% \newrobustcmd{\LWR@HTML@itshape}{}
% \newrobustcmd{\LWR@HTML@scshape}{}
% \newrobustcmd{\LWR@HTML@upshape}{}
\newrobustcmd{\LWR@HTML@dfshape}{}

\ifdef{\LWR@HTML@swshape}{}{% duplicated by fontaxes
    \newrobustcmd{\LWR@HTML@swshape}{}
}

\newrobustcmd{\LWR@HTML@ornament}[1]{}

\LWR@formatted{lnstyle}
\LWR@formatted{osstyle}
\LWR@formatted{instyle}
\LWR@formatted{sustyle}
\LWR@formatted{swstyle}
\LWR@formatted{pstyle}
\LWR@formatted{tistyle}
\LWR@formatted{ostyle}
\LWR@formatted{postyle}
\LWR@formatted{ltstyle}
\LWR@formatted{ofstyle}
\LWR@formatted{altstyle}
\LWR@formatted{regstyle}
\LWR@formatted{embossstyle}
\LWR@formatted{ornamentalstyle}
\LWR@formatted{qtstyle}
\LWR@formatted{shstyle}
\LWR@formatted{swashstyle}
\LWR@formatted{tmstyle}
\LWR@formatted{tvstyle}
\LWR@formatted{tstyle}
\LWR@formatted{lstyle}
```

```
\LWR@formatted{tlstyle}
\LWR@formatted{plstyle}
\LWR@formatted{tostyle}
% \LWR@formatted{sishape}
\LWR@formatted{olshape}
\LWR@formatted{scolshape}
\LWR@formatted{ushape}
\LWR@formatted{scushape}
\LWR@formatted{uishape}
\LWR@formatted{rishape}
\LWR@formatted{regwidth}
\LWR@formatted{nwwidth}
\LWR@formatted{cdwidth}
\LWR@formatted{ecwidth}
\LWR@formatted{ucwidth}
\LWR@formatted{etwidth}
\LWR@formatted{epwidth}
\LWR@formatted{exwidth}
\LWR@formatted{uxwidth}
\LWR@formatted{mbweight}
\LWR@formatted{dbweight}
\LWR@formatted{sbweight}
% \LWR@formatted{ebweight}
\LWR@formatted{ubweight}
% \LWR@formatted{lgweight}
\LWR@formatted{elweight}
\LWR@formatted{ulweight}
\LWR@formatted{itshape}% adapt to the new print version
\LWR@formatted{scshape}% adapt to the new print version
\LWR@formatted{upshape}% adapt to the new print version
\LWR@formatted{dfshape}

\ifdef{\LWR@HTML@swshape}{}{% duplicated by fontaxes
    \LWR@formatted{swshape}
}

\LWR@formatted{ornament}


\FilenameNullify{%
    \LetLtxMacro\lnstyle\@empty%
    \LetLtxMacro\osstyle\@empty%
    \LetLtxMacro\instyle\@empty%
    \LetLtxMacro\sustyle\@empty%
    \LetLtxMacro\swstyle\@empty%
    \LetLtxMacro\pstyle\@empty%
    \LetLtxMacro\tistyle\@empty%
    \LetLtxMacro\ostyle\@empty%
    \LetLtxMacro\postyle\@empty%
    \LetLtxMacro\ltstyle\@empty%
    \LetLtxMacro\ofstyle\@empty%
    \LetLtxMacro\altstyle\@empty%
    \LetLtxMacro\regstyle\@empty%
    \LetLtxMacro\embossstyle\@empty%
    \LetLtxMacro\ornamentalstyle\@empty%
    \LetLtxMacro\qtstyle\@empty%
    \LetLtxMacro\shstyle\@empty%
    \LetLtxMacro\swashstyle\@empty%
    \LetLtxMacro\tmstyle\@empty%
    \LetLtxMacro\tvstyle\@empty%
    \LetLtxMacro\tstyle\@empty%
```

```
    \LetLtxMacro\lstyle\@empty%
    \LetLtxMacro\tlstyle\@empty%
    \LetLtxMacro\plstyle\@empty%
    \LetLtxMacro\tostyle\@empty%
%   \LetLtxMacro\sishape\@empty%
    \LetLtxMacro\olshape\@empty%
    \LetLtxMacro\scolshape\@empty%
    \LetLtxMacro\ushape\@empty%
    \LetLtxMacro\scushape\@empty%
    \LetLtxMacro\uishape\@empty%
    \LetLtxMacro\rishape\@empty%
    \LetLtxMacro\regwidth\@empty%
    \LetLtxMacro\nwwidth\@empty%
    \LetLtxMacro\cdwidth\@empty%
    \LetLtxMacro\ecwidth\@empty%
    \LetLtxMacro\ucwidth\@empty%
    \LetLtxMacro\etwidth\@empty%
    \LetLtxMacro\epwidth\@empty%
    \LetLtxMacro\exwidth\@empty%
    \LetLtxMacro\uxwidth\@empty%
    \LetLtxMacro\mbweight\@empty%
    \LetLtxMacro\dbweight\@empty%
    \LetLtxMacro\sbweight\@empty%
%   \LetLtxMacro\ebweight\@empty%
    \LetLtxMacro\ubweight\@empty%
%   \LetLtxMacro\lgweight\@empty%
    \LetLtxMacro\elweight\@empty%
    \LetLtxMacro\ulweight\@empty%
%   \LetLtxMacro\itshape\@empty%
%   \LetLtxMacro\scshape\@empty%
%   \LetLtxMacro\upshape\@empty%
    \LetLtxMacro\dfshape\@empty%
    \LetLtxMacro\swshape\@empty%
    \LetLtxMacro\ornament\@gobble%
}

\newrobustcmd{\LWR@HTML@textln}[1]{\InlineClass{textln}{#1}}
\newrobustcmd{\LWR@HTML@textos}[1]{\textsc{#1}}
\newrobustcmd{\LWR@HTML@textin}[1]{#1}
\newrobustcmd{\LWR@HTML@textsu}[1]{#1}
% \newrobustcmd{\LWR@HTML@textsi}[1]{#1}
\newrobustcmd{\LWR@HTML@textdf}[1]{#1}


\ifdef{\LWR@HTML@textsw}{}{% duplicated by fontaxes
    \newrobustcmd{\LWR@HTML@textsw}[1]{#1}
    \LWR@formatted{textsw}
}

\newrobustcmd{\LWR@HTML@textti}[1]{#1}
\newrobustcmd{\LWR@HTML@textlt}[1]{#1}
\newrobustcmd{\LWR@HTML@textof}[1]{#1}
\newrobustcmd{\LWR@HTML@textalt}[1]{#1}
\newrobustcmd{\LWR@HTML@textreg}[1]{#1}
\newrobustcmd{\LWR@HTML@emboss}[1]{#1}
\newrobustcmd{\LWR@HTML@textorn}[1]{#1}
\newrobustcmd{\LWR@HTML@textqt}[1]{#1}
\newrobustcmd{\LWR@HTML@textsh}[1]{#1}
\newrobustcmd{\LWR@HTML@texttm}[1]{\texttt{#1}}
\newrobustcmd{\LWR@HTML@texttv}[1]{\texttt{#1}}
\newrobustcmd{\LWR@HTML@textl}[1]{\InlineClass{textln}{#1}}
```

```
\newrobustcmd{\LWR@HTML@texto}[1]{\textsc{#1}}
\newrobustcmd{\LWR@HTML@textp}[1]{\InlineClass{textp}{#1}}
\newrobustcmd{\LWR@HTML@textt}[1]{\InlineClass{textt}{#1}}
\newrobustcmd{\LWR@HTML@textpl}[1]{#1}
\newrobustcmd{\LWR@HTML@textpo}[1]{\textsc{#1}}
\newrobustcmd{\LWR@HTML@texttl}[1]{\InlineClass{textln}{#1}}
\newrobustcmd{\LWR@HTML@textto}[1]{\textsc{#1}}
\newrobustcmd{\LWR@HTML@textol}[1]{#1}
\newrobustcmd{\LWR@HTML@textswash}[1]{#1}
\newrobustcmd{\LWR@HTML@textu}[1]{#1}
\newrobustcmd{\LWR@HTML@textscu}[1]{#1}
\newrobustcmd{\LWR@HTML@textui}[1]{\LWR@HTML@textit{#1}}
\newrobustcmd{\LWR@HTML@textri}[1]{#1}
\newrobustcmd{\LWR@HTML@textnw}[1]{#1}
\newrobustcmd{\LWR@HTML@textcd}[1]{#1}
\newrobustcmd{\LWR@HTML@textec}[1]{#1}
\newrobustcmd{\LWR@HTML@textuc}[1]{#1}
\newrobustcmd{\LWR@HTML@textet}[1]{#1}
\newrobustcmd{\LWR@HTML@textep}[1]{#1}
\newrobustcmd{\LWR@HTML@textex}[1]{#1}
\newrobustcmd{\LWR@HTML@textux}[1]{#1}
\newrobustcmd{\LWR@HTML@textrw}[1]{#1}
\newrobustcmd{\LWR@HTML@textmb}[1]{{\LWR@HTML@mbweight\InlineClass{textmb}{#1}}}
\newrobustcmd{\LWR@HTML@textdb}[1]{{\LWR@HTML@dbweight\InlineClass{textdb}{#1}}}
\newrobustcmd{\LWR@HTML@textsb}[1]{{\LWR@HTML@sbweight\InlineClass{textsb}{#1}}}
% \newrobustcmd{\LWR@HTML@texteb}[1]}{#1}
\newrobustcmd{\LWR@HTML@textub}[1]{{\LWR@HTML@ubweight\InlineClass{textub}{#1}}}
% \newrobustcmd{\LWR@HTML@textlg}[1]}{#1}
\newrobustcmd{\LWR@HTML@textel}[1]{{\LWR@HTML@elweight\InlineClass{textel}{#1}}}
\newrobustcmd{\LWR@HTML@textul}[1]{{\LWR@HTML@ulweight\InlineClass{textul}{#1}}}

\LWR@formatted{textln}
\LWR@formatted{textos}
\LWR@formatted{textin}
\LWR@formatted{textsu}
% \LWR@formatted{textsi}
\LWR@formatted{textdf}
\LWR@formatted{textti}
\LWR@formatted{textlt}
\LWR@formatted{textof}
\LWR@formatted{textalt}
\LWR@formatted{textreg}
\LWR@formatted{emboss}
\LWR@formatted{textorn}
\LWR@formatted{textqt}
\LWR@formatted{textsh}
\LWR@formatted{texttm}
\LWR@formatted{texttv}
\LWR@formatted{textl}
\LWR@formatted{texto}
\LWR@formatted{textp}
\LWR@formatted{textt}
\LWR@formatted{textpl}
\LWR@formatted{textpo}
\LWR@formatted{texttl}
\LWR@formatted{textto}
\LWR@formatted{textol}
\LWR@formatted{textswash}
\LWR@formatted{textu}
\LWR@formatted{textscu}
```

```
\LWR@formatted{textui}
\LWR@formatted{textri}
\LWR@formatted{textnw}
\LWR@formatted{textcd}
\LWR@formatted{textec}
\LWR@formatted{textuc}
\LWR@formatted{textet}
\LWR@formatted{textep}
\LWR@formatted{textex}
\LWR@formatted{textux}
\LWR@formatted{textrw}
\LWR@formatted{textmb}
\LWR@formatted{textdb}
\LWR@formatted{textsb}
% \LWR@formatted{texteb}
\LWR@formatted{textub}
% \LWR@formatted{textlg}
\LWR@formatted{textel}
\LWR@formatted{textul}

\FilenameNullify{%
    \LetLtxMacro\textln\@firstofone%
    \LetLtxMacro\textos\@firstofone%
    \LetLtxMacro\textin\@firstofone%
    \LetLtxMacro\textsu\@firstofone%
%   \LetLtxMacro\textsi\@firstofone%
    \LetLtxMacro\textdf\@firstofone%
    \LetLtxMacro\textsw\@firstofone%
    \LetLtxMacro\textti\@firstofone%
    \LetLtxMacro\textlt\@firstofone%
    \LetLtxMacro\textof\@firstofone%
    \LetLtxMacro\textalt\@firstofone%
    \LetLtxMacro\textreg\@firstofone%
    \LetLtxMacro\emboss\@firstofone%
    \LetLtxMacro\textorn\@firstofone%
    \LetLtxMacro\textqt\@firstofone%
    \LetLtxMacro\textsh\@firstofone%
    \LetLtxMacro\texttm\@firstofone%
    \LetLtxMacro\texttv\@firstofone%
    \LetLtxMacro\textl\@firstofone%
    \LetLtxMacro\texto\@firstofone%
    \LetLtxMacro\textp\@firstofone%
    \LetLtxMacro\textt\@firstofone%
    \LetLtxMacro\textpl\@firstofone%
    \LetLtxMacro\textpo\@firstofone%
    \LetLtxMacro\texttl\@firstofone%
    \LetLtxMacro\textto\@firstofone%
    \LetLtxMacro\textol\@firstofone%
    \LetLtxMacro\textswash\@firstofone%
    \LetLtxMacro\textu\@firstofone%
    \LetLtxMacro\textscu\@firstofone%
    \LetLtxMacro\textui\@firstofone%
    \LetLtxMacro\textri\@firstofone%
    \LetLtxMacro\textnw\@firstofone%
    \LetLtxMacro\textcd\@firstofone%
    \LetLtxMacro\textec\@firstofone%
    \LetLtxMacro\textuc\@firstofone%
    \LetLtxMacro\textet\@firstofone%
    \LetLtxMacro\textep\@firstofone%
```

```
    \LetLtxMacro\textex\@firstofone%
    \LetLtxMacro\textux\@firstofone%
    \LetLtxMacro\textrw\@firstofone%
    \LetLtxMacro\textmb\@firstofone%
    \LetLtxMacro\textdb\@firstofone%
    \LetLtxMacro\textsb\@firstofone%
%   \LetLtxMacro\texteb\@firstofone%
    \LetLtxMacro\textub\@firstofone%
%   \LetLtxMacro\textlg\@firstofone%
    \LetLtxMacro\textel\@firstofone%
    \LetLtxMacro\textul\@firstofone%
}

\providecommand*{\zeroslash}{0}
\newrobustcmd*{\LWR@HTML@zeroslash}{0}
\LWR@formatted{zeroslash}
```

File 336 **lwarp-nicefrac.sty**

§ 445 Package

nicefrac

(*Emulates or patches code by* Axel Reichert.)

Pkg nicefrac

nicefrac is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{nicefrac}[1998/08/04]

\DeclareRobustCommand*{\LWR@HTML@@UnitsNiceFrac}[3][]{%
    {% localize font selection
        #1{%
            \LWR@textcurrentfont{%
                \InlineClass{numerator}{#2}%
                /%
                \InlineClass{denominator}{#3}%
            }%
        }%
    }%
}

\LWR@formatted{@UnitsNiceFrac}

\DeclareRobustCommand*{\LWR@HTML@@UnitsUglyFrac}[3][]{%
    {% localize font selection
        #1{\LWR@textcurrentfont{#2/#3}}%
    }%
}

\LWR@formatted{@UnitsUglyFrac}
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\nicefrac}[3][]{\mathinner{{}^{#2}\!/\!_{#3}}}}
\end{warpMathJax}
```

File 337 **lwarp-niceframe.sty**

§ 446 Package niceframe

Pkg niceframe

niceframe is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{niceframe}% the original date is in yyyy/dd/mm format

\newcommand{\LWR@niceframe}[3]{%
    \begin{LWR@setvirtualpage}*%
    \setlength{\LWR@templengthone}{#1}%
   \begin{BlockClass}[max-width:\LWR@printlength{\LWR@templengthone}]{#3}%
    #2
    \end{BlockClass}%
    \end{LWR@setvirtualpage}%
}

\newcommand{\niceframe}[2][\textwidth]{\LWR@niceframe{#1}{#2}{niceframe}}
\newcommand{\curlyframe}[2][\textwidth]{\LWR@niceframe{#1}{#2}{curlyframe}}
\newcommand{\artdecoframe}[2][\textwidth]{\LWR@niceframe{#1}{#2}{artdecoframe}}

\newcommand{\generalframe}[9]{\LWR@niceframe{\textwidth}{#9}{generalframe}}
```

File 338 **lwarp-nicematrix.sty**

§ 447 Package nicematrix

(*Emulates or patches code by* F. Pantigny.)

Pkg nicematrix

nicematrix is used as-is for SVG math, and is emulated for MathJax.

⚠ MathJax Keys/values are ignored in MathJax. `\Cdots`, etc. do not span multiple cells. `AutoNiceMatrix`, etc. are not supported for MathJax. SVG math output preserves all nicematrix features. To force SVG output for one or more consecutive math expressions, for inline math use `\inlinemathother` and `\inlinemathnormal`, or for display math use `\displaymathother` and `\displaymathnormal`.

for HTML output:

```
\LWR@ProvidesPackagePass{nicematrix}[2020/11/23]
```

`NiceTabular` must be converted to SVG to support the various nicematrix options:

```
\begin{warpHTML}
\BeforeBeginEnvironment{NiceTabular}{%
    \begin{lateximage}[-nicematrix-~\PackageDiagramAltText]%
}
\AfterEndEnvironment{NiceTabular}{\end{lateximage}}
\BeforeBeginEnvironment{NiceTabular*}{%
    \begin{lateximage}[-nicematrix-~\PackageDiagramAltText]%
}
\AfterEndEnvironment{NiceTabular*}{\end{lateximage}}
\end{warpHTML}
```

Special handling for the optional arguments, and the lack of a delimiter:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\LWRnicearrayarray}[1]{\begin{array}{#1}}}
\CustomizeMathJax{\def\LWRnicearrayarrayopt#1[#2] {\begin{array}{#1}}}

\CustomizeMathJax{%
    \newenvironment{NiceArray}[2][]%
        {\ifnextchar[{\LWRnicearrayarrayopt{#2}}{\LWRnicearrayarray{#2}}}%
        {\end{array}}%
}

\CustomizeMathJax{%
    \newcommand{\LWRnicearraywithdelimtwo}[2][]{%
        \ifnextchar[{\LWRnicearrayarrayopt{#2}}{\LWRnicearrayarray{#2}}%
    }%
}
```

General case with left / right delimiters:

```
\CustomizeMathJax{%
    \newenvironment{NiceArrayWithDelims}[2]%
        {%
            \def\LWRnicearrayrightdelim{\right#2}%
            \left#1%
            \LWRnicearraywithdelimtwo%
        }%
        {\end{array}\LWRnicearrayrightdelim}%
}
```

Instances of specific delimiters:

```
\CustomizeMathJax{%
    \newenvironment{pNiceArray}
        {\begin{NiceArrayWithDelims}{(}{)}}
        {\end{NiceArrayWithDelims}}
}

\CustomizeMathJax{%
    \newenvironment{bNiceArray}
        {\begin{NiceArrayWithDelims}{[}{]}}
        {\end{NiceArrayWithDelims}}
}

\CustomizeMathJax{%
    \newenvironment{BNiceArray}
        {\begin{NiceArrayWithDelims}{\{}{\}}}
        {\end{NiceArrayWithDelims}}
}

\CustomizeMathJax{%
    \newenvironment{vNiceArray}
        {\begin{NiceArrayWithDelims}{\vert}{\vert}}
        {\end{NiceArrayWithDelims}}
}

\CustomizeMathJax{%
    \newenvironment{VNiceArray}
        {\begin{NiceArrayWithDelims}{\Vert}{\Vert}}
        {\end{NiceArrayWithDelims}}
```

```
}
```

Ignore optional arg and use standard environments:

```
\CustomizeMathJax{\newenvironment{NiceMatrix}[1][]{\begin{matrix}}{\end{matrix}}}
\CustomizeMathJax{\newenvironment{pNiceMatrix}[1][]{\begin{pmatrix}}{\end{pmatrix}}}
\CustomizeMathJax{\newenvironment{bNiceMatrix}[1][]{\begin{bmatrix}}{\end{bmatrix}}}
\CustomizeMathJax{\newenvironment{BNiceMatrix}[1][]{\begin{Bmatrix}}{\end{Bmatrix}}}
\CustomizeMathJax{\newenvironment{vNiceMatrix}[1][]{\begin{vmatrix}}{\end{vmatrix}}}
\CustomizeMathJax{\newenvironment{VNiceMatrix}[1][]{\begin{Vmatrix}}{\end{Vmatrix}}}
```

Ignore optional argument and size. Print contents.

```
\CustomizeMathJax{\newcommand{\LWRnicematrixBlock}[1]{#1}}
\CustomizeMathJax{\def\LWRnicematrixBlockopt<#1>#2{#2}}

\CustomizeMathJax{%
   \newcommand{\Block}[2][]{\ifnextchar<\LWRnicematrixBlockopt\LWRnicematrixBlock}%
}
```

Form an approximation:

```
\CustomizeMathJax{%
    \newcommand{\diagbox}[2]{%
        \begin{array}{l}\hfill\quad#2\\\hline#1\quad\hfill\end{array}%
    }%
}
```

More approximations:

```
\CustomizeMathJax{\let\hdottedline\hdashline}


\CustomizeMathJax{\let\Hline\hline}

\CustomizeMathJax{\newcommand{\ldots}[1][]{\dots}}
\CustomizeMathJax{\newcommand{\Cdots}[1][]{\cdots}}
\CustomizeMathJax{\newcommand{\Vdots}[1][]{\vdots}}
\CustomizeMathJax{\newcommand{\Ddots}[1][]{\ddots}}
\CustomizeMathJax{\newcommand{\Iddots}[1][]{\mathinner{\unicode{x22F0}}}}

\CustomizeMathJax{\newcommand{\Hdotsfor}[1]{\ldots}}
\CustomizeMathJax{\newcommand{\Vdotsfor}[1]{\vdots}}
```

There is no way to emulate `AutoNiceMatrix` in MathJax.

```
\CustomizeMathJax{\newcommand{\AutoNiceMatrix}[2]{\text{(AutoNiceMatrix #1)}}}
\CustomizeMathJax{\let\pAutoNiceMatrix\AutoNiceMatrix}
\CustomizeMathJax{\let\bAutoNiceMatrix\AutoNiceMatrix}
\CustomizeMathJax{\let\BAutoNiceMatrix\AutoNiceMatrix}
\CustomizeMathJax{\let\vAutoNiceMatrix\AutoNiceMatrix}
\CustomizeMathJax{\let\VAutoNiceMatrix\AutoNiceMatrix}
\end{warpMathJax}
```

File 339 **lwarp-noitcrul.sty**

§ 448 Package noitcrul

(*Emulates or patches code by* Paul Ebermann.)

Pkg noitcrul

noitcrul is used as-is for SVG and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{noitcrul}[2006/04/11]

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\noitUnderline}[1]{\underline{#1}\!}}
\end{warpMathJax}
```

File 340 **lwarp-nolbreaks.sty**

§ 449 Package nolbreaks

(*Emulates or patches code by* Donald Arseneau.)

Pkg nolbreaks

nolbreaks is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{nolbreaks}[2012/05/31]

\NewDocumentCommand{\nolbreaks}{s m}{\InlineClass{nolbreaks}{#2}}
```

File 341 **lwarp-nomencl.sty**

§ 450 Package nomencl

(*Emulates or patches code by* Boris Veytsman, Bernd Schandl, Lee Netherton, CV Radhakrishnan.)

Pkg nomencl

nomencl is patched for use by lwarp.

To process the HTML nomenclature:

```
makeindex <project>_html.nlo -s nomencl.ist -o
<project>_html.nls
```

for HTML output:

```
\LWR@ProvidesPackagePass{nomencl}[2005/09/22]
```

\BaseJobname is added to the label in case xr or xr-hyper are used.

```
\def\@@@nomenclature[#1]#2#3{%
 \def\@tempa{#2}\def\@tempb{#3}%
 \protected@write\@nomenclaturefile{}%
  {\string\nomenclatureentry{#1\nom@verb\@tempa @[{\nom@verb\@tempa}]%
      \begingroup\nom@verb\@tempb\protect\nomeqref{\theequation}%
        |nompageref}{\theLWR@previousautopagelabel}}%   lwarp
 \endgroup
```

```
 9 \@esphack}
10
11 \renewcommand*{\pagedeclaration}[1]{, \nameref{\BaseJobname-autopage-#1}}%
```

File 342 **lwarp-nonfloat.sty**

§ 451 Package nonfloat

(*Emulates or patches code by* Kai Rascher.)

Pkg nonfloat nonfloat is emulated.

for HTML output:

```
1 \LWR@ProvidesPackageDrop{nonfloat}[1999/07/05]

2 \LetLtxMacro\topcaption\caption
3 \newcommand{\figcaption}{\def\@captype{figure}\caption}
4 \newcommand{\tabcaption}{\def\@captype{table}\topcaption}
5 \newenvironment{narrow}[2]{}{}
```

File 343 **lwarp-nonumonpart.sty**

§ 452 Package nonumonpart

Pkg nonumonpart nonumonpart is ignored.

for HTML output:

```
1 \LWR@ProvidesPackageDrop{nonumonpart}[2011/04/15]
```

File 344 **lwarp-nopageno.sty**

§ 453 Package nopageno

Pkg nopageno nopageno is ignored.

for HTML output:

```
1 \LWR@ProvidesPackageDrop{nopageno}[1989/01/01]
```

File 345 **lwarp-notes.sty**

§ 454 Package notes

Pkg notes notes is emulated.

for HTML output:

```
1 \LWR@ProvidesPackageDrop{notes}[2002/10/29]

2 \newcommand*{\LWR@notes@onenote}[2]{%
3 \newenvironment{#1}
4     {
5         \BlockClass{notes#1}
6         \begin{BlockClass}{notesicon}\textcircled{~#2~}\end{BlockClass}
```

```
        \BlockClass{notescontents}
    }
    {\endBlockClass\endBlockClass}
}

\LWR@notes@onenote{importantnote}{!}

\LWR@notes@onenote{warningnote}{--}

\LWR@notes@onenote{informationnote}{i}
```

File 346 **lwarp-notespages.sty**

§ 455 Package notespages

Pkg notespages

notespages is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{notespages}[2016/08/21]

\newcommand*{\npnotesname}{}
\newcommand*{\npnotestext}{}
\newcommand*{\remainingtextheight}{}
\newdimen\remainingtextheight
\newcommand*{\notestitletext}{}
\newcommand*{\notesareatext}{}
\newcommand*{\npnpinfo}[1]{}
\newcommand*{\tracingnpmarks}{}
\newcommand*{\notespage}[1][]{}
\newcommand*{\notespages}[1][]{}
\newcommand*{\notesfill}[1][]{}
\newcommand*{\setnotespages}[1]{}
\newcommand*{\definenotesoption}[2]{}
\newcommand{\definenotesstyle}[2]{}
\newcommand{\definetitlestyle}[2]{}
\newcommand{\nppatchchapter}[1]{}
\newcommand{\npunpatchchapter}{}
```

File 347 **lwarp-nowidow.sty**

§ 456 Package nowidow

(*Emulates or patches code by* Raphaël Pinson.)

Pkg nowidow

nowidow is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{nowidow}[2011/09/20]
```

Discard all options for lwarp-nowidow.

\nowidow [⟨*lines*⟩]

\setnowidow [⟨*lines*⟩]

```
\newcommand*{\nowidow}[1][]{}
\newcommand*{\setnowidow}[1][]{}
```

\noclub [⟨*lines*⟩]

\setnoclub [⟨*lines*⟩]

```
\newcommand*{\noclub}[1][]{}
\newcommand*{\setnoclub}[1][]{}
```

File 348 **lwarp-ntheorem.sty**

§ 457 Package

ntheorem

(*Emulates or patches code by* Wolfgang May, Andreas Schedler.)

Pkg ntheorem

ntheorem is patched for use by lwarp.

Table 20: Ntheorem package — css styling of theorems and proofs

Theorem: of class theorembody<theoremstyle>

Theorem Header: of class theoremheader<style>

where <theoremstyle> is plain, break, etc.

§ 457.1 Limitations

⚠ Font control

This conversion is not total. Font control is via css, and the custom LaTeX font settings are ignored.

⚠ Equation numbering

ntheorem has a bug with equation numbering in $\mathcal{AMS}$ environments when the option thref is used. lwarp does not share this bug, so equations with \split, etc, are numbered correctly with lwarp's html output, but not with the print output. It is recommended to use cleveref instead of ntheorem's thref option.

§ 457.2 Options

Options amsthm or standard choose which set of theorems and proofs to initialize.

⚠ Disabled options

The options thmmarks and amsmath are disabled, since they heavily modify the underlying math code. Theorem marks are emulated. The AMS-math modifications are not done.

Option thref is disabled because cleveref functions are used instead. \thref is emulated.

Option hyperref is disabled because lwarp emulated hyperref.

for HTML output:

Some disabled options:

```
\DeclareOption{thref}{
    \AtEndDocument{
        \PackageWarningNoLine{lwarp}{%
            Lwarp uses cleveref, which takes over ntheorem's\MessageBreak
            referencing, including
                \protect\label \space and \protect\thref.\MessageBreak
            Cleveref does not accept ntheorem's optional\MessageBreak
            argument for \protect\label, so it will appear\MessageBreak
```

```
            in the text.  It is recommended to remove the\MessageBreak
          thref option, \protect\usepackage{cleveref} instead,\MessageBreak
            and remove any trailing optional arguments for \protect\label%
        }%
    }
}


\newbool{LWR@ntheoremmarks}
\boolfalse{LWR@ntheoremmarks}

\DeclareOption{thmmarks}{
\booltrue{LWR@ntheoremmarks}
\newif\ifsetendmark\setendmarktrue
}


\newbool{LWR@ntheoremamsthm}
\boolfalse{LWR@ntheoremamsthm}

\DeclareOption{amsthm}{\booltrue{LWR@ntheoremamsthm}}


\DeclareOption{amsmath}{}
\DeclareOption{hyperref}{}

\LWR@ProvidesPackagePass{ntheorem}[2011/08/15]
```

§ 457.3 Remembering the theorem style

Storage for the style being used for new theorems.

```
\newcommand{\LWR@newtheoremstyle}{plain}


\AtBeginDocument{
\IfPackageLoadedTF{cleveref}{
\gdef\@thm#1#2#3{%
   \if@thmmarks
     \stepcounter{end\InTheoType ctr}%
   \fi
   \renewcommand{\InTheoType}{#1}%
   \if@thmmarks
     \stepcounter{curr#1ctr}%
     \setcounter{end#1ctr}{0}%
   \fi
   \refstepcounter[#1]{#2}%  <<< cleveref modification
   \theorem@prework
    \LWR@forcenewpage% lwarp


    \LWR@printpendingfootnotes%                    lwarp


    \BlockClass{theorembody#1}%\LWR@thisthmstyle% lwarp
   \trivlist % latex's \trivlist, calling latex's \@trivlist unchanged
   \ifuse@newframeskips  % cf. latex.ltx for topsepadd: \@trivlist
     \ifthm@inframe
       \thm@topsep\theoreminframepreskipamount
       \thm@topsepadd\theoreminframepostskipamount
      \else
       \thm@topsep\theorempreskipamount
```

```
      \thm@topsepadd\theorempostskipamount
     \fi
   \else% oldframeskips
     \thm@topsep\theorempreskipamount
     \thm@topsepadd \theorempostskipamount
     \ifvmode\advance\thm@topsepadd\partopsep\fi
  \fi
  \@topsep\thm@topsep
  \@topsepadd\thm@topsepadd
  \advance\linewidth -\theorem@indent
  \advance\linewidth -\theorem@rightindent
  \advance\@totalleftmargin \theorem@indent
  \parshape \@ne \@totalleftmargin \linewidth
  \@ifnextchar[{\@ythm{#1}{#2}{#3}}{\@xthm{#1}{#2}{#3}}
}
}{% not @ifpackageloaded{cleveref}
\gdef\@thm#1#2#3{%
  \if@thmmarks
    \stepcounter{end\InTheoType ctr}%
  \fi
  \renewcommand{\InTheoType}{#1}%
  \if@thmmarks
    \stepcounter{curr#1ctr}%
    \setcounter{end#1ctr}{0}%
  \fi
  \refstepcounter{#2}%
  \theorem@prework
   \LWR@forcenewpage% lwarp

   \LWR@printpendingfootnotes%                    lwarp

   \BlockClass{theorembody#1}%\LWR@thisthmstyle% lwarp
  \trivlist % latex's \trivlist, calling latex's \@trivlist unchanged
  \ifuse@newframeskips  % cf. latex.ltx for topsepadd: \@trivlist
    \ifthm@inframe
      \thm@topsep\theoreminframepreskipamount
      \thm@topsepadd\theoreminframepostskipamount
    \else
      \thm@topsep\theorempreskipamount
      \thm@topsepadd\theorempostskipamount
    \fi
   \else% oldframeskips
     \thm@topsep\theorempreskipamount
     \thm@topsepadd \theorempostskipamount
     \ifvmode\advance\thm@topsepadd\partopsep\fi
  \fi
  \@topsep\thm@topsep
  \@topsepadd\thm@topsepadd
  \advance\linewidth -\theorem@indent
  \advance\linewidth -\theorem@rightindent
  \advance\@totalleftmargin \theorem@indent
  \parshape \@ne \@totalleftmargin \linewidth
  \@ifnextchar[{\@ythm{#1}{#2}{#3}}{\@xthm{#1}{#2}{#3}}
}
}
}% AtBeginDocument
```

Patched to remember the style being used for new theorems:

```
\gdef\theoremstyle#1{%
   \@ifundefined{th@#1}{\@warning
          {Unknown theoremstyle `#1'. Using `plain'}%
          \theorem@style{plain}
            \renewcommand{\LWR@newtheoremstyle}{plain}% lwarp
            }%
      {
        \theorem@style{#1}
        \renewcommand{\LWR@newtheoremstyle}{#1}% lwarp
        }
}
```

Patched to remember the style for this theorem type, and set it later when the environment is started.

```

\gdef\@xnthm#1#2[#3]{%
  \ifthm@tempif
     \csedef{LWR@thmstyle#1}{\LWR@newtheoremstyle}% lwarp
     \expandafter\@ifundefined{c@#1}%
        {\@definecounter{#1}}{}%
     \@newctr{#1}[#3]%
     \expandafter\xdef\csname the#1\endcsname{%
       \expandafter\noexpand\csname the#3\endcsname \@thmcountersep
          {\noexpand\csname\the\theoremnumbering\endcsname{#1}}}%
     \expandafter\gdef\csname mkheader@#1\endcsname
       {\csname setparms@#1\endcsname
        \@thm{#1}{#1}{#2}
        }%
     \global\@namedef{end#1}{\@endtheorem}
    \AtBeginEnvironment{#1}{\edef\LWR@thisthmstyle{\@nameuse{LWR@thmstyle#1}}}% lwarp
  \fi
}

\gdef\@ynthm#1#2{%
  \ifthm@tempif
     \csedef{LWR@thmstyle#1}{\LWR@newtheoremstyle}% lwarp
     \expandafter\@ifundefined{c@#1}%
        {\@definecounter{#1}}{}%
     \expandafter\xdef\csname the#1\endcsname
        {\noexpand\csname\the\theoremnumbering\endcsname{#1}}%
     \expandafter\gdef\csname mkheader@#1\endcsname
       {\csname setparms@#1\endcsname
        \@thm{#1}{#1}{#2}
        }%
     \global\@namedef{end#1}{\@endtheorem}
    \AtBeginEnvironment{#1}{\edef\LWR@thisthmstyle{\@nameuse{LWR@thmstyle#1}}}% lwarp
  \fi
}

\gdef\@othm#1[#2]#3{%
  \@ifundefined{c@#2}{\@nocounterr{#2}}%
   {\ifthm@tempif
     \csedef{LWR@thmstyle#1}{\LWR@newtheoremstyle}% lwarp
     \global\@namedef{the#1}{\@nameuse{the#2}}%
     \expandafter\protected@xdef\csname num@addtheoremline#1\endcsname{%
               \noexpand\@num@addtheoremline{#1}{#3}}%
     \expandafter\protected@xdef\csname nonum@addtheoremline#1\endcsname{%
               \noexpand\@nonum@addtheoremline{#1}{#3}}%
    \theoremkeyword{#3}%
```

```
    \expandafter\protected@xdef\csname #1Keyword\endcsname
             {\the\theoremkeyword}%
     \expandafter\gdef\csname mkheader@#1\endcsname
       {\csname setparms@#1\endcsname
                \@thm{#1}{#2}{#3}
        }%
     \global\@namedef{end#1}{\@endtheorem}
    \AtBeginEnvironment{#1}{\edef\LWR@thisthmstyle{\@nameuse{LWR@thmstyle#1}}}% lwarp
  \fi}
}
```

§ 457.4 HTML cross-referencing

Mimics a float by incrementing the float counter and generating an HTML anchor. These are used for list-of-theorem cross-references.

```
\newcommand{\LWR@inctheorem}{%
\addtocounter{LWR@thisautoid}{1}%
\LWR@stoppars%
\LWR@htmltag{%
   a id=\textquotedbl\LWR@print@mbox{autoid-\arabic{LWR@thisautoid}}\textquotedbl%
}%
\LWR@htmltag{/a}\LWR@orignewline%
\LWR@startpars%
}
```

§ 457.5 `\newtheoremstyle`

The following are patched for CSS.

These were in individual files `thp.sty` for plain, `thmb.sty` for margin break, etc. They are gathered together here.

Each theorem is encased in a `BlockClass` environment of class `theorembody<style>`.

Each header is encased in an `\InlineClass` of class `theoremheader<style>`.

```
\gdef\newtheoremstyle#1#2#3{%
  \expandafter\@ifundefined{th@#1}%
   {\expandafter\gdef\csname th@#1\endcsname{%
    \def\@begintheorem####1####2{%
    \LWR@inctheorem% lwarp
    #2}%
    \def\@opargbegintheorem####1####2####3{%
    \LWR@inctheorem% lwarp
    #3}%
}%
}%
{\PackageError{\basename}{Theorem style #1 already defined}\@eha}
}
```

§ 457.6 Standard styles

```
\renewtheoremstyle{plain}%
  {\item[
    \InlineClass{theoremheaderplain}{##1\ ##2\theorem@separator}]}%
  {\item[
    \InlineClass{theoremheaderplain}{##1\ ##2\ (##3)\theorem@separator}]}

\renewtheoremstyle{break}%
  {\item[
    \InlineClass{theoremheaderbreak}{##1\ ##2\theorem@separator}\newline
    ]}%
  {\item[
    \InlineClass{theoremheaderbreak}%
        {##1\ ##2\ (##3)\theorem@separator}\newline
    ]}

\renewtheoremstyle{change}%
  {\item[
    \InlineClass{theoremheaderchange}{##2\ ##1\theorem@separator}]}%
  {\item[
    \InlineClass{theoremheaderchange}{##2\ ##1\ (##3)\theorem@separator}]}

\renewtheoremstyle{changebreak}%
  {\item[
        \InlineClass{theoremheaderchangebreak}%
            {##2\ ##1\theorem@separator}\newline
    ]}%
  {\item[
        \InlineClass{theoremheaderchangebreak}%
            {##2\ ##1\ (##3)\theorem@separator}\newline
    ]}

\renewtheoremstyle{margin}%
  {\item[
       \InlineClass{theoremheadermargin}{##2 \qquad ##1\theorem@separator}
    ]}%
  {\item[
     \InlineClass{theoremheadermargin}{##2 \qquad ##1\ (##3)\theorem@separator}
    ]}

\renewtheoremstyle{marginbreak}%
  {\item[
    \InlineClass{theoremheadermarginbreak}%
        {##2 \qquad ##1\theorem@separator}\newline
    ]}%
  {\item[
    \InlineClass{theoremheadermarginbreak}%
        {##2 \qquad ##1\ (##3)\theorem@separator}\newline
    ]}

\renewtheoremstyle{nonumberplain}%
  {\item[
    \InlineClass{theoremheaderplain}{##1\theorem@separator}]}%
  {\item[
    \InlineClass{theoremheaderplain}{##1\ (##3)\theorem@separator}]}

\renewtheoremstyle{nonumberbreak}%
  {\item[
    \InlineClass{theoremheaderbreak}{##1\theorem@separator}\newline
```

```
    ]}%
  {\item[
    \InlineClass{theoremheaderbreak}{##1\ (##3)\theorem@separator}\newline
    ]}

\renewtheoremstyle{empty}%
  {\item[]}%
  {\item[
    \InlineClass{theoremheaderplain}{##3}]}

\renewtheoremstyle{emptybreak}%
  {\item[]}%
  {\item[
    \InlineClass{theoremheaderplain}{##3}] \ \newline}
```

§ 457.7 Additional objects

The following manually adjust the css for the standard configuration objects which are not a purely plain style:

```
\ifbool{LWR@ntheoremamsthm}{}{%
```

Upright text via CSS:

```
    \newtheoremstyle{plainupright}%
    {\item[
        \InlineClass{theoremheaderplain}{##1\ ##2\theorem@separator}]}%
    {\item[
      \InlineClass{theoremheaderplain}{##1\ ##2\ (##3)\theorem@separator}]}
```

Upright text and small caps header via CSS:

```
    \newtheoremstyle{nonumberplainuprightsc}%
    {\item[
        \InlineClass{theoremheadersc}{##1\theorem@separator}]}%
    {\item[
        \InlineClass{theoremheadersc}{##1\ (##3)\theorem@separator}]}
}% not amsthm
```

§ 457.8 Renewed standard configuration

The following standard configuration is renewed using the new css:

```
\ifbool{LWR@ntheoremamsthm}{}{%


\ifx\thm@usestd\@undefined
\else
    \theoremnumbering{arabic}
    \theoremstyle{plain}
    \RequirePackage{latexsym}
    \theoremsymbol{\Box}
    \theorembodyfont{\itshape}
    \theoremheaderfont{\normalfont\bfseries}
    \theoremseparator{}
    \renewtheorem{Theorem}{Theorem}
    \renewtheorem{theorem}{Theorem}
    \renewtheorem{Satz}{Satz}
    \renewtheorem{satz}{Satz}
```

```
    \renewtheorem{Proposition}{Proposition}
    \renewtheorem{proposition}{Proposition}
    \renewtheorem{Lemma}{Lemma}
    \renewtheorem{lemma}{Lemma}
    \renewtheorem{Korollar}{Korollar}
    \renewtheorem{korollar}{Korollar}
    \renewtheorem{Corollary}{Corollary}
    \renewtheorem{corollary}{Corollary}

    \theoremstyle{plainupright}
    \theorembodyfont{\upshape}
    \theoremsymbol{\HTMLunicode{25A1}}% UTF-8 white box
    \renewtheorem{Example}{Example}
    \renewtheorem{example}{Example}
    \renewtheorem{Beispiel}{Beispiel}
    \renewtheorem{beispiel}{Beispiel}
    \renewtheorem{Bemerkung}{Bemerkung}
    \renewtheorem{bemerkung}{Bemerkung}
    \renewtheorem{Anmerkung}{Anmerkung}
    \renewtheorem{anmerkung}{Anmerkung}
    \renewtheorem{Remark}{Remark}
    \renewtheorem{remark}{Remark}
    \renewtheorem{Definition}{Definition}
    \renewtheorem{definition}{Definition}

    \theoremstyle{nonumberplainuprightsc}
    \theoremsymbol{\HTMLunicode{220E}}% UTF-8 end-of-proof
    \renewtheorem{Proof}{Proof}
    \renewtheorem{proof}{Proof}
    \renewtheorem{Beweis}{Beweis}
    \renewtheorem{beweis}{Beweis}
    \qedsymbol{\HTMLunicode{220E}}% UTF-8 end-of-proof

    \theoremsymbol{}
\fi
}% not amsthm
```

§ 457.9 amsthm option

Only if the amsthm option was given:

```
\ifbool{LWR@ntheoremamsthm}{

\gdef\th@plain{%
  \def\theorem@headerfont{\normalfont\bfseries}\itshape%
  \def\@begintheorem##1##2{%
        \LWR@inctheorem% lwarp
      \item[
  \InlineClass{theoremheaderplain}{##1\ ##2.}
        ]}%
  \def\@opargbegintheorem##1##2##3{%
        \LWR@inctheorem% lwarp
     \item[
  \InlineClass{theoremheaderplain}{##1\ ##2\ (##3).}
        ]}}

\gdef\th@nonumberplain{%
  \def\theorem@headerfont{\normalfont\bfseries}\itshape%
  \def\@begintheorem##1##2{%
        \LWR@inctheorem% lwarp
```

```
      \item[
  \InlineClass{theoremheaderplain}{##1.}
        ]}%
  \def\@opargbegintheorem##1##2##3{%
        \LWR@inctheorem% lwarp
     \item[
  \InlineClass{theoremheaderplain}{##1\ (##3).}
        ]}}

\gdef\th@definition{%
  \def\theorem@headerfont{\normalfont\bfseries}\normalfont%
  \def\@begintheorem##1##2{%
        \LWR@inctheorem% lwarp
      \item[
  \InlineClass{theoremheaderdefinition}{##1\ ##2.}
        ]}%
  \def\@opargbegintheorem##1##2##3{%
        \LWR@inctheorem% lwarp
     \item[
  \InlineClass{theoremheaderdefinition}{##1\ ##2\ (##3).}
        ]}}

\gdef\th@nonumberdefinition{%
  \def\theorem@headerfont{\normalfont\bfseries}\normalfont%
  \def\@begintheorem##1##2{%
        \LWR@inctheorem% lwarp
      \item[
  \InlineClass{theoremheaderdefinition}{##1.}
        ]}%
  \def\@opargbegintheorem##1##2##3{%
        \LWR@inctheorem% lwarp
     \item[
  \InlineClass{theoremheaderdefinition}{##1\ (##3).}
        ]}}

\gdef\th@remark{%
  \def\theorem@headerfont{\itshape}\normalfont%
  \def\@begintheorem##1##2{%
        \LWR@inctheorem% lwarp
      \item[
  \InlineClass{theoremheaderremark}{##1\ ##2.}
        ]}%
  \def\@opargbegintheorem##1##2##3{%
        \LWR@inctheorem% lwarp
     \item[
  \InlineClass{theoremheaderremark}{##1\ ##2\ (##3).}
        ]}}

\gdef\th@nonumberremark{%
  \def\theorem@headerfont{\itshape}\normalfont%
  \def\@begintheorem##1##2{%
        \LWR@inctheorem% lwarp
      \item[
  \InlineClass{theoremheaderremark}{##1.}
        ]}%
  \def\@opargbegintheorem##1##2##3{%
        \LWR@inctheorem% lwarp
     \item[
  \InlineClass{theoremheaderremark}{##1\ (##3).}
        ]}}
```

```
415
416 \gdef\th@proof{%
417   \def\theorem@headerfont{\normalfont\bfseries}\itshape%
418   \def\@begintheorem##1##2{%
419         \LWR@inctheorem% lwarp
420       \item[
421   \InlineClass{theoremheaderproof}{##1.}
422         ]}%
423   \def\@opargbegintheorem##1##2##3{%
424         \LWR@inctheorem% lwarp
425       \item[
426   \InlineClass{theoremheaderproof}{##1\ (##3).}
427         ]}}
428
429
430
431 \newcounter{proof}%
432 \if@thmmarks
433     \newcounter{currproofctr}%
434     \newcounter{endproofctr}%
435 \fi
436
437 \gdef\proofSymbol{\openbox}
438
439 \newcommand{\proofname}{Proof}
440
441 \newenvironment{proof}[1][\proofname]{
442     \th@proof
443     \def\theorem@headerfont{\itshape}%
444     \normalfont
445     \theoremsymbol{\HTMLunicode{220E}}% UTF-8 end-of-proof
446     \@thm{proof}{proof}{#1}
447 }%
448 {\@endtheorem}
449
450 }{}% amsthm option
```

§ 457.10 Ending a theorem

Patched for css:

```
451 \let\LWR@origendtheorem\@endtheorem
452 \renewcommand{\@endtheorem}{%
453 \ifbool{LWR@ntheoremmarks}{%
454     \ifsetendmark%
455     \InlineClass{theoremendmark}{\csname\InTheoType Symbol\endcsname}%
456     \setendmarkfalse%
457     \fi%
458 }{}%
459 \LWR@origendtheorem% also does \@endtrivlist
460 \ifbool{LWR@ntheoremmarks}{\global\setendmarktrue}{}%

461     \LWR@printpendingfootnotes%                    lwarp

462 \endBlockClass%
463 }
```

§ 457.11 \NoEndMark

```
\gdef\NoEndMark{\global\setendmarkfalse}
```

§ 457.12 List-of

Redefined to reuse the float mechanism to add list-of-theorem links:

`\thm@thmline` {⟨*1: printed type*⟩} {⟨*2: #*⟩} {⟨*3: optional*⟩} {⟨*4: page*⟩}

```
\renewcommand{\thm@@thmline@noname}[4]{%
\hypertocfloat{1}{theorem}{thm}{#2 #3}{}%
}

\renewcommand{\thm@@thmline@name}[4]{%
\hypertocfloat{1}{theorem}{thm}{#1 #2 #3}{}%
}
```

This was redefined by ntheorem when loaded, so it is now redefined for lwarp:

```
\def\thm@@thmline{\thm@@thmline@name}
```

Patch for css:

```
\def\listtheorems#1{
\LWR@htmlelementclass{nav}{lothm}%
\begingroup
\c@tocdepth=-2%
\def\thm@list{#1}\thm@processlist
\endgroup
\LWR@htmlelementclassend{nav}{lothm}%
}
```

§ 457.13 Symbols

Proof QED symbol:

```
\newcommand{\qed}{\qquad\the\qedsymbol}

\AtBeginDocument{
\@ifundefined{LWR@orig@openbox}{
\LetLtxMacro\LWR@orig@openbox\openbox
\LetLtxMacro\LWR@orig@blacksquare\blacksquare
\LetLtxMacro\LWR@orig@Box\Box

\def\openbox{\text{\HTMLunicode{25A1}}}% UTF-8 white box
\def\blacksquare{\text{\HTMLunicode{220E}}}% UTF-8 end-of-proof
\def\Box{\text{\HTMLunicode{25A1}}}% UTF-8 white box

\appto\LWR@restoreorigformatting{%
\LetLtxMacro\openbox\LWR@orig@openbox%
\LetLtxMacro\blacksquare\LWR@orig@blacksquare%
\LetLtxMacro\Box\LWR@orig@Box%
}% appto
}{}% @ifundefined
}% AtBeginDocument
```

§ 457.14 Cross-referencing

`\thref {⟨label⟩}`

```
\newcommand*{\thref}[1]{\cref{#1}}%
```

File 349 **lwarp-octave.sty**

§ 458 Package octave

(*Emulates or patches code by* Andrew A. Cashner.)

Pkg octave

octave is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{octave}[2017/10/31]
```

Remove the leading 1pt kern:

```
\RenewDocumentCommand{\@PrintTicks}{ m }{%
\kern-1pt%  lwarp
\@TickNum = #1%
\loop
\@Tick{}%
\advance\@TickNum by -1
\ifnum\@TickNum > 0
\repeat
}
```

Use unicode for the prime character:

```
\RenewDocumentCommand{\@Tick}{}{\HTMLunicode{2032}}
```

Catch the inline font:

```
\RenewDocumentCommand{\pitch}{ m o m }{%
\if@OctaveNumber%
{%
    \pitchfont{%
        \LWR@textcurrentfont{%  lwarp
            \MakeUppercase{#1}%
            \IfValueTF{#2}{#2}{}\textsubscript{#3}%
        }%
    }%
}%
\else%
{%
    \pitchfont{%
        \LWR@textcurrentfont{%  lwarp
            \@GetOctaveTick{#1}[#2]{#3}%
        }%
    }%
}%
\fi%
}
```

The original was hard to adapt to lwarp's handling of &.

```
\StartDefiningTabulars
\renewcommand{\octavetable}{%
\begin{tabular}{ll}
\octaveprimes \pitch{C}{0} & \octavenumbers \pitch{C}{0} \\
\octaveprimes \pitch{C}{1} & \octavenumbers \pitch{C}{1} \\
\octaveprimes \pitch{C}{2} & \octavenumbers \pitch{C}{2} \\
\octaveprimes \pitch{C}{3} & \octavenumbers \pitch{C}{3} \\
\octaveprimes \pitch{C}{4} & \octavenumbers \pitch{C}{4} \\
\octaveprimes \pitch{C}{5} & \octavenumbers \pitch{C}{5} \\
\octaveprimes \pitch{C}{6} & \octavenumbers \pitch{C}{6} \\
\octaveprimes \pitch{C}{7} & \octavenumbers \pitch{C}{7} \\
\end{tabular}
}
\StopDefiningTabulars
```

File 350 **lwarp-orcidlink.sty**

§ 459 Package

orcidlink

(*Emulates or patches code by* Leo C. Stein.)

Pkg orcidlink

orcidlink is patched for use by lwarp.

for HTML output:

```
\RequirePackage{lwarp-scalerel}

\LWR@ProvidesPackagePass{orcidlink}[2020/11/21]

\renewcommand\orcidlink[1]{%
    \texorpdfstring%
        {%
            \href%
                {https://orcid.org/#1}%
                {%
                    \begin{lateximage}[orcid #1]%   lwarp
                    \mbox{%
                        \scalerel*{%
                            \begin{tikzpicture}[yscale=-1,transform shape]
                            \pic{orcidlogo};
                            \end{tikzpicture}
                        }{|}%
                    }%
                    \end{lateximage}%   lwarp
                }%
        }%
        {}%
}

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\orcidlink}[1]{}}
\end{warpMathJax}
```

File 351 **lwarp-overpic.sty**

§ 460 Package
# overpic

(*Emulates or patches code by* Rolf Niepraschk.)

Pkg overpic

overpic is patched for use by lwarp.

⚠ scaling

The macros `\overpicfontsize` and `\overpicfontskip` are used during HTML generation. These are sent to `\fontsize` to adjust the font size for scaling differences between the print and HTML versions of the document. Renew these macros before using the `overpic` and `Overpic` environments.

See section 88.2 for the print-mode version of `\overpicfontsize` and `\overpicfontskip`.

for HTML output:

```
\LWR@ProvidesPackagePass{overpic}[2017/10/06]

\newcommand*{\overpicfontsize}{12}
\newcommand*{\overpicfontskip}{14}

\BeforeBeginEnvironment{overpic}{%
    \begin{lateximage}%
    \fontsize{\overpicfontsize}{\overpicfontskip}%
    \selectfont%
}

\AfterEndEnvironment{overpic}{\end{lateximage}}

\BeforeBeginEnvironment{Overpic}{%
    \begin{lateximage}%
    \fontsize{\overpicfontsize}{\overpicfontskip}%
    \selectfont%
}

\AfterEndEnvironment{Overpic}{\end{lateximage}}
```

File 352 **lwarp-pagegrid.sty**

§ 461 Package
# pagegrid

Pkg pagegrid

pagegrid is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pagegrid}[2016/05/16]

\newcommand*{\pagegridsetup}[1]{}
```

File 353 **lwarp-pagenote.sty**

§ 462 Package
# pagenote

Pkg pagenote

pagenote works as-is, but the page option is disabled.

⚠ labels Note that labels in page notes do not appear as expected, even in the print version.

for HTML output:

```
\DeclareOption{page}{}
\LWR@ProvidesPackagePass{pagenote}[2009/09/03]
```

For MathJax:

```
\begin{warpMathJax}
\appto\LWR@syncnotenumbers{\LWR@synconenotenumber{LWRpagenote}{\thepagenote}}
\CustomizeMathJax{\def\LWRpagenote{1}}
\CustomizeMathJax{\newcommand{\pagenote}[2][\LWRpagenote]{{}^{\mathrm{#1}}}}
\end{warpMathJax}
```

There is no `\pagenotemark`, so the following are not required:

```
\providecommand{\pagenotename}{pagenote}
\appto\LWR@syncnotenames{\LWR@synconenotename{LWRpagenote}{\pagenotename}}
```

File 354 **lwarp-pagesel.sty**

§ 463 Package

pagesel

Pkg pagesel

pagesel is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pagesel}[2016/05/16]
```

File 355 **lwarp-paralist.sty**

§ 464 Package

paralist

(*Emulates or patches code by* Bernd Schandl.)

Pkg paralist

paralist is supported with minor changes.

for HTML output:

```
\LWR@ProvidesPackagePass{paralist}[2017/01/22]
```

The compact environments are identical to the regular ones:

```
\LetLtxMacro\compactitem\itemize
\LetLtxMacro\compactenum\enumerate
\LetLtxMacro\compactdesc\description
\LetLtxMacro\endcompactitem\enditemize
\LetLtxMacro\endcompactenum\endenumerate
\LetLtxMacro\endcompactdesc\enddescription
```

For the inline environments, revert `\item` to its original print-mode version:

```
\AtBeginEnvironment{inparaitem}{\LetLtxMacro\item\LWR@origitem}
\AtBeginEnvironment{inparaenum}{\LetLtxMacro\item\LWR@origitem}
\AtBeginEnvironment{inparadesc}{\LetLtxMacro\item\LWR@origitem}
```

Manual formatting of the description labels:

```
\def\paradescriptionlabel#1{{\normalfont\textbf{#1}}}
```

File 356 **lwarp-parallel.sty**

§ 465 Package

parallel

(*Emulates or patches code by* Matthias Eckermann.)

Pkg parallel

parallel is emulated.

Package options are ignored. Footnotes are treated as normal lwarp footnotes.

Environment option c gives side-by-side s of class minipage, each of whose width is a percent depending on the given left and right widths, proportional to \linewidth.

Inside each environment, \linewidth and \textwidth are set for the print-output sizes.

for HTML output: Discard all options for lwarp-parallel:

```
\LWR@ProvidesPackageDrop{parallel}[2003/04/13]

\newcounter{LWR@parallel@Lwidth}
\newcounter{LWR@parallel@Rwidth}
\newcommand*{\LWR@parallel@border}

\newenvironment*{Parallel}[3][]%
    {%
        \LWR@printpendingfootnotes%
        \setlength{\linewidth}{\LWR@userstextwidth}%
        \setlength{\textwidth}{\LWR@userstextwidth}%
        \renewcommand*{\LWR@parallel@border}{}%
        \ifstrequal{#1}{v}%
            {%
           \renewcommand*{\LWR@parallel@border}{ ; border-left: 2px solid black}%
            }%
            {}%
        \ifblank{#2}{%
            \ifblank{#3}{% {}{}
                \setcounter{LWR@parallel@Lwidth}{45}%
                \setcounter{LWR@parallel@Rwidth}{45}%
            }% {}{}
            {% {}{x}
                \setlength{\LWR@templengthone}{\linewidth-#3}%
                \setcounter{LWR@parallel@Lwidth}{%
                    90*\ratio{\LWR@templengthone}{\linewidth}%
                }%
                \setcounter{LWR@parallel@Rwidth}{%
                    90*\ratio{#3}{\linewidth}%
                }%
            }% {}{x}
        }% #2 blank
        {% #2 non-blank
            \ifblank{#3}{% {x}{}
                \setcounter{LWR@parallel@Lwidth}{%
                    90*\ratio{#2}{\linewidth}%
                }%
```

```
                \setlength{\LWR@templengthone}{\linewidth-#2}%
                \setcounter{LWR@parallel@Rwidth}{%
                    90*\ratio{\LWR@templengthone}{\linewidth}%
                }%
            }% {x}{}
            {% {x}{x}
                \setcounter{LWR@parallel@Lwidth}{%
                    90*\ratio{#2}{\linewidth}%
                }%
                \setcounter{LWR@parallel@Rwidth}{%
                    90*\ratio{#3}{\linewidth}%
                }%
            }% {x}{x}
        }% #2 non-blank
    }
    {%
        \ParallelAtEnd%
        \renewcommand*{\ParallelAtEnd}{}%
        \LWR@printpendingfootnotes%
    }

\newcommand*{\ParallelLText}[1]{%
    \begin{BlockClass}[%
        width:\arabic{LWR@parallel@Lwidth}\% ; % space
        padding: .5ex 1\% ; % space
    ]{minipage}%
    #1%
    \end{BlockClass}%
}

\newcommand*{\ParallelRText}[1]{%
    \begin{BlockClass}[%
        width:\arabic{LWR@parallel@Rwidth}\% ; % space
        padding: .5ex 1\% ; % space
        \LWR@parallel@border%
    ]{minipage}%
    #1%
    \end{BlockClass}%
}

\newcommand*{\ParallelPar}{\LWR@printpendingfootnotes}

\newcommand*{\ParallelAtEnd}{}
```

File 357 **lwarp-parcolumns.sty**

§ 466 Package

parcolumns

(*Emulates or patches code by* Jonathan Sauer.)

Pkg parcolumns

parcolumns is emulated.

rulebetween is honored. The other keys are ignored, including colwidths.

Each column is placed inside a of class minipage, each of whose width is fixed at 85% divided by the number of columns. In most cases, this results in side-by-side minipages adapting to the browser width. Inside each minipage,

`\linewidth`, `\textwidth`, and `\textheight` are set for a virtual 6×9 inch page, with `\linewidth` divided by the number of columns.

for HTML output: Discard all options for lwarp-parcolumns:

```
\RequirePackage{keyval}%

\LWR@ProvidesPackageDrop{parcolumns}[2004/11/25]

\newcounter{LWR@parcolumns@numcols}
\newcounter{LWR@parcolumns@thiscol}
\newcounter{LWR@parcolumns@width}
\newbool{LWR@parcolumns@started}
\newbool{LWR@parcolumns@rule}

\define@key{LWRparcols}{colwidths}{}
\define@key{LWRparcols}{distance}{}
\define@key{LWRparcols}{rulebetween}[true]{%
    \setbool{LWR@parcolumns@rule}{#1}%
}
\define@key{LWRparcols}{nofirstindent}{}
\define@key{LWRparcols}{sloppy}{}
\define@key{LWRparcols}{sloppyspaces}{}

\newenvironment*{parcolumns}[2][]
    {%
        \begin{LWR@setvirtualpage}*[#2]%
        \setcounter{LWR@parcolumns@numcols}{#2}%
        \setcounter{LWR@parcolumns@thiscol}{1}%
        \boolfalse{LWR@parcolumns@started}%
        \boolfalse{LWR@parcolumns@rule}%
        \setcounter{LWR@parcolumns@width}{%
            85/#2
        }%
        \setkeys{LWRparcols}{#1}%
    }
    {%


        \colplacechunks%
        \end{LWR@setvirtualpage}%
    }

\newcommand{\LWR@parcolumns@onecol}[1]{%
    \ifbool{LWR@parcolumns@started}%
        {}%
        {%
            \LWR@htmldivclass{parcolumns}%
            \booltrue{LWR@parcolumns@started}%
        }%
    \ifboolexpr{%
        bool {LWR@parcolumns@rule} and
        test {%
            \ifnumgreater
                {\value{LWR@parcolumns@thiscol}}
                {1}
        }%
    }%
        {\renewcommand{\LWR@tempone}{ ; border-left: 2px solid black}}%
        {\renewcommand{\LWR@tempone}{}}%
    \begin{BlockClass}[%
```

```
        width:\arabic{LWR@parcolumns@width}\% ; % space
        padding: .5ex 1\% ; % space
        \LWR@tempone%
    ]{minipage}%
    #1%
    \end{BlockClass}%
    \addtocounter{LWR@parcolumns@thiscol}{1}%
}

\newcommand{\colchunk}[2][\value{LWR@parcolumns@thiscol}]{%
    \whileboolexpr{%
        test {%
            \ifnumcomp%
                {\value{LWR@parcolumns@thiscol}}
                {<}
                {#1}%
        }%
    }{%
        \LWR@parcolumns@onecol{}%
    }%
    \LWR@parcolumns@onecol{#2}%
}

\newcommand*{\colplacechunks}{%
    \ifbool{LWR@parcolumns@started}%
        {%
            \LWR@htmldivclassend{div}%
            \boolfalse{LWR@parcolumns@started}%
        }%
        {}%
    \setcounter{LWR@parcolumns@thiscol}{1}%
}
```

File 358 **lwarp-parnotes.sty**

§ 467 Package

parnotes

(*Emulates or patches code by* Chelsea Hughes.)

Pkg parnotes

parnotes is supported with some patches.

for HTML output:

```
\LWR@ProvidesPackagePass{parnotes}[2019/07/23]

\long\def\PN@parnote@real#1#2{%
    \parnotemark{#1}%
    % Unless this is the first parnote in \PN@text, add a separator first
    \unless\ifx\PN@text\@empty\g@addto@macro\PN@text{\parnoteintercmd}\fi
    % Redefine \@currentlabel to the parnote label, so \label works
    \g@addto@macro\PN@text{%
%         \phantomsection%
        \def\@currentlabel{#1}%
        \def\cref@currentlabel{%        lwarp
            [parnotemark][\arabic{parnotemark}][]\theparnotemark%
        }%
    }%
    \g@addto@macro\PN@text{%
        \LWR@textcurrentfont{%          lwarp
```

```
            \parnotemark{#1}\nolinebreak\thinspace#2%
        }%
    }%
}

\def\PN@parnotes@real{%

\ifPN@inparnotes
\else

    \LWR@stoppars%
```

Avoid nested paragraphs:

```
    \addtocounter{LWR@spandepth}{1}%

    % We call \par later, so this avoids recursion with \PN@parnotes@auto
    \PN@inparnotestrue
%     \unless\ifvmode\par\fi
    % Avoid page breaks between a paragraph and its parnotes
%     \nopagebreak\addvspace{\parnotevskip}%
    \begin{BlockClass}(note){footnotes}%    lwarp
    \leavevmode\LWR@orignewline%
```

Typeset the parnote inside its own group to avoid global changes:

```
    {%
        \parnotefmt{\PN@text}%
    }%
    \leavevmode\LWR@orignewline%
    \end{BlockClass}%                       lwarp

    \leavevmode\LWR@orignewline%
    \global\def\PN@text{}%
    %
    % These can be enabled or disabled by package options
    %
    \PN@disable@indent
    \PN@reset@optional
    \PN@inparnotesfalse
```

Reenable normal paragraph handling:

```
    \addtocounter{LWR@spandepth}{-1}%
\fi
}

\newbool{LWR@parnotes@doingauto}
\boolfalse{LWR@parnotes@doingauto}

\def\PN@parnotes@auto{%
    \ifbool{LWR@parnotes@doingauto}{
        \ifx\@currenvir\@PN@autopn
            \unless\ifPN@inparnotes
                \unless\ifx\PN@text\@empty
                    \expandafter\PN@parnotes@real
```

```
                \fi
            \fi
        \fi
    }{}%
}
```

Replace original logic due to the use of new LaTeXparagraph hook handling:

```
\renewenvironment{autopn}%
    {\booltrue{LWR@parnotes@doingauto}}
    {\PN@parnotes@auto}%
```

If cleveref is in use, name the new notes:

```
\AtBeginDocument{
    \ifdef{\crefname}{
        \crefname{parnotemark}{paragraph note}{paragraph notes}
        \Crefname{parnotemark}{Paragraph note}{Paragraph notes}
    }{}
}
```

To nullify the footnotes where necessary:

```
\apptocmd{\LWR@nullifyfootnotes}{%
    \renewcommand{\parnote}[2][]{}%
    \renewcommand\parnotemark[1]{}%
}{}{}
```

For MathJax:

```
\begin{warpMathJax}
\providecommand{\parnotename}{parnote}
\appto\LWR@syncnotenumbers{%
    \addtocounter{parnotemark}{-1}% specific to parnotes
    \LWR@synconenotenumber{LWRparnote}{\theparnotemark}%
    \addtocounter{parnotemark}{1}% specific to parnotes
}
\appto\LWR@syncnotenames{\LWR@synconenotename{LWRparnote}{\parnotename}}
\CustomizeMathJax{\def\LWRparnote{1}}
\CustomizeMathJax{\newcommand{\parnote}[2][\LWRparnote]{{}^{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\parnotemark}[1][\LWRparnote]{{}^{\mathrm{#1}}}}
\end{warpMathJax}
```

File 359 **lwarp-parskip.sty**

§ 468 Package

parskip

Pkg parskip

parskip is ignored.

for HTML output:

Discard all options for lwarp-parskip.

```
\LWR@ProvidesPackageDrop{parskip}[2001/04/09]
```

File 360 **lwarp-pbalance.sty**

§ 469 Package pbalance

Pkg pbalance

pbalance is ignored.

for HTML output:

```
\RequirePackage{balance}

\LWR@ProvidesPackageDrop{pbalance}[2020/12/16]

\newcommand\shrinkLastPage[1]{}
```

File 361 **lwarp-pbox.sty**

§ 470 Package pbox

(*Emulates or patches code by* Simon Law.)

Pkg pbox

pbox is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{pbox}[2011/12/07]

\NewDocumentCommand{\pbox}{O{t} O{} O{t} m +m}{%
\global\booltrue{LWR@minipagefullwidth}%
\parbox[#1][#2][#3]{#4}{#5}%
}

\newcommand{\settominwidth}[3][\columnwidth]{%
\settowidth{#2}{#3}%
}

\newcommand{\widthofpbox}[1]{%
\widthof{#1}%
}
```

File 362 **lwarp-pdfcol.sty**

§ 471 Package pdfcol

Pkg pdfcol

pdfcol is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pdfcol}[2018/11/01]

\ltx@newif\ifpdfcolAvailable
\pdfcolAvailablefalse

\def\pdfcolErrorNoStacks{
    \PackageInfo{lwarp-pdfcol}{Ignoring pdfcol for HTML output.}
}
```

```
\def\pdfcolInitStack#1{}%
\long\def\pdfcolIfStackExists#1#2#3{#3}%
\def\pdfcolSwitchStack#1{}%
\def\pdfcolSetCurrentColor{}%
\def\pdfcolSetCurrent#1{}%
```

File 363 **lwarp-pdfcolfoot.sty**

§ 472 Package

pdfcolfoot

Pkg pdfcolfoot

pdfcolfoot is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pdfcolfoot}[2016/05/16]

\newcommand*{\pdfcolfoot@switch}{}

\newcommand*{\pdfcolfoot@current}{}
```

File 364 **lwarp-pdfcolmk.sty**

§ 473 Package

pdfcolmk

Pkg pdfcolmk

pdfcolmk is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pdfcolmk}[2016/05/16]
```

File 365 **lwarp-pdfcolparallel.sty**

§ 474 Package

pdfcolparallel

Pkg pdfcolparallel

pdfcolparallel is ignored.

for HTML output:

```
\RequirePackage{keyval}%

\LWR@ProvidesPackageDropA{pdfcolparallel}{2016/05/16}
```

Pass options to parallel:

```
\DeclareOption*{%
    \PassoptionsToPackage{\CurrentOption}{parallel}%
}
```

Process the options:

```
\LWR@ProvidesPackageDropB
```

Require parallel with the given options:

```
\RequirePackage{parallel}[2003/04/13]
```

Ignore the new key:

```
\define@key{parallel}{rulebetweencolor}{}
```

File 366 **lwarp-pdfcolparcolumns.sty**

§ 475 Package pdfcolparcolumns

Pkg pdfcolparcolumns

pdfcolparcolumns is ignored.

for HTML output:

```
\LWR@ProvidesPackageDropA{pdfcolparcolumns}{2016/05/16}
```

Pass options to parcolumns:

```
\DeclareOption*{%
    \PassoptionsToPackage{\CurrentOption}{parcolumns}%
}
```

Process the options:

```
\LWR@ProvidesPackageDropB
```

Require parcolumns with the given options:

```
\RequirePackage{parcolumns}[2004/11/25]
```

Ignore the new key:

```
\define@key{LWRparcols}{rulebetweencolor}{}
```

File 367 **lwarp-pdfcomment.sty**

§ 476 Package pdfcomment

Pkg pdfcomment

pdfcomment is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pdfcomment}[2016/06/13]

\newenvironment{pdfsidelinecomment}[2][]{}{}
\newcommand{\pdfcomment}[2][]{}
\newcommand{\pdfmargincomment}[2][]{}
\newcommand{\pdfmarkupcomment}[3][]{#2}
\newcommand{\pdffreetextcomment}[2][]{}
\newcommand{\pdfsquarecomment}[2][]{}
\newcommand{\pdfcirclecomment}[2][]{}
\newcommand{\pdflinecomment}[2][]{}
\newcommand{\pdftooltip}[3][]{#2}
\newcommand{\pdfcommentsetup}[2][]{}
```

```
\newcommand{\listofpdfcomments}[1][]{}
\newcommand{\setliststyle}[1]{}
\newcommand{\defineliststyle}[2]{}
\newcommand{\defineavatar}[2]{}
\newcommand{\definestyle}[2]{}
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\pdfmarkupcomment}[3][]{#2}}
\CustomizeMathJax{\newcommand{\pdftooltip}[3][]{#2}}
\end{warpMathJax}
```

File 368 **lwarp-pdfcrypt.sty**

§ 477 Package

pdfcrypt

Pkg pdfcrypt

pdfcrypt is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pdfcrypt}[2016/05/16]
```

```
\newcommand*{\pdfcryptsetup}[1]{}
```

File 369 **lwarp-pdflscape.sty**

§ 478 Package

pdflscape

Pkg pdflscape

pdflscape is ignored.

for HTML output:

Discard all options for lwarp-pdflscape:

```
\LWR@ProvidesPackageDrop{pdflscape}[2019/12/05]
```

```
\let\landscape\relax
\let\endlandscape\relax

\newenvironment*{landscape}{}{}
```

File 370 **lwarp-pdfmarginpar.sty**

§ 479 Package

pdfmarginpar

Pkg pdfmarginpar

pdfmarginpar is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pdfmarginpar}[2011/08/05]
```

```
\newcommand{\pdfmarginpar}[2][]{}
\newcommand{\pdfmarginparset}[1]{}
```

File 371 **lwarp-pdfpages.sty**

§ 480 Package

pdfpages

(*Emulates or patches code by* Andreas Matthias.)

Pkg pdfpages

pdfpages is patched for use by lwarp.

Option `link` and `linkname` work:

```
\hyperlink{<filename>.pdf.<pagenubmer}{some text}
\hyperlink{<linkname>.<pagenubmer}{some text}
```

Options which make no sense in HTML are disabled.

for HTML output:

```
\LWR@ProvidesPackagePass{pdfpages}[2017-10-31]
```

Disable option which have no meaning for HTML output:

```
\define@key{pdfpages}{fitpaper}[false]{}
\define@key{pdfpages}{landscape}[false]{}
\define@key{pdfpages}{openright}[false]{}
\define@key{pdfpages}{signature}{}
\define@key{pdfpages}{signature*}{}
\define@key{pdfpages}{booklet}[false]{}
\define@key{pdfpages}{rotateoversize}[false]{}
\define@key{pdfpages}{doublepages}[false]{}
\define@key{pdfpages}{doublepagestwist}[false]{}
\define@key{pdfpages}{doublepagestwistodd}[false]{}
\define@key{pdfpages}{doublepagestwist*}[false]{}
\define@key{pdfpages}{doublepagestwistodd*}[false]{}
\define@key{pdfpages}{duplicatepages}[2]{}
\define@key{pdfpages}{thread}[false]{}
\define@key{pdfpages}{threadname}{}
\define@key{pdfpages}{linkfit}{}
\define@key{pdfpages}{linktodoc}[false]{}
\define@key{pdfpages}{linktodocfit}{}
\define@key{pdfpages}{linkfilename}{}
\define@key{pdfpages}{survey}[false]{}
\define@key{pdfpages}{survey-nolink}[false]{}
\define@key{pdfpages}{newwindow}[false]{}
```

Use print mode while measuring the page numbers:

```
\xpretocmd{\AM@getpagecount}{\LWR@restoreorigformatting}{}{}
```

Emulate a bit of eso-pic:

```
\newif\ifESO@texcoord

\newcommand{\ESO@HookIIBG}{}

```

```
\renewcommand{\AM@AddToShipoutPicture}{\g@addto@macro\ESO@HookIIBG}

\renewcommand{\ClearShipoutPicture}{}
```

\LWR@esopic@newpage

At each \newpage.

```
\newcommand*{\LWR@esopic@newpage}{%
```

Is there something to draw?

```
\ifdefvoid{\ESO@HookIIBG}%
{}%
{%
```

If the link option was specified, add a hyper target:

```
    \ifAM@link%
        \hypertarget{\AM@linkname.\AM@page}{}%
    \fi%
```

Draw inside a picture environment of the size of a virtual page:

```
    \begingroup%
    \setlength{\unitlength}{1in}%
    \begin{picture}(8,10.5)%
    \ESO@HookIIBG%
    \end{picture}%
    \endgroup%
    \global\let\ESO@HookIIBG\@empty%
}
}
```

\AM@output

Patched to use \LWR@esopic@newpage.

```
\xpatchcmd{\AM@output}
    {\newpage}
    {\LWR@esopic@newpage}
    {}
    {\LWR@patcherror{pdfpages}{AM@output-1}}

\xpatchcmd{\AM@output}
    {\newpage}
    {\LWR@esopic@newpage}
    {}
    {\LWR@patcherror{pdfpages}{AM@output-2}}

\xpatchcmd{\AM@output}
    {\newpage}
    {\LWR@esopic@newpage}
    {}
    {\LWR@patcherror{pdfpages}{AM@output-3}}
```

\includepdf

Patched to set the user's paper size.

```
\xpretocmd{\includepdf}{%
    \begingroup%
    \setlength{\paperwidth}{\LWR@userspaperwidth}%
    \setlength{\paperheight}{\LWR@userspaperheight}%
}{}{}

\xapptocmd{\includepdf}{%
```

```
    \endgroup%
}{}{}
```

`\includepdfmerge` Patched to set the user's paper size.

```
\xpretocmd{\includepdfmerge}{%
    \begingroup%
    \setlength{\paperwidth}{\LWR@userspaperwidth}%
    \setlength{\paperheight}{\LWR@userspaperheight}%
}{}{}

\xapptocmd{\includepdfmerge}{%
    \endgroup%
}{}{}
```

`\AM@hyper@begin@i` Hyper links are created by `\LWR@esopic@newpage`, so don't create them here:

```
\renewcommand{\AM@hyper@begin@i}{}
```

File 372 **lwarp-pdfprivacy.sty**

§ 481 Package pdfprivacy

Pkg pdfprivacy pdfprivacy is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pdfprivacy}[2017/12/03]
```

File 373 **lwarp-pdfrender.sty**

§ 482 Package pdfrender

Pkg pdfrender pdfrender is allowed during HTML, but it has no effect on HTML text output. pdfrender is enabled for use with xfakebold, and it is enabled during HTML so that it may be in use when an SVG math image is started. I.e. xfakebold's `\setBold` may be used outside of a math expression and still be detected when the math begins.

The lwarp-pdfrender package is present because it used to disable pdfrender, so this newer version is to overwrite older versions.

for HTML output:

```
\LWR@ProvidesPackagePass{pdfrender}[2019/12/29]
```

File 374 **lwarp-pdfsync.sty**

§ 483 Package pdfsync

(*Emulates or patches code by* J. Laurens.)

Pkg pdfsync pdfsync is ignored.

for HTML output:

Discard all options for lwarp-pdfsync:

```
\LWR@ProvidesPackageDrop{pdfsync}[2008/01/26]

\newcommand*{\pdfsync}{}
\newcommand*{\pdfsyncstart}{}
\newcommand*{\pdfsyncstop}{}
```

File 375 **lwarp-pdftricks.sty**

§ 484 Package

pdftricks

(*Emulates or patches code by* C. V. Radhakrishnan, C. V. Rajagopal, Antoine Chambert-Loir.)

Pkg pdftricks

pdftricks is patched for use by lwarp.

⚠ convert image files

The pdftricks image files <jobname>-fig*.pdf must be converted to .svg, or else a missing file error will occur. The image files must also be converted again whenever they change. To convert the images:

Enter ⇒ **lwarpmk pdftosvg <jobname>-fig*.pdf**

for HTML output:

```
\LWR@ProvidesPackagePass{pdftricks}[2003/08/10]
```

Reuse the print-mode images:

```
\def\PDFTfigname{\BaseJobname-fig\thepsfig}
```

If the .pdf images have not yet been converted to .svg then an error about a missing file will occur. Warn the user to convert the images.

```
\PackageWarning{lwarp-pdftricks}{%
When the pdftricks images change,
remember to convert PDF images to SVG using 'lwarpmk pdftosvg *-fig.pdf',
}

\AfterEndDocument{\typeout{***}}
\AfterEndDocument{\typeout{*** Note: If pdftricks images are not found, new, or updated,}}
\AfterEndDocument{\typeout{*** \space use 'lwarpmk pdftosvg \BaseJobname-fig*.pdf'}}
\AfterEndDocument{\typeout{***}}
```

File 376 **lwarp-pdfx.sty**

§ 485 Package

pdfx

Pkg pdfx

pdfx is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pdfx}[2017/05/18]
```

File 377 **lwarp-perpage.sty**

§ 486 Package

perpage

(*Emulates or patches code by* David Kastrup.)

Pkg perpage

perpage is mostly ignored, but support is added for footnote counters.

There is no page number in HTML, so most counters are not reset. If the document redefines \the<countername> to include \theperpage, it is necessary to place that redefininition inside a warpprint environment to avoid modifying the HTML defintions.

\AddAbsoluteCounter must not be inside warpprint, as the counter must be added for HTML also, although it is not incremented.

footnote numbering

To have footnote numbers reset each time footnotes are printed:

```
\setcounter{footnoteReset}{1}
```

For bigfoot, manyfoot, or perpage:

```
\MakePerPage{footnoteX}
— or —
\MakeSortedPerPage{footnoteX}
```

The footnotes are reset when they are printed, according to section level as set by FootnoteDepth, which is not necessarily by HTML page. This is recommended for \alph, \Alph, or \fnsymbol footnotes, due to the limited number of symbols which are available.

for HTML output:

```
\LWR@ProvidesPackageDrop{perpage}[2014/10/25]

\newcommand\AddAbsoluteCounter[1]
{
    \@ifundefined{c@abs#1}{%
        \expandafter\newcount\csname c@abs#1\endcsname
        \global\value{abs#1}\@ne
%         \global\expandafter\let\csname cl@abs#1\endcsname\@empty
        \expandafter\xdef\csname theabs#1\endcsname{%
%             \noexpand\number \csname c@abs#1\endcsname
        }%
%         \global\@namedef{c@pabs@#1}{\pp@cl@begin
%         \stepcounter{abs#1}%
%         \pp@cl@end}%
%         \@addtoreset{pabs@#1}{#1}
    }
    {}
}

\AddAbsoluteCounter{page}
\def\theabspage{1}

\newcommand*\MakePerPage[2][1]{%
    \ifltxcounter{#2Reset}{%
        \setcounter{#2Reset}{#1}%
```

```
    }{

}%
}

\newcommand*\MakeSorted[1]{}

\newcommand*\MakeSortedPerPage[2][1]{%
    \ifltxcounter{#2Reset}{%
        \setcounter{#2Reset}{#1}%
    }{
}%
}

\newcommand*{\theperpage}{1}
```

File 378 **lwarp-pfnote.sty**

§ 487 Package

pfnote

Pkg pfnote

pfnote is ignored.

pfnote

⚠ pfnote numbers

While emulating pfnote, lwarp is not able to reset HTML footnote numbers per page number to match the printed version, as HTML has no concept of page numbers. lwarp therefore uses continuous footnote numbering even for pfnote.

for HTML output:

```
\LWR@ProvidesPackageDrop{pfnote}[1999/07/14]
```

File 379 **lwarp-phfqit.sty**

§ 488 Package

phfqit

(*Emulates or patches code by* Philippe Faist.)

Pkg phfqit

phfqit is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{phfqit}[2017/08/16]

\LetLtxMacro\LWR@origbitstring\bitstring

\renewcommand\bitstring[1]{%
\InlineClass[%
    text-decoration: overline underline ;
]{bitstring}{#1}%
% \phfqit@bitstring{#1}%
}

\appto\LWR@restoreorigformatting{%
\LetLtxMacro\bitstring\LWR@origbitstring%
}
```

File 380 **lwarp-physics.sty**

§ 489 Package physics

(*Emulates or patches code by* Sergio C. de la Barrera.)

Pkg physics

physics works as-is for HTML with SVG math.

For MathJax, the MathJax v3 physics extension is used.

for HTML output:

```
\LWR@ProvidesPackagePass{physics}% No date is provided by the package.

\begin{warpMathJax}
\PackageNoteNoLine{lwarp, physics}{The MathJax v3 extension will be used}
\CustomizeMathJax{\require{physics}}
\end{warpMathJax}
```

File 381 **lwarp-physunits.sty**

§ 490 Package physunits

(*Emulates or patches code by* Brian W. Mulligan.)

Pkg physunits

physunits is supported as-is for SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{physunits}[2020/03/26]

\begin{warpMathJax}
\LWR@infoprocessingmathjax{physunits}

\CustomizeMathJax{\newcommand{\micro}{\mu}}
\CustomizeMathJax{\newcommand{\V}[1][ ]{\,\mathrm{#1V}}}
\CustomizeMathJax{\newcommand{\Volt}[1][ ]{\,\mathrm{#1V}}}
\CustomizeMathJax{\newcommand{\Coulomb}[1][ ]{\,\mathrm{#1C}}}
\CustomizeMathJax{\newcommand{\esu}{\,\mathrm{esu}}}
\CustomizeMathJax{\newcommand{\Ohm}[1][ ]{\,\mathrm{#1\Omega}}}
\CustomizeMathJax{\newcommand{\Amp}[1][ ]{\,\mathrm{#1A}}}
\CustomizeMathJax{\newcommand{\Farad}[1][ ]{\,\mathrm{#1F}}}
\CustomizeMathJax{\newcommand{\Tesla}[1][ ]{\,\mathrm{#1T}}}
\CustomizeMathJax{\newcommand{\Gauss}[1][ ]{\,\mathrm{#1G}}}
\CustomizeMathJax{\newcommand{\Henry}[1][ ]{\,\mathrm{#1H}}}
\CustomizeMathJax{\newcommand{\eV}[1][ ]{\,\mathrm{#1eV}}}
\CustomizeMathJax{\newcommand{\keV}{\,\mathrm{keV}}}
\CustomizeMathJax{\newcommand{\MeV}{\,\mathrm{MeV}}}
\CustomizeMathJax{\newcommand{\J}[1][ ]{\,\mathrm{#1J}}}
\CustomizeMathJax{\newcommand{\Joule}[1][ ]{\,\mathrm{#1J}}}
\CustomizeMathJax{\newcommand{\erg}{\,\mathrm{erg}}}
\CustomizeMathJax{\newcommand{\kcal}{\,\mathrm{kcal}}}
\CustomizeMathJax{\newcommand{\Cal}{\,\mathrm{Cal}}}
\CustomizeMathJax{\newcommand{\calorie}[1][ ]{\,\mathrm{#1cal}}}
\CustomizeMathJax{\newcommand{\BTU}{\,\mathrm{BTU}}}
\CustomizeMathJax{\newcommand{\tnt}{\,\mathrm{ton\, of\, TNT}}}
\CustomizeMathJax{\newcommand{\Watt}[1][ ]{\,\mathrm{#1W}}}
```

```
\CustomizeMathJax{\newcommand{\hpi}{\,\mathrm{hp(I)}}}
\CustomizeMathJax{\newcommand{\hpm}{\,\mathrm{hp(M)}}}
\CustomizeMathJax{\newcommand{\hp}{\,\mathrm{hp}}}
\CustomizeMathJax{\newcommand{\meter}[1][ ]{\,\mathrm{#1m}}}
\CustomizeMathJax{\newcommand{\m}[1][ ]{\,\mathrm{#1m}}}
\CustomizeMathJax{\newcommand{\km}{\,\mathrm{km}}}
\CustomizeMathJax{\newcommand{\au}{\,\mathrm{au}}}
\CustomizeMathJax{\newcommand{\pc}[1][ ]{\,\mathrm{#1pc}}}
\CustomizeMathJax{\newcommand{\ly}[1][ ]{\,\mathrm{#1ly}}}
\CustomizeMathJax{\newcommand{\cm}{\,\mathrm{cm}}}
\CustomizeMathJax{\newcommand{\nm}{\,\mathrm{nm}}}
\CustomizeMathJax{\newcommand{\ft}{\,\mathrm{ft}}}
\CustomizeMathJax{\newcommand{\inch}{\,\mathrm{in}}}
\CustomizeMathJax{\newcommand{\mi}{\,\mathrm{mi}}}
\CustomizeMathJax{\newcommand{\s}[1][ ]{\,\mathrm{#1s}}}
\CustomizeMathJax{\newcommand{\Sec}[1][ ]{\,\mathrm{#1s}}}
\CustomizeMathJax{\newcommand{\Min}{\,\mathrm{min}}}
\CustomizeMathJax{\newcommand{\h}{\,\mathrm{h}}}
\CustomizeMathJax{\newcommand{\y}[1][ ]{\,\mathrm{#1y}}}
\CustomizeMathJax{\newcommand{\Day}{\,\mathrm{d}}}

\CustomizeMathJax{\newcommand{\gm}[1][ ]{\,\mathrm{#1g}}}
\CustomizeMathJax{\newcommand{\kg}{\,\mathrm{kg}}}
\CustomizeMathJax{\newcommand{\lb}{\,\mathrm{lb}}}
\CustomizeMathJax{\newcommand{\amu}{\,\mathrm{amu}}}
\CustomizeMathJax{\newcommand{\N}[1][ ]{\,\mathrm{#1N}}}
\CustomizeMathJax{\newcommand{\Newton}[1][ ]{\,\mathrm{#1N}}}
\CustomizeMathJax{\newcommand{\dyne}[1][ ]{\,\mathrm{#1dyn}}}
\CustomizeMathJax{\newcommand{\lbf}{\,\mathrm{lbf}}}
\CustomizeMathJax{\newcommand{\kmps}{\,\mathrm{km}\,\mathrm{s}^{-1}}}
\CustomizeMathJax{\newcommand{\kmph}{\,\mathrm{km}\,\mathrm{h}^{-1}}}
\CustomizeMathJax{\newcommand{\mps}[1][ ]{\,\mathrm{#1m}\,\mathrm{s}^{-1}}}
\CustomizeMathJax{\newcommand{\miph}{\,\mathrm{mi}\,\mathrm{h}^{-1}}}
\CustomizeMathJax{\newcommand{\kts}{\,\mathrm{kts}}}

\CustomizeMathJax{\newcommand{\mpss}[1][ ]{\,\mathrm{#1m}\,\mathrm{s}^{-2}}}
\CustomizeMathJax{\newcommand{\gacc}{\,\mathrm{g}}}
\CustomizeMathJax{\newcommand{\ftpss}{\,\mathrm{ft}\,\mathrm{s}^{-2}}}
\CustomizeMathJax{\newcommand{\K}[1][ ]{\,\mathrm{#1K}}}
\CustomizeMathJax{\newcommand{\Kelvin}[1][ ]{\,\mathrm{#1K}}}
\CustomizeMathJax{\newcommand{\Celcius}{\,^\circ{\mathrm{C}}}}
\CustomizeMathJax{\newcommand{\Rankine}{\,^\circ{\mathrm{R}}}}
\CustomizeMathJax{\newcommand{\Fahrenheit}{\,^\circ{\mathrm{F}}}}

\CustomizeMathJax{\newcommand{\rpm}{\,\mathrm{rev}\,\Min^{-1}}}

\CustomizeMathJax{\newcommand{\Hz}[1][ ]{\,\mathrm{#1Hz}}}
\CustomizeMathJax{\newcommand{\barP}[1][ ]{\,\mathrm{#1bar}}}
\CustomizeMathJax{\newcommand{\atm}{\,\mathrm{atm}}}
\CustomizeMathJax{\newcommand{\Pa}[1][ ]{\,\mathrm{#1Pa}}}
\CustomizeMathJax{\newcommand{\mmHg}{\,\mathrm{mmHg}}}
\CustomizeMathJax{\newcommand{\inHg}{\,\mathrm{inHg}}}
\CustomizeMathJax{\newcommand{\lbsi}{\,\mathrm{psi}}}
\CustomizeMathJax{\newcommand{\lbsf}{\,\mathrm{psf}}}
\CustomizeMathJax{\newcommand{\Ba}[1][ ]{\,\mathrm{#1Ba}}}
\CustomizeMathJax{\newcommand{\Torr}[1][ ]{\,\mathrm{#1Torr}}}
\CustomizeMathJax{\newcommand{\mol}{\,\mathrm{mol}}}
\end{warpMathJax}
```

File 382 **lwarp-picinpar.sty**

§ 491 Package

picinpar

(*Emulates or patches code by* Friedhelm Sowa.)

Pkg picinpar

picinpar is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{picinpar}% No date is assigned.
```

The window is floated by a BlockClass style.

```
\long\def\LWR@HTML@window[#1,#2,#3,#4] {%
    \if #2r%
        \begin{BlockClass}[float:right](note){marginblock}%
    \else%
        \begin{BlockClass}[float:left](note){marginblock}%
    \fi%
    #3\par%
    #4%
    \end{BlockClass}%
}

\def\endLWR@HTML@window{}

\LWR@formattedenv{window}
```

The framepic and wframepic are placed inside a BlockClass of class framebox.

```
\def\LWR@HTML@framepic#1{%
    \begin{BlockClass}{framebox}
    \expandafter\box\csname #1box\endcsname%
    \end{BlockClass}
}
\LWR@formatted{framepic}

\def\LWR@HTML@wframepic#1{%
    \begin{BlockClass}{framebox}
    \expandafter\box\csname #1box\endcsname%
    \end{BlockClass}
}
\LWR@formatted{wframepic}
```

The caption is placed inside a BlockClass of class figurecaption.

```
\long\def\LWR@HTML@@makewincaption#1#2{%
\begin{BlockClass}{figurecaption}
#1: #2
\end{BlockClass}
}
\LWR@formatted{@makewincaption}
```

With HTML output, figwindow and tabwindow must not pre-decrement their counters.

```
\long\def\LWR@HTML@figwindow[#1,#2,#3,#4] {%
%       \advance\c@figure -1
      \window[#1,#2,{#3},{\def\@captype{figure}%
         \wincaption#4\par}] }

\def\endLWR@HTML@figwindow{\endwindow}

\LWR@formattedenv{figwindow}
```

For tabwindow, to change the catcode of &, \StartDefiningTabulars is used before absorbing the arguments, and \EndDefiningTabulars is used at the end of the environment.

```
\long\def\LWR@HTML@subtabwindow[#1,#2,#3,#4] {%
%       \advance\c@table -1
      \window[#1,#2,{#3},{\def\@captype{table}%
         \wincaption#4\par}] }

\newcommand*{\LWR@HTML@tabwindow}{%
    \StartDefiningTabulars%
    \LWR@HTML@subtabwindow%
}

\def\endLWR@HTML@tabwindow{%
    \endwindow%
    \StopDefiningTabulars%
}

\LWR@formattedenv{tabwindow}
```

File 383 **lwarp-pifont.sty**

§ 492 Package

pifont

(*Emulates or patches code by* Walter Schmidt.)

Pkg pifont

pifont is patched for use by lwarp.

Hashed inline images are used, as there may not be Unicode support for all icons.

for HTML output:

```
\LWR@ProvidesPackagePass{pifont}[2005/04/12]

\renewcommand{\Pisymbol}[2]{%
    \begin{lateximage}*[Pisymbol][pisymbol#1#2]%
    {\Pifont{#1}\char#2}%
    \end{lateximage}%
}

\newcommand{\LWR@HTML@Pifill}[2]{
    \Pisymbol{#1}{#2} \Pisymbol{#1}{#2} \Pisymbol{#1}{#2}
}
\LWR@formatted{Pifill}

\newcommand{\LWR@HTML@Piline}[2]{%
    \par\noindent\hspace*{0.5in}
    \Pifill{#1}{#2} \Pifill{#1}{#2} \Pifill{#1}{#2}
}
```

```
\LWR@formatted{Piline}
```

File 384 **lwarp-pinlabel.sty**

§ 493 Package

pinlabel

(*Emulates or patches code by* Colin Rourke.)

Pkg pinlabel

pinlabel is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{pinlabel}% no date given

\xpretocmd{\psfig}
    {\begin{lateximage}[-pinlabel-~\PackageDiagramAltText]}
    {}
    {\LWR@patcherror{pinlabel}{psfigA}}

\xapptocmd{\psfig}
    {\end{lateximage}}
    {}
    {\LWR@patcherror{pinlabel}{psfigB}}
```

File 385 **lwarp-placeins.sty**

§ 494 Package

placeins

(*Emulates or patches code by* Donald Arseneau.)

Pkg placeins

placeins is ignored.

Discard all options for lwarp-placeins:

for HTML output:

```
\LWR@ProvidesPackageDrop{placeins}[2005/04/18]

\newcommand*{\FloatBarrier}{}
```

File 386 **lwarp-plarydshln.sty**

§ 495 Package

plarydshln

Pkg plarydshln

plarydshln is emulated by lwarp-arydshln.

for HTML output:

```
\LWR@ProvidesPackageDrop{plarydshln}[2018/10/20]

\LWR@origRequirePackage{lwarp-arydshln}
```

File 387 **lwarp-plext.sty**

§ 496 Package

plext

Pkg plext

plext is preloaded by jtarticle and related classes.

for HTML output:

```
\LWR@loadbefore{plext}

\LWR@ProvidesPackagePass{plext}[2017/07/21]

\let\tate\relax

\DeclareExpandableDocumentCommand{\rensuji}{s o m}{#3}

% \layoutfloat(width,height)[pos]#4
\DeclareDocumentCommand{\layoutfloat}{d() o m}{}

% \DeclareLayoutCaption{type} <dir>(width)[pos1pos2]
\DeclareDocumentCommand{\DeclareLayoutCaption}{m d<> d() o}{}

\LetLtxMacro\pcaption\caption

% \layoutcaption<dir>(width)[pos]
\DeclareDocumentCommand{\layoutcaption}{d<> d() o}{}

\let\captiondir\relax
```

Add the optional <t/y> direction:

```
\RenewDocumentEnvironment{LWR@HTML@minipage}{d<> O{t} O{} O{t} m}
    {\LWR@HTML@sub@minipage{#2}{#3}{#4}{#5}}
    {\endLWR@HTML@sub@minipage}

\RenewDocumentCommand{\LWR@HTML@parbox}{d<> O{t} O{} O{t} m +m}
{
\LWR@traceinfo{parbox of width #4}%
\begin{minipage}[#2][#3][#4]{#5}%
#6
\end{minipage}%
}

% \pbox <t/y> [width] [l/r] {contents}
\RenewDocumentCommand{\pbox}{d<> O{0pt} O{c} m}{%
\global\booltrue{LWR@minipagefullwidth}%
\parbox{#2}{#4}%
}
```

picture, as modified by pext, is encapsulated by the lwarp core.

File 388 **lwarp-plextarydshln.sty**

§ 497 Package

plextarydshln

Pkg plextarydshln

plextarydshln is emulated by lwarp-arydshln.

for HTML output:

```
\LWR@ProvidesPackageDrop{plextarydshln}[2018/10/20]

\LWR@origRequirePackage{lwarp-arydshln}
```

File 389 **lwarp-plextcolortbl.sty**

§ 498 Package

plextcolortbl

Pkg plextcolortbl

plextcolortbl is emulated by lwarp-colortbl.

for HTML output:

```
\LWR@ProvidesPackageDrop{plextcolortbl}[2018/09/19]
\LWR@origRequirePackage{lwarp-colortbl}
```

File 390 **lwarp-plimsoll.sty**

§ 499 Package

plimsoll

(*Emulates or patches code by* Palle Jørgensen.)

Pkg plimsoll

plimsoll is used as-is for SVG math, and emulated for MathJax.

The `circ` option is honored. For MathJax, `\plimsollsans` is the same as `\plimsollroman`.

for HTML output:

```
\LWR@ProvidesPackagePass{plimsoll}[2020/10/09]

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\plimsollroman}{\unicode{x029B5}}}

\CustomizeMathJax{\let\plimsoll\plimsollroman}
\CustomizeMathJax{\let\plimsollsans\plimsoll}

\ifdefstring{\stst}{^{\circ}}
    {\CustomizeMathJax{\newcommand{\stst}{^{\circ}}}}
    {\CustomizeMathJax{\newcommand{\stst}{^{\plimsoll}}}}
\end{warpMathJax}
```

File 391 **lwarp-prelim2e.sty**

§ 500 Package

prelim2e

(*Emulates or patches code by* Martin Schröder.)

Pkg prelim2e

prelim2e is ignored.

for HTML output:

Discard all options for lwarp-prelim2e:

```
\LWR@ProvidesPackageDrop{prelim2e}[2009/05/29]

\newcommand{\PrelimText}{}
\newcommand{\PrelimTextStyle}{}
\newcommand{\PrelimWords}{}
```

File 392 **lwarp-prettyref.sty**

§ 501 Package prettyref

(*Emulates or patches code by* Kevin S. Ruland.)

Pkg prettyref

prettyref is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{prettyref}[1998/07/09]

\newrefformat{fig}{Figure \ref{#1}}
\newrefformat{tab}{Table \ref{#1}}
```

File 393 **lwarp-preview.sty**

§ 502 Package preview

Pkg preview

preview is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{preview}[2017/04/24]

\newenvironment{preview}{}{}
\newenvironment{nopreview}{}{}
\NewDocumentCommand{\PreviewMacro}{s o o +m}{}
\NewDocumentCommand{\PreviewEnvironment}{s o o +m}{}
\newcommand{\PreviewSnarfEnvironment}[2][]{}
\NewDocumentCommand{\PreviewOpen}{s o}{}
\NewDocumentCommand{\PreviewClose}{s o}{}
\let\ifPreview\iffalse% \fi for syntax highlighting
```

File 394 **lwarp-psfrag.sty**

§ 503 Package psfrag

(*Emulates or patches code by* Michael C. Grant, David Carlisle.)

Pkg psfrag

psfrag is patched for use by lwarp.

⚠ use psfrags

The psfrags environment is modified to use lateximage to encapsulate the image. Always use a psfrags environment to contain any local \psfrag macros and the associated \includegraphics or \epsfig calls. Outside of a psfrags environment, psfrags adjustments will not be seen by lwarp.

⚠ Tip: Use a mono-spaced font for the tags in the eps file.

for HTML output:

```
\LWR@ProvidesPackagePass{psfrag}[1998/04/11]
```

A lateximage captures the modified image from the document.

```
\BeforeBeginEnvironment{psfrags}{%
    \begin{lateximage}[-psfrags-~\PackageDiagramAltText]%
}

\AfterEndEnvironment{psfrags}{\end{lateximage}}
```

File 395 **lwarp-psfragx.sty**

§ 504 Package psfragx

(*Emulates or patches code by* Pascal Kockaert.)

Pkg psfragx psfragx is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{psfragx}[2012/05/02]
```

A lateximage captures the modified image from the document.

```
\def\pfx@includegraphicx#1#2{%
    \begin{lateximage}[-psfragx-~\PackageDiagramAltText]%
    \mbox{\pfx@overpix{#1}{#2}\endpfx@overpix}%
    \end{lateximage}%
}

\def\@@@overpix[#1]<#2>[#3]#4{%
    \begin{lateximage}[-psfragx-~\PackageDiagramAltText]%
    \pfx@overpix{#1,ovpfgd={#2},ovpbgd={#3}}{#4}%
}

\def\endoverpix{%
    \endpfx@overpix%
    \end{lateximage}%
}
```

File 396 **lwarp-pst-eps.sty**

§ 505 Package pst-eps

(*Emulates or patches code by* Herbert Voss.)

Pkg pst-eps pst-eps is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{pst-eps}[2005/05/20]

\renewenvironment{TeXtoEPS}{}{}
\renewcommand{\PSTtoEPS}[3][]{}
```

File 397 **lwarp-pstool.sty**

§ 506 Package pstool

(*Emulates or patches code by* Zebb Prime, Will Robertson.)

Pkg pstool

pstool is patched for use by lwarp.

\graphicspath is ignored, and the file directory must be stated.

⚠ path and filename The filename must not have a file extension.

Use

Enter ⇒ **lwarpmk html**

followed by

Enter ⇒ **lwarpmk limages**

.

for HTML output:

```
\LWR@ProvidesPackagePass{pstool}[2018/01/20]
```

Each image is placed inside a lateximage to capture the results of psfrag.

```
\renewcommand\pstool@alwaysprocess[3][]{%
    \begin{lateximage}[-pstool-~\PackageDiagramAltText]%
    \includegraphics{#2.pdf}%
    \end{lateximage}%
}
\LetLtxMacro\pstool@neverprocess\pstool@alwaysprocess
\LetLtxMacro\pstool@maybeprocess\pstool@alwaysprocess

\renewcommand\pstool@@psfragfig[4]{%
    \begin{lateximage}[-pstool-~\PackageDiagramAltText]%
    \includegraphics{#2.pdf}%
    \end{lateximage}%
}
```

File 398 **lwarp-pstricks.sty**

§ 507 Package

pstricks

(*Emulates or patches code by* Timothy Van Zandt.)

Pkg pstricks

pstricks is patched for use by lwarp.

⚠ use pspicture All pstricks content should be contained inside a pspicture environment.

for HTML output:

```
\LWR@ProvidesPackagePass{pstricks}[2018/01/06]

\BeforeBeginEnvironment{pspicture}{%
    \begin{lateximage}[pspicture]%
}
\AfterEndEnvironment{pspicture}{\end{lateximage}}

\BeforeBeginEnvironment{pspicture*}{%
    \begin{lateximage}[pspicture]%
}
\AfterEndEnvironment{pspicture*}{\end{lateximage}}
```

File 399 **lwarp-pxatbegshi.sty**

§ 508 Package

pxatbegshi

Pkg pxatbegshi

pxatbegshi is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pxatbegshi}[2017/11/04]
\LWR@origRequirePackage{lwarp-atbegshi}
```

File 400 **lwarp-pxeveryshi.sty**

§ 509 Package

pxeveryshi

Pkg pxeveryshi

pxeveryshi is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pxeveryshi}[2012/05/19]
\LWR@origRequirePackage{lwarp-everyshi}
```

File 401 **lwarp-pxfonts.sty**

§ 510 Package

pxfonts

(*Emulates or patches code by* Young Ryu.)

Pkg pxfonts

pxfonts is used as-is for SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{pxfonts}[2008/01/22]
```

For MathJax:

```
\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}
\LWR@infoprocessingmathjax{pxfonts}

\LWR@mathjax@addgreek@l@up{}{up}
\end{warpMathJax}
```

File 402 **lwarp-pxftnright.sty**

§ 511 Package

pxftnright

Pkg pxftnright

pxftnright is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pxftnright}[2017/02/28]
```

```
\LWR@origRequirePackage{lwarp-ftnright}
```

File 403 **lwarp-pxjahyper.sty**

§ 512 Package

pxjahyper

Pkg pxjahyper

pxjahyper is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{pxjahyper}[2018/07/15]
```

File 404 **lwarp-quotchap.sty**

§ 513 Package

quotchap

(*Emulates or patches code by* Karsten Tinnefeld, Jan Klever.)

Pkg quotchap

quotchap is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{quotchap}[2019/07/09]

\newcommand{\@quotchap}{}
\newlength{\LWR@quotchapwidth}

\let\@printcites\relax

\newcommand*{\@iprintcites}{%
```

Place the quotes inside a of class quotchap, of the maximum selected width:

```
\begin{BlockClass}[max-width: \LWR@printlength{\LWR@quotchapwidth}]{quotchap}
%\begin{minipage}{\LWR@quotchapwidth}
\@quotchap
%\end{minipage}
\end{BlockClass}
```

Deactivate the quote printing:

```
\global\let\@printcites\relax
}

\NewEnviron{savequote}[1][\linewidth]{%
```

Remember the width, adjusted for HTML, and make the length assignment global, per:
https://tex.stackexchange.com/questions/300823/why-is-setlength-ineffective-inside-a-tabular-environment

```
\setlength{\LWR@quotchapwidth}{#1*2}%
\global\LWR@quotchapwidth=\LWR@quotchapwidth%
```

Remember the body, and activate the quote printing:

```
\global\let\@quotchap\BODY
\global\let\@printcites\@iprintcites%
}
```

The quotation author is placed inside a of class qauthor:

```
\newcommand{\qauthor}[1]{%
    \LWR@stoppars%
    \begin{BlockClass}{qauthor}%
    {#1}%
    \end{BlockClass}%
    \LWR@startpars%
}
```

Fonts are ignored. Use css.

```
\newcommand{\qsetcnfont}[1]{}
\providecommand*{\quotefont}{}
\providecommand*{\qauthorfont}{}
```

File 405 **lwarp-quoting.sty**

§ 514 Package quoting

(*Emulates or patches code by* Thomas Titz.)

Pkg quoting

quoting is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{quoting}[2014/01/28]

\xpatchcmd{\quoting}{\quo@begintext}
    {\begin{LWR@blocktextcurrentfont}\quo@begintext}
    {}
    {\LWR@patcherror{quoting}{quoting}}

\xpatchcmd{\endquoting}{\quo@endtext}
    {\quo@endtext\end{LWR@blocktextcurrentfont}\LWR@stoppars}
    {}
    {\LWR@patcherror{quoting}{endquoting}}
```

File 406 **lwarp-ragged2e.sty**

§ 515 Package ragged2e

(*Emulates or patches code by* Martin Schröder.)

Pkg ragged2e

ragged2e is emulated.

Discard all options for lwarp-ragged2e:

for HTML output:

```
\LWR@ProvidesPackageDrop{ragged2e}[2009/05/21]

\LetLtxMacro\Centering\centering
\LetLtxMacro\RaggedLeft\raggedleft
```

```
\LetLtxMacro\RaggedRight\raggedright
\newcommand*{\justifying}{}
\newlength{\CenteringLeftskip}
\newlength{\RaggedLeftLeftskip}
\newlength{\RaggedRightLeftskip}
\newlength{\CenteringRightskip}
\newlength{\RaggedLeftRightskip}
\newlength{\RaggedRightRightskip}
\newlength{\CenteringParfillskip}
\newlength{\RaggedLeftParfillskip}
\newlength{\RaggedRightParfillskip}
\newlength{\JustifyingParfillskip}
\newlength{\CenteringParindent}
\newlength{\RaggedLeftParindent}
\newlength{\RaggedRightParindent}
\newlength{\JustifyingParindent}
\newenvironment*{Center}{\center}{\endcenter}
\newenvironment*{FlushLeft}{\flushleft}{\endflushleft}
\newenvironment*{FlushRight}{\flushright}{\endflushright}
\newenvironment*{justify}{\justifying}{\endjustifying}
```

File 407 **lwarp-realscripts.sty**

§ 516 Package

realscripts

(*Emulates or patches code by* Will Robertson.)

Pkg realscripts

realscripts is emulated. See `lwarp.css` for the of class supsubscript.

for HTML output:

```
\LWR@ProvidesPackagePass{realscripts}[2016/02/13]
```

The following are copied verbatim from the original, but given new names, since xparse definitions should not be `\let`.

```
\ExplSyntaxOn

\DeclareDocumentCommand \LWR@print@realsubscript {m} {
  \fontspec_if_fontspec_font:TF {
    \fontspec_if_opentype:TF
    { \fontspec_if_feature:nTF {+subs}
        { {\addfontfeature{VerticalPosition=Inferior}#1} }
        { \fontspec_if_feature:nTF {+sinf}
            { {\addfontfeature{VerticalPosition=ScientificInferior}#1} }
            { \fakesubscript{#1} }
        }
    }
    { \fontspec_if_aat_feature:nnTF {10} {2}
        { {\addfontfeature{VerticalPosition=Inferior}#1} }
        { \fakesubscript{#1} }
    }
  }
  { \fakesubscript{#1} }
}

\DeclareDocumentCommand \LWR@HTML@realsubscript {m} {
    \LWR@HTML@textsubscript{#1}
}
```

```
25
26 \LWR@formatted{realsubscript}
27
28
29 \DeclareDocumentCommand \LWR@print@realsuperscript {m} {
30   \fontspec_if_fontspec_font:TF
31   {
32     \fontspec_if_opentype:TF
33     { \fontspec_if_feature:nTF {+sups}
34       { {\addfontfeature{VerticalPosition=Superior}#1} }
35       { \fakesuperscript{#1} }
36     }
37     { \fontspec_if_aat_feature:nnTF {10} {1}
38       { {\addfontfeature{VerticalPosition=Superior}#1} }
39       { \fakesuperscript{#1} }
40     }
41   }
42   { \fakesuperscript{#1} }
43 }
44
45 \DeclareDocumentCommand \LWR@HTML@realsuperscript {m} {
46     \LWR@HTML@textsuperscript{#1}
47 }
48
49 \LWR@formatted{realsuperscript}
50
51
52 \DeclareDocumentCommand \LWR@print@textsubsuperscript {s O{l} mm} {
53   \leavevmode
54   \group_begin:
55   \IfBooleanTF #1
56   {
57     \hbox_set:Nn \l_tmpa_box {\textsubscript*{#3}}
58     \hbox_set:Nn \l_tmpb_box {\textsuperscript*{#4}}
59   }
60   {
61     \hbox_set:Nn \l_tmpa_box {\textsubscript{#3}}
62     \hbox_set:Nn \l_tmpb_box {\textsuperscript{#4}}
63   }
64   \hbox_set:Nn \l_tmpa_box
65     { \box_move_down:nn \subsupersep {\box_use:N \l_tmpa_box} }
66   \hbox_set:Nn \l_tmpb_box
67     { \box_move_up:nn \subsupersep {\box_use:N \l_tmpb_box} }
68   \str_case:nnF {#2}
69   {
70     {l}{\use_i:nnn}
71     {c}{\use_ii:nnn}
72     {r}{\use_iii:nnn}
73   }
74   {
75     \PackageWarning{realscripts}{
76       Unknown~alignment~option~`#2'. \MessageBreak
77       One~ of~ `l',~ `c',~ `r',~ only
78     }
79     \use_i:nnn
80   }
81   {
82     \hbox_overlap_right:n { \box_use:N \l_tmpa_box }
83     \hbox_overlap_right:n { \box_use:N \l_tmpb_box }
84     \skip_horizontal:n {
```

```
      \dim_max:nn {\box_wd:N \l_tmpa_box} {\box_wd:N \l_tmpb_box}
    }
  }
  {
    \dim_compare:nTF { \box_wd:N \l_tmpa_box > \box_wd:N \l_tmpb_box }
    {
      \skip_horizontal:n {
        0.5\box_wd:N \l_tmpa_box-0.5\box_wd:N \l_tmpb_box
      }
      \box_use:N \l_tmpb_box
      \skip_horizontal:n {
        -0.5\box_wd:N \l_tmpa_box-0.5\box_wd:N \l_tmpb_box
      }
      \box_use:N \l_tmpa_box
    }
    {
      \skip_horizontal:n {
        0.5\box_wd:N \l_tmpb_box-0.5\box_wd:N \l_tmpa_box
      }
      \box_use:N \l_tmpa_box
      \skip_horizontal:n {
        -0.5\box_wd:N \l_tmpb_box-0.5\box_wd:N \l_tmpa_box
      }
      \box_use:N \l_tmpb_box
    }
  }
  {
    \skip_horizontal:n {
      \dim_max:nn {\box_wd:N \l_tmpa_box} {\box_wd:N \l_tmpb_box}
    }
    \hbox_overlap_left:n { \box_use:N \l_tmpa_box }
    \hbox_overlap_left:n { \box_use:N \l_tmpb_box }
  }
  \group_end:
}

\ExplSyntaxOff


\newcommand*{\LWR@realscriptsalign}{}

\newcommand*{\LWR@setrealscriptsalign}[1]{%
    \renewcommand*{\LWR@realscriptsalign}{}%
    \ifthenelse{\equal{#1}{c}}{%
        \renewcommand{\LWR@realscriptsalign}{%
            \LWR@print@mbox{text-align:center} ; %
        }%
    }{}%
    \ifthenelse{\equal{#1}{r}}{%
        \renewcommand{\LWR@realscriptsalign}{%
            \LWR@print@mbox{text-align:right} ; %
        }%
    }{}%
}

\DeclareDocumentCommand \LWR@HTML@textsubsuperscript {s O{l} mm} {%
    \LWR@setrealscriptsalign{#2}%
    \InlineClass[\LWR@realscriptsalign]{supsubscript}{%
        \textsuperscript{#4}\textsubscript{#3}%
    }%
```

```
}
\LWR@formatted{textsubsuperscript}

\FilenameNullify{%
    \RenewDocumentCommand{\textsuperscript}{s m}{}%
    \RenewDocumentCommand{\textsubscript}{s m}{}%
    \renewcommand{\fakesubscript}[1]{}%
    \renewcommand{\fakesuperscript}[1]{}%
    \renewcommand{\realsubscript}[1]{}%
    \renewcommand{\realsuperscript}[1]{}%
    \renewcommand{\textsubsuperscript}[2]{}%
    \renewcommand{\textsupersubscript}[2]{}%
}
```

File 408 **lwarp-refcheck.sty**

§ 517 Package refcheck

Pkg refcheck

refcheck is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{refcheck}[2013/02/14]

\def\showrefnames{}
\def\norefnames{}
\def\showcitenames{}
\def\nocitenames{}
\def\setonmsgs{}
\def\setoffmsgs{}
\def\checkunlbld{}
\def\ignoreunlbld{}
\newcommand*{\refcheckxrdoc}[2][]{}
```

File 409 **lwarp-register.sty**

§ 518 Package register

(*Emulates or patches code by* Matthew Lovell.)

Pkg register

register is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{register}[2019/01/01]

\xpatchcmd{\register}
    {\centering}
    {%
        \begin{center}%
        \begin{lateximage}[-register-~\PackageDiagramAltText]%
    }
    {}
    {\LWR@patcherror{register}{register}}

\xpatchcmd{\endregister}
    {\leftskip}
    {%
```

```
        \end{lateximage}\end{center}%
        \leftskip%
    }%
    {}
    {\LWR@patcherror{register}{endregister}}

\expandafter\xapptocmd\csname register*\endcsname
    {%
        \begin{center}%
        \begin{lateximage}[-register-~\PackageDiagramAltText]%
    }
    {}
    {\LWR@patcherror{register}{register*}}

\expandafter\xpatchcmd\csname endregister*\endcsname
    {\leftskip}
    {%
        \end{lateximage}\end{center}%
        \leftskip%
    }%
    {}
    {\LWR@patcherror{register}{endregister*}}

\setlength{\regWidth}{5in}
```

File 410 **lwarp-relsize.sty**

§ 519 Package

relsize

(*Emulates or patches code by* Donald Arseneau, Bernie Cosell, Matt Swift.)

Pkg relsize

relsize is patched for use by lwarp, and emulated for MathJax.

For HTML, only the inline macros are supported: \textlarger, \textsmaller, and \textscale. Each becomes an inline span of a modified font-size.

\relsize, \larger, \smaller, and \relscale are ignored.

While creating SVG math for HTML, the original definitions are temporarilty restored, and so should work as expected.

⚠ not small

The HTML browser's setting for minumum font size may limit how small the output will be displayed.

for HTML output:

```
\LWR@ProvidesPackagePass{relsize}[2013/03/29]

\let\LWR@origrelsize\relsize
\LetLtxMacro\LWR@origlarger\larger
\LetLtxMacro\LWR@origsmaller\smaller
\let\LWR@relscale\relscale
\LetLtxMacro\LWR@origtextlarger\textlarger
\LetLtxMacro\LWR@origtextsmaller\textsmaller
\let\LWR@textscale\textscale

\appto\LWR@restoreorigformatting{%
\let\relsize\LWR@origrelsize%
\LetLtxMacro\larger\LWR@origlarger%
```

```
\LetLtxMacro\smaller\LWR@origsmaller%
\let\relscale\LWR@relscale%
\LetLtxMacro\textlarger\LWR@origtextlarger%
\LetLtxMacro\textsmaller\LWR@origtextsmaller%
\let\textscale\LWR@textscale%
}

\newcounter{LWR@relsizetemp}

\renewcommand*{\relsize}[1]{}
\renewcommand*{\larger}[1][]{}
\renewcommand*{\smaller}[1][]{}
\renewcommand*{\relscale}[1]{}

\renewcommand*{\textlarger}[2][1]{%
\setcounter{LWR@relsizetemp}{100+(#1*20)}%
\InlineClass[font-size:\arabic{LWR@relsizetemp}\%]{textlarger}{#2}%
}

\renewcommand*{\textsmaller}[2][1]{%
\setcounter{LWR@relsizetemp}{100-(#1*20)}%
\InlineClass[font-size:\arabic{LWR@relsizetemp}\%]{textsmaller}{#2}%
}

\renewcommand*{\textscale}[2]{%
\setcounter{LWR@relsizetemp}{100*\real{#1}}%
\InlineClass[font-size:\arabic{LWR@relsizetemp}\%]{textscale}{#2}%
}
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\mathlarger}[1]{#1}}
\CustomizeMathJax{\newcommand{\mathsmaller}[1]{#1}}
\end{warpMathJax}
```

File 411 **lwarp-repeatindex.sty**

§ 520 Package

repeatindex

Pkg repeatindex

repeatindex is emulated for lwarp.

⚠ style file

lwarp must be used with a special style file:

```
\usepackage[makeindex,makeindexStyle={lwarp_repeatindex}]{lwarp}
```

where `lwarp_repeatindex.ist` may be copied from the following modified version of `lwarp.ist`:

```
preamble
"\\begin{theindex}
  \\providecommand*\\lettergroupDefault[1]{}
  \\providecommand*\\lettergroup[1]{%
      \\par\\textbf{#1}\\par
      \\nopagebreak
  }
```

```
"
headings_flag 1
heading_prefix "
  \\lettergroup{"
heading_suffix "}"
delim_0 "], \\hyperindexref{"
delim_1 ", \\hyperindexref{"
delim_2 ", \\hyperindexref{"
delim_n "}, \\hyperindexref{"
delim_r "} -- \\hyperindexref{"
delim_t "}"

item_0 "\n  \\item ["
```

(The modifications are the `delim_0` and `item_0` entries.)

for HTML output:

```
\LWR@ProvidesPackageDrop{repeatindex}[2001/10/13]
```

In the lwarp core, `\LWR@indexitem` is modified to accept the optional `\item` argument.

```
\RequirePackage{makeidx}
\def\entryprefix{\itshape}
\def\entrypostfix{\dots}
```

File 412 **lwarp-repltext.sty**

§ 521 Package repltext

Pkg repltext

repltext is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{repltext}[2020/09/25]
```

```
\newcommand{\repltext}[2]{#2}
\newcommand*{\prevrepl}{}
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\repltext}[2]{#2}}
\end{warpMathJax}
```

File 413 **lwarp-resizegather.sty**

§ 522 Package resizegather

Pkg resizegather

resizegather is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{resizegather}[2016/05/16]
```

```
\newcommand*{\resizegathersetup}[1]{}
```

File 414 **lwarp-returntogrid.sty**

§ 523 Package

returntogrid

Pkg returntogrid

returntogrid is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{returntogrid}[2018/08/21]

\NewDocumentCommand\returntogrid{ O {} }{}
\NewDocumentCommand\returntogridsetup { m } {}
\NewDocumentCommand\showdebugpagegrid {} {}
```

File 415 **lwarp-rlepsf.sty**

§ 524 Package

rlepsf

(*Emulates or patches code by* Michael Greene, Colin Rourke.)

Pkg rlepsf

rlepsf is patched for use by lwarp.

⚠ Rename the style file!

The file `rlepsf.tex` must be copied to `rlepsf.sty` for lwarp to detect and patch it.

for HTML output:

```
\LWR@ProvidesPackagePass{rlepsf}% No date given.

\xpretocmd{\relabelbox}
    {\begin{lateximage}}
    {}
    {\LWR@patcherror{rlepsf}{relabelbox}}

\xapptocmd{\endrelabelbox}
    {\end{lateximage}}
    {}
    {\LWR@patcherror{rlepsf}{endrelabelbox}}
```

File 416 **lwarp-rmathbr.sty**

§ 525 Package

rmathbr

(*Emulates or patches code by* Denis Ryabov.)

Pkg rmathbr

rmathbr is used as-is for SVG math, and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{rmathbr}[2020/12/11]

\begin{warpMathJax}
\CustomizeMathJax{\def\*{~}}
\CustomizeMathJax{\newcommand{\cdott}{\cdot}}
\CustomizeMathJax{\newcommand{\nobr}{}}
\end{warpMathJax}
```

File 417 **lwarp-rmpage.sty**

§ 526 Package

rmpage

Pkg rmpage

rmpage is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{rmpage}[1997/09/29]
```

File 418 **lwarp-romanbar.sty**

§ 527 Package

romanbar

(*Emulates or patches code by* H.-Martin Münch.)

Pkg romanbar

romanbar is patched for use by lwarp.

An inline class with an overline and underline is used.

for HTML output:

```
\LWR@ProvidesPackagePass{romanbar}[2012/01/01]

\DeclareRobustCommand{\Roman@bar}[1]{% #1 is in Roman, i.e. MMXII
\InlineClass[%
    text-decoration: overline underline ;
]{romanbar}{#1}%
}
```

File 419 **lwarp-romanbarpagenumber.sty**

§ 528 Package

romanbarpagenumber

Pkg romanbarpagenumber

romanbarpagenumber is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{romanbarpagenumber}[2015/02/06]
```

File 420 **lwarp-rotating.sty**

§ 529 Package

rotating

(*Emulates or patches code by* Robin Fairbairns, Sebastian Rahtz, Leonor Barroca.)

Pkg rotating

rotating is emulated.

All rotations are ignored in HTML output.

for HTML output:

```
\LWR@ProvidesPackagePass{rotating}[2016/08/11]
\RequirePackage{graphicx}
```

```
\LetLtxMacro\LWR@HTML@sidewaystable\table
\let\endLWR@HTML@sidewaystable\endtable
\LWR@formattedenv{sidewaystable}

\LetLtxMacro\LWR@HTML@sidewaysfigure\figure
\let\endLWR@HTML@sidewaysfigure\endfigure
\LWR@formattedenv{sidewaysfigure}

\newenvironment*{LWR@HTML@sideways}{}{}
\LWR@formattedenv{sideways}

\newenvironment*{LWR@HTML@turn}[1]{}{}
\LWR@formattedenv{turn}

\newenvironment*{LWR@HTML@rotate}[1]{}{}
\LWR@formattedenv{rotate}

\NewDocumentCommand{\LWR@HTML@turnbox}{m +m}{#2}
\LWR@formatted{turnbox}

\let\LWR@HTML@rotcaption\caption
\LWR@formatted{rotcaption}

\let\LWR@HTML@@makerotcaption\@makecaption
\LWR@formatted{@makerotcaption}
```

File 421 **lwarp-rotfloat.sty**

§ 530 Package

rotfloat

(*Emulates or patches code by* Axel Sommerfeldt.)

Pkg rotfloat

rotfloat is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{rotfloat}[2004/01/04]

\RequirePackage{float}
\RequirePackage{rotating}
```

\newfloat {⟨*1: type*⟩} {⟨*2: placement*⟩} {⟨*3: ext*⟩} [⟨*4: within*⟩]

Emulates the \newfloat command from the float package. Sideways floats are \let to the same as regular floats.

"placement" is ignored.

```
\RenewDocumentCommand{\newfloat}{m m m o}{%
\IfValueTF{#4}%
{%
    \DeclareFloatingEnvironment[fileext=#3,within=#4]{#1}%
}%
{%
    \DeclareFloatingEnvironment[fileext=#3]{#1}%
}%
\csletcs{sideways#1}{#1}%
\csletcs{endsideways#1}{end#1}%
```

Remember the float style:

```
\csedef{LWR@floatstyle@#1}{\LWR@floatstyle}%
\csedef{LWR@floatstyle@sideways#1}{\LWR@floatstyle}%
```

newfloat package automatically creates the `\listof` command for new floats, but float does not, so remove `\listof` here in case it is manually created later:

```
\cslet{listof#1s}\relax%
\cslet{listof#1es}\relax%
\cslet{listofsideways#1s}\relax%
\cslet{listofsideways#1es}\relax%
}
```

File 422 **lwarp-rviewport.sty**

§ 531 Package

rviewport

Pkg rviewport

rviewport is honored inside a `lateximage`, and otherwise ignored for HTML output.

If rviewport is important for an image, enclose the image inside a `lateximage` environment.

for HTML output:

```
\LWR@ProvidesPackagePass{rviewport}[2011/08/27]
```

```
\define@key{igraph}{rviewport}{}
```

File 423 **lwarp-savetrees.sty**

§ 532 Package

savetrees

Pkg savetrees

savetrees is ignored.

for HTML output:

Discard all options for lwarp-savetrees:

```
\LWR@ProvidesPackageDrop{savetrees}[2016/04/13]
```

File 424 **lwarp-scalefnt.sty**

§ 533 Package

scalefnt

(*Emulates or patches code by* D. Carlisle.)

Pkg scalefnt

scalefnt is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{scalefnt}
```

```
\DeclareRobustCommand\scalefont[1]{}
```

File 425 **lwarp-scalerel.sty**

§ 534 Package

scalerel

(*Emulates or patches code by* Steven B. Segletes.)

Pkg scalerel

scalerel is used as-is for SVG math, and is emulated and ignored for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{scalerel}[2016/12/29]
```

For MathJax:

```
\begin{warpMathJax}
\LWR@infoprocessingmathjax{scalerel}

\CustomizeMathJax{\newcommand{\scalerel}{\ifstar{\scalerelplain}{\scalerelplus}}}
\CustomizeMathJax{\newcommand{\scalerelplain}[3][]{#2}}
\CustomizeMathJax{\newcommand{\scalerelplus}[3][]{#2#3}}
\CustomizeMathJax{\newcommand{\stretchrel}{\ifstar{\stretchrelplain}{\stretchrelplus}}}
\CustomizeMathJax{\newcommand{\stretchrelplain}[3][]{#2}}
\CustomizeMathJax{\newcommand{\stretchrelplus}[3][]{#2#3}}
\CustomizeMathJax{\newcommand{\scaleto}[3][]{#2}}
\CustomizeMathJax{\newcommand{\stretchto}[3][]{#2}}
\CustomizeMathJax{\newcommand{\scaleleftright}[4][]{#2#3#4}}
\CustomizeMathJax{\newcommand{\stretchleftright}[4][]{#2#3#4}}
\CustomizeMathJax{\newcommand{\hstretch}[2]{#2}}
\CustomizeMathJax{\newcommand{\vstretch}[2]{#2}}
\CustomizeMathJax{\newcommand{\scaleobj}[2]{#2}}
\CustomizeMathJax{\newcommand{\ThisStyle}[1]{#1}}
\CustomizeMathJax{\newcommand{\SavedStyle}{}}
\CustomizeMathJax{\def\scriptstyleScaleFactor{.7}}
\CustomizeMathJax{\def\scriptscriptstyleScaleFactor{.5}}
\CustomizeMathJax{\newcommand{\discernmathstyle}{}}
\CustomizeMathJax{\newcommand{\ignoremathstyle}[1][T]{}}
\CustomizeMathJax{\newcommand{\Isnextbyte}[3][v]{}}
\end{warpMathJax}
```

File 426 **lwarp-schemata.sty**

§ 535 Package

schemata

(*Emulates or patches code by* Charles P. Schaum.)

Pkg schemata

schemata is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{schemata}[2020/11/23]

\LetLtxMacro\LWR@schemata@origschema\schema
\LetLtxMacro\LWR@schemata@origSchema\Schema

\renewcommand{\schema}[3][open]{%
    \begin{lateximage}[-schemata-~\PackageDiagramAltText]%
    \LWR@print@normalsize%
```

```
    \LWR@schemata@origschema[#1]{#2}{#3}%
    \end{lateximage}%
}

\renewcommand{\Schema}[5][open]{%
    \begin{lateximage}[-schemata-~\PackageDiagramAltText]%
    \LWR@print@normalsize%
    \LWR@schemata@origSchema[#1]{#2}{#3}{#4}{#5}%
    \end{lateximage}%
}
```

File 427 **lwarp-scrextend.sty**

§ 536 Package

scrextend

Pkg scrextend

scrextend is emulated.

This package may be loaded standalone, but is also loaded automatically if koma-script classes are in use. \DeclareDocumentCommand is used to overwrite the koma-script definitions.

for HTML output:

```
\LWR@ProvidesPackageDrop{scrextend}[2020/01/24]

\DeclareDocumentCommand{\setkomafont}{m m}{}
\DeclareDocumentCommand{\addkomafont}{m m}{}
\DeclareDocumentCommand{\usekomafont}{m}{}

\DeclareDocumentCommand{\usefontofkomafont}{m}{}
\DeclareDocumentCommand{\useencodingofkomafont}{m}{}
\DeclareDocumentCommand{\usesizeofkomafont}{m}{}
\DeclareDocumentCommand{\usefamilyofkomafont}{m}{}
\DeclareDocumentCommand{\useseriesofkomafont}{m}{}
\DeclareDocumentCommand{\useshapeofkomafont}{m}{}

\providecommand*{\coverpagetopmargin}{}
\providecommand*{\coverpagebottommargin}{}
\providecommand*{\coverpageleftmargin}{}
\providecommand*{\coverpagerightmargin}{}

```

Title page:

```
\AtBeginDocument{
    \let\LWR@koma@orig@maketitle\maketitle
    \DeclareDocumentCommand{\maketitle}{o}{\LWR@koma@orig@maketitle}
}

\providecommand*{\@maketitle}{}
\renewrobustcmd{\@maketitle}{%
    \ifdefvoid{\@titlehead}{}{%
        \begin{BlockClass}{titlehead}%
        \@titlehead%
        \end{BlockClass}%
    }%
    \ifdefvoid{\@subject}{}{%
        \begin{BlockClass}{subject}%
```

```
        \@subject%
        \end{BlockClass}%
    }%
    \LWR@stoppars%
    \LWR@htmltag{\LWR@tagtitle}%
    \@title%
    \LWR@htmltag{\LWR@tagtitleend}%
    \ifdefvoid{\@subtitle}{}{%
        \begin{BlockClass}{subtitle}%
        \@subtitle%
        \end{BlockClass}%
    }%
    \LWR@startpars%
    \begin{BlockClass}{author}%

    \renewcommand*{\cr}{}%
    \renewcommand*{\crcr}{}%
    \renewcommand*{\noalign}{}%

        \renewcommand{\and}{%
            \end{BlockClass}%
            \begin{BlockClass}{oneauthor}%
        }%
        \begin{BlockClass}{oneauthor}%
            \@author%
        \end{BlockClass}%
    \end{BlockClass}%
    \begin{BlockClass}{titledate}%
    \@date%
    \end{BlockClass}%
    \ifdefvoid{\@published}{}{%
        \begin{BlockClass}{published}%
        \@published%
        \end{BlockClass}%
    }%
}

\AddSubtitlePublished

\DeclareDocumentCommand{\extratitle}{m}{}
\DeclareDocumentCommand{\frontispiece}{m}{}

\def\@titlehead{}%
\DeclareDocumentCommand{\titlehead}{m}{\gdef\@titlehead{#1}}%

\def\@subject{}%
\DeclareDocumentCommand{\subject}{m}{\gdef\@subject{#1}}%

% \subtitle and \published are defined by \AddSubtitlePublished

\DeclareDocumentCommand{\publishers}{m}{\published{#1}}

\DeclareDocumentCommand{\uppertitleback}{m}{}
\DeclareDocumentCommand{\lowertitleback}{m}{}
\DeclareDocumentCommand{\dedication}{m}{}

\DeclareDocumentCommand{\ifthispageodd}{m m}{#1}

\DeclareDocumentCommand{\cleardoublepageusingstyle}{m}{}
\DeclareDocumentCommand{\cleardoubleemptypage}{}{}
```

```
\DeclareDocumentCommand{\cleardoubleplainpage}{}{}
\DeclareDocumentCommand{\cleardoublestandardpage}{}{}
\DeclareDocumentCommand{\cleardoubleoddpage}{}{}
\DeclareDocumentCommand{\cleardoubleoddpageusingstyle}{m}{}
\DeclareDocumentCommand{\cleardoubleoddemptypage}{}{}
\DeclareDocumentCommand{\cleardoubleoddplainpage}{}{}
\DeclareDocumentCommand{\cleardoubleoddstandardpage}{}{}
\DeclareDocumentCommand{\cleardoubleevenpage}{}{}
\DeclareDocumentCommand{\cleardoubleevenpageusingstyle}{m}{}
\DeclareDocumentCommand{\cleardoubleevenemptypage}{}{}
\DeclareDocumentCommand{\cleardoubleevenplainpage}{}{}
\DeclareDocumentCommand{\cleardoubleevenstandardpage}{}{}

\DeclareDocumentCommand{\multiplefootnoteseparator}{}{%
  \begingroup\let\thefootnotemark\multfootsep\@makefnmark\endgroup
}

\DeclareDocumentCommand{\multfootsep}{}{,}

\DeclareDocumentCommand{\footref}{m}{%
  \begingroup
    \unrestored@protected@xdef\@thefnmark{\ref{#1}}%
  \endgroup
  \@footnotemark
}

\DeclareDocumentCommand{\deffootnote}{o m m m}{}
\DeclareDocumentCommand{\deffootnotemark}{m}{}
\DeclareDocumentCommand{\setfootnoterule}{o m}{}
\DeclareDocumentCommand{\raggedfootnote}{}{}


\DeclareDocumentCommand{\dictum}{o m}{
\begin{LWR@BlockClassWP}{\LWR@print@mbox{text-align:right}}{}{dictum}
    #2
    \IfValueT{#1}
    {
        \LWR@stoppars%
        \ifbool{FormatWP}
     {\begin{BlockClass}[\LWR@print@mbox{border-top:} 1px solid gray]{dictumauthor}}
        {\begin{BlockClass}{dictumauthor}}
        \dictumauthorformat{#1}
        \end{BlockClass}
    }
\end{LWR@BlockClassWP}
}

\DeclareDocumentCommand{\dictumwidth}{}{}
\DeclareDocumentCommand{\dictumauthorformat}{m}{(#1)}
\DeclareDocumentCommand{\dictumrule}{}{}
\DeclareDocumentCommand{\raggeddictum}{}{}
\DeclareDocumentCommand{\raggeddictumtext}{}{}
\DeclareDocumentCommand{\raggeddictumauthor}{}{}

\DeclareDocumentEnvironment{labeling}{o m}
{%
\def\sc@septext{#1}%
\list{}{}%
\let\makelabel\labelinglabel%
}
{
```

```
\endlist
}

\DeclareDocumentCommand{\labelinglabel}{m}{%
#1 \qquad \sc@septext%
}

\let\addmargin\relax
\let\endaddmargin\relax
\cslet{addmargin*}{\relax}
\cslet{endaddmargin*}{\relax}


\NewDocumentEnvironment{addmargin}{s O{} m}
{
\LWR@stoppars%
\setlength{\LWR@templengthtwo}{#3}
\ifblank{#2}
{
    \begin{BlockClass}[
        \LWR@print@mbox{margin-left:\LWR@printlength{\LWR@templengthtwo}} ;
        \LWR@print@mbox{margin-right:\LWR@printlength{\LWR@templengthtwo}}
    ]{addmargin}
}
{
    \setlength{\LWR@templengthone}{#2}
    \begin{BlockClass}[
        \LWR@print@mbox{margin-left:\LWR@printlength{\LWR@templengthone}} ;
        \LWR@print@mbox{margin-right:\LWR@printlength{\LWR@templengthtwo}}
    ]{addmargin}
}
}
{\end{BlockClass}\LWR@startpars}
```

Ref to create a starred environment:
https://tex.stackexchange.com/questions/45401/use-the-s-star-argument-with-newdocumentenvironment

```

\ExplSyntaxOn
\cs_new:cpn {addmargin*} {\addmargin*}
\cs_new_eq:cN {endaddmargin*} \endaddmargin
\ExplSyntaxOff

\DeclareDocumentCommand{\marginline}{m}{\marginpar{#1}}
```

File 428 **lwarp-scrhack.sty**

§ 537 Package

scrhack

Pkg scrhack

scrhack is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{scrhack}[2018/03/30]
```

File 429 **lwarp-scrlayer.sty**

§ 538 Package

scrlayer

(*Emulates or patches code by* Markus Kohm.)

Pkg scrlayer scrlayer is emulated.

⚠ Not fully tested! Please send bug reports!

for HTML output:

```
\LWR@ProvidesPackageDrop{scrlayer}[2018/03/30]

\newcommand*{\DeclareSectionNumberDepth}[2]{}
\newcommand*{\DeclareLayer}[2][]{}
\newcommand*{\DeclareNewLayer}[2][]{}
\newcommand*{\ProvideLayer}[2][]{}
\newcommand*{\RedeclareLayer}[2][]{}
\newcommand*{\ModifyLayer}[2][]{}
\newcommand*{\layerhalign}{}
\newcommand*{\layervalign}{}
\newcommand*{\layerxoffset}{}
\newcommand*{\layeryoffset}{}
\newcommand*{\layerwidth}{}
\newcommand*{\layerheight}{}
\providecommand*{\LenToUnit}[1]{\strip@pt\dimexpr#1*\p@/\unitlength}
\newcommand*{\putUL}[1]{}
\newcommand*{\putUR}[1]{}
\newcommand*{\putLL}[1]{}
\newcommand*{\putLR}[1]{}
\newcommand*{\putC}[1]{}
\newcommand*{\GetLayerContents}[1]{}
\newcommand{\IfLayerExists}[3]{#3}
\newcommand*{\DestroyLayer}[1]{}
\newcommand*{\layercontentsmeasure}{}
\newcommand*{\currentpagestyle}{}
\newcommand*{\BeforeSelectAnyPageStyle}[1]{}
\newcommand*{\AfterSelectAnyPageStyle}[1]{}
\newcommand*{\DeclarePageStyleAlias}[2]{}
\newcommand*{\DeclareNewPageStyleAlias}[2]{}
\newcommand*{\ProvidePageStyleAlias}[2]{}
\newcommand*{\RedeclarePageStyleAlias}[2]{}
\newcommand*{\DestroyPageStyleAlias}[1]{}
\newcommand*{\GetRealPageStyle}[1]{}
\newcommand*{\DeclarePageStyleByLayers}[3][]{}
\newcommand*{\DeclareNewPageStyleByLayers}[3][]{}
\newcommand*{\ProvidePageStyleByLayers}[3][]{}
\newcommand*{\RedeclarePageStyleByLayers}[3][]{}
\NewDocumentCommand{\ForEachLayerOfPageStyle}{s m m}{}
\newcommand*{\AddLayersToPageStyle}[2]{}
\newcommand*{\AddLayersAtBeginOfPageStyle}[2]{}
\newcommand*{\AddLayersAtEndOfPageStyle}[2]{}
\newcommand*{\RemoveLayersFromPageStyle}[2]{}
\newcommand*{\AddLayersToPageStyleBeforeLayer}[3]{}
\newcommand*{\AddLayersToPageStyleAfterLayer}[3]{}
\newcommand*{\UnifyLayersAtPageStyle}[1]{}
\newcommand*{\ModifyLayerPageStyleOptions}[2]{}
```

```
\newcommand*{\AddToLayerPageStyleOptions}[2]{}
\newcommand{\IfLayerPageStyleExists}[3]{#3}
\newcommand{\IfRealLayerPageStyleExists}[3]{#3}
\newcommand{\IfLayerAtPageStyle}[4]{#4}
\newcommand{\IfSomeLayerAtPageStyle}[4]{#4}
\newcommand{\IfLayersAtPageStyle}[4]{#4}
\newcommand*{\DestroyRealLayerPageStyle}[1]{}
\@ifundefined{footheight}{\newlength\footheight}{}
\DeclareDocumentCommand{\automark}{s o m}{}
\DeclareDocumentCommand{\manualmark}{}{}
\DeclareDocumentCommand{\MakeMarkcase}{m}{#1}

\newcommand{\partmarkformat}{}
\if@chapter
\newcommand{\chaptermarkformat}{}
\fi
\newcommand{\sectionmarkformat}{}
\DeclareDocumentCommand{\GenericMarkFormat}{m}{}

\newcommand*{\@mkleft}[1]{}
\newcommand*{\@mkright}[1]{}
\newcommand*{\@mkdouble}[1]{}
\newcommand*{\@mkboth}[2]{}
\newcommand*{\scrlayerInitInterface}[1][]{}
\newcommand{\scrlayerAddToInterface}[3][]{}
\newcommand{\scrlayerAddCsToInterface}[3][]{}
\newcommand{\scrlayerOnAutoRemoveInterface}[2][]{}
```

File 430 **lwarp-scrlayer-notecolumn.sty**

§ 539 Package scrlayer-notecolumn

(*Emulates or patches code by* Markus Kohm.)

Pkg scrlayer-notecolumn scrlayer-notecolumn is emulated.

⚠ Not fully tested! Please send bug reports!

for HTML output:

```
\LWR@ProvidesPackageDrop{scrlayer-notecolumn}[2018/02/02]

\newcommand*{\DeclareNoteColumn}[2][]{}
\newcommand*{\DeclareNewNoteColumn}[2][]{}
\newcommand*{\ProvideNoteColumn}[2][]{}
\newcommand*{\RedeclareNoteColumn}[2][]{}
\NewDocumentCommand{\makenote}{s o m}{\marginpar{#3}}
\newcommand*{\syncwithnotecolumn}[1][]{}
\newcommand*{\syncwithnotecolumns}[1][]{}
\newcommand*{\clearnotecolumn}[1][]{}
\newcommand*{\clearnotecolumns}[1][]{}
```

File 431 **lwarp-scrlayer-scrpage.sty**

§ 540 Package scrlayer-scrpage

(*Emulates or patches code by* Markus Kohm.)

Pkg scrlayer-scrpage scrlayer-scrpage is ignored.

⚠ Not fully tested! Please send bug reports!

for HTML output:

```
\LWR@ProvidesPackageDrop{scrlayer-scrpage}[2018/03/30]

\@ifundefined{footheight}{\newlength\footheight}{}
\NewDocumentCommand{\lehead}{s o m}{}
\NewDocumentCommand{\cehead}{s o m}{}
\NewDocumentCommand{\rehead}{s o m}{}
\NewDocumentCommand{\lohead}{s o m}{}
\NewDocumentCommand{\cohead}{s o m}{}
\NewDocumentCommand{\rohead}{s o m}{}
\NewDocumentCommand{\lefoot}{s o m}{}
\NewDocumentCommand{\cefoot}{s o m}{}
\NewDocumentCommand{\refoot}{s o m}{}
\NewDocumentCommand{\lofoot}{s o m}{}
\NewDocumentCommand{\cofoot}{s o m}{}
\NewDocumentCommand{\rofoot}{s o m}{}
\NewDocumentCommand{\ohead}{s o m}{}
\NewDocumentCommand{\chead}{s o m}{}
\NewDocumentCommand{\ihead}{s o m}{}
\NewDocumentCommand{\ofoot}{s o m}{}
\NewDocumentCommand{\cfoot}{s o m}{}
\NewDocumentCommand{\ifoot}{s o m}{}

\NewDocumentCommand{\automark}{som}{}
\newcommand*{\manualmark}{}

\DeclareDocumentCommand{\MakeMarkcase}{m}{#1}

\let\headmark\leftmark
\providecommand{\pnumfont}{\normalfont}%
\DeclareRobustCommand\pagemark{{\pnumfont{\thepage}}}%

\newcommand*{\defpairofpagestyles}[3][]{}
\newcommand*{\newpairofpagestyles}[3][]{}
\newcommand*{\renewpairofpagestyles}[3][]{}
\newcommand*{\providepairofpagestyles}[3][]{}

\newcommand*{\clearmainofpairofpagestyles}{}
\newcommand*{\clearplainofpairofpagestyles}{}
\newcommand*{\clearpairofpagestyles}{}
\newcommand*{\clearscrheadings}{}
\newcommand*{\clearscrheadfoot}{}
\newcommand*{\clearscrplain}{}

\NewDocumentCommand{\deftriplepagestyle}{m o o m m m m m m}{}
\NewDocumentCommand{\newtriplepagestyle}{m o o m m m m m m}{}
\NewDocumentCommand{\renewtriplepagestyle}{m o o m m m m m m}{}
\NewDocumentCommand{\providetriplepagestyle}{m o o m m m m m m}{}
\newcommand*{\defpagestyle}[3]{}
\newcommand*{\newpagestyle}[3]{}
\newcommand*{\providepagestyle}[3]{}
\newcommand*{\renewpagestyle}[3]{}
```

File 432 **lwarp-scrpage2.sty**

§ 541 Package

scrpage2

(*Emulates or patches code by* Markus Kohm.)

Pkg scrpage2 scrpage2 is ignored.

⚠ Not fully tested! Please send bug reports!

for HTML output:

```
\LWR@ProvidesPackageDrop{scrpage2}[2018/03/30]

\@ifundefined{footheight}{\newlength\footheight}{}
\NewDocumentCommand{\lehead}{o m}{}
\NewDocumentCommand{\cehead}{o m}{}
\NewDocumentCommand{\rehead}{o m}{}
\NewDocumentCommand{\lohead}{o m}{}
\NewDocumentCommand{\cohead}{o m}{}
\NewDocumentCommand{\rohead}{o m}{}
\NewDocumentCommand{\lefoot}{o m}{}
\NewDocumentCommand{\cefoot}{o m}{}
\NewDocumentCommand{\refoot}{o m}{}
\NewDocumentCommand{\lofoot}{o m}{}
\NewDocumentCommand{\cofoot}{o m}{}
\NewDocumentCommand{\rofoot}{o m}{}
\NewDocumentCommand{\ohead}{o m}{}
\NewDocumentCommand{\chead}{o m}{}
\NewDocumentCommand{\ihead}{o m}{}
\NewDocumentCommand{\ofoot}{o m}{}
\NewDocumentCommand{\cfoot}{o m}{}
\NewDocumentCommand{\ifoot}{o m}{}
\DeclareDocumentCommand{\automark}{o m}{}
\DeclareDocumentCommand{\manualmark}{}{}
\DeclareDocumentCommand{\MakeMarkcase}{m}{#1}
\NewDocumentCommand{\deftripstyle}{m o o m m m m m}{}
\NewDocumentCommand{\defpagestyle}{s m m m}{}
\NewDocumentCommand{\newpagestyle}{s m m m}{}
\NewDocumentCommand{\renewpagestyle}{s m m m}{}
\NewDocumentCommand{\providepagestyle}{s m m m}{}
\newcommand{\partmarkformat}{}
\if@chapter
\newcommand{\chaptermarkformat}{}
\fi
\newcommand{\sectionmarkformat}{}
\newcommand{\subsectionmarkformat}{}
\newcommand{\subsubsectionmarkformat}{}
\newcommand{\paragraphmarkformat}{}
\newcommand{\subparagraphmarkformat}{}

\newcommand*{\clearscrheadings}{}
\newcommand*{\clearscrheadfoot}{}
\newcommand*{\clearscrplain}{}
```

File 433 **lwarp-section.sty**

§ 542 Package section

Pkg section

section is ignored.

(*Emulates or patches code by* Oliver Pretzel.)

for HTML output:

```
\LWR@ProvidesPackageDrop{section}

\ifx\chapter\undefined
 \def\chsize{\Large}\def\hdsize{\huge}\else
 \def\chsize{\huge}\def\hdsize{\Huge}
\fi
\let\ttsize\LARGE
\let\ausize\large
\let\dasize\large
\let\secsize\Large
\let\subsize\large
\let\hdpos\raggedright
\newcounter{hddepth}
\let\fpind\relax
\def\ttfnt{}
\def\hdfnt{}
\def\fefnt{}
\def\thfnt{}
\def\pgfnt{}
\def\hmkfnt{}
\let\mkcse\uppercase
\def\hddot{}
\def\cpdot{:}
\def\nmdot{}
\ifx\secindent\undefined
 \newdimen\secindent
 \newskip\secpreskp
 \newskip\secpstskp
 \newdimen\subindent
 \newskip\subpreskp
 \newskip\subpstskp
 \newskip\parpstskp
 \newcount\c@hddepth
\fi
```

File 434 **lwarp-sectionbreak.sty**

§ 543 Package sectionbreak

(*Emulates or patches code by* Michal Hoftich.)

Pkg sectionbreak

sectionbreak is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{sectionbreak}[2018-01-03]
```

```
\renewcommand\asterism{\HTMLunicode{2042}}

\renewcommand\pre@sectionbreak{}
\renewcommand\post@sectionbreak{}

\renewcommand\print@sectionbreak[1]{%
\begin{center}
#1
\end{center}
}

```

File 435 **lwarp-sectsty.sty**

§ 544 Package sectsty

(*Emulates or patches code by* Rowland McDonnell.)

Pkg sectsty sectsty is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{sectsty}[2002/02/25]

\newcommand*{\partfont}          [1] {}
\newcommand*{\partnumberfont}    [1] {}
\newcommand*{\parttitlefont}     [1] {}
\newcommand*{\chapterfont}       [1] {}
\newcommand*{\chapternumberfont} [1] {}
\newcommand*{\chaptertitlefont}  [1] {}
\newcommand*{\sectionfont}       [1] {}
\newcommand*{\subsectionfont}    [1] {}
\newcommand*{\subsubsectionfont} [1] {}
\newcommand*{\paragraphfont}     [1] {}
\newcommand*{\subparagraphfont}  [1] {}
\newcommand*{\minisecfont}  [1] {}
\newcommand*{\allsectionsfont}[1] {}
\newcommand{\nohang}{}
```

`\sectionrule` is only to be used in `*font` commands, thus it is ignored.

```
\newcommand*{\sectionrule}[5]{}

\def\ulemheading#1#2{}
```

File 436 **lwarp-selectp.sty**

§ 545 Package selectp

Pkg selectp selectp is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{selectp}% no date given

\newcommand*{\outputonly}[1]{}
```

File 437 **lwarp-semantic-markup.sty**

§ 546 Package

semantic-markup

(*Emulates or patches code by* Andrew A. Cashner.)

Pkg semantic-markup

semantic-markup is patched for use by lwarp.

⚠ If using the endnotes option, add \theendnotes where desired.

for HTML output:

```
\LWR@ProvidesPackagePass{semantic-markup}[2018/05/21]
```

The endnotes must be printed by the user before the end of the document, since the end is after the HTML footer, etc.

```
\ifendnotes
\RenewDocumentCommand{\SetupEndnotes}{}{%
    \let\footnote=\endnote
%     \AtEndDocument{\DoBeforeEndnotes{\EndnoteFont\theendnotes}}%
}
\fi
```

HTML unicode characters from musicography are used.

```
\RequirePackage{musicography}

\let\fl\musFlat
\let\sh\musSharp
\let\na\musNatural
```

The \musfig is placed inside a hashed image, with a simple alt tag.

```
\RequirePackage{amsmath}

\RenewDocumentCommand{\musfig}{ m m }{%
    \LWR@subsingledollar*%
        {#1/#2}% alt tag
        {musfig}% addl' hashing
        {% contents
            \LWR@origensuredmath{%
                \genfrac{}{}{0pt}{1}{\text{#1}}{\text{#2}}%
            }%
        }%
}
```

The \meter is taken from musicography, and becomes a hashed image with a simple alt tag.

```
\RenewDocumentCommand{\meter}{ m m }{%
    \musMeter{#1}{#2}%
}
```

File 438 **lwarp-seqsplit.sty**

§ 547 Package

seqsplit

(*Emulates or patches code by* Boris Veytsman.)

Pkg seqsplit

seqsplit is patched for use by lwarp.

For HTML output, the results are similar to print mode, and respond to window size.

⚠ SVG math results

For SVG math, the output differs from print mode in that the contents are formatted in a minipage, which is then inline with the surrounding math.

For MathJax, the contents are used as-is.

for HTML output:

```
\LWR@ProvidesPackagePass{seqsplit}[2006/08/07]
```

Special handling because lwarp uses a box for SVG math, which does not normally allow line breaks, so a print-mode `minipage` must be used to allow line breaks. The `minipage` will not be wrapped inline with any surrounding math.

```
\begin{warpHTML}
\LetLtxMacro\LWR@orig@seqsplit\seqsplit

\renewcommand*{\seqsplit}[1]{%
    \ifmmode%
        \begin{LWR@print@minipage}{6in}%
        \LWR@orig@seqsplit{#1}%
        \end{LWR@print@minipage}%
    \else%
      \InlineClass[word-wrap:break-word]{seqsplit}{\LWR@orig@seqsplit{#1}}%
    \fi
}
```

Between characters, an empty HTML comment is placed to allow a line wrap in the HTML source, without adding spaces in the output.

```
\AtBeginDocument{
    \newcommand*{\LWR@HTML@seqinsert}{%
        \LWR@htmlcomment{ }%
    }
    \LWR@formatted{seqinsert}
}
\end{warpHTML}

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\seqsplit}[1]{#1}}
\end{warpMathJax}
```

File 439 **lwarp-setspace.sty**

§ 548 Package

setspace

(*Emulates or patches code by* Robin Fairbairns.)

Pkg setspace

setspace is emulated.

Discard all options for lwarp-setspace:

for HTML output:

```
\LWR@ProvidesPackageDrop{setspace}[2011/12/19]

\newcommand*{\setstretch}[1]{}
\newcommand*{\SetSinglespace}[1]{}
\newcommand*{\singlespacing}{}
\newcommand*{\onehalfspacing}{}
\newcommand*{\doublespacing}{}

\newenvironment*{singlespace}
{
\LWR@forcenewpage
\BlockClass{singlespace}
}
{\endBlockClass}

\newenvironment*{singlespace*}
{
\LWR@forcenewpage
\BlockClass{singlespace}
}
{\endBlockClass}

\newenvironment*{spacing}[1]{

}{

}

\newenvironment*{onehalfspace}
{
\LWR@forcenewpage
\BlockClass{onehalfspace}
}
{\endBlockClass}

\newenvironment*{doublespace}
{
\LWR@forcenewpage
\BlockClass{doublespace}
}
{\endBlockClass}
```

File 440 **lwarp-shadethm.sty**

§ 549 Package

shadethm

(*Emulates or patches code by* Jim Hefferon.)

Pkg shadethm

shadethm is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{shadethm}[1999/11/23]

\newenvironment{LWR@HTML@shadebox}
{%
    \convertcolorspec{named}{shadethmcolor}{HTML}\LWR@tempcolor%
    \convertcolorspec{named}{shaderulecolor}{HTML}\LWR@tempcolortwo%
    \begin{BlockClass}[%
        background: \LWR@origpound\LWR@tempcolor ;
        border: 1px solid \LWR@origpound\LWR@tempcolortwo ;
    ]{shadebox}
}%
{\end{BlockClass}}
\LWR@formattedenv{shadebox}
```

File 441 **lwarp-shadow.sty**

§ 550 Package

shadow

(*Emulates or patches code by* Mauro Orlandini.)

Pkg shadow

shadow is emulated.

for HTML output:

Discard all options for lwarp-shadow:

```
\LWR@ProvidesPackageDrop{shadow}[2003/02/19]

\newdimen\sboxsep
\newdimen\sboxrule
\newdimen\sdim

\newcommand{\shabox}[1]{%
\InlineClass{shabox}{#1}%
}
```

File 442 **lwarp-shapepar.sty**

§ 551 Package

shapepar

(*Emulates or patches code by* Donald Arseneau.)

Pkg shapepar

shapepar is patched for use by lwarp. Shapes appear in print mode, as well as inside a `lateximage`, but are ignored for HTML.

for HTML output:

```
\LWR@ProvidesPackagePass{shapepar}[2013/03/26]

\newcommand*{\LWR@HTML@shapepar}[2][]{}
\LWR@formatted{shapepar}

\NewDocumentCommand{\LWR@HTML@cutout}{m d()}{}
\LWR@formatted{cutout}
```

File 443 **lwarp-showidx.sty**

§ 552 Package showidx

Pkg showidx

showidx is ignored.

for HTML output:

Discard all options for lwarp-showidx:

```
\LWR@ProvidesPackageDrop{showidx}[2014/09/29]
```

\@wrindex is redefined \AtBeginDocument by the lwarp core.

File 444 **lwarp-showkeys.sty**

§ 553 Package showkeys

(*Emulates or patches code by* David Carlisle, Morten Høgholm.)

Pkg showkeys

showkeys is ignored.

for HTML output:

Discard all options for lwarp-showkeys:

```
\LWR@ProvidesPackageDrop{showkeys}[2014/10/28]

\NewDocumentCommand{\showkeys}{s}{}
```

File 445 **lwarp-showlabels.sty**

§ 554 Package showlabels

Pkg showlabels

showlabels is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{showlabels}[2021/10/27]

\providecommand{\showlabelfont}{}
\providecommand{\showlabelsetlabel}[1]{}
\newcommand*{\showlabels}[2][]{}
\newcommand*{\showlabelrefline}{}
\newcommand*{\showlabelsinline}{}
```

File 446 **lwarp-showtags.sty**

§ 555 Package

showtags

Pkg showtags

showtags is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{showtags}% no version is given
\newcommand{\thecitetag}[1]{}
```

File 447 **lwarp-shuffle.sty**

§ 556 Package

shuffle

(*Emulates or patches code by* Julian Gilbey and Antoine Lejay.)

Pkg shuffle

shuffle is emulated for SVG math, and also emulated for MathJax.

The font used for shuffle may not render correctly when converted to SVG math, so a `picture` environment drawing is used instead.

For MathJax, the Unicode character is used, and for `\cshuffle` a `\bar` is added.

for HTML output:

```
\LWR@ProvidesPackageDrop{shuffle}[2008/10/27]
\LWR@origRequirePackage{lwarp-common-mathjax-overlaysymbols}

\newcommand*{\LWR@shuffle@start}{%
    \hspace*{.2em}
    \begin{picture}(.75,0.65)
    \setlength{\unitlength}{1em}
    \put(0,0){\line(1,0){.75}}
    \put(0,0){\line(0,1){.5}}
    \put(.375,0){\line(0,1){.5}}
    \put(.75,0){\line(0,1){.5}}
}

\newcommand*{\LWR@shuffle@finish}{%
    \end{picture}
    \hspace*{.75em}
    \hspace*{.2em}
}

\newcommand*{\shuffle}{%
    \LWR@shuffle@start%
    \LWR@shuffle@finish%
}

\newcommand*{\cshuffle}{%
    \LWR@shuffle@start%
    \put(.05,.65){\line(1,0){.65}}%
    \LWR@shuffle@finish%
}
```

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\shuffle}{\mathbin{\unicode{0x29E2}}}}
\CustomizeMathJax{\newcommand{\cshuffle}{%
    \mathbin{\LWRoverlaysymbols{\raise{.6ex}{-}}{\unicode{0x29E2}}}%
}}
\end{warpMathJax}
```

File 448 **lwarp-sidecap.sty**

§ 557 Package sidecap

(*Emulates or patches code by* Rolf Niepraschk, Hubert Gässlein.)

Pkg sidecap

sidecap is emulated.

for HTML output:

Discard all options for lwarp-sidecap.

```
\LWR@ProvidesPackageDrop{sidecap}[2003/06/06]
```

See:
http://tex.stackexchange.com/questions/45401/use-the-s-star-argument-with-newdocumentenvironment
regarding the creation of starred environments with xparse.

```
\NewDocumentEnvironment{SCtable}{soo}
{\IfValueTF{#3}{\table[#3]}{\table}}
{\endtable}

\ExplSyntaxOn
\cs_new:cpn {SCtable*} {\SCtable*}
\cs_new_eq:cN {endSCtable*} \endSCtable
\ExplSyntaxOff


\NewDocumentEnvironment{SCfigure}{soo}
{\IfValueTF{#3}{\figure[#3]}{\figure}}
{\endfigure}

\ExplSyntaxOn
\cs_new:cpn {SCfigure*} {\SCfigure*}
\cs_new_eq:cN {endSCfigure*} \endSCfigure
\ExplSyntaxOff


\newenvironment*{wide}{}{}
```

File 449 **lwarp-sidenotes.sty**

§ 558 Package sidenotes

(*Emulates or patches code by* Andy Thomas, Oliver Schebaum.)

Pkg sidenotes

Patched for lwarp.

for HTML output:

Load the original package:

```
\LWR@ProvidesPackagePass{sidenotes}
```

The following patch sidenotes for use with lwarp.

An ARIA `note` role is not assigned since the caption is an important part of the figure.

`\sidecaption` * [⟨*entry*⟩] [⟨*offset*⟩] {⟨*text*⟩}

```
\RenewDocumentCommand \sidecaption {s o o m}
{
    \LWR@stoppars
    \begingroup
  \captionsetup{style=sidecaption}%
  \IfBooleanTF{#1}
  { % starred
    \begin{BlockClass}[border:none ; box-shadow:none]{marginblock}%
    \caption*{#4}%
    \end{BlockClass}
  }
  { % unstarred
  \IfNoValueOrEmptyTF{#2}
    {\def\@sidenotes@sidecaption@tof{#4}}
    {\def\@sidenotes@sidecaption@tof{#2}}
    \begin{BlockClass}[border:none ; box-shadow:none]{marginblock}%
    \caption[\@sidenotes@sidecaption@tof]{#4}
    \end{BlockClass}
  }
    \endgroup
    \LWR@startpars
}
```

Borrowed from the lwarp version of keyfloat:

```
\NewDocumentEnvironment{KFLTsidenotes@marginfloat}{O{-1.2ex} m}
{% start
    \LWR@BlockClassWP{float:right; width:2in; margin:10pt}{}{marginblock}%
    \renewcommand*{\@captype}{#2}%
}
{%
    \endLWR@BlockClassWP%
}

\RenewDocumentEnvironment{marginfigure}{o}
  {\begin{KFLTsidenotes@marginfloat}{figure}}
  {\end{KFLTsidenotes@marginfloat}}

\RenewDocumentEnvironment{margintable}{o}
  {\begin{KFLTsidenotes@marginfloat}{table}}
  {\end{KFLTsidenotes@marginfloat}}
```

The following were changed by sidenotes, and now are reset back to their lwarp-supported originals:

Restoring the definition from the LaTeX 2ε `article.cls` source:

```
\renewenvironment{figure*}
```

```
                {\@dblfloat{figure}}
                {\end@dblfloat}

\renewenvironment{table*}
                {\@dblfloat{table}}
                {\end@dblfloat}
```

For MathJax:

⚠ Note that sidenotes does not support `\sidenote` inside math in print mode. Use `\sidenotemark` and `\sidenotetext` instead.

```
\begin{warpMathJax}
\providecommand{\sidenotename}{sidenote}
\appto\LWR@syncnotenumbers{\LWR@synconenotenumber{LWRsidenote}{\thesidenote}}
\appto\LWR@syncnotenames{\LWR@synconenotename{LWRsidenote}{\sidenotename}}
\CustomizeMathJax{\def\LWRsidenote{1}}
\CustomizeMathJax{\newcommand{\sidenotemark}[1][\LWRsidenote]{{}^{\mathrm{#1}}}}
\end{warpMathJax}
```

The following is not defined since is not allowed inside math in print mode, and also would have to be modified to parse the optional offset argument:

```
\CustomizeMathJax{\newcommand{\sidenote}[2][\LWRsidenote]{{}^{\mathrm{#1}}}}
```

File 450 **lwarp-simplebnf.sty**

§ 559 Package

simplebnf

(*Emulates or patches code by* Jay Lee.)

Pkg simplebnf

simplebnf is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{simplebnf}[2020/09/01]
```

The entire object is placed inside a `lateximage` whose `alt` text is the LaTeX source BNF expression.

```
\ExplSyntaxOn

\RenewDocumentEnvironment { bnfgrammar } { +b }
 {
   %% \l__input_seq is a list of term definitions.
   \regex_split:nnN { ;; } { #1 } \l__input_seq
   \begin{center}
   \begin{lateximage}[#1]%     lwarp
     \tl_set:Nn \l__table_tl
       {
         \begin{tabular}{lcll}
       }
  \bool_set_true:N \l_tmp_first_term % Is this the first term in this grammar?
   \seq_map_inline:Nn \l__input_seq
     {
       %% \l__term_seq    - (term, rhses)...
       %% \l__term_tl     - term
       %% \l__keypairs_tl - rhses
```

```
      \regex_split:nnN { ::= } { ##1 } \l__term_seq
      \seq_pop_left:NN \l__term_seq \l__term_tl
      \seq_pop_left:NN \l__term_seq \l__keypairs_tl

      \regex_replace_once:nnN { ^\s+ } {} \l__term_tl

      \bool_if:NTF \l_tmp_first_term
        {
          \bool_set_false:N \l_tmp_first_term
        }
        {
          \tl_put_right:Nn \l__table_tl { \\ }
        }
      \tl_put_right:Nx \l__table_tl
        {
          \bnfexpr { \l__term_tl } & \g__simplebnf_defeq_tl &
        }
      %% \l__keypairs_seq - (rhs:annot | rhs)...
      \seq_set_split:NnV \l__keypairs_seq { | } \l__keypairs_tl

      \bool_set_true:N \l__first_rhs
      \seq_map_function:NN \l__keypairs_seq \simplebnf_typeset_rhs:n
    }

  \tl_put_right:Nn \l__table_tl { \end{tabular} }
  \tl_use:N \l__table_tl
  \end{lateximage}%       lwarp
  \end{center}
}
{ }

\ExplSyntaxOff
```

File 451 **lwarp-SIunits.sty**

§ 560 Package

SIunits

(*Emulates or patches code by* Marcel Heldoorn.)

Pkg SIunits

SIunits is patched for use by lwarp.

For SVG math, it is recommended to use `\unit` where possible, which combines the entire expression into a single `lateximage`, and adds the `alt` tag containing the LaTeX code, allowing for copy/paste. When units are used outside of the `\unit` macro, each unit macro will have its own `lateximage`, and each will have the `alt` tag set according to `\MathImageAltText`, which defaults to `(math image)`.

For MathJax, individual units used in text will appear as SVG images, since `\ensuremath` is used in the original defintions, and `\ensuremath` often has expressions which do not work well in MathJax, so it is always forced to an SVG image. If, however, `\unit` is used, the result is expressed with MathJaxinstead of an SVG image.

for HTML output:

```
\LWR@ProvidesPackagePass{SIunits}[2007/12/02]
```

Patched for copy/paste with the HTML `alt` tag:

```
\ifbool{mathjax}{
    \DeclareRobustCommand{\LWR@HTML@unit}[2]{%
        \LWR@subsingledollar*%  lwarp
        {% alt tag
            \textbackslash{}unit%
            \{\LWR@HTMLsanitizedetokenized{\detokenize{#1}}\}%
            \{ \LWR@HTMLsanitizedetokenized{\detokenize{#2}}\}% extra space
        }%
        {SIunits}% add'l hashing
        {%
            #1\,{#2}%
        }% contents
    }
}{% not MathJax
    \DeclareRobustCommand{\LWR@HTML@unit}[2]{%
        \@inunitcommandtrue%    original
        \LWR@subsingledollar*%  lwarp
        {% alt tag
        \textbackslash{}unit\{\LWR@HTMLsanitizedetokenized{\detokenize{#1}}\}%
            \{ \LWR@HTMLsanitizedetokenized{\detokenize{#2}}\}% extra space
        }%
        {SIunits}% add'l hashing
        {%
            \LWR@origensuredmath{%  lwarp modification
                \SI@fstyle{%
                    {#1}\@qsk\period@active{#2}%
                }%  original
            }%
        }% contents
        \@inunitcommandfalse%   original
    }
}% not MathJax
\LWR@formatted{unit}
```

For MathJax:

```
\begin{warpMathJax}
\LWR@infoprocessingmathjax{SIunits}

\CustomizeMathJax{\newcommand{\one}{}}
\CustomizeMathJax{\newcommand{\meter}{\metre}}
\CustomizeMathJax{\newcommand{\deka}{\deca}}
\CustomizeMathJax{\newcommand{\dekad}{\decad}}
\CustomizeMathJax{\newcommand{\per}{/}}
\CustomizeMathJax{\newcommand{\usk}{\;}}
\CustomizeMathJax{\newcommand{\unit}[2]{#1\,{#2}}}
\CustomizeMathJax{\newcommand{\power}[2]{#1^{#2}}}

\AtBeginDocument{%
 \if@redefsquare
  \CustomizeMathJax{\renewcommand{\square}[1]{\power{#1}{2}}}
 \else
   \if@defsquaren
    \CustomizeMathJax{\newcommand{\squaren}[1]{\power{#1}{2}}}
   \else
     \CustomizeMathJax{\renewcommand{\square}[1]{\power{#1}{2}}}
   \fi %\if@defsquaren
 \fi   %\if@redefsquare
}     %\AtBeginDocument

```

```
\CustomizeMathJax{\newcommand{\squared}{^{2}}}
\CustomizeMathJax{\newcommand{\cubic}[1]{\power{#1}{3}}}
\CustomizeMathJax{\newcommand{\cubed}{^{3}}}
\CustomizeMathJax{\newcommand{\fourth}[1]{\power{#1}{4}}}
\CustomizeMathJax{\newcommand{\reciprocal}[1]{\power{#1}{-1}}}
\CustomizeMathJax{\newcommand{\rp}{\reciprocal}}
\CustomizeMathJax{\newcommand{\rpsquare}[1]{\power{#1}{-2}}}
\CustomizeMathJax{\newcommand{\rpsquared}{^{-2}}}
\CustomizeMathJax{\newcommand{\rpcubic}[1]{\power{#1}{-3}}}
\CustomizeMathJax{\newcommand{\rpcubed}{^{-3}}}
\CustomizeMathJax{\newcommand{\rpfourth}[1]{\power{#1}{-4}}}
\CustomizeMathJax{\newcommand{\yocto}{\mathrm{y}}}
\CustomizeMathJax{\newcommand{\zepto}{\mathrm{z}}}
\CustomizeMathJax{\newcommand{\atto}{\mathrm{a}}}
\CustomizeMathJax{\newcommand{\femto}{\mathrm{f}}}
\CustomizeMathJax{\newcommand{\pico}{\mathrm{p}}}
\CustomizeMathJax{\newcommand{\nano}{\mathrm{n}}}
\CustomizeMathJax{\newcommand{\micro}{\mathrm{\unicode{x00B5}}}}
\CustomizeMathJax{\newcommand{\milli}{\mathrm{m}}}
\CustomizeMathJax{\newcommand{\centi}{\mathrm{c}}}
\CustomizeMathJax{\newcommand{\deci}{\mathrm{d}}}
\CustomizeMathJax{\newcommand{\deca}{\mathrm{da}}}
\CustomizeMathJax{\newcommand{\hecto}{\mathrm{h}}}
\CustomizeMathJax{\newcommand{\kilo}{\mathrm{k}}}
\CustomizeMathJax{\newcommand{\mega}{\mathrm{M}}}
\CustomizeMathJax{\newcommand{\giga}{\mathrm{G}}}
\CustomizeMathJax{\newcommand{\tera}{\mathrm{T}}}
\CustomizeMathJax{\newcommand{\peta}{\mathrm{P}}}
\CustomizeMathJax{\newcommand{\exa}{\mathrm{E}}}
\CustomizeMathJax{\newcommand{\zetta}{\mathrm{Z}}}
\CustomizeMathJax{\newcommand{\yotta}{\mathrm{Y}}}
\CustomizeMathJax{\newcommand{\yoctod}{\power{10}{-24}}}
\CustomizeMathJax{\newcommand{\zeptod}{\power{10}{-21}}}
\CustomizeMathJax{\newcommand{\attod}{\power{10}{-18}}}
\CustomizeMathJax{\newcommand{\femtod}{\power{10}{-15}}}
\CustomizeMathJax{\newcommand{\picod}{\power{10}{-12}}}
\CustomizeMathJax{\newcommand{\nanod}{\power{10}{-9}}}
\CustomizeMathJax{\newcommand{\microd}{\power{10}{-6}}}
\CustomizeMathJax{\newcommand{\millid}{\power{10}{-3}}}
\CustomizeMathJax{\newcommand{\centid}{\power{10}{-2}}}
\CustomizeMathJax{\newcommand{\decid}{\power{10}{-1}}}
\CustomizeMathJax{\newcommand{\decad}{\power{10}{1}}}
\CustomizeMathJax{\newcommand{\hectod}{\power{10}{2}}}
\CustomizeMathJax{\newcommand{\kilod}{\power{10}{3}}}
\CustomizeMathJax{\newcommand{\megad}{\power{10}{6}}}
\CustomizeMathJax{\newcommand{\gigad}{\power{10}{9}}}
\CustomizeMathJax{\newcommand{\terad}{\power{10}{12}}}
\CustomizeMathJax{\newcommand{\petad}{\power{10}{15}}}
\CustomizeMathJax{\newcommand{\exad}{\power{10}{18}}}
\CustomizeMathJax{\newcommand{\zettad}{\power{10}{21}}}
\CustomizeMathJax{\newcommand{\yottad}{\power{10}{24}}}
\CustomizeMathJax{\newcommand{\gram}{\mathrm{g}}}
\CustomizeMathJax{\newcommand{\metre}{\mathrm{m}}}
\CustomizeMathJax{\newcommand{\kilogram}{\kilo\gram}}
\CustomizeMathJax{\newcommand{\second}{\mathrm{s}}}
\CustomizeMathJax{\newcommand{\ampere}{\mathrm{A}}}
\CustomizeMathJax{\newcommand{\kelvin}{\mathrm{K}}}
\CustomizeMathJax{\newcommand{\mole}{\mathrm{mol}}}
\CustomizeMathJax{\newcommand{\candela}{\mathrm{cd}}}
\CustomizeMathJax{\newcommand{\radian}{\mathrm{rad}}}
```

```
\CustomizeMathJax{\newcommand{\steradian}{\mathrm{sr}}}
\CustomizeMathJax{\newcommand{\hertz}{\mathrm{Hz}}}
\CustomizeMathJax{\newcommand{\newton}{\mathrm{N}}}
\CustomizeMathJax{\newcommand{\pascal}{\mathrm{Pa}}}
\CustomizeMathJax{\newcommand{\joule}{\mathrm{J}}}
\CustomizeMathJax{\newcommand{\watt}{\mathrm{W}}}
\CustomizeMathJax{\newcommand{\coulomb}{\mathrm{C}}}
\CustomizeMathJax{\newcommand{\volt}{\mathrm{V}}}
\CustomizeMathJax{\newcommand{\farad}{\mathrm{F}}}
\CustomizeMathJax{\newcommand{\ohm}{\mathrm{\Omega}}}
\CustomizeMathJax{\newcommand{\siemens}{\mathrm{S}}}
\CustomizeMathJax{\newcommand{\weber}{\mathrm{Wb}}}
\CustomizeMathJax{\newcommand{\tesla}{\mathrm{T}}}
\CustomizeMathJax{\newcommand{\henry}{\mathrm{H}}}
\CustomizeMathJax{\newcommand{\degreecelsius}{\mathrm{\unicode{x2103}}}}
\CustomizeMathJax{\newcommand{\celsius}{\degreecelsius}}
\CustomizeMathJax{\newcommand{\lumen}{\mathrm{lm}}}
\CustomizeMathJax{\newcommand{\lux}{\mathrm{lx}}}
\CustomizeMathJax{\newcommand{\becquerel}{\mathrm{Bq}}}
\CustomizeMathJax{\newcommand{\sievert}{\mathrm{Sv}}}
\CustomizeMathJax{\newcommand{\katal}{\mathrm{kat}}}

\ifdef{\radianbase}{
\CustomizeMathJax{\newcommand{\radianbase}%
        {\metre\usk\reciprocal\metre}}
\CustomizeMathJax{\newcommand{\steradianbase}%
        {\squaremetre\usk\rpsquare\metre}}
\CustomizeMathJax{\newcommand{\hertzbase}%
        {\reciprocal\second}}
\CustomizeMathJax{\newcommand{\newtonbase}%
        {\metre\usk\kilogram\usk\second\rpsquared}}
\CustomizeMathJax{\newcommand{\pascalbase}%
        {\reciprocal\metre\usk\kilogram\usk\second\rpsquared}}
\CustomizeMathJax{\newcommand{\joulebase}%
        {\squaremetre\usk\kilogram\usk\second\rpsquared}}
\CustomizeMathJax{\newcommand{\wattbase}%
        {\squaremetre\usk\kilogram\usk\rpcubic\second}}
\CustomizeMathJax{\newcommand{\coulombbase}%
        {\ampere\usk\second}}
\CustomizeMathJax{\newcommand{\voltbase}%
     {\squaremetre\usk\kilogram\usk\rpcubic\second\usk\reciprocal\ampere}}
\CustomizeMathJax{\newcommand{\faradbase}%
     {\rpsquare\metre\usk\reciprocal\kilogram\usk\fourth\second\usk\ampere\squared}}
\CustomizeMathJax{\newcommand{\ohmbase}%
       {\squaremetre\usk\kilogram\usk\rpcubic\second\usk\rpsquare\ampere}}
\CustomizeMathJax{\newcommand{\siemensbase}%
     {\rpsquare\metre\usk\reciprocal\kilogram\usk\cubic\second\usk\ampere\squared}}
\CustomizeMathJax{\newcommand{\weberbase}%
     {\squaremetre\usk\kilogram\usk\second\rpsquared\usk\reciprocal\ampere}}
\CustomizeMathJax{\newcommand{\teslabase}%
        {\kilogram\usk\second\rpsquared\usk\reciprocal\ampere}}
\CustomizeMathJax{\newcommand{\henrybase}%
     {\squaremetre\usk\kilogram\usk\second\rpsquared\usk\rpsquare\ampere}}
\CustomizeMathJax{\newcommand{\celsiusbase}%
        {\kelvin}}
\CustomizeMathJax{\newcommand{\lumenbase}%
        {\candela\usk\squaremetre\usk\rpsquare\metre}}
\CustomizeMathJax{\newcommand{\luxbase}%
        {\candela\usk\squaremetre\usk\rpfourth\metre}}
\CustomizeMathJax{\newcommand{\becquerelbase}%
```

```
        {\hertzbase}}
\CustomizeMathJax{\newcommand{\graybase}%
        {\squaremetre\usk\second\rpsquared}}
\CustomizeMathJax{\newcommand{\sievertbase}%
        {\graybase}}
\CustomizeMathJax{\newcommand{\katalbase}%
        {\rp\second\usk\mole }}
}{}

\ifdef{\derradian}{
\CustomizeMathJax{\newcommand{\derradian}%
        {\metre\usk\reciprocal\metre}}
\CustomizeMathJax{\newcommand{\dersteradian}%
        {\squaremetre\usk\rpsquare\metre}}
\CustomizeMathJax{\newcommand{\derhertz}%
        {\reciprocal\second}}
\CustomizeMathJax{\newcommand{\dernewton}%
        {\metre\usk\kilogram\usk\second\rpsquared}}
\CustomizeMathJax{\newcommand{\derpascal}%
        {\newton\usk\rpsquare\metre}}
\CustomizeMathJax{\newcommand{\derjoule}%
        {\newton\usk\metre}}
\CustomizeMathJax{\newcommand{\derwatt}%
        {\joule\usk\reciprocal\second}}
\CustomizeMathJax{\newcommand{\dercoulomb}%
        {\ampere\usk\second}}
\CustomizeMathJax{\newcommand{\dervolt}%
        {\watt\usk\reciprocal\ampere}}
\CustomizeMathJax{\newcommand{\derfarad}%
        {\coulomb\usk\reciprocal\volt}}
\CustomizeMathJax{\newcommand{\derohm}%
        {\volt\usk\reciprocal\ampere}}
\CustomizeMathJax{\newcommand{\dersiemens}%
        {\ampere\usk\reciprocal\volt}}
\CustomizeMathJax{\newcommand{\derweber}%
     {\squaremetre\usk\kilogram\usk\second\rpsquared\usk\reciprocal\ampere}}
\CustomizeMathJax{\newcommand{\dertesla}%
        {\weber\usk\rpsquare\metre}}
\CustomizeMathJax{\newcommand{\derhenry}%
        {\weber\usk\reciprocal\ampere}}
\CustomizeMathJax{\newcommand{\dercelsius}%
        {\kelvin}}
\CustomizeMathJax{\newcommand{\derlumen}%
        {\candela\usk\steradian}}
\CustomizeMathJax{\newcommand{\derlux}%
        {\lumen\usk\rpsquare\metre}}
\CustomizeMathJax{\newcommand{\derbecquerel}%
        {\derhertz}}
\CustomizeMathJax{\newcommand{\dergray}%
        {\joule\usk\reciprocal\kilogram}}
\CustomizeMathJax{\newcommand{\dersievert}%
        {\dergray}}
\CustomizeMathJax{\newcommand{\derkatal}%
        {\katalbase}}
}{}

\CustomizeMathJax{\newcommand{\minute}{\mathrm{min}}}
\CustomizeMathJax{\newcommand{\hour}{\mathrm{h}}}
\CustomizeMathJax{\newcommand{\dday}{\mathrm{d}}}
\CustomizeMathJax{\newcommand{\degree}{\mathrm{^\circ}}}
```

```
\CustomizeMathJax{\newcommand{\paminute}{^\prime}}
\CustomizeMathJax{\newcommand{\arcminute}{^\prime}}
\CustomizeMathJax{\newcommand{\pasecond}{^{\prime\prime}}}
\CustomizeMathJax{\newcommand{\arcsecond}{^{\prime\prime}}}
\CustomizeMathJax{\newcommand{\ton}{\mathrm{t}}}
\CustomizeMathJax{\newcommand{\tonne}{\mathrm{t}}}
\CustomizeMathJax{\newcommand{\liter}{\mathrm{L}}}
\CustomizeMathJax{\newcommand{\litre}{\mathrm{l}}}
\CustomizeMathJax{\newcommand{\neper}{\mathrm{Np}}}
\CustomizeMathJax{\newcommand{\bel}{\mathrm{B}}}
\CustomizeMathJax{\newcommand{\curie}{\mathrm{Ci}}}
\CustomizeMathJax{\newcommand{\rad}{\mathrm{rad}}}
\CustomizeMathJax{\newcommand{\arad}{\mathrm{rd}}}
\CustomizeMathJax{\newcommand{\rem}{\mathrm{rem}}}
\CustomizeMathJax{\newcommand{\roentgen}{\mathrm{R}}}
\CustomizeMathJax{\newcommand{\electronvolt}{\mathrm{\mathrm{eV}}}}
\CustomizeMathJax{\newcommand{\atomicmass}{\mathrm{u}}}
\CustomizeMathJax{\newcommand{\atomicmassunit}{\mathrm{u}}}
\CustomizeMathJax{\newcommand{\dalton}{\mathrm{Da}}}
\CustomizeMathJax{\newcommand{\are}{\mathrm{a}}}
\CustomizeMathJax{\newcommand{\hectare}{\mathrm{\hecto\are}}}
\CustomizeMathJax{\newcommand{\barn}{\mathrm{b}}}
\CustomizeMathJax{\newcommand{\bbar}{\mathrm{bar}}}
\CustomizeMathJax{\newcommand{\gal}{\mathrm{Gal}}}
\CustomizeMathJax{\newcommand{\angstrom}{\mathrm{\unicode{x212B}}}}
\CustomizeMathJax{\newcommand{\rperminute}{\mathrm{r}\per\minute}}
\CustomizeMathJax{\newcommand{\rpersecond}{\mathrm{r}\per\second}}
\CustomizeMathJax{\newcommand{\squaremetre}{\power{\metre}{2}}}
\CustomizeMathJax{\newcommand{\cubicmetre}{\cubic\metre}}
\CustomizeMathJax{\newcommand{\graypersecond}{\gray\per\second}}
\CustomizeMathJax{\newcommand{\graypersecondnp}{\gray\usk\reciprocal\second}}
\CustomizeMathJax{\newcommand{\metrepersquaresecond}{\metre\per\second\squared}}
\CustomizeMathJax{\newcommand{\metrepersquaresecondnp}{\metre\usk\second\rpsquared}}
\CustomizeMathJax{\newcommand{\joulepermole}{\joule\per\mole}}
\CustomizeMathJax{\newcommand{\joulepermolenp}{\joule\usk\reciprocal\mole}}
\CustomizeMathJax{\newcommand{\molepercubicmetre}{\mole\per\cubic\metre}}
\CustomizeMathJax{\newcommand{\molepercubicmetrenp}{\mole\usk\rpcubic\metre}}
\CustomizeMathJax{\newcommand{\radianpersquaresecond}{\radian\per\second\squared}}
\CustomizeMathJax{\newcommand{\radianpersquaresecondnp}{\radian\usk\second\rpsquared}}
\CustomizeMathJax{\newcommand{\kilogramsquaremetrepersecond}{%
    \kilogram\usk\squaremetre\per\second%
}}
\CustomizeMathJax{\newcommand{\kilogramsquaremetrepersecondnp}{%
    \kilogram\usk\squaremetre\usk\reciprocal\second%
}}
\CustomizeMathJax{\newcommand{\radianpersecond}{\radian\per\second}}
\CustomizeMathJax{\newcommand{\radianpersecondnp}{\radian\usk\reciprocal\second}}
\CustomizeMathJax{\newcommand{\squaremetrepercubicmetre}{\squaremetre\per\cubic\metre}}
\CustomizeMathJax{\newcommand{\squaremetrepercubicmetrenp}{%
    \squaremetre\usk\rpcubic\metre%
}}
\CustomizeMathJax{\newcommand{\katalpercubicmetre}{\katal\per\cubic\metre}}
\CustomizeMathJax{\newcommand{\katalpercubicmetrenp}{\katal\usk\rpcubic\metre}}
\CustomizeMathJax{\newcommand{\coulombpermol}{\coulomb\per\mole}}
\CustomizeMathJax{\newcommand{\coulombpermolnp}{\coulomb\usk\reciprocal\mole}}
\CustomizeMathJax{\newcommand{\amperepersquaremetre}{\ampere\per\squaremetre}}
\CustomizeMathJax{\newcommand{\amperepersquaremetrenp}{\ampere\usk\rpsquare\metre}}
\CustomizeMathJax{\newcommand{\kilogrampercubicmetre}{\kilogram\per\cubic\metre}}
\CustomizeMathJax{\newcommand{\kilogrampercubicmetrenp}{\kilogram\usk\rpcubic\metre}}
\CustomizeMathJax{\newcommand{\squaremetrepernewtonsecond}{%
```

```
    \squaremetre\per\newton\usk\second%
}}
\CustomizeMathJax{\newcommand{\squaremetrepernewtonsecondnp}{%
    \squaremetre\usk\reciprocal\newton\usk\reciprocal\second%
}}
\CustomizeMathJax{\newcommand{\pascalsecond}{\pascal\usk\second}}
\CustomizeMathJax{\newcommand{\coulombpercubicmetre}{\coulomb\per\cubic\metre}}
\CustomizeMathJax{\newcommand{\coulombpercubicmetrenp}{\coulomb\usk\rpcubic\metre}}
\CustomizeMathJax{\newcommand{\amperemetresecond}{\ampere\usk\metre\usk\second}}
\CustomizeMathJax{\newcommand{\voltpermetre}{\volt\per\metre}}
\CustomizeMathJax{\newcommand{\voltpermetrenp}{\volt\usk\reciprocal\metre}}
\CustomizeMathJax{\newcommand{\coulombpersquaremetre}{\coulomb\per\squaremetre}}
\CustomizeMathJax{\newcommand{\coulombpersquaremetrenp}{\coulomb\usk\rpsquare\metre}}
\CustomizeMathJax{\newcommand{\faradpermetre}{\farad\per\metre}}
\CustomizeMathJax{\newcommand{\faradpermetrenp}{\farad\usk\reciprocal\metre}}
\CustomizeMathJax{\newcommand{\ohmmetre}{\ohm\usk\metre}}
\CustomizeMathJax{\newcommand{\kilowatthour}{\kilo\watt\hour}}
\CustomizeMathJax{\newcommand{\wattpersquaremetre}{\watt\per\squaremetre}}
\CustomizeMathJax{\newcommand{\wattpersquaremetrenp}{\watt\usk\rpsquare\metre}}
\CustomizeMathJax{\newcommand{\joulepersquaremetre}{\joule\per\squaremetre}}
\CustomizeMathJax{\newcommand{\joulepersquaremetrenp}{\joule\usk\rpsquare\metre}}
\CustomizeMathJax{\newcommand{\newtonpercubicmetre}{\newton\per\cubic\metre}}
\CustomizeMathJax{\newcommand{\newtonpercubicmetrenp}{\newton\usk\rpcubic\metre}}
\CustomizeMathJax{\newcommand{\newtonperkilogram}{\newton\per\kilogram}}
\CustomizeMathJax{\newcommand{\newtonperkilogramnp}{\newton\usk\reciprocal\kilogram}}
\CustomizeMathJax{\newcommand{\jouleperkelvin}{\joule\per\kelvin}}
\CustomizeMathJax{\newcommand{\jouleperkelvinnp}{\joule\usk\reciprocal\kelvin}}
\CustomizeMathJax{\newcommand{\jouleperkilogram}{\joule\per\kilogram}}
\CustomizeMathJax{\newcommand{\jouleperkilogramnp}{\joule\usk\reciprocal\kilogram}}
\CustomizeMathJax{\newcommand{\coulombperkilogram}{\coulomb\per\kilogram}}
\CustomizeMathJax{\newcommand{\coulombperkilogramnp}{\coulomb\usk\reciprocal\kilogram}}
\CustomizeMathJax{\newcommand{\squaremetrepersecond}{\squaremetre\per\second}}
\CustomizeMathJax{\newcommand{\squaremetrepersecondnp}{%
    \squaremetre\usk\reciprocal\second%
}}
\CustomizeMathJax{\newcommand{\squaremetrepersquaresecond}{%
    \squaremetre\per\second\squared%
}}
\CustomizeMathJax{\newcommand{\squaremetrepersquaresecondnp}{%
    \squaremetre\usk\second\rpsquared%
}}
\CustomizeMathJax{\newcommand{\kilogrammetrepersecond}{%
    \kilogram\usk\metre\per\second%
}}
\CustomizeMathJax{\newcommand{\kilogrammetrepersecondnp}{%
    \kilogram\usk\metre\usk\reciprocal\second%
}}
\CustomizeMathJax{\newcommand{\candelapersquaremetre}{\candela\per\squaremetre}}
\CustomizeMathJax{\newcommand{\candelapersquaremetrenp}{\candela\usk\rpsquare\metre}}
\CustomizeMathJax{\newcommand{\amperepermetre}{\ampere\per\metre}}
\CustomizeMathJax{\newcommand{\amperepermetrenp}{\ampere\usk\reciprocal\metre}}
\CustomizeMathJax{\newcommand{\joulepertesla}{\joule\per\tesla}}
\CustomizeMathJax{\newcommand{\jouleperteslanp}{\joule\usk\reciprocal\tesla}}
\CustomizeMathJax{\newcommand{\henrypermetre}{\henry\per\metre}}
\CustomizeMathJax{\newcommand{\henrypermetrenp}{\henry\usk\reciprocal\metre}}
\CustomizeMathJax{\newcommand{\kilogrampersecond}{\kilogram\per\second}}
\CustomizeMathJax{\newcommand{\kilogrampersecondnp}{\kilogram\usk\reciprocal\second}}
\CustomizeMathJax{\newcommand{\kilogrampersquaremetresecond}{%
    \kilogram\per\squaremetre\usk\second%
}}
```

```
\CustomizeMathJax{\newcommand{\kilogrampersquaremetresecondnp}{%
    \kilogram\usk\rpsquare\metre\usk\reciprocal\second%
}}
\CustomizeMathJax{\newcommand{\kilogrampersquaremetre}{\kilogram\per\squaremetre}}
\CustomizeMathJax{\newcommand{\kilogrampersquaremetrenp}{\kilogram\usk\rpsquare\metre}}
\CustomizeMathJax{\newcommand{\kilogrampermetre}{\kilogram\per\metre}}
\CustomizeMathJax{\newcommand{\kilogrampermetrenp}{\kilogram\usk\reciprocal\metre}}
\CustomizeMathJax{\newcommand{\joulepermolekelvin}{\joule\per\mole\usk\kelvin}}
\CustomizeMathJax{\newcommand{\joulepermolekelvinnp}{%
    \joule\usk\reciprocal\mole\usk\reciprocal\kelvin%
}}
\CustomizeMathJax{\newcommand{\kilogramperkilomole}{\kilogram\per\kilo\mole}}
\CustomizeMathJax{\newcommand{\kilogramperkilomolenp}{%
    \kilogram\usk\kilo\reciprocal\mole%
}}
\CustomizeMathJax{\newcommand{\kilogramsquaremetre}{\kilogram\usk\squaremetre}}
\CustomizeMathJax{\newcommand{\kilogramsquaremetrenp}{\kilogramsquaremetre}}
\CustomizeMathJax{\newcommand{\kilogrammetrepersquaresecond}{%
    \kilogram\usk\metre\per\second\squared%
}}
\CustomizeMathJax{\newcommand{\kilogrammetrepersquaresecondnp}{%
    \kilogram\usk\metre\usk\second\rpsquared%
}}
\CustomizeMathJax{\newcommand{\newtonpersquaremetre}{\newton\per\squaremetre}}
\CustomizeMathJax{\newcommand{\newtonpersquaremetrenp}{\newton\usk\rpsquare\metre}}
\CustomizeMathJax{\newcommand{\persquaremetresecond}{1\per\squaremetre\usk\second}}
\CustomizeMathJax{\newcommand{\persquaremetresecondnp}{%
    \rpsquare\metre\usk\reciprocal\second%
}}
\CustomizeMathJax{\newcommand{\wattperkilogram}{\watt\per\kilogram}}
\CustomizeMathJax{\newcommand{\wattperkilogramnp}{\watt\usk\reciprocal\kilogram}}
\CustomizeMathJax{\newcommand{\wattpercubicmetre}{\watt\per\cubic\metre}}
\CustomizeMathJax{\newcommand{\wattpercubicmetrenp}{\watt\usk\rpcubic\metre}}
\CustomizeMathJax{\newcommand{\wattpersquaremetresteradian}{%
    \watt\per\squaremetre\usk\steradian%
}}
\CustomizeMathJax{\newcommand{\wattpersquaremetresteradiannp}{%
    \watt\usk\rpsquare\metre\usk\rp\steradian%
}}
\CustomizeMathJax{\newcommand{\jouleperkilogramkelvin}{\joule\per\kilogram\usk\kelvin}}
\CustomizeMathJax{\newcommand{\jouleperkilogramkelvinnp}{%
    \joule\usk\reciprocal\kilogram\usk\reciprocal\kelvin%
}}
\CustomizeMathJax{\newcommand{\squaremetreperkilogram}{\squaremetre\per\kilogram}}
\CustomizeMathJax{\newcommand{\rpsquaremetreperkilogram}{%
    \squaremetre\usk\reciprocal\kilogram%
}}
\CustomizeMathJax{\newcommand{\cubicmetreperkilogram}{\cubic\metre\per\kilogram}}
\CustomizeMathJax{\newcommand{\rpcubicmetreperkilogram}{%
    \cubic\metre\usk\reciprocal\kilogram%
}}
\CustomizeMathJax{\newcommand{\newtonpermetre}{\newton\per\metre}}
\CustomizeMathJax{\newcommand{\newtonpermetrenp}{\newton\usk\reciprocal\metre}}
\CustomizeMathJax{\newcommand{\Celsius}{\unicode{x2103}}}
\CustomizeMathJax{\newcommand{\wattpermetrekelvin}{\watt\per\metre\usk\kelvin}}
\CustomizeMathJax{\newcommand{\wattpermetrekelvinnp}{%
    \watt\usk\reciprocal\metre\usk\reciprocal\kelvin%
}}
\CustomizeMathJax{\newcommand{\newtonmetre}{\newton\usk\metre}
\CustomizeMathJax{\newcommand{\newtonmetrenp}{\newtonmetre}}}
```

```
\CustomizeMathJax{\newcommand{\squaremetrepercubicsecond}{%
    \squaremetre\per\cubic\second%
}}
\CustomizeMathJax{\newcommand{\squaremetrepercubicsecondnp}{%
    \squaremetre\usk\rpcubic\second%
}}
\CustomizeMathJax{\newcommand{\metrepersecond}{\metre\per\second}}
\CustomizeMathJax{\newcommand{\metrepersecondnp}{\metre\usk\reciprocal\second}}
\CustomizeMathJax{\newcommand{\joulepercubicmetre}{\joule\per\cubicmetre}}
\CustomizeMathJax{\newcommand{\joulepercubicmetrenp}{\joule\usk\rpcubic\metre}}
\CustomizeMathJax{\newcommand{\kilogrampercubicmetrecoulomb}{%
    \kilogram\per\cubic\metre\usk\coulomb%
}}
\CustomizeMathJax{\newcommand{\kilogrampercubicmetrecoulombnp}{%
    \kilogram\usk\rpcubic\metre\usk\reciprocal\coulomb%
}}
\CustomizeMathJax{\newcommand{\cubicmetrepersecond}{\cubicmetre\per\second}}
\CustomizeMathJax{\newcommand{\rpcubicmetrepersecond}{\cubicmetre\usk\reciprocal\second}}
\CustomizeMathJax{\newcommand{\kilogrampersecondcubicmetre}{%
    \kilogram\per\second\usk\cubicmetre%
}}
\CustomizeMathJax{\newcommand{\kilogrampersecondcubicmetrenp}{%
    \kilogram\usk\reciprocal\second\usk\rpcubic\metre%
}}
\end{warpMathJax}
```

File 452 **lwarp-siunitx.sty**

§ 561 Package siunitx

(*Emulates or patches code by* Joseph Wright.)

Pkg siunitx

siunitx is patched for use by lwarp, and is emulated for MathJax.

for HTML output:

```
\providecommand\DeclareRelease[3]{}
\providecommand\DeclareCurrentRelease[2]{}

\DeclareRelease{2}{2010-05-23}{lwarp-siunitx-v2.sty}
\DeclareRelease{v2}{2010-05-23}{lwarp-siunitx-v2.sty}
\DeclareCurrentRelease{}{2021-05-17}

\RequirePackage{xcolor}% for \convertcolorspec

\LWR@ProvidesPackagePass{siunitx}[2022-02-15]

\ExplSyntaxOn

\cs_set_protected:Npn \siunitx_number_format:nN #1#2
  {
    \group_begin:
      \bool_if:NTF \l_siunitx_number_parse_bool
        {
          \siunitx_number_parse:nN {#1} \l__siunitx_number_parsed_tl
       \siunitx_number_process:NN \l__siunitx_number_parsed_tl \l__siunitx_number_parsed_tl
          \tl_set:Nx \l__siunitx_number_outputted_tl
            { \siunitx_number_output:N \l__siunitx_number_parsed_tl }
        }
```

```
        {
            \tl_set:Nn \l__siunitx_number_outputted_tl
            {
                \LWR@subsingledollar{%                  lwarp
                    \textbackslash( % space
                    \LWR@HTMLsanitizedetokenized{%
                        \detokenize{#1}%
                    } \textbackslash)%                  lwarp
                }%
                {siunitx unparsed}%
                {\ensuremath{#1}}%                      lwarp
            }
        }
    \exp_args:NNNV \group_end:
    \tl_set:Nn #2 \l__siunitx_number_outputted_tl
  }

\cs_set_protected:Npn \__siunitx_compound_unparsed:n #1
  {
    \tl_if_blank:nF {#1}
      { \seq_put_right:Nn \l__siunitx_compound_tmp_seq
        {
            \LWR@subsingledollar{%                  lwarp
                \textbackslash( % space
                \LWR@HTMLsanitizedetokenized{%
                    \detokenize{#1}%
                } \textbackslash)%                  lwarp
            }%
            {siunitx unparsed}%
            {\ensuremath{#1}}%                      lwarp
        }
      }
  }
```

If not in a `lateximage`, always use text mode. Ignore current text font if resetting text family, series, and shape.

```
\cs_set_protected:Npn \__siunitx_print_aux:nn #1#2
  {
    \tl_if_empty:cTF { l__siunitx_print_ #1 _color_tl }
      { \use:n }
      { \exp_args:Nv \textcolor { l__siunitx_print_ #1 _color_tl } }
        {
            \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%      lwarp
            {
                \use:c
                    {
                    siunitx_print_
                    \tl_use:c { l__siunitx_print_ #1 _mode_tl } :n
                    }
                    {#2}
            }
            {
                \bool_lazy_all:nTF%     lwarp
                    {
                        {\l__siunitx_print_text_family_bool}
                        {\l__siunitx_print_text_series_bool}
                        {\l__siunitx_print_text_shape_bool}
                    }
                    {% No font control if reset-text-family/series/shape
```

```
                        \use:c
                            {
                            siunitx_print_%                         lwarp
                                text%                               lwarp
                                :n%                                 lwarp
                            }%                                      lwarp
                            {#2}%                                   lwarp
                    }
                    {
                        \LWR@textcurrentfont{%                      lwarp
                            \use:c
                                {
                                siunitx_print_%                     lwarp
                                    text%                           lwarp
                                    :n%                             lwarp
                                }%                                  lwarp
                                {#2}%                               lwarp
                        }
                    }
            }
        }
}
```

To determine whether to make a complex root be italic or upright, `\l__siunitx_complex_output_root_tl` is compared to `\LWR@siunitx@complexrm<i/j>`, and the css style is set appropriately.

```
\newcommand*{\LWR@siunitx@complexrootstyle}{textrm}

\newcommand*{\LWR@siunitx@complexrmi}{\mathrm{i}}
\newcommand*{\LWR@siunitx@complexrmj}{\mathrm{j}}

\newcommand*{\LWR@siunitx@setcomplexroot}{%
    \renewcommand*{\LWR@siunitx@complexrootstyle}{textit}%
  \ifdefequal{\l__siunitx_complex_output_root_tl}{\LWR@siunitx@complexrmi}%
       {\renewcommand*{\LWR@siunitx@complexrootstyle}{textrm}}%
       {}%
  \ifdefequal{\l__siunitx_complex_output_root_tl}{\LWR@siunitx@complexrmj}%
       {\renewcommand*{\LWR@siunitx@complexrootstyle}{textrm}}%
       {}%
}

\cs_set_protected:Npn \__siunitx_complex_format_auxii:n #1
 {
   \LWR@siunitx@setcomplexroot%                          lwarp
   \__siunitx_complex_format_units:n {#1}
   \tl_if_empty:NF \l__siunitx_complex_real_tl
   { \exp_after:wN \__siunitx_complex_drop_exponent:nnnnnnn \l__siunitx_complex_real_tl }
  \exp_after:wN \__siunitx_complex_format_sign:nnnnnnn \l__siunitx_complex_img_tl
   \tl_set:Nx \l__siunitx_complex_tmp_tl
     { \siunitx_number_output:NN \l__siunitx_complex_img_tl \q_nil }
  \exp_after:wN \__siunitx_complex_extract_exponent:w \l__siunitx_complex_tmp_tl \q_stop
   \tl_set:Nx \l__siunitx_complex_tmp_tl
     {
       \bool_lazy_or:nnTF
         {
           \bool_lazy_and_p:nn
             { \l_siunitx_number_bracket_ambiguous_bool }
             { ! \tl_if_empty_p:N \l__siunitx_complex_exp_tl }
         }
```

```
        {
          ! \bool_lazy_any_p:n
            {
              { \tl_if_blank_p:n {#1} }
              { \tl_if_empty_p:N \l__siunitx_complex_real_tl }
              { \tl_if_empty_p:N \l__siunitx_complex_img_tl }
            }
        }
        { \__siunitx_complex_format_bracket:n }
        { \use:n }
        {
          \siunitx_number_output:N \l__siunitx_complex_real_tl
          \exp_not:V \l__siunitx_complex_sign_tl
          \bool_if:NF \l__siunitx_complex_root_after_bool
            {
              \InlineClass{\LWR@siunitx@complexrootstyle}%    lwarp
                  {
                      \exp_not:V \l__siunitx_complex_output_root_tl
                  }
            }
           \exp_not:V \l__siunitx_complex_tmp_tl
          \bool_if:NT \l__siunitx_complex_root_after_bool
            {
              \InlineClass{\LWR@siunitx@complexrootstyle}%    lwarp
                  {
                      \exp_not:V \l__siunitx_complex_output_root_tl
                  }
            }
         }
       \exp_not:V \l__siunitx_complex_exp_tl
    }
}
```

{⟨*1: deg/min/sec character*⟩} {⟨*2: ?*⟩} {⟨*3: ?*⟩} {⟨*4: integer part of angle*⟩} {⟨*5: decimal point character*⟩} {⟨*6: decimal part of angle*⟩} {⟨*7: ?*⟩} {⟨*8: ?*⟩}

If not in a `lateximage`, print a simplified verison without the box measurement things which conflict with lwarp:

```
\cs_set_protected:Npn \__siunitx_angle_arc_print_auxii:nw
  #1#2 \q_nil #3 \q_nil #4 \q_nil #5 \q_nil #6 \q_nil #7 \q_nil #8 \q_stop
  {
    \mode_if_math:TF
      { \bool_set_true:N \l__siunitx_angle_tmp_bool }
      { \bool_set_false:N \l__siunitx_angle_tmp_bool }
    \siunitx_print_number:n {#2#3#4}
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%      lwarp
    {%                                                  lwarp
        \tl_if_blank:nTF {#6}
        { \__siunitx_angle_arc_print_auxvi:n {#1} }
        {
            \hbox_set:Nn \l__siunitx_angle_marker_box
            {
                \__siunitx_angle_arc_print_auxiii:n
                { \siunitx_print_number:n {#5} }
            }
            \hbox_set:Nn \l__siunitx_angle_unit_box
            {
                \__siunitx_angle_arc_print_auxiii:n
                {
```

```
                    \siunitx_unit_format:nN {#1} \l__siunitx_angle_tmp_tl
                    \siunitx_print_unit:V \l__siunitx_angle_tmp_tl
                    \skip_horizontal:n { -\scriptspace }
                }
            }
            \dim_compare:nNnTF { \box_wd:N \l__siunitx_angle_marker_box } >
            { \box_wd:N \l__siunitx_angle_unit_box }
            {
                \__siunitx_angle_arc_print_auxiv:NN
                \l__siunitx_angle_marker_box
                \l__siunitx_angle_unit_box
            }
            {
                \__siunitx_angle_arc_print_auxiv:NN
                \l__siunitx_angle_unit_box
                \l__siunitx_angle_marker_box
            }
            \hbox_set_to_wd:Nnn \l__siunitx_angle_marker_box
            \l__siunitx_angle_tmp_dim
            {
                \hbox_overlap_right:n
                { \box_use_drop:N \l__siunitx_angle_marker_box }
                \hbox_overlap_right:n
                { \box_use_drop:N \l__siunitx_angle_unit_box }
                \tex_hfil:D
            }
            \box_use:N \l__siunitx_angle_marker_box
            \skip_horizontal:N \scriptspace
            \siunitx_print_number:n {#6}
        }
    }%
```

{⟨*1: deg/min/sec character*⟩} {⟨*2: ?*⟩} {⟨*3: ?*⟩} {⟨*4: integer part of angle*⟩} {⟨*5: decimal point character*⟩} {⟨*6: decimal part of angle*⟩} {⟨*7: ?*⟩} {⟨*8: ?*⟩}

```
    {%          lwarp: not in a lateximage, simplify for HTML
        \tl_if_blank:nTF {#6}
        { \__siunitx_angle_arc_print_auxvi:n {#1} }
        {
            \__siunitx_angle_arc_print_auxiii:n
            {
                \siunitx_print_number:n {#5}
            }
            \__siunitx_angle_arc_print_auxiii:n
            {
                \siunitx_unit_format:nN {#1} \l__siunitx_angle_tmp_tl
                \siunitx_print_unit:V \l__siunitx_angle_tmp_tl
            }
            \siunitx_print_number:n {#6}
        }
    }%          lwarp
}
```

If not in a `lateximage`, print a simple inline fraction, avoiding the use of SVG math:

```
\cs_set_protected:Npn \__siunitx_print_text_fraction:Nnn #1#2#3
  {
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}% lwarp
    {%
      \ensuremath
```

```
      {
        #1
          { \mbox { \__siunitx_print_text_replace:n {#2} } }
          { \mbox { \__siunitx_print_text_replace:n {#3} } }
      }
    }%
    {%                                                              lwarp
          { \mbox { \__siunitx_print_text_replace:n {#2} } }%       lwarp
            /%                                                      lwarp
          { \mbox { \__siunitx_print_text_replace:n {#3} } }%       lwarp
    }%      lwarp
  }
```

If not in a `lateximage`, print a `\textsubscript`:

```
\cs_set_protected:Npn \__siunitx_unit_format_qualifier_subscript:
  {
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%      lwarp
    {%
        \__siunitx_unit_format_font:
        \tl_set:Nx \l__siunitx_unit_part_tl
        {
            \c__siunitx_unit_math_subscript_tl
            {
                \exp_not:V \l_siunitx_unit_font_tl
                { \exp_not:V \l__siunitx_unit_part_tl }
            }
        }
    }
    {%      lwarp simplified for HTML:
        \__siunitx_unit_format_font:
        \tl_set:Nx \l__siunitx_unit_part_tl
        {
            \textsubscript
            {
                \exp_not:V \l_siunitx_unit_font_tl
                { \exp_not:V \l__siunitx_unit_part_tl }
            }
        }
    }
  }

\cs_set_protected:Npn \siunitx_quantity:nn #1#2
  {
    \group_begin:
      \siunitx_unit_options_apply:n {#2}
      \tl_if_blank:nTF {#1}
        {
          \siunitx_unit_format:nN {#2} \l__siunitx_quantity_unit_tl
          \siunitx_print_unit:V \l__siunitx_quantity_unit_tl
        }
        {
          \bool_if:NTF \l_siunitx_number_parse_bool
            { \__siunitx_quantity_parsed:nn {#1} {#2} }
            {
              \tl_set:Nn \l__siunitx_quantity_number_tl {
                \LWR@subsingledollar{%                  lwarp
                    \textbackslash( % space
                    \LWR@HTMLsanitizedetokenized{%
                        \detokenize{#1}%
```

```
                    } \textbackslash)%                  lwarp
                }%
                {siunitx unparsed}%
                {\ensuremath{#1}}%                      lwarp
              }
              \siunitx_unit_format:nN {#2} \l__siunitx_quantity_unit_tl
              \siunitx_quantity_print:VV
               \l__siunitx_quantity_number_tl \l__siunitx_quantity_unit_tl
            }
        }
    \group_end:
  }
```

`\cancel` for HTML does not work yet.

```
\newcommand*{\LWR@siunitx@nocancel}[1]{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {\cancel{#1}}%  SVG
        {#1}%           HTML
}

\AtBeginDocument{
\__siunitx_unit_set_symbolic:Npnn \cancel
  { }
%   { \__siunitx_unit_parse_special:n { \cancel } }
  { \__siunitx_unit_parse_special:n { \LWR@siunitx@nocancel } }%    lwarp
}
```

For HTML, use a simple unaligned `\num`:

```
\newcommand{\LWR@HTML@tablenum}[2][]{\num[#1]{#2}}
\LWR@formatted{tablenum}
```

For HTML, the `S` column is simplified to a `c` column. Keys are set locally, allowing `drop-exponent`, etc.

```
\AtBeginDocument{
\HTMLnewcolumntype{S}[1][]{>{\begingroup\sisetup{#1}}c<{\endgroup}}
}
```

To define simplified units for HTML:

`\HTMLDeclareSIUnit` `[`⟨*options*⟩`]` `{`⟨*name*⟩`}` `{`⟨*definition*⟩`}`

```
\NewDocumentCommand{\HTMLDeclareSIUnit}{o +m m}
{
    \ifcsdef{ __siunitx_unit_ \token_to_str:N #2 :w }
        {}
        {
            \PackageError{lwarp}
                {%
                    First~use\MessageBreak
                        \space\space\protect\DeclareSIUnit{
                          \token_to_str:N#2}{...}\MessageBreak
                    before~using\MessageBreak
                        \space\space\protect\HTMLDeclareSIUnit{
                          \token_to_str:N#2}{...}%
                }
```

```
                {%
                    See~the~Lwarp~manual~section~about~special~cases,~
                    regarding~siunitx.%
                }
        }
    \csNewCommandCopycs
        { __orig_siunitx_unit_ \token_to_str:N #2 :w }
        { __siunitx_unit_ \token_to_str:N #2 :w }
    \DeclareSIUnit[#1]{#2}
        {
            \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}
                {\csuse{ __orig_siunitx_unit_ \token_to_str:N #2 :w }}
                {#3}
        }
}

\ExplSyntaxOff
```

HTML versions for existing units:

```
\AtBeginDocument{
\HTMLDeclareSIUnit\celsius{\LWR@siunitx@textcelsius}
\HTMLDeclareSIUnit\arcminute{\LWR@siunitx@textprime}
\HTMLDeclareSIUnit\arcsecond{\LWR@siunitx@textdblprime}
\HTMLDeclareSIUnit\elementarycharge{\textit{e}}
%
\HTMLDeclareSIUnit\clight{\text{\textit{c}\textsubscript{0}}}
\HTMLDeclareSIUnit\bohr{\text{\textit{a}\textsubscript{0}}}
\HTMLDeclareSIUnit\electronmass{\text{\textit{m}\textsubscript{e}}}
\HTMLDeclareSIUnit\hartree{\text{\textit{E}\textsubscript{h}}}
\HTMLDeclareSIUnit\planckbar{\LWR@siunitx@textplanckbar}
}% \AtBeginDocument
```

Initial options:

```
\AtBeginDocument{
\sisetup{
    per-mode=symbol,    % fraction is not seen by pdftotext
    angle-symbol-degree = {\LWR@siunitx@textdegree},
    angle-symbol-minute = {\LWR@siunitx@textprime} ,
    angle-symbol-second = {\LWR@siunitx@textdblprime} ,
}
}
```

Load late paches for lltjp-siunitx:

```
\AtBeginDocument{
\ifdef{\ltj@allalchar}
    {\LWR@origRequirePackage{lwarp-lltjp-siunitx}}
    {}
}
```

For MathJax:

```
\LWR@origRequirePackage{lwarp-common-mathjax-siunitx}

\CustomizeMathJax{\let\unit\si}
\CustomizeMathJax{\let\qty\SI}
\CustomizeMathJax{\let\qtylist\SIlist}
```

```
\CustomizeMathJax{\let\qtyrange\SIrange}
\CustomizeMathJax{\let\numproduct\num}
\CustomizeMathJax{\let\qtyproduct\SI}
\CustomizeMathJax{\let\complexnum\num}
\CustomizeMathJax{\newcommand{\complexqty}[3][]{(\complexnum{#2})\si{#3}}}
```

Pass `range-phrase` to common-mathjax-siunitx:

```
\ExplSyntaxOn
\AtBeginDocument{
\edef\LWR@siunitx@rangephrase{\l_siunitx_range_phrase_tl}
\expandafter\CustomizeMathJax\expandafter{%
    \expandafter\def\expandafter\LWRsiunitxrangephrase%
    \expandafter{\LWR@siunitx@rangephrase}%
}
}
\ExplSyntaxOff
```

File 453 **lwarp-siunitx-v2.sty**

§ 562 Package

siunitx-v2

(*Emulates or patches code by* Joseph Wright.)

Pkg siunitx-v2

siunitx-v2 is patched for use by lwarp, and is emulated for MathJax.

siunitx is well supported by lwarp.

Limitations Some general limitations:

fractions Due to *pdftotext* limitations, fraction output is replaced by symbol output for `per-mode` and `quotient-mode`.

`\cancel` is not currently supported for siunitx v3.

Negative values are not automatically colored.

⚠ tabular Tabular `S` and `s` columns are rendered as simple `c` columns, although key settings will be set. If using scientific notation, `table-format`, `table-align-uncertainty`, `drop-exponent`, etc.. use `\tablenum` for each cell. This is especially required for

⚠ drop-exponent `drop-exponent`, without which the value will be shown incorrectly.

⚠ table-auto-round `table-auto-round` is ignored.

Math rendering Math may be rendered in several ways in the same document:

For math mode with SVG display: The original siunitx code is used while generating the SVG image.

For HTML text mode: lwarp uses siunitx code patched for HTML, and simplified units.

For math expressions while using MathJax: A limited emulation is used. Most functions work reasonably well, but many options cannot be emulated. The result usually looks fine, and otherwise is enough to get the meaning across.

Custom units siunitx allows customized units:

`\DeclareSIUnit` `{`⟨*name*⟩`}` `{`⟨*definition*⟩`}`

`\DeclareSIUnit` declares a version of the unit for the print version. This is also used when the unit is printed in SVG math or a `lateximage`. It is also used for HTML if an HTML-specific version is not defined with `\HTMLDeclareSIUnit`.

```
\DeclareSIUnit\myunit{\ensuremath{\text{m}_y}}
```

`\HTMLDeclareSIUnit` `{`⟨*name*⟩`}` `{`⟨*definition*⟩`}`

⚠ v3 only! Use this after the print unit has been defined. For siunitx v3, `\HTMLDeclareSIUnit` declares a simplified version of the unit for HTML, for example if the print-mode unit uses TEX boxes or `\ensuremath`:

```
\HTMLDeclareSIUnit\myunit{\text{m}\textsubscript{\textit{y}}}
```

It is also possible to provide a custom unit for MathJax:

```
\CustomizeMathJax{\newcommand{\myunit}{\text{m}_y}}
```

Predefined units Most units work as-is with HTML. For the following units, lwarp has already set `\HTMLDeclareSIUnit`: `\celsius`, `\arcminute`, `\arcsecond`, `\elementarycharge`, `\clight`, `\bohr`, `\electronmass`, `\hartree`, `\planckbar`.

⚠ MathJax

Document modifications required for MathJax

⚠ `\sisetup`
- Place `\sisetup` in the preamble before `\begin{document}`. Changes made later may be ignored, especially with MathJax. The MathJax emulation also ignores most macro options.

⚠ complex numbers
- Complex numbers are displayed as entered, ignoring `output-complex-root`.

custom units
- Custom units may be added with `\CustomizeMathJax`. For example, from lwarp-common-mathjax-siunitx:

```
\CustomizeMathJax{\newcommand{\hartree}{\mathit{E}_{\mathrm{h}}}}
\CustomizeMathJax{\newcommand{\angstrom}{\mathrm{\unicode{x212B}}}}
```

⚠ unit spacing
- Units work better using ~ between units instead of using periods.

⚠ \square, \cubic

- To square or cube compound units, enclose the following compound units in braces:

  ```
  \cubic{\centi\meter}
  ```

  Single units do not require braces.

- For \numlist, the argument is printed as text as-is, so use space between semicolons for improved readability.

⚠ Missing $ inserted

- If using parse-numbers = false, also use \num or \qty. siunitx=siunitx>Missing $ inserted.

Also see MathJax option, section 8.7.4.

for HTML output:

```
\RequirePackage{xcolor}% for \convertcolorspec

\LWR@ProvidesPackagePass{siunitx}[=v2]% 2021-04-17


\AtBeginDocument{% in case textcomp was not loaded
    \DeclareSIUnit\bohr{\textit{a}\textsubscript{0}}
    \DeclareSIUnit\clight{\textit{c}\textsubscript{0}}
    \DeclareSIUnit\elementarycharge{\textit{e}}
    \DeclareSIUnit\electronmass{\textit{m}\textsubscript{e}}
    \DeclareSIUnit\hartree{\textit{E}\textsubscript{h}}
    \DeclareSIUnit\planckbar{\LWR@siunitx@textplanckbar}
}% AtBeginDocument
```

Support the S and s column types:

```
\AtBeginDocument{
\HTMLnewcolumntype{S}[1][]{>{\begingroup\sisetup{#1}}c<{\endgroup}}
\HTMLnewcolumntype{s}[1][]{>{\begingroup\sisetup{#1}}c<{\endgroup}}
}
```

\@ensuredmath is not supported inside an \hbox, so it must temporarily be restored to its original. Similar for \mbox. SVG math is created explicitly when necessary, using \LWR@subsingledollar.

```

\ExplSyntaxOn
%
```

Modified to use the print version of \@ensuredmath to avoid having a lateximage each time.

```
\AtBeginDocument{
\cs_set_protected:Npn \__siunitx_print_text:
  {
    \LetLtxMacro\@ensuredmath\LWR@origensuredmath%          lwarp
    \tl_replace_all:Nnn \l__siunitx_print_arg_tl { - }
      { \textminus }
    \__siunitx_print_text_aux:
    \tl_replace_all:Nnn \l__siunitx_print_arg_tl { \mp }
      { \ensuremath { \mp } }
    \tl_remove_all:Nn \l__siunitx_print_arg_tl { \mathord }
    \cs_set_eq:NN \PrintSubscript   \__siunitx_print_text_sub:n
    \cs_set_eq:NN \PrintSuperscript \__siunitx_print_text_super:n
    \__siunitx_print_text_aux:NnN
```

```
      _ { math_subscript }   \__siunitx_print_text_sub:n
      _ { active }           \__siunitx_print_text_sub:n
      ^ { math_superscript } \__siunitx_print_text_super:n
      ^ { active }           \__siunitx_print_text_super:n
      \q_recursion_tail ?  ?
      \q_recursion_stop
    \l__siunitx_print_arg_tl
  }
}
```

Modified to set set HTML `\textcolor` if not black:

```
\cs_new_protected:Npn \LWR@HTML@__siunitx_print_aux:
  {
    \text
      {
        \__siunitx_ensure_ltr:n
          {
            \color@begingroup
%
            \__siunitx_print_color:
            \__siunitx_font_shape:
            \__siunitx_font_weight:
            \use:c
              {
                __siunitx_ \l__siunitx_print_type_tl _
                text \l__siunitx_font_family_tl :
              }

%             \bool_if:NTF \l__siunitx_font_math_mode_bool
%               {
%                     \__siunitx_print_math:
%               }
                {
                     \LWR@findcurrenttextcolor% lwarp
                     \ifdefstring{\LWR@tempcolor}{000000}% lwarp
                         {\__siunitx_print_text:}% lwarp
                         {% lwarp
                             \LWR@textcurrentcolor{% lwarp
                                 \__siunitx_print_text:
                             }% lwarp
                         }% lwarp
                }
            \color@endgroup
%
          }
      }
  }
\LWR@formatted{__siunitx_print_aux:}

\cs_new_protected:Npn \LWR@HTML@__siunitx_set_math_fam:n #1 {
  \group_begin:
%     \LetLtxMacro\@ensuredmath\LWR@origensuredmath% lwarp
%     \LetLtxMacro\mbox\LWR@print@mbox% lwarp
%     \hbox_set:Nn \l__siunitx_tmp_box
%       {
        \ensuremath
          {
            \use:c { math #1 }
              {
```

```
                \int_const:cn { c__siunitx_math #1 _int } { \fam }
              }
          }
%       }
  \group_end:
}
\LWR@formatted{__siunitx_set_math_fam:n}

\cs_new_protected:Npn \LWR@HTML@__siunitx_combined_output:n #1 {
%
    \group_begin:% lwarp
  \bool_if:NTF \l__siunitx_number_parse_bool
    {
      \tl_clear:N \l__siunitx_number_out_tl
      \bool_set_false:N \l__siunitx_number_compound_bool
      \__siunitx_number_output_parse:n {#1}
    }
    {
```

For parse-numbers=false:

```
        \__siunitx_unit_output_pre_print:
        \begingroup%                              lwarp
            \boolfalse{mathjax}%                  lwarp
%       \__siunitx_print:nn { number } { \ensuremath {#1} }
            \LWR@subsingledollar%       lwarp
                {%  alt text
                    \textbackslash( % space
                    \LWR@HTMLsanitizedetokenized{%
                        \detokenize{#1}%
                    } \textbackslash)%            lwarp
                }
                {siunitx}%  addl hashing
                {%
                    \__siunitx_print:nn { number } {%
                        \LWR@origensuredmath{#1}%
                    }%
                }%                                lwarp
        \endgroup%                                lwarp
        \__siunitx_unit_output_print:
    }
   \group_end:% lwarp
%
}
\LWR@formatted{__siunitx_combined_output:n}
```

For parse-numbers=false:

```
\cs_new_protected:Npn \LWR@HTML@__siunitx_range_numbers_aux:n #1
  {
    \bool_if:NTF \l__siunitx_number_parse_bool
      {
        \tl_clear:N \l__siunitx_number_out_tl
        \tl_clear:N \l__siunitx_number_out_saved_tl
        \bool_set_false:N \l__siunitx_number_compound_bool
        \__siunitx_number_output_parse:n {#1}
        \bool_if:NT \l__siunitx_number_compound_bool
          { \msg_error:nnx { siunitx } { multi-part-range } {#1} }
      }
      {
```

```
        \__siunitx_unit_output_pre_print:
        \begingroup%    lwarp
            \boolfalse{mathjax}%                        lwarp
%           \__siunitx_print:nn { number } {#1}
                \LWR@subsingledollar%                   lwarp
                    {%  alt text
                        \textbackslash( % space
                        \LWR@HTMLsanitizedetokenized{%
                            \detokenize{#1}%
                        } \textbackslash)%              lwarp
                    }%
                    {siunitx}%  addl hashing
                    {%
                        \__siunitx_print:nn { number } {%
                            \LWR@origensuredmath{#1}%
                        } %                             lwarp
                    }%                                  lwarp
        \endgroup%                                      lwarp
        \__siunitx_unit_output_print:
      }
  }
\LWR@formatted{__siunitx_range_numbers_aux:n}
```

For `parse-numbers=false`:

```
\cs_new_protected:Npn \LWR@HTML@__siunitx_angle_print_direct_aux:nn #1#2 {
  \tl_if_empty:nF {#1}
    {
      \tl_set:Nn \l__siunitx_unit_tl {#2}
        \begingroup%                                    lwarp
            \boolfalse{mathjax}%                        lwarp
%           \__siunitx_print:nn { number } {#1}
                \LWR@subsingledollar{%                  lwarp
                    \textbackslash( % space
                    \LWR@HTMLsanitizedetokenized{%
                        \detokenize{#1}%
                    } \textbackslash)%                  lwarp
                }%
                {siunitx}%
                {%
                    \__siunitx_print:nn { number } {
                        \LWR@origensuredmath{#1}%
                    }%                                  lwarp
                }%                                      lwarp
        \endgroup%                                      lwarp
      \__siunitx_unit_output_print:
    }
}
\LWR@formatted{__siunitx_angle_print_direct_aux:nn}
%
```

For quotients, the fraction code is replaced by the symbol code:

```
\cs_new_protected:Npn \LWR@HTML@__siunitx_number_output_quotient_fraction: {
  \bool_set_true:N \l__siunitx_number_compound_bool
  \__siunitx_number_output_quotient_aux_i:
  \tl_set_eq:NN \l__siunitx_number_out_tl
    \l__siunitx_number_numerator_tl
 \tl_put_right:NV \l__siunitx_number_out_tl \l__siunitx_output_quotient_tl
  \tl_put_right:NV \l__siunitx_number_out_tl
```

```
    \l__siunitx_number_denominator_tl
  \__siunitx_number_output_single_aux:
}
\LWR@formatted{__siunitx_number_output_quotient_fraction:}
```

For units, the fraction code is replaced by the symbol code:

```
\cs_new_protected:Npn \LWR@HTML@__siunitx_unit_format_fraction_fraction: {
  \__siunitx_unit_format_fraction_symbol_aux:
  \int_compare:nNnT { \l__siunitx_unit_denominator_int } > { 1 }
    {
      \bool_if:NT \l__siunitx_unit_denominator_bracket_bool
        {
       \tl_put_left:NV \l__siunitx_unit_denominator_tl \l__siunitx_bracket_open_tl
       \tl_put_right:NV \l__siunitx_unit_denominator_tl \l__siunitx_bracket_close_tl
        }
    }
  \tl_set_eq:NN \l__siunitx_unit_tl \l__siunitx_unit_numerator_tl
  \tl_put_right:NV \l__siunitx_unit_tl \l__siunitx_per_symbol_tl
  \tl_put_right:NV \l__siunitx_unit_tl \l__siunitx_unit_denominator_tl
}
\LWR@formatted{__siunitx_unit_format_fraction_fraction:}


\cs_new_protected:Npn \LWR@HTML@__siunitx_angle_print_astronomy_aux: {
  \prop_get:NnNT \l__siunitx_number_out_prop { mantissa-integer }
    \l__siunitx_tmpa_tl
    { \__siunitx_print:nV { number } \l__siunitx_tmpa_tl }
 \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}% lwarp
 {% lateximage
  \hbox_set:Nn \l__siunitx_angle_marker_box
    {
      \__siunitx_print:nn { number } { { \l__siunitx_output_decimal_tl } }
    }
  \hbox_set:Nn \l__siunitx_angle_unit_box
    {
      \__siunitx_print:nV { unit } \l__siunitx_unit_tl
      \skip_horizontal:n { -\scriptspace }
    }
  \__siunitx_angle_print_astronomy_aux:n { marker }
  \__siunitx_angle_print_astronomy_aux:n { unit }
  \hbox_set:Nn \l__siunitx_angle_marker_box
    {
      \box_use:N \l__siunitx_angle_marker_box
      \box_use:N \l__siunitx_angle_unit_box
    }
  \dim_compare:nNnTF
    { \l__siunitx_angle_marker_dim } > { \l__siunitx_angle_unit_dim }
    { \__siunitx_angle_print_astronomy_marker: }
    { \__siunitx_angle_print_astronomy_unit: }
 }% lateximage
 {% not a lateximage
      \__siunitx_print:nn { number } { { \l__siunitx_output_decimal_tl } }
      \__siunitx_print:nV { unit } \l__siunitx_unit_tl
 }% not a lateximage
  \prop_get:NnNT \l__siunitx_number_out_prop { mantissa-decimal }
    \l__siunitx_tmpa_tl
    { \__siunitx_print:nV { number } \l__siunitx_tmpa_tl }
}
\LWR@formatted{__siunitx_angle_print_astronomy_aux:}
```

```
\cs_new_protected:Npn \LWR@HTML@__siunitx_textsuperscript:n #1 {\textsuperscript{#1}}
\LWR@formatted{__siunitx_textsuperscript:n}

\cs_new_eq:NN \LWR@HTML@__siunitx_print_text_super:n \textsuperscript
\LWR@formatted{__siunitx_print_text_super:n}

\cs_new_eq:NN \LWR@HTML@__siunitx_print_text_sub:n \textsubscript
\LWR@formatted{__siunitx_print_text_sub:n}
```

`\LWR@origenduresmath` is added here in case the user asks for `\mathrm`, etc. for `output-exponent-marker`.

```
\cs_new_protected:Npn \LWR@HTML@__siunitx_number_format_final_exponent: {
  \prop_get:NnN \l__siunitx_number_out_prop { exponent }
    \l__siunitx_tmpa_tl
  \tl_if_empty:NTF \l__siunitx_output_exponent_tl
    {
      \tl_set:Nx \l__siunitx_tmpa_tl
       { ^ { \exp_not:V \l__siunitx_tmpa_tl } }
      \tl_put_left:NV \l__siunitx_tmpa_tl \l__siunitx_exponent_base_tl
    }
    {
      \tl_set:Nx  \l__siunitx_tmpa_tl
        {
          \LWR@origensuredmath{%    lwarp
            \exp_not:V \l__siunitx_output_exponent_tl
          }%                        lwarp
          \exp_not:N \mathord
          \exp_not:V  \l__siunitx_tmpa_tl
        }
    }
  \prop_put:NnV \l__siunitx_number_out_prop { exponent-result }
    \l__siunitx_tmpa_tl
}
\LWR@formatted{__siunitx_number_format_final_exponent:}
```

`\LWR@origensuredmath` is added here to avoid using an image for the exponent product.

```
\cs_new_protected:Npn \LWR@HTML@__siunitx_number_format_final_combined: {
  \__siunitx_number_format_brackets:n { mantissa }
  \prop_get:NnN \l__siunitx_number_out_prop { mantissa-result }
    \l__siunitx_tmpa_tl
  \tl_if_empty:NT \l__siunitx_output_exponent_tl
    {
      \tl_put_right:Nx \l__siunitx_tmpa_tl
        {
          \exp_not:N \LWR@origensuredmath%       lwarp
            {
              \bool_if:NTF \l__siunitx_tight_bool
                { {  \exp_not:V \l__siunitx_exponent_product_tl } }
                { { } \exp_not:V \l__siunitx_exponent_product_tl { } }
            }
        }
    }
  \prop_get:NnN \l__siunitx_number_out_prop { exponent-result }
    \l__siunitx_tmpb_tl
  \tl_put_right:NV \l__siunitx_tmpa_tl \l__siunitx_tmpb_tl
  \prop_put:NnV \l__siunitx_number_out_prop { result }
```

```
    \l__siunitx_tmpa_tl
  \prop_put:Nnn \l__siunitx_number_out_prop
    { result-bracket-exponent } { true }
}
\LWR@formatted{__siunitx_number_format_final_combined:}
```

\LWR@origensuredmath is added here to avoid using an image for the exponent product.

```
\cs_new_protected:Npn \LWR@HTML@__siunitx_number_output_parts_aux: {
  \bool_if:NTF \l__siunitx_multi_repeat_bool
    {
      \prop_if_in:NnT \l__siunitx_number_out_prop { mantissa-result }
        {
          \__siunitx_number_output_parts_aux:n { mantissa }
          \__siunitx_number_output_parts_aux:n { complex }
        }
      \prop_get:NnNT \l__siunitx_number_out_prop { exponent-result }
        \l__siunitx_tmpa_tl
        {
          \prop_if_in:NnT \l__siunitx_number_out_prop { mantissa-result }
            {
              \tl_put_left:Nx \l__siunitx_tmpa_tl
                {
                  \exp_not:N \LWR@origensuredmath
                    {
                      \bool_if:NTF \l__siunitx_tight_bool
                        { {  \exp_not:V \l__siunitx_exponent_product_tl } }
                       { { } \exp_not:V \l__siunitx_exponent_product_tl { } }
                    }
                }
              \prop_put:NnV \l__siunitx_number_out_prop { exponent }
                \l__siunitx_tmpa_tl
            }
          \__siunitx_number_output_parts_print:n { exponent }
        }
    }
    { \__siunitx_number_output_single: }
}
\LWR@formatted{__siunitx_number_output_parts_aux:}
```

\LWR@origensuredmath is added here to avoid using an image for the exponent product.

```
\cs_new_protected:Npn \LWR@HTML@__siunitx_unit_output_print: {
  \int_compare:nNnF { \l__siunitx_unit_prefix_int } = { 0 }
    {
      \tl_set:Nx \l__siunitx_tmpa_tl
        {
          \bool_if:NTF \l__siunitx_tight_bool
            {
              \exp_not:N \LWR@origensuredmath%      lwarp
                { { \exp_not:V \l__siunitx_exponent_product_tl } }
            }
            {
              \exp_not:N \LWR@origensuredmath%      lwarp
                { { } \exp_not:V \l__siunitx_exponent_product_tl { } }
            }
          \int_use:N \l__siunitx_unit_prefix_base_int
          ^ { \int_use:N \l__siunitx_unit_prefix_int }
```

```
        }
      \__siunitx_print:nV { number } \l__siunitx_tmpa_tl
    }
  \tl_if_empty:NF \l__siunitx_unit_tl
    {
      \__siunitx_unit_output_number_sep:
      \__siunitx_print:nV { unit } \l__siunitx_unit_tl
    }
}
\LWR@formatted{__siunitx_unit_output_print:}
```

\LWR@origensuredmath is added here to avoid using an image for the exponent product.

```
\cs_new_protected:Npn \LWR@HTML@__siunitx_range_exponent:
  {
    \bool_if:NT \l__siunitx_process_fixed_bool
      {
        \tl_set_eq:NN \l__siunitx_tmpa_tl \l__siunitx_exponent_product_tl
        \bool_if:NT \l__siunitx_tight_bool
          {
            \tl_set:Nx \l__siunitx_tmpa_tl
              { \exp_not:N \mathord \exp_not:o \l__siunitx_tmpa_tl }
          }
        \tl_set:Nx \l__siunitx_tmpa_tl
          {
            \exp_not:N \LWR@origensuredmath {%      lwarp
                { } \exp_not:o \l__siunitx_tmpa_tl  { }
            }
            10 \exp_not:N \PrintSuperscript
              { \int_use:N \l__siunitx_process_fixed_int }
          }
        \__siunitx_print:nV { number } \l__siunitx_tmpa_tl
      }
  }
\LWR@formatted{__siunitx_range_exponent:}
```

\LWR@origensuredmath is added here to avoid using an image for the exponent product.

```
\cs_new_protected:Npn \LWR@HTML@__siunitx_table_print_S_reserved_exponent_product:
  {
    \tl_set_eq:NN \l__siunitx_tmpb_tl \l__siunitx_exponent_product_tl
    \bool_if:NT \l__siunitx_tight_bool
      {
        \tl_set:Nx \l__siunitx_tmpb_tl
          { \exp_not:N \mathord \exp_not:o \l__siunitx_tmpb_tl }
      }
    \tl_set:Nx \l__siunitx_tmpa_tl
      {
     \exp_not:N \LWR@origensuredmath { { } \exp_not:o \l__siunitx_tmpb_tl  { } }
        \exp_not:o \l__siunitx_tmpa_tl
      }
  }
\LWR@formatted{__siunitx_table_print_S_reserved_exponent_product:}
```

\LWR@origensuredmath is added here to avoid using an image for the output product.

```
\cs_new_protected:Npn \LWR@HTML@__siunitx_number_output_product_aux: {
  \bool_set_true:N \l__siunitx_number_compound_bool
  \__siunitx_number_preprocess:V \l__siunitx_number_arg_tl
  \bool_if:NF \l__siunitx_error_bool
    {
      \tl_if_empty:NTF \l__siunitx_number_multi_tl
        { \__siunitx_number_output_parse_aux: }
        { \__siunitx_number_output_quotient: }
      \tl_if_empty:NF \l__siunitx_number_next_tl
        {
          \bool_if:NTF \l__siunitx_tight_bool
            {
              \__siunitx_print:nn { number }
                { \LWR@origensuredmath { \l__siunitx_output_product_tl } }
            }
            {
              \__siunitx_print:nn  { number }
           { \LWR@origensuredmath { { } \l__siunitx_output_product_tl { } } }
            }
          \__siunitx_number_output_parse:V \l__siunitx_number_next_tl
        }
    }
}
\LWR@formatted{__siunitx_number_output_product_aux:}
```

Used to detect the math font.

```
\cs_set_protected:Npn \__siunitx_set_math_fam:n #1 {
  \group_begin:
    \hbox_set:Nn \l__siunitx_tmp_box
      {
        \LWR@origensuredmath%       lwarp
          {
            \use:c { math #1 }
              {
                \int_const:cn { c__siunitx_math #1 _int } { \fam }
              }
          }
      }
  \group_end:
}
```

Force \text:

```
\cs_set_protected:Npn \__siunitx_range_numbers:nn #1#2
  {
    \__siunitx_range_numbers_aux:n {#1}
    \text{\l__siunitx_range_phrase_tl}%     lwarp
    \__siunitx_range_numbers_aux:n {#2}
  }
```

Force \text:

```
\cs_set_protected:Npn \__siunitx_range_unit:nnnn #1#2#3#4 {
  \__siunitx_unit_parse_options:nn {#1} {#2}
  \bool_if:NTF \l__siunitx_range_repeat_bool
    {
      \__siunitx_unit_in:nn {#1} {#2}
      \__siunitx_range_numbers_aux:n {#3}
      \text{\l__siunitx_range_phrase_tl}%       lwarp
```

```
      \__siunitx_range_numbers_aux:n {#4}
    }
    {
      \bool_if:NT \l__siunitx_process_fixed_bool
        { \bool_set_true:N \l__siunitx_process_drop_exponent_bool }
      \bool_if:NT \l__siunitx_range_brackets_bool
        { \__siunitx_print:nV { number } \l__siunitx_bracket_open_tl }
      \__siunitx_range_numbers:nn {#3} {#4}
      \bool_if:NT \l__siunitx_range_brackets_bool
        { \__siunitx_print:nV { number } \l__siunitx_bracket_close_tl }
      \__siunitx_range_exponent:
      \__siunitx_unit_output_number_sep:
      \__siunitx_unit_output:nn {#1} {#2}
    }
}
\ExplSyntaxOff

\AtBeginDocument{
\sisetup{
    detect-mode=true,
    per-mode=symbol,    % fraction is not seen by pdftotext
    text-celsius = {\LWR@siunitx@textcelsius},
    text-degree = {\LWR@siunitx@textdegree},
    text-arcminute = {\LWR@siunitx@textprime} ,
    text-arcsecond = {\LWR@siunitx@textdblprime} ,
}
}

\LWR@origRequirePackage{lwarp-common-mathjax-siunitx}
```

Passing `range-phrase` to common-mathjax-siunitx does not seem to work with v2 using translator as it does with v3 using translations. The `range-phrase` therefore is set to an en-dash.

```
\AtBeginDocument{
\CustomizeMathJax{\def\LWRsiunitxrangephrase{\unicode{x2013}}}
}
```

File 454 **lwarp-common-mathjax-siunitx.sty**

§ 563 Package

common-mathjax-siunitx

(*Emulates or patches code by* Joseph Wright.)

Pkg `common-mathjax-siunitx`

common-mathjax-siunitx adds MathJax for siunitx and siunitx-v2.

for HTML output: MathJax

For MathJax.

The following runs much faster as separate `\CusomizeMathJax` calls instead of one single call.

```
\begin{warpMathJax}
\LWR@infoprocessingmathjax{siunitx}

\CustomizeMathJax{\newcommand{\tothe}[1]{^{#1}}}
\CustomizeMathJax{\newcommand{\raiseto}[2]{{#2}^{#1}}}
```

Used as an end marker when parsing values:

```
\CustomizeMathJax{\newcommand{\LWRsiunitxEND}{}}
```

\ang [⟨*options*⟩] {⟨*value*⟩}

```
\CustomizeMathJax{\def\LWRsiunitxang#1;#2;#3;#4\LWRsiunitxEND{%
    \ifblank{#1}{}{\num{#1}\degree}%
    \ifblank{#2}{}{\num{#2}^{\unicode{x2032}}}% \prime
    \ifblank{#3}{}{\num{#3}^{\unicode{x2033}}}% \dblprime
}}
\CustomizeMathJax{\newcommand{\ang}[2][]{\LWRsiunitxang#2;;;\LWRsiunitxEND}}
```

\num [⟨*options*⟩] {⟨*value*⟩}

\num handles optional powers (e, E, d, D), multiples (x), plus and minus, and period or comma decimal output.

To split the string, \def is used with parameter delimiters. When each of the following macros is used, extra delimiters are padded to the end of the arguments of each macro when used, and the final argument of each collects any extra unused delimiters.

The number is split by dimensions (x), then by powers (E, e, D, d), then by plus / minus (+-, \pm), then by plus and minus (+, -), then into pieces before and after the decimal point or decimal comma.

Determine if the number is output with a decimal period or a decimal comma. The enclosing braces tell MathJax to not add extra space after the punctuation.

```
\ExplSyntaxOn
\AtBeginDocument{
\ifdefstring{\l__siunitx_output_decimal_tl}{{,}}
    {\CustomizeMathJax{\def\LWRsiunitxdecimal{,}}}
    {\CustomizeMathJax{\def\LWRsiunitxdecimal{.}}}
}
\ExplSyntaxOff
```

Any units which must be distributed across multiple dimensions:

```
\CustomizeMathJax{\def\LWRsiunitxdistribunit{}}
```

siunitx accepts either commas or periods as decimal points. \LWRsiunitxprintdecimal splits its input by periods then commas, parsing out before and after sections to print on either side of the decimal point.

\LWRsiunitxENDTWO is used only by \LWRsiunitxprintdecimalsubtwo, to avoid a parsing conflict with the more widely-used \LWRsiunitxEND.

The following splits by decimal commas:

```
\CustomizeMathJax{\newcommand{\LWRsiunitxENDTWO}{}}

\CustomizeMathJax{\def\LWRsiunitxprintdecimalsubtwo#1,#2,#3\LWRsiunitxENDTWO{%
```

If nothing is ahead of the decimal comma, add a leading zero:

```
    \ifblank{#1}{0}{\mathrm{#1}}%
```

If something is after the decimal comma, print the decimal and the fraction:

```
    \ifblank{#2}%
        {}%
        {%
            {\LWRsiunitxdecimal}%
```

```
            \mathrm{#2}%
        }%
}}
```

The following splits by decimal periods:

```
\CustomizeMathJax{\def\LWRsiunitxprintdecimalsub#1.#2.#3\LWRsiunitxEND{%
    \LWRsiunitxprintdecimalsubtwo#1,,\LWRsiunitxENDTWO%
    \ifblank{#2}%
        {}%
        {%
            {\LWRsiunitxdecimal}%
            \LWRsiunitxprintdecimalsubtwo#2,,\LWRsiunitxENDTWO%
        }%
}}

\CustomizeMathJax{\newcommand{\LWRsiunitxprintdecimal}[1]{%
    \LWRsiunitxprintdecimalsub#1...\LWRsiunitxEND%
}}
```

The following splits by +

```
\CustomizeMathJax{\def\LWRsiunitxnumplus#1+#2+#3\LWRsiunitxEND{%
    \ifblank{#2}%
        {%
            \LWRsiunitxprintdecimal{#1}%
        }% no plus
        {%
            \ifblank{#1}%
                {\LWRsiunitxprintdecimal{#2}}% leading plus, ignore
                {% a+b
                    \LWRsiunitxprintdecimal{#1}%
                    \unicode{x02B}% plus sign
                    \LWRsiunitxprintdecimal{#2}%
                }%
        }%
    \LWRsiunitxdistribunit%
}}
```

The following splits by -

```
\CustomizeMathJax{\def\LWRsiunitxnumminus#1-#2-#3\LWRsiunitxEND{%
    \ifblank{#2}%
        {\LWRsiunitxnumplus#1+++\LWRsiunitxEND}%
        {%
            \ifblank{#1}{}{\LWRsiunitxprintdecimal{#1}}%
            \unicode{x02212}% mathematical minus sign
            \LWRsiunitxprintdecimal{#2}%
            \LWRsiunitxdistribunit%
        }%
}}
```

The following splits by \pm

```
\CustomizeMathJax{\def\LWRsiunitxnumpmmacro#1\pm#2\pm#3\LWRsiunitxEND{%
    \ifblank{#2}%
        {\LWRsiunitxnumminus#1---\LWRsiunitxEND}%
        {%
            \LWRsiunitxprintdecimal{#1}%
            \unicode{x0B1}% \pm
            \LWRsiunitxprintdecimal{#2}%
            \LWRsiunitxdistribunit%
        }%
}}
```

The following splits by +-

```
\CustomizeMathJax{\def\LWRsiunitxnumpm#1+-#2+-#3\LWRsiunitxEND{%
    \ifblank{#2}%
        {\LWRsiunitxnumpmmacro#1\pm\pm\pm\LWRsiunitxEND}%
        {%
            \LWRsiunitxprintdecimal{#1}%
            \unicode{x0B1}% \pm
            \LWRsiunitxprintdecimal{#2}%
            \LWRsiunitxdistribunit%
        }%
}}
```

Processes scientific notation. Special handling for a mantissa which is either empty or only a minus sign.

```
\CustomizeMathJax{\newcommand{\LWRsiunitxnumscientific}[2]{%
    \ifblank{#1}%
        {}%
        {%
            \ifstrequal{#1}{-}%
                {-}%
                {\LWRsiunitxprintdecimal{#1}\times}%
        }%
    10^{\LWRsiunitxprintdecimal{#2}}%
    \LWRsiunitxdistribunit%
}}
```

The following splits by D

```
\CustomizeMathJax{\def\LWRsiunitxnumD#1D#2D#3\LWRsiunitxEND{%
    \ifblank{#2}%
        {\LWRsiunitxnumpm#1+-+-\LWRsiunitxEND}%
        {\mathrm{\LWRsiunitxnumscientific{#1}{#2}}}%
}}
```

The following splits by d

```
\CustomizeMathJax{\def\LWRsiunitxnumd#1d#2d#3\LWRsiunitxEND{%
    \ifblank{#2}%
        {\LWRsiunitxnumD#1DDD\LWRsiunitxEND}%
        {\mathrm{\LWRsiunitxnumscientific{#1}{#2}}}%
}}
```

The following splits by E

```
\CustomizeMathJax{\def\LWRsiunitxnumE#1E#2E#3\LWRsiunitxEND{%
    \ifblank{#2}%
        {\LWRsiunitxnumd#1ddd\LWRsiunitxEND}%
        {\mathrm{\LWRsiunitxnumscientific{#1}{#2}}}%
}}
```

The following splits by e

```
\CustomizeMathJax{\def\LWRsiunitxnume#1e#2e#3\LWRsiunitxEND{%
    \ifblank{#2}%
        {\LWRsiunitxnumE#1EEE\LWRsiunitxEND}%
        {\mathrm{\LWRsiunitxnumscientific{#1}{#2}}}%
}}
```

The following splits by x

```
\CustomizeMathJax{\def\LWRsiunitxnumx#1x#2x#3x#4\LWRsiunitxEND{%
    \ifblank{#2}%
        {\LWRsiunitxnume#1eee\LWRsiunitxEND}%
```

```
        {%
            \ifblank{#3}%
                {%
                    \LWRsiunitxnume#1eee\LWRsiunitxEND%
                    \times%
                    \LWRsiunitxnume#2eee\LWRsiunitxEND%
                }%
                {%
                    \LWRsiunitxnume#1eee\LWRsiunitxEND%
                    \times%
                    \LWRsiunitxnume#2eee\LWRsiunitxEND%
                    \times%
                    \LWRsiunitxnume#3eee\LWRsiunitxEND%
                }%
        }%
}}

\CustomizeMathJax{\newcommand{\num}[2][]{%
    \LWRsiunitxnumx#2xxxxx\LWRsiunitxEND%
}}
```

\si [⟨*options*⟩] {⟨*unit*⟩}

~ is converted to a thin space. Not able to convert period to thin space because the period might be in \raiseto, for example.

```
\CustomizeMathJax{\newcommand{\si}[2][]{%
    \mathrm{\gsubstitute{#2}{~}{\,}}%
}}
```

\SI [⟨*options*⟩] {⟨*value*⟩} [⟨*prefix*⟩] {⟨*unit*⟩}

\SI has a second optional arg, which is parsed using \ifnextchar.

```
\CustomizeMathJax{\def\LWRsiunitxSIopt#1[#2]#3{%
    \def\LWRsiunitxdistribunit{\,\si{#3}}%
    {#2}\num{#1}%
    \def\LWRsiunitxdistribunit{}%
}}

\CustomizeMathJax{\newcommand{\LWRsiunitxSI}[2]{%
    \def\LWRsiunitxdistribunit{\,\si{#2}}%
    \num{#1}%
    \def\LWRsiunitxdistribunit{}%
}}

\CustomizeMathJax{\newcommand{\SI}[2][]{%
    \ifnextchar[%
        {\LWRsiunitxSIopt{#2}}%
        {\LWRsiunitxSI{#2}}%
}}
```

\numlist [⟨*options*⟩] {⟨*list*⟩}

\numlist should only be used in text mode. If used in MathJax, it is merely printed as text, so add space around the semicolons.

```
\CustomizeMathJax{\newcommand{\numlist}[2][]{\text{#2}}}
```

\numrange [⟨*options*⟩] {⟨*value1*⟩} {⟨*value2*⟩}

\numrange should only be used in text mode. If used in MathJax math, an en-dash is used instead of the range-phrase.

```
\CustomizeMathJax{\newcommand{\numrange}[3][]{%
    \num{#2}\ \LWRsiunitxrangephrase\ \num{#3}%
}}
```

\SIlist [⟨*options*⟩] {⟨*list*⟩}

\SIlist and \SIrange should only be used in text mode. If used in MathJax, a simple emulation is provided.

```
\CustomizeMathJax{\newcommand{\SIlist}[3][]{\text{#2}\,\si{#3}}}
```

\SIrange [⟨*options*⟩] {⟨*value1*⟩} {⟨*value2*⟩} {⟨*unit*⟩}

```
\CustomizeMathJax{\newcommand{\SIrange}[4][]{%
    \num{#2}\,#4\ \LWRsiunitxrangephrase\ \num{#3}\,#4%
}}
```

\tablenum [⟨*options*⟩] {⟨*value*⟩}

```
\CustomizeMathJax{\newcommand{\tablenum}[2][]{\mathrm{#2}}}
```

```
\CustomizeMathJax{\newcommand{\ampere}{\mathrm{A}}}
\CustomizeMathJax{\newcommand{\candela}{\mathrm{cd}}}
\CustomizeMathJax{\newcommand{\kelvin}{\mathrm{K}}}
\CustomizeMathJax{\newcommand{\kilogram}{\mathrm{kg}}}
\CustomizeMathJax{\newcommand{\metre}{\mathrm{m}}}
\CustomizeMathJax{\newcommand{\mole}{\mathrm{mol}}}
\CustomizeMathJax{\newcommand{\second}{\mathrm{s}}}
%
\CustomizeMathJax{\newcommand{\becquerel}{\mathrm{Bq}}}
\CustomizeMathJax{\newcommand{\degreeCelsius}{\unicode{x2103}}}
\CustomizeMathJax{\newcommand{\coulomb}{\mathrm{C}}}
\CustomizeMathJax{\newcommand{\farad}{\mathrm{F}}}
\CustomizeMathJax{\newcommand{\gray}{\mathrm{Gy}}}
\CustomizeMathJax{\newcommand{\hertz}{\mathrm{Hz}}}
\CustomizeMathJax{\newcommand{\henry}{\mathrm{H}}}
\CustomizeMathJax{\newcommand{\joule}{\mathrm{J}}}
\CustomizeMathJax{\newcommand{\katal}{\mathrm{kat}}}
\CustomizeMathJax{\newcommand{\lumen}{\mathrm{lm}}}
\CustomizeMathJax{\newcommand{\lux}{\mathrm{lx}}}
\CustomizeMathJax{\newcommand{\newton}{\mathrm{N}}}
\CustomizeMathJax{\newcommand{\ohm}{\mathrm{\Omega}}}
\CustomizeMathJax{\newcommand{\pascal}{\mathrm{Pa}}}
\CustomizeMathJax{\newcommand{\radian}{\mathrm{rad}}}
\CustomizeMathJax{\newcommand{\siemens}{\mathrm{S}}}
\CustomizeMathJax{\newcommand{\sievert}{\mathrm{Sv}}}
\CustomizeMathJax{\newcommand{\steradian}{\mathrm{sr}}}
\CustomizeMathJax{\newcommand{\tesla}{\mathrm{T}}}
\CustomizeMathJax{\newcommand{\volt}{\mathrm{V}}}
\CustomizeMathJax{\newcommand{\watt}{\mathrm{W}}}
\CustomizeMathJax{\newcommand{\weber}{\mathrm{Wb}}}
\CustomizeMathJax{\newcommand{\day}{\mathrm{d}}}
\CustomizeMathJax{\newcommand{\degree}{\mathrm{^\circ}}}
\CustomizeMathJax{\newcommand{\hectare}{\mathrm{ha}}}
\CustomizeMathJax{\newcommand{\hour}{\mathrm{h}}}
\CustomizeMathJax{\newcommand{\litre}{\mathrm{l}}}
\CustomizeMathJax{\newcommand{\liter}{\mathrm{L}}}
```

```
\CustomizeMathJax{\newcommand{\arcminute}{^\prime}}
\CustomizeMathJax{\newcommand{\minute}{\mathrm{min}}}
\CustomizeMathJax{\newcommand{\arcsecond}{^{\prime\prime}}}
\CustomizeMathJax{\newcommand{\tonne}{\mathrm{t}}}
\CustomizeMathJax{\newcommand{\astronomicalunit}{au}}
\CustomizeMathJax{\newcommand{\atomicmassunit}{u}}
\CustomizeMathJax{\newcommand{\bohr}{\mathit{a}_0}}
\CustomizeMathJax{\newcommand{\clight}{\mathit{c}_0}}
\CustomizeMathJax{\newcommand{\dalton}{\mathrm{D}_\mathrm{a}}}
\CustomizeMathJax{\newcommand{\electronmass}{\mathit{m}_{\mathrm{e}}}}
\CustomizeMathJax{\newcommand{\electronvolt}{\mathrm{eV}}}
\CustomizeMathJax{\newcommand{\elementarycharge}{\mathit{e}}}
\CustomizeMathJax{\newcommand{\hartree}{\mathit{E}_{\mathrm{h}}}}
\CustomizeMathJax{\newcommand{\planckbar}{\mathit{\unicode{x210F}}}}
\CustomizeMathJax{\newcommand{\angstrom}{\mathrm{\unicode{x212B}}}}
\CustomizeMathJax{\let\LWRorigbar\bar}
\CustomizeMathJax{\newcommand{\bar}{\mathrm{bar}}}
\CustomizeMathJax{\newcommand{\barn}{\mathrm{b}}}
\CustomizeMathJax{\newcommand{\bel}{\mathrm{B}}}
\CustomizeMathJax{\newcommand{\decibel}{\mathrm{dB}}}
\CustomizeMathJax{\newcommand{\knot}{\mathrm{kn}}}
\CustomizeMathJax{\newcommand{\mmHg}{\mathrm{mmHg}}}
\CustomizeMathJax{\newcommand{\nauticalmile}{\mathrm{M}}}
\CustomizeMathJax{\newcommand{\neper}{\mathrm{Np}}}
%
\CustomizeMathJax{\newcommand{\yocto}{\mathrm{y}}}
\CustomizeMathJax{\newcommand{\zepto}{\mathrm{z}}}
\CustomizeMathJax{\newcommand{\atto}{\mathrm{a}}}
\CustomizeMathJax{\newcommand{\femto}{\mathrm{f}}}
\CustomizeMathJax{\newcommand{\pico}{\mathrm{p}}}
\CustomizeMathJax{\newcommand{\nano}{\mathrm{n}}}
\CustomizeMathJax{\newcommand{\micro}{\mathrm{\unicode{x00B5}}}}
\CustomizeMathJax{\newcommand{\milli}{\mathrm{m}}}
\CustomizeMathJax{\newcommand{\centi}{\mathrm{c}}}
\CustomizeMathJax{\newcommand{\deci}{\mathrm{d}}}
\CustomizeMathJax{\newcommand{\deca}{\mathrm{da}}}
\CustomizeMathJax{\newcommand{\hecto}{\mathrm{h}}}
\CustomizeMathJax{\newcommand{\kilo}{\mathrm{k}}}
\CustomizeMathJax{\newcommand{\mega}{\mathrm{M}}}
\CustomizeMathJax{\newcommand{\giga}{\mathrm{G}}}
\CustomizeMathJax{\newcommand{\tera}{\mathrm{T}}}
\CustomizeMathJax{\newcommand{\peta}{\mathrm{P}}}
\CustomizeMathJax{\newcommand{\exa}{\mathrm{E}}}
\CustomizeMathJax{\newcommand{\zetta}{\mathrm{Z}}}
\CustomizeMathJax{\newcommand{\yotta}{\mathrm{Y}}}
%
\CustomizeMathJax{\newcommand{\percent}{\mathrm{\%}}}
%
\CustomizeMathJax{\newcommand{\meter}{\mathrm{m}}}
\CustomizeMathJax{\newcommand{\metre}{\mathrm{m}}}
%
\CustomizeMathJax{\newcommand{\gram}{\mathrm{g}}}
\CustomizeMathJax{\newcommand{\kg}{\kilo\gram}}
\CustomizeMathJax{\newcommand{\of}[1]{_{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\squared}{^2}}
\CustomizeMathJax{\newcommand{\square}[1]{\mathrm{#1}^2}}
\CustomizeMathJax{\newcommand{\cubed}{^3}}
\CustomizeMathJax{\newcommand{\cubic}[1]{\mathrm{#1}^3}}

\CustomizeMathJax{\newcommand{\per}{\,\mathrm{/}}}
```

```
\CustomizeMathJax{\newcommand{\celsius}{\unicode{x2103}}}
%
\CustomizeMathJax{\newcommand{\fg}{\femto\gram}}
\CustomizeMathJax{\newcommand{\pg}{\pico\gram}}
\CustomizeMathJax{\newcommand{\ng}{\nano\gram}}
\CustomizeMathJax{\newcommand{\ug}{\micro\gram}}
\CustomizeMathJax{\newcommand{\mg}{\milli\gram}}
\CustomizeMathJax{\newcommand{\g}{\gram}}
\CustomizeMathJax{\newcommand{\kg}{\kilo\gram}}
%
\CustomizeMathJax{\newcommand{\amu}{\mathrm{u}}}
%
\CustomizeMathJax{\newcommand{\pm}{\pico\metre}}
\CustomizeMathJax{\newcommand{\nm}{\nano\metre}}
\CustomizeMathJax{\newcommand{\um}{\micro\metre}}
\CustomizeMathJax{\newcommand{\mm}{\milli\metre}}
\CustomizeMathJax{\newcommand{\cm}{\centi\metre}}
\CustomizeMathJax{\newcommand{\dm}{\deci\metre}}
\CustomizeMathJax{\newcommand{\m}{\metre}}
\CustomizeMathJax{\newcommand{\km}{\kilo\metre}}
%
\CustomizeMathJax{\newcommand{\as}{\atto\second}}
\CustomizeMathJax{\newcommand{\fs}{\femto\second}}
\CustomizeMathJax{\newcommand{\ps}{\pico\second}}
\CustomizeMathJax{\newcommand{\ns}{\nano\second}}
\CustomizeMathJax{\newcommand{\us}{\micro\second}}
\CustomizeMathJax{\newcommand{\ms}{\milli\second}}
\CustomizeMathJax{\newcommand{\s}{\second}}
%
\CustomizeMathJax{\newcommand{\fmol}{\femto\mol}}
\CustomizeMathJax{\newcommand{\pmol}{\pico\mol}}
\CustomizeMathJax{\newcommand{\nmol}{\nano\mol}}
\CustomizeMathJax{\newcommand{\umol}{\micro\mol}}
\CustomizeMathJax{\newcommand{\mmol}{\milli\mol}}
\CustomizeMathJax{\newcommand{\mol}{\mol}}
\CustomizeMathJax{\newcommand{\kmol}{\kilo\mol}}
%
\CustomizeMathJax{\newcommand{\pA}{\pico\ampere}}
\CustomizeMathJax{\newcommand{\nA}{\nano\ampere}}
\CustomizeMathJax{\newcommand{\uA}{\micro\ampere}}
\CustomizeMathJax{\newcommand{\mA}{\milli\ampere}}
\CustomizeMathJax{\newcommand{\A}{\ampere}}
\CustomizeMathJax{\newcommand{\kA}{\kilo\ampere}}
%
\CustomizeMathJax{\newcommand{\ul}{\micro\litre}}
\CustomizeMathJax{\newcommand{\ml}{\milli\litre}}
\CustomizeMathJax{\newcommand{\l}{\litre}}
\CustomizeMathJax{\newcommand{\hl}{\hecto\litre}}
\CustomizeMathJax{\newcommand{\uL}{\micro\liter}}
\CustomizeMathJax{\newcommand{\mL}{\milli\liter}}
\CustomizeMathJax{\newcommand{\L}{\liter}}
\CustomizeMathJax{\newcommand{\hL}{\hecto\liter}}
%
\CustomizeMathJax{\newcommand{\mHz}{\milli\hertz}}
\CustomizeMathJax{\newcommand{\Hz}{\hertz}}
\CustomizeMathJax{\newcommand{\kHz}{\kilo\hertz}}
\CustomizeMathJax{\newcommand{\MHz}{\mega\hertz}}
\CustomizeMathJax{\newcommand{\GHz}{\giga\hertz}}
\CustomizeMathJax{\newcommand{\THz}{\tera\hertz}}
%
```

```
\CustomizeMathJax{\newcommand{\mN}{\milli\newton}}
\CustomizeMathJax{\newcommand{\N}{\newton}}
\CustomizeMathJax{\newcommand{\kN}{\kilo\newton}}
\CustomizeMathJax{\newcommand{\MN}{\mega\newton}}
%
\CustomizeMathJax{\newcommand{\Pa}{\pascal}}
\CustomizeMathJax{\newcommand{\kPa}{\kilo\pascal}}
\CustomizeMathJax{\newcommand{\MPa}{\mega\pascal}}
\CustomizeMathJax{\newcommand{\GPa}{\giga\pascal}}
%
\CustomizeMathJax{\newcommand{\mohm}{\milli\ohm}}
\CustomizeMathJax{\newcommand{\kohm}{\kilo\ohm}}
\CustomizeMathJax{\newcommand{\Mohm}{\mega\ohm}}
%
\CustomizeMathJax{\newcommand{\pV}{\pico\volt}}
\CustomizeMathJax{\newcommand{\nV}{\nano\volt}}
\CustomizeMathJax{\newcommand{\uV}{\micro\volt}}
\CustomizeMathJax{\newcommand{\mV}{\milli\volt}}
\CustomizeMathJax{\newcommand{\V}{\volt}}
\CustomizeMathJax{\newcommand{\kV}{\kilo\volt}}
%
\CustomizeMathJax{\newcommand{\W}{\watt}}
\CustomizeMathJax{\newcommand{\uW}{\micro\watt}}
\CustomizeMathJax{\newcommand{\mW}{\milli\watt}}
\CustomizeMathJax{\newcommand{\kW}{\kilo\watt}}
\CustomizeMathJax{\newcommand{\MW}{\mega\watt}}
\CustomizeMathJax{\newcommand{\GW}{\giga\watt}}
%
\CustomizeMathJax{\newcommand{\J}{\joule}}
\CustomizeMathJax{\newcommand{\uJ}{\micro\joule}}
\CustomizeMathJax{\newcommand{\mJ}{\milli\joule}}
\CustomizeMathJax{\newcommand{\kJ}{\kilo\joule}}
%
\CustomizeMathJax{\newcommand{\eV}{\electronvolt}}
\CustomizeMathJax{\newcommand{\meV}{\milli\electronvolt}}
\CustomizeMathJax{\newcommand{\keV}{\kilo\electronvolt}}
\CustomizeMathJax{\newcommand{\MeV}{\mega\electronvolt}}
\CustomizeMathJax{\newcommand{\GeV}{\giga\electronvolt}}
\CustomizeMathJax{\newcommand{\TeV}{\tera\electronvolt}}
%
\CustomizeMathJax{\newcommand{\kWh}{\kilo\watt\hour}}
%
\CustomizeMathJax{\newcommand{\F}{\farad}}
\CustomizeMathJax{\newcommand{\fF}{\femto\farad}}
\CustomizeMathJax{\newcommand{\pF}{\pico\farad}}
%
\CustomizeMathJax{\newcommand{\K}{\mathrm{K}}}
%
\CustomizeMathJax{\newcommand{\dB}{\mathrm{dB}}}
%
\CustomizeMathJax{\newcommand{\kibi}{\mathrm{Ki}}}
\CustomizeMathJax{\newcommand{\mebi}{\mathrm{Mi}}}
\CustomizeMathJax{\newcommand{\gibi}{\mathrm{Gi}}}
\CustomizeMathJax{\newcommand{\tebi}{\mathrm{Ti}}}
\CustomizeMathJax{\newcommand{\pebi}{\mathrm{Pi}}}
\CustomizeMathJax{\newcommand{\exbi}{\mathrm{Ei}}}
\CustomizeMathJax{\newcommand{\zebi}{\mathrm{Zi}}}
\CustomizeMathJax{\newcommand{\yobi}{\mathrm{Yi}}}
\end{warpMathJax}
```

File 455 **lwarp-skmath.sty**

§ 564 Package

skmath

(*Emulates or patches code by* Simon Sigurdhsson.)

Pkg skmath

skmath is used as-is for SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{skmath}[2019/10/15]
```

Only defined if package option requested:

```
\begin{warpMathJax}
\ExplSyntaxOn
\bool_if:NT\g__skmath_define_common_sets_bool{
\CustomizeMathJax{\newcommand{\N}{\mathbb{N}}}
\CustomizeMathJax{\newcommand{\Z}{\mathbb{Z}}}
\CustomizeMathJax{\newcommand{\Q}{\mathbb{Q}}}
\CustomizeMathJax{\newcommand{\R}{\mathbb{R}}}
\CustomizeMathJax{\newcommand{\C}{\mathbb{C}}}
}
```

skmath is using l3keys, which does not seem to have an equivalent to `\@ifpackagewith`. To detect package options, comparisons with the following are made to see if various macros have been defined as follows:

```
\cs_gset_nopar:Npn\LWR__skmath_imaginary_unit:n#1{{#1}}
\cs_gset_nopar:Npn\LWR__skmath_natural_log_e:{{e}}
\cs_gset_nopar:Npn\LWR__skmath_integral_d:{{d}}
\cs_gset_nopar:Npn\LWR__skmath_total_derivative_d:{{d}}
```

If `notation=iso`, use upright, else italic:

```
\cs_if_eq:NNTF \__skmath_imaginary_unit:n \LWR__skmath_imaginary_unit:n
    {
        \CustomizeMathJax{\newcommand{ii}{\mathit{i}}}
        \CustomizeMathJax{\newcommand{jj}{\mathit{j}}}
    }
    {
        \CustomizeMathJax{\newcommand{ii}{\mathrm{i}}}
        \CustomizeMathJax{\newcommand{jj}{\mathrm{j}}}
    }
```

If `notation=iso`, use upright, else italic:

```
\cs_if_eq:NNTF \__skmath_natural_log_e: \LWR__skmath_natural_log_e:
    { \CustomizeMathJax{\newcommand{\ee}{\mathit{e}}} }
    { \CustomizeMathJax{\newcommand{\ee}{\mathrm{e}}} }
```

skmath uses `\DeclarePairedDelimiter` from mathtools for `\abs` and `\norm`, and lwarp uses this to automatically define MathJax definitions for each.

If `notation=english`, use slanted, else upright:

```
\cs_if_eq:NNTF \__skmath_integral_d: \LWR__skmath_integral_d:
    { \CustomizeMathJax{\newcommand{\d}{\mathit{d}}} }
    { \CustomizeMathJax{\newcommand{\d}{\mathrm{d}}} }
```

Used to parse comma and caret arguments for \pd and \td:

```
\CustomizeMathJax{\def\LWRskmathEND{}}
```

Parse the arguments with up to four commas. Argument 6 contains any leftover commas.

```
\CustomizeMathJax{\def\LWRskmathpdstarsub#1#2,#3,#4,#5,#6\LWRskmathEND{
    #1_{#2#3#4#5}%
}}

\CustomizeMathJax{\newcommand{\LWRskmathpdstar}[2]{%
    \LWRskmathpdstarsub{#1}#2,,,,\LWRskmathEND%
}}
```

Parse the arguments with up to two carets. Argument 3 contains any leftover carets. \LWRskmathpdplus is used to only place a plus sign starting after the first term. \LWRskmathpdone is used to only place a 1 digit if a second or later term does not have a power.

```
\CustomizeMathJax{\def\LWRskmathpdnumerator#1^#2^#3\LWRskmathEND{%
    \ifblank{#1}{}{
        \ifblank{#2}{\LWRskmathpdplus\LWRskmathpdone}{\LWRskmathpdplus#2}
    }
}}
```

Parse the arguments with up to two carets. Argument 3 contains any leftover carets.

```
\CustomizeMathJax{\def\LWRskmathpddenominator#1^#2^#3\LWRskmathEND{%
    \ifblank{#1}{}{%
        \ifblank{#2}%
            {\partial{#1}}%
            {\partial{#1}^{#2}}%
    }%
}}
```

Factored from \LWRskmathpdnostarsub, following:

The phrase ^{} appears to be required while parsing the carets. \LWRskmathpdplus is used to only place a plus sign starting after the first term. \LWRskmathpdone is used to only place a 1 digit if a second or later term does not have a power.

This may not be recursion-safe. (Is there really such as a thing as nested differentials?)

```
\CustomizeMathJax{\newcommand{\LWRskmathdonumerator}[5]{%
    \partial^{%
        \def\LWRskmathpdplus{}%
        \LWRskmathpdnumerator#2^{}^{}\LWRskmathEND%
        \def\LWRskmathpdplus{+}%
        \def\LWRskmathpdone{1}%
        \LWRskmathpdnumerator#3^{}^{}\LWRskmathEND%
        \LWRskmathpdnumerator#4^{}^{}\LWRskmathEND%
```

```
        \LWRskmathpdnumerator#5^{}^{}\LWRskmathEND%
    }%
    {#1}%
}}

\CustomizeMathJax{\newcommand{\LWRskmathdodenominator}[4]{%
    \LWRskmathpddenominator#1^{}^{}^{}\LWRskmathEND%
    \ifblank{#2}{}{\,}%
    \LWRskmathpddenominator#2^{}^{}^{}\LWRskmathEND%
    \ifblank{#3}{}{\,}%
    \LWRskmathpddenominator#3^{}^{}^{}\LWRskmathEND%
    \ifblank{#4}{}{\,}%
    \LWRskmathpddenominator#4^{}^{}^{}\LWRskmathEND%
}}
```

Parse the arguments with up to four commas. Argument 6 contains any leftover commas.

```
\CustomizeMathJax{\def\LWRskmathpdnostarsub#1#2,#3,#4,#5,#6\LWRskmathEND{
    \ifblank{#3}{\def\LWRskmathpdone{}}{\def\LWRskmathpdone{1}}
    \frac%
        {\LWRskmathdonumerator{#1}{#2}{#3}{#4}{#5}}%
        {\LWRskmathdodenominator{#2}{#3}{#4}{#5}}%
}}

\CustomizeMathJax{\newcommand{\LWRskmathpdnostar}[2]{%
    \LWRskmathpdnostarsub{#1}#2,,,,,,\LWRskmathEND%
}}

\CustomizeMathJax{\newcommand{\pd}{\ifstar\LWRskmathpdstar\LWRskmathpdnostar}}
```

If `notation=english` or `legacy`, use slanted, else upright:

```
\cs_if_eq:NNTF \__skmath_total_derivative_d: \LWR__skmath_total_derivative_d:
    { \CustomizeMathJax{\newcommand{\LWRskmathtd}{\mathit{d}}} }
    { \CustomizeMathJax{\newcommand{\LWRskmathtd}{\mathrm{d}}} }

\CustomizeMathJax{\def\LWRskmathtdsub#1#2^#3\LWRskmathEND{%
    \frac
        {\LWRskmathtd^{#3}{#1}}
        {\LWRskmathtd{#2}^{#3}}
}}

\CustomizeMathJax{\newcommand{\td}[2]{%
    \LWRskmathtdsub{#1}#2^{}\LWRskmathEND%
}}

\CustomizeMathJax{\newcommand{\E}[1]{%
    \operatorname{E}\left[#1\right]%
}}

\CustomizeMathJax{\let\given\mid}

\CustomizeMathJax{\newcommand{\P}[1]{%
    \operatorname{P}%
    \left(#1\right)%
}}
```

```
\CustomizeMathJax{\newcommand{\var}[1]{%
  \operatorname{Var}\left(#1\right)%
}}

\CustomizeMathJax{\newcommand{\cov}[2]{%
  \operatorname{Cov}\left(#1,#2\right)%
}}
```

Common code for `\sin` etc:

```
\CustomizeMathJax{\newcommand{\LWRskmathtrigtwo}[2][]{%
    \ifblank{#1}{}{^{#1}}%
    \ifblank{#2}{}{\left(#2\right)}%
}}

\CustomizeMathJax{\newcommand{\LWRskmathtrig}[1]{%
    \operatorname{#1}%
    \LWRskmathtrigtwo%
}}

\CustomizeMathJax{\renewcommand{\sin}{\LWRskmathtrig{sin}}}
\CustomizeMathJax{\renewcommand{\arcsin}{\LWRskmathtrig{arcsin}}}

\CustomizeMathJax{\renewcommand{\cos}{\LWRskmathtrig{cos}}}
\CustomizeMathJax{\renewcommand{\arccos}{\LWRskmathtrig{arccos}}}

\CustomizeMathJax{\renewcommand{\tan}{\LWRskmathtrig{tan}}}
\CustomizeMathJax{\renewcommand{\arctan}{\LWRskmathtrig{arctan}}}

\CustomizeMathJax{\renewcommand{\cot}{\LWRskmathtrig{cot}}}

\CustomizeMathJax{\renewcommand{\sinh}{\LWRskmathtrig{sinh}}}
\CustomizeMathJax{\renewcommand{\cosh}{\LWRskmathtrig{cosh}}}
\CustomizeMathJax{\renewcommand{\tanh}{\LWRskmathtrig{tanh}}}
```

Common code for `\ln` and `\log`:

```
\CustomizeMathJax{\newcommand{\LWRskmathlogtwo}[2][]{%
    \ifblank{#1}{}{_{#1}}%
    \ifblank{#2}{}{\left(#2\right)}%
}}

\CustomizeMathJax{\newcommand{\LWRskmathlog}[1]{%
    \operatorname{#1}%
    \LWRskmathlogtwo%
}}

\CustomizeMathJax{\renewcommand{\ln}{\LWRskmathlog{ln}}}
\CustomizeMathJax{\renewcommand{\log}{\LWRskmathlog{log}}}

\CustomizeMathJax{\newcommand{\LWRskmathexpparens}[1]{%
    \operatorname{exp}%
    \ifblank{#1}{}{\left(#1\right)}%
}}
```

See the skmath source for the original of the following:

```
\CustomizeMathJax{\newcommand{\LWRskmathexpnostar}[1]{%
```

```
    \mathchoice
        {\ee^{#1}}
        {\LWRskmathexpparens{#1}}
        {\LWRskmathexpparens{#1}}
        {\LWRskmathexpparens{#1}}
}}

\CustomizeMathJax{\renewcommand{\exp}{\ifstar\LWRskmathexpparens\LWRskmathexpnostar}}
```

Common code for `\min` etc:

```
\CustomizeMathJax{\newcommand{\LWRskmathminstar}[2][]{%
    \operatorname{\LWRskmathminname}%
    \ifblank{#1}{}{%
        _{\mathchoice{\mathclap{#1}}{#1}{#1}{#1}}
    }%
    \ifblank{#2}{}{#2}%
}}

\CustomizeMathJax{\newcommand{\LWRskmathminnostar}[2][]{%
    \ifblank{#1}%
        {\operatorname{\LWRskmathminname}}%
        {%
            \underset%
                {\mathchoice{\mathclap{#1}}{#1}{#1}{#1}}%
                {\operatorname{\LWRskmathminname}}%
        }%
    \ifblank{#2}{}{\left\{#2\right\}}%
}}
```

`\LWRskmathminname` seems to be recursion-safe since it is used immediately.

```
\CustomizeMathJax{\newcommand{\LWRskmathmin}[1]{%
    \def\LWRskmathminname{#1}%
    \ifstar\LWRskmathminstar\LWRskmathminnostar%
}}

\CustomizeMathJax{\renewcommand{\min}{\LWRskmathmin{min}}}
\CustomizeMathJax{\renewcommand{\argmin}{\arg\LWRskmathmin{min}}}

\CustomizeMathJax{\renewcommand{\max}{\LWRskmathmin{max}}}
\CustomizeMathJax{\renewcommand{\argmax}{\arg\LWRskmathmin{max}}}
\CustomizeMathJax{\renewcommand{\sup}{\LWRskmathmin{sup}}}
\CustomizeMathJax{\renewcommand{\inf}{\LWRskmathmin{inf}}}

\CustomizeMathJax{\let\bar\overline}

\CustomizeMathJax{\let\vec\boldsymbol}
```

Remember the original definitions:

```
\CustomizeMathJax{\let\LWRskmathRe\Re}
\CustomizeMathJax{\let\LWRskmathIm\Im}
```

Redefine depending on `notation=iso`:

```
\bool_if:NTF\g__skmath_iso_complex_parts_bool{
    \CustomizeMathJax{\renewcommand{\Re}[1]{%
```

```
        \LWRskmathRe%
        \ifblank{#1}{}{\left(#1\right)}%
    }}
    \CustomizeMathJax{\renewcommand{\Im}[1]{%
        \LWRskmathIm%
        \ifblank{#1}{}{\left(#1\right)}%
    }}
}{
    \CustomizeMathJax{\renewcommand{\Re}[1]{%
        \operatorname{Re}%
        \ifblank{#1}{}{#1}%
    }}
    \CustomizeMathJax{\renewcommand{\Im}[1]{%
        \operatorname{Im}%
        \ifblank{#1}{}{#1}%
    }}
}

\ExplSyntaxOff
\end{warpMathJax}
```

File 456 **lwarp-slantsc.sty**

§ 565 Package slantsc

(*Emulates or patches code by* Harald Harders.)

Pkg slantsc slantsc is emulated for HTML, and used as-is for print output.

for HTML output:

```
\LWR@ProvidesPackagePass{slantsc}[2012/01/01]

\newcommand*{\LWR@HTML@noscshape}{}
\LWR@formatted{noscshape}

\FilenameNullify{%
    \LetLtxMacro\noscshape\@empty%
}
```

File 457 **lwarp-slashed.sty**

§ 566 Package slashed

(*Emulates or patches code by* David Carlisle.)

Pkg slashed slashed works as-s for HTML SVG math. For MathJax, emulation is provided.

for HTML output:

```
\LWR@ProvidesPackagePass{slashed}[1997/01/16]

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\slashed}[1]{\cancel{#1}}}
\end{warpMathJax}
```

File 458 **lwarp-soul.sty**

§ 567 Package

soul

(*Emulates or patches code by* Melchior FRANZ.)

Pkg soul

soul is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{soul}[2003/11/17]
\RequirePackage{xcolor}% for \convertcolorspec
```

Storage for the colors to use:

```
\newcommand*{\LWR@soululcolor}{}

\newcommand*{\LWR@soulstcolor}{}

% \definecolor{LWR@soulhlcolordefault}{HTML}{F8E800}
% \newcommand*{\LWR@soulhlcolor}{LWR@soulhlcolordefault}
\newcommand*{\LWR@soulhlcolor}{}
```

\so {⟨*text*⟩}

Basic markup with css:

```
\newcommand{\so}[1]{%
\InlineClass(letter-spacing:.2ex){letterspacing}{#1}%
}
```

\caps {⟨*text*⟩}

```
\newcommand{\caps}[1]{%
    \InlineClass%
        (font-variant:small-caps;letter-spacing:.1ex)%
        {capsspacing}{#1}%
}
```

\LWR@soulcolor {⟨*text*⟩} {⟨*color*⟩} {⟨*class*⟩} {⟨*colorstyle*⟩} {⟨*FormatWPstyle*⟩}

Add colors if not empty:

```
\newcommand{\LWR@soulcolor}[5]{%
\ifcsempty{#2}%
{%
    \InlineClass(#5){#3}{#1}%
}%
{%
    \convertcolorspec{named}{\@nameuse{#2}}{HTML}\LWR@tempcolor%
    \LWR@htmlspanclass[#5;#4:\LWR@origpound\LWR@tempcolor]{#3}{#1}%
}%
}

\newcommand{\ul}[1]{%
\LWR@soulcolor{#1}{LWR@soululcolor}{uline}{text-decoration-color}%
    {text-decoration:underline; text-decoration-skip: auto;}%
```

```
}

\newcommand{\st}[1]{
\LWR@soulcolor{#1}{LWR@soulstcolor}{sout}{text-decoration-color}%
    {text-decoration:line-through}%
}

\newcommand{\hl}[1]{
\LWR@soulcolor{#1}{LWR@soulhlcolor}{highlight}{background-color}%
    {background:\LWR@origpound{}F8E800}
}
```

Nullified:

```
\newcommand*{\soulaccent}[1]{}
\newcommand*{\soulregister}[2]{}
\newcommand{\sloppyword}[1]{#1}
\newcommand*{\sodef}[5]{\DeclareRobustCommand*#1[1]{\so{##1}}}
\newcommand*{\resetso}{}
\newcommand*{\capsdef}[5]{}
\newcommand*{\capsreset}{}
\newcommand*{\capssave}[1]{}
\newcommand*{\capsselect}[1]{}
\newcommand*{\setul}[2]{}
\newcommand*{\resetul}{}
\newcommand*{\setuldepth}[1]{}
\newcommand*{\setuloverlap}[1]{}
\newcommand*{\<}{}
```

Set colors:

```
\newcommand*{\setulcolor}[1]{\renewcommand{\LWR@soululcolor}{#1}}
\newcommand*{\setstcolor}[1]{\renewcommand{\LWR@soulstcolor}{#1}}
\newcommand*{\sethlcolor}[1]{\renewcommand{\LWR@soulhlcolor}{#1}}
```

Long versions of the user-level macros:

```
\let\textso\so
\let\textul\ul
\let\texthl\hl
\let\textcaps\caps
```

File 459 **lwarp-soulpos.sty**

§ 568 Package

soulpos

(*Emulates or patches code by* Javier Bezos.)

Pkg soulpos

soulpos is emulated.

for HTML output:

```
\RequirePackage{soul}
\RequirePackage{soulutf8}
\LWR@ProvidesPackageDrop{soulpos}[2012/02/25]

\NewDocumentCommand{\ulposdef}{m o m}{}

```

```
\newdimen\ulwidth

\newcommand\ifulstarttype[1]{%
\expandafter\@secondoftwo%
}

\newcommand\ifulendtype[1]{%
\expandafter\@secondoftwo%
}

\newcommand{\ulstarttype}{0}
\newcommand{\ulendtype}{0}
\newcommand\ulpostolerance{0}%
```

File 460 **lwarp-soulutf8.sty**

§ 569 Package

soulutf8

Pkg soulutf8

soulutf8 is emulated.

lwarp's HTML output naturally supports UTF-8 encoding.

for HTML output:

```
\LWR@ProvidesPackageDrop{soulutf8}[2016/05/16]
\RequirePackage{soul}
```

File 461 **lwarp-splitbib.sty**

§ 570 Package

splitbib

(*Emulates or patches code by* Nicolas Markey.)

Pkg splitbib

splitbib is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{splitbib}[2005/12/22]

\def\NMSB@stylebox#1#2{%
\begin{BlockClass}[text-align:center ; border: 1px solid black]{splitbibbox}
    \csname SB\NMSB@level font\endcsname{\LWR@textcurrentfont{#1#2}}
\end{BlockClass}
}

\def\NMSB@stylebar#1#2{%
\begin{BlockClass}[%
    text-align:center ;
    border-top: 1px solid black ;
    border-bottom: 1px solid black ;
]{splitbibbar}
    \csname SB\NMSB@level font\endcsname{\LWR@textcurrentfont{#1#2}}
\end{BlockClass}
}

\def\NMSB@styledash#1#2{%
\begin{BlockClass}[%
    text-align:center ;
```

```
]{splitbibdash}
   \csname SB\NMSB@level font\endcsname{\LWR@textcurrentfont{---~#1#2~---}}
\end{BlockClass}
}

\def\NMSB@stylenone#1#2{%
    \par
}

\def\NMSB@stylesimple#1#2{%
\par
 \csname SB\NMSB@level font\endcsname{\LWR@textcurrentfont{#1#2}}
\par
}
```

File 462 **lwarp-splitidx.sty**

§ 571 Package

splitidx

(*Emulates or patches code by* Markus Kohm.)

Pkg splitidx

splitidx is patched for use by lwarp.

If the latexmk option is selected for lwarp, *latexmk* will compile the document but will *not* compile the indexes. **lwarpmk printindex** and **lwarpmk htmlindex** will still be required.

⚠ \thepage

When using \AtWriteToIndex or \AtNextWriteToIndex, the user must not refer to \thepage during HTML output, as the concept of a page number is meaningless. Instead, do

```
\addtocounter{LWR@autoindex}{1}
\LWR@new@label{LWRindex-\arabic{LWR@autoindex}}
```

where the \index-like action occurs, and then refer to \arabic{LWR@autoindex} instead of \thepage where the reference should occur.

See section 692.17 in the lwarp-patch-memoir package for the \@@wrspindexhyp macro as an example.

for HTML output:

```
\LWR@ProvidesPackagePass{splitidx}[2016/02/18]

\catcode`\_=12%
\xpatchcmd{\newindex}
    {\jobname-#2.idx}
    {\jobname-#2_html.idx}
    {}
    {\LWR@patcherror{splitidx}{@newindex}}
\catcode`\_=8%
```

Patched to use lwarp's automatic indexing counter instead of \thepage:

```
\renewcommand*{\@wrsindex}[2][]{%
  \ifx\relax#1\relax
    \if@splitidx
      \@wrsindex[idx]{#2}%
```

```
    \else
      \def\@tempa{#2}%
      \if@verbindex\@onelevel@sanitize\@tempa\fi
      \@wrindex{\@tempa}%
    \fi
  \else
    \def\@tempa{#2}%
    \csname index@#1@hook\endcsname
%     \expandafter\ifx\csname @@wrsindex\endcsname\relax
    \addtocounter{LWR@autoindex}{1}%                    lwarp
    \label{LWRindex-\arabic{LWR@autoindex}}%    lwarp
%       \@@@wrsindex{#1}{{\@tempa}{\thepage}}%
      \@@@wrsindex{#1}{{\@tempa}{\arabic{LWR@autoindex}}}%
%     \else
%       \def\@tempb{\@@wrsindex{#1}}%
%       \expandafter\@tempb\@tempa||\\%
%     \fi
    \endgroup
    \@esphack
  \fi
}
```

lwarp defines sectioning commands with xparse, so the below patches are done as temporary redefinitions instead of being `\let`.

```
\xpatchcmd{\printsubindex}
    {\let\section\subsection}
    {\renewcommand*{\section}{\subsection}}
    {}
    {\LWR@patcherror{splitidx}{printsubindex-section}}

\xpatchcmd{\printsubindex}
    {\let\chapter\section}
    {\renewcommand*{\chapter}{\section}}
    {}
    {\LWR@patcherror{splitidx}{printsubindex-chapter}}

\xpatchcmd{\printsubindex}
    {\let\@makechapterhead\section}
    {\def\@makechapterhead{\section}}
    {}
    {\LWR@patcherror{splitidx}{printsubindex-chapter}}
```

File 463 **lwarp-srcltx.sty**

§ 572 Package

srcltx

Pkg srcltx

srcltx is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{srcltx}[2006/11/12]

\newif\ifSRCOK \SRCOKfalse
\newcommand*\srcIncludeHook[1]{}
\newcommand*\srcInputHook[1]{}
\newcommand*\MainFile{}
\def\MainFile{\jobname.tex}
\newcommand*\CurrentInput{}
```

```
\gdef\CurrentInput{\MainFile}
\newcommand\Input{}
\let\Input\input
```

File 464 **lwarp-srctex.sty**

§ 573 Package

srctex

Pkg srctex

srctex is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{srctex}[2006/11/12]
\LWR@origRequirePackage{lwarp-srcltx}
```

File 465 **lwarp-stabular.sty**

§ 574 Package

stabular

(*Emulates or patches code by* Sigitas Tolušis.)

Pkg stabular

stabular is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{stabular}[2014/03/20]
```

Env stabular [⟨*vpos*⟩] {⟨*colspec*⟩}

```
\newenvironment{stabular}[2][c]
{
\begin{tabular}[#1]{#2}
\renewcommand{\noalign}[1]{}
}
{\end{tabular}}
```

Env stabular {⟨*width*⟩} [⟨*vpos*⟩] {⟨*colspec*⟩}

```
\NewDocumentEnvironment{stabular*}{m o m}
{
\begin{tabular}[#2]{#3}
\renewcommand{\noalign}[1]{}
}
{\end{tabular}}
```

File 466 **lwarp-stackengine.sty**

§ 575 Package

stackengine

(*Emulates or patches code by* Steven B. Segletes.)

Pkg stackengine

stackengine is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{stackengine}[2017/02/13]
```

The original version is neccessary for the patched \@stack and \stackanchor, where nesting lateximages does not work:

```
\LetLtxMacro\LWR@orig@stackengine\stackengine

\renewcommand*{\stackengine}[8]{%
    \ifstrequal{#4}{O}%
        {\begin{lateximage}[\ImageAltText]}%
        {\begin{lateximage}[\ImageAltText][][vertical-align:top]}%
    \LWR@orig@stackengine{#1}{#2}{#3}{#4}{#5}{#6}{#7}{#8}%
    \end{lateximage}%
}
```

\@stack uses a lateximage with a vertical alignment:

```
\LetLtxMacro\LWR@orig@@stack\@stack

\xpatchcmd{\LWR@orig@@stack}{\stackengine}{\LWR@orig@stackengine}
    {}
    {\LWR@patcherror{stackengine}{LWR@orig@@stack}}

\renewcommand*{\@stack}[4]{%
    \ifstrequal{#3}{O}%
        {\begin{lateximage}[\ImageAltText]}%
        {\begin{lateximage}[\ImageAltText][][vertical-align:top]}%
    \LWR@orig@@stack{#1}{#2}{#3}{#4}%
    \end{lateximage}%
}
```

The lapping macros are disabled for HTML:

```
\newcommand*\LWR@HTML@@stacklap[4]{#3}
\LWR@formatted{@stacklap}
```

\stackanchor is patched for two instances of \stackengine. A lateximage with vertical alignment is used.

```
\xpatchcmd{\stackanchor}{\stackengine}{\LWR@orig@stackengine}
    {}
    {\LWR@patcherror{stackengine}{stackanchor patch 1}}

\xpatchcmd{\stackanchor}{\stackengine}{\LWR@orig@stackengine}
    {}
    {\LWR@patcherror{stackengine}{stackanchor patch 2}}

\xpretocmd{\stackanchor}
    {\begin{lateximage}[\ImageAltText][][vertical-align:middle]}
    {}
    {\LWR@patcherror{stackengine}{stackanchor pre}}

\xapptocmd{\stackanchor}{\end{lateximage}}
    {}
    {\LWR@patcherror{stackengine}{stackanchor app}}
```

\Centerstack is simply placed inside a lateximage with a vertical alignment:

```
\xpretocmd{\Centerstack}
    {\begin{lateximage}[\ImageAltText][][vertical-align:middle]}
```

```
    {}
    {\LWR@patcherror{stackengine}{Centerstack pre}}

\xapptocmd{\Centerstack}{\end{lateximage}}
    {}
    {\LWR@patcherror{stackengine}{Centerstack app}}
```

\savestack reverts to print mode while saving the box, then places it inside a lateximage when used:

```
\renewcommand*\savestack[2]{%
  \xdef\sv@name{\stack@macro@name{#1}}%
  \@ifundefined{\sv@name content}{%
   \expandafter\newsavebox\expandafter{\csname\sv@name content\endcsname}%
   }{}%
    \begingroup%    lwarp
    \LWR@restoreorigformatting%     lwarp
   \RenewDocumentEnvironment{lateximage}{s o s o o d()}{}{}% lwarp: inside group
  \expandafter\LWR@gsavebox\csname\sv@name content\endcsname{#2}%
  \expandafter\gdef\expandafter#1\expandafter{%
        \expandafter\begin\expandafter{lateximage\expandafter}%     lwarp
        \expandafter\usebox\expandafter%
        {\csname\sv@name content\endcsname}%
        \expandafter\end\expandafter{lateximage\expandafter}%       lwarp
    }%
    \endgroup%      lwarp
}
```

File 467 **lwarp-stackrel.sty**

§ 576 Package stackrel

(*Emulates or patches code by* Heiko Oberdiek.)

Pkg stackrel

stackrel is used as-is for SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{stackrel}[2016/05/16]

\begin{warpMathJax}
\CustomizeMathJax{\renewcommand{\stackrel}[3][]{%
    \mathrel{\mathop{#3}\limits_{#1}^{#2}}%
}}

\CustomizeMathJax{\newcommand{\stackbin}[3][]{%
    \mathbin{\mathop{#3}\limits_{#1}^{#2}}%
}}
\end{warpMathJax}
```

File 468 **lwarp-statex2.sty**

§ 577 Package statex2

(*Emulates or patches code by* Rodney A Sparapani.)

Pkg statex2

statex2 is patched for use by lwarp, and emulated for MathJax.

⚠ As of this version, option autobold does not appear to work for PDF output.

⚠ For MathJax, the tilde character ~ does not create \sim. Use \sim directly.

⚠ Because MathJax has limited conditional processing:

- \wrap only creates square braces, no matter what its optional arguments.
- \P, \pCau, \pN, and \pU do not handle special cases.

⚠ \and To have \and work if using \maketitle, place the following after the start of the document:

```
\newcommand*{\and}{%
    \relax\ifmmode%
        \expandafter\;\mb{\mathrm{and}}\;%
    \else%
        \expandafter\STATEXand%
    \fi%
}
```

for HTML output:

```
\LWR@ProvidesPackagePass{statex2}[2011/09/14]

\newcommand*{\LWR@HTML@Alpha}[1][]{%
    \fcolorbox{black}{ForestGreen}{\textcolor{white}{\textsf{ALPHA}}}%
    \textbf{\textcolor{ForestGreen}{\textsf{#1}}}%
}
\LWR@formatted{Alpha}

\newcommand*{\LWR@HTML@List}[1]{%
    \textbf{\textcolor{Dandelion}{\textsf{L}\textsubscript{\textit{#1}}}}%
}
\LWR@formatted{List}

\newcommand*{\LWR@HTML@Snd}[1][]{%
    \fcolorbox{black}{Dandelion}{\textcolor{white}{\textsf{2nd}}}%
    \textbf{\textcolor{Dandelion}{\textsf{#1}}}%
}
\LWR@formatted{Snd}

\begin{warpMathJax}
\LWR@infoprocessingmathjax{statex2}

\CustomizeMathJax{\newcommand{\cpi}{\boldsymbol{\pi}}}
\CustomizeMathJax{\newcommand{\c}[1]{\boldsymbol{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\sfsl}[1]{\mathsf#1}}%     not slanted

\if@manualbold
\CustomizeMathJax{\newcommand{\mb}[1]{#1}}
\else
\CustomizeMathJax{\newcommand{\mb}[1]{\boldsymbol{#1}}}
\fi

\CustomizeMathJax{\newcommand{\diag}{\mb{\mathrm{diag}}}}
\CustomizeMathJax{\newcommand{\blockdiag}{\mb{\mathrm{blockdiag}}}}
\CustomizeMathJax{\newcommand{\erf}{\mb{\mathrm{erf}}}}
```

```
\CustomizeMathJax{\newcommand{\logit}{\mb{\mathrm{logit}}}}
\CustomizeMathJax{\newcommand{\trace}{\mb{\mathrm{trace}}}}

\CustomizeMathJax{\newcommand{\chisq}{{\mb{\chi^2}}}}
\CustomizeMathJax{\newcommand{\deriv}[2]{\mb{\frac{\d}{\d{#1}}}\wrap{\mb{#2}}}}
\CustomizeMathJax{\newcommand{\derivf}[2]{\mb{\frac{\d}{\d{#2}}}\wrap{\mb{#1}}}}
\CustomizeMathJax{\newcommand{\e}[1]{\mb{\mathrm{e}^{#1}}}}
\CustomizeMathJax{\newcommand{\E}[2][]{\mb{\mathrm{E}}_{\mb{#1}} \wrap{\mb{#2}}}}
\CustomizeMathJax{\newcommand{\ha}{{\mb{\frac{\alpha}{2}}}}}
\CustomizeMathJax{\newcommand{\I}[2][]{%
    \mb{\mathrm{I}}_{\mb{#1}} \LWRwrapparen{\mb{#2}}%
}}
\CustomizeMathJax{\newcommand{\IBeta}[2]{%
    \mb{\frac{\Gamma[#1+#2]}{\Gamma[#1]\Gamma[#2]}}%
}}
\CustomizeMathJax{\newcommand{\If}{\;\mb{\mathrm{if}}\;}}
\CustomizeMathJax{\newcommand{\im}{\mb{\mathrm{i}}}}
\CustomizeMathJax{\newcommand{\ol}{\overline}}
\CustomizeMathJax{\newcommand{\ow}{\;\mb{\mathrm{otherwise}}\;}}
\CustomizeMathJax{\newcommand{\pderiv}[2]{%
    \mb{\frac{\partial}{\partial #1}}\wrap{\mb{#2}}%
}}
\CustomizeMathJax{\newcommand{\pderivf}[2]{%
    \mb{\frac{\partial}{\partial #2}}\wrap{\mb{#1}}%
}}
\CustomizeMathJax{\newcommand{\sd}{\mb{\sigma}}}
\CustomizeMathJax{\newcommand{\ul}{\underline}}
\CustomizeMathJax{\newcommand{\V}[2][]{\mb{\mathrm{V}}_{\mb{#1}} \wrap{\mb{#2}}}}
\CustomizeMathJax{\newcommand{\vs}{\;\mb{\mathrm{vs.}}\;}}
\CustomizeMathJax{\newcommand{\where}{\;\mb{\mathrm{where}}\;}}
\CustomizeMathJax{\newcommand{\wrap}[2][]{\left[ #2 \right]}}%       only []
\CustomizeMathJax{\newcommand{\LWRwrapparen}[1]{\left( #1 \right)}}%   lwarp

% \CustomizeMathJax{\renewcommand{~}{\mb{\sim}}}% doesn't work,
% replace <space>~<space> with <space>\sim<space>

\CustomizeMathJax{\newcommand{\iid}{\;\stackrel{\mb{\mathrm{iid}}}{\sim}\;}}
\CustomizeMathJax{\newcommand{\ind}{\;\stackrel{\mb{\mathrm{ind}}}{\sim}\;}}
\CustomizeMathJax{\newcommand{\indpr}{%
    \;\stackrel{\mb{\mathrm{ind}}}{\stackrel{\mb{\mathrm{prior}}}{\sim}}\;
}}
\CustomizeMathJax{\newcommand{\post}{\;\stackrel{\mb{\mathrm{post}}}{\sim}\;}}
\CustomizeMathJax{\newcommand{\prior}{\;\stackrel{\mb{\mathrm{prior}}}{\sim}\;}}

\CustomizeMathJax{\let\STATEXGamma=\Gamma}
\CustomizeMathJax{\renewcommand{\Gamma}[1][]{\mb{\STATEXGamma}\LWRwrapparen{\mb{#1}}}}
%
\CustomizeMathJax{\renewcommand{\and}{\;\mb{\mathrm{and}}\;}}
%
\CustomizeMathJax{\newcommand{\H}{\mb{\mathrm{H}}}}
%
\CustomizeMathJax{\newcommand{\P}[2][]{\mb{\mathrm{P}}_{\mb{#1}}\wrap{\mb{#2}}}}
%
\CustomizeMathJax{\newcommand{\|}{\mb{\mid}}}

\CustomizeMathJax{\newcommand{\B}[1]{\mb{\mathrm{B}}\LWRwrapparen{\mb{#1}}}}
\CustomizeMathJax{\newcommand{\BB}[1]{\mb{\mathrm{BetaBin}}\LWRwrapparen{\mb{#1}}}}
\CustomizeMathJax{\newcommand{\Bin}[2]{\mb{\mathrm{Bin}}\LWRwrapparen{\mb{#1,\ #2}}}}
\CustomizeMathJax{\newcommand{\Dir}[1]{\mb{\mathrm{Dirichlet}}\LWRwrapparen{\mb{#1}}}}
\CustomizeMathJax{\newcommand{\HG}[3]{%
```

```
    \mb{\mathrm{Hypergeometric}}\LWRwrapparen{\mb{#1,\ #2,\ #3}}%
}}
\CustomizeMathJax{\newcommand{\M}[2]{%
    \mb{\mathrm{Multinomial}}\LWRwrapparen{\mb{#1,\ #2}}%
}}
\CustomizeMathJax{\newcommand{\NB}[2]{\mb{\mathrm{NegBin}}\LWRwrapparen{\mb{#1,\ #2}}}}
\CustomizeMathJax{\newcommand{\Poi}[1]{\mb{\mathrm{Poisson}}\LWRwrapparen{\mb{#1}}}}
\CustomizeMathJax{\let\Poisson=\Poi}

\CustomizeMathJax{\newcommand{\pBB}[4][x]{%
    \mb{\frac{\Gamma[#2+1]\Gamma[#3+#1]\Gamma[#2+#4-#1]\Gamma[#3+#4]}%
    {\Gamma[#1+1]\Gamma[#2-#1+1]\Gamma[#2+#3+#4]\Gamma[#3]\Gamma[#4]}%
    \I[#1]{\{0, 1,\., #2\}}, \where #3>0,\; #4>0 \and n=1, 2,\.}%
}}
\CustomizeMathJax{\newcommand{\pBin}[3][x]{%
    \mb{\binom{#2}{#1}#3^{#1}} \LWRwrapparen{\mb{{1-#3}^{#2-#1}}}%
    \mb{\I[#1]{\{0,1,\.,#2\}}, \where p \in (0, 1) \and n=1, 2,\.}%
}}
\CustomizeMathJax{\newcommand{\pPoi}[2][x]{%
    \mb{\frac{1}{#1!}#2^{#1}\e{-#2}\I[#1]{\{0, 1,\.\}}, \where #2>0}%
}}

\CustomizeMathJax{\newcommand{\Cau}[2]{\mb{\mathrm{Cauchy}}\LWRwrapparen{\mb{#1,\ #2}}}}
\CustomizeMathJax{\let\Cauchy=\Cau}
\CustomizeMathJax{\newcommand{\Chi}[2][]{%
    \chisq_{\mb{#1}}\LWRwrapparen{\mb{#2}}%
}}
\CustomizeMathJax{\let\Chisq=\Chi}
\CustomizeMathJax{\newcommand{\Bet}[2]{\mb{\mathrm{Beta}}\LWRwrapparen{\mb{#1,\ #2}}}}
\CustomizeMathJax{\let\Beta=\Bet}
\CustomizeMathJax{\newcommand{\Exp}[1]{\mb{\mathrm{Exp}}\LWRwrapparen{\mb{#1}}}}
\CustomizeMathJax{\newcommand{\F}[2]{\mb{\mathrm{F}}\LWRwrapparen{\mb{#1,\ #2}}}}
\CustomizeMathJax{\newcommand{\Gam}[2]{\mb{\mathrm{Gamma}}\LWRwrapparen{\mb{#1,\ #2}}}}
\CustomizeMathJax{\newcommand{\IC}[1]{\mb{\mathrm{\chi^{-2}}}\LWRwrapparen{\mb{#1}}}}
\CustomizeMathJax{\newcommand{\IG}[2]{%
    \mb{\mathrm{Gamma^{-1}}}\LWRwrapparen{\mb{#1,\ #2}}%
}}
\CustomizeMathJax{\newcommand{\IW}[2]{%
    \mb{\mathrm{Wishart^{-1}}}\LWRwrapparen{\mb{#1,\ #2}}%
}}
\CustomizeMathJax{\newcommand{\Log}[2]{%
\mb{\mathrm{Logistic}}\LWRwrapparen{\mb{#1,\ #2}}%
}}
\CustomizeMathJax{\newcommand{\LogN}[2]{%
    \mb{\mathrm{Log\!-\!N}}\LWRwrapparen{\mb{#1,\ #2}}%
}}
\CustomizeMathJax{\newcommand{\N}[3][]{%
    \mb{\mathrm{N}}_{\mb{#1}}\LWRwrapparen{\mb{#2,\ #3}}%
}}
\CustomizeMathJax{\newcommand{\Par}[2]{\mb{\mathrm{Pareto}}\LWRwrapparen{\mb{#1,\ #2}}}}
\CustomizeMathJax{\let\Pareto=\Par}
\CustomizeMathJax{\newcommand{\Tsq}[2]{\mb{\mathrm{T^2}}\LWRwrapparen{\mb{#1,\ #2}}}}
\CustomizeMathJax{\newcommand{\U}[1]{\mb{\mathrm{U}}\LWRwrapparen{\mb{#1}}}}
\CustomizeMathJax{\newcommand{\W}[2]{\mb{\mathrm{Wishart}}\LWRwrapparen{\mb{#1,\ #2}}}}

\CustomizeMathJax{\renewcommand{\t}[1]{\mb{\mathrm{t}}\LWRwrapparen{\mb{#1}}}}

\CustomizeMathJax{\newcommand{\pBet}[3][x]{%
    \IBeta{#2}{#3}%
   #1^{#2-1}\LWRwrapparen{1-#1}^{#3-1}\I[#1]{0,\ 1}, \where #2>0 \and #3>0%
```

```
}}
\CustomizeMathJax{\newcommand{\pCau}[3][x]{%
%   \ifthenelse{\equal{#2, #3}{0, 1}}{\frac{1}{\cpi\LWRwrapparen{1+#1}^2}}%
  {\frac{1}{#3\cpi\left\{1+\wrap{\LWRwrapparen{x-#2}/#3}^2\right\}}, \where #3>0}%
}}% no special case for 0,1
\CustomizeMathJax{\newcommand{\pChi}[2][x]{%
    \frac{2^{-#2/2}}{\Gamma[#2/2]}#1^{#2/2-1}\e{-#1/2}%
    \I[#1]{0,\infty}, \where #2>0%
}}
\CustomizeMathJax{\newcommand{\pExp}[2][x]{%
    \frac{1}{#2}\e{-#1/#2}\I[#1]{0,\infty},%
    \where #2>0%
}}
\CustomizeMathJax{\newcommand{\pGam}[3][x]{%
    \frac{#3^{#2}}{\Gamma[#2]}#1^{#2-1}\e{-#3#1}%
    \I[#1]{0,\infty}, \where #2>0 \and #3>0%
}}
\CustomizeMathJax{\newcommand{\pN}[3][x]{%
%     \ifthenelse{\equal{#2, #3}{0, 1}}%
%     {\frac{1}{\sqrt{2\cpi}}\e{-#1^2/2}}%
   {\frac{1}{\sqrt{2\cpi \cdot #3}}\e{-\LWRwrapparen{#1-#2}^2/2 \cdot #3}}%
}}% no test for 0,1, must add \cdot
\CustomizeMathJax{\newcommand{\pPar}[3][x]{%
    \frac{#3}{#2\LWRwrapparen{1+#1/#2}^{#3+1}}\I[#1]{0,\infty},%
    \where #2>0 \and #3>0%
}}
\CustomizeMathJax{\newcommand{\pU}[3][x]{%
%     \ifthenelse{\equal{#2, #3}{0, 1}}{\I[#1]{0,\ 1}}%
    {\frac{1}{#3-#2}\I[#1]{#2,\ #3}, \where #2<#3}%
}}% no special case for 0,1

\CustomizeMathJax{\newcommand{\=}[1]{\bar{#1}}}
\CustomizeMathJax{\let\^\widehat}
\CustomizeMathJax{\let\~\widetilde}
\CustomizeMathJax{\newcommand{\'}[1]{\LWRwrapparen{\mb{#1}}}}
\CustomizeMathJax{\newcommand{\b}[1]{\bar{#1}}}
\CustomizeMathJax{\newcommand{\c}[1]{\mb{\mathrm{#1}}}}
\CustomizeMathJax{\newcommand{\d}[1]{\,\mb{\mathrm{d}{#1}}}}
\CustomizeMathJax{\newcommand{\.}{\mb{\ldots}}}
\end{warpMathJax}
```

File 469 **lwarp-statistics.sty**

§ 578 Package

statistics

(*Emulates or patches code by* Julien Rivaud.)

Pkg statistics

statistics is patched for use by lwarp.

⚠ \color

The statistics documentation examples include the use of the \color macro. Use \textcolor instead.

⚠ math

The statistics package uses math arrays, but the HTML version uses text tabulars to allow text copy/paste. If math is required, use \ensuremath or \(and \) as needed.

Pre/postline is ignored, and \hline is used instead. Each table will have an \hline above and below as a frame.

for HTML output:

```
\LWR@ProvidesPackagePass{statistics}[2019/09/29]
\ExplSyntaxOn
```

To use text `tabular` instead of math `array`. This allows text copy/paste of the results.

In the following, all changes for the Lwarp package are labelled "lwarp".

Redefined using the lwarp version of &:

```
\StartDefiningTabulars%     lwarp
\cs_set_protected_nopar:Nn \__statistics_table_make:nn {
    \int_compare:nT
            { 0 < \l__statistics_table_maxcols_int
                = \l__statistics_nbvals_int } {
        \__statistics_table_end:
        \tl_use:N \l__statistics_table_sep_tl
        \__statistics_table_start:
    }
    \int_incr:N \l__statistics_nbvals_int
    \int_incr:N \l__statistics_currange_int
    \fp_add:Nn \l__statistics_curtotal_fp { #2 }
    \__statistics_set_if_shown:N \l_tmpa_bool
    \tl_set:Nx \l_tmpa_tl {
        \exp_not:n { & \tl_set:Nn \currentcolumn } {
            \int_use:N \l__statistics_currange_int
        }
    }
    \bool_if:NTF \l_tmpa_bool {
        \tl_put_right:Nn \l_tmpa_tl
            {\__statistics_table_shown_format:n}
    }{
        \tl_put_right:Nn \l_tmpa_tl
            {\__statistics_table_hidden_format:n}
    }
    \seq_put_right:Nn \l__statistics_store_values_seq { #1 }
    \bool_if:NT \l__statistics_table_values_bool {
        \tl_put_right:Nx \l__statistics_table_values_tl {
            \exp_not:V \l_tmpa_tl {
                \exp_not:n {
                    \__statistics_table_values_format:n { #1 }
                }
            }
        }
    }
    \seq_put_right:Nx \l__statistics_store_counts_seq { \fp_eval:n {#2} }
    \bool_if:NT \l__statistics_table_counts_bool {
        \tl_put_right:Nx \l__statistics_table_counts_tl {
            \exp_not:V \l_tmpa_tl {
                \exp_not:n {
                    \__statistics_table_counts_format:n {
                        { \__statistics_table_allcounts_format:n { #2 } }
                    }
                }
            }
        }
    }
    \bool_if:NT \l__statistics_table_icc_bool {
        \tl_put_right:Nx \l__statistics_table_icc_tl {
```

```
            \exp_not:V \l_tmpa_tl {
                \exp_not:n { \__statistics_table_icc_format:n }
                {
                    \exp_not:n{ \__statistics_table_allcounts_format:n }
                        { \fp_use:N \l__statistics_curtotal_fp }
                }
            }
        }
    }
    \bool_if:NT \l__statistics_table_dcc_bool {
        \tl_put_right:Nx \l__statistics_table_dcc_tl {
            \exp_not:V \l_tmpa_tl {
                \exp_not:n { \__statistics_table_dcc_format:n }
                {
                    \exp_not:n{ \__statistics_table_allcounts_format:n }
                    {
                        \fp_eval:n {
                            \l__statistics_total_fp
                                - \l__statistics_curtotal_fp
                                + #2
                        }
                    }
                }
            }
        }
    }
    \fp_set:Nn \l__statistics_table_curICF_fp {
        round(\l__statistics_curtotal_fp
                / \l__statistics_total_fp,
              \l__statistics_table_round_int)
    }
    \bool_if:NT \l__statistics_table_frequencies_bool {
        \tl_put_right:Nx \l__statistics_table_frequencies_tl {
            \exp_not:V \l_tmpa_tl {
                \exp_not:n { \__statistics_table_frequencies_format:n }
                {
                    \exp_not:n{ \__statistics_table_allfreqs_format:n }
                    {
                        \fp_eval:n {
                            \l__statistics_table_curICF_fp
                                - \l__statistics_table_prevICF_fp
                        }
                    }
                }
            }
        }
    }
    \bool_if:NT \l__statistics_table_icf_bool {
        \tl_put_right:Nx \l__statistics_table_icf_tl {
            \exp_not:V \l_tmpa_tl {
                \exp_not:n { \__statistics_table_icf_format:n }
                {
                    \exp_not:n{ \__statistics_table_allfreqs_format:n }
                       { \fp_to_decimal:N \l__statistics_table_curICF_fp }
                }
            }
        }
    }
    \bool_if:NT \l__statistics_table_dcf_bool {
        \tl_put_right:Nx \l__statistics_table_dcf_tl {
```

```
            \exp_not:V \l_tmpa_tl {
                \exp_not:n { \__statistics_table_dcf_format:n }
                {
                    \exp_not:n{ \__statistics_table_allfreqs_format:n }
                    {
                        \fp_eval:n {
                            1 - \l__statistics_table_prevICF_fp
                        }
                    }
                }
            }
        }
    }
    \fp_set_eq:NN
        \l__statistics_table_prevICF_fp
        \l__statistics_table_curICF_fp
}
\StopDefiningTabulars%  lwarp
```

Redefined using `tabular`. Also, preline and postline do not work correctly with lwarp, which looks for certain tokens to detect `\hlines`, so `\hline` is used instead.

```
\cs_set_protected_nopar:Nn \__statistics_table_end: {
    \tl_set:Nx \l__statistics_table_preamble_tl {
%         \exp_not:n { \begin{array}[ }
        \exp_not:n {\begin{tabular}[ }%      lwarp
            \exp_not:V \l__statistics_table_valign_tl
        \exp_not:n { ] }
                { \exp_not:V \l__statistics_table_headcoltype_tl
                  \prg_replicate:nn { \l__statistics_nbvals_int }
                    { \exp_not:V \l__statistics_table_coltype_tl } }
    }
    \seq_clear:N \l__statistics_table_contents_seq
   \clist_map_inline:nn { values, counts, icc, dcc, frequencies, icf, dcf } {
        \bool_if:cT { l__statistics_table_##1_bool } {
            \seq_put_right:Nv
                    \l__statistics_table_contents_seq
                    { l__statistics_table_##1_tl }
        }
    }
%     $
    \tl_use:N \l__statistics_table_preamble_tl
        \hline%      lwarp
%         \l__statistics_table_preline_tl
        \seq_use:Nn
                \l__statistics_table_contents_seq
                { \l__statistics_table_newline_tl }
        \\
%         \l__statistics_table_postline_tl
        \hline%      lwarp
%     \end{array}$
    \end{tabular}%      lwarp
}
```

With lwarp, `\ensuremath` creates an SVG image, but its `alt` tag does not contain the text of the contents for copy/paste, since these expressions are usually not simple text. For the statistics package, copy/paste is restored by using text instead of math output.

For the leftmost column. Redefined to use text output:

```
\cs_set_protected_nopar:Nn \__statistics_table_start: {
    \int_zero:N \l__statistics_nbvals_int
    \clist_pop:NNT \l__statistics_table_maxcols_clist \l_tmpa_tl {
        \int_set:Nn \l__statistics_table_maxcols_int { \l_tmpa_tl }
    }
   \clist_map_inline:nn { values, counts, frequencies, icc, icf, dcc, dcf } {
        \tl_set:cx { l__statistics_table_##1_tl } {
%             \exp_not:N \ensuremath {
                \exp_not:N \hbox {
                    \exp_not:c { l__statistics_table_##1_name_tl }
                }
%             }
        }
    }
}
```

For the first row. Redefined to use text output:

```
\RenewDocumentCommand \__statistics_IN:w { m u{;} u{;} m } {
%     \ensuremath{ \left#1 \num{#2} \mathbin{;} \num{#3} \right#4 }
    #1 #2 ; #3 #4%      lwarp
}

\__statistics_setup:nn { table } {
%     values/format = \ensuremath{#1},
    values/format = {#1},%      lwarp
}
```

Added `\ExplSyntaxOn/Off` to avoid errors. (In once instance, a double subscript error appeared.)

```
\RenewDocumentCommand \StatsGraph { +O{} +m +O{} } {
    \group_begin:
    \int_gincr:N \g__statistics_graph_last_int
    \tl_set:Nx \l_tmpa_tl {
        \exp_not:n { g__statistics_graph_xstep_ }
        \int_use:N \g__statistics_graph_last_int
        \exp_not:n { _tl }
    }
    \tl_if_exist:cTF { \l_tmpa_tl } {
        \fp_gset:Nn \g__statistics_graph_xstep_fp
            { \tl_use:c {\l_tmpa_tl} }
    }{
        \fp_gset:Nn \g__statistics_graph_xstep_fp { \c_one_int }
    }
    \__statistics_setup:nn { graph } { #1, #3 }
    \tl_if_single:nTF { #2 } {
        \cs_if_exist:NF #2 { #2 }
        \tl_set_eq:NN \l__statistics_data_tl #2
    }{
        \tl_set:Nn \l__statistics_data_tl { #2 }
    }
    \fp_zero:N \l__statistics_graph_maxheight_fp
    \fp_set:Nn \l__statistics_graph_minvalue_fp {inf}
    \fp_set:Nn \l__statistics_graph_maxvalue_fp {-inf}
    \fp_zero:N \l__statistics_total_fp
    \int_zero:N \l__statistics_nbvals_int
    \bool_set_true:N \l__statistics_graph_allranges_bool
```

```
    \keyval_parse:NNV
            \__statistics_graph_prepare:n
            \__statistics_graph_prepare:nn
            \l__statistics_data_tl
    \tl_clear:N \l__statistics_graph_tikzdata_tl
    \tl_clear:N \l__statistics_graph_tikzinfo_tl
    \int_zero:N \l__statistics_currange_int
    \bool_if:NTF \l__statistics_graph_allranges_bool {
        \bool_if:NTF \l__statistics_graph_cumulative_bool {
\ExplSyntaxOn%     lwarp
            \__statistics_graph_dopicture_cumulative:
\ExplSyntaxOff%    lwarp
        }{
\ExplSyntaxOn%     lwarp
            \__statistics_graph_dopicture_hist:
\ExplSyntaxOff%    lwarp
        }
    }{
\ExplSyntaxOn%    lwarp
        \__statistics_graph_dopicture_comb:
\ExplSyntaxOff%    lwarp
    }
    \iow_now:Nx \@auxout {
        \exp_not:n {
            \ExplSyntaxOn
            \tl_gset:cn
        }
        {
            \exp_not:n {g__statistics_graph_xstep_}
            \int_use:N \g__statistics_graph_last_int
            \exp_not:n {_tl}
        }
        {
            \fp_to_decimal:N \g__statistics_graph_xstep_fp
        }
        \exp_not:n {
            \ExplSyntaxOff
        }
    }
    \group_end:
}

\ExplSyntaxOff
```

File 470 **lwarp-statmath.sty**

§ 579 Package

statmath

(*Emulates or patches code by* Sebastian Ankargren.)

Pkg statmath

statmath is used as-is for SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{statmath}[2018/03/08]

\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}
```

```
\LWR@infoprocessingmathjax{statmath}

\ifdefequal{\abcbf}{\mathbf}
    {\CustomizeMathJax{\newcommand{\abcbf}[1]{\mathbf{#1}}}}
    {\CustomizeMathJax{\newcommand{\abcbf}[1]{\boldsymbol{#1}}}}

\CustomizeMathJax{\newcommand{\greekbf}[1]{\boldsymbol{#1}}}

\CustomizeMathJax{\newcommand{\bfA}{\abcbf A}}
\CustomizeMathJax{\newcommand{\bfB}{\abcbf B}}
\CustomizeMathJax{\newcommand{\bfC}{\abcbf C}}
\CustomizeMathJax{\newcommand{\bfD}{\abcbf D}}
\CustomizeMathJax{\newcommand{\bfE}{\abcbf E}}
\CustomizeMathJax{\newcommand{\bfF}{\abcbf F}}
\CustomizeMathJax{\newcommand{\bfG}{\abcbf G}}
\CustomizeMathJax{\newcommand{\bfH}{\abcbf H}}
\CustomizeMathJax{\newcommand{\bfI}{\abcbf I}}
\CustomizeMathJax{\newcommand{\bfJ}{\abcbf J}}
\CustomizeMathJax{\newcommand{\bfK}{\abcbf K}}
\CustomizeMathJax{\newcommand{\bfL}{\abcbf L}}
\CustomizeMathJax{\newcommand{\bfM}{\abcbf M}}
\CustomizeMathJax{\newcommand{\bfN}{\abcbf N}}
\CustomizeMathJax{\newcommand{\bfO}{\abcbf O}}
\CustomizeMathJax{\newcommand{\bfP}{\abcbf P}}
\CustomizeMathJax{\newcommand{\bfQ}{\abcbf Q}}
\CustomizeMathJax{\newcommand{\bfR}{\abcbf R}}
\CustomizeMathJax{\newcommand{\bfS}{\abcbf S}}
\CustomizeMathJax{\newcommand{\bfT}{\abcbf T}}
\CustomizeMathJax{\newcommand{\bfU}{\abcbf U}}
\CustomizeMathJax{\newcommand{\bfV}{\abcbf V}}
\CustomizeMathJax{\newcommand{\bfW}{\abcbf W}}
\CustomizeMathJax{\newcommand{\bfX}{\abcbf X}}
\CustomizeMathJax{\newcommand{\bfY}{\abcbf Y}}
\CustomizeMathJax{\newcommand{\bfZ}{\abcbf Z}}
\CustomizeMathJax{\newcommand{\bfa}{\abcbf a}}
\CustomizeMathJax{\newcommand{\bfb}{\abcbf b}}
\CustomizeMathJax{\newcommand{\bfc}{\abcbf c}}
\CustomizeMathJax{\newcommand{\bfd}{\abcbf d}}
\CustomizeMathJax{\newcommand{\bfe}{\abcbf e}}
\CustomizeMathJax{\newcommand{\bff}{\abcbf f}}
\CustomizeMathJax{\newcommand{\bfg}{\abcbf g}}
\CustomizeMathJax{\newcommand{\bfh}{\abcbf h}}
\CustomizeMathJax{\newcommand{\bfi}{\abcbf i}}
\CustomizeMathJax{\newcommand{\bfj}{\abcbf j}}
\CustomizeMathJax{\newcommand{\bfk}{\abcbf k}}
\CustomizeMathJax{\newcommand{\bfl}{\abcbf l}}
\CustomizeMathJax{\newcommand{\bfm}{\abcbf m}}
\CustomizeMathJax{\newcommand{\bfn}{\abcbf n}}
\CustomizeMathJax{\newcommand{\bfo}{\abcbf o}}
\CustomizeMathJax{\newcommand{\bfp}{\abcbf p}}
\CustomizeMathJax{\newcommand{\bfq}{\abcbf q}}
\CustomizeMathJax{\newcommand{\bfr}{\abcbf r}}
\CustomizeMathJax{\newcommand{\bfs}{\abcbf s}}
\CustomizeMathJax{\newcommand{\bft}{\abcbf t}}
\CustomizeMathJax{\newcommand{\bfu}{\abcbf u}}
\CustomizeMathJax{\newcommand{\bfv}{\abcbf v}}
\CustomizeMathJax{\newcommand{\bfw}{\abcbf w}}
\CustomizeMathJax{\newcommand{\bfx}{\abcbf x}}
\CustomizeMathJax{\newcommand{\bfy}{\abcbf y}}
\CustomizeMathJax{\newcommand{\bfz}{\abcbf z}}
```

```
\LWR@mathjax@addgreek@l@bfit{bf}{}% Greek lowercase bold face italic
\LWR@mathjax@addgreek@u@bfup*{bf}{}% Greek uppercase bold face upright, cap macros.

\CustomizeMathJax{\newcommand{\bfzero}{\greekbf 0}}

\CustomizeMathJax{\DeclareMathOperator{\cov}{Cov}}
\CustomizeMathJax{\DeclareMathOperator{\E}{E}}
\CustomizeMathJax{\DeclareMathOperator{\V}{V}}
\CustomizeMathJax{\newcommand{\inas}{\overset{a.s.}{\to}}}
\CustomizeMathJax{\newcommand{\indist}{\overset{d}{\to}}}
\CustomizeMathJax{\newcommand{\inprob}{\overset{p}{\to}}}
\CustomizeMathJax{\DeclareMathOperator{\plim}{plim}}
\CustomizeMathJax{\DeclareMathOperator{\tr}{tr}}
\CustomizeMathJax{\DeclareMathOperator{\vc}{vec}}
\CustomizeMathJax{\DeclareMathOperator{\vcs}{vecs}}
\CustomizeMathJax{\DeclareMathOperator{\vch}{vech}}
\CustomizeMathJax{\DeclareMathOperator{\diag}{diag}}
\CustomizeMathJax{\DeclareMathOperator{\argmin}{arg\,min}}
\CustomizeMathJax{\DeclareMathOperator{\argmax}{arg\,max}}
\end{warpMathJax}
```

File 471 **lwarp-steinmetz.sty**

§ 580 Package steinmetz

(*Emulates or patches code by* Enrico Gregorio.)

Pkg steinmetz

steinmetz is patched for use by lwarp. Emulation is provided for MathJax

for HTML output:

```
\LWR@ProvidesPackagePass{steinmetz}[2009/06/14]

\renewcommand{\phase}[2][]{%
    \begin{lateximage}*[steinmetz\{\detokenize{#2}\}]
    \ensuremath{\underline{/#2}}
    \end{lateximage}
}

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\phase}[2][]{\underline{/#2}}}
\end{warpMathJax}
```

File 472 **lwarp-stfloats.sty**

§ 581 Package stfloats

Pkg stfloats

stfloats is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{stfloats}[2017/03/27]
```

stfloats may have been preloaded by a ltj* class.

The following are provided in case they have not yet been defined:

```
\providecommand*{\fnbelowfloat}{}
\providecommand*{\fnunderfloat}{}
\providecommand*{\setbaselinefloat}{}
\providecommand*{\setbaselinefixed}{}
```

Nullified for HTML:

```
\renewcommand*{\fnbelowfloat}{}
\renewcommand*{\fnunderfloat}{}
\renewcommand*{\setbaselinefloat}{}
\renewcommand*{\setbaselinefixed}{}
```

File 473 **lwarp-struktex.sty**

§ 582 Package struktex

(*Emulates or patches code by* Jobst Hoffmann.)

Pkg struktex

struktex is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{struktex}

\BeforeBeginEnvironment{struktogramm}{%
    \begin{lateximage}[-struktex-~\PackageDiagramAltText]%
}
\AfterEndEnvironment{struktogramm}{\end{lateximage}}

\newenvironment{LWR@HTML@centernss}{\begin{center}}{\end{center}}
\LWR@formattedenv{centernss}

\newcommand{\LWR@HTML@CenterNssFile}[1]{%
    \begin{center}
    \input{#1.nss}
    \end{center}
}
\LWR@formatted{CenterNssFile}

\newcommand{\LWR@HTML@centernssfile}{\LWR@HTML@CenterNssFile}
\LWR@formatted{centernssfile}
```

File 474 **lwarp-subcaption.sty**

§ 583 Package subcaption

(*Emulates or patches code by* Axel Sommerfeldt.)

Pkg subcaption

subcaption is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{subcaption}[2018/05/01]
```

Tells lwarp to ignore minipage widths inside a subfigure or subtable. In print mode the minipages are used to place the items next to each other. In HTML they are placed side-by-side automatically.

```
\xpretocmd{\subcaption@iiminipage}
    {\minipagefullwidth}
    {}
    {\LWR@patcherror{subcaption}{subcaption@iiminipage}}
```

Likewise for a \subcaptionbox:

```
\xpretocmd{\subcaptionbox}
    {\minipagefullwidth}
    {}
    {\LWR@patcherror{subcaption}{subcaptionbox}}
```

File 475 **lwarp-subfig.sty**

§ 584 Package

subfig

(*Emulates or patches code by* Steven Douglas Cochran.)

Pkg subfig

subfig is supported and patched by lwarp.

⚠ table numbering

To have correct sub table numbers:

```
\usepackage{caption}
\captionsetup[table]{position=top}
```

⚠ lof/lotdepth

At present, the package options for lofdepth and lotdepth are not working. These counters must be set separately after the package has been loaded.

⚠ horizontal spacing

In the document source, use \hfill and \hspace* between subfigures to spread them apart horizontally. The use of other forms of whitespace may cause paragraph tags to be generated, resulting in subfigures appearing on the following lines instead of all on a single line.

for HTML output:

Accept all options for lwarp-subfig:

```
\LWR@ProvidesPackagePass{subfig}[2005/06/28]
```

\sf@@@subfloat

{⟨*1 type*⟩} [⟨*2 lof entry*⟩] [⟨*3 caption*⟩] {⟨*4 contents*⟩}

The outer minipage allows side-by-side subfloats with \hfill between.

```
\long\def\sf@@@subfloat#1[#2][#3]#4{%
\begin{minipage}{\linewidth}% lwarp

\IfValueTF{#2}{%
    \LWR@setlatestname{#2}%
}{%
    \IfValueTF{#3}{%
        \LWR@setlatestname{#3}%
    }{}%
}%
\LWR@stoppars% lwarp
    \@ifundefined{FBsc@max}{}%
        {\FB@readaux{\let\FBsuboheight\relax}}%
    \@tempcnta=\@ne
    \if@minipage
      \@tempcnta=\z@
    \else\ifdim \lastskip=\z@ \else
```

```
    \@tempcnta=\tw@
  \fi\fi
  \ifmaincaptiontop
    \sf@top=\sf@nearskip
    \sf@bottom=\sf@farskip
  \else
    \sf@top=\sf@farskip
    \sf@bottom=\sf@nearskip
  \fi
  \leavevmode

%   \setbox\@tempboxa \hbox{#4}%
%   \@tempdima=\wd\@tempboxa
%   \@ifundefined{FBsc@max}{}%
%       {\global\advance\Xhsize-\wd\@tempboxa
%        \dimen@=\ht\@tempboxa
%        \advance\dimen@\dp\@tempboxa
%        \ifdim\dimen@>\FBso@max
%          \global\FBso@max\dimen@
%        \fi}%
```

Do not use boxes, which interfere with `lateximages`:

```
%   \vtop%
  \bgroup
%     \vbox%
    \bgroup
      \ifcase\@tempcnta
        \@minipagefalse
      \or
%         \vskip\sf@top
      \or
        \ifdim \lastskip=\z@ \else
%           \@tempskipb\sf@top\relax\@xaddvskip
        \fi
      \fi
      \sf@ifpositiontop{%
        \ifx \@empty#3\relax \else
          \sf@subcaption{#1}{#2}{#3}%
%           \vskip\sf@capskip
%           \vskip\sf@captopadj
        \fi\egroup
%         \hrule width0pt height0pt depth0pt
          \LWR@startpars% lwarp
% \box\@tempboxa
          #4
          \LWR@stoppars% lwarp
      }{%
      \LWR@startpars% lwarp
      \@ifundefined{FBsc@max}%
          {
% \box\@tempboxa
              #4
          }%
          {\ifx\FBsuboheight\relax
%              \box\@tempboxa
              #4
           \else
%              \vbox to \FBsuboheight{\FBafil\box\@tempboxa\FBbfil}%
              #4
           \fi}%
```

```
        \LWR@stoppars% lwarp
          \egroup
          \ifx \@empty#3\relax \else
%             \vskip\sf@capskip
%             \hrule width0pt height0pt depth0pt
            \sf@subcaption{#1}{#2}{#3}%
         \fi
        }%
%       \vskip\sf@bottom
    \egroup
    \@ifundefined{FBsc@max}{}%
        {\addtocounter{FRobj}{-1}%
         \ifnum\c@FRobj=0\else
           \subfloatrowsep
         \fi}%
    \ifmaincaptiontop\else
      \global\advance\@nameuse{c@\@captype}\m@ne
    \fi
\end{minipage}% lwarp
\LWR@startpars% lwarp
  \endgroup\ignorespaces%
}%
```

\sf@subcaption {⟨*1 type*⟩} {⟨*2 lof entry*⟩} {⟨*3 caption*⟩}

```
\long\def\sf@subcaption#1#2#3{%
\LWR@stoppars% lwarp
  \ifx \relax#2\relax \else
    \bgroup
      \let\label=\@gobble
      \let\protect=\string
      \def\@subcaplabel{%
        \caption@lstfmt{\@nameuse{p@#1}}{\@nameuse{the#1}}}%
     \sf@updatecaptionlist{#1}{#2}{\the\value{\@captype}}{\the\value{#1}}%
    \egroup
  \fi
  \bgroup
    \ifx \relax#3\relax
      \let\captionlabelsep=\relax
    \fi
%     \setbox0\vbox{%
%        \hb@xt@\the\@tempdima{%
%
% %          \hss
% %         \parbox[t]{\the\@tempdima}{%
%           \caption@make
%               {\@nameuse{sub\@captype name}}%
%               {\@nameuse{thesub\@captype}}%
%               {#3}
% %  }%
% %            \hss
%   }
%  }%
    \@ifundefined{FBsc@max}%
%         {\box0}%
        {
%  \parbox[t]{\the\@tempdima}{%
\LWR@traceinfo{sfsubcap B1}%    lwarp
            \LWR@figcaption%    lwarp
            \caption@make
```

```
                {\@nameuse{sub\@captype name}}%
                {\@nameuse{thesub\@captype}}%
                {\LWR@isolate{#3}}%

            \endLWR@figcaption%     lwarp
\LWR@traceinfo{sfsubcap B2}%        lwarp
%  }%
        }%
        {\dimen@\ht0%
         \advance\dimen@\dp0%
         \ifdim\dimen@>\FBsc@max
           \global\FBsc@max\dimen@
         \fi
         \FB@readaux{\let\FBsubcheight\relax}%
         \ifx\FBsubcheight\relax
           \def\next{
%  \parbox[t]{\the\@tempdima}
            }%
         \else
           \def\next{
%  \parbox[t][\FBsubcheight][t]{\the\@tempdima}
            }%
         \fi
%          \vbox{%
%            \hb@xt@\the\@tempdima{%

%              \hss
%              \next{%
\LWR@traceinfo{sfsubcap C1}% lwarp
                \caption@make
                    {\@nameuse{sub\@captype name}}%
                    {\@nameuse{thesub\@captype}}%
                    {#3}
\LWR@traceinfo{sfsubcap C1}% lwarp
%  }%
%              \hss

%  }
%           }
        }%
  \egroup
\LWR@startpars% lwarp
}
```

\subfloat@label

Patches for \sf@sub@label:

```
\xpretocmd{\subfloat@label}
    {\LWR@ensuredoingapar}
    {}
    {\LWR@patcherror{subfig}{subfloat@label}}
```

Patches for \subref.

\sf@subref

{⟨*label*⟩}

The unstarred version uses a \ref link whose printed text comes from the sub@<label>:

```
\renewcommand{\sf@subref}[1]{%
    \LWR@subnewref{#1}{sub@#1}%
```

```
}
```

`\sf@@subref` {⟨*label*⟩}

The starred version uses the printed `sub@<label>` which is stored as if it were a page number:

```
\renewcommand{\sf@@subref}[1]{\LWR@orig@pageref{sub@#1}}
```

Defining new subfloats. The `l@sub<type>` for each is redefined.

`\@newsubfloat` [⟨*keys/values*⟩] {⟨*float name*⟩}

```
\LetLtxMacro\LWR@orig@newsubfloat\@newsubfloat

\def\@newsubfloat[#1]#2{%
\LWR@orig@newsubfloat[#1]{#2}%
\renewcommand{\l@sub#2}[2]{\hypertocfloat{2}{sub#2}{\ext@sub#2}{##1}{##2}}%
}
```

Pre-defined for figures and tables:

`\l@subfigure` {⟨*text*⟩} {⟨*pagenum*⟩}

```
\renewcommand{\l@subfigure}[2]{\hypertocfloat{2}{subfigure}{lof}{#1}{#2}}
```

`\l@subtable` {⟨*text*⟩} {⟨*pagenum*⟩}

```
\renewcommand{\l@subtable}[2]{\hypertocfloat{2}{subtable}{lot}{#1}{#2}}
```

File 476 **lwarp-subfigure.sty**

§ 585 Package

subfigure

Pkg `subfigure`

subfigure is emulated by subfig.

for HTML output:

```
\LWR@ProvidesPackageDrop{subfigure}[2002/03/15]
\RequirePackage{subfig}

\LetLtxMacro\subfigure\subfloat
\LetLtxMacro\subtable\subfloat
\LetLtxMacro\Subref\subref
\@ifundefined{figuretopcaptrue}{\newif\iffiguretopcap}{}
\newif\ifsubfiguretopcap
\newif\ifsubcaphang
\newif\ifsubcapcenter
\newif\ifsubcapcenterlast
\newif\ifsubcapnooneline
\newif\ifsubcapraggedright
\newskip\subfigtopskip
\newskip\subfigcapskip
\newdimen\subfigcaptopadj
\newskip\subfigbottomskip
\newdimen\subfigcapmargin
\newskip\subfiglabelskip
\newcommand*{\subcapsize}{}
\newcommand*{\subcaplabelfont}{}
```

```
\newcommand*{\subcapfont}{}
```

File 477 **lwarp-subsupscripts.sty**

§ 586 Package

subsupscripts

(*Emulates or patches code by* Riccardo Bresciani.)

Pkg subsupscripts

subsupscripts is used as-is for SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{subsupscripts}[2009/10/27]
```

The larger skips are used here.

```
\begin{warpMathJax}
\CustomizeMathJax{%
    \newcommand{\fourscriptsC}[7]{%
        {}^{#2}_{#3}\hspace{#6}#1\hspace{#7}{}^{#4}_{#5}%
    }
}
\CustomizeMathJax{%
    \newcommand{\lrsubscriptsC}[5]{%
        \fourscriptsC{#1}{}{#2}{}{#3}{#4}{#5}%
    }
}
\CustomizeMathJax{%
    \newcommand{\lrsuperscriptsC}[5]{%
        \fourscriptsC{#1}{#2}{}{#3}{}{#4}{#5}%
    }
}
\CustomizeMathJax{%
    \newcommand{\fourscripts}[5]{%
        \fourscriptsC{#1}{#2}{#3}{#4}{#5}{0ex}{0ex}%
    }
}
\CustomizeMathJax{%
    \newcommand{\lrsubscripts}[3]{\fourscripts{#1}{}{#2}{}{#3}}
}
\CustomizeMathJax{%
    \newcommand{\lrsuperscripts}[3]{\fourscripts{#1}{#2}{}{#3}{}}
}
\CustomizeMathJax{%
    \newcommand{\twolscripts}[4][-.16ex]{{}^{#3}_{#4}\hspace{#1}#2}
}
\CustomizeMathJax{%
    \newcommand{\tworscripts}[4][-.07ex]{#2\hspace{#1}{}^{#3}_{#4}}
}
\CustomizeMathJax{%
    \newcommand{\lsubscript}[3][-.16ex]{\twolscripts[#1]{#2}{}{#3}}
}
\CustomizeMathJax{%
    \newcommand{\lsuperscript}[3][-.16ex]{\twolscripts[#1]{#2}{#3}{}}
}
\CustomizeMathJax{%
    \newcommand{\rsubscript}[3][-.07ex]{\tworscripts[#1]{#2}{}{#3}}
}
\CustomizeMathJax{%
```

```
    \newcommand{\rsuperscript}[3][-.07ex]{\tworscripts[#1]{#2}{#3}{}}
}
\end{warpMathJax}
```

File 478 **lwarp-supertabular.sty**

§ 587 Package

supertabular

(*Emulates or patches code by* Johannes Braams, Theo Jurriens.)

Pkg supertabular

supertabular is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{supertabular}[2004/02/20]
```

⚠ Misplaced alignment tab character &

For `\tablefirsthead`, etc., enclose them as follows:

```
\StartDefiningTabulars
\tablefirsthead
. . .
\StopDefiningTabulars
```

See section 8.10.1.

⚠ lateximage

supertabular and xtab are not supported inside a `lateximage`.

```
\newcommand{\LWRST@firsthead}{}

\newcommand{\tablefirsthead}[1]{%
    \long\gdef\LWRST@firsthead{#1}%
}

\newcommand{\tablehead}[1]{}
\newcommand{\tabletail}[1]{}

\newcommand{\LWRST@lasttail}{}

\newcommand{\tablelasttail}[1]{%
    \long\gdef\LWRST@lasttail{#1}%
}


\newcommand{\tablecaption}[2][]{%
    \long\gdef\LWRST@caption{%
        \ifblank{#1}%
            {\caption{#2}}%
            {\caption[#1]{#2}}%
    }%
}

\let\topcaption\tablecaption
\let\bottomcaption\tablecaption


\newcommand*{\LWRST@caption}{}

\newcommand*{\shrinkheight}[1]{}

\NewDocumentEnvironment{supertabular}{s o m}
```

```
{%
\LWR@traceinfo{supertabular}%
\begin{table}%
\LWRST@caption%
\begin{tabular}{#3}%
\TabularMacro\ifdefvoid{\LWRST@firsthead}%
{\LWR@getmynexttoken}%
{\expandafter\LWR@getmynexttoken\LWRST@firsthead}%
}%
{%
\ifdefvoid{\LWRST@lasttail}%
{}%
{%
\TabularMacro\ResumeTabular%
\LWRST@lasttail%
}%
\end{tabular}%
\end{table}%

\gdef\LWRST@caption{}%

\LWR@traceinfo{supertabular done}%
}

\NewDocumentEnvironment{mpsupertabular}{s o m}
{\minipage{\linewidth}\supertabular{#3}}
{\endsupertabular\endminipage}
```

File 479 **lwarp-svg.sty**

§ 588 Package **svg**

(*Emulates or patches code by* Philip Ilten, Falk Hanisch.)

Pkg svg

svg is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{svg}[2020/10/23]

\xpretocmd{\includesvg}%
    {\begin{lateximage}}%
    {}%
    {\LWR@patcherror{svg}{includesvg}}

\xapptocmd{\includesvg}%
    {\end{lateximage}}%
    {}%
    {\LWR@patcherror{svg}{includesvg}}

\xpretocmd{\includeinkscape}%
    {\begin{lateximage}}%
    {}%
    {\LWR@patcherror{svg}{includeinkscape}}

\xapptocmd{\includeinkscape}%
    {\end{lateximage}}%
    {}%
    {\LWR@patcherror{svg}{includeinkscape}}
```

File 480 **lwarp-swfigure.sty**

§ 589 Package swfigure

(*Emulates or patches code by* Claudio Beccari.)

Pkg swfigure swfigure is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{swfigure}[2020-11-10]

\NewDocumentEnvironment{DFimage}%
  {O{SW} m O{#4} m o D(){0.8} D<>{0} D||{0.25} D!!{}}%
{%
    \begin{figure}
    \centering
    \includegraphics{#2}
    \caption[#3]{#4}
    \IfValueT{#5}{\label{#5}}
    \end{figure}
}%
{}%
```

File 481 **lwarp-sympytex.sty**

§ 590 Package sympytex

(*Emulates or patches code by* Tim Molteno.)

Pkg sympytex sympytex is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{sympytex}[2014/05/16]

\AfterEndPreamble{

\AtBeginEnvironment{sympyblock}{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {}%
        {%
            \LWR@forcenewpage%
            \LWR@atbeginverbatim{verbatim}%
        }%
}

\AfterEndEnvironment{sympyblock}{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {}%
        {%
            \LWR@afterendverbatim%
        }%
}

}
```

File 482 **lwarp-syntonly.sty**

§ 591 Package

syntonly

(*Emulates or patches code by* Frank Mittelbach, Rainer Schöpf.)

Pkg syntonly

syntonly is ignored.

for HTML output:

Discard all options for lwarp-syntonly:

```
\LWR@ProvidesPackageDrop{syntonly}[2017/06/30]

\newif\ifsyntax@
\syntax@false

\newcommand*{\syntaxonly}{}

\@onlypreamble\syntaxonly


\def\nopages@{}
```

File 483 **lwarp-tabfigures.sty**

§ 592 Package

tabfigures

Pkg tabfigures

tabfigures is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{tabfigures}[2012/01/24]
```

File 484 **lwarp-tablefootnote.sty**

§ 593 Package

tablefootnote

Pkg tablefootnote

tablefootnote is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{tablefootnote}[2014/01/26]
```

This works because in HTML tables are no longer floats.

```
\LetLtxMacro\tablefootnote\footnote
```

File 485 **lwarp-tabls.sty**

§ 594 Package

tabls

(*Emulates or patches code by* Donald Arseneau.)

Pkg tabls

tabls is emulated. \LWR@hline is used to handle the optional argument when tabls is loaded.

for HTML output:

```
\LWR@ProvidesPackageDrop{tabls}

\newdimen\tablinesep
\newdimen\arraylinesep
\newdimen\extrarulesep
```

File 486 **lwarp-tabularx.sty**

§ 595 Package

tabularx

(*Emulates or patches code by* David Carlisle.)

Pkg tabularx

tabularx is emulated by lwarp.

for HTML output:

Discard all options for lwarp-tabularx:

```
\LWR@ProvidesPackageDrop{tabularx}[2016/02/03]
\RequirePackage{array}
```

\tabularxcolumn is ignored. All X columns will be p for now. The width is ignored.

```
\def\tabularxcolumn#1{p{#1}}
\newcolumntype{X}{p{1in}}

\DeclareDocumentEnvironment{tabularx}{m o m}
    {\tabular{#3}}
    {\endtabular}

\DeclareDocumentEnvironment{tabularx*}{m o m}
    {\tabular{#3}}
    {\endtabular}
```

File 487 **lwarp-tabulary.sty**

§ 596 Package

tabulary

(*Emulates or patches code by* David Carlisle.)

Pkg tabulary

tabulary is emulated by lwarp.

for HTML output:

Discard all options for lwarp-tabulary.

Column types L, C, R, and J are emulated by lwarp core code.

```
\LWR@ProvidesPackageDrop{tabulary}[2014/06/11]
\RequirePackage{array}

\NewDocumentEnvironment{tabulary}{m o m}
{\tabular{#3}}
{\endtabular}
```

```
6
7 \NewDocumentEnvironment{tabulary*}{m o m}
8 {\tabular{#3}}
9 {\endtabular}

10 \newcolumntype{L}{l}
11 \newcolumntype{C}{c}
12 \newcolumntype{R}{r}
13 \newcolumntype{J}{l}

14 \newdimen\tymin
15 \newdimen\tymax
16 \def\tyformat{}
```

File 488 **lwarp-tagpdf.sty**

§ 597 Package

tagpdf

Pkg tagpdf

tagpdf is mostly ignored, but emulates alt text, for images only. (HTML only has alternate text for images.)

(If left enabled for HTML output, tagpdf errors when producing HTML, somehow due to the HTML page numbers.)

for HTML output:

```
1 \LWR@ProvidesPackageDrop{tagpdf}[2021-08-27]

2 \ExplSyntaxOn
3
4 \tl_new:N \l__uftag_mc_key_label_tl
5
6 \keys_define:nn { __tag / mc }
7  {
8    stash                    .bool_set:N    = \l__tag_mc_key_stash_bool,
9    __artifact-bool          .bool_set:N    = \l__tag_mc_artifact_bool,
10   __artifact-type          .choice:,
11   __artifact-type / pagination .code:n    =
12     {},
13   __artifact-type / pagination/header .code:n    =
14     {},
15   __artifact-type / pagination/footer .code:n    =
16     {},
17   __artifact-type / layout     .code:n    =
18     {},
19   __artifact-type / page       .code:n    =
20     {},
21   __artifact-type / background .code:n    =
22     {},
23   __artifact-type / notype     .code:n    =
24     {},
25   __artifact-type /      .code:n    =
26     {},
27 }
28
29 \keys_define:nn { __tag / mc }
30  {
31    tag .code:n = % the name (H,P,Span) etc
```

```
      {},
    raw  .code:n =
      {},
    alttext .code:n      = % Alt property
      {
        \gdef\LWR@ThisAltText{\detokenize\expandafter{#1}}%
      },
    actualtext .code:n      = % ActualText property
      {},
    label .tl_set:N        = \l__tag_mc_key_label_tl,
    artifact .code:n       =
      {},
    artifact .default:n    = {notype}
  }

\keys_define:nn { __tag / struct }
  {
    label .tl_set:N      = \l__tag_struct_key_label_tl,
    stash .bool_set:N    = \l__tag_struct_elem_stash_bool,
    tag   .code:n        = % S property
      {},
    title .code:n        = % T property
      {},
    title-o .code:n        = % T property
      {},
    alttext .code:n      = % Alt property
      {
        \gdef\LWR@ThisAltText{\detokenize\expandafter{#1}}%
      },
    actualtext .code:n  = % ActualText property
      {},
    lang .code:n        = % Lang property
      {},
    ref .code:n        = % Lang property
      {},
    E .code:n        = % E property
      {},
  }

\keys_define:nn { __tag / struct }
 {
    AF .code:n        = % AF property
      {},
   ,AFinline .code:n =
     {}
   ,AFinline-o .code:n =
     {}
 }

\keys_define:nn { __tag / struct }
  {
    attribute-class .code:n =
     {}
  }

\keys_define:nn { __tag / struct }
  {
   attribute .code:n  = % A property (attribute, value currently a dictionary)
      {},
  }
```

```
92
93 \cs_new_protected:Npn \__tag_ref_label:nn #1 #2 %#1 label, #2 name of list mc or struct
94   {
95     \@bsphack
96     \ref_label:nv {#1}{c__tag_ref#2_clist}
97     \@esphack
98   }
99 \cs_generate_variant:Nn \__tag_ref_label:nn {en}
100
101 \cs_new:Npn \__tag_ref_value:nnn #1 #2 #3 %#1 label, #2 attribute, #3 default
102   {
103     \ref_value:nnn {#1}{#2}{#3}
104   }
105 \cs_generate_variant:Nn \__tag_ref_value:nnn {enn}
106 \cs_new:Npn \__tag_ref_value_lastpage:nn #1 #2
107   {
108     \ref_value:nnn {__tag_LastPage}{#1}{#2}
109   }
110
111
112 \NewDocumentCommand \tagpdfsetup { m }{}
113
114 \cs_set_eq:NN\tagpdfifluatexTF \sys_if_engine_luatex:TF
115 \cs_set_eq:NN\tagpdfifluatexT  \sys_if_engine_luatex:T
116 \cs_set_eq:NN\tagpdfifpdftexT  \sys_if_engine_pdftex:T
117 \cs_new:Npn \tagpdfget #1 {}
118 \cs_new:Npn \uftag_get:n #1 {}
119
120 \NewDocumentCommand \tagmcifinTF { m m }{}
121
122 \NewDocumentCommand \tagmcbegin { m }{%
123     \tag_mc_begin:n {#1}%\ignorespaces
124 }
125
126 \cs_new_protected:Npn \tag_mc_begin:n #1 %#1 keyval
127   {
128     \keys_set:nn { __tag / mc } {#1}
129   }
130
131 \NewDocumentCommand \tagmcend {}{\ThisAltText{}}
132
133 \NewDocumentCommand \tagmcuse { m }{}
134
135 \cs_new_protected:Nn \uftag_mc_use:n {}
136
137 \NewDocumentCommand \tagstructbegin { m }
138   {
139     \tag_struct_begin:n {#1}
140   }
141
142 \cs_new_protected:Npn \tag_struct_begin:n #1 %#1 key-val
143   {
144     \keys_set:nn { __tag / struct} { #1 }
145   }
146
147
148 \NewDocumentCommand \tagstructend {  }
149   {
150    \tag_struct_end:
151   }
```

```
\cs_new_protected:Nn \tag_struct_end:
    {\ThisAltText{}}

\NewDocumentCommand \tagstructuse { m }{}

\NewDocumentCommand\ShowTagging { m }
  {}

\sys_if_engine_luatex:T
{
  \NewDocumentCommand\pdffakespace { }
  {}
}

\newcommand\tagpdfparaOn {}

\newcommand\tagpdfparaOff{}

\NewDocumentCommand\tagpdfsuppressmarks{m}{}

\ExplSyntaxOff
```

File 489 **lwarp-tascmac.sty**

§ 598 Package

tascmac

Pkg tascmac

tascmac is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{tascmac}[2018/03/09]

\newenvironment*{boxnote}
    {
        \BlockClass[
            padding: .5ex ;
            border: 1px solid black ;
            border-top: 1px dashed black ;
        ]{boxnote}
    }
    {\endBlockClass}

\newenvironment*{screen}[1][]
    {
        \BlockClass[
            padding: .5ex ;
            border: 1px solid gray ;
            border-radius: 8pt
        ]{boxnote}
    }
    {\endBlockClass}

\newenvironment*{itembox}[2][]
    {
        \BlockClass[
            padding: .5ex ;
            border: 1px solid gray ;
            border-radius: 8pt
```

```
        ]{boxnote}
        \InlineClass{itemboxtitle}{#2}\par
    }
    {\endBlockClass}

\newenvironment*{shadebox}
    {
        \BlockClass[
            padding: .5ex ;
            border: 1px solid black ;
            box-shadow: 3px 3px 3px \#808080 ;
        ]{boxnote}
    }
    {\endBlockClass}

\newcommand*{\mask}[2]{%
    \InlineClass[background: lightgray]{mask}{#1}%
}

\newcommand*{\maskbox}[5]{%
    \InlineClass[background: lightgray]{mask}{#5}%
}

\newcommand*{\Maskbox}[6]{%
    \InlineClass[
        background: lightgray ;
        border: #5 solid black
    ]{mask}{#6}%
}

\newcommand*{\keytop}[2][]{%
    \InlineClass[%
        padding: .2ex ;
        border: 1px solid black ;
        border-radius: .7ex ;
    ]{keytop}{#2}%
}

\def\yen{\HTMLunicode{00A5}}

\def\return{\HTMLunicode{23CE}}

\def\Return{\HTMLunicode{23CE}}

\def\ascii{ASCII Corporation}

\def\Ascii{ASCII Corporation}

\def\ASCII{ASCII Corporation}
```

File 490 **lwarp-tcolorbox.sty**

§ 599 Package

tcolorbox

(*Emulates or patches code by* Thomas F. Sturm.)

Pkg tcolorbox

tcolorbox is patched for use by lwarp.

See section 8.3.8 for limitations.

for HTML output:

```
\LWR@ProvidesPackagePass{tcolorbox}[2020/04/28]

\newbool{LWR@havetcblower}
\boolfalse{LWR@havetcblower}
```

Colors are supported via HTML styles:

```
\newcommand{\LWR@tcolorbox@findcolors}{%
    \convertcolorspec{named}{tcbcolback}{HTML}\LWR@tcbcolback
    \convertcolorspec{named}{tcbcolframe}{HTML}\LWR@tcbcolframe
    \iftcb@titlefilled%
       \convertcolorspec{named}{tcbcolbacktitle}{HTML}\LWR@tcbcolbacktitle
    \else
        \convertcolorspec{named}{tcbcolframe}{HTML}\LWR@tcbcolbacktitle
    \fi
    \convertcolorspec{named}{tcbcoltitle}{HTML}\LWR@tcbcoltitle
    \convertcolorspec{named}{tcbcolupper}{HTML}\LWR@tcbcolupper
    \convertcolorspec{named}{tcbcollower}{HTML}\LWR@tcbcollower
}

\newcommand*{\LWR@tcolorbox@titlecolorstyles}{%
    border-top: 1px solid \LWR@origpound\LWR@tcbcolframe ;
    border-bottom: 1px solid \LWR@origpound\LWR@tcbcolframe ;
    background: \LWR@origpound\LWR@tcbcolbacktitle ;
    color: \LWR@origpound\LWR@tcbcoltitle ;
}
```

The title is placed inside its own of class tcolorboxtitle.

```
\newcommand*{\LWR@showtitle@}[1]{%
    \begin{BlockClass}[
        \LWR@tcolorbox@titlecolorstyles
    ]{tcolorboxtitle}
%                       \cmdKV@LWRtcolorbox@title\par
    \kvtcb@before@title#1\kvtcb@after@title
    \end{BlockClass}
}
```

If no title, a non-breakable space is used to take some vertical space.

```
\newcommand*{\LWR@showtitle}[1]{%
    \iftcb@titlevisible
    \LWR@showtitle@{#1}
    \else
    \LWR@showtitle@{~}
    \fi
}

\newcommand*{\LWR@tcolorbox@dophantom}{%
%     \sbox\tcb@phantombox{\kvtcb@phantom}%
%     \iftcb@hasPhantom%
%         \box\tcb@phantombox%
%         \tcb@hasPhantomfalse%
%     \fi%
    \kvtcb@phantom
    \let\kvtcb@phantom\@empty%
}
```

The tcolorbox is placed inside an external of class #1, which is tcolorbox or tcolorbox inlineminipage. The upper and lower parts are placed into their own internal s of class tcolorboxupper and tcolorboxlower.

```
\newcommand*{\LWR@tcolorboxstart}[1]{
    \LWR@tcolorbox@findcolors
    \begin{BlockClass}[
        border: 1px solid \LWR@origpound\LWR@tcbcolframe ;
        background: \LWR@origpound\LWR@tcbcolback ;
    ]{#1}
    \LWR@tcolorbox@dophantom%
    \ifdefvoid{\kvtcb@title}
        {}
        {
            \LWR@showtitle{\kvtcb@title}
        }
    \begin{BlockClass}[
        color: \LWR@origpound\LWR@tcbcolupper ;
    ]{tcolorboxupper}
}
```

Floats enclose the tcolorbox.

```
\newcommand*{\LWR@tcolorbox@dostartfloat}{%
    \ifx\kvtcb@float\@empty%
%         \tcb@set@normal@unbroken@beforeafter%
    \else%
%         \edef\tcb@before@unbroken{%
%             \noexpand\tcb@float@env@begin{tcbfloat}[\kvtcb@float]%
%             \noexpand\kvtcb@everyfloat%
%         }%
%         \let\tcb@after@unbroken=\tcb@float@env@end%
        \tcb@float@env@begin{tcbfloat}[\kvtcb@float]
        \noexpand\kvtcb@everyfloat
    \fi%
}

\newcommand*{\LWR@tcolorbox@doendfloat}{%
    \ifx\kvtcb@float\@empty%
    \else%
        \tcb@float@env@end%
    \fi%
}
```

Footnotes are handled via the main footnote mechanism, and pending notes are printed before and after each tcolorbox. Footnote numbering will not match the print output.

```
\renewenvironment{tcolorbox}[1][]
    {
        \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {
            \PackageError{lwarp}
                {%
             Lwarp cannot process a tcolorbox inside a lateximage\MessageBreak
                    or SVG math.\MessageBreak
                    Enter 'H' for possible solutions%
                }
                {%
```

```
                    Use \protect\tcbox, \protect\tcboxmath, or
                    \protect\tcbhighmath\space instead.\MessageBreak%
                    (Inside math, you probably want to use these anyhow.)%
                }
        }{\relax}
        \LWR@printpendingfootnotes
        \tcb@layer@inc
        \tcb@apply@box@options{#1}
        \LWR@tcolorbox@dostartfloat%
%         \tcbset{title=,#1}
        \boolfalse{LWR@havetcblower}
        \LWR@tcolorboxstart{tcolorbox}
        \tcb@insert@before@upper%
    }
    {
        \ifbool{LWR@havetcblower}{%
            \tcb@insert@after@lower%
        }{%
            \tcb@insert@after@upper%
        }%
        \end{BlockClass}
        \LWR@printpendingfootnotes
        \tcb@layer@dec
        \end{BlockClass}
        \LWR@tcolorbox@doendfloat%
    }
```

For the lower part, the upper part is finished then the lower is started. `\tcblower` is only temporarily defined where appropriate, so the HTML version is defined globally via `\newcommand` instead of `\renewcommand`.

```
\newcommand{\tcblower}{
    \tcb@insert@after@upper%
    \end{BlockClass}
    \begin{BlockClass}[%
        border-top: 1px dashed \LWR@origpound\LWR@tcbcolframe ;
        color: \LWR@origpound\LWR@tcbcollower ;
    ]{tcolorboxlower}
    \tcb@insert@before@lower%
}
```

Starred and unstarred `\tcbline` are simple `\hrule`s.

```
\AtBeginDocument{
\ifdef{\tcbline}{
    \newcommand*{\LWR@sub@tcbline}{%
        \begin{BlockClass}{hrule}
        \end{BlockClass}
    }
   \newcommand{\LWR@HTML@tcbline}{\@ifstar\LWR@sub@tcbline\LWR@sub@tcbline}
    \LWR@formatted{tcbline}
}{}
}

\newcommand{\LWR@HTML@tcbox}[2][]{
    \LWR@printpendingfootnotes
    \LWR@tcolorbox@dostartfloat%
    \begingroup
    \tcb@layer@inc
    \tcb@apply@box@options{#1}
```

```
%     \tcbset{title=,#1}
    \boolfalse{LWR@havetcblower}
    \LWR@tcolorboxstart{tcolorbox inlineminipage}
    \tcb@insert@before@upper%
    #2
    \ifbool{LWR@havetcblower}{%
        \tcb@insert@after@lower%
    }{%
        \tcb@insert@after@upper%
    }%
    \end{BlockClass}
    \LWR@printpendingfootnotes
    \end{BlockClass}
    \tcb@layer@dec%
    \endgroup%
    \LWR@tcolorbox@dostartfloat%
    \global\booltrue{LWR@minipagethispar}%
}
\LWR@formatted{tcbox}

\appto\LWR@restoreMathJaxformatting{%
    \renewcommand{\tcbox}[2][]{#2}%
}
```

Patches for the subtitle, which is placed inside a of class tcolorboxsubtitle.

```
\xpatchcmd{\tcbsubtitle}
    {\begingroup}
   {\begingroup\let\kvtcb@title\relax\begin{BlockClass}{tcolorboxsubtitle}}
    {}
    {\LWR@patcherror{tcolorbox}{tcbsubtitle}}

\xpatchcmd{\tcbsubtitle}
    {\endgroup}
    {\end{BlockClass}\endgroup}
    {}
    {\LWR@patcherror{tcolorbox}{tcbsubtitleB}}
```

\tcboxfit is the same as \tcbox.

```
\AtBeginDocument{
    \ifdef{\tcboxfit}{%
        \let\LWR@HTML@tcboxfit\tcbox%
        \LWR@formatted{tcboxfit}
    }{}
}
```

\tcbtitle is patched to support the text font.

```
\LetLtxMacro\LWR@HTML@tcbtitle\tcbtitle
\xpatchcmd{\LWR@HTML@tcbtitle}
    {\kvtcb@before@title\tcbtitletext}
   {\kvtcb@before@title\LWR@textcurrentfont{\LWR@textcurrentcolor{\tcbtitletext}}}
    {}
    {\LWR@patcherror{tcolorbox}{LWR@HTML@tcbtitle}}
\LWR@formatted{tcbtitle}
```

List-of:

```
\renewcommand*\l@tcolorbox[2]{\hypertocfloat{1}{tcolorbox}{lof}{#1}{#2}}
```

Theorem limitations. An error is printed if the document uses `math`, `ams equation`, etc. `\tcboxmath` and `\tcbhighmath` are ignored for HTML.

```
\AtBeginDocument{
\pgfkeysifdefined{/tcb/libload/theorems}{

    \def\LWR@HTML@tcb@hack@amsmath{%
        \PackageError{lwarp}
            {%
             tcolorbox ``math'', ``ams equation'', and related\MessageBreak
                are not supported.\MessageBreak
                \protect\tcboxmath\space and
                \protect\tcbhighmath\space are emulated.\MessageBreak
                Enter 'H' for possible solutions%
            }
            {%
            Remove tcolorbox math-related options, and instead\MessageBreak
                use the usual math environments inside each tcolorbox.%
            }
    }
    \LWR@formatted{tcb@hack@amsmath}

    % Cause an error if using math:
    \tcbset{%
       math upper/.style={before upper*=\tcb@hack@amsmath,after upper*=$},%
       math lower/.style={before lower*=\tcb@hack@amsmath,after lower*=$},%
    }

    \appto\LWR@restoreorigformatting{%
    \tcbset{%
        math upper/.style={before upper*=$\displaystyle,after upper*=$},%
        math lower/.style={before lower*=$\displaystyle,after lower*=$},%
    }%
    }

    \newcommand{\LWR@HTML@tcboxmath}[2][]{#2}
    \LWR@formatted{tcboxmath}
    \newcommand{\LWR@HTML@tcbhighmath}[2][]{#2}
    \LWR@formatted{tcbhighmath}
    \appto\LWR@restoreMathJaxformatting{%
        \renewcommand{\tcboxmath}[2][]{#2}%
        \renewcommand{\tcbhighmath}[2][]{#2}%
    }
}{}% theorems loaded
}% AtBeginDocument
```

For MathJax:

```
\CustomizeMathJax{\newcommand{\tcbset}[1]{}}
\CustomizeMathJax{\newcommand{\tcbsetforeverylayer}[1]{}}
\CustomizeMathJax{\newcommand{\tcbox}[2][]{\boxed{\text{#2}}}}
\CustomizeMathJax{\newcommand{\tcboxfit}[2][]{\boxed{#2}}}
\CustomizeMathJax{\newcommand{\tcblower}{}}
\CustomizeMathJax{\newcommand{\tcbline}{}}
\CustomizeMathJax{\newcommand{\tcbtitle}{}}
\CustomizeMathJax{\newcommand{\tcbsubtitle[2][]{\mathrm{#2}}}}
\CustomizeMathJax{\newcommand{\tcboxmath}[2][]{\boxed{#2}}}
\CustomizeMathJax{\newcommand{\tcbhighmath}[2][]{\boxed{#2}}}
```

File 491 **lwarp-tensor.sty**

§ 600 Package

tensor

(*Emulates or patches code by* Philip G. Ratcliffe.)

Pkg tensor

tensor is used as-is for SVG math, and is emulated for MathJax.

⚠ spacing

Compressed spacing and left justification are not possible with MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{tensor}[2004/12/20]
```

For MathJax. Special handling is required to parse the superscript and subscript arguments.

When a superscript or subscript is seen, it is processed and then the remainder is processesed recursively.

```
\begin{warpMathJax}
\CustomizeMathJax{\def\LWRtensorindicesthreesub#1#2{{_{#2}}\LWRtensorindicesthree}}
\CustomizeMathJax{\def\LWRtensorindicesthreesup#1#2{{^{#2}}\LWRtensorindicesthree}}
```

If not a superscript nor a subscript, processing stops.

```
\CustomizeMathJax{\newcommand{\LWRtensorindicesthreenotsup}{}}
```

Check ahead for a superscript or a subscript.

```
\CustomizeMathJax{\newcommand{\LWRtensorindicesthreenotsub}{
    \ifnextchar ^ \LWRtensorindicesthreesup \LWRtensorindicesthreenotsup
}}

\CustomizeMathJax{\newcommand{\LWRtensorindicesthree}{
    \ifnextchar _ \LWRtensorindicesthreesub \LWRtensorindicesthreenotsub
}}
```

Ignore star.

```
\CustomizeMathJax{\newcommand{\LWRtensorindicestwo}{
    \ifstar\LWRtensorindicesthree\LWRtensorindicesthree
}}
```

Remove the outer brace of the argument.

```
\CustomizeMathJax{\newcommand{\indices}[1]{\LWRtensorindicestwo#1}}
```

Attempting to use \vphantom here does not work:

```
\CustomizeMathJax{\newcommand{\LWRtensortwo}[3][]{{}\indices{#1}{#2}\indices{#3}}}
```

Ignore star.

```
\CustomizeMathJax{\newcommand{\tensor}{\ifstar\LWRtensortwo\LWRtensortwo}}
```

In text mode, \nuclide is converted to an SVG image.

```
\CustomizeMathJax{%
    \newcommand{\LWRnuclidetwo}[2][]{%
        {%
            \vphantom{\mathrm{#2}}%
            {}^{\LWRtensornucleonnumber}_{#1}%
            \mathrm{#2}%
        }%
    }%
}

\CustomizeMathJax{%
    \newcommand{\nuclide}[1][]{%
        \def\LWRtensornucleonnumber{#1}%
        \LWRnuclidetwo%
    }%
}
\end{warpMathJax}
```

File 492 **lwarp-termcal.sty**

§ 601 Package

termcal

(*Emulates or patches code by* Bill Mitchell.)

Pkg termcal

termcal is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{termcal}% questionable date in the .sty file
```

Nullify the @ because everything is being done in a token list.

```
\xpatchcmd{\endcalendar}
    {@{}}
    {}
    {}
    {\LWR@patcherror{termcal}{endcalendar}}
```

Remove the hbox:

```
\xpatchcmd{\ca@doaday}
    {\hbox to \hsize{\calprintdate\hfill\ifclassday\calprintclass\fi}}
    {%
        \calprintdate\hfill\ifclassday\calprintclass\fi%
    }
    {}
    {\LWR@patcherror{termcal}{ca@doaday}}
```

Change each of two ampersands to call the lwarp tabular version:

```
\xpatchcmd{\calday}
    {&}
    {\LWR@tabularampersand}
    {}
    {\LWR@patcherror{termcal}{calday}}

```

```
\xpatchcmd{\calday}
    {&}
    {\LWR@tabularampersand}
    {}
    {\LWR@patcherror{termcal}{calday B}}
```

File 493 **lwarp-textarea.sty**

§ 602 Package textarea

(*Emulates or patches code by* Alexander I. Rozhenko.)

Pkg textarea

textarea is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{textarea}[2005/12/26]
```

```
\newcommand\StartFromTextArea{}
\newcommand\StartFromHeaderArea{}
\newcommand*\RestoreTextArea{}
\newcommand*\ExpandTextArea[1][*]{}
\let\NCC@restoretextarea\@empty
```

File 494 **lwarp-textcomp.sty**

§ 603 Package textcomp

(*Emulates or patches code by* Frank Mittelbach, Robin Fairbairns, Werner Lemberg.)

Pkg textcomp

textcomp is patched for use by lwarp.

For MathJax, the MathJax packge is used.

§ 603.1 Limitations

Some textcomp symbols do not have Unicode equivalents, and thus are not supported.

⚠ missing symbols

Many textcomp symbols are not supported by many system / browser fonts. In the css try referencing fonts which are more complete, but expect to see gaps in coverage.

§ 603.2 Package loading

for HTML output:

```
\LWR@ProvidesPackagePass{textcomp}[2017/04/05]
```

§ 603.3 HTML symbols

For HTML, use HTML entities or direct Unicode, depending on the engine.

`\AtBeginDocument` improves support for LuaLaTeX and XeLaTeX.

§ 603.3.1 pdfLaTeX symbols

```
\AtBeginDocument{
\ifPDFTeX% pdflatex or dvi latex
\newcommand*{\LWR@HTML@textdegree}{\HTMLentity{deg}}
\newcommand*{\LWR@HTML@textcelsius}{\HTMLunicode{2103}}
\newcommand*{\LWR@HTML@textohm}{\HTMLunicode{2126}}
\newcommand*{\LWR@HTML@textmu}{\HTMLunicode{00B5}}
\newcommand*{\LWR@HTML@textlquill}{\HTMLunicode{2045}}
\newcommand*{\LWR@HTML@textrquill}{\HTMLunicode{2046}}
\newcommand*{\LWR@HTML@textcircledP}{\HTMLunicode{2117}}
\newcommand*{\LWR@HTML@texttwelveudash}{\HTMLunicode{2014}}% emdash
\newcommand*{\LWR@HTML@textthreequartersemdash}{\HTMLunicode{2014}}% emdash
\newcommand*{\LWR@HTML@textmho}{\HTMLunicode{2127}}
\newcommand*{\LWR@HTML@textnaira}{\HTMLunicode{20A6}}
\newcommand*{\LWR@HTML@textpeso}{\HTMLunicode{20B1}}
\newcommand*{\LWR@HTML@textrecipe}{\HTMLunicode{211E}}
\newcommand*{\LWR@HTML@textinterrobang}{\HTMLunicode{203D}}
\newcommand*{\LWR@HTML@textinterrobangdown}{\HTMLunicode{2E18}}
\newcommand*{\LWR@HTML@textperthousand}{\HTMLunicode{2030}}
\newcommand*{\LWR@HTML@textpertenthousand}{\HTMLunicode{2031}}
\newcommand*{\LWR@HTML@textbaht}{\HTMLunicode{0E3F}}
\newcommand*{\LWR@HTML@textdiscount}{\%}
\newcommand*{\LWR@HTML@textservicemark}{\HTMLunicode{2120}}
\else
```

§ 603.3.2 XeLaTeX and LuaLaTeX symbols

NOTE: Some of the following do not print well in the listing. Consult the .dtx or .sty file for the actual characters.

```
\newcommand*{\LWR@HTML@textdegree}{°}
\newcommand*{\LWR@HTML@textcelsius}{℃}
\newcommand*{\LWR@HTML@textohm}{Ω}
\newcommand*{\LWR@HTML@textmu}{µ}
\newcommand*{\LWR@HTML@textlquill}{⁅}
\newcommand*{\LWR@HTML@textrquill}{⁆}
\newcommand*{\LWR@HTML@textcircledP}{℗}
\newcommand*{\LWR@HTML@texttwelveudash}{–}% emdash
\newcommand*{\LWR@HTML@textthreequartersemdash}{–}% emdash
\newcommand*{\LWR@HTML@textmho}{℧}
\newcommand*{\LWR@HTML@textnaira}{₦}
\newcommand*{\LWR@HTML@textpeso}{₱}
\newcommand*{\LWR@HTML@textrecipe}{℞}
\newcommand*{\LWR@HTML@textinterrobang}{‽}
\newcommand*{\LWR@HTML@textinterrobangdown}{⸘}
\newcommand*{\LWR@HTML@textperthousand}{‰}
\newcommand*{\LWR@HTML@textpertenthousand}{‱}
\newcommand*{\LWR@HTML@textbaht}{฿}
\newcommand*{\LWR@HTML@textdiscount}{\%}
\newcommand*{\LWR@HTML@textservicemark}{℠}
\fi
```

```
46
47 \LWR@formatted{textdegree}
48 \LWR@formatted{textcelsius}
49 \LWR@formatted{textohm}
50 \LWR@formatted{textmu}
51 \LWR@formatted{textlquill}
52 \LWR@formatted{textrquill}
53 \LWR@formatted{textcircledP}
54 \LWR@formatted{texttwelveudash}
55 \LWR@formatted{textthreequartersemdash}
56 \LWR@formatted{textmho}
57 \LWR@formatted{textnaira}
58 \LWR@formatted{textpeso}
59 \LWR@formatted{textrecipe}
60 \LWR@formatted{textinterrobang}
61 \LWR@formatted{textinterrobangdown}
62 \LWR@formatted{textperthousand}
63 \LWR@formatted{textpertenthousand}
64 \LWR@formatted{textbaht}
65 \LWR@formatted{textdiscount}
66 \LWR@formatted{textservicemark}
```

§ 603.4 HTML diacritics

For HTML, Unicode diacritical marks are used:

```
67 \newcommand*{\LWR@HTML@capitalcedilla}[1]{#1\HTMLunicode{0327}}
68 \newcommand*{\LWR@HTML@capitalogonek}[1]{#1\HTMLunicode{0328}}
69 \newcommand*{\LWR@HTML@capitalgrave}[1]{#1\HTMLunicode{0300}}
70 \newcommand*{\LWR@HTML@capitalacute}[1]{#1\HTMLunicode{0301}}
71 \newcommand*{\LWR@HTML@capitalcircumflex}[1]{#1\HTMLunicode{0302}}
72 \newcommand*{\LWR@HTML@capitaltilde}[1]{#1\HTMLunicode{0303}}
73 \newcommand*{\LWR@HTML@capitaldieresis}[1]{#1\HTMLunicode{0308}}
74 \newcommand*{\LWR@HTML@capitalhungarumlaut}[1]{#1\HTMLunicode{30B}}
75 \newcommand*{\LWR@HTML@capitalring}[1]{#1\HTMLunicode{30A}}
76 \newcommand*{\LWR@HTML@capitalcaron}[1]{#1\HTMLunicode{30C}}
77 \newcommand*{\LWR@HTML@capitalbreve}[1]{#1\HTMLunicode{306}}
78 \newcommand*{\LWR@HTML@capitalmacron}[1]{#1\HTMLunicode{304}}
79 \newcommand*{\LWR@HTML@capitaldotaccent}[1]{#1\HTMLunicode{307}}
```

`\textcircled` becomes a span with a rounded border. `\providecommand` is used to avoid conflict with xunicode.

```
80 \providecommand*{\LWR@HTML@textcircled}[1]{%
81     \InlineClass[border: 1px solid \LWR@currenttextcolor]{textcircled}{#1}%
82 }
83
84 \LWR@formatted{capitalcedilla}
85 \LWR@formatted{capitalogonek}
86 \LWR@formatted{capitalgrave}
87 \LWR@formatted{capitalacute}
88 \LWR@formatted{capitalcircumflex}
89 \LWR@formatted{capitaltilde}
90 \LWR@formatted{capitaldieresis}
91 \LWR@formatted{capitalhungarumlaut}
92 \LWR@formatted{capitalring}
93 \LWR@formatted{capitalcaron}
94 \LWR@formatted{capitalbreve}
95 \LWR@formatted{capitalmacron}
96 \LWR@formatted{capitaldotaccent}
```

```
97
98 \LWR@formatted{textcircled}
```

Nullify textcomp macros when generating filenames:

```
99 \FilenameNullify{%
100     \renewcommand*{\textdegree}{}%
101     \renewcommand*{\textcelsius}{}%
102     \renewcommand*{\textohm}{}%
103     \renewcommand*{\textmu}{}%
104     \renewcommand*{\textlquill}{}%
105     \renewcommand*{\textrquill}{}%
106     \renewcommand*{\textcircledP}{}%
107     \renewcommand*{\texttwelveudash}{}%
108     \renewcommand*{\textthreequartersemdash}{}%
109     \renewcommand*{\textmho}{}%
110     \renewcommand*{\textnaira}{}%
111     \renewcommand*{\textpeso}{}%
112     \renewcommand*{\textrecipe}{}%
113     \renewcommand*{\textinterrobang}{}%
114     \renewcommand*{\textinterrobangdown}{}%
115     \renewcommand*{\textperthousand}{}%
116     \renewcommand*{\textpertenthousand}{}%
117     \renewcommand*{\textbaht}{}%
118     \renewcommand*{\textdiscount}{}%
119     \renewcommand*{\textservicemark}{}%
120     \renewcommand*{\textcircled}[1]{#1}%
121     \renewcommand*{\capitalcedilla}[1]{#1}%
122     \renewcommand*{\capitalogonek}[1]{#1}%
123     \renewcommand*{\capitalgrave}[1]{#1}%
124     \renewcommand*{\capitalacute}[1]{#1}%
125     \renewcommand*{\capitalcircumflex}[1]{#1}%
126     \renewcommand*{\capitaltilde}[1]{#1}%
127     \renewcommand*{\capitaldieresis}[1]{#1}%
128     \renewcommand*{\capitalhungarumlaut}[1]{#1}%
129     \renewcommand*{\capitalring}[1]{#1}%
130     \renewcommand*{\capitalcaron}[1]{#1}%
131     \renewcommand*{\capitalbreve}[1]{#1}%
132     \renewcommand*{\capitalmacron}[1]{#1}%
133     \renewcommand*{\capitaldotaccent}[1]{#1}%
134 }% FilenameNullify
135
136 }% AtBeginDocument
```

For MathJax:

```
137 \CustomizeMathJax{\require{textcomp}}
```

File 495 **lwarp-textfit.sty**

§ 604 Package

textfit

Pkg textfit

textfit is emulated.

Text is placed into a of class `textfit`. Sizes are approximated, and also limited by browser min/max font-size settings.

for HTML output:

```
\LWR@ProvidesPackageDrop{textfit}[1994/04/15]

\newsavebox{\LWR@textfitbox}

\newcommand*{\LWR@textfitscale}[2]{%
\setlength{\LWR@templengthone}{#1}%
\setlength{\LWR@templengthone}{%
    1em*\ratio{\LWR@templengthone}{\LWR@templengthtwo}%
}%
\InlineClass[font-size:\LWR@printlength{\LWR@templengthone}]{textfit}{#2}%
}

\newcommand*{\scaletowidth}[2]{%
\sbox{\LWR@textfitbox}{#2}%
\settowidth{\LWR@templengthtwo}{\usebox{\LWR@textfitbox}}%
\LWR@textfitscale{#1}{#2}%
}

\newcommand*{\scaletoheight}[2]{%
\sbox{\LWR@textfitbox}{#2}%
\settoheight{\LWR@templengthtwo}{\usebox{\LWR@textfitbox}}%
\LWR@textfitscale{#1}{#2}%
}
```

File 496 **lwarp-textpos.sty**

§ 605 Package

textpos

(*Emulates or patches code by* Norman Gray.)

Pkg textpos

textpos is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{textpos}[2020/09/26]

\NewDocumentEnvironment{textblock}{m o r()}{}{}
\NewDocumentEnvironment{textblock*}{m o r()}{}{}
\newcommand*{\TPGrid}[3][]{}
\def\TPShowGrid{\@ifstar{\@TPShowGrid}{\@TPShowGrid}}
\def\@TPShowGrid#1#2{}
\NewDocumentCommand{\TPMargin}{s o}{}
\newcommand*{\textblockcolour}[1]{}
\newcommand*{\textblockrulecolour}[1]{}
\newcommand*{\textblockcolor}[1]{}
\newcommand*{\textblockrulecolor}[1]{}
\newcommand*{\tekstblokkulur}[1]{}
\newcommand*{\tekstblokrulekulur}[1]{}
\newlength{\TPHorizModule}
\newlength{\TPVertModule}
\newlength{\TPboxrulesize}
\newcommand{\textblocklabel}[1]{}
\newcommand*{\showtextsize}{}
\newcommand{\textblockorigin}[2]{}
\newcommand*{\TPoptions}[1]{}
\newcommand*{\TPReferencePosition}[1]{}
```

File 497 **lwarp-theorem.sty**

§ 606 Package theorem

(*Emulates or patches code by* Frank Mittelbach.)

Pkg theorem

theorem is patched for use by lwarp.

Table 21: Theorem package — css styling of theorems and proofs

Theorem: of class theorembody<theoremstyle>

Theorem Header: of class theoremheader

where <theoremstyle> is plain, break, etc.

for HTML output:

```
\LWR@ProvidesPackagePass{theorem}[2014/10/28]
```

§ 606.1 Remembering the theorem style

Storage for the style being used for new theorems:

```
\newcommand{\LWR@newtheoremstyle}{plain}
```

Patched to remember the style being used for new theorems:

```
\gdef\theoremstyle#1{%
   \@ifundefined{th@#1}{\@warning
          {Unknown theoremstyle `#1'. Using `plain'}%
          \theorem@style{plain}%
           \renewcommand{\LWR@newtheoremstyle}{plain}% lwarp
          }%
      {%
          \theorem@style{#1}%
          \renewcommand{\LWR@newtheoremstyle}{#1}% lwarp
      }%
      \begingroup
        \csname th@\the\theorem@style \endcsname
      \endgroup}
```

Patched to remember the style for this theorem type, and set it later when the environment is started.

```
\gdef\@xnthm#1#2[#3]{%
   \expandafter\@ifdefinable\csname #1\endcsname
   {%
    \csedef{LWR@thmstyle#1}{\LWR@newtheoremstyle}% lwarp
    \@definecounter{#1}\@newctr{#1}[#3]%
    \expandafter\xdef\csname the#1\endcsname
      {\expandafter \noexpand \csname the#3\endcsname
       \@thmcountersep \@thmcounter{#1}}%
    \def\@tempa{\global\@namedef{#1}}%
    \expandafter \@tempa \expandafter{%
```

```
      \csname th@\the \theorem@style
            \expandafter \endcsname \the \theorem@bodyfont
     \@thm{#1}{#2}}%
    \global \expandafter \let \csname end#1\endcsname \@endtheorem
   \AtBeginEnvironment{#1}{\edef\LWR@thisthmstyle{\@nameuse{LWR@thmstyle#1}}}% lwarp
   }}

\gdef\@ynthm#1#2{%
    \expandafter\@ifdefinable\csname #1\endcsname
   {
    \csedef{LWR@thmstyle#1}{\LWR@newtheoremstyle}% lwarp
    \@definecounter{#1}%
    \expandafter\xdef\csname the#1\endcsname{\@thmcounter{#1}}%
    \def\@tempa{\global\@namedef{#1}}\expandafter \@tempa
     \expandafter{\csname th@\the \theorem@style \expandafter
     \endcsname \the\theorem@bodyfont \@thm{#1}{#2}}%
    \global \expandafter \let \csname end#1\endcsname \@endtheorem
   \AtBeginEnvironment{#1}{\edef\LWR@thisthmstyle{\@nameuse{LWR@thmstyle#1}}}% lwarp
   }}

\gdef\@othm#1[#2]#3{%
  \expandafter\ifx\csname c@#2\endcsname\relax
   \@nocounterr{#2}%
  \else
   \expandafter\@ifdefinable\csname #1\endcsname
   {
    \csedef{LWR@thmstyle#1}{\LWR@newtheoremstyle}% lwarp
    \expandafter \xdef \csname the#1\endcsname
     {\expandafter \noexpand \csname the#2\endcsname}%
    \def\@tempa{\global\@namedef{#1}}\expandafter \@tempa
     \expandafter{\csname th@\the \theorem@style \expandafter
     \endcsname \the\theorem@bodyfont \@thm{#2}{#3}}%
    \global \expandafter \let \csname end#1\endcsname \@endtheorem
   \AtBeginEnvironment{#1}{\edef\LWR@thisthmstyle{\@nameuse{LWR@thmstyle#1}}}% lwarp
    }%
  \fi}
```

§ 606.2 css patches

The following are patched for css.

These were in individual files `thp.sty` for plain, `thmb.sty` for margin break, etc. They are gathered together here.

Each theorem is encased in a `BlockClass` environment of class `theorembody<style>`.

Each header is encased in an `\InlineClass` of class `theoremheader`.

```
\gdef\th@plain{%
  \def\@begintheorem##1##2{%
        \item[
            \InlineClass{theoremheader}{##1\ ##2}
        ]
    }%
\def\@opargbegintheorem##1##2##3{%
   \item[
        \InlineClass{theoremheader}{##1\ ##2\ (##3)}
    ]
    }
}
```

```
74
75 \gdef\th@break{%
76   \def\@begintheorem##1##2{%
77     \item[
78         \InlineClass{theoremheader}{##1\ ##2}\newline%
79     ]
80     }%
81 \def\@opargbegintheorem##1##2##3{%
82   \item[
83         \InlineClass{theoremheader}{##1\ ##2\ (##3)}\newline
84     ]
85     }
86 }
87
88 \gdef\th@marginbreak{%
89   \def\@begintheorem##1##2{
90     \item[
91         \InlineClass{theoremheader}{##2 \qquad ##1}\newline
92     ]
93     }%
94 \def\@opargbegintheorem##1##2##3{%
95     \item[
96         \InlineClass{theoremheader}{##2 \qquad ##1\ %
97         (##3)}\newline
98     ]
99     }
100 }
101
102 \gdef\th@changebreak{%
103   \def\@begintheorem##1##2{
104     \item[
105         \InlineClass{theoremheader}{##2\ ##1}\newline
106     ]
107     }%
108 \def\@opargbegintheorem##1##2##3{%
109     \item[
110         \InlineClass{theoremheader}{ ##2\ ##1\ %
111         (##3)}\newline
112     ]
113     }
114 }
115
116 \gdef\th@change{%
117   \def\@begintheorem##1##2{
118     \item[
119         \InlineClass{theoremheader}{##2\ ##1}
120     ]
121     }%
122 \def\@opargbegintheorem##1##2##3{%
123     \item[
124         \InlineClass{theoremheader}{##2\ ##1\ (##3)}
125     ]
126     }
127 }
128
129 \gdef\th@margin{%
130   \def\@begintheorem##1##2{
131     \item[
132         \InlineClass{theoremheader}{##2 \qquad ##1}
133     ]
```

```
    }%
\def\@opargbegintheorem##1##2##3{%
    \item[
            \InlineClass{theoremheader}{##2 \qquad ##1\ (##3)}
    ]
    }
}
```

Patched for css:

```
\gdef\@thm#1#2{\refstepcounter{#1}%
\LWR@forcenewpage% lwarp

    \LWR@printpendingfootnotes%                   lwarp

    \BlockClass{theorembody\LWR@thisthmstyle}% lwarp
   \trivlist
   \@topsep \theorempreskipamount               % used by first \item
   \@topsepadd \theorempostskipamount           % used by \@endparenv
   \@ifnextchar [%
   {\@ythm{#1}{#2}}%
   {\@begintheorem{#2}{\csname the#1\endcsname}\ignorespaces}}

\gdef\@endtheorem{%
\endtrivlist

    \LWR@printpendingfootnotes%                   lwarp

\endBlockClass
}
```

File 498 **lwarp-thinsp.sty**

§ 607 Package thinsp

Pkg thinsp

thinsp is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{thinsp}[2016/10/02]

\AtBeginDocument{
\let\thinthinspace\relax% defined by some packages
\newcommand*{\thinthinspace}{\thinspace}
}

\newcommand*{\stretchthinspace}{\thinspace}
\newcommand*{\stretchthinthinspace}{\thinthinspace}
\newcommand*{\stretchnegthinspace}{\negthinspace}
```

File 499 **lwarp-thm-listof.sty**

§ 608 Package thm-listof

(*Emulates or patches code by* Ulrich M. Schwarz, Yukai Chou.)

Pkg thm-listof

thm-listof is part of thmtools, and is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{thm-listof}[2019/12/22]
```

For font control, see the generated HTML and use CSS per amsthm or ntheorem.

Other thm-* package may be loaded by thm-listof.

```
\IfPackageAtLeastTF{thm-listof}{2020/08/01}{% v0.72
  \def\thmtlo@newentry{%
   \csdef{l@\thmt@envname}##1##2{\hypertocfloat{1}{figure}{lof}{##1}{##2}}%
  }
}{% earlier than v0.72
    \xpatchcmd{\listoftheorems}
        {%
            \@xa\protected@edef\csname l@\thmt@envname\endcsname{%
                \@nx\@dottedtocline{1}{1.5em}{\@nx\thmt@listnumwidth}%
            }%
        }
        {%
        \csdef{l@\thmt@envname}##1##2{\hypertocfloat{1}{figure}{lof}{##1}{##2}}%
        }
        {}
        {\LWR@patcherror{thm-listof}{listoftheorems}}

    \xpatchcmd{\thmt@mklistcmd}
        {%
            \@xa\protected@edef\csname l@\thmt@envname\endcsname{%
                \@nx\@dottedtocline{1}{1.5em}{\@nx\thmt@listnumwidth}%
            }%
        }
        {%
        \csdef{l@\thmt@envname}##1##2{\hypertocfloat{1}{figure}{lof}{##1}{##2}}%
        }
        {}
        {\LWR@patcherror{thm-listof}{thmt@mklistcmd}}
}
```

File 500 **lwarp-thm-restate.sty**

§ 609 Package

thm-restate

(*Emulates or patches code by* Ulrich M. Schwarz.)

Pkg thm-restate

thm-restate is part of thmtools, and is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{thm-restate}[2020/08/01]
```

```
\xpatchcmd{\thmt@restatable}
    {\@ifstar}
    {\edef\LWR@thisthmstyle{#2}\@ifstar}
    {}
    {\LWR@patcherror{thm-restate}{thmt@restatable}}
```

File 501 **lwarp-thmbox.sty**

§ 610 Package thmbox

(*Emulates or patches code by* Emmanuel Beffara.)

Pkg thmbox

thmbox is emulated for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{thmbox}[2005/04/24]

\renewenvironment{thmbox}[2][]%
    {%
        \begin{BlockClass}{thmbox}
        \begin{BlockClass}{thmboxtitle}
        #2
        \end{BlockClass}
    }
    {\end{BlockClass}}

\renewenvironment{proof}[1][]
    {%
        \begin{BlockClass}{thmboxproof}%
        \InlineClass{thmboxproofname}{\proofname\ #1\unskip\,:}
    }
    {%
        \qquad\HTMLunicode{220E}% end of proof symbol
        \end{BlockClass}
    }

\renewenvironment{example}[1][\examplename]%
    {%
        \begin{BlockClass}{thmboxexample}%
        \InlineClass{thmboxexamplename}{#1\,:}
    }
    {\end{BlockClass}}

\renewenvironment{leftbar}[1][]%
    {\begin{BlockClass}{thmboxleftbar}}
    {\end{BlockClass}}
```

File 502 **lwarp-thmtools.sty**

§ 611 Package thmtools

(*Emulates or patches code by* Ulrich M. Schwarz.)

Pkg thmtools

thmtools is patched for use by lwarp.

Also see thm-listof and thm-restate.

for HTML output:

```
\LWR@ProvidesPackagePass{thmtools}[2020/08/01]
```

The following patches either thm-amsthm or thm-ntheorem.

```
\def\thmt@headstyle@margin{%
    \InlineClass{amsthmnnumbertheorem}{\NUMBER}
    \
    \InlineClass{amsthmnametheorem}{\NAME}
    \InlineClass{amsthmnotetheorem}{\NOTE}
}

\let\thmt@headstyle@swapnumber\thmt@headstyle@margin
```

File 503 **lwarp-threadcol.sty**

§ 612 Package threadcol

Pkg threadcol

threadcol is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{threadcol}[2013/01/06]

\newcommand{\setthreadname}[1]{}
```

File 504 **lwarp-threeparttable.sty**

§ 613 Package threeparttable

(*Emulates or patches code by* Donald Arseneau.)

Pkg threeparttable

threeparttable is emulated.

Table note are contained inside a CSS of class tnotes. If enumitem is used, the note item labels are also individually highlighted with an additional CSS of class tnoteitemheader, otherwise they are plain text.

for HTML output:

```
\LWR@ProvidesPackageDrop{threeparttable}[2003/06/13]
```

Env threeparttable

[⟨*alignment*⟩]

```
\newenvironment*{threeparttable}[1][b]
    {\def\@captype{table}}
    {}
```

Env tablenotes

[⟨*options*⟩]

```
\newenvironment*{tablenotes}[1][]
{%
\LWR@forcenewpage
\BlockClass{tnotes}%

\description%
}
{%
\enddescription%
\endBlockClass%
}
```

\tnote {⟨*text*⟩}

```
\newcommand{\tnote}[1]{\LWR@htmlspan{sup}{#1}}
```

Env measuredfigure [⟨*alignment*⟩]

```
\newenvironment*{measuredfigure}[1][t]
    {\def\@captype{figure}}
    {}
```

File 505 **lwarp-threeparttablex.sty**

§ 614 Package

threeparttablex

Pkg threeparttablex

threeparttablex is patched for use by lwarp.

threeparttablex is used with longtable and booktabs as follows:

```
\begin{longtable}{ [column specifiers] }
[ . . . ] \endfirsthead   % or \endhead, for print and HTML
\warpprintonly{          % not used in HTML
  [ . . . ] \endhead     % or \endfirsthead
  [ . . . ] \endfoot
  \bottomrule \insertTableNotes \endlastfoot
}
. . .  table contents . . .
\warpHTMLonly{   % HTML last footer
  \bottomrule
  \UseMinipageWidths     % optional
  \insertTableNotes
  \endlastfoot
}
\end{longtable}
```

table width The table notes are created using a \multicolumn. By default the width is not specified to the browser, so long table notes can cause the table to be spread out horizontally. For HTML output, lwarp guesses the width of the table depending on the number of columns, then restricts its guess to a min/max range. To use this guess for the width of the table notes, use \UseMinipageWidths before \insertTableNotes. The width is then specified, and in many cases the result is an improvement in overall table layout.

for HTML output:

```
\LWR@ProvidesPackagePass{threeparttablex}[2013/07/23]
```

The width is guessed depending on the number of columns, then limited to a min/max.

```
\renewcommand\insertTableNotes{%
  \setlength{\LWR@templengthone}{.375in*\value{LWR@tabletotalLaTeXcols}}%
  \setlength{\LWR@templengthone}{\minof{\textwidth}{\LWR@templengthone}}%
   \setlength{\LWR@templengthone}{\maxof{2.5in}{\LWR@templengthone}}%
\multicolumn{\value{LWR@tabletotalLaTeXcols}}{c}{%
    \parbox{\LWR@templengthone}{%
      \begin{tablenotes}[\TPTL@optarg]%
```

```
          \TPTL@font%
          \TPTL@body%
        \end{tablenotes}%
      }%
  }%
}

\providecommand{\TPTL@tnotex}{}
\renewcommand{\TPTL@tnotex}[2]{\tnote{\nameref{#2}}}
```

File 506 **lwarp-thumb.sty**

§ 615 Package thumb

Pkg thumb

thumb is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{thumb}[1997/12/24]

\newcommand*{\Overviewpage}{}
\newlength{\thumbheight}
\newlength{\thumbwidth}
```

File 507 **lwarp-thumbs.sty**

§ 616 Package thumbs

Pkg thumbs

thumbs is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{thumbs}[2014/03/09]

\newcommand{\addthumb}[4]{}
\newcommand{\addtitlethumb}[5]{}
\newcommand{\stopthumb}{}
\newcommand{\continuethumb}{}
\newcommand{\thumbsoverview}[1]{}
\newcommand{\thumbsoverviewback}[1]{}
\newcommand{\thumbsoverviewverso}[1]{}
\newcommand{\thumbsoverviewdouble}[1]{}
\newcommand{\thumbnewcolumn}{}
\newcommand{\addthumbsoverviewtocontents}[2]{}
\newcommand{\thumbsnophantom}{}
```

File 508 **lwarp-tikz.sty**

§ 617 Package tikz

(*Emulates or patches code by* Till Tantau.)

Pkg tikz

tikz is supported.

⚠ displaymath and matrices

If using display math with `tikzpicture` or `\tikz`, along with matrices with the `&`

character, the document must be modified as follows:

```
\usepackage{tikz}
\tikzset{every picture/.style={ampersand replacement=\&}}
```

and each instance of & in the tikz expression must be replaced with \&.

Accept all options for lwarp-tikz:

```
\LWR@ProvidesPackagePass{tikz}[2015/08/07]
```

catcodes lwarp changes the catcode of $ for its own use. The Ti*k*z babel library temporarily changes catcodes back to normal for Ti*k*z's use. tikz v3.0.0 introduced the babel library which handles catcode changes. For older versions, lwarp must change $'s catcode itself.

Also see:
https://tex.stackexchange.com/questions/16199/
test-if-a-package-or-package-option-is-loaded

```
\newbool{LWR@tikzbabel}

\IfPackageAtLeastTF{tikz}{2013/12/20}% Test for Tikz version v3.0.0
{\usetikzlibrary{babel}\booltrue{LWR@tikzbabel}}
{\boolfalse{LWR@tikzbabel}}
```

Env pgfpicture The \pgfpicture environment is enclosed inside a \lateximage. Enclose the low-level \pgfpicture in a lateximage. This is also used by the higher-level \tikz and tikzpicture.

```
\preto\pgfpicture{%
    \begin{lateximage}[-tikz-~\PackageDiagramAltText]%
    \ifbool{LWR@tikzbabel}% Test for Tikz version v3.0.0
    {}%
    {\catcode`\$=3}% dollar sign is math shift
}

\appto\endpgfpicture{\end{lateximage}}
```

Ti*k*z is placed inside an SVG image, so use the original meanings of the following:

```
\LetLtxMacro\pgfutil@minipage\LWR@print@minipage
\let\pgfutil@endminipage\endLWR@print@minipage

\let\pgfutil@raggedleft\LWR@print@raggedleft
\let\pgfutil@raggedright\LWR@print@raggedright


\def\pgfutil@font@tiny{\LWR@print@tiny}
\def\pgfutil@font@scriptsize{\LWR@print@scriptsize}
\def\pgfutil@font@footnotesize{\LWR@print@footnotesize}
\def\pgfutil@font@small{\LWR@print@small}
\def\pgfutil@font@normalsize{\LWR@print@normalsize}
\def\pgfutil@font@large{\LWR@print@large}
\def\pgfutil@font@Large{\LWR@print@Large}
\def\pgfutil@font@huge{\LWR@print@huge}
\def\pgfutil@font@Huge{\LWR@print@Huge}

```

```
\def\pgfutil@font@itshape{\LWR@print@itshape}
\def\pgfutil@font@bfseries{\LWR@print@bfseries}

\def\pgfutil@font@normalfont{\LWR@print@normalfont}
```

File 509 **lwarp-tikz-imagelabels.sty**

§ 618 Package tikz-imagelabels

(*Emulates or patches code by* Tobias Plüss.)

Pkg tikz-imagelabels

tikz-imagelabels is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{tikz-imagelabels}[2019/06/27]

\BeforeBeginEnvironment{annotationimage}{%
    \begin{lateximage}[-tikz-imagelabels-~\PackageDiagramAltText]%
}

\AfterEndEnvironment{annotationimage}{\end{lateximage}}
```

File 510 **lwarp-titleps.sty**

§ 619 Package titleps

(*Emulates or patches code by* Javier Bezos.)

Pkg titleps

titleps is loaded and used by lwarp during HTML output. All user options and macros are ignored and disabled.

Discard all options for lwarp-titleps:

for HTML output:

```
\LWR@ProvidesPackageDrop{titleps}[2016/03/15]
```

\pagestyle and \thispagestyle are already disabled in the lwarp code.

\newpagestyle {⟨*name*⟩} [⟨*style*⟩] {⟨*commands*⟩}

```
\NewDocumentCommand{\newpagestyle}{m o m}{}
```

\renewpagestyle {⟨*name*⟩} [⟨*style*⟩] {⟨*commands*⟩}

```
\NewDocumentCommand{\renewpagestyle}{m o m}{}
```

\sethead [⟨*el*⟩] [⟨*ec*⟩] [⟨*er*⟩] {⟨*ol*⟩} {⟨*oc*⟩} {⟨*or*⟩}

```
\NewDocumentCommand{\sethead}{o o o m m m}{}
```

\setfoot [⟨*el*⟩] [⟨*ec*⟩] [⟨*er*⟩] {⟨*ol*⟩} {⟨*oc*⟩} {⟨*or*⟩}

```
\NewDocumentCommand{\setfoot}{o o o m m m}{}
```

\settitlemarks * {⟨*names*⟩}

```
\NewDocumentCommand{\settitlemarks}{s m}{}
```

\headrule

```
\newcommand*{\headrule}{}
```

\footrule

```
\newcommand*{\footrule}{}
```

\setheadrule {⟨*length*⟩}

```
\newcommand*{\setheadrule}[1]{}
```

\setfootrule {⟨*length*⟩}

```
\newcommand*{\setfootrule}[1]{}
```

\makeheadrule

```
\newcommand*{\makeheadrule}{}
```

\makefootrule

```
\newcommand*{\makefootrule}{}
```

\setmarkboth {⟨*code*⟩}

```
\newcommand{\setmarkboth}[1]{}
```

\widenhead

```
\NewDocumentCommand{\widenhead}{s o o m m}{}
```

\bottitlemarks

```
\newcommand*{\bottitlemarks}{}
```

\toptitlemarks

```
\newcommand*{\toptitlemarks}{}
```

\firsttitlemarks

```
\newcommand*{\firsttitlemarks}{}
```

\nexttitlemarks

```
\newcommand*{\nexttoptitlemarks}{}
```

\outertitlemarks

```
\newcommand*{\outertitlemarks}{}
```

\innertitlemarks

```
\newcommand*{\innertitlemarks}{}
```

\newtitlemark * {⟨*name*⟩}

```
\NewDocumentCommand{\newtitlemark}{s m}{}
```

\pretitlemark * {⟨*section*⟩} {⟨*text*⟩}

```
\NewDocumentCommand{\pretitlemark}{s m m}{}
```

\ifsamemark {⟨*group*⟩} {⟨*command*⟩} {⟨*true*⟩} {⟨*false*⟩}

```
\newcommand{\ifsamemark}[4]{}
```

\setfloathead * [⟨.⟩] [⟨.⟩] [⟨.⟩] {⟨.⟩} {⟨.⟩} {⟨.⟩} {⟨*extra*⟩} [⟨*which*⟩]

```
\NewDocumentCommand{\setfloathead}{s o o o m m m m m}{}
```

\setfloatfoot * [⟨.⟩] [⟨.⟩] [⟨.⟩] {⟨.⟩} {⟨.⟩} {⟨.⟩} {⟨*extra*⟩} [⟨*which*⟩]

```
\NewDocumentCommand{\setfloatfoot}{s o o o m m m m m}{}
```

\nextfloathead * [⟨.⟩] [⟨.⟩] [⟨.⟩] {⟨.⟩} {⟨.⟩} {⟨.⟩} {⟨*extra*⟩} [⟨*which*⟩]

```
\NewDocumentCommand{\nextfloathead}{s o o o m m m m m}{}
```

\nextfloatfoot * [⟨.⟩] [⟨.⟩] [⟨.⟩] {⟨.⟩} {⟨.⟩} {⟨.⟩} {⟨*extra*⟩} [⟨*which*⟩]

```
\NewDocumentCommand{\nextfloatfoot}{s o o o m m m m m}{}
```

\newmarkset {⟨*markset*⟩}

```
\newcommand{\newmarkset}[1]{}
```

\newextramark * {⟨*markset*⟩} {⟨*macro-name*⟩}

```
\NewDocumentCommand{\newextramarkset}{s m m}{}
```

\botextramarks {⟨*markset*⟩}

```
\newcommand{\botextramarks}[1]{}
```

\topextramarks {⟨*markset*⟩}

```
\newcommand{\topextramarks}[1]{}
```

\firstextramarks {⟨*markset*⟩}

```
\newcommand{\firstextramarks}[1]{}
```

\nextextramarks {⟨*markset*⟩}

```
\newcommand{\nexttopextramarks}[1]{}
```

`\outerextramarks` {⟨*markset*⟩}

```
\newcommand{\outerextramarks}[1]{}
```

`\innerextramarks` {⟨*markset*⟩}

```
\newcommand{\innerextramarks}[1]{}
```

File 511 **lwarp-titleref.sty**

§ 620 Package

titleref

Pkg `titleref` titleref is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{titleref}[2001/04/05]

\LetLtxMacro\titleref\nameref

\providecounter{LWR@currenttitle}

\newcommand*{\currenttitle}{%
    \addtocounter{LWR@currenttitle}{1}%
    \label{currenttitle\arabic{LWR@currenttitle}}%
    \nameref{currenttitle\arabic{LWR@currenttitle}}%
}

\newcommand*{\theTitleReference}[2]{}
```

File 512 **lwarp-titlesec.sty**

§ 621 Package

titlesec

(*Emulates or patches code by* Javier Bezos.)

Pkg `titlesec` titlesec is emulated. All user options and macros are ignored and disabled.

Discard all options for lwarp-titlesec:

for HTML output:

```
\PackageInfo{lwarp}{Using the lwarp version of package 'titlesec'.}%
\ProvidesPackage{lwarp-titlesec}[2016/03/21]

\newbool{LWR@loadtitleps}
\boolfalse{LWR@loadtitleps}

\DeclareOption{pagestyles}{
    \booltrue{LWR@loadtitleps}
}

\DeclareOption*{}

\ProcessOptions\relax

\ifbool{LWR@loadtitleps}{
    \RequirePackage{lwarp-titleps}
```

```
}{}
```

`\titlelabel` {⟨*label-format*⟩}

```
\newcommand*{\titlelabel}[1]{}
```

`\titleformat*` {⟨*command*⟩} {⟨*format*⟩}

`\titleformat` {⟨*command*⟩} [⟨*shape*⟩] {⟨*format*⟩} {⟨*label*⟩} {⟨*sep*⟩} {⟨*begfore*⟩} [⟨*after*⟩]

```
\newcommand\titleformat{%
  \@ifstar{\ttl@format@s}%
          {\ttl@format@i}}
\newcommand{\ttl@format@s}[1]{}
\NewDocumentCommand{\ttl@format@i}{m o m m m m o}{}
```

`\chaptertitlename`

```
\@ifundefined{@chapapp}{\let\@chapapp\chaptername}{}
\newcommand\chaptertitlename{\@chapapp}
```

`\titlespacing` * {⟨*command*⟩} {⟨*left*⟩} {⟨*before*⟩} {⟨*after*⟩} [⟨*right*⟩]

```
\NewDocumentCommand{\titlespacing}{s m m m m o}{}
```

`\filright`

```
\newcommand*{\filright}{}
```

`\filcenter`

```
\newcommand*{\filcenter}{}
```

`\filleft`

```
\newcommand*{\filleft}{}
```

`\fillast`

```
\newcommand*{\fillast}{}
```

`\filinner`

```
\newcommand*{\filinner}{}
```

`\filouter`

```
\newcommand*{\filouter}{}
```

`\wordsep`

```
\newcommand\wordsep{\fontdimen\tw@\font \@plus
  \fontdimen\thr@@\font \@minus \fontdimen4\font}
```

`\titleline` * [⟨*align*⟩] {⟨*material*⟩}

```
35 \NewDocumentCommand{\titleline}{s o m}{}
```

`\titlerule` [⟨*height*⟩]

```
36 \providecommand*\titlerule{\@ifstar{\ttl@row}{\ttl@rule}}
37 \newcommand*{\ttl@rule}[1][]{}
38 \newcommand*{\ttl@row}[2][]{}
```

`\iftitlemeasuring` {⟨*true*⟩} {⟨*false*⟩}

```
39 \newcommand{\iftitlemeasuring}[2]{#2}
```

`\assignpagestyle` {⟨*command*⟩} {⟨*pagestyle*⟩}

```
40 \newcommand{\assignpagestyle}[2]{#2}
```

`\titleclass` {⟨*name*⟩} [⟨*startlevel*⟩] {⟨*class*⟩} [⟨*cmd*⟩]

```
41 \NewDocumentCommand{\titleclass}{m o m o}{}
```

File 513 **lwarp-titletoc.sty**

§ 622 Package

titletoc

(*Emulates or patches code by* Javier Bezos.)

Pkg titletoc

titletoc is emulated. All user options and macros are ignored and disabled.

Discard all options for lwarp-titletoc:

for HTML output:

```
1 \LWR@ProvidesPackageDrop{titletoc}[2011/12/15]
```

`\dottedcontents` {⟨*section*⟩} [⟨*left*⟩] {⟨*above*⟩} {⟨*label*⟩} {⟨*leader*⟩}

```
2 \NewDocumentCommand{\dottedcontents}{m o m m m}{}
```

`\titlecontents` * {⟨*section*⟩} [⟨*left*⟩] {⟨*above*⟩} {⟨*numbered*⟩} {⟨*numberless*⟩} {⟨*filler*⟩} [⟨*below or begin*⟩] [⟨*separator*⟩] [⟨*end*⟩]

```
3 \newcommand{\titlecontents}{\@ifstar{\ttl@tcstar}{\ttl@tcnostar}}
4 \NewDocumentCommand{\ttl@tcstar}{m o m m m m o o o}{}
5 \NewDocumentCommand{\ttl@tcnostar}{m o m m m m o}{}
```

`\contentsmargin` [⟨*correction*⟩] {⟨*right*⟩}

```
6 \newcommand{\contentsmargin}[2][]{}
```

`\thecontentslabel`

```
7 \newcommand*{\thecontentslabel}{thecontentslabel}
```

`\thecontentspage`

```
8 \newcommand*{\thecontentspage}{thecontentspage}
```

\contentslabel [⟨*format*⟩] {⟨*space*⟩}

```
\newcommand{\contentslabel}[2][]{\thecontentslabel}
```

\contentspage [⟨*format*⟩]

```
\newcommand{\contentspage}[1][]{\thecontentspage}
```

\contentspush {⟨*text*⟩}

```
\newcommand{\contentspush}[1]{}
```

\contentsuse {⟨*name*⟩} {⟨*text*⟩}

```
\newcommand{\contentsuse}[2]{}
```

\startcontents [⟨*name*⟩]

```
\newcommand*{\startcontents}[1][]{}
```

\stopcontents [⟨*name*⟩]

```
\newcommand*{\stopcontents}[1][]{}
```

\resumecontents [⟨*name*⟩]

```
\newcommand*{\resumecontents}[1][]{}
```

\printcontents [⟨*name*⟩] {⟨*prefix*⟩} {⟨*start*⟩} {⟨*code*⟩}

```
\newcommand{\printcontents}[4][]{}
```

\startlist [⟨*name*⟩] {⟨*list*⟩}

```
\newcommand{\startlist}[2][]{}
```

\stoplist [⟨*name*⟩] {⟨*list*⟩}

```
\newcommand{\stoplist}[2][]{}
```

\resumelist [⟨*name*⟩] {⟨*list*⟩}

```
\newcommand{\resumelist}[2][]{}
```

\printlist [⟨*name*⟩] {⟨*list*⟩} {⟨*prefix*⟩} {⟨*code*⟩}

```
\newcommand{\printlist}[4][]{}
```

File 514 **lwarp-titling.sty**

§ 623 Package

titling

(*Emulates or patches code by* Peter Wilson.)

Pkg titling

package support
⚠ load order

lwarp supports the native LaTeX titling commands, and also supports the packages authblk and titling. If both are used, authblk should be loaded before titling.

\published and \subtitle

If using the titling package, additional titlepage fields for \published and \subtitle may be added by using \AddSubtitlePublished in the preamble. See section 69.8.

The various titling footnote restyling commands have no effect.

Pass all options to lwarp-titling:

for HTML output:

```
\LWR@ProvidesPackagePass{titling}[2009/09/04]
```

\@bsmtitlempty

Patch \@bsmtitlempty:

```
\let\LWR@orig@bsmtitlempty\@bsmtitlempty
\renewcommand*{\@bsmtitlempty}{%
\LWR@orig@bsmtitlempty%
}
```

\keepthetitle

Patch \keepthetitle:

```
\let\LWR@origkeepthetitle\keepthetitle
\renewcommand*{\keepthetitle}{%
\LWR@orig@keepthetitle%
}
```

\killtitle

Patch \killtitle:

```
\let\LWR@origkilltitle\killtitle
\renewcommand*{\killtitle}{%
\LWR@orig@killtitle%
}
```

Env titlingpage

```
\renewenvironment*{titlingpage}
{%
```

Start an HTML titlepage div:

```
\LWR@printpendingfootnotes
\begin{titlepage}
```

Prepare for a custom version of \maketitle inside the titlingpage:

```
\LWR@maketitlesetup
\let\maketitle\LWR@titlingmaketitle
}
{
```

At the end of the environment, end the HTML titlepage div:

```
\end{titlepage}
}
```

Patch the pre/post title/author/date to add HTML tags, then initilize:

```
\AtBeginDocument{
    \pretitle{}
    \posttitle{}

    \preauthor{}
    \postauthor{}

    \predate{}
    \postdate{}
}
```

`\LWR@maketitlesetup` Patches `\thanks` macros.

```
\renewcommand*{\LWR@maketitlesetup}{%
```

Redefine the footnote mark:

```
    \def\@makefnmark{\textsuperscript{\@thefnmark}}%
```

`\thefootnote` ⇒ `\nameuse{arabic}{footnote}`, or
`\thefootnote` ⇒ `\nameuse{fnsymbol}{footnote}`

Redefine the footnote text:

```
    \long\def\@makefntext##1{%
```

Make the footnote mark and some extra horizontal space for the tags:

```
        \makethanksmark~%
```

`\makethanksmark` ⇒ `\thanksfootmark` ⇒ `\tamark` ⇒
`\@thefnmark` ⇒ `\itshape a` (or similar)

Print the text:

```
        {##1}%
    }% \@makefntext
}
```

`\thanksfootmark`

```
\renewcommand{\thanksfootmark}{%
%   \hb@xt@\thanksmarkwidth{\hfil\normalfont%
        \thanksscript{%
            \thanksfootpre \tamark \thanksfootpost%
        }%
%   }%
}
```

`\maketitle` HTML mode. Creates an HTML titlepage div and typesets the title, etc.

Code from the titling package is adapted, simplified, and modified for HTML output.

```
\renewcommand*{\maketitle}{%
```

An HTML titlepage is used for all classes.

```
\begin{titlepage}
```

Select which kind of footnote marks to use:

```
\@bsmarkseries
```

Set up special patches:

```
\LWR@maketitlesetup
```

Typeset the title, etc:

```
\@maketitle
```

Immediately generate any \thanks footnotes:

```
\LWR@stoppars\@thanks\LWR@startpars
```

Close the HTML titlepage div:

```
\end{titlepage}
```

Reset the footnote counter:

```
\@bscontmark
}
```

\@maketitle Typesets the title, etc. Patched for HTML.

```
\providecommand*{\@maketitle}{}
\renewrobustcmd{\@maketitle}{%
    \maketitlehooka
    {
        \LWR@stoppars\LWR@htmltag{\LWR@tagtitle}%
        \@bspretitle \@title \@bsposttitle%
        \LWR@htmltag{\LWR@tagtitleend}\LWR@startpars%
    }
    \maketitlehookb
    {
        \begin{BlockClass}{author}
        \renewcommand{\and}{%
            \end{BlockClass}%
            \begin{BlockClass}{oneauthor}%
        }
        \begin{BlockClass}{oneauthor}%
        \@bspreauthor \@author  \@bspostauthor%
        \end{BlockClass}%
        \end{BlockClass}%
    }
    \maketitlehookc
    {
        \begin{BlockClass}{titledate}%
        \@bspredate \@date \@bspostdate%
        \end{BlockClass}%
    }
```

```
    \maketitlehookd
}
```

\LWR@titlingmaketitle `\maketitle` for use inside an HTML `titlingpage` environment.

```
\renewcommand*{\LWR@titlingmaketitle}{%
```

Keep pending footnotes out of the title block:

```
\LWR@stoppars\@thanks\LWR@startpars
```

Select which kind of footnote marks to use:

```
\@bsmarkseries
```

Set up special patches:

```
\LWR@maketitlesetup
```

Typeset the title, etc:

```
\@maketitle
```

Immediately generate any `\thanks` footnotes:

```
\LWR@stoppars\@thanks\LWR@startpars
```

Reset the footnote counter:

```
\@bscontmark
}
```

\thanksmarkseries {⟨*series*⟩}

Sets the type of footnote marks used by `\thanks`, where type is 'arabic', 'roman', 'fnsymbol', etc.

```
\renewcommand{\thanksmarkseries}[1]{%
\def\@bsmarkseries{\renewcommand{\thefootnote}{\@nameuse{#1}{footnote}}}%
}
```

Set default titlepage thanks footnote marks. See section 69.7.

```
\IfClassLoadedTF{memoir}{
   \thanksmarkseries{arabic}
}{% not memoir
\if@titlepage
   \thanksmarkseries{arabic}
\else
   \thanksmarkseries{fnsymbol}
\fi
}% not memoir
```

File 515 **lwarp-tocbasic.sty**

§ 624 Package tocbasic

(*Emulates or patches code by* Markus Kohm.)

Pkg tocbasic

tocbasic is nullified for lwarp.

This package may be loaded standalone, but is also loaded automatically if koma-script classes are in use. `\DeclareDocumentCommand` is used to overwrite the koma-script definitions.

for HTML output:

```
\LWR@ProvidesPackagePass{tocbasic}[2018/12/30]

\DeclareDocumentCommand{\usetocbasicnumberline}{o}{}
\DeclareDocumentCommand{\DeclareTOCStyleEntry}{o m m}{}
\DeclareDocumentCommand{\DeclareTOCStyleEntries}{o m m}{}
\DeclareDocumentCommand{\DeclareTOCEntryStyle}{m o m}{}
\DeclareDocumentCommand{\DefineTOCEntryOption}{m o m}{}
\DeclareDocumentCommand{\DefineTOCEntryBooleanOption}{m o m m m}{}
\DeclareDocumentCommand{\DefineTOCEntryCommandOption}{m o m m m}{}
\DeclareDocumentCommand{\DefineTOCEntryIfOption}{m o m m m}{}
\DeclareDocumentCommand{\DefineTOCEntryLengthOption}{m o m m m}{}
\DeclareDocumentCommand{\DefineTOCEntryNumberOption}{m o m m m}{}
\DeclareDocumentCommand{\CloneTOCEntryStyle}{m m}{}
\DeclareDocumentCommand{\TOCEntryStyleInitCode}{m m}{}
\DeclareDocumentCommand{\TOCEntryStyleStartInitCode}{m m}{}
```

File 516 **lwarp-tocbibind.sty**

§ 625 Package tocbibind

(*Emulates or patches code by* Peter Wilson.)

Pkg tocbibind

tocbibind is patched for use by lwarp.

placement and TOC options

An index may be placed inline with other HTML text, or on its own HTML page:

Pkg makeidx

Inline, with a manual TOC entry:

A commonly-used method to introduce an index in a LaTeX document:

```
\cleardoublepage
\phantomsection
\addcontentsline{toc}{section}{\indexname}% or chapter
\printindex
```

Pkg makeidx

On its own HTML page, with a manual TOC entry:

```
\begin{warpprint}
\cleardoublepage
\phantomsection
\addcontentsline{toc}{section}{\indexname}% or chapter
\end{warpprint}
\ForceHTMLPage
\ForceHTMLTOC
\printindex
```

Pkg tocbibind

Inline, with an automatic TOC entry:

The tocbibind package may be used to automatically place an entry in the TOC.

```
\usepackage[nottoc]{tocbibind}
. . .
\cleardoublepage
\phantomsection % to fix print-version index link
\printindex
```

Pkg tocbibind

On its own HTML page, with an automatic TOC entry:

```
\usepackage[nottoc]{tocbibind}
. . .
\cleardoublepage
\phantomsection % to fix print-version index link
\ForceHTMLPage
\printindex
```

Opt [tocbibind] numindex

numbered index section

Use the tocbibind numindex option to generate a numbered index. Without this option, the index heading has no number.

Other packages, such as imakeidx, may also have options for including the index in the Table of Contents.

for HTML output:

```
\let\simplechapterdelim\relax

\LWR@ProvidesPackagePass{tocbibind}[2010/10/13]

\renewenvironment{theindex}%
{%
    \if@bibchapter
       \if@donumindex
           \chapter{\indexname}
       \else
         \if@dotocind
           \chapter*{\indexname}
           \addcontentsline{toc}{chapter}{\LWR@isolate{\indexname}}
         \else
           \chapter*{\indexname}
         \fi
       \fi
    \else
       \if@donumindex
           \section{\indexname}
       \else
         \if@dotocind
           \section*{\indexname}
           \addcontentsline{toc}{\@tocextra}{\LWR@isolate{\indexname}}
         \else
```

```
            \section*{\indexname}
          \fi
        \fi
     \fi
\LetLtxMacro\item\LWR@indexitem%
\LetLtxMacro\subitem\LWR@indexsubitem%
\LetLtxMacro\subsubitem\LWR@indexsubsubitem%
}{}
```

The following code is shared by anonchap.

```
\DeclareDocumentCommand{\simplechapter}{O{\@empty}}{%
    \def\@chapcntformat##1{%
        #1~\csname the##1\endcsname\simplechapterdelim\quad%
    }%
}

\DeclareDocumentCommand{\restorechapter}{}{%
\let\@chapcntformat\@seccntformat%
}
```

File 517 **lwarp-tocdata.sty**

§ 626 Package

tocdata

(*Emulates or patches code by* Brian Dunn.)

Pkg tocdata

tocdata is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{tocdata}[2019/07/06]

\renewcommand*{\LWR@maybetocdata}{%
    \ifdefempty{\TD@thistocdata}{}{%
        \qquad \InlineClass{authorartist}{\tocdataformat{\TD@thistocdata}}%
        \def\TD@thistocdata{}
    }
}

\renewrobustcmd{\tocdatapartprint}[4]
{%
    \InlineClass{authorartist}{%
        \qquad --- %
        \TDoptionalnameprint{#1}\TDoptionalnameprint{#2}#3#4%
    }%
}

\@ifundefined{chapter}{}{
    \let\tocdatachapterprint\tocdatapartprint
}
\let\tocdatasectionprint\tocdatapartprint
\let\tocdatasubsectionprint\tocdatapartprint

\newcommand*{\LWR@TD@settextalign}[1]{%
    \def\LWR@TD@textalign{justify}%
    \ifcsstring{TD@#1align}{\centering}%
```

```
        {\def\LWR@TD@textalign{center}}%
        {}%
    \ifcsstring{TD@#1align}{\raggedleft}%
        {\def\LWR@TD@textalign{right}}%
        {}%
    \ifcsstring{TD@#1align}{\raggedright}%
        {\def\LWR@TD@textalign{left}}%
        {}%
}

\renewcommand{\TDartistauthorprint}[5]{%
    \LWR@TD@settextalign{#1}%
    \begin{BlockClass}[text-align:\LWR@TD@textalign]{floatnotes}%
   \InlineClass{authorartist}{\TDoptionalnameprint{#2}\TDoptionalnameprint{#3}#4#5}%
    \end{BlockClass}%
}

\newcommand*{\LWR@TD@setnamealign}[1]{%
    \def\LWR@TD@textalign{justify}%
    \ifcsstring{TD@#1textalign}{\centering}%
        {\def\LWR@TD@textalign{center}}%
        {}%
    \ifcsstring{TD@#1textalign}{\raggedleft}%
        {\def\LWR@TD@textalign{right}}%
        {}%
    \ifcsstring{TD@#1textalign}{\raggedright}%
        {\def\LWR@TD@textalign{left}}%
        {}%
}

\renewcommand{\TDartistauthortextprint}[2]{%
    \LWR@TD@setnamealign{#1}%
    \begin{BlockClass}[text-align:\LWR@TD@textalign]{floatnotes}%
    #2%
    \end{BlockClass}%
}
```

File 518 **lwarp-tocenter.sty**

§ 627 Package tocenter

Pkg tocenter

tocenter is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{tocenter}[2004/12/09]

\NewDocumentCommand{\ToCenter}{s o m m}{}
\NewDocumentCommand{\FromMargins}{s o m m m m}{}
```

File 519 **lwarp-tocloft.sty**

§ 628 Package tocloft

(*Emulates or patches code by* Peter Wilson.)

Pkg tocloft

tocloft is emulated. Most user options and macros are ignored and disabled.

\newlistof and \cftchapterprecis are supported.

Pkg tocloft

⚠ tocloft & other packages

If using tocloft with tocbibind, anonchap, fncychap, or other packages which change chapter title formatting, load tocloft with its titles option, which tells tocloft to use standard LaTeX commands to create the titles, allowing other packages to work with it.

Discard all options for lwarp-tocloft:

for HTML output:

```
\LWR@ProvidesPackageDrop{tocloft}[2017/08/31]
```

\tocloftpagestyle {⟨*style*⟩}

```
\newcommand{\tocloftpagestyle}[1]{}
```

\cftmarktoc

```
\newcommand*{\cftmarktoc}{}
```

\cfttoctitlefont

```
\newcommand*{\cfttoctitlefont}{}
```

\cftaftertoctitle

```
\newcommand*{\cftaftertoctitle}{}

\newlength{\cftbeforetoctitleskip}
\newlength{\cftaftertoctitleskip}
```

\cftmarklof

```
\newcommand*{\cftmarklof}{}
```

\cftloftitlefont

```
\newcommand*{\cftloftitlefont}{}
```

\cftafterloftitle

```
\newcommand*{\cftafterloftitle}{}

\newlength{\cftbeforeloftitleskip}
\newlength{\cftafterloftitleskip}
```

\cftmarklot

```
\newcommand*{\cftmarklot}{}
```

\cftlottitlefont

```
\newcommand*{\cftlottitlefont}{}
```

\cftafterlottitle

```
\newcommand*{\cftafterlottitle}{}
```

```
\newlength{\cftbeforelottitleskip}
\newlength{\cftafterlottitleskip}
```

`\cftdot`

```
\providecommand*{\cftdot}{.}
```

`\cftdotsep`

```
\providecommand*{\cftdotsep}{1}
```

`\cftnodots`

```
\providecommand*{\cftnodots}{5000}
```

`\cftdotfill` {⟨*sep*⟩}

```
\providecommand{\cftdotfill}[1]{}
```

`\cftsetpnumwidth` {⟨*length*⟩}

```
\DeclareDocumentCommand{\cftsetpnumwidth}{m}{}
```

`\cftsetrmarg` {⟨*length*⟩}

```
\DeclareDocumentCommand{\cftsetrmarg}{m}{}
```

`\cftpnumalign` {⟨*alignment*⟩}

```
\DeclareDocumentCommand{\cftpnumalign}{m}{}

\LWR@providelength{\cftparskip}
```

The part-related items are also provided by memoir:

```
\LWR@providelength{\cftbeforepartskip}
\LWR@providelength{\cftpartindent}
\LWR@providelength{\cftpartnumwidth}
\providecommand*{\cftpartfont}{}
\providecommand*{\cftpartpresnum}{}
\providecommand*{\cftpartaftersnum}{}
\providecommand*{\cftpartaftersnumb}{}
\providecommand*{\cftpartleader}{}
\providecommand*{\cftpartdotsep}{1}
\providecommand*{\cftpartpagefont}{}
\providecommand*{\cftpartafterpnum}{}
```

memoir uses the full name “chapter” instead of “chap”:

```
\LWR@providelength{\cftbeforechapskip}
\LWR@providelength{\cftchapindent}
\LWR@providelength{\cftchapnumwidth}
\newcommand*{\cftchapfont}{}
\newcommand*{\cftchappresnum}{}
\newcommand*{\cftchapaftersnum}{}
\newcommand*{\cftchapaftersnumb}{}
\newcommand*{\cftchapleader}{}
```

```
\newcommand*{\cftchapdotsep}{1}
\newcommand*{\cftchappagefont}{}
\newcommand*{\cftchapafterpnum}{}
```

The following do not appear in memoir:

```
\LWR@providelength{\cftbeforesecskip}
\LWR@providelength{\cftsecindent}
\LWR@providelength{\cftsecnumwidth}
\newcommand*{\cftsecfont}{}
\newcommand*{\cftsecpresnum}{}
\newcommand*{\cftsecaftersnum}{}
\newcommand*{\cftsecaftersnumb}{}
\newcommand*{\cftsecleader}{}
\newcommand*{\cftsecdotsep}{1}
\newcommand*{\cftsecpagefont}{}
\newcommand*{\cftsecafterpnum}{}

\LWR@providelength{\cftbeforesubsecskip}
\LWR@providelength{\cftsubsecindent}
\LWR@providelength{\cftsubsecnumwidth}
\newcommand*{\cftsubsecfont}{}
\newcommand*{\cftsubsecpresnum}{}
\newcommand*{\cftsubsecaftersnum}{}
\newcommand*{\cftsubsecaftersnumb}{}
\newcommand*{\cftsubsecleader}{}
\newcommand*{\cftsubsecdotsep}{1}
\newcommand*{\cftsubsecpagefont}{}
\newcommand*{\cftsubsecafterpnum}{}

\LWR@providelength{\cftbeforesubsubsecskip}
\LWR@providelength{\cftsubsubsecindent}
\LWR@providelength{\cftsubsubsecnumwidth}
\newcommand*{\cftsubsubsecfont}{}
\newcommand*{\cftsubsubsecpresnum}{}
\newcommand*{\cftsubsubsecaftersnum}{}
\newcommand*{\cftsubsubsecaftersnumb}{}
\newcommand*{\cftsubsubsecleader}{}
\newcommand*{\cftsubsubsecdotsep}{1}
\newcommand*{\cftsubsubsecpagefont}{}
\newcommand*{\cftsubsubsecafterpnum}{}

\LWR@providelength{\cftbeforeparaskip}
\LWR@providelength{\cftparaindent}
\LWR@providelength{\cftparanumwidth}
\newcommand*{\cftparafont}{}
\newcommand*{\cftparapresnum}{}
\newcommand*{\cftparaaftersnum}{}
\newcommand*{\cftparaaftersnumb}{}
\newcommand*{\cftparaleader}{}
\newcommand*{\cftparadotsep}{1}
\newcommand*{\cftparapagefont}{}
\newcommand*{\cftparaafterpnum}{}

\LWR@providelength{\cftbeforesubparaskip}
\LWR@providelength{\cftsubparaindent}
\LWR@providelength{\cftsubparanumwidth}
\newcommand*{\cftsubparafont}{}
\newcommand*{\cftsubparapresnum}{}
```

```
\newcommand*{\cftsubparaaftersnum}{}
\newcommand*{\cftsubparaaftersnumb}{}
\newcommand*{\cftsubparaleader}{}
\newcommand*{\cftsubparadotsep}{1}
\newcommand*{\cftsubparapagefont}{}
\newcommand*{\cftsubparaafterpnum}{}

\LWR@providelength{\cftbeforefigskip}
\LWR@providelength{\cftfigindent}
\LWR@providelength{\cftfignumwidth}
\newcommand*{\cftfigfont}{}
\newcommand*{\cftfigpresnum}{}
\newcommand*{\cftfigaftersnum}{}
\newcommand*{\cftfigaftersnumb}{}
\newcommand*{\cftfigleader}{}
\newcommand*{\cftfigdotsep}{1}
\newcommand*{\cftfigpagefont}{}
\newcommand*{\cftfigafterpnum}{}

\LWR@providelength{\cftbeforesubfigskip}
\LWR@providelength{\cftsubfigindent}
\LWR@providelength{\cftsubfignumwidth}
\newcommand*{\cftsubfigfont}{}
\newcommand*{\cftsubfigpresnum}{}
\newcommand*{\cftsubfigaftersnum}{}
\newcommand*{\cftsubfigaftersnumb}{}
\newcommand*{\cftsubfigleader}{}
\newcommand*{\cftsubfigdotsep}{1}
\newcommand*{\cftsubfigpagefont}{}
\newcommand*{\cftsubfigafterpnum}{}

\LWR@providelength{\cftbeforetabskip}
\LWR@providelength{\cfttabindent}
\LWR@providelength{\cfttabnumwidth}
\newcommand*{\cfttabfont}{}
\newcommand*{\cfttabpresnum}{}
\newcommand*{\cfttabaftersnum}{}
\newcommand*{\cfttabaftersnumb}{}
\newcommand*{\cfttableader}{}
\newcommand*{\cfttabdotsep}{1}
\newcommand*{\cfttabpagefont}{}
\newcommand*{\cfttabafterpnum}{}

\LWR@providelength{\cftbeforesubtabskip}
\LWR@providelength{\cftsubtabindent}
\LWR@providelength{\cftsubtabnumwidth}
\newcommand*{\cftsubtabfont}{}
\newcommand*{\cftsubtabpresnum}{}
\newcommand*{\cftsubtabaftersnum}{}
\newcommand*{\cftsubtabaftersnumb}{}
\newcommand*{\cftsubtableader}{}
\newcommand*{\cftsubtabdotsep}{1}
\newcommand*{\cftsubtabpagefont}{}
\newcommand*{\cftsubtabafterpnum}{}

\DeclareDocumentCommand{\cftsetindents}{m m m}{}

\providecommand{\cftpagenumbersoff}[1]{}
\providecommand{\cftpagenumberson}[1]{}
```

\newlistentry [⟨*within*⟩] {⟨*counter*⟩} {⟨*ext*⟩} {⟨*level-1*⟩}

```
\DeclareDocumentCommand{\newlistentry}{o m m m}
{%
\LWR@traceinfo{newlistentry #2 #3 #4}%
\IfValueTF{#1}%
{%
    \@ifundefined{c@#2}{%
        \newcounter{#2}[#1]%
        \expandafter\edef\csname the#2\endcsname{%
         \expandafter\noexpand\csname the#1\endcsname.\noexpand\arabic{#2}%
        }%
    }{}%
}%
{%
    \@ifundefined{c@#2}{%
        \newcounter{#2}%
    }{}%
}%
\@namedef{l@#2}##1##2{%
    \hypertocfloat{1}{#2}{#3}{##1}{##2}%
    \def\cftwhatismyname{#2}% from memoir
}%
\expandafter\newlength\csname cftbefore#2skip\endcsname%
\expandafter\newlength\csname cft#2indent\endcsname%
\expandafter\newlength\csname cft#2numwidth\endcsname%
\@namedef{cft#2font}{}%
\@namedef{cft#2presnum}{}%
\@namedef{cft#2aftersnum}{}%
\@namedef{cft#2aftersnumb}{}%
\@namedef{cft#2leader}{}%
\@namedef{cft#2dotsep}{1}%
\@namedef{cft#2pagefont}{}%
\@namedef{cft#2afterpnum}{}%
\@namedef{toclevel@#2}{#4}%
\@namedef{cft#2fillnum}##1{}%
\LWR@traceinfo{newlistentry done}%
}
```

\newlistof [⟨*within*⟩] {⟨*type*⟩} {⟨*ext*⟩} {⟨*listofname*⟩}

Emulated through the \newfloat mechanism.

```
\DeclareDocumentCommand{\newlistof}{o m m m}
{%
    \IfValueTF{#1}%
        {\newlistentry[#1]{#2}{#3}{0}}%
        {\newlistentry{#2}{#3}{0}}%
    \@namedef{ext@#2}{#3}%
    \@ifundefined{c@#3depth}{\newcounter{#3depth}}{}%
    \setcounter{#3depth}{1}%
    \@namedef{cftmark#3}{}%
    \@namedef{listof#2}{\LWR@listof{#2}{#4}}%
    \@namedef{@cftmake#3title}{}%
    \expandafter\newlength\csname cftbefore#3titleskip\endcsname%
    \expandafter\newlength\csname cftafter#3titleskip\endcsname%
    \@namedef{cft#3titlefont}{}%
    \@namedef{cftafter#3title}{}%
    \@namedef{cft#3prehook}{}%
    \@namedef{cft#3posthook}{}%
```

```
}
```

\cftchapterprecis {⟨*text*⟩}

```
\newcommand{\cftchapterprecis}[1]{%
  \cftchapterprecishere{#1}
  \cftchapterprecistoc{#1}}
\newcommand{\cftchapterprecishere}[1]{%
  \begin{quote}\textit{#1}\end{quote}}
\newcommand{\cftchapterprecistoc}[1]{
  \addtocontents{toc}{%
  {
     \protect\begin{quote}#1\protect\end{quote}}
  }
}
```

File 520 **lwarp-tocstyle.sty**

§ 629 Package

tocstyle

Pkg tocstyle

tocstyle is ignored.

⚠ Not fully tested! Please send bug reports!

for HTML output:

```
\LWR@ProvidesPackageDrop{tocstyle}[2017/02/23]

\newcommand*{\usetocstyle}[2][]{}
\newcommand*{\deactivatetocstyle}[1][]{}
\newcommand*{\reactivatetocstyle}[1][]{}
\NewDocumentCommand{\settocfeature}{o o m m}{}
\NewDocumentCommand{\settocstylefeature}{o m m}{}
\NewDocumentCommand{\newtocstyle}{o o m m}{}
\newcommand*{\aliastoc}[2]{}
\newcommand*{\showtoc}[2][]{}
\newcommand{\iftochasdepth}[4]{}
```

File 521 **lwarp-todo.sty**

§ 630 Package

todo

(*Emulates or patches code by* Federico Garcia.)

Pkg todo

todo is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{todo}[2010/03/31]

\renewcommand\todoitem[2]{%
    \refstepcounter{todo}%
    \item[%
        \HTMLunicode{2610} \quad
        \ref{todopage:\thetodo}
     ] : {\todoformat\ifx#1\todomark\else\textbf{#1} \fi}#2%
    \label{todolbl:\thetodo}%
}%
```

```
\renewcommand\doneitem[2]{%
    \stepcounter{todo}%
    \item[%
        \HTMLunicode{2611} \quad
        \ref{todopage:\thetodo}
    ] \@nameuse{@done\the\c@todo}:
        {\todoformat\ifx#1\todomark\else\textbf{#1} \fi}#2%
}
```

The following are not errors because the code will still compile and be usable if the patch is not possible.

```
\xpatchcmd{\@displaytodo}
    {\todoformat #1}{\todoformat \textbf{#1}}{}
    {\PackageWarning{lwarp-todo}{Unable to patch @displaytodo.}}

\xpatchcmd{\@displayfulltodo}
    {\todoformat #1}{\todoformat \textbf{#1}}{}
    {\PackageWarning{lwarp-todo}{Unable to patch @displayfulltodo.}}

\patchcmd{\todoenv}{\itshape see text.}{\textit{see text.}}{}
    {\PackageWarning{lwarp-todo}{Unable to patch todoenv.}}

\patchcmd{\astodos}{\todoformat #1}{\todoformat \textbf{#1}}{}
    {\PackageWarning{lwarp-todo}{Unable to patch astodos.}}
```

If cleveref is in use, name the new todo notes:

```
\AtBeginDocument{
\ifdef{\crefname}{
    \crefname{todo}{todo}{todos}
    \Crefname{todo}{Todo}{Todos}
}{}
}
```

File 522 **lwarp-todonotes.sty**

§ 631 Package

todonotes

(*Emulates or patches code by* Henrik Skov Midtiby.)

Pkg todonotes

todonotes is emulated.

The documentation for todonotes and luatodonotes have an example with a todo inside a caption. If this example does not work it will be necessary to move the todo outside of the caption.

for HTML output:

```
\LWR@ProvidesPackagePass{todonotes}[2012/07/25]

\if@todonotes@disabled
\else

\newcommand{\ext@todo}{tdo}

\renewcommand{\l@todo}[2]{\hypertocfloat{1}{todo}{ldo}{#1}{#2}}
```

```
\let\LWRTODONOTES@orig@todototoc\todototoc

\renewcommand*{\todototoc}{%
\LWR@phantomsection%
\LWRTODONOTES@orig@todototoc%
}

\renewcommand{\@todonotes@drawMarginNoteWithLine}{
\fcolorbox
    {\@todonotes@currentbordercolor}
    {\@todonotes@currentbackgroundcolor}
    {\arabic{@todonotes@numberoftodonotes}}
\marginpar{\@todonotes@drawMarginNote}
}

\renewcommand{\@todonotes@drawInlineNote}{%
\fcolorboxBlock%
    {\@todonotes@currentbordercolor}%
    {\@todonotes@currentbackgroundcolor}%
    {%
        \if@todonotes@authorgiven%
        {\@todonotes@author:\,}%
        \fi%
        \@todonotes@text%
    }%
}

\renewcommand{\@todonotes@drawMarginNote}{%
    \if@todonotes@authorgiven%
        \@todonotes@author\par%
    \fi%
    \arabic{@todonotes@numberoftodonotes}: %
    \fcolorbox%
    {\@todonotes@currentbordercolor}%
    {\@todonotes@currentbackgroundcolor}%
    {%
        \@todonotes@sizecommand%
        \@todonotes@text %
    }%
}%

\renewcommand{\@todonotes@drawLineToRightMargin}{}

\renewcommand{\@todonotes@drawLineToLeftMargin}{}

\renewcommand{\missingfigure}[2][]{%
\setkeys{todonotes}{#1}%
\addcontentsline{tdo}{todo}{\@todonotes@MissingFigureText: #2}%
\fcolorboxBlock%
    {\@todonotes@currentbordercolor}%
    {\@todonotes@currentfigcolor}%
    {%
        \setlength{\fboxrule}{4pt}%
        \fcolorbox{red}{white}{Missing figure} \quad #2%
    }
}

\LetLtxMacro\LWRTODONOTES@orig@todo\@todo

\RenewDocumentCommand{\@todo}{o m}{%
```

```
\begingroup%
\renewcommand*{\phantomsection}{}%
\IfValueTF{#1}{%
    \LWRTODONOTES@orig@todo[#1]{#2}%
}{%
    \LWRTODONOTES@orig@todo{#2}%
}
\endgroup%
}

\fi% \if@todonotes@disabled
```

File 523 **lwarp-topcapt.sty**

§ 632 Package topcapt

Pkg topcapt

topcapt is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{topcapt}[2004/12/11]

\LetLtxMacro\topcaption\caption
```

File 524 **lwarp-tram.sty**

§ 633 Package tram

Pkg tram

tram is emulated.

⚠ block only

The HTML emulation uses a , which must not appear inside an HTML or an HTML paragraph. For this reason, the tram environment should only be used to contain paragraphs inside a \parbox or minipage. tram should not be used to mark up inline text.

To disable tram, allowing source compatibility with inline uses:

```
\begin{warpHTML}
\renewenvironment{tram}[1][]{}{}
\end{warpHTML}
```

for HTML output:

```
\LWR@ProvidesPackageDrop{tram}[2013/04/04]

\newenvironment{tram}[1][]%
    {\BlockClass[background:lightgray]{tram}}
    {\endBlockClass}
```

File 525 **lwarp-transparent.sty**

§ 634 Package transparent

(*Emulates or patches code by* Heiko Oberdiek.)

Pkg transparent

transparent is emulated. \texttransparent works for inline objects. \transparent only works for \includegraphics.

⚠ Not XeLaTeX! Note that transparent does not work with XeLaTeX.

for HTML output:

```
\LWR@ProvidesPackagePass{transparent}[2019/11/29]

\newcommand*{\LWR@HTML@transparent}[1]{\edef\LWR@opacity{#1}}

\LWR@formatted{transparent}


\newcommand*{\LWR@HTML@texttransparent}[2]{%
\begingroup%
\transparent{#1}%
\InlineClass[opacity: #1]{transparent}{#2}%
\endgroup%
}

\LWR@formatted{texttransparent}
```

File 526 **lwarp-trimclip.sty**

§ 635 Package trimclip

Pkg trimclip

trimclip is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{trimclip}[2018/04/08]
```

The third argument, the text, is not touched. This allows \bgroup / \egroup, and verbatim content.

```
\csdef{trimbox}{\@ifstar\@gobble\@gobble}
\csletcs{trimbox*}{trimbox}
\def\endtrimbox{}
\csletcs{endtrimbox*}{endtrimbox}

\csletcs{clipbox}{trimbox}
\csletcs{clipbox*}{trimbox}
\csletcs{endclipbox}{endtrimbox}
\csletcs{endclipbox*}{endtrimbox}

\csletcs{marginbox}{trimbox}
\csletcs{marginbox*}{trimbox}
\csletcs{endmarginbox}{endtrimbox}
\csletcs{endmarginbox*}{endtrimbox}
```

File 527 **lwarp-trivfloat.sty**

§ 636 Package trivfloat

(*Emulates or patches code by* Joseph Wright.)

Pkg trivfloat

trivfloat is forced to use the built-in lwarp emulation for floats.

To create a new float type and change its name:

```
\trivfloat{example}
\renewcommand{\examplename}{Example Name}
\crefname{example}{example}{examples}
\Crefname{example}{Example}{Examples}
```

Discard all options for lwarp-trivfloat. This tells trivfloat not to use floatrow or memoir.

```
\LWR@ProvidesPackageDrop{trivfloat}[2009/04/23]
\LWR@origRequirePackage{trivfloat}
```

`\tfl@chapter@fix` Nullified at the beginning of the document. Is used by trivfloat to correct float chapter numbers, but is not needed for lwarp.

```
\AtBeginDocument{\DeclareDocumentCommand{\tfl@chapter@fix}{m m}{}}
```

§ 636.1 Combining `\newfloat`, `\trivfloat`, and algorithmicx

For both print and HTML output:

⚠ When using float, trivfloat, or algorithmicx at the same time, be aware of conflicting file usage. algorithmicx uses `.loa`. trivfloat by default starts with `.loa` and goes up for additional floats, skipping `.lof` and `.lot`.

⚠ When using `\newfloat`, be sure to manually assign higher letters to the `\newfloat` files to avoid `.loa` used by algorithmicx, and any files used by trivfloat. Also avoid using `.lof` and `.lot`.

⚠ When using `\trivfloat`, you may force it to avoid conflicting with algorithmicx by starting trivfloat's file extensions with `.lob`:

```
\makeatletter
\setcounter{tfl@float@cnt}{1} % start trivfloats with .lob
\makeatletter
```

File 528 **`lwarp-truncate.sty`**

§ 637 Package truncate

Pkg `truncate` truncate is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{truncate}[2001/08/20]
\providecommand{\TruncateMarker}{}
\newcommand{\truncate}[3][\TruncateMarker]{#3}
```

File 529 **lwarp-turnthepage.sty**

§ 638 Package

turnthepage

Pkg turnthepage

turnthepage is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{turnthepage}[2011/03/24]
\newcommand{\turnthepage}{}
```

File 530 **lwarp-twoup.sty**

§ 639 Package

twoup

Pkg twoup

twoup is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{twoup}[2007/02/26]
\newcommand{\cleartolastpage}{}
```

File 531 **lwarp-txfonts.sty**

§ 640 Package

txfonts

(*Emulates or patches code by* Young Ryu.)

Pkg txfonts

txfonts is used as-is for SVG math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{txfonts}[2008/01/22]
```

For MathJax:

```
\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}
\LWR@infoprocessingmathjax{txfonts}

\LWR@mathjax@addgreek@l@up{}{up}
\end{warpMathJax}
```

File 532 **lwarp-txgreeks.sty**

§ 641 Package

txgreeks

(*Emulates or patches code by* Jean-François Burnol.)

Pkg txgreeks

txgreeks is used as-is for SVG math, and is emulated for MathJax.

The MathJax emulation honors all package options.

for HTML output:

```
\LWR@ProvidesPackagePass{txgreeks}[2011/03/16]

\LWR@infoprocessingmathjax{txgreeks}

\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}
\iftgs@uplower% upright lowercase Greek
    \LWR@mathjax@addgreek@l@up{}{}
    \LWR@mathjax@addgreek@l@it{other}{}
\else% italic lowercase Greek
    \LWR@mathjax@addgreek@l@it{}{}
    \LWR@mathjax@addgreek@l@up{other}{}
\fi

\iftgs@itupper % italic uppercase Greek
    \LWR@mathjax@addgreek@u@it*{}{}
    \LWR@mathjax@addgreek@u@up*{other}{}
    \LWR@mathjax@addgreek@u@up*{var}{}
\else% upright uppercase Greek
    \LWR@mathjax@addgreek@u@up*{}{}
    \LWR@mathjax@addgreek@u@it*{other}{}
    \LWR@mathjax@addgreek@u@it*{var}{}
\fi
\end{warpMathJax}
```

File 533 **lwarp-typearea.sty**

§ 642 Package

typearea

(*Emulates or patches code by* Markus Kohm.)

Pkg typearea

typearea is emulated.

This package may be loaded standalone, but is also loaded automatically if koma-script classes are in use. \DeclareDocumentCommand is used to overwrite the koma-script definitions.

for HTML output:

```
\LWR@ProvidesPackageDrop{typearea}[2018/03/30]

\DeclareDocumentCommand{\typearea}{o m}{}
\DeclareDocumentCommand{\recalctypearea}{}{}
\@ifundefined{footheight}{\newlength\footheight}{}
\DeclareDocumentCommand{\areaset}{o m m}{}
\DeclareDocumentCommand{\activateareas}{}{}
\DeclareDocumentCommand{\storeareas}{m}{}
\DeclareDocumentCommand{\BeforeRestoreareas}{s m}{}
\DeclareDocumentCommand{\AfterRestoreareas}{s m}{}
\DeclareDocumentCommand{\AfterCalculatingTypearea}{s m}{}
\DeclareDocumentCommand{\AfterSettingArea}{s m}{}
```

File 534 **lwarp-typicons.sty**

§ 643 Package typicons

(*Emulates or patches code by* Arthur Vigil, Xavier Danaux.)

Pkg typicons

typicons is patched for use by lwarp.

If \ticon is used, the name of the icon is used in the alt tag. Otherwise, for each of the individual icon macros, a generic alt tag is used.

for HTML output:

```
\LWR@ProvidesPackagePass{typicons}[2015/05/20]

\LetLtxMacro\LWR@orig@symbol\symbol

\let\LWR@orig@typicon@TI\TI

\newcommand*{\LWR@typicon@symbol}[1]{%
    \begin{lateximage}*[typicon][typicon#1]%
    \begingroup%
    \LWR@orig@typicon@TI%
    \LWR@orig@symbol{#1}%
    \endgroup%
    \end{lateximage}%
}

\renewcommand*{\TI}{%
    \LetLtxMacro\symbol\LWR@typicon@symbol%
}

\renewcommand*{\ticon}[1]
{%
    \begin{lateximage}*[#1 icon][typicon#1]%
    \TI\csname ticon@#1\endcsname%
    \end{lateximage}%
}
```

File 535 **lwarp-ulem.sty**

§ 644 Package ulem

(*Emulates or patches code by* Donald Arseneau.)

Pkg ulem

Patched for use by lwarp.

for HTML output:

Use the original package:

```
\LWR@ProvidesPackagePass{ulem}[2012/05/18]
```

Basic markup commands, using CSS:

```
\NewDocumentCommand{\LWR@HTML@uline}{+m}{%
    \InlineClass%
```

```
        (text-decoration:underline; text-decoration-skip: auto)%
        {uline}{\LWR@isolate{#1}}%
}
\LWR@formatted{uline}

\NewDocumentCommand{\LWR@HTML@uuline}{+m}{%
    \InlineClass%
        (%
            text-decoration:underline; text-decoration-skip: auto;%
            text-decoration-style:double%
        )%
        {uuline}{\LWR@isolate{#1}}%
}
\LWR@formatted{uuline}

\NewDocumentCommand{\LWR@HTML@uwave}{+m}{%
    \InlineClass%
        (%
            text-decoration:underline; text-decoration-skip: auto;%
            text-decoration-style:wavy%
        )%
        {uwave}{\LWR@isolate{#1}}%
}
\LWR@formatted{uwave}

\NewDocumentCommand{\LWR@HTML@sout}{+m}{%
    \InlineClass%
        (text-decoration:line-through)%
        {sout}{\LWR@isolate{#1}}%
}
\LWR@formatted{sout}

\NewDocumentCommand{\LWR@HTML@xout}{+m}{%
    \InlineClass%
        (text-decoration:line-through)%
        {xout}{\LWR@isolate{#1}}%
}
\LWR@formatted{xout}

\NewDocumentCommand{\LWR@HTML@dashuline}{+m}{%
    \InlineClass%
        (%
            text-decoration:underline;%
            text-decoration-skip: auto;%
            text-decoration-style:dashed%
        )%
        {dashuline}{\LWR@isolate{#1}}%
}
\LWR@formatted{dashuline}

\NewDocumentCommand{\LWR@HTML@dotuline}{+m}{%
    \InlineClass%
        (%
            text-decoration:underline;%
            text-decoration-skip: auto;%
            text-decoration-style: dotted%
        )%
        {dotuline}{\LWR@isolate{#1}}%
}
\LWR@formatted{dotuline}
```

Nullified/emulated macros:

```
\NewDocumentCommand{\LWR@HTML@markoverwith}{m}{}
\LWR@formatted{markoverwith}

\NewDocumentCommand{\LWR@HTML@ULon}{+m}{\uline{#1}\egroup}
\LWR@formatted{ULon}
```

File 536 **lwarp-umoline.sty**

§ 645 Package umoline

(*Emulates or patches code by* Hiroshi Nakashima.)

Pkg umoline

umoline is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{umoline}[2000/07/11]

\newcommand*{\LWR@HTML@Underline}[1]{%
    \InlineClass{uline}{#1}%
}
\LWR@formatted{Underline}

\newcommand*{\LWR@HTML@Midline}[1]{%
    \InlineClass{sout}{#1}%
}
\LWR@formatted{Midline}

\newcommand*{\LWR@HTML@Overline}[1]{%
    \InlineClass{oline}{#1}%
}
\LWR@formatted{Overline}

\newcommand*{\LWR@HTML@UMOline}[2]{%
    \InlineClass{uline}{#2}%
}
\LWR@formatted{UMOline}

\NewDocumentCommand{\LWR@HTML@UMOspace}{s m o}{\hspace*{#2}}
\LWR@formatted{UMOspace}

\NewDocumentCommand{\LWR@HTML@UMOnewline}{s}{\newline}
\LWR@formatted{UMOnewline}
```

File 537 **lwarp-underscore.sty**

§ 646 Package underscore

Pkg underscore

underscore is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{underscore}[2006/09/13]
```

File 538 **lwarp-unicode-math.sty**

§ 647 Package

unicode-math

(*Emulates or patches code by* Will Robertson.)

Pkg unicode-math

unicode-math is supported as-is for HTML with SVGmath.

⚠ MathJax

If the document source includes embedded Unicode characters, these may not be reproduced correctly for *pdftotext*, and thus not display correctly in MathJax.

Symbol font commands are emulated, but not all combinations are supported by MathJax, especially with the dedicated Greek macros. Symbol macros such as `\symbfsf` may not be sans or bold. For Greek, use the Unicode equivalent, if necessary.

⚠ `\mathversion`

The MathJax emulation does not change with the use of `\mathversion`. Whatever emulation is established at the begin of the document will remain.

The option `sans-style` honors `upright` and `italic`, but `italic` will not be sans, in order to support Greek macros.

Greek macros such as `\alpha` respond to the `math-style` option. Latin symbols does not, per MathJax limitations, unless placed inside `\symbit` or similar.

Macros from the categories `\mathopen`, `\mathclose`, and `\mathfence` are emulated. Due to current MathJax limitations, not all stretch to the correct height.

Also emulated are macros from the categories `\mathpunct`, `\mathover`, `\mathunder`, `\mathaccent`, `\mathbotaccent`, and `\mathop`.

The individual unicode-math macros of categories `\mathbin`, `\mathord`, and `\mathrel` are not emulated for MathJax, as there are more than two thousand of them, but they may be added as needed. Place the following in the document preamble after loading unicode-math, including a definition for each macro which is used in the document but undefined in MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\uplus}{\mathbin{\unicode{x0228E}}}}
...
\end{warpMathJax}
```

Use `\mathrel`, `\mathbin`, etc. depending on the category of each macro. For a list of macro names and symbols, see **texdoc unimath-symbols**.

for HTML output:

```
\LWR@ProvidesPackagePass{unicode-math}[2019/09/26]

\LWR@origRequirePackage{lwarp-common-mathjax-letters}

\begin{warpMathJax}
\LWR@infoprocessingmathjax{unicode-math}

% Not all are possible in MathJax.
\CustomizeMathJax{\let\symnormal\mathit}
```

```
\CustomizeMathJax{\let\symliteral\mathrm}
\CustomizeMathJax{\let\symbb\mathbb}
\CustomizeMathJax{\let\symbbit\mathbb}% not italic
\CustomizeMathJax{\let\symcal\mathcal}
\CustomizeMathJax{\let\symscr\mathscr}
\CustomizeMathJax{\let\symfrak\mathfrak}

\CustomizeMathJax{\let\symsfup\mathsf}

\CustomizeMathJax{\let\symsfit\mathit}% not sans
% \CustomizeMathJax{\newcommand{\symsfit}[1]{%
%     \mmlToken{mi}[mathvariant="sans-serif-italic"]{#1}}% not greek
% }

\CustomizeMathJax{\let\symbfsf\mathbf}% not sans
% \CustomizeMathJax{\newcommand{\symbfsf}[1]{%
%     \mmlToken{mi}[mathvariant="bold-sans-serif"]{#1}}% not greek
% }

\CustomizeMathJax{\let\symbfup\mathbf}
\CustomizeMathJax{\newcommand{\symbfit}[1]{\boldsymbol{#1}}}
\CustomizeMathJax{\let\symbfcal\mathcal}% not bold

\CustomizeMathJax{\let\symbfscr\mathscr}% not bold
% \CustomizeMathJax{\newcommand{\symbfscr}[1]{
%     \mmlToken{mi}[mathvariant="math-bold-script"]{#1}}% not greek
% }

\CustomizeMathJax{\let\symbffrak\mathfrak}% not bold
% \CustomizeMathJax{\newcommand{\symbffrak}[1]{%
%     \mmlToken{mi}[mathvariant="math-bold-fraktur"]{#1}}% not greek
% }

\CustomizeMathJax{\let\symbfsfup\mathbf}% not sans
% \CustomizeMathJax{\newcommand{\symbfsfup}[1]{%
%     \mmlToken{mi}[mathvariant="bold-sans-serif"]{#1}}% not greek
% }

\CustomizeMathJax{\newcommand{\symbfsfit}[1]{\boldsymbol{#1}}}% not sans
% \CustomizeMathJax{\newcommand{\symbfsfit}[1]{%
%     \mmlToken{mi}[mathvariant="sans-serif-bold-italic"]{#1}}% not greek
% }

% Duplicates below are commented out.
\CustomizeMathJax{\let\symup\mathrm}
\CustomizeMathJax{\let\symbf\mathbf}% \symbfup defined above
\CustomizeMathJax{\let\symit\mathit}
% \CustomizeMathJax{\let\symbfit\mathit}% not bold


\ExplSyntaxOn
\AtBeginDocument{
\bool_if:NTF \g__um_sfliteral_bool
    {\CustomizeMathJax{\let\symsf\symsfup}}
    {
        \bool_if:NTF \g__um_upsans_bool
            {\CustomizeMathJax{\let\symsf\symsfup}}
            {\CustomizeMathJax{\let\symsf\symsfit}}
    }
}
\ExplSyntaxOff
```

```
% \CustomizeMathJax{\let\symbfsfup\mathbf}% not sans
% \CustomizeMathJax{\let\symsfit\mathit}% not sans
% \CustomizeMathJax{\let\symbfsfit\mathit}% not bold nor sans
\CustomizeMathJax{\let\symtt\mathtt}
% \CustomizeMathJax{\let\symbb\mathbb}
% \CustomizeMathJax{\let\symbbit\mathbb}% not italic
% \CustomizeMathJax{\let\symscr\mathscr}
% \CustomizeMathJax{\let\symbfscr\mathscr}% not bold
% \CustomizeMathJax{\let\symfrak\mathfrak}
\CustomizeMathJax{\let\symbffrac\mathbffrac}
```

Some symbol categories defined by unicode-math, in case they are used inside custom macros:

```
\CustomizeMathJax{\newcommand{\mathfence}[1]{\mathord{#1}}}
\CustomizeMathJax{\newcommand{\mathover}[1]{#1}}
\CustomizeMathJax{\newcommand{\mathunder}[1]{#1}}
\CustomizeMathJax{\newcommand{\mathaccent}[1]{#1}}
\CustomizeMathJax{\newcommand{\mathbotaccent}[1]{#1}}
\CustomizeMathJax{\newcommand{\mathalpha}[1]{\mathord{#1}}}
```

`math-style` is one of: `ISO`, `TeX`, `french`, `upright`, or `literal`, which set `\g__um_upGreek_bool` and `\g__um_upgreek_bool`.

```
\ExplSyntaxOn

\AtBeginDocument{
\bool_if:NTF \g__um_upGreek_bool
    {\LWR@mathjax@addgreek@u@up*{}{}}
    {\LWR@mathjax@addgreek@u@it*{}{}}

\bool_if:NTF \g__um_upgreek_bool
    {\LWR@mathjax@addgreek@l@up{}{}}
    {\LWR@mathjax@addgreek@l@it{}{}}
}

\LWR@mathjax@addgreek@u@up*{up}{}
\LWR@mathjax@addgreek@u@it*{it}{}
\LWR@mathjax@addgreek@l@up{up}{}
\LWR@mathjax@addgreek@l@it{it}{}

\ExplSyntaxOff

\CustomizeMathJax{\let\lparen(}
\CustomizeMathJax{\let\rparen)}
\CustomizeMathJax{\newcommand{\cuberoot}[1]{\,{}^3\!\!\sqrt{#1}}\,}
\CustomizeMathJax{\newcommand{\fourthroot}[1]{\,{}^4\!\!\sqrt{#1}}\,}
```

Many `\mathopen` / `\mathclose` delimiters are defined in `lwarp_mathjax.txt`, where `\left` / `\right` support is added.

```
\CustomizeMathJax{\newcommand{\longdivision}[1]{\mathord{\unicode{x027CC}#1}}}

\CustomizeMathJax{\newcommand{\mathcomma}{,}}
\CustomizeMathJax{\newcommand{\mathcolon}{:}}
\CustomizeMathJax{\newcommand{\mathsemicolon}{;}}

\CustomizeMathJax{\newcommand{\overbracket}[1]{\mathinner{\overline{\ulcorner{#1}\urcorner}}}}
\CustomizeMathJax{\newcommand{\underbracket}[1]{\mathinner{\underline{\llcorner{#1}\lrcorner}}}}
```

```
115
116 \CustomizeMathJax{\newcommand{\overbar}[1]{\mathord{#1\unicode{x00305}}}}
117 \CustomizeMathJax{\newcommand{\ovhook}[1]{\mathord{#1\unicode{x00309}}}}
118 \CustomizeMathJax{\newcommand{\ocirc}[1]{\mathord{#1\unicode{x0030A}}}}
119 \CustomizeMathJax{\newcommand{\candra}[1]{\mathord{#1\unicode{x00310}}}}
120 \CustomizeMathJax{\newcommand{\oturnedcomma}[1]{\mathord{#1\unicode{x00312}}}}
121 \CustomizeMathJax{\newcommand{\ocommatopright}[1]{\mathord{#1\unicode{x00315}}}}
122 \CustomizeMathJax{\newcommand{\droang}[1]{\mathord{#1\unicode{x0031A}}}}
123 \CustomizeMathJax{\newcommand{\leftharpoonaccent}[1]{\mathord{#1\unicode{x020D0}}}}
124 \CustomizeMathJax{\newcommand{\rightharpoonaccent}[1]{\mathord{#1\unicode{x020D1}}}}
125 \CustomizeMathJax{\newcommand{\vertoverlay}[1]{\mathord{#1\unicode{x020D2}}}}
126 \CustomizeMathJax{\newcommand{\leftarrowaccent}[1]{\mathord{#1\unicode{x020D0}}}}
127 \CustomizeMathJax{\newcommand{\annuity}[1]{\mathord{#1\unicode{x020E7}}}}
128 \CustomizeMathJax{\newcommand{\widebridgeabove}[1]{\mathord{#1\unicode{x020E9}}}}
129 \CustomizeMathJax{\newcommand{\asteraccent}[1]{\mathord{#1\unicode{x020F0}}}}
130 \CustomizeMathJax{\newcommand{\threeunderdot}[1]{\mathord{#1\unicode{x020E8}}}}
131
132 \CustomizeMathJax{\newcommand{\Bbbsum}{\mathop{\unicode{x2140}}\limits}}
133 \CustomizeMathJax{\newcommand{\oiint}{\mathop{\unicode{x222F}}\limits}}
134 \CustomizeMathJax{\newcommand{\oiiint}{\mathop{\unicode{x2230}}\limits}}
135 \CustomizeMathJax{\newcommand{\intclockwise}{\mathop{\unicode{x2231}}\limits}}
136 \CustomizeMathJax{\newcommand{\ointclockwise}{\mathop{\unicode{x2232}}\limits}}
137 \CustomizeMathJax{\newcommand{\ointctrclockwise}{\mathop{\unicode{x2233}}\limits}}
138 \CustomizeMathJax{\newcommand{\varointclockwise}{\mathop{\unicode{x2232}}\limits}}
139 \CustomizeMathJax{\newcommand{\leftouterjoin}{\mathop{\unicode{x27D5}}\limits}}
140 \CustomizeMathJax{\newcommand{\rightouterjoin}{\mathop{\unicode{x27D6}}\limits}}
141 \CustomizeMathJax{\newcommand{\fullouterjoin}{\mathop{\unicode{x27D7}}\limits}}
142 \CustomizeMathJax{\newcommand{\bigbot}{\mathop{\unicode{x27D8}}\limits}}
143 \CustomizeMathJax{\newcommand{\bigtop}{\mathop{\unicode{x27D9}}\limits}}
144 \CustomizeMathJax{\newcommand{\xsol}{\mathop{\unicode{x29F8}}\limits}}
145 \CustomizeMathJax{\newcommand{\xbsol}{\mathop{\unicode{x29F9}}\limits}}
146 \CustomizeMathJax{\newcommand{\bigcupdot}{\mathop{\unicode{x2A03}}\limits}}
147 \CustomizeMathJax{\newcommand{\bigsqcap}{\mathop{\unicode{x2A05}}\limits}}
148 \CustomizeMathJax{\newcommand{\conjquant}{\mathop{\unicode{x2A07}}\limits}}
149 \CustomizeMathJax{\newcommand{\disjquant}{\mathop{\unicode{x2A08}}\limits}}
150 \CustomizeMathJax{\newcommand{\bigtimes}{\mathop{\unicode{x2A09}}\limits}}
151 \CustomizeMathJax{\newcommand{\modtwosum}{\mathop{\unicode{x2A0A}}\limits}}
152 \CustomizeMathJax{\newcommand{\sumint}{\mathop{\unicode{x2A0B}}\limits}}
153 \CustomizeMathJax{\newcommand{\intbar}{\mathop{\unicode{x2A0D}}\limits}}
154 \CustomizeMathJax{\newcommand{\intBar}{\mathop{\unicode{x2A0E}}\limits}}
155 \CustomizeMathJax{\newcommand{\fint}{\mathop{\unicode{x2A0F}}\limits}}
156 \CustomizeMathJax{\newcommand{\cirfnint}{\mathop{\unicode{x2A10}}\limits}}
157 \CustomizeMathJax{\newcommand{\awint}{\mathop{\unicode{x2A11}}\limits}}
158 \CustomizeMathJax{\newcommand{\rppolint}{\mathop{\unicode{x2A12}}\limits}}
159 \CustomizeMathJax{\newcommand{\scpolint}{\mathop{\unicode{x2A13}}\limits}}
160 \CustomizeMathJax{\newcommand{\npolint}{\mathop{\unicode{x2A14}}\limits}}
161 \CustomizeMathJax{\newcommand{\pointint}{\mathop{\unicode{x2A15}}\limits}}
162 \CustomizeMathJax{\newcommand{\sqint}{\mathop{\unicode{x2A16}}\limits}}
163 \CustomizeMathJax{\newcommand{\intlarhk}{\mathop{\unicode{x2A17}}\limits}}
164 \CustomizeMathJax{\newcommand{\intx}{\mathop{\unicode{x2A18}}\limits}}
165 \CustomizeMathJax{\newcommand{\intcap}{\mathop{\unicode{x2A19}}\limits}}
166 \CustomizeMathJax{\newcommand{\intcup}{\mathop{\unicode{x2A1A}}\limits}}
167 \CustomizeMathJax{\newcommand{\upint}{\mathop{\unicode{x2A1B}}\limits}}
168 \CustomizeMathJax{\newcommand{\lowint}{\mathop{\unicode{x2A1C}}\limits}}
169 \CustomizeMathJax{\newcommand{\bigtriangleleft}{\mathop{\unicode{x2A1E}}\limits}}
170 \CustomizeMathJax{\newcommand{\zcmp}{\mathop{\unicode{x2A1F}}\limits}}
171 \CustomizeMathJax{\newcommand{\zpipe}{\mathop{\unicode{x2A20}}\limits}}
172 \CustomizeMathJax{\newcommand{\zproject}{\mathop{\unicode{x2A21}}\limits}}
173 \CustomizeMathJax{\newcommand{\biginterleave}{\mathop{\unicode{x2AFC}}\limits}}
174 \CustomizeMathJax{\newcommand{\bigtalloblong}{\mathop{\unicode{x2AFF}}\limits}}
```

```
\CustomizeMathJax{\newcommand{\arabicmaj}{\mathop{\unicode{x1EEF0}}\limits}}
\CustomizeMathJax{\newcommand{\arabichad}{\mathop{\unicode{x1EEF1}}\limits}}

\end{warpMathJax}
```

File 539 **lwarp-units.sty**

§ 648 Package units

(*Emulates or patches code by* Axel Reichert.)

Pkg units

units is patched for use by lwarp.

Values are not styled by CSS, and take the style of the surrounding HTML text.

Units are styled according to the print version, so they will be forced to upright roman in HTML if the print version does so. It may be necessary to adjust the document's body CSS to match the print version.

for HTML output:

```
\LWR@ProvidesPackagePass{units}[1998/08/04]

\DeclareRobustCommand*{\LWR@HTML@unit}[2][]{%
\ifblank{#1}%
    {\LWR@textcurrentfont{#2}}%
    {%
        #1%
        \ifthenelse{\boolean{B@UnitsLoose}}{~}{\,}%
        \LWR@textcurrentfont{#2}%
    }%
}
\LWR@formatted{unit}

\DeclareRobustCommand*{\LWR@HTML@unitfrac}[3][]{%
\ifblank{#1}%
    {%
            \nicefrac{#2}{#3}%
    }%
    {%
            #1%
            \ifthenelse{\boolean{B@UnitsLoose}}{~}{\,}%
            \nicefrac{#2}{#3}%
    }%
}

\LWR@formatted{unitfrac}
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\unit}[2][]{#1 \mathinner{#2}}}
\CustomizeMathJax{\newcommand{\unitfrac}[3][]{#1 \mathinner{{}^{#2}\!/\!_{#3}}}}
\end{warpMathJax}
```

File 540 **lwarp-unitsdef.sty**

§ 649 Package

unitsdef

(*Emulates or patches code by* Patrick Happel.)

Pkg unitsdef

unitsdef is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{unitsdef}[2005/01/04]

\renewcommand{\unitvaluesep}{\,}

\renewcommand{\unittimes}{\@@setunitsepfalse\HTMLunicode{22c5}}% \cdot

\renewunit{\arcmin}{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {\ensuremath{{}^\prime}}%
        {\HTMLunicode{2032}}% prime
}

\renewunit{\arcsec}{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {\ensuremath{{}^{\prime\prime}}}%
        {\HTMLunicode{2033}}% dbl prime
}

\renewrobustcmd{\SI}[2]{%
  \begingroup%
    \let\unit@@xspace\relax%
    \unitSIdef\selectfont%
      \LWR@textcurrentfont{#1#2}% lwarp
  \endgroup%
}
```

File 541 **lwarp-upgreek.sty**

§ 650 Package

upgreek

(*Emulates or patches code by* Walter Schmidt.)

Pkg upgreek

upgreek is used as-is for svg math, and is emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{upgreek}[2003/02/12]
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\require{upgreek}}
\end{warpMathJax}
```

File 542 **lwarp-upref.sty**

§ 651 Package

upref

Pkg upref

upref is ignored.

for HTML output:

Discard all options for lwarp-upref:

```
\LWR@ProvidesPackageDrop{upref}[2007/03/14]
```

File 543 **lwarp-url.sty**

§ 652 Package

url

(*Emulates or patches code by* Donald Arseneau.)

Pkg url

url is patched for use by lwarp.

for HTML output:

```
\LetLtxMacro\LWR@url@orig@url\LWR@url

\LWR@ProvidesPackagePass{url}[2013/09/16]

\newcommand*{\LWR@HTML@Url@FormatString}{%
    \expandafter\LWR@url@orig@url\expandafter{\Url@String}%
}
\LWR@formatted{Url@FormatString}
```

File 544 **lwarp-ushort.sty**

§ 653 Package

ushort

(*Emulates or patches code by* Martin Väth.)

Pkg ushort

ushort is used as-is, and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{ushort}[2001/06/13]

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\ushortdline}[1]{%
    \kern{.1em}\underline{\underline{{#1}}}\kern{.1em}%
}}
\CustomizeMathJax{\newcommand{\ushort}[1]{\kern{.1em}\underline{#1}\kern{.1em}}}
\CustomizeMathJax{\newcommand{\ushortd}[1]{\ushortdline{#1}}}
\CustomizeMathJax{\newcommand{\ushortw}[1]{\kern{.1em}\underline{#1}\kern{.1em}}}
\CustomizeMathJax{\newcommand{\ushortdw}[1]{\ushortdline{#1}}}
\end{warpMathJax}
```

File 545 **lwarp-uspace.sty**

§ 654 Package

uspace

Pkg uspace

uspace is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{uspace}[2016/11/06]
```

File 546 **lwarp-varioref.sty**

§ 655 Package

varioref

(*Emulates or patches code by* Frank Mittelbach.)

Pkg varioref

varioref is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{varioref}[2020/01/23]
```

Page-related output is not used for HTML output.

```
\def\reftextfaceafter {\unskip}%
\def\reftextfacebefore{\unskip}%
\def\reftextafter     {\unskip}%
\def\reftextbefore    {\unskip}%
\def\reftextcurrent   {\unskip}%
\def\reftextfaraway#1{\unskip}%
\def\reftextpagerange#1#2{\unskip}%
```

File 547 **lwarp-verse.sty**

§ 656 Package

verse

(*Emulates or patches code by* Peter Wilson.)

Pkg verse

verse is supported and patched by lwarp.

for HTML output:

Pass all options for lwarp-verse:

```
\LWR@ProvidesPackagePass{verse}[2009/09/04]
```

When using verse or memoir, always place a \\ after each line.

\attrib

The documentation for the verse and memoir packages suggest defining an \attrib command, which may already exist in current documents, but it will only work for print output. lwarp provides \attribution, which works for both print and HTML output. To combine the two so that \attrib is used for print and \attribution is used for HTML:

```
\begin{warpHTML}
\let\attrib\attribution
\end{warpHTML}
```

Len \vleftskip
Len \vleftmargini
Len \HTMLvleftskip
Len \HTMLleftmargini

These lengths are used by verse and memoir to control the left margin, and they may already be set by the user for print output. New lengths \HTMLvleftskip and \HTMLleftmargini are provided to control the margins in HTML output. These new lengths may be set by the user before any verse environment, and persist until they are manually changed again. One reason to change \HTMLleftmargini is if there is a wide \flagverse in use, such as the word "Chorus", in which case the value of \HTMLleftmargini should be set to a wide enough length to contain "Chorus". The default is wide enough for a stanza number.

⚠ spacing

Horizontal spacing relies on *pdftotext*'s ability to discern the layout (-layout option) of the text in the HTML-tagged PDF output. For some settings of \HTMLleftmargini or \HTMLleftskip the horizontal alignment may not work out exactly, in which case a label may be shifted by one space. During translation to HTML, the stanza numbers are kept out of the left margin, which would have caused *pdftotext* to shift everything over.

⚠ verse margin

Env verse

The verse environment will be placed inside a HTML <pre>.

```
\AfterEndPreamble{
\LWR@traceinfo{Patching verse.}
```

At the beginning of the verse environment:

```
\AtBeginEnvironment{verse}
{%
```

Use the original list environment inside a <pre> to attempt to preserve formatting.

```
\LWR@restoreoriglists%
```

Pkg verse
Cls memoir
\flagverse
Len \vleftskip

The verse or memoir packages can place stanza numbers to the left with their \flagverse command. The following does not allow them to go into the left margin, which would cause *pdfcrop* to crop the entire page further to the left.

```
\ifdef{\vleftskip}{%
\setlength{\vleftskip}{\HTMLvleftskip}
\setlength{\leftmargini}{\HTMLleftmargini}
}{}
\LWR@forcenewpage
\LWR@atbeginverbatim{verse}%
}
```

After the end of the verse environment, which places the <pre> tag at the regular left margin:

```
\AtEndEnvironment{verse}{%
\leavevmode%
\LWR@afterendverbatim%
}
```

Patch to place poemtitle inside an HTML of class poemtitle:

```
\ifdef{\poemtitle}{
\DeclareDocumentCommand{\@vstypeptitle}{m}{%
    \vspace{\beforepoemtitleskip}%
```

```
  {\InlineClass{poemtitle}{\poemtitlefont #1}\par}%
  \vspace{\afterpoemtitleskip}%
 }
}{}

\LWR@traceinfo{Finished patching verse.}
}% AfterEndPreamble
```

File 548 **lwarp-versonotes.sty**

§ 657 Package versonotes

(*Emulates or patches code by* Norman Gray.)

Pkg versonotes

versonotes is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{versonotes}[2019/07/06]

\newcommand{\versonote}[1]{\marginpar{#1}}
\newdimen\versotextwidth
\newdimen\versoleftmargin
\newcommand*{\versolayout}{}
```

In case the user changed the page number before loading versonotes:

```
\setcounter{page}{1}
```

File 549 **lwarp-vertbars.sty**

§ 658 Package vertbars

(*Emulates or patches code by* Peter Wilson.)

Pkg vertbars

vertbars is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{vertbars}[2010/11/27]

\newlength{\barwidth}
\setlength{\barwidth}{0.4pt}
\newlength{\barspace}
\setlength{\barspace}{1em}

\newenvironment{vertbar}{
    \LWR@forcenewpage
    \LWR@forceminwidth{\barwidth}
    \begin{BlockClass}[%
        border-left: \LWR@printlength{\LWR@atleastonept} solid black ; %
        padding-left: \LWR@printlength{\barspace}%
    ]{vertbar}
}{
    \end{BlockClass}
}
```

File 550 **lwarp-vmargin.sty**

§ 659 Package
# vmargin

Pkg vmargin

vmargin is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{vmargin}[2004/07/15]

\newcommand*{\LWRVM@customsize}[2]{}
\newcommand*{\setpapersize}[2][]{\ifstrequal{#2}{custom}{\LWRVM@customsize}{}}
\newcommand*{\setmargins}[8]{}
\newcommand*{\setmarginsrb}[8]{}
\newcommand*{\setmargnohf}[4]{}
\newcommand*{\setmargnohfrb}[4]{}
\newcommand*{\setmarg}[4]{}
\newcommand*{\setmargrb}[4]{}
\newlength{\PaperWidth}
\setlength{\PaperWidth}{8.5in}
\newlength{\PaperHeight}
\setlength{\PaperHeight}{11in}
\newif\ifLandscape
```

File 551 **lwarp-vowel.sty**

§ 660 Package
# vowel

(*Emulates or patches code by* FUKUI REI.)

Pkg vowel

vowel is patched for use by lwarp.

This package has been tested with *pdflatex* and the Type 1 TIPA fonts using the following package load sequence:

```
\usepackage[T3,T1]{fontenc}
\usepackage[utf8]{inputenc}
\usepackage[noenc]{tipa}
\usepackage{vowel}
```

for HTML output:

```
\LWR@ProvidesPackagePass{vowel}[2002/08/08]

\renewenvironment{vowel}[1][]
    {%
        \begin{lateximage}[-vowel-~\PackageDiagramAltText]%
        \@vowel[#1]%
    }
    {%
        \@@vowel%
        \end{lateximage}%
    }
```

File 552 **lwarp-vpe.sty**

§ 661 Package

vpe

Pkg vpe

vpe is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{vpe}[2012/04/18]
```

File 553 **lwarp-vwcol.sty**

§ 662 Package

vwcol

(*Emulates or patches code by* Will Robertson.)

Pkg vwcol

vwcol is patched for use with lwarp.

The `width` option is ignored. All `vwcol` environments adjust to 1–3 equal-width columns, depening on the width of the browser window.

The remaining options are supported, except for `lines` and `maxrecursion`.

for HTML output:

```
\LWR@ProvidesPackagePass{vwcol}[2015/02/10]
```

Factored from `\vwcol`. Each is given a style tag to append to the final style.

`\LWR@vwcol@addrule` {⟨*style tag*⟩}

```
\newcommand*{\LWR@vwcol@addrule}[1]{%
    \appto{\LWR@vwcolstyle}{%
        #1: %
     \LWR@printlength{\vwcol@rule} solid \LWR@origpound\LWR@vwcol@rulecolor ; %
    }%
}
```

`\LWR@vwcol@addrule` {⟨*style tag*⟩}

```
\newcommand*{\LWR@vwcol@addgap}[1]{%
    \appto{\LWR@vwcolstyle}{%
        #1: %
        \LWR@printlength{\vwcol@sep} ; %
    }%
}
```

Env vwcol {⟨*key/values*⟩}

Redefine the environment to add a HTML style. The style is built depending on the required options.

```
\renewenvironment*{vwcol}[1][]{%
```

New paragraph, and process the options:

```
\LWR@stoppars%
\vwcolsetup{#1}%
```

Begin with no style:

```
\newcommand*{\LWR@vwcolstyle}{}
```

presep and postsep are created with HTML margins:

```
\if@vwcol@presep
    \appto{\LWR@vwcolstyle}{margin-left: 1em ; padding-left: .5em ; }
\fi
\if@vwcol@postsep
    \appto{\LWR@vwcolstyle}{margin-right: 1em ; padding-right: .5em ; }
\fi
```

sep becomes column-gap:

```
\ifdimgreater{\vwcol@sep}{1sp}{
    \LWR@vwcol@addgap{column-gap}
    \LWR@vwcol@addgap{-moz-column-gap}
    \LWR@vwcol@addgap{-webkit-column-gap}
}{}
```

rule become column-rule, while prerule and postrule become HTML borders:

```
\convertcolorspec{named}{\vwcol@rulecol}{HTML}\LWR@vwcol@rulecolor%
\ifdimgreater{\vwcol@rule}{0pt}{
    \ifdimless{\vwcol@rule}{1pt}{
        \setlength{\vwcol@rule}{1pt}
    }{}
    \LWR@vwcol@addrule{column-rule}
    \LWR@vwcol@addrule{-moz-column-rule}
    \LWR@vwcol@addrule{-webkit-column-rule}
    \if@vwcol@prerule\LWR@vwcol@addrule{border-left}\fi
    \if@vwcol@postrule\LWR@vwcol@addrule{border-right}\fi
}{}
```

Each of the justify options becomes a text-align. Indentation is added where appropriate.

```
\ifdefequal{\vwcol@justify}{\RaggedRight}{
    \appto{\LWR@vwcolstyle}{text-align: left ; }
    \ifdimgreater{\vwcol@parindent}{0pt}{
        \appto{\LWR@vwcolstyle}{%
            text-indent: \LWR@printlength{\vwcol@parindent} ; %
        }
    }{}
}{}

\ifdefequal{\vwcol@justify}{\RaggedLeft}{
    \appto{\LWR@vwcolstyle}{text-align: right ; }
}{}

\ifdefequal{\vwcol@justify}{\Centering}{
    \appto{\LWR@vwcolstyle}{text-align: center ; }
}{}

\ifdefequal{\vwcol@justify}{\justifying}{
    \appto{\LWR@vwcolstyle}{text-align: justify ; }
    \ifdimgreater{\vwcol@parindent}{0pt}{
        \appto{\LWR@vwcolstyle}{%
            text-indent: \LWR@printlength{\vwcol@parindent} ; %
        }
    }{}
}{}
```

Create the with the assembled style:

```
\BlockClass[\LWR@vwcolstyle]{multicols}
}
```

When the environment ends:

```
{
    \endBlockClass
    \LWR@startpars
}
```

File 554 **lwarp-wallpaper.sty**

§ 663 Package wallpaper

(*Emulates or patches code by* Michael H.F. Wilkinson.)

Pkg wallpaper wallpaper is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{wallpaper}[2005/01/18]

\newcommand*{\CenterWallPaper}[2]{}
\newcommand*{\ThisCenterWallPaper}[2]{}
\newcommand*{\TileWallPaper}[3]{}
\newcommand*{\ThisTileWallPaper}[3]{}
\newcommand*{\TileSquareWallPaper}[2]{}
\newcommand*{\ThisTileSquareWallPaper}[2]{}
\newcommand*{\ULCornerWallPaper}[2]{}
\newcommand*{\ThisULCornerWallPaper}[2]{}
\newcommand*{\LLCornerWallPaper}[2]{}
\newcommand*{\ThisLLCornerWallPaper}[2]{}
\newcommand*{\URCornerWallPaper}[2]{}
\newcommand*{\ThisURCornerWallPaper}[2]{}
\newcommand*{\LRCornerWallPaper}[2]{}
\newcommand*{\ThisLRCornerWallPaper}[2]{}
\newcommand*{\ClearWallPaper}{}
\newlength{\wpXoffset}
\newlength{\wpYoffset}
```

File 555 **lwarp-watermark.sty**

§ 664 Package watermark

(*Emulates or patches code by* Alexander I. Rozhenko.)

Pkg watermark watermark is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{watermark}[2004/12/09]

\newcommand{\watermark}[1]{}
\newcommand{\leftwatermark}[1]{}
\newcommand{\rightwatermark}[1]{}
\newcommand{\thiswatermark}[1]{}
\newcommand{\thispageheading}[1]{}
```

File 556 **lwarp-widetable.sty**

§ 665 Package widetable

(*Emulates or patches code by* Claudio Beccari.)

Pkg widetable

widetable is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{widetable}[2019-06-25]

\newenvironment{widetable}{\begin{tabular*}}{\end{tabular*}}
```

File 557 **lwarp-widows-and-orphans.sty**

§ 666 Package widows-and-orphans

Pkg widows-and-orphans

widows-and-orphans is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{widows-and-orphans}[2018/09/01]

\NewDocumentCommand\WaOsetup{m}{}
\NewDocumentCommand\WaOparameters{}{}
\NewDocumentCommand\WaOignorenext{}{}
```

File 558 **lwarp-witharrows.sty**

§ 667 Package witharrows

(*Emulates or patches code by* F. Pantigny.)

Pkg witharrows

witharrows is patched for use by lwarp. Emulation is provided for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{witharrows}[2019/12/27]

\ifbool{mathjax}{
    % For the hidden print version in the HTML:
    \newcommand{\Arrow}[2][]{}
    \newcommand{\unicode}[1]{}
    \NewDocumentEnvironment { DispWithArrows } { ! d < > ! O { } +b}
        {
            \IfValueTF{#1}{
                \begin{displaymath}
                #1 \left\lbrace
                \begin{align}
                #3
                \end{align}
                \right .
                \end{displaymath}
            }{
```

```
                \begin{displaymath}
                \begin{align}
                #3
                \end{align}
                \end{displaymath}
            }
        }
        {}
    \NewDocumentEnvironment { DispWithArrows* } { ! d < > ! O { } +b}
        {
            \IfValueTF{#1}{
                \begin{displaymath}
                #1 \left\lbrace
                \begin{align*}
                #3
                \end{align*}
                \right .
                \end{displaymath}
            }{
                \begin{displaymath}
                \begin{align*}
                #3
                \end{align*}
                \end{displaymath}
            }
        }
        {}
}{
    % If not MathJax, use SVG images.
   \BeforeBeginEnvironment{WithArrows}{\global\booltrue{LWR@unknownmathsize}}
    \BeforeBeginEnvironment{DispWithArrows}{%
        \begin{BlockClass}{displaymathnumbered}%
        \begin{lateximage}%
    }
    \AfterEndEnvironment{DispWithArrows}{\end{lateximage}\end{BlockClass}}
    \BeforeBeginEnvironment{DispWithArrows*}{%
        \begin{BlockClass}{displaymath}%
        \begin{lateximage}%
    }
    \AfterEndEnvironment{DispWithArrows*}{\end{lateximage}\end{BlockClass}}
}

\begin{warpMathJax}
\CustomizeMathJax{\newenvironment{WithArrows}[1][]{\begin{aligned}}{\end{aligned}}}
% Unable to make a sized box.
\CustomizeMathJax{\newcommand{\Arrow}[2][]{&{\Large\unicode{x2938}}~\textit{#2}}}
\end{warpMathJax}
```

File 559 **lwarp-wrapfig.sty**

§ 668 Package wrapfig

(*Emulates or patches code by* Donald Arseneau.)

Pkg wrapfig

wrapfig is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{wrapfig}[2003/01/31]
```

```
\newcommand*{\LWR@wrapposition}{}

\newcommand{\LWR@wrapfig@printHTMLwidth}{\LWR@printlength{\LWR@templengthone}}

\AtBeginDocument{
    \IfPackageLoadedTF{keyfloat}{
        \renewcommand{\LWR@wrapfig@printHTMLwidth}{%
            \ifboolexpr{
                test {\ifnumgreater{\value{KFLT@keyfloatdepth}}{0}} or
                bool {KFLT@inkeysubfloats}
            }%
            {\LWR@printpercentlength{\LWR@templengthone}{\linewidth}\%; }%
                {\LWR@printlength{\LWR@templengthone}}%
        }%
    }{}
}

\newcommand*{\LWR@subwrapfigure}[2]{%
    \renewcommand*{\LWR@wrapposition}{}%
    \ifthenelse{%
        \equal{#1}{r}\OR\equal{#1}{R}\OR%
        \equal{#1}{o}\OR\equal{#1}{O}%
    }%
        {\renewcommand*{\LWR@wrapposition}{float:right}}%
        {\renewcommand*{\LWR@wrapposition}{float:left}}%
    \setlength{\LWR@templengthone}{#2}%
    \LWR@BlockClassWP{%
        width:\LWR@printlength{\LWR@templengthone}; \LWR@wrapposition; %
        margin:10pt%
    }%
    {%
        width:\LWR@wrapfig@printHTMLwidth; %
        \LWR@wrapposition; %
    }%
    (note)%
    {marginblock}%

    \setlength{\linewidth}{\LWR@templengthone}%
}


\NewDocumentEnvironment{wrapfigure}{o m o m}
{%
    \begin{LWR@setvirtualpage}*%
    \LWR@subwrapfigure{#2}{#4}%
    \renewcommand*{\@captype}{figure}%
}
{%
    \endLWR@BlockClassWP%
    \end{LWR@setvirtualpage}%
}


\NewDocumentEnvironment{wraptable}{o m o m}
{%
    \begin{LWR@setvirtualpage}*%
    \LWR@subwrapfigure{#2}{#4}%
    \renewcommand*{\@captype}{table}%
}
{%
```

```
    \endLWR@BlockClassWP%
    \end{LWR@setvirtualpage}%
}


\NewDocumentEnvironment{wrapfloat}{m o m o m}
{%
    \begin{LWR@setvirtualpage}*%
    \LWR@subwrapfigure{#3}{#5}%
    \renewcommand*{\@captype}{#1}%
}
{%
    \endLWR@BlockClassWP%
    \end{LWR@setvirtualpage}%
}

\newlength{\wrapoverhang}
```

File 560 **lwarp-wrapfig2.sty**

§ 669 Package

wrapfig2

(*Emulates or patches code by* Donald Arseneau, Claudio Beccari.)

Pkg wrapfig2

wrapfig2 is emulated via a modified version of the wrapfig emulation.

for HTML output:

```
\@ifpackageloaded{color}{}{%
   \@ifpackageloaded{xcolor}{}{\LWR@origRequirePackage{xcolor}}%
}

\RequirePackage{float}

\IfPackageLoadedWithOptionsTF{wrapfig2}{WFold}
{}% v4.0
{% v5+
  \floatstyle{plain}
  \ifcsname chapter\endcsname
    \newfloat{text}{tbp}{lotx}[chapter]
  \else
    \newfloat{text}{tbp}{lotx}
  \fi
  \floatname{text}{Text}
%   \let\WF@text@caption\float@caption
}


\LWR@ProvidesPackageDrop{wrapfig2}[2022-02-16]

\LWR@origRequirePackage{lwarp-wrapfig}


\RenewDocumentEnvironment{wrapfigure}{o m o G{0pt} s}% original
  {\wrapfloat{figure}[#1]{#2}[#3]{#4}}%
  {\endwrapfloat}

\RenewDocumentEnvironment{wraptable}{o m o G{0pt} s}% original
  {\wrapfloat{table}[#1]{#2}[#3]{#4}}%
  {\endwrapfloat}
```

```
\RenewDocumentEnvironment{wrapfloat}{m o m o G{0pt}}% lwarp
{%
    \begin{LWR@setvirtualpage}*%
    \LWR@subwrapfigure{#3}{#5}%
    \renewcommand*{\@captype}{#1}%
}
{%
    \endLWR@BlockClassWP%
    \end{LWR@setvirtualpage}%
}

\IfPackageLoadedWithOptionsTF{wrapfig2}{WFold}
{% v4.0:
    \NewDocumentEnvironment{wraptext}%
        {O{l}    D||{0.5\columnwidth} D<>{0}   D(){figure}}%
    {%
        \wrapfloat{#4}[]{#1}[]{#2}%
        \tcolorbox%
    }
    {%
        \endtcolorbox%
        \endwrapfloat%
        \ignorespaces%
    }
}{}

\IfPackageLoadedWithOptionsTF{wrapfig2}{WFfive}
{% v5
    \definecolor{WFbackground}{rgb}{0.95,0.95,0.95}
    \definecolor{WFframe}{rgb}{0.1,0.1,0.1}
    \colorlet{WFtext}{black}
    \def\SetWFbgd#1{\colorlet{WFbackground}{#1}}
    \def\SetWFfrm#1{\colorlet{WFframe}{#1}}
    \def\SetWFtxt#1{\colorlet{WFtext}{#1}}
    \def\WFsplitdimens#1,#2!{\fboxrule=#1\relax\fboxsep=#2\relax}

    \NewDocumentEnvironment{wraptext}{O{0} m O{0pt} G{0.5\columnwidth}}
    {%
        \wrapfloat{text}[]{#2}[]{#4}%
    }
    {%
        \endwrapfloat%
        \ignorespaces%
    }

    \NewDocumentCommand\includeframedtext{O{\insertwidth} m O{1pt,1ex} o}%
    {%
        \WFsplitdimens #3!
        \convertcolorspec{named}{WFtext}{HTML}\LWR@tempcolor%
        \LWR@HTML@fcolorboxBlock%
            [named]{WFframe}[named]{WFbackground}{#2}%
            (%
                color:\ \LWR@origpound\LWR@tempcolor ; %
                border-radius:\ 1ex%
            )%
    }
}{% v6+
    \RequirePackage{xkeyval}

```

```
    \definecolor{WFbackground}{rgb}{0.95,0.95,0.95}
    \definecolor{WFframe}{rgb}{0.1,0.1,0.1}
    \colorlet{WFtext}{black}
    \def\SetWFbgd#1{\colorlet{WFbackground}{#1}}
    \def\SetWFfrm#1{\colorlet{WFframe}{#1}}
    \def\SetWFtxt#1{\colorlet{WFtext}{#1}}
    \def\WFsplitdimens#1,#2!{\fboxrule=#1\relax\fboxsep=#2\relax}

    \newlength{\LWR@wrapfigtwo@radius}
    \setlength{\LWR@wrapfigtwo@radius}{1ex}

    \DeclareOptionX<wraptext>{scalefactor}[0.8]{%
%       \def\WFscalefactor{#1}%
    }
    \DeclareOptionX<wraptext>{fboxrule}[1pt]{\fboxrule=#1}
    \DeclareOptionX<wraptext>{fboxsep}[1ex]{\fboxsep=#1}
    \DeclareOptionX<wraptext>{framecolor}[WFframe]{\SetWFfrm{#1}}
   \DeclareOptionX<wraptext>{backgroundcolor}[WFbackground]{\SetWFbgd{#1}}
    \DeclareOptionX<wraptext>{textcolor}[WFtext]{\SetWFtxt{#1}}
    \DeclareOptionX<wraptext>{fontstyle}[\normalfont]{#1}
    \DeclareOptionX<wraptext>{radius}[\fboxsep]{%
        \setlength{\LWR@wrapfigtwo@radius}{#1}%
    }
    \DeclareOptionX<wraptext>{insertionwidth}[0.5\columnwidth]{%
%       \insertwidth=#1%
    }

    \DeclareOptionX*{\PackageWarning{wrapfig2}{`\CurrentOption' ignored}}

    \ExecuteOptionsX<wraptext>{scalefactor, fboxrule, fboxsep, framecolor,
    backgroundcolor, textcolor, fontstyle, radius, insertionwidth}

    \ProcessOptionsX*

    \NewDocumentEnvironment{wraptext}{O{0} m O{0pt} G{0.5\columnwidth}}
    {%
        \wrapfloat{text}[]{#2}[]{#4}%
    }
    {%
        \endwrapfloat%
        \ignorespaces%
    }

    \NewDocumentCommand\includeframedtext{O{\insertwidth} m O{} o}
    {%
      \ExecuteOptionsX<wraptext>{#3}%    executes possible key=value options
        \convertcolorspec{named}{WFtext}{HTML}\LWR@tempcolor%
        \LWR@HTML@fcolorboxBlock%
            [named]{WFframe}[named]{WFbackground}%
            {\LWR@textcurrentfont{#2}}%
            (%
                color:\ \LWR@origpound\LWR@tempcolor ; %
                border-radius:\ \LWR@printlength{\LWR@wrapfigtwo@radius}%
            )%
    }
}
```

File 561 **lwarp-xbmks.sty**

§ 670 Package xbmks

Pkg xbmks

xbmks is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{xbmks}[2018/07/04]

\newcommand{\xbmksetup}[1]{}
\NewDocumentCommand{\pdfbookmarkx}{o m o m}{}
\NewDocumentCommand{\currentpdfbookmarkx}{m o m}{}
\NewDocumentCommand{\subpdfbookmarkx}{m o m}{}
\NewDocumentCommand{\belowpdfbookmarkx}{m o m}{}
```

File 562 **lwarp-xcolor.sty**

§ 671 Package xcolor

(*Emulates or patches code by* Dr. Uwe Kern.)

Pkg xcolor

xcolor is supported by lwarp.

§ 671.1 Limitations

\colorboxBlock and \fcolorboxBlock

\colorboxBlock and \fcolorboxBlock are provided for increased HTML compatibility, and they are identical to \colorbox and \fcolorbox in print mode. In HTML mode they place their contents into a instead of a . These s are set to display: inline-block so adjacent \colorboxBlocks appear side-by-side in HTML, although text is placed before or after each.

Print-mode definitions for \colorboxBlock and \fcolorboxBlock are created by lwarp's core if xcolor is loaded.

background: none

\fcolorbox and \fcolorboxBlock allow a background color of none, in which case only the frame is drawn, which can be useful for HTML.

color support

Color definitions, models, and mixing are fully supported without any changes required.

colored tables

\rowcolors is supported, except that the optional argument is ignored so far.

colored text and boxes

\textcolor, \colorbox, and \fcolorbox are supported.

\color and \pagecolor

\color and \pagecolor are ignored. Use css or \textcolor where possible.

§ 671.2 xcolor definitions: location and timing

The lwarp core and its lwarp-xcolor package are tightly integrated to allow comparable results for print, HTML, and print inside an HTML `lateximage`. This requires a number of definitions and redefintions depending on whether each of xcolor and `lateximage` is being used, and whether print or HTML is being generated. Some of these actions are one-time when xcolor is loaded, and others are temporary as `lateximage` is used.

When xcolor is loaded in print mode: No special actions are taken at the time that xcolor is loaded in print mode, but see `\AtBeginDocument` below.

When lwarp-xcolor is loaded in HTML mode: xcolor's original definitions are saved for later restoration. `\LWR@restoreorigformatting` is appended to restore these definitions for use inside a `lateximage`. New HTML-mode definitions are created for `\textcolor`, `\pagecolor`, `\nopagecolor`, `\colorbox`, `\colorboxBlock`, `\fcolorbox`, `\fcolorboxBlock`, and `fcolorminipage`.

`\AtBeginDocument` in print or HTML mode: See Section 89. If xcolor has been loaded, the print-mode `\fcolorbox` is modified to accept a background color of none, and additional definitions are created for lwarp's new macros print-mode macros `\colorboxBlock`, `\fcolorboxBlock`, and `fcolorminipage`. The HTML versions of these macros will already have been created by lwarp-xcolor if it has been loaded.

For use inside an HTML `lateximage`, `\LWR@restoreorigformatting` is appended to temporarily set these functions to their print-mode versions.

In a `lateximage` in HTML mode: `\LWR@restoreorigformatting` temporarily restores the print-mode definitions of xcolor's functions. See `\LWR@restoreorigformatting` on page 528.

`\color`:

Print: Used as-is.

HTML: Ignored by *pdftotext*, and will not appear.

HTML `lateximage`: Colors will appear in a `lateximage`.

`\textcolor`:

Print: Used as-is.

HTML: Redefined by lwarp-xcolor, page 1218.

HTML `lateximage`: Remembers and reuses the print version.

`\pagecolor`:

Print: Used as-is.

HTML: Ignored.

HTML `lateximage`: Colors will be picked up in a `lateximage`.

`\nopagecolor`:

Print: Used as-is.

HTML: Ignored.

HTML `lateximage`: Colors will be picked up in a `lateximage`.

\colorbox:

Print: Used as-is.

HTML: Redefined by lwarp-xcolor, page 1218.

HTML lateximage: Remembers and reuses the print version.

\colorboxBlock:

Print: Becomes \colorbox.

HTML: Newly defined by lwarp-xcolor to use a , page 1218.

HTML lateximage: Remembers and reuses the print version \colorbox.

\fcolorbox:

Print: Modified to allow a background of none.
\LWR@print@fcolorbox at section 89

HTML: Redefined by lwarp-xcolor, page 1219.

HTML lateximage: Remembers and reuses the print version.

\fcolorboxBlock:

Print: Becomes \fcolorbox. Section 89

HTML: Newly defined by lwarp-xcolor to use a , page 1219.

HTML lateximage: Remembers and reuses the print version \fcolorbox.

fcolorminipage:

Print: Newly defined in the lwarp core.
LWR@print@fcolorminipage at section 89

HTML: Newly defined by lwarp-xcolor, page 1220.

HTML lateximage: Uses the print version.

\boxframe:

Print: Used as-is.

HTML: Redefined by lwarp-xcolor, page 1221.

HTML lateximage: Remembers and reuses the print version.

§ 671.3 Package loading

for HTML output:

```
1 \LWR@ProvidesPackagePass{xcolor}[2016/05/11]
```

\color@endgroup's \endgraf was conflicting with lwarp's paragraph handling.

```
2 \let\color@endgroup\endgroup
```

§ 671.4 Remembering and restoring original definitions

Remember the following print-mode actions to be restored when inside a `lateximage` environment:

```
\LetLtxMacro\LWR@print@pagecolor\pagecolor
\LetLtxMacro\LWR@print@nopagecolor\nopagecolor
```

`\LWR@restoreorigformatting` Inside a `lateximage` the following gets restored to their print-mode actions:

```
\appto\LWR@restoreorigformatting{%
    \LetLtxMacro\pagecolor\LWR@print@pagecolor%
    \LetLtxMacro\nopagecolor\LWR@print@nopagecolor%
}
```

§ 671.5 `\normalcolor`

`\normalcolor`

```
\DeclareRobustCommand{\LWR@HTML@normalcolor}{\color{black}}%

\LWR@formatted{normalcolor}
```

§ 671.6 HTML color style

`\LWR@findcurrenttextcolor` Sets `\LWR@tempcolor` to the current color.

```
\renewcommand*{\LWR@findcurrenttextcolor}{%
    \LWR@traceinfo{LWR@findcurrenttextcolor}%
    \protect\colorlet{LWR@current@color}{.}%
    \LWR@traceinfo{LWR@findcurrenttextcolor B}%
   \protect\convertcolorspec{named}{LWR@current@color}{HTML}\LWR@tempcolor\relax%
    \LWR@traceinfo{LWR@findcurrenttextcolor: done}%
}
```

`\LWR@currenttextcolorstyle` Prints a color style for the current color.

```
\newcommand*{\LWR@currenttextcolorstyle}{%
    \LWR@findcurrenttextcolor%
    \ifdefstring{\LWR@tempcolor}{000000}%
    {}%
    {color: \LWR@origpound\LWR@tempcolor ; }%
}
```

`\LWR@textcurrentcolor` {⟨*text*⟩} Like `\textcolor` but uses the current `\color` instead.

```
\DeclareDocumentCommand{\LWR@textcurrentcolor}{m}{%
    \begingroup%
    \LWR@hook@processingtags%
    \LWR@findcurrenttextcolor%
    \InlineClass[color:\LWR@origpound\LWR@tempcolor]{textcolor}{%
      \renewcommand*{\LWR@currenttextcolor}{\LWR@origpound\LWR@tempcolor}%
        #1%
    }%
    \endgroup%
}
```

`\LWR@colorstyle` {⟨*1: model*⟩} {⟨*2: color*⟩}

For a color style, prints the color converted to HTML colors.

```
\NewDocumentCommand{\LWR@colorstyle}{m m}{%
    \begingroup%
    \LWR@hook@processingtags%
```

Use the xcolor package to convert to an HTML color space:

```
    \convertcolorspec{#1}{#2}{HTML}\LWR@tempcolor%
```

Print the converted color:

```
    \LWR@origpound\LWR@tempcolor%
    \endgroup%
}
```

`\LWR@backgroundcolor` [⟨*model*⟩] {⟨*color*⟩} {⟨*text*⟩}

Similar to `\textcolor`, but prints black text against a color background.

Converted into an HTML hex color span.

```
\NewDocumentCommand{\LWR@backgroundcolor}{O{named} m m}{%
    \begingroup%
    \LWR@hook@processingtags%
    \InlineClass[background:\LWR@colorstyle{#1}{#2}]{backgroundcolor}{%
        #3%
    }%
    \endgroup%
}
```

§ 671.7 HTML border

`\LWR@borderpadding` {⟨*colorstyle*⟩} {⟨*color*⟩} Prints the HTML attributes for a color border and padding. `\LWR@forceminwidth` must be used first in order to set the border width.

```
\newcommand*{\LWR@borderpadding}[2]{%
  border:\LWR@printlength{\LWR@atleastonept} solid \LWR@colorstyle{#1}{#2} ; %
    padding:\LWR@printlength{\fboxsep}%
}
```

§ 671.8 High-level macros

`\color` [⟨*model*⟩] {⟨*color*⟩}

⚠ The current `\color` is used by HTML rules and frames, but does not affect the current HTML text output, due to the lack of HTML states and scoping limitations. Use `\textcolor` if possible.

```
\NewDocumentCommand{\LWR@HTML@color}{o m}{%
    \IfValueTF{#1}{%
        \LWR@print@color[#1]{#2}%
        \convertcolorspec{#1}{#2}{HTML}\LWR@tempcolor%
    }{%
        \LWR@print@color{#2}%
        \convertcolorspec{named}{#2}{HTML}\LWR@tempcolor%
    }%
    \edef\LWR@currenttextcolor{\LWR@origpound\LWR@tempcolor}%
}
```

```
64
65 \LWR@formatted{color}
```

\textcolor [⟨*model*⟩] {⟨*color*⟩} {⟨*text*⟩}

Converted into an HTML hex color span.

```
66 \NewDocumentCommand{\LWR@HTML@textcolor}{o m m}{%
67     \begingroup%
68     \LWR@hook@processingtags%
69     \IfValueTF{#1}{%
70         \color[#1]{#2}%
71     }{%
72         \color{#2}%
73     }%
74     \InlineClass[color:\LWR@currenttextcolor]{textcolor}{#3}%
75     \endgroup%
76 }%
77
78 \LWR@formatted{textcolor}
```

\pagecolor [⟨*model*⟩] {⟨*color*⟩}

Ignored. Use CSS instead.

```
79 \renewcommand*{\pagecolor}[2][named]{}
```

\nopagecolor Ignored.

```
80 \renewcommand*{\nopagecolor}{}
```

\colorbox [⟨*model*⟩] {⟨*color*⟩} {⟨*text*⟩}

Converted into an HTML hex background color .

```
81 \NewDocumentCommand{\LWR@HTML@colorbox}{O{named} m +m}{%
82     \begingroup%
83     \LWR@hook@processingtags%
84     \InlineClass[%
85     background:\LWR@colorstyle{#1}{#2} ; %
86     padding:\LWR@printlength{\fboxsep}%
87     ]{colorbox}{#3}%
88     \endgroup%
89 }
```

\colorboxBlock [⟨*model*⟩] {⟨*color*⟩} {⟨*text*⟩}

Converted into an HTML hex background color .

```
90 \NewDocumentCommand{\LWR@HTML@colorboxBlock}{O{named} m +m}{%
91     \begingroup%
92     \LWR@hook@processingtags%
93     \LWR@stoppars%
```

```
    \begin{BlockClass}[%
        background:\LWR@colorstyle{#1}{#2} ; %
        padding:\LWR@printlength{\fboxsep}%
    ]{colorboxBlock}
    #3
    \end{BlockClass}%
    \endgroup%
```

Prevent paragraph tags around horizontal white space until the start of the next paragraph:

```
    \global\booltrue{LWR@minipagethispar}%
}
```

\fcolorbox [⟨*framemodel*⟩] {⟨*framecolor*⟩} [⟨*boxmodel*⟩] {⟨*boxcolor*⟩} {⟨*text*⟩}

Converted into a framed HTML hex background color span.

A background color of none creates a colored frame without a background color.

```
\NewDocumentCommand{\LWR@HTML@fcolorbox}{O{named} m O{#1} m +m}{%
    \LWR@traceinfo{HTML fcolorbox #2 #4}%
    \begingroup%
    \LWR@hook@processingtags%
    \LWR@forceminwidth{\fboxrule}%
    \ifthenelse{\equal{#4}{none}}%
        {% no background color
            \InlineClass[%
            \LWR@borderpadding{#1}{#2}%
            ]{fcolorbox}{#5}%
        }%
        {% yes background color
            \InlineClass[%
            \LWR@borderpadding{#1}{#2} ; %
            background:\LWR@colorstyle{#3}{#4}%
            ]{fcolorbox}{#5}%
        }%
    \endgroup%
}
```

\fcolorboxBlock [⟨*framemodel*⟩] {⟨*framecolor*⟩} [⟨*boxmodel*⟩] {⟨*boxcolor*⟩} {⟨*text*⟩} (⟨*add'l html style*⟩)

Converted into a framed HTML hex background color span.

A background color of none creates a colored frame without a background color.

```
\NewDocumentCommand{\LWR@HTML@fcolorboxBlock}{O{named} m O{#1} m +m d()}{%
    \LWR@traceinfo{HTML fcolorboxBlock #2 #4}%
    \begingroup%
    \LWR@hook@processingtags%
    \LWR@forceminwidth{\fboxrule}%

    \LWR@stoppars%
```

```
    \ifthenelse{\equal{#4}{none}}%
        {% no background color
            \begin{BlockClass}[%
                \LWR@borderpadding{#1}{#2}%
                \IfValueT{#6}{ ; #6}%
            ]{fcolorboxBlock}
            #5
            \end{BlockClass}%
        }%
        {% yes background color
            \convertcolorspec{#3}{#4}{HTML}\LWR@tempcolortwo%
            \begin{BlockClass}[%
                background:\LWR@origpound\LWR@tempcolortwo\ ; %
                \LWR@borderpadding{#1}{#2}%
                \IfValueT{#6}{ ; #6}%
            ]{fcolorboxBlock}
            #5
            \end{BlockClass}%
        }%
    \endgroup%
```

Prevent paragraph tags around horizontal white space until the start of the next paragraph:

```
    \global\booltrue{LWR@minipagethispar}%
    \LWR@traceinfo{HTML fcolorboxBlock done}%
}
```

Creates a framed HTML around its contents.

A print-output version is defined in the lwarp core: section 89

\LWR@subfcolorminipage {⟨*framemodel*⟩} {⟨*framecolor*⟩} {⟨*background tag*⟩} {⟨*height*⟩}

```
\NewDocumentCommand{\LWR@subfcolorminipage}{m m m m}{%
    \LWR@stoppars%
    \begin{BlockClass}[%
        #3%
        \LWR@borderpadding{#1}{#2} ; %
        \IfValueT{#4}{height:\LWR@printlength{\LWR@tempheight} ; }%
        width:\LWR@printlength{\LWR@tempwidth}%
    ]{fcolorminipage}%
}
```

Env fcolorminipage [⟨*1:framemodel*⟩] {⟨*2:framecolor*⟩} [⟨*3:boxmodel*⟩] {⟨*4:boxcolor*⟩} [⟨*5:align*⟩] [⟨*6:height*⟩] [⟨*7:inner-align*⟩] {⟨*8:width*⟩}

```
\NewDocumentEnvironment{LWR@HTML@fcolorminipage}{O{named} m O{#1} m O{c} o o m}
{%
    \LWR@hook@processingtags%
    \setlength{\LWR@tempwidth}{#8}%
    \IfValueT{#6}{\setlength{\LWR@tempheight}{#6}}%
    \LWR@forceminwidth{\fboxrule}%
    \convertcolorspec{#1}{#2}{HTML}\LWR@tempcolor%
    \ifthenelse{\equal{#4}{none}}%
        {\LWR@subfcolorminipage{#1}{#2}{}{#6}}%
```

```
        {%
            \convertcolorspec{#3}{#4}{HTML}\LWR@tempcolortwo%
            \LWR@subfcolorminipage{#1}{#2}%
                {background:\LWR@origpound\LWR@tempcolortwo\ ; }%
                {#6}%
        }%
}%
{%
    \end{BlockClass}%
```

Prevent paragraph tags around horizontal white space until the start of the next paragraph:

```
    \global\booltrue{LWR@minipagethispar}%
}
```

\boxframe {⟨*width*⟩} {⟨*height*⟩} {⟨*depth*⟩}

The depth is added to the height, but the box is not decended below by the depth. `\textcolor` is honored.

```
\newcommand*{\LWR@HTML@boxframe}[3]{%
    {%
        \setlength{\LWR@tempwidth}{#1}%
        \setlength{\LWR@tempheight}{#2}%
        \addtolength{\LWR@tempheight}{#3}%
        \LWR@forceminwidth{\fboxrule}%
        \LWR@findcurrenttextcolor%
        \InlineClass[%
            display:inline-block ; %
            border:%
                \LWR@printlength{\LWR@atleastonept} % space
                solid % space
                \LWR@currenttextcolor{} ; % space
            width:\LWR@printlength{\LWR@tempwidth} ; %
            height:\LWR@printlength{\LWR@tempheight}%
        ]{boxframe}{}%
    }%
}

\LWR@formatted{boxframe}
```

§ 671.9 Row colors

\rowc@l@rs [⟨*cmds*⟩] {⟨*startrow*⟩} {⟨*odd color*⟩} {⟨*even color*⟩}

```
\newcommand*{\LWR@xcolortempcolor}{}

\def\rowc@l@rs[#1]#2#3#4%
{%
   \rownum=1%
   \@rowcolorstrue%
   \@ifxempty{#3}%
     {\def\@oddrowcolor{\@norowcolor}}%
     {%
        \convertcolorspec{named}{#3}{HTML}\LWR@xcolortempcolor%
        \edef\@oddrowcolor{%
            \csdef{LWR@xcolorrowHTMLcolor}{\LWR@xcolortempcolor}%
```

```
        }%
    }%
  \@ifxempty{#4}%
    {\def\@evenrowcolor{\@norowcolor}}%
    {%
       \convertcolorspec{named}{#4}{HTML}\LWR@xcolortempcolor%
       \edef\@evenrowcolor{%
           \csdef{LWR@xcolorrowHTMLcolor}{\LWR@xcolortempcolor}%
       }%
    }%
  \if@rowcmd
    \def\@rowcolors
    {%
%         #1%
       \if@rowcolors
%         \noalign{%
            \relax\ifnum\rownum<#2\@norowcolor\else
            \ifodd\rownum\@oddrowcolor\else\@evenrowcolor\fi\fi%
%          }%
       \fi%
    }%
  \else
    \def\@rowcolors
    {%
       \if@rowcolors
           \ifnum\rownum<#2%
%           \noalign{%
              \@norowcolor
%            }
           \else
%            #1%
%            \noalign{%
              \ifodd\rownum\@oddrowcolor\else\@evenrowcolor\fi%
%            }%
           \fi
       \fi%
    }%
  \fi
  \ignorespaces%
}
```

\@norowcolor

Turns off color for this row.

```
\def\@norowcolor{%
   \renewcommand{\LWR@xcolorrowHTMLcolor}{}%
}
```

\@rowc@lors

Executed at the end of each row.

```
\def\@rowc@lors{%
%   \noalign{%
       \advance\rownum\@ne%
%   }%
    \@rowcolors%
}
```

File 563 **lwarp-xechangebar.sty**

§ 672 Package

xechangebar

Pkg xechangebar

xechangebar is ignored

for HTML output:

```
\LWR@ProvidesPackageDrop{xechangebar}[2017/08/03]
\LWR@origRequirePackage{lwarp-changebar}
```

File 564 **lwarp-xellipsis.sty**

§ 673 Package

xellipsis

(*Emulates or patches code by* Donald P. Goodman III.)

Pkg xellipsis

xellipsis is patched for use by lwarp.

When non-zero, each of the spaces is converted to an HTML thin unbreakable space.

for HTML output:

```
\LWR@ProvidesPackagePass{xellipsis}[2015/11/01]

\newcommand*{\LWR@xellipsespace}[1]{%
\ifdim#1=0pt\else%
    \ifdim#1<\fontdimen2\font%
        \,%
    \else%
        ~%
    \fi%
\fi%
}

\def\xelip{%
\mbox{%
    \LWR@xellipsespace{\xelipprebef}%
    \xelipprechar%
    \LWR@xellipsespace{\xelippreaft}%
    \LWR@xellipsespace{\xelipbef}%
    \xelipchar%
    \xel@loopi = 1%
    \loop\ifnum\xelipnum>\xel@loopi%
        \advance\xel@loopi by1%
        \LWR@xellipsespace{\xelipgap}%
        \xelipchar%
    \repeat%
    \LWR@xellipsespace{\xelipaft}%
    \LWR@xellipsespace{\xelippostbef}%
    \xelippostchar%
    \LWR@xellipsespace{\xelippostaft}%
}%
}%
```

File 565 **lwarp-xetexko.sty**

§ 674 Package

xetexko

(*Emulates or patches code by* Dohyun Kim.)

Pkg xetexko

xetexko is patched for use by lwarp.

for HTML output:

```
\LWR@loadbefore{xetexko}

\LWR@ProvidesPackagePass{xetexko}[2021/09/06]

\protected\def\typesetvertical{}
\protected\def\typesethorizontal{}

\def\verticaltypesetting{\BlockClass{verticalrl}}
\def\beginverticaltypesetting{\BlockClass{verticalrl}}
\def\endverticaltypesetting{\endBlockClass}

\protected\def\vertical#1{\BlockClass{verticalrl}}
\protected\def\endvertical{\endBlockClass}
\protected\def\horizontal#1{\BlockClass{horizontaltb}}
\protected\def\endhorizontal{\endBlockClass}
\DeclareDocumentCommand{\vertlatin}{m}{#1}
```

File 566 **lwarp-xevlna.sty**

§ 675 Package

xevlna

(*Emulates or patches code by* Zdeněk Wagner.)

Pkg xevlna

xevlna is patched for use by lwarp.

Non-breakable spaces are inserted into HTML.

for HTML output:

```
\LWR@ProvidesPackagePass{xevlna}[2016/09/05]

\def\ProcessCSpreposition{\ifx\next\xevlnaXeTeXspace\HTMLentity{nbsp}\fi}

\appto{\LWR@hook@processingtags}{\xevlnaDisable}%
```

File 567 **lwarp-xfakebold.sty**

§ 676 Package

xfakebold

(*Emulates or patches code by* Herbert Voss.)

Pkg xfakebold

xfakebold is patched for use by lwarp, and additional underlying support is found in the lwarp core.

⚠ text mode xfakebold is only used in SVG math and `latexmages`. Text mode is not set bold, but `\setBold` in text will be applied to any following SVG math.

for HTML output:

```
\LWR@ProvidesPackagePass{xfakebold}[2020/06/24]

\newcommand*{\LWR@HTML@setBold}{\booltrue{LWR@xfakebold}}
\LWR@formatted{setBold}

\newcommand*{\LWR@HTML@unsetBold}{\boolfalse{LWR@xfakebold}}
\LWR@formatted{unsetBold}

\renewcommand*{\LWR@applyxfakebold}{%
    \ifbool{LWR@xfakebold}{\LWR@print@setBold}{\LWR@print@unsetBold}%
}
```

For MathJax, xfakebold is ignored.

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\setBold}[1][]{}}
\CustomizeMathJax{\newcommand{\unsetBold}{}}
\end{warpMathJax}
```

File 568 **lwarp-xfrac.sty**

§ 677 Package

xfrac

(*Emulates or patches code by* The LaTeX3 Project.)

Pkg xfrac

Supported by adding xfrac instances, and emulated for MathJax.

for HTML output:

```
\LWR@ProvidesPackagePass{xfrac}[2018-08-23]
```

⚠ font size In the user's document preamble, lwarp should be loaded after font-related setup. During HTML conversion, this font is used by lwarp to generate its initial PDF output containing HTML tags, later to be converted by *pdftotext* to a plain text file. While the text may be in any font which *pdftotext* can read, the math is directly converted into SVG images using this same user-selected font. `xfrac` below is set for the Latin Modern (lmr) font. If another font is used, it may be desirable to redefine `\xfracHTMLfontsize` with a different em size.

`\sfrac` `[`⟨*instance*⟩`]` `{`⟨*num*⟩`}` `[`⟨*sep*⟩`]` `{`⟨*denom*⟩`}`

A text-mode instance for the default font is provided below. The numerator and denominator formats are adjusted to encase everything in HTML tags. `\scalebox` is made null inside the numerator and denominator, since the HTML tags should not be scaled, and we do not want to introduce additional HTML tags for scaling.

In math mode, which will appear inside a `latexmage`, no adjustments are necessary.

`\xfracHTMLfontsize` User-redefinable macro which controls the font size of the fraction.

```
\newcommand*{\xfracHTMLfontsize}{.6em}
```

instances Instances of xfrac for various font choices:

Produce css for a small raised numerator and a small denominator.

Scaling is turned off so that *pdftotext* correctly reads the result.

```
\DeclareInstance{xfrac}{default}{text}{
    numerator-format = {%
        \begingroup%
        \RenewDocumentCommand{\scalebox}{m o m}{##3}%
        \InlineClass{numerator}{#1}\,%
        \endgroup%
    },
    denominator-format = {%
        \begingroup%
        \RenewDocumentCommand{\scalebox}{m o m}{##3}%
        \InlineClass{denominator}{#1}%
        \endgroup%
    },
```

For *pdftotext*, do not scale the text:

```
    scaling = false
}

\DeclareInstance{xfrac}{lmr}{text}{
    numerator-format = {%
        \begingroup%
        \RenewDocumentCommand{\scalebox}{m o m}{##3}%
        \InlineClass{numerator}{#1}\,%
        \endgroup%
    },
    denominator-format = {%
        \begingroup%
        \RenewDocumentCommand{\scalebox}{m o m}{##3}%
        \InlineClass{denominator}{#1}%
        \endgroup%
    },
```

For *pdftotext*, do not scale the text:

```
    scaling = false
}

\DeclareInstance{xfrac}{lmss}{text}{
    numerator-format = {%
        \begingroup%
        \RenewDocumentCommand{\scalebox}{m o m}{##3}%
        \InlineClass{numerator}{#1}\,%
        \endgroup%
    },
    denominator-format = {%
        \begingroup%
        \RenewDocumentCommand{\scalebox}{m o m}{##3}%
        \InlineClass{denominator}{#1}%
        \endgroup%
    },
```

For *pdftotext*, do not scale the text:

```
    scaling = false
```

```
}

\DeclareInstance{xfrac}{lmtt}{text}{
    numerator-format = {%
        \begingroup%
        \RenewDocumentCommand{\scalebox}{m o m}{##3}%
        \InlineClass{numerator}{#1}\,%
        \endgroup%
    },
    denominator-format = {%
        \begingroup%
        \RenewDocumentCommand{\scalebox}{m o m}{##3}%
        \InlineClass{denominator}{#1}%
        \endgroup%
    },
```

For *pdftotext*, do not scale the text:

```
    scaling = false
}
```

For MathJax:

```
\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\LWRsfrac}[2][/]{{}^\LWRsfracnumerator\!#1{}_{#2}}}
\CustomizeMathJax{\newcommand{\sfrac}[2][]{\def\LWRsfracnumerator{#2}\LWRsfrac}}
\end{warpMathJax}
```

File 569 **lwarp-xltabular.sty**

§ 678 Package

xltabular

(*Emulates or patches code by* Rolf Niepraschk, Herbert Voss.)

Pkg xltabular

xltabular is emulated by lwarp.

for HTML output:

Relies on tabularx.

⚠ table numbering

At present, an `xltabular` without a caption or with only a `\caption*` may be misnumbered in HTML, so it may be necessary to place at the end of the table:

```
\warpHTMLonly{\addtocounter{table}{-1}}
```

```
\RequirePackage{tabularx}
\RequirePackage{ltablex}

\LWR@ProvidesPackageDrop{xltabular}[2018/05/23]

\DeclareDocumentEnvironment{xltabular}{o m m}
{\longtable{#3}}
{\endlongtable}
```

File 570 **lwarp-xltxtra.sty**

§ 679 Package

xltxtra

(*Emulates or patches code by* Will Robertson, Jonathan Kew.)

Pkg xltxtra

xltxtra is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{xltxtra}[2016/01/21]

\RequirePackage{realscripts}
\RequirePackage{metalogo}
\newcommand*\TeX@logo@spacing[6]{}

\newcommand*{\vfrac}[2]{%
\textsuperscript{#1}/\textsubscript{#2}%
}

\newcommand\namedglyph[1]{%
  \@tempcnta=\XeTeXglyphindex "#1"\relax
  \ifnum\@tempcnta>0
    \XeTeXglyph\@tempcnta
  \else
    \xxt@namedglyph@fallback{#1}%
  \fi}

\newcommand\xxt@namedglyph@fallback[1]{[#1]}

\DeclareDocumentCommand{\showhyphens}{m}{}
```

File 571 **lwarp-xmpincl.sty**

§ 680 Package

xmpincl

(*Emulates or patches code by* Maarten Sneep.)

Pkg xmpincl

xmpincl is ignored.

for HTML output:

Discard all options for lwarp-xmpincl:

```
\LWR@ProvidesPackageDrop{xmpincl}[2008/05/10]

\newcommand*{\includexmp}[1]{}
```

File 572 **lwarp-xpiano.sty**

§ 681 Package

xpiano

(*Emulates or patches code by* Enrico Gregorio.)

Pkg xpiano

xpiano is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{xpiano}

\ExplSyntaxOn
\NewDocumentCommand{\LWR@print@keyboard}{ O{}m }
{
\xpiano_keyboard:nn { #1 } { #2 }
}

\NewDocumentCommand{\LWR@HTML@keyboard}{ O{}m }
{
\begin{lateximage}*
    [%
        -xpiano-~\PackageDiagramAltText{}: \detokenize\expandafter{#2}%
    ]
    [\detokenize\expandafter{#1}]
\xpiano_keyboard:nn { #1 } { #2 }
\end{lateximage}
}
\ExplSyntaxOff

\LWR@formatted{keyboard}
```

File 573 **lwarp-xpinyin.sty**

§ 682 Package

xpinyin

(*Emulates or patches code by* Soben Lee.)

Pkg xpinyin

xpinyin is supported.

Pinyin is disabled for file names, the sidetoc, and regular footnotes, but is left enabled for minipage footnotes, as per the print mode.

for HTML output:

```
\LWR@ProvidesPackagePass{xpinyin}[2019-04-07]
```

The original's boxes are not used, instead the contents are used with <ruby>, <rt>, and <rp> tags per modern HTML. Color is detected. `ratio` is ignored for *pdftotext* to work correctly. Extra spaces are placed inside the tags to allow line breaks in the HTML text.

```
\ExplSyntaxOn
\cs_new_protected_nopar:Npn \LWR@HTML@__xpinyin_make_pinyin_box:nnn #1#2#3
{
    \color_group_begin: \color_ensure_current:
    \l__xpinyin_pinyin_box_hook_tl
    \renewcommand*{\l__xpinyin_ratio_tl}{1}% for pdftotext
    \__xpinyin_select_font:
    \clist_if_exist:cTF { c__xpinyin_multiple_ #1 _clist }
        { \l__xpinyin_multiple_tl \l__xpinyin_format_tl }
        { \l__xpinyin_format_tl }
    \ifdefempty{\l__xpinyin_format_tl}
        {#3}
        {\LWR@textcurrentcolor{#3}}
    \color_group_end:
```

```
}
\LWR@formatted{__xpinyin_make_pinyin_box:nnn}

\cs_new_protected_nopar:Npn \LWR@HTML@__xpinyin_CJKsymbol:nn #1#2
  {
    \__xpinyin_leavevmode:
    \LWR@htmltagc{ruby}
    \__xpinyin_save_CJKsymbol:n {#2}\null% \null removes extra space
    \LWR@htmltagc{rp}(\LWR@htmltagc{/rp\space}
    \LWR@htmltagc{rt}
   \__xpinyin_make_pinyin_box:nnn {#1} {#2} { \use:c { c__xpinyin_ #1 _tl } }
    \LWR@htmltagc{/rt\space}
    \LWR@htmltagc{rp})\LWR@htmltagc{/rp\space}
    \LWR@htmltagc{/ruby\space}\null
  }
\LWR@formatted{__xpinyin_CJKsymbol:nn}

\cs_new_protected_nopar:Npn \LWR@HTML@__xpinyin_single_CJKsymbol:nn #1#2
  {
    \__xpinyin_leavevmode:
    \LWR@htmltagc{ruby}
    \__xpinyin_save_CJKsymbol:n {#1}\null% \null removes extra space
    \LWR@htmltagc{rp}(\LWR@htmltagc{/rp\space}
    \LWR@htmltagc{rt}
    \__xpinyin_make_pinyin_box:xnn
      { \__xpinyin_to_unicode:n {#1} } {#1} { \__xpinyin_pinyin:n {#2} }
    \LWR@htmltagc{/rt\space}
    \LWR@htmltagc{rp})\LWR@htmltagc{/rp\space}
    \LWR@htmltagc{/ruby\space}\null
  }
\LWR@formatted{__xpinyin_single_CJKsymbol:nn}

\ExplSyntaxOff
```

The lwarp core uses the following to disable CJK xpinyin for filenames, sidetoc, and footnotes.

```
\renewcommand*{\LWR@disablepinyin}{\disablepinyin}

\FilenameNullify{\LWR@disablepinyin}
```

File 574 **lwarp-xr.sty**

§ 683 Package **xr**

(*Emulates or patches code by* Jean-Pierre Drucbert, David Carlisle.)

Pkg xr

xr is patched for use by lwarp. The `*_html.aux` file is used. `\externaldocument` is modified to also accept the optional arguments for xr-hyper, which currently uses xr for HTML output.

See section 5.17.

for HTML output:

```
\LWR@ProvidesPackagePass{xr}[2019/07/22]%
```

```
\LetLtxMacro\LWR@orig@externaldocument\externaldocument

\RenewDocumentCommand{\externaldocument}{O{} O{} m O{}}{%
    \ifblank{#1}{%
        \LWR@orig@externaldocument{#3_html}%
    }{%
        \LWR@orig@externaldocument[#1]{#3_html}%
    }%
}
```

File 575 **lwarp-xr-hyper.sty**

§ 684 Package xr-hyper

(*Emulates or patches code by* David Carlisle.)

Pkg xr-hyper

xr-hyper is replaced by xr, which is modified to accept the optional arguments for `\externaldocument`. So far, no hyperlinks are provided for citations.

See section 5.17.

for HTML output:

```
\LWR@ProvidesPackageDrop{xr-hyper}[2019/10/03]%

\LWR@origRequirePackage{lwarp-xr}
```

File 576 **lwarp-xtab.sty**

§ 685 Package xtab

(*Emulates or patches code by* Peter Wilson.)

Pkg xtab

xtab is emulated.

for HTML output:

```
\LWR@ProvidesPackageDrop{xtab}[2011/07/31]
```

⚠ Misplaced alignment tab character &

For `\tablefirsthead`, etc., enclose them as follows:

```
\StartDefiningTabulars
\tablefirsthead
. . .
\StopDefiningTabulars
```

See section 8.10.1.

⚠ lateximage

supertabular and xtab are not supported inside a `lateximage`.

```
\newcommand{\LWRXT@firsthead}{}

\newcommand{\tablefirsthead}[1]{%
    \long\gdef\LWRXT@firsthead{#1}%
}

\newcommand{\tablehead}[1]{}

\newcommand{\tablelasthead}[1]{}
```

```
\newcommand{\notablelasthead}{}

\newcommand{\tabletail}[1]{}

\newcommand{\LWRXT@lasttail}{}

\newcommand{\tablelasttail}[1]{%
    \long\gdef\LWRXT@lasttail{#1}%
}


\newcommand{\tablecaption}[2][]{%
    \long\gdef\LWRXT@caption{%
        \ifblank{#1}%
            {\caption{#2}}%
            {\caption[#1]{#2}}%
    }%
}

\let\topcaption\tablecaption
\let\bottomcaption\tablecaption


\newcommand*{\LWRXT@caption}{}

\newcommand*{\shrinkheight}[1]{}

\newcommand*{\xentrystretch}[1]{}

\NewDocumentEnvironment{xtabular}{s o m}
{%
\LWR@traceinfo{xtabular}%
\table%
\LWRXT@caption%
\begin{tabular}{#3}%
\TabularMacro\ifdefvoid{\LWRXT@firsthead}%
{\LWR@getmynexttoken}%
{\expandafter\LWR@getmynexttoken\LWRXT@firsthead}%
}%
{%
\ifdefvoid{\LWRXT@lasttail}%
{}%
{%
\TabularMacro\ResumeTabular%
\LWRXT@lasttail%
}%
\end{tabular}%
\endtable%


\gdef\LWRXT@caption{}%

\LWR@traceinfo{xtabular done}%
}

\NewDocumentEnvironment{mpxtabular}{s o m}
{\minipage{\linewidth}\xtabular{#3}}
{\endxtabular\endminipage}
```

File 577 **lwarp-xunicode.sty**

§ 686 Package

xunicode

Pkg xunicode

Error if xunicode is loaded after lwarp.

Patch lwarp-xunicode, but also verify that is was loaded before lwarp:

for HTML output:

```
\LWR@loadbefore{xunicode}%

\LWR@ProvidesPackagePass{xunicode}[2011/09/09]
```

\textcircled becomes a span with a rounded border. \providecommand is used to avoid conflict with textcomp.

```
\providecommand*{\LWR@HTML@textcircled}[1]{%
   \InlineClass[border: 1px solid \LWR@currenttextcolor]{textcircled}{#1}%
}

\LWR@formatted{textcircled}
```

Nullify xunicode macros when generating filenames:

```
\FilenameNullify{%
    \renewcommand*{\textdegree}{}%
    \renewcommand*{\textcelsius}{}%
    \renewcommand*{\textohm}{}%
    \renewcommand*{\textmu}{}%
    \renewcommand*{\textlquill}{}%
    \renewcommand*{\textrquill}{}%
    \renewcommand*{\textcircledP}{}%
    \renewcommand*{\texttwelveudash}{}%
    \renewcommand*{\textthreequartersemdash}{}%
    \renewcommand*{\textmho}{}%
    \renewcommand*{\textnaira}{}%
    \renewcommand*{\textpeso}{}%
    \renewcommand*{\textrecipe}{}%
    \renewcommand*{\textinterrobang}{}%
    \renewcommand*{\textinterrobangdown}{}%
    \renewcommand*{\textperthousand}{}%
    \renewcommand*{\textpertenthousand}{}%
    \renewcommand*{\textbaht}{}%
    \renewcommand*{\textdiscount}{}%
    \renewcommand*{\textservicemark}{}%
    \renewcommand*{\textcircled}[1]{#1}%
    \renewcommand*{\capitalcedilla}[1]{#1}%
    \renewcommand*{\capitalogonek}[1]{#1}%
    \renewcommand*{\capitalgrave}[1]{#1}%
    \renewcommand*{\capitalacute}[1]{#1}%
    \renewcommand*{\capitalcircumflex}[1]{#1}%
    \renewcommand*{\capitaltilde}[1]{#1}%
    \renewcommand*{\capitaldieresis}[1]{#1}%
    \renewcommand*{\capitalhungarumlaut}[1]{#1}%
    \renewcommand*{\capitalring}[1]{#1}%
    \renewcommand*{\capitalcaron}[1]{#1}%
```

```
    \renewcommand*{\capitalbreve}[1]{#1}%
    \renewcommand*{\capitalmacron}[1]{#1}%
    \renewcommand*{\capitaldotaccent}[1]{#1}%
}% FilenameNullify
```

File 578 **lwarp-xurl.sty**

§ 687 Package **xurl**

Pkg xurl

xurl is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{xurl}[2020/01/14]

\def\useOriginalUrlSetting{}
```

File 579 **lwarp-xy.sty**

§ 688 Package **xy**

(*Emulates or patches code by* Kristoffer H. Rose, Ross Moore.)

Pkg xy

xy is patched for use by lwarp.

for HTML output:

```
\LWR@ProvidesPackagePass{xy}[2013/10/06]
```

After xy modules have been loaded:

```
\AtBeginDocument{
```

The original definitions without a `lateximage`:

```
\LetLtxMacro\LWR@orig@xy\xy
\LetLtxMacro\LWR@orig@endxy\endxy
```

The outer-most `xy` environment is placed in a `lateximage`, but not more than one level deep, which would conflict with xy:

```
\renewcommand*{\xy}{%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{0}%
        {\addtocounter{LWR@lateximagedepth}{1}}%
        {\begin{lateximage}[-xy-~\PackageDiagramAltText]}%
    \LWR@orig@xy%
}

\renewcommand*{\endxy}{%
    \LWR@orig@endxy%
    \ifnumcomp{\value{LWR@lateximagedepth}}{>}{1}%
        {\addtocounter{LWR@lateximagedepth}{-1}}%
        {\end{lateximage}}%
}
```

The `\xybox` must use the original definitions of `\xy`, `\endxy`:

```
\def\xybox#1{%
    \LWR@orig@xy#1\LWR@orig@endxy%
    \Edge@c={\rectangleEdge}\computeLeftUpness@%
}
```

If \xygraph is used, it is placed inside a lateximage:

```
\@ifundefined{xygraph}{}{
\LetLtxMacro\LWR@origxygraph\xygraph
\renewcommand{\xygraph}[1]{%
    \begin{lateximage}[-xy- xygraph \PackageDiagramAltText]
    \LWR@origxygraph{#1}
    \end{lateximage}
}
}% xygraph defined
}% AtBeginDocument
```

File 580 **lwarp-zhlineskip.sty**

§ 689 Package

zhlineskip

Pkg zhlineskip

zhlineskip is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{zhlineskip}[2019/05/15]
\newcommand*\SetTextEnvironmentSinglespace[1]{}
\newcommand*\RestoreTextEnvironmentLeading[1]{}
\newcommand*\SetMathEnvironmentSinglespace[1]{}
\newcommand*\RestoreMathEnvironmentLeading[1]{}
```

File 581 **lwarp-zwpagelayout.sty**

§ 690 Package

zwpagelayout

(*Emulates or patches code by* Zdeněk Wagner.)

Pkg zwpagelayout

zwpagelayout is ignored.

for HTML output:

```
\LWR@ProvidesPackageDrop{zwpagelayout}[2013/01/13]
\def\noBboxes{}
\@onlypreamble\noBboxes

\expandafter\ifx\csname definecolor\endcsname\relax \else
  \definecolor{cmykblack}{cmyk}{0,0,0,1}
  \definecolor{grblack}{gray}{0}
%   \ifzwpl@redefineblack
%     \definecolor{black}{cmyk}{0,0,0,1}\color{black}
%   \fi
  \definecolor{cmykred}{cmyk}{0,1,1,0}
```

```
  \definecolor{cmykgreen}{cmyk}{1,0,1,0}
  \definecolor{cmykblue}{cmyk}{1,1,0,0}
  \definecolor{rgbred}{rgb}{1,0,0}
  \definecolor{rgbgreen}{rgb}{0,1,0}
  \definecolor{rgbblue}{rgb}{0,0,1}
%   \ifzwpl@redefinetocmyk
%     \definecolor{red}{cmyk}{0,1,1,0}
%     \definecolor{green}{cmyk}{1,0,1,0}
%     \definecolor{blue}{cmyk}{1,1,0,0}
%   \fi
\fi

\let\OverprintXeTeXExtGState\relax

\DeclareRobustCommand\SetOverprint{\ignorespaces}
\DeclareRobustCommand\SetKnockout{\ignorespaces}
\DeclareRobustCommand\textoverprint[1]{{\SetOverprint#1}}
\DeclareRobustCommand\textknockout[1]{{\SetKnockout#1}}

\def\SetPDFminorversion#1{}
\@onlypreamble\SetPDFminorversion

\newcommand*\Vcorr{}

\DeclareRobustCommand\vb[1][]{}
\NewDocumentCommand{\NewOddPage}{* o}{}
\NewDocumentCommand{\NewEvenPage}{* o}{}
\def\SetOddPageMessage#{\gdef\ZW@oddwarning}
\def\SetEvenPageMessage#{\gdef\Z@@evenwarning}
\def\ZW@oddwarning{Empty page inserted}\let\ZW@evenwarning\ZW@oddwarning

\def\clap#1{#1}

\def\CropFlap{2in}
\def\CropSpine{1in}
\def\CropXSpine{1in}
\def\CropXtrim{.25in}
\def\CropYtrim{.25in}
\def\UserWidth{5in}
\def\UserLeftMargin{1in}
\def\UserRightMargin{1in}
\def\UserTopMargin{1in}
\def\UserBotMargin{1in}
\def\thePageNumber{\LWR@origpound\,\arabic{page}}
\ifXeTeX
\def\ifcaseZWdriver{\ifcase2}
\else
\def\ifcaseZWdriver{\ifcase1}
\fi
\DeclareRobustCommand\ZWifdriver[2]{}
```

File 582 **lwarp-patch-komascript.sty**

§ 691 Package

patch-komascript

Pkg lwarp-patch-komascript

Patches for komascript classes.

lwarp loads this package when scrbook, scrartcl, or scrreprt classes are detected.

Many features are ignored during the HTML conversion. The goal is source-level compatibility.

`\captionformat`, `\figureformat`, and `\tableformat` are not yet emulated.

⚠ Not fully tested! Please send bug reports!

Some features have not yet been tested. Please contact the author with any bug reports.

for HTML output:

```
\ProvidesPackage{lwarp-patch-komascript}
```

typearea is emulated.

```
\RequirePackage{lwarp-typearea}
```

tocbasic is emulated.

```
\RequirePackage{lwarp-tocbasic}
```

scrextend patches most of the new macros.

```
\RequirePackage{lwarp-scrextend}
```

Indexing macros, simplified for lwarp:

```
\AtBeginDocument{

\renewcommand*{\idx@heading}{%
  \idx@@heading{\indexname}%
}

\renewenvironment{theindex}{%
  \idx@heading%
  \index@preamble\par\nobreak
    \LetLtxMacro\item\LWR@indexitem%
    \LetLtxMacro\subitem\LWR@indexsubitem%
    \LetLtxMacro\subsubitem\LWR@indexsubsubitem%
}
{}

\renewcommand*\indexspace{}

}% AtBeginDocument
```

The `\minisec` is placed inside a `<div>` of class `minisec`.

```
\renewcommand*{\minisec}[1]{
    \begin{BlockClass}{minisec}
    #1
    \end{BlockClass}
}
```

The part and chapter preambles are placed as plain text just after each heading.

```
\@ifundefined{setpartpreamble}{}{
\RenewDocumentCommand{\setpartpreamble}{o o +m}{%
    \renewcommand{\part@preamble}{#3}%
```

```
}
}

\@ifundefined{setchapterpreamble}{}{
\RenewDocumentCommand{\setchapterpreamble}{o o +m}{%
    \renewcommand{\chapter@preamble}{#3}%
}
}
```

Do not use \chaptername:

```
\renewcommand*{\LWR@printchaptername}{}
```

Simple captions are used in all cases.

```
\AtBeginDocument{
\AtBeginDocument{
    \LetLtxMacro\captionbelow\caption
    \LetLtxMacro\captionabove\caption

    \LetLtxMacro\captionofbelow\captionof
    \LetLtxMacro\captionofabove\captionof
}
}

\RenewDocumentEnvironment{captionbeside}{o m o o o s}
{}
{%
    \IfValueTF{#1}%
        {\caption[#1]{#2}}%
        {\caption{#2}}%
}

\RenewDocumentEnvironment{captionofbeside}{m o m o o o s}
{}
{%
    \IfValueTF{#2}%
        {\captionof{#1}[#2]{#3}}%
        {\captionof{#1}{#3}}%
}

\RenewDocumentCommand{\setcapindent}{s m}{}
\renewcommand*{\setcaphanging}{}
\renewcommand*{\setcapwidth}[2][]{}
\renewcommand*{\setcapdynwidth}[2][]{}
\RenewDocumentCommand{\setcapmargin}{s o m}{}
```

File 583 **lwarp-patch-memoir.sty**

§ 692 Package

patch-memoir

(*Emulates or patches code by* Peter Wilson.)

Pkg lwarp-patch-memoir Patches for memoir class.

⚠ Not fully tested! Please send bug reports!

lwarp loads this package when the memoir class is detected.

⚠ captions — lwarp uses caption, which causes a warning from memoir. This is normal. Adjust captions via caption, instead of memoir.

⚠ options clash — While emulating memoir, lwarp pre-loads a number of packages (section 692.1). This can cause an options clash when the user's document later loads the same packages with options. To fix this problem, specify the options before loading lwarp:

```
\documentclass{memoir}
. . .
\PassOptionsToPackage{options_list}{package_name}
. . .
\usepackage{lwarp}
. . .
\usepackage{package_name}
```

⚠ version numbers — memoir emulates a number of packages, and declares a version date for each which often does not match the date of the corresponding freestanding package. This can cause warnings about incorrect version numbers. Since lwarp is intended to support the freestanding packages, which are often newer than the date declared by memoir, it is hoped that memoir will update and change its emulated version numbers to match.

`\label(bookmark){tag}` — `\label` accepts an optional `(bookmark)` argument, but this is ignored in HTML.

⚠ `comment` — The `comment` environment is from the comment package, and thus requires that the `\begin` and `\end` each be on its own line:

```
\begin{comment}
This is a comment.
\end{comment}
```

`\newcomment` — Comments defined with `\newcomment` use memoir's defintions, and behave as expected, where the `\begin` and `\end` do have to each be on its own line.

⚠ verbatim footnotes — `\verbfootnote` is not supported.

⚠ `\newfootnoteseries` — `\newfootnoteseries`, etc. are not supported.

⚠ page notes — lwarp loads pagenote to perform memoir's pagenote functions, but there are minor differences in `\pagenotesubhead` and related macros.

page notes with cleveref — To add support for pagenotes with cleveref, add:

```
\crefname{pagenote}{page note}{page notes}
\Crefname{pagenote}{Page note}{Page notes}
```

page note `\nameref` — Note that for print mode, `\nameref` print the section name where the page notes are declared in the text, but for HTML it prints the name where the page notes are printed.

⚠ poems — Poem numbering is not supported.

⚠ `verbatim` — The `verbatim` environment does not yet support the memoir enhancements. It is currently recommended to load and use fancyvrb instead.

⚠ glossaries — The memoir glossary system is not yet supported by *lwarpmk*. The glossaries pack-

age may be used instead, but does require the glossary entries be changed from the memoir syntax to the glossaries syntax.

for HTML output:

```
\ProvidesPackage{lwarp-patch-memoir}
```

§ 692.1 Packages

These are pre-loaded to provide emulation for many of memoir's functions. memoir pretends that abstract, etc. are already loaded, via its "emulated" package mechanism, but lwarp is directly loading the "lwarp-" version of each, which happens to avoid memoir's emulation system.

```
\RequirePackage{lwarp-abstract}% req'd
% \RequirePackage{lwarp-array}% no longer req'd
\RequirePackage{lwarp-booktabs}% req'd
% \RequirePackage{lwarp-ccaption}% emualated below
\RequirePackage{lwarp-changepage}% req'd
\RequirePackage{lwarp-crop}
% \RequirePackage{lwarp-dcolumn}% no longer req'd
\RequirePackage{lwarp-enumerate}% req'd
\RequirePackage{lwarp-epigraph}% req'd
\RequirePackage{lwarp-fancyvrb}% req'd
\RequirePackage{lwarp-footmisc}% req'd

\let\framed\relax \let\endframed\relax
\let\shaded\relax \let\endshaded\relax
\let\leftbar\relax \let\endleftbar\relax
\let\snugshade\relax \let\endsnugshade\relax
\RequirePackage{lwarp-framed}% req'd

\RequirePackage{lwarp-hanging}% req'd
\RequirePackage{lwarp-makeidx}% req'd
\DisemulatePackage{moreverb}
\RequirePackage{lwarp-moreverb}
\RequirePackage{lwarp-mparhack}
\RequirePackage{lwarp-needspace}% req'd
\RequirePackage{lwarp-nextpage}% req'd
\RequirePackage{lwarp-pagenote}% req'd
\RequirePackage{lwarp-parskip}
\RequirePackage{lwarp-setspace}% req'd
\RequirePackage{lwarp-showidx}

\makeindex

% \RequirePackage{lwarp-tabularx}% no longer req'd
\RequirePackage{lwarp-titling}% req'd
% \RequirePackage{lwarp-tocbibind}% not emulated by memoir
\RequirePackage{lwarp-tocloft}% req'd
\RequirePackage{lwarp-verse}% req'd
```

§ 692.2 Label handling

Insert the lwarp label mechanism into the memoir package mechanism:

- `\@mem@old@label` is the LaTeX definition of `\label`.
- `\LWR@orig@label` becomes the memoir definition.
- lwarp's `\LWR@new@label` uses `\LWR@orig@label`.
- Want memoir's `\label` to use lwarp's `\label`, which then would use LaTeX's `\label`.
- So:
  - `\@mem@old@label` is set to `\LWR@new@label`.
  - `\LWR@orig@label` is set to `\@mem@old@label`.
- cleveref then encapsulates all the above with `\cref@old@label`.
- For a subcaption, cleveref modifies memoir's `\sf@memsub@label`, but that change is undone by lwarp.

```
\LetLtxMacro\LWR@orig@label\@mem@old@label
\LetLtxMacro\@mem@old@label\LWR@new@label
```

Patches for subfloats to support additional lwarp labels. This is the non-hyperref version from memoir.

```
\AtBeginDocument{
    \renewcommand*{\sf@@memsub@label}[1]{%
        \@bsphack
        \sf@@memsub@label@hook{#1}%
%         \@memoldlabel{#1}%
        \cref@label{#1}%                    lwarp
        \LWR@label@createtag{sub@#1}%           lwarp
        \protected@write\@auxout{}{%
            \string\newlabel{sub@#1}%
            {{\@nameuse{@@thesub\@captype}}%
            {\thepage}}}%
        \LWR@write@lwarplabel{sub@#1}%          lwarp
        \@esphack
    }
}
```

§ 692.3 Page layout

memoir already set the page size to a default, so it must be forced large for lwarp's use, to avoid tag overflows off the page.

```
\setstocksize{190in}{20in}
\setlrmarginsandblock{2in}{2in}{*}
\setulmarginsandblock{1in}{1in}{*}
```

```
\renewcommand*{\stockavi}{}
\renewcommand*{\stockav}{}
\renewcommand*{\stockaiv}{}
\renewcommand*{\stockaiii}{}
```

```
\renewcommand*{\stockavii}{}
\renewcommand*{\stockbvi}{}
\renewcommand*{\stockbv}{}
\renewcommand*{\stockbiv}{}
\renewcommand*{\stockbiii}{}
\renewcommand*{\stockbvii}{}
% \renewcommand*{\stockmetriccrownvo}{}% in docs but not in the package
\renewcommand*{\stockmlargecrownvo}{}
\renewcommand*{\stockmdemyvo}{}
\renewcommand*{\stockmsmallroyalvo}{}
\renewcommand*{\pageavi}{}
\renewcommand*{\pageavii}{}
\renewcommand*{\pageav}{}
\renewcommand*{\pageaiv}{}
\renewcommand*{\pageaiii}{}
\renewcommand*{\pagebvi}{}
\renewcommand*{\pagebvii}{}
\renewcommand*{\pagebv}{}
\renewcommand*{\pagebiv}{}
\renewcommand*{\pagebiii}{}
% \renewcommand*{\pagemetriccrownvo}{}% in docs but not in the package
\renewcommand*{\pagemlargecrownvo}{}
\renewcommand*{\pagemdemyvo}{}
\renewcommand*{\pagemsmallroyalvo}{}

\renewcommand*{\stockdbill}{}
\renewcommand*{\stockstatement}{}
\renewcommand*{\stockexecutive}{}
\renewcommand*{\stockletter}{}
\renewcommand*{\stockold}{}
\renewcommand*{\stocklegal}{}
\renewcommand*{\stockledger}{}
\renewcommand*{\stockbroadsheet}{}
\renewcommand*{\pagedbill}{}
\renewcommand*{\pagestatement}{}
\renewcommand*{\pageexecutive}{}
\renewcommand*{\pageletter}{}
\renewcommand*{\pageold}{}
\renewcommand*{\pagelegal}{}
\renewcommand*{\pageledger}{}
\renewcommand*{\pagebroadsheet}{}

\renewcommand*{\stockpottvo}{}
\renewcommand*{\stockfoolscapvo}{}
\renewcommand*{\stockcrownvo}{}
\renewcommand*{\stockpostvo}{}
\renewcommand*{\stocklargecrownvo}{}
\renewcommand*{\stocklargepostvo}{}
\renewcommand*{\stocksmalldemyvo}{}
\renewcommand*{\stockdemyvo}{}
\renewcommand*{\stockmediumvo}{}
\renewcommand*{\stocksmallroyalvo}{}
\renewcommand*{\stockroyalvo}{}
\renewcommand*{\stocksuperroyalvo}{}
\renewcommand*{\stockimperialvo}{}
\renewcommand*{\pagepottvo}{}
\renewcommand*{\pagefoolscapvo}{}
\renewcommand*{\pagecrownvo}{}
\renewcommand*{\pagepostvo}{}
\renewcommand*{\pagelargecrownvo}{}
```

```
\renewcommand*{\pagelargepostvo}{}
\renewcommand*{\pagesmalldemyvo}{}
\renewcommand*{\pagedemyvo}{}
\renewcommand*{\pagemediumvo}{}
\renewcommand*{\pagesmallroyalvo}{}
\renewcommand*{\pageroyalvo}{}
\renewcommand*{\pagesuperroyalvo}{}
\renewcommand*{\pageimperialvo}{}

\renewcommand*{\memfontfamily}{}
\renewcommand*{\memfontenc}{}
\renewcommand*{\memfontpack}{}

\renewcommand*{\anyptfilebase}{}
\renewcommand*{\anyptsize}{10}

\renewcommand*{\setstocksize}[2]{}
\renewcommand*{\settrimmedsize}[3]{}
\renewcommand*{\settrims}[2]{}

% \newlength{\lxvchars}
% \setlength{\lxvchars}{305pt}
% \newlength{\xlvchars}
% \setlength{\xlvchars}{190pt}
\renewcommand*{\setxlvchars}[1]{}
\renewcommand*{\setlxvchars}[1]{}

\renewcommand*{\settypeblocksize}[3]{}
\renewcommand*{\setlrmargins}[3]{}
\renewcommand*{\setlrmarginsandblock}[3]{}
\renewcommand*{\setbinding}[1]{}
\renewcommand*{\setulmargins}[3]{}
\renewcommand*{\setulmarginsandblock}[3]{}
\renewcommand*{\setcolsepandrule}[2]{}

\renewcommand*{\setheadfoot}[2]{}
\renewcommand*{\setheaderspaces}[3]{}
\renewcommand*{\setmarginnotes}[3]{}
\renewcommand*{\setfootins}[2]{}
\renewcommand*{\checkandfixthelayout}[1][]{}
\renewcommand*{\checkthelayout}[1]{}
\renewcommand*{\fixthelayout}{}
%
% \newlength{\stockheight}
% \newlength{\trimtop}
% \newlength{\trimedge}
% \newlength{\stockwidth}
% \newlength{\spinemargin}
% \newlength{\foremargin}
% \newlength{\uppermargin}
% \newlength{\headmargin}
%
\renewcommand*{\typeoutlayout}{}
\renewcommand*{\typeoutstandardlayout}{}
\renewcommand*{\settypeoutlayoutunit}[1]{}
\renewcommand*{\fixpdflayout}{}
\renewcommand*{\fixdvipslayout}{}

\renewcommand*{\medievalpage}[1][]{}
\renewcommand*{\isopage}[1][]{}
```

```
\renewcommand*{\semiisopage}[1][]{}

\renewcommand{\setpagebl}[3]{}
\renewcommand{\setpageml}[3]{}
\renewcommand{\setpagetl}[3]{}
\renewcommand{\setpagetm}[3]{}
\renewcommand{\setpagetr}[3]{}
\renewcommand{\setpagemr}[3]{}
\renewcommand{\setpagebr}[3]{}
\renewcommand{\setpagebm}[3]{}
\renewcommand{\setpagecc}[3]{}
```

§ 692.4 Text and fonts

```
\let\miniscule\tiny
\let\HUGE\Huge

\renewcommand*{\abnormalparskip}[1]{}
\renewcommand*{\nonzeroparskip}{}
\renewcommand*{\traditionalparskip}{}

\let\onelineskip\baselineskip

\let\OnehalfSpacing\onehalfspacing
\let\DoubleSpacing\doublespacing
\renewcommand*{\setPagenoteSpacing}[1]{}
\renewcommand*{\setFloatSpacing}[1]{}

\renewcommand{\SingleSpacing}{\@ifstar\singlespacing\singlespacing}

\let\setSingleSpace\SetSinglespace
\let\SingleSpace\singlespace
\let\endSingleSpace\endsinglespace
\let\Spacing\spacing
\let\endSpacing\endspacing
\let\OnehalfSpace\onehalfspace
\let\endOnehalfSpace\endonehalfspace
\csletcs{OnehalfSpace*}{onehalfspace}
\csletcs{endOnehalfSpace*}{endonehalfspace}
\let\DoubleSpace\doublespace
\let\endDoubleSpace\enddoublespace
\csletcs{DoubleSpace*}{doublespace}
\csletcs{endDoubleSpace*}{enddoublespace}
\renewcommand*{\setDisplayskipStretch}[1]{}
\renewcommand*{\memdskipstretch}{}
\renewcommand*{\noDisplayskipStretch}{}
\renewcommand*{\memdskips}{}

\renewcommand*{\midsloppy}{}
\renewenvironment*{midsloppypar}{}{}

\renewcommand*{\sloppybottom}{}
```

§ 692.5 Titles

```
\csletcs{titlingpage*}{titlingpage}
\csletcs{endtitlingpage*}{endtitlingpage}
\let\titlingpageend\relax
\newcommand{\titlingpageend}[2]{}
\let\andnext\and
```

```
\renewcommand*{\thanksmarkstyle}[1]{}

\renewcommand{\thanksfootmark}{%
    \thanksscript{\tamark}%
}

% \newlength{\thanksmarksep}% already provided by memoir

\renewcommand\titlingpageend[2]{}
```

§ 692.6 Abstracts

```
% \newlength{\absindent}
% \newlength{\absparsep}
\renewcommand*{\abstractcol}{}
\renewcommand*{\abstractintoc}{}
\renewcommand*{\abstractnum}{}
\renewcommand*{\abstractrunin}{}
```

§ 692.7 Docment divisions

\book * (⟨*2:PDF name*⟩) [⟨*3:TOC name*⟩] [⟨*4:PDF name*⟩] (⟨*5:PDF name*⟩) {⟨*6:name*⟩}

```
\DeclareDocumentCommand{\book}{s d() o o d() m}{%
    \LWR@section{#1}{#3}{#6}{book}%
}

\def\@apppage{%
    \part*{\appendixpagename}
}
\renewcommand\mempreaddapppagetotochook{}
\renewcommand\mempostaddapppagetotochook{}

\def\@sapppage{%
    \part*{\appendixpagename}
}


\DeclareDocumentCommand{\mainmatter}{s}{%
    \booltrue{LWR@mainmatter}%
}

\DeclareDocumentCommand{\frontmatter}{s}{%
    \boolfalse{LWR@mainmatter}%
}


\renewcommand*{\raggedbottomsection}{}
\renewcommand*{\normalbottomsection}{}
\renewcommand*{\bottomsectionskip}{}
\renewcommand*{\bottomsectionpenalty}{}
\csletcs{appendixpage*}{appendixpage}
\renewcommand*{\namedsubappendices}{}
\renewcommand*{\unnamedsubappendices}{}
\renewcommand*{\beforebookskip}{}
\renewcommand*{\afterbookskip}{}
\renewcommand*{\beforepartskip}{}
\renewcommand*{\afterpartskip}{}
\renewcommand*{\midbookskip}{}
```

```
\renewcommand*{\midpartskip}{}
\renewcommand*{\printbookname}{}
\renewcommand*{\booknamefont}{}
\renewcommand*{\booknamenum}{}
\renewcommand*{\printbooknum}{}
\renewcommand*{\booknumfont}{}
\renewcommand*{\printpartname}{}
\renewcommand*{\partnamefont}{}
\renewcommand*{\partnamenum}{}
\renewcommand*{\printpartnum}{}
\renewcommand*{\partnumfont}{}
\renewcommand*{\printbooktitle}[1]{}
\renewcommand*{\booktitlefont}{}
\renewcommand{\printparttitle}[1]{}
\renewcommand*{\parttitlefont}{}
\renewcommand*{\bookpageend}{}
\renewcommand*{\bookblankpage}{}
\renewcommand*{\nobookblankpage}{}
\renewcommand*{\partpageend}{}
\renewcommand*{\partblankpage}{}
\renewcommand*{\nopartblankpage}{}
\RenewDocumentCommand{\newleadpage}{s o m m}{}% todo
\RenewDocumentCommand{\renewleadpage}{s o m m}{}% todo
\renewcommand*{\leadpagetoclevel}{chapter}

\renewcommand*{\openright}{}
\renewcommand*{\openleft}{}
\renewcommand*{\openany}{}
\renewcommand*{\clearforchapter}{}
\renewcommand*{\memendofchapterhook}{}
\renewcommand*{\chapterheadstart}{}
% \newlength{\beforechapskip}
\renewcommand*{\afterchapternum}{}
% \newlength{\midchapskip}
\renewcommand*{\afterchaptertitle}{}
% \newlength{\afterchapskip}
\renewcommand*{\printchaptername}{}
\renewcommand*{\chapnamefont}{}
\renewcommand*{\chapternamenum}{}
\renewcommand*{\printchapternum}{}
\renewcommand*{\chapnumfont}{}
\renewcommand{\printchaptertitle}[1]{}
\renewcommand*{\chaptitlefont}{}
\renewcommand*{\printchapternonum}{}
\renewcommand*{\indentafterchapter}{}
\renewcommand*{\noindentafterchapter}{}
\renewcommand*{\insertchapterspace}{}

\renewcommand*{\chapterstyle}[1]{}
\renewcommand{\makechapterstyle}[2]{}
\renewcommand*{\chapindent}{}
\let\chapterprecis\cftchapterprecis
\let\chapterprecishere\cftchapterprecishere
\let\chapterprecistoc\cftchapterprecistoc
\renewcommand*{\precisfont}{}
\renewcommand*{\prechapterprecis}{}
\renewcommand*{\postchapterprecis}{}
\renewcommand{\precistoctext}[1]{}
\renewcommand*{\precistocfont}{}
\renewcommand*{\precistocformat}{}
```

```
% \newlength{\prechapterprecisshift}

\renewcommand*{\setbeforesecskip}[1]{}
\renewcommand*{\setaftersecskip}[1]{}
\renewcommand*{\setsecindent}[1]{}
\renewcommand*{\setsecheadstyle}[1]{}
\renewcommand*{\setbeforesubsecskip}[1]{}
\renewcommand*{\setaftersubsecskip}[1]{}
\renewcommand*{\setsubsecindent}[1]{}
\renewcommand*{\setsubsecheadstyle}[1]{}
\renewcommand*{\setbeforesubsubsecskip}[1]{}
\renewcommand*{\setaftersubsubsecskip}[1]{}
\renewcommand*{\setsubsubsecindent}[1]{}
\renewcommand*{\setsubsubsecheadstyle}[1]{}
\renewcommand*{\setbeforeparaskip}[1]{}
\renewcommand*{\setafterparaskip}[1]{}
\renewcommand*{\setparaindent}[1]{}
\renewcommand*{\setparaheadstyle}[1]{}
\renewcommand*{\setbeforesubparaskip}[1]{}
\renewcommand*{\setaftersubparaskip}[1]{}
\renewcommand*{\setsubparaindent}[1]{}
\renewcommand*{\setsubparaheadstyle}[1]{}
\renewcommand{\@hangfrom}[1]{#1}
\renewcommand{\sethangfrom}[1]{}
\renewcommand{\setsecnumformat}[1]{}

\renewcommand*{\hangsecnum}{}
\renewcommand*{\defaultsecnum}{}

\renewcommand*{\sechook}{}
\renewcommand{\setsechook}[1]{}
\renewcommand*{\subsechook}{}
\renewcommand{\setsubsechook}[1]{}
\renewcommand*{\subsubsechook}{}
\renewcommand{\setsubsubsechook}[1]{}
\renewcommand*{\parahook}{}
\renewcommand{\setparahook}[1]{}
\renewcommand*{\subparahook}{}
\renewcommand{\setsubparahook}[1]{}

\RenewDocumentCommand{\plainbreak}{s m}{\begin{center}~\end{center}}

\RenewDocumentCommand{\fancybreak}{s +m}{%
    \begin{center}#2\end{center}%
}

\RenewDocumentCommand{\plainfancybreak}{s m m +m}{%
    \begin{center}#4\end{center}%
}

\RenewDocumentCommand{\pfbreak}{s}{%
    \begin{center}
    \pfbreakdisplay
    \end{center}
}

% \newlength{\pfbreakskip}
\renewcommand{\pfbreakdisplay}{*\quad*\quad*}

\renewcommand{\makeheadstyles}[2]{}
```

```
\renewcommand*{\headstyles}[1]{}
```

§ 692.8 Pagination and headers

```
\renewcommand*{\savepagenumber}{}
\renewcommand*{\restorepagenumber}{}
\renewcommand*{\uppercaseheads}{}
\renewcommand*{\nouppercaseheads}{}

\renewcommand*{\bookpagemark}[1]{}
\renewcommand*{\partmark}[1]{}
\renewcommand*{\bibmark}{}
\renewcommand*{\indexmark}{}
\renewcommand*{\glossarymark}{}

\LWR@origpagestyle{empty}
\renewcommand*{\ps@empty}{}
\renewcommand*{\makepagestyle}[1]{}
\renewcommand*{\emptypshook}{}%
% \renewcommand*{\empty@oddhead}{}
% \renewcommand*{\empty@oddfoot}{}
% \renewcommand*{\empty@evenhead}{}
% \renewcommand*{\empty@evenfoot}{}
\renewcommand*{\@oddhead}{}
\renewcommand*{\@oddfoot}{}
\renewcommand*{\@evenhead}{}
\renewcommand*{\@evenfoot}{}
\renewcommand*{\aliaspagestyle}[2]{}
\renewcommand*{\copypagestyle}[2]{}

\renewcommand*{\makeevenhead}[4]{}
\renewcommand*{\makeoddhead}[4]{}
\renewcommand*{\makeevenfoot}[4]{}
\renewcommand*{\makeoddfoot}[4]{}
\renewcommand*{\makerunningwidth}[3]{}
% \newlength{\headwidth}
\renewcommand*{\makeheadrule}[3]{}
\renewcommand*{\makefootrule}[3]{}
\renewcommand*{\makeheadfootruleprefix}[3]{}
% \newlength{\normalrulethickness}
% \setlength{\normalrulethickness}{.4pt}
% \newlength{\footruleheight}
% \newlength{\footruleskip}
\renewcommand*{\makeheadposition}[5]{}
\renewcommand{\makepsmarks}[2]{}
\renewcommand*{\makeheadfootstrut}[3]{}

\renewcommand{\createmark}[5]{\csdef{#1mark}[1]{}}
\renewcommand{\createplainmark}[3]{\csdef{#1mark}{}}

\renewcommand{\memUChead}[1]{}
\renewcommand*{\clearplainmark}[1]{}
\renewcommand*{\clearmark}[1]{}
\renewcommand{\addtopsmarks}[3]{}
\renewcommand{\ifonlyfloats}[2]{#2}
\renewcommand*{\mergepagefloatstyle}[3]{}

\renewcommand*{\framepichead}{}
\renewcommand*{\framepictextfoot}{}
\renewcommand*{\framepichook}{}
```

```
\renewcommand*{\showheadfootlocoff}{}
\renewcommand*{\showtextblocklocoff}{}
```

§ 692.9 Paragraphs and lists

```
\renewcommand{\hangfrom}[1]{#1}
\let\centerfloat\centering
\renewcommand*{\raggedyright}[1][]{}
% \newlength{\ragrparindent}
\renewcommand{\sourceatright}[2][]{\attribution{#2}}
\let\memorigdbs\LWR@endofline

\renewcommand*{\memorigpar}{\par}

\let\atcentercr\LWR@endofline

\renewcommand*{\linenottooshort}[1][]{}
\renewcommand*{\russianpar}{}
\renewcommand*{\lastlinerulefill}{}
\renewcommand*{\lastlineparrule}{}
\renewcommand*{\justlastraggedleft}{}
\renewcommand*{\raggedrightthenleft}{}
\renewcommand*{\leftcenterright}{}

\renewcommand{\leftspringright}[4]{%
    \begin{minipage}{#1\linewidth}#3\end{minipage}\qquad%
   \begin{minipage}{#2\linewidth}\begin{flushright}#4\end{flushright}\end{minipage}%
}

\renewenvironment*{blockdescription}
{\LWR@descriptionstart\LWR@origdescription}
{\enddescription}

\renewcommand*{\blockdescriptionlabel}[1]{\textbf{#1}}
\renewenvironment*{labelled}[1]{\begin{description}}{\end{description}}
\renewenvironment*{flexlabelled}[6]{\begin{description}}{\end{description}}
\renewcommand*{\tightlists}{}
\renewcommand*{\defaultlists}{}
\RenewDocumentCommand{\firmlists}{s}{}
\renewcommand*{\firmlist}{}
\renewcommand*{\tightlist}{}
\renewcommand*{\zerotrivseps}{}
\renewcommand*{\savetrivseps}{}
\renewcommand*{\restoretrivseps}{}
```

§ 692.10 Contents lists

```
\csletcs{tableofcontents*}{tableofcontents}
\csletcs{listoffigures*}{listoffigures}
\csletcs{listoftables*}{listoftables}
\renewenvironment{KeepFromToc}{}{}
\renewcommand*{\onecoltocetc}{}
\renewcommand*{\twocoltocetc}{}
\renewcommand*{\ensureonecol}{}
\renewcommand*{\restorefromonecol}{}
\renewcommand*{\doccoltocetc}{}

\renewcommand{\tocheadstart}{}
\renewcommand{\printtoctitle}[1]{}
\renewcommand{\tocmark}{}
```

```
\renewcommand{\aftertoctitle}{}
\renewcommand{\lofheadstart}{}
\renewcommand{\printloftitle}[1]{}
\renewcommand{\lofmark}{}
\renewcommand{\afterloftitle}{}
\renewcommand{\lotheadstart}{}
\renewcommand{\printlottitle}[1]{}
\renewcommand{\lotmark}{}
\renewcommand{\afterlottitle}{}

\renewcommand*{\setpnumwidth}[1]{}
\renewcommand*{\setrmarg}[1]{}
\renewcommand*{\cftbookbreak}{}
\renewcommand*{\cftpartbreak}{}
\renewcommand*{\cftchapterbreak}{}

% \newlength{\cftbeforebookskip}
% \newlength{\cftbookindent}
% \newlength{\cftbooknumwidth}
\renewcommand*{\cftbookfont}{}
\renewcommand*{\cftbookname}{}
\renewcommand*{\cftbookpresnum}{}
\renewcommand*{\cftbookaftersnum}{}
\renewcommand*{\cftbookaftersnumb}{}
\renewcommand*{\cftbookleader}{}
\renewcommand*{\cftbookdotsep}{1}
\renewcommand*{\cftbookpagefont}{}
\renewcommand*{\cftbookafterpnum}{}
\renewcommand*{\cftbookformatpnum}[1]{}
\renewcommand*{\cftbookformatpnumhook}[1]{}
```

Part is already defined by tocloft.

```
% \newlength{\cftbeforechapterskip}
% \newlength{\cftchapterindent}
% \newlength{\cftchapternumwidth}
\renewcommand*{\cftchapterfont}{}
\renewcommand*{\cftchaptername}{}
\renewcommand*{\cftchapterpresnum}{}
\renewcommand*{\cftchapteraftersnum}{}
\renewcommand*{\cftchapteraftersnumb}{}
\renewcommand*{\cftchapterleader}{}
\renewcommand*{\cftchapterdotsep}{1}
\renewcommand*{\cftchapterpagefont}{}
\renewcommand*{\cftchapterafterpnum}{}
\renewcommand*{\cftchapterformatpnum}[1]{}
\renewcommand*{\cftchapterformatpnumhook}[1]{}

% \newlength{\cftbeforesectionskip}
% \newlength{\cftsectionindent}
% \newlength{\cftsectionnumwidth}
\renewcommand*{\cftsectionfont}{}
\renewcommand*{\cftsectionname}{}
\renewcommand*{\cftsectionpresnum}{}
\renewcommand*{\cftsectionaftersnum}{}
\renewcommand*{\cftsectionaftersnumb}{}
\renewcommand*{\cftsectionleader}{}
\renewcommand*{\cftsectiondotsep}{1}
\renewcommand*{\cftsectionpagefont}{}
\renewcommand*{\cftsectionafterpnum}{}
```

```
\renewcommand*{\cftsectionformatpnum}[1]{}
\renewcommand*{\cftsectionformatpnumhook}[1]{}

% \newlength{\cftbeforesubsectionskip}
% \newlength{\cftsubsectionindent}
% \newlength{\cftsubsectionnumwidth}
\renewcommand*{\cftsubsectionfont}{}
\renewcommand*{\cftsubsectionname}{}
\renewcommand*{\cftsubsectionpresnum}{}
\renewcommand*{\cftsubsectionaftersnum}{}
\renewcommand*{\cftsubsectionaftersnumb}{}
\renewcommand*{\cftsubsectionleader}{}
\renewcommand*{\cftsubsectiondotsep}{1}
\renewcommand*{\cftsubsectionpagefont}{}
\renewcommand*{\cftsubsectionafterpnum}{}
\renewcommand*{\cftsubsectionformatpnum}[1]{}
\renewcommand*{\cftsubsectionformatpnumhook}[1]{}

% \newlength{\cftbeforesubsubsectionskip}
% \newlength{\cftsubsubsectionindent}
% \newlength{\cftsubsubsectionnumwidth}
\renewcommand*{\cftsubsubsectionfont}{}
\renewcommand*{\cftsubsubsectionname}{}
\renewcommand*{\cftsubsubsectionpresnum}{}
\renewcommand*{\cftsubsubsectionaftersnum}{}
\renewcommand*{\cftsubsubsectionaftersnumb}{}
\renewcommand*{\cftsubsubsectionleader}{}
\renewcommand*{\cftsubsubsectiondotsep}{1}
\renewcommand*{\cftsubsubsectionpagefont}{}
\renewcommand*{\cftsubsubsectionafterpnum}{}
\renewcommand*{\cftsubsubsectionformatpnum}[1]{}
\renewcommand*{\cftsubsubsectionformatpnumhook}[1]{}

% \newlength{\cftbeforeparagraphskip}
% \newlength{\cftparagraphindent}
% \newlength{\cftparagraphnumwidth}
\renewcommand*{\cftparagraphfont}{}
\renewcommand*{\cftparagraphname}{}
\renewcommand*{\cftparagraphpresnum}{}
\renewcommand*{\cftparagraphaftersnum}{}
\renewcommand*{\cftparagraphaftersnumb}{}
\renewcommand*{\cftparagraphleader}{}
\renewcommand*{\cftparagraphdotsep}{1}
\renewcommand*{\cftparagraphpagefont}{}
\renewcommand*{\cftparagraphafterpnum}{}
\renewcommand*{\cftparagraphformatpnum}[1]{}
\renewcommand*{\cftparagraphformatpnumhook}[1]{}

% \newlength{\cftbeforesubparagraphskip}
% \newlength{\cftsubparagraphindent}
% \newlength{\cftsubparagraphnumwidth}
\renewcommand*{\cftsubparagraphfont}{}
\renewcommand*{\cftsubparagraphname}{}
\renewcommand*{\cftsubparagraphpresnum}{}
\renewcommand*{\cftsubparagraphaftersnum}{}
\renewcommand*{\cftsubparagraphaftersnumb}{}
\renewcommand*{\cftsubparagraphleader}{}
\renewcommand*{\cftsubparagraphdotsep}{1}
\renewcommand*{\cftsubparagraphpagefont}{}
\renewcommand*{\cftsubparagraphafterpnum}{}
\renewcommand*{\cftsubparagraphformatpnum}[1]{}
```

```
\renewcommand*{\cftsubparagraphformatpnumhook}[1]{}

% \newlength{\cftbeforefigureskip}
% \newlength{\cftfigureindent}
% \newlength{\cftfigurenumwidth}
\renewcommand*{\cftfigurefont}{}
\renewcommand*{\cftfigurename}{}
\renewcommand*{\cftfigurepresnum}{}
\renewcommand*{\cftfigureaftersnum}{}
\renewcommand*{\cftfigureaftersnumb}{}
\renewcommand*{\cftfigureleader}{}
\renewcommand*{\cftfiguredotsep}{1}
\renewcommand*{\cftfigurepagefont}{}
\renewcommand*{\cftfigureafterpnum}{}
\renewcommand*{\cftfigureformatpnum}[1]{}
\renewcommand*{\cftfigureformatpnumhook}[1]{}

% \newlength{\cftbeforesubfigureskip}
% \newlength{\cftsubfigureindent}
% \newlength{\cftsubfigurenumwidth}
\newcommand*{\cftsubfigurefont}{}
\newcommand*{\cftsubfigurename}{}
\newcommand*{\cftsubfigurepresnum}{}
\newcommand*{\cftsubfigureaftersnum}{}
\newcommand*{\cftsubfigureaftersnumb}{}
\newcommand*{\cftsubfigureleader}{}
\newcommand*{\cftsubfiguredotsep}{1}
\newcommand*{\cftsubfigurepagefont}{}
\newcommand*{\cftsubfigureafterpnum}{}
\newcommand*{\cftsubfigureformatpnum}[1]{}
\newcommand*{\cftsubfigureformatpnumhook}[1]{}

% \newlength{\cftbeforetableskip}
% \newlength{\cfttableindent}
% \newlength{\cfttablenumwidth}
\renewcommand*{\cfttablefont}{}
\renewcommand*{\cfttablename}{}
\renewcommand*{\cfttablepresnum}{}
\renewcommand*{\cfttableaftersnum}{}
\renewcommand*{\cfttableaftersnumb}{}
\renewcommand*{\cfttableleader}{}
\renewcommand*{\cfttabledotsep}{1}
\renewcommand*{\cfttablepagefont}{}
\renewcommand*{\cfttableafterpnum}{}
\renewcommand*{\cfttableformatpnum}[1]{}
\renewcommand*{\cfttableformatpnumhook}[1]{}

% \newlength{\cftbeforesubtableskip}
% \newlength{\cftsubtableindent}
% \newlength{\cftsubtablenumwidth}
\newcommand*{\cftsubtablefont}{}
\newcommand*{\cftsubtablename}{}
\newcommand*{\cftsubtablepresnum}{}
\newcommand*{\cftsubtableaftersnum}{}
\newcommand*{\cftsubtableaftersnumb}{}
\newcommand*{\cftsubtableleader}{}
\newcommand*{\cftsubtabledotsep}{1}
\newcommand*{\cftsubtablepagefont}{}
\newcommand*{\cftsubtableafterpnum}{}
\newcommand*{\cftsubtableformatpnum}[1]{}
\newcommand*{\cftsubtableformatpnumhook}[1]{}
```

```
\renewcommand*{\booknumberline}[1]{}
\renewcommand*{\partnumberline}[1]{}
\renewcommand*{\chapternumberline}[1]{}
\renewcommand*{\numberlinehook}[1]{}
% \renewcommand*{\cftwhatismyname}{}%
\renewcommand*{\booknumberlinehook}[1]{}
\renewcommand*{\partnumberlinehook}[1]{}
\renewcommand*{\chapternumberlinehook}[1]{}
\renewcommand{\numberlinebox}[2]{}
\renewcommand{\booknumberlinebox}[2]{}
\renewcommand{\partnumberlinebox}[2]{}
\renewcommand{\chapternumberlinebox}[2]{}
%
% \newlength{\cftparfillskip}
\renewcommand*{\cftpagenumbersoff}[1]{}
\renewcommand*{\cftpagenumberson}[1]{}
\renewcommand*{\cftlocalchange}[3]{}
\renewcommand*{\cftaddtitleline}[4]{}
\renewcommand*{\cftaddnumtitleline}[4]{}
\renewcommand{\cftinsertcode}[2]{}
\renewcommand{\cftinserthook}[2]{}
\renewcommand{\settocpreprocessor}[2]{}
\DeclareRobustCommand{\cftpagenumbersoff}[1]{}
\DeclareRobustCommand{\cftpagenumberson}[1]{}
```

§ 692.11 Floats and captions

\@xfloat
\@xdblfloat

Reestablish lwarp's takeover the float handing, which memoir tried to grab:

```
\AtBeginDocument{
\def\@xfloat #1[#2]{%
    \LWR@floatbegin{#1}[#2]
    \normalsize
    \@nameuse{#1adjustment}%
    \LWR@futurenonspacelet\LWR@mynexttoken\LWR@floatalignment%
}
\def\@xdblfloat #1[#2]{%
    \LWR@floatbegin{#1}[#2]
    \normalsize
    \@nameuse{#1adjustment}%
    \LWR@futurenonspacelet\LWR@mynexttoken\LWR@floatalignment%
}
}
```

\newfloat

[⟨*1: within*⟩] {⟨*2: type*⟩} {⟨*3: ext*⟩} {⟨*4: capname*⟩}

```
\RenewDocumentCommand{\newfloat}{o m m m}{%
    \def\LWR@tempone{#4}%
    \def\LWR@temptwo{\@nameuse{#2name}}%
   \ifdefequal{\LWR@tempone}{\LWR@temptwo}{% recursive name, already defined
        \IfValueTF{#1}%
            {\DeclareFloatingEnvironment[fileext=#3,within=#1]{#2}}%
            {\DeclareFloatingEnvironment[fileext=#3]{#2}}%
    }{% not recursive name
        \IfValueTF{#1}%
        {\DeclareFloatingEnvironment[fileext=#3,within=#1,name={#4}]{#2}}%
            {\DeclareFloatingEnvironment[fileext=#3,name={#4}]{#2}}%
    }%
```

newfloat package automatically creates the \listof command for new floats, but float does not, so remove \listof here in case it is manually created later.

```
    \cslet{listof#2s}\relax%
    \cslet{listof#2es}\relax%
}
```

\newlistof [⟨*within*⟩] {⟨*type*⟩} {⟨*ext*⟩} {⟨*listofname*⟩}

Emulated through the \newfloat mechanism. Note that memoir uses a different syntax than tocloft for the name.

```
\RenewDocumentCommand{\newlistof}{o m m m}
{%
    \IfValueTF{#1}%
        {\newlistentry[#1]{#2}{#3}{0}}%
        {\newlistentry{#2}{#3}{0}}%
    \@namedef{ext@#2}{#3}%
    \@ifundefined{c@#3depth}{\newcounter{#3depth}}{}%
    \setcounter{#3depth}{1}%
    \@namedef{#3mark}{}%
    \@namedef{#2}{\LWR@listof{#2}{#4}}%
    \@namedef{@cftmake#3title}{}%
    \@ifundefined{cftbefore#3titleskip}{%
        \expandafter\newlength\csname cftbefore#3titleskip\endcsname%
        \expandafter\newlength\csname cftafter#3titleskip\endcsname%
    }{}%
    \@namedef{cft#3titlefont}{}%
    \@namedef{cftafter#3title}{}%
    \@namedef{cft#3prehook}{}%
    \@namedef{cft#3posthook}{}%
}

\renewcommand{\setfloatadjustment}[2]{}
```

Borrowed from the lwarp version of keyfloat:

```
\NewDocumentEnvironment{KFLTmemoir@marginfloat}{O{-1.2ex} m}
{% start
   \LWR@BlockClassWP{float:right; width:2in; margin:10pt}{}(note){marginblock}%
    \renewcommand*{\@captype}{#2}%
}
{%
    \endLWR@BlockClassWP%
}

\DeclareDocumentEnvironment{marginfigure}{o}
  {\begin{KFLTmemoir@marginfloat}{figure}}
  {\end{KFLTmemoir@marginfloat}}

\DeclareDocumentEnvironment{margintable}{o}
  {\begin{KFLTmemoir@marginfloat}{table}}
  {\end{KFLTmemoir@marginfloat}}

\renewcommand{\setmarginfloatcaptionadjustment}[2]{}
\renewcommand{\setmpjustification}[2]{}
\renewcommand*{\mpjustification}{}
\renewcommand*{\setfloatlocations}[2]{}
\DeclareDocumentCommand{\suppressfloats}{o}{}
\renewcommand*{\FloatBlock}{}
```

```
\renewcommand*{\FloatBlockAllowAbove}{}
\renewcommand*{\FloatBlockAllowBelow}{}
\renewcommand*{\setFloatBlockFor}{}

\renewcommand{\captiontitlefinal}[1]{}
```

`\flegtable`, `\flegfigure`, `\flegtoctable`, `\flegtocfigure` are defined by memoir using `\newfloat`. These are defined with an `@` in ccaption.

```
\renewcommand{\flegtable}{\tablename}
\renewcommand{\flegfigure}{\figurename}
\renewcommand{\flegtoctable}{}
\renewcommand{\flegtocfigure}{}


\renewcommand{\@makesubfloatcaption}[2]{%
    \minipagefullwidth
    \begin{minipage}{\linewidth}%
    #1 \ignorespaces #2 \unskip%
    \end{minipage}
}

\renewcommand*{\tightsubcaptions}{}
\renewcommand*{\loosesubcaptions}{}

\renewcommand*{\subcaptionsize}[1]{}
\renewcommand*{\subcaptionlabelfont}[1]{}
\renewcommand*{\subcaptionfont}[1]{}
\renewcommand*{\subcaptionstyle}[1]{}

\renewcommand*{\hangsubcaption}{}
\renewcommand*{\shortsubcaption}{}
\renewcommand*{\normalsubcaption}{}

\RenewDocumentEnvironment{sidecaption}{o m o}
{}
{%
    \IfValueTF{#1}{\caption[#1]{#2}}{\caption{#2}}%
    \IfValueT{#3}{\label{#3}}%
}

% \newlength{\sidecapwidth}
% \newlength{\sidecapsep}
\renewcommand*{\setsidecaps}[2]{}
\renewcommand*{\sidecapmargin}[1]{}
% \newif\ifscapmargleft
\scapmargleftfalse
\renewcommand*{\setsidecappos}[1]{}
```

Env `sidecontcaption`

```
\RenewDocumentEnvironment{sidecontcaption}{m o}
{}
{%
    \ifdef{\ContinuedFloat}%
        {\ContinuedFloat}%
        {\addtocounter{\@captype}{-1}}%
    \caption{#1}%
```

Without \@captype, the section is referred to instead.

```
    \IfValueT{#2}{\label[\@captype]{#2}}%
}
```

\sidenamedlegend does not appear to use the TOC argument.

```
\renewenvironment{sidenamedlegend}[2][]{
    \begin{center}
    \@nameuse{\@captype name}\CaptionSeparator#2
    \end{center}
}
{}

\renewenvironment{sidelegend}[1]
{\begin{center}
    #1

}
{\end{center}}

\renewcommand*{\sidecapstyle}{}
\renewcommand*{\overridescapmargin}[1]{}
% \newlength{\sidecapraise}
\renewcommand*{\sidecapfloatwidth}{\linewidth}

\LetLtxMacro\ctabular\tabular
\LetLtxMacro\endctabular\endtabular

\renewcommand{\autorows}[5][]{%
    #5%
}

\renewcommand{\autocols}[5][]{%
    #5%
}
```

§ 692.12 Footnotes and page notes

```
\renewcommand*{\feetabovefloat}{}
\renewcommand*{\feetbelowfloat}{}
\renewcommand*{\feetatbottom}{}

\renewcommand*{\verbfootnote}[2][]{%
    \PackageError{lwarp,memoir}%
    {Verbatim footnotes are not yet supported by lwarp}%
    {This may be improved some day.}%
}

\renewcommand*{\plainfootnotes}{}
\renewcommand*{\twocolumnfootnotes}{}
\renewcommand*{\threecolumnfootnotes}{}
\renewcommand*{\paragraphfootnotes}{}
\renewcommand*{\footfudgefiddle}{}

\renewcommand*{\newfootnoteseries}[1]{%
    \PackageError{lwarp,memoir}%
    {Memoir footnote series are not yet supported by lwarp}%
    {This may be improved some day.}%
}

```

```
\renewcommand*{\plainfootstyle}[1]{}
\renewcommand*{\twocolumnfootstyle}[1]{}
\renewcommand*{\threecolumnfootstyle}[1]{}
\renewcommand*{\paragraphfootstyle}[1]{}

\renewcommand*{\footfootmark}{}
\renewcommand*{\footmarkstyle}[1]{}

% \newlength{\footmarkwidth}
% \newlength{\footmarksep}
% \newlength{\footparindent}

\renewcommand*{\foottextfont}{}

\renewcommand*{\marginparmargin}[1]{}
\renewcommand*{\sideparmargin}[1]{}

\LetLtxMacro\sidepar\marginpar
\renewcommand*{\sideparfont}{}
\renewcommand*{\sideparform}{}
\LWR@providelength{\sideparvshift}

\renewcommand*{\parnopar}{}

\renewcommand{\sidebar}[1]{\begin{quote}#1\end{quote}}
\renewcommand*{\sidebarmargin}[1]{}
\renewcommand*{\sidebarfont}{}
\renewcommand*{\sidebarform}{}
% \newlength{\sidebarhsep}
% \newlength{\sidebarvsep}
% \newlength{\sidebarwidth}
% \newlength{\sidebartopsep}
\renewcommand{\setsidebarheight}[1]{}
\renewcommand*{\setsidebars}[6]{}
\renewcommand*{\footnotesatfoot}{}
\renewcommand*{\footnotesinmargin}{}

\LetLtxMacro\sidefootnote\footnote
\LetLtxMacro\sidefootnotemark\footnotemark
\LetLtxMacro\sidefootnotetext\footnotetext

\renewcommand*{\sidefootmargin}[1]{}
% \newlength{\sidefoothsep}
% \newlength{\sidefootvsep}
% \newlength{\sidefootwidth}
% \newlength{\sidefootadjust}
% \newlength{\sidefootheight}
\renewcommand*{\setsidefootheight}[1]{}
% \renewcommand*{\sidefootfont}{}% in docs but not in the package
\renewcommand*{\setsidefeet}[6]{}
\renewcommand*{\sidefootmarkstyle}[1]{}
\renewcommand*{\sidefoottextfont}{}
\renewcommand*{\sidefootform}{}

\renewcommand*{\continuousnotenums}{\pncontopttrue}% from pagenote
\renewcommand*{\notepageref}{}
\renewcommand*{\prenotetext}{}
\renewcommand*{\postnotetext}{}
\LetLtxMacro\printpageinnoteshyperref\printpageinnotes
\renewcommand*{\foottopagenote}{}
```

```
\renewcommand*{\pagetofootnote}{}
```

\m@m@wrpnote

\startnoteentrystart

To have cleveref work with page note labels, the following patch writes \thepagenote and also adds \arabic{pagenote} to the first argument written to the .ent file:

```
\startnoteentry{{\thepagenote}{\arabic{pagenote}}} . . .
```

The arabic value is required for cleveref. \thepagenote becomes \@firstoftwo#1 and the arabic value becomes \@secondoftwo#1.

⚠ \nameref Note that for print mode,\nameref print the section name where the page notes are declared in the text, but for HTML it prints the name where the page notes are printed.

```
\xpatchcmd{\m@m@wrpnote}
    {\string\startnoteentry{\thepagenote}}
    {\string\startnoteentry{{\thepagenote}{\arabic{pagenote}}}}
    {}
    {\LWR@patcherror{memoir}{m@m@wrpnote}}

\renewcommand\startnoteentrystart[4]{%
  \prenoteinnotes%
  \noteidinnotes{\@firstoftwo#1}{#2}%
  \@ifmtarg{#2}{%
% \phantomsection\def\@currentlabel{#1}%            original
    \def\@currentlabel{\@firstoftwo#1}%                lwarp
    \def\cref@currentlabel{%                           lwarp
      [pagenote][\@secondoftwo#1][]\@firstoftwo#1%     lwarp
    }%                                                 lwarp
  }{}%
  \pagenoteanchor{#4}%
  \pageinnotes{#3}%
  \prenotetext%
}
```

§ 692.13 Decorative text

```
\renewcommand*{\epigraphposition}[1]{}
\renewcommand*{\epigraphtextposition}[1]{}
\renewcommand*{\epigraphsourceposition}[1]{}
\renewcommand*{\epigraphfontsize}[1]{}
\renewcommand*{\epigraphforheader}[2][]{}
\renewcommand*{\epigraphpicture}{}
```

§ 692.14 Poetry

```
\renewcommand*{\vinphantom}{}
\renewcommand*{\vleftofline}[1]{#1}
% \let\linenumberfrequency\poemlines
% \renewcommand*{\linenumberfont}[1]{}

\DeclareDocumentCommand{\PoemTitle}{s o o m}{%
    \IfValueTF{#2}%
        {\poemtitle[#2]{#4}}%
        {\poemtitle{#4}}%
}

\renewcommand*{\NumberPoemTitle}{}
\renewcommand*{\PlainPoemTitle}{}
\renewcommand*{\poemtitlepstyle}{}
```

```
\renewcommand*{\poemtitlestarmark}[1]{}
\renewcommand*{\poemtitlestarpstyle}{}
\renewcommand*{\PoemTitleheadstart}{}
\renewcommand*{\printPoemTitlenonum}{}
\renewcommand*{\printPoemTitlenum}{}
\renewcommand*{\afterPoemTitlenum}{}
\renewcommand*{\printPoemTitletitle}[1]{}
\renewcommand*{\afterPoemTitle}{}
\newlength{\midpoemtitleskip}
\renewcommand*{\PoemTitlenumfont}{}
\renewcommand*{\PoemTitlefont}{}
```

§ 692.15 Boxes, verbatims and files

```
\renewenvironment{qframe}{\framed}{\endframed}
\renewenvironment{qshade}{\shaded}{\endshaded}
```

```
\renewcommand*{\setverbatimfont}[1]{}
\renewcommand*{\tabson}[1]{}
\renewcommand*{\tabsoff}{}
\renewcommand*{\wrappingon}{}
\renewcommand*{\wrappingoff}{}
\renewcommand*{\verbatimindent}{}
\renewcommand*{\verbatimbreakchar}[1]{}
```

```
\DefineVerbatimEnvironment{fboxverbatim}{Verbatim}{frame=single}
```

boxedverbatim is already defined by moreverb. boxedverbatim* does not appear to work at all, even in a minimal print memoir document.

```
\renewcommand*{\bvbox}{}
\renewcommand*{\bvtopandtail}{}
\renewcommand*{\bvsides}{}
\renewcommand*{\nobvbox}{}
% \newlength\bvboxsep
\renewcommand*{\bvtoprulehook}{}
\renewcommand*{\bvtopmidhook}{}
\renewcommand*{\bvendrulehook}{}
\renewcommand*{\bvleftsidehook}{}
\renewcommand*{\bvrightsidehook}{}
\renewcommand*{\bvperpagetrue}{}
\renewcommand*{\bvperpagefalse}{}
\renewcommand{\bvtopofpage}[1]{}
\renewcommand{\bvendofpage}[1]{}
\renewcommand*{\linenumberfrequency}[1]{}
\renewcommand*{\resetbvlinenumber}{}
\renewcommand*{\setbvlinenums}[2]{}
\renewcommand*{\linenumberfont}[1]{}
\renewcommand*{\bvnumbersinside}{}
\renewcommand*{\bvnumbersoutside}{}
```

§ 692.16 Cross referencing

```
\renewcommand*{\fref}[1]{\cref{#1}}
\renewcommand*{\tref}[1]{\cref{#1}}
\renewcommand*{\pref}[1]{\cpageref{#1}}
\renewcommand*{\Aref}[1]{\cref{#1}}
\renewcommand*{\Bref}[1]{\cref{#1}}
\renewcommand*{\Pref}[1]{\cref{#1}}
```

```
\renewcommand*{\Sref}[1]{\cref{#1}}
\renewcommand*{\figurerefname}{Figure}
\renewcommand*{\tablerefname}{Table}
\renewcommand*{\pagerefname}{page}
\renewcommand*{\bookrefname}{Book~}
\renewcommand*{\partrefname}{Part~}
\renewcommand*{\chapterrefname}{Chapter~}
\renewcommand*{\sectionrefname}{\S}
\renewcommand*{\appendixrefname}{Appendix~}
\LetLtxMacro\titleref\nameref
\renewcommand*{\headnameref}{}
\renewcommand*{\tocnameref}{}

\providecounter{LWR@currenttitle}

\renewcommand*{\currenttitle}{%
    \addtocounter{LWR@currenttitle}{1}%
    \label{currenttitle\arabic{LWR@currenttitle}}%
    \nameref{currenttitle\arabic{LWR@currenttitle}}%
}

\renewcommand*{\theTitleReference}[2]{}
\renewcommand*{\namerefon}{}
\renewcommand*{\namerefoff}{}
```

§ 692.17 Back matter

\@@wrindexhyp

Redefined to write the LWR@autoindex counter instead of page. Note that memoir has two versions, depending on the use of hyperref.

```
\AtBeginDocument{

\def\@@wrindexhyp#1||\\{%
    \addtocounter{LWR@autoindex}{1}%
    \label{LWRindex-\arabic{LWR@autoindex}}%
%     \ifshowindexmark\@showidx{#1}\fi
    \protected@write\@auxout{}%
%         {\string\@@wrindexm@m{\@idxfile}{#1}{\thepage}}%
        {\string\@@wrindexm@m{\@idxfile}{#1}{\arabic{LWR@autoindex}}}%
    \endgroup
    \@esphack}%
```

\@@wrspindexhyp

\specialindex behaves like a regular \index, pointing to where \specialindex is used. If \specialindex is used inside a figure or table after the \caption, then the hyperlink will be given the name of that particular figure or table.

```
\def\@@wrspindexhyp#1||\\{%
    \addtocounter{LWR@autoindex}{1}%
    \label{LWRindex-\arabic{LWR@autoindex}}%
%     \ifshowindexmark\@showidx{#1}\fi
    \protected@write\@auxout{}%
%         {\string\@@wrindexm@m{\@idxfile}{#1}{\@nameuse{the\@sptheidx}}}%
        {\string\@@wrindexm@m{\@idxfile}{#1}{\arabic{LWR@autoindex}}}%
    \endgroup
    \@esphack}%

}% \AtBeginDocument
```

\@spindex

Patched to append _html to the file:

```
\renewcommand{\@spindex}[2]{%
  \@ifundefined{#1@idxfile}%
  {\ifreportnoidxfile
     \@memwarn{Undefined index file #1}%
    \fi
    \begingroup
    \@sanitize
    \@nowrindex}%
  {\def\@idxfile{#1_html}%
   \def\@sptheidx{#2}%
   \begingroup
   \@sanitize
   \@wrspindex}}
```

\makeindex

Patched to use _html filename and \BaseJobname:

```
\catcode`\_=12%
\renewcommand*{\makeindex}[1][\BaseJobname]{%
  \if@filesw
    \def\gindex{\@bsphack%
      \@ifnextchar [{\@index}{\@index[\BaseJobname]}}
    \def\specialindex{\@bsphack\@spindex}%
    \makememindexhook
    \expandafter\newwrite\csname #1@idxfile\endcsname
   \expandafter\immediate\openout \csname #1@idxfile\endcsname #1_html.idx\relax
    \typeout{Writing index file #1_html.idx }%
  \fi}
\catcode`\_=8%
```

\printindex

Patched to use _html filename and \BaseJobname. This will later be patched by the lwarp core.

```
\catcode`\_=12%
\renewcommand{\printindex}[1][\BaseJobname]{\@input@{#1_html.ind}}
\catcode`\_=8%
```

```
\DeclareDocumentCommand{\newblock}{}{}
%
\renewcommand*{\showindexmarks}{}
\renewcommand*{\hideindexmarks}{}

\renewcommand*{\xindyindex}{}
```

§ 692.18 Miscellaneous

```
\renewcommand*{\changemarks}{}
\renewcommand*{\nochangemarks}{}
\renewcommand*{\added}[1]{}
\renewcommand*{\deleted}[1]{}
\renewcommand*{\changed}[1]{}

\renewcommand*{\showtrimsoff}{}
\renewcommand*{\showtrimson}{}
\renewcommand*{\trimXmarks}{}
\renewcommand*{\trimLmarks}{}
\renewcommand*{\trimFrame}{}
\renewcommand*{\trimNone}{}
\renewcommand*\trimmarkscolor{}
\renewcommand*{\trimmarks}{}
```

```
\renewcommand*{\tmarktl}{}
\renewcommand*{\tmarktr}{}
\renewcommand*{\tmarkbr}{}
\renewcommand*{\tmarkbl}{}
\renewcommand*{\tmarktm}{}
\renewcommand*{\tmarkmr}{}
\renewcommand*{\tmarkbm}{}
\renewcommand*{\tmarkml}{}
\renewcommand*{\trimmark}{}
\renewcommand*{\quarkmarks}{}
\renewcommand*{\registrationColour}[1]{}

\renewcommand*{\leavespergathering}[1]{}

\renewcommand*{\noprelistbreak}{}

\renewcommand*{\cleartorecto}{}
\renewcommand*{\cleartoverso}{}

\renewenvironment{vplace}[1][]{}{}
```

§ 692.19 ccaption emulation

```
\renewcommand*{\captiondelim}[1]{\renewcommand*{\CaptionSeparator}{#1}}
\renewcommand*{\captionnamefont}[1]{}
\renewcommand*{\captiontitlefont}[1]{}
\renewcommand*{\flushleftright}{}
\renewcommand*{\centerlastline}{}
\renewcommand*{\captionstyle}[2][]{}
\DeclareDocumentCommand{\captionwidth}{m}{}
\renewcommand*{\changecaptionwidth}{}
\renewcommand*{\normalcaptionwidth}{}
\renewcommand*{\hangcaption}{}
\renewcommand*{\indentcaption}[1]{}
\renewcommand*{\normalcaption}{}
\renewcommand{\precaption}[1]{}
\renewcommand{\postcaption}[1]{}
\renewcommand{\midbicaption}[1]{}
\renewcommand{\contcaption}[1]{%
%   \ContinuedFloat%
%   \caption{#1}%
    \begin{LWR@figcaption}% later becomes \caption*
    \LWR@isolate{\@nameuse{\@captype name}}~%
    \thechapter.\the\value{\@captype}\CaptionSeparator\LWR@isolate{#1}%
    \end{LWR@figcaption}%
}

\newlength{\abovelegendskip}
\setlength{\abovelegendskip}{0.5\baselineskip}
\newlength{\belowlegendskip}
\setlength{\belowlegendskip}{\abovelegendskip}
```

The extra \\ here forces a <br> in HTML when \legend is used in a \marginpar.

```
\renewcommand{\legend}[1]{\begin{center}#1\\\end{center}}

\renewcommand{\namedlegend}[2][]{%
    \begin{center}
    \@nameuse{fleg\@captype}\CaptionSeparator#2\\
    \end{center}
```

```
    \@nameuse{flegtoc\@captype}{#1}
}
```

`\flegtable`, `\flegfigure`, `\flegtoctable`, `\flegtocfigure` are defined by memoir using `\newfloat`. These are defined with an `@` in ccaption.

```
\renewcommand{\newfixedcaption}[3][\caption]{%
  \renewcommand{#2}{\def\@captype{#3}#1}}
\renewcommand{\renewfixedcaption}[3][\caption]{%
  \renewcommand{#2}{\def\@captype{#3}#1}}
\renewcommand{\providefixedcaption}[3][\caption]{%
  \providecommand{#2}{\def\@captype{#3}#1}}

\renewcommand{\bitwonumcaption}[6][]{%
    \ifblank{#2}{\caption{#3}}{\caption[#2]{#3}}%
    \addtocounter{\@captype}{-1}%
    \begingroup%
    \csdef{\@captype name}{#4}%
    \ifblank{#5}{\caption{#6}}{\caption[#5]{#6}}%
    \endgroup%
    \ifblank{#1}{}{\label{#1}}%
}

\LetLtxMacro\bionenumcaption\bitwonumcaption% todo

\renewcommand{\bicaption}[5][]{%
    \ifblank{#2}{\caption{#3}}{\caption[#2]{#3}}%
    \begin{LWR@figcaption}% later becomes \caption*
    \LWR@isolate{#4} % space
    \thechapter.\the\value{\@captype}\CaptionSeparator\LWR@isolate{#5}%
    \end{LWR@figcaption}%
    \ifblank{#1}{}{\label{#1}}%
}

\renewcommand{\bicontcaption}[3]{%
    \contcaption{#1}%
    \begingroup%
    \csdef{\@captype name}{#2}%
    \contcaption{#3}%
    \endgroup%
}
```

Only in ccaption, not in memoir:

```
% \LetLtxMacro\longbitwonumcaption\bitwonumcaption%
% \LetLtxMacro\longbionenumcaption\bitwonumcaption%
% \LetLtxMacro\longbicaption\bicaption%
```

Patches for subfloats to support additional lwarp labels:

```
\renewcommand{\@memsubbody}{%
  \bgroup
  \let\label=\memsub@label
  \ifdonemaincaption\else
    \advance\csname c@\@captype\endcsname\@ne
  \fi
  % \refstepcounter{sub\@captype}\@contkeep%
%   \leavevmode%            lwarp
  \@ifnextchar [%
    {\@memsubfig}%
```

```
    {\@memsubfig[\@empty]}}
\renewcommand{\@memcontsubbody}{%
  \bgroup
  \let\label=\memsub@label
  \@contset
  % \refstepcounter{sub\@captype}\@contkeep%
%   \leavevmode%            lwarp
  \@ifnextchar [%
    {\@memsubfig}%
    {\@memsubfig[\@empty]}}

\long\def\@memsubfloat#1[#2][#3]#4{%
%   \@tempcnta=\@ne
%   \if@tightsubcap
%     \if@minipage
%       \@tempcnta=\z@
%     \else
%       \ifdim\lastskip=\z@
%         \@tempcnta=\@ne
%       \else
%         \@tempcnta=\tw@
%       \fi
%     \fi
%   \fi
%   \if@contbotsub
%     \def\subfig@top{\subfloattopskip}%
%     \def\subfig@bottom{\subfloatbottomskip}%
%   \else
%     \def\subfig@top{\subfloatbottomskip}%
%     \def\subfig@bottom{\subfloattopskip}%
%   \fi
%   \setbox\@tempboxa \hbox{#4}%
%   \@tempdima=\wd\@tempboxa
%   \vbox
  \bgroup%
    \mem@step@subcounter%
%     \vbox
    \LWR@stoppars%
    \minipagefullwidth%                 lwarp
    \begin{minipage}{\linewidth}%       lwarp
    \bgroup
%     \ifcase\@tempcnta
%       \@minipagefalse
%     \or
%       \vspace{\subfig@top}
%     \or
%       \ifdim \lastskip=\z@ \else
%         \@tempskipb\subfig@top\@xaddvskip
%       \fi
%     \fi
    \if@contbotsub
      #4% \box\@tempboxa
      \egroup
      \ifx \@empty#3\relax \else
%         \vskip\subfloatcapskip
        \@memsubcaption{#1}{#2}{#3}%
      \fi
    \else
```

```
      \ifx \@empty#3\relax \else
        \@memsubcaption{#1}{#2}{#3}%
%         \vskip\subfloatcapskip
%         \vskip\subfloatcaptopadj
      \fi\egroup
      #4% \box\@tempboxa
    \fi
%     \vspace{\subfig@bottom}
    \end{minipage}%                          lwarp
    \LWR@startpars%                          lwarp
  \egroup
\egroup
}
```

§ 692.20 Final patchwork

```
\newlistof{tableofcontents}{toc}{\contentsname}
\newlistof{listoffigures}{lof}{\listfigurename}
\newlistof{listoftables}{lot}{\listtablename}
```

File 584 **lwarp-common-multimedia.sty**

§ 693 Package common-multimedia

Pkg lwarp-common-multimedia

Common code for multimedia, movie15, and media9.

The packages multimedia, movie15, and media9 are supported.

HTML5 <audio> and <video> objects are created for .mp3 and .mp4 files.

HTML5 <embed> objects are created for http and ftp links.

\href links are created for other media types. (Unfortunately, there is not much overlap between the file types supported for print output and the file types supported by HTML5.)

For media9, a multimedia object is inserted for each addresource=, as well as each flashvars source= and src=. This may result in duplicate objects.

Undesired objects may be nullified by placing them inside \warpprintonly or the warpprint environment.

Each HTML multimedia object includes the poster text, except for <embed> objects. For movie15, the text option is supported to specify the poster text.

The width, height, and totalheight options are supported. The HTML object is scaled according to the display width, correctly compensating for either tall or wide viewports.

Other options are ignored.

media9 \addmediapath is supported. It is assumed that the same path structure will exist for the HTML document.

HTML5 media controls are always specified for each <audio> and <video> object.

media9 slideshows are not supported.

\hyperlinkmovie, \movieref, and \mediabutton are not supported.

3D objects are not supported.

If using a YouTube™ video, use an "embedded" URL with .../embed/... instead of .../v/...

for HTML output:

```
\ProvidesPackage{lwarp-common-multimedia}[2019/04/22]

\RequirePackage{xkeyval}

\define@key{LWR@multimedia}{width}{\setlength{\LWR@multimedia@width}{#1}}
\define@key{LWR@multimedia}{height}{\setlength{\LWR@multimedia@height}{#1}}
\define@key{LWR@multimedia}{totalheight}{\setlength{\LWR@multimedia@height}{#1}}

\newlength{\LWR@multimedia@width}
\newlength{\LWR@multimedia@height}
\newlength{\LWR@multimedia@maxdimension}
```

\LWR@multimedia@printsize

Proportional to \linewidth and the viewport's smaller dimension. This scales each object such that it will always fit on the screen, even if a tall or wide object inside a tall or wide viewport.

```
\newcommand*{\LWR@multimedia@printsize}{%
    \setlength{\LWR@multimedia@maxdimension}{%
        \maxof%
            {\linewidth}%
            {\maxof{\LWR@multimedia@width}{\LWR@multimedia@height}}%
    }%
   \setlength{\LWR@multimedia@maxdimension}{1.1\LWR@multimedia@maxdimension}%
    \ifdimgreater{\LWR@multimedia@width}{0pt}{%
        width:%
            \LWR@printpercentlength%
                {\LWR@multimedia@width}%
                {\LWR@multimedia@maxdimension}vmin ; % space
    }{}%
    \ifdimgreater{\LWR@multimedia@height}{0pt}{%
        height:%
            \LWR@printpercentlength%
                {\LWR@multimedia@height}%
                {\LWR@multimedia@maxdimension}vmin ; % space
    }{}%
}
```

\LWR@multimedia@fileAV {⟨*poster text*⟩} {⟨*filename*⟩} {⟨*audio/video*⟩} {⟨*mimetype*⟩}

Creates a video or audio from a file. The 2019/10 update of the LaTeX kernel may cause extra quotes to be added in the filenames. They are removed here.

```
\newcommand*{\LWR@multimedia@fileAV}[4]{%
\IfFileExists{#2}{% also sets \@filef@und
\StrSubstitute[100]{\@filef@und}{"}{}[\LWR@parsedfilename]%
```

The container is sized as desired.

```
    \ifstrequal{#3}{audio}{%
        \begin{BlockClass}{AVviewport}
    }{%
      \begin{BlockClass}[\LWR@multimedia@printsize\ margin:auto]{AVviewport}
    }
```

Paragraph tags are unnecessary for the A / V tags.

```
    \LWR@stoppars
```

The A / V element is 100% of the container.

```
    \LWR@htmltag{%
        #3\ % space
        \ifstrequal{#3}{audio}{}{%
            width=\textquotedbl{}100\%\textquotedbl\ % space
            height=\textquotedbl{}100\%\textquotedbl\ % space
        }%
        controls%
    }\LWR@orignewline
```

The file source and type:

```
    \LWR@htmltag{%
        source % space
        src=\textquotedbl%
        \LWR@parsedfilename\unskip\textquotedbl\ % space
        type=\textquotedbl{}#4\textquotedbl}
```

The poster text inside paragraph tags, along with a reference to the file.

```
    \LWR@startpars
    \LWR@href{\LWR@parsedfilename}{#1}
    \LWR@stoppars
```

Finish.

```
    \LWR@htmltag{/#3}\LWR@orignewline
    \end{BlockClass}
}{%
    \PackageError{lwarp-common-multimedia}
        {File '#2' not found}
        {Perhaps an incorrect path?}
}%
}
```

`\LWR@multimedia@httpAV` {⟨*poster text*⟩} {⟨*filename*⟩} {⟨*audio/video*⟩} {⟨*mimetype*⟩}

Creates a video or audio from a URL link.

```
\newcommand*{\LWR@multimedia@httpAV}[4]{%
```

The container is sized as desired.

```
    \ifstrequal{#3}{audio}{%
        \begin{BlockClass}{AVviewport}
    }{%
     \begin{BlockClass}[\LWR@multimedia@printsize\ margin:auto]{AVviewport}
    }
```

Paragraph tags are unnecessary for the A / V tags.

```
    \LWR@stoppars
```

The A / V element is 100% of the container.

```
    \LWR@htmltag{%
        #3\ % space
        \ifstrequal{#3}{audio}{}{%
            width=\textquotedbl{}100\%\textquotedbl\ % space
            height=\textquotedbl{}100\%\textquotedbl\ controls%
        }%
    }\LWR@orignewline
```

The file source and type:

```
    \LWR@htmltag{%
        source % space
        src=\textquotedbl#2\textquotedbl\ % space
        type=\textquotedbl#4\textquotedbl}
```

The poster text inside paragraph tags, along with a reference to the URL.

```
    \LWR@startpars
    \LWR@href{#2}{#1}
    \LWR@stoppars
```

Finish.

```
    \LWR@htmltag{/#3}\LWR@orignewline
    \end{BlockClass}
}
```

\LWR@multimedia@AV {⟨*poster text*⟩} {⟨*filename*⟩} {⟨*audio/video*⟩} {⟨*mimetype*⟩}

Creates an audio or video from a file or a URL.

```
\newcommand*{\LWR@multimedia@AV}[4]{%
    \IfBeginWith{#2}{http}%
        {\LWR@multimedia@httpAV{#1}{#2}{#3}{#4}}%
        {%
            \IfBeginWith{#2}{HTTP}%
                {\LWR@multimedia@httpAV{#1}{#2}{#3}{#4}}%
                {\LWR@multimedia@fileAV{#1}{#2}{#3}{#4}}%
        }%
}
```

\LWR@multimedia@embed {⟨*poster text*⟩} {⟨*URL or filename*⟩} {⟨*mime type*⟩}

Embeds multimedia of an arbitrary type. The poster text is not used, as it would appear along with the video if the <embed> element is supported.

```
\newcommand*{\LWR@multimedia@embed}[3]{%
    \begin{BlockClass}[width:100\%]{AVviewport}%
    \LWR@stoppars
        \LWR@htmltag{%
            embed % space
            \ifblank{#3}{}{type=\textquotedbl#3\textquotedbl\ }%
        style=\textquotedbl\LWR@multimedia@printsize\ margin:auto\textquotedbl\ % space
            src=\textquotedbl#2\textquotedbl\ % space
        }%
    \LWR@startpars
    \end{BlockClass}
}
```

\LWR@multimedia@percenterror Error message if the comment character is used among the arguments of \LWR@multimediab.

```
\newcommand*{\LWR@multimedia@percenterror}{%
    \PackageError{lwarp-media9}
    {%
        Do not use a percent comment between\MessageBreak
        \protect\includemedia\space arguments%
    }
    {%
        Percent is changed to a regular character\MessageBreak
```

```
        to allow its use inside a URL.%
    }
}
```

\LWR@multimediab [⟨*options*⟩] {⟨*poster text*⟩} {⟨*filename*⟩}

Creates multimedia. Examines the file extension to determine the type. If not a supported type, creates an embedded object if it has a URL. If neither, create a link to the unsupported object.

```
\newcommand*{\LWR@multimediab}[3][]{%
```

Error if the percent character appears among the arguments. This could happen since the comment character has been temporarily disabled, for use in a URL.

```
    \if#1\@percentchar\LWR@multimedia@percenterror\fi%
    \if#2\@percentchar\LWR@multimedia@percenterror\fi%
    \if#3\@percentchar\LWR@multimedia@percenterror\fi%
```

Paragraph handling:

```
    \LWR@stoppars%
```

Record the desired size.

```
    \setlength{\LWR@multimedia@width}{0pt}%
    \setlength{\LWR@multimedia@height}{0pt}%
    \setkeys*{LWR@multimedia}{#1}%
```

If a known A/V type, create an HTML5 <video> or <audio>.

```
    \IfEndWith{#3}{.mp4}{\LWR@multimedia@AV{#2}{#3}{video}{video/mp4}}{%
    \IfEndWith{#3}{.MP4}{\LWR@multimedia@AV{#2}{#3}{video}{video/mp4}}{%
    \IfEndWith{#3}{.mp3}{\LWR@multimedia@AV{#2}{#3}{audio}{audio/mpeg}}{%
    \IfEndWith{#3}{.MP3}{\LWR@multimedia@AV{#2}{#3}{audio}{audio/mpeg}}{%
```

If an arbitrary URL, embed it.

```
    \IfBeginWith{#3}{http}{\LWR@multimedia@embed{#2}{#3}{}}{%
    \IfBeginWith{#3}{HTTP}{\LWR@multimedia@embed{#2}{#3}{}}{%
    \IfBeginWith{#3}{ftp}{\LWR@multimedia@embed{#2}{#3}{}}{%
    \IfBeginWith{#3}{FTP}{\LWR@multimedia@embed{#2}{#3}{}}{%
```

If unknown, create a link to it.

```
        \LWR@href{#3}{#2}% unknown format
    }}}}}}}%
```

Paragraph handling:

```
    \LWR@startpars%
    \endgroup%
}
```

Catcodes which may apper in a URL.

```
\newrobustcmd*{\LWR@multimedia}{%
    \begingroup%
    \LWR@linkmediacatcodes%
    \LWR@multimediab%
}
```

File 585 **lwarp-common-mathjax-letters.sty**

§ 694 Package

common-mathjax-letters

Pkg lwarp-common-mathjax-letters

Common code used by a number of packages to generate Greek math characters for MathJax.

for HTML output:

```
\ProvidesPackage{lwarp-common-mathjax-letters}[2020/08/10]
```

\LWR@mathjax@addletter

* {⟨*2: capitalize name?*⟩} {⟨*3: prefix*⟩} {⟨*4: postfix*⟩} {⟨*5: name*⟩} {⟨*6: unicode*⟩}

Star to italicize the result, used when the unicode character does not exist.

```
\begin{warpMathJax}

\NewDocumentCommand{\LWR@mathjax@addletter}{s m m m m m}{
    \IfBooleanTF{#2}%
        {\edef\LWR@tempone{\LWRtexttitlecase{#5}}}%
        {\edef\LWR@tempone{#5}}%
    \xdef\LWR@customizedMathJax{%
        \LWR@customizedMathJax%
        \LWRbackslash(%
        \LWRbackslash def\LWRbackslash%
        #3% prefix
        \LWR@tempone%name
        #4% postfix
        \LWRleftbrace%
    }%
    \IfBooleanTF{#1}{%
        \xdef\LWR@customizedMathJax{%
            \LWR@customizedMathJax%
            \LWRbackslash mathit\LWRleftbrace%
            \LWRbackslash unicode\LWRleftbrace x#6\LWRrightbrace%
            \LWRrightbrace%
        }%
    }{%
        \xdef\LWR@customizedMathJax{%
            \LWR@customizedMathJax%
            \LWRbackslash unicode\LWRleftbrace x#6\LWRrightbrace%
        }%
    }%
    \xdef\LWR@customizedMathJax{%
        \LWR@customizedMathJax%
        \LWRrightbrace\LWRbackslash)\par%
    }%
}
```

\LWR@mathjax@addgreek@l@up

* {⟨*2: prefix*⟩} {⟨*3: postfix*⟩}

Star to capitalize the macro names.

Adds `\CustomizeMathjax` expressions to define a set of macros for Greek letters, lowercase upright.

```
\NewDocumentCommand{\LWR@mathjax@addgreek@l@up}{s m m}{
    \LWR@mathjax@addletter{#1}{#2}{#3}{alpha}{03B1}
```

```
    \LWR@mathjax@addletter{#1}{#2}{#3}{beta}{03B2}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varbeta}{03D0}
    \LWR@mathjax@addletter{#1}{#2}{#3}{gamma}{03B3}
    \LWR@mathjax@addletter{#1}{#2}{#3}{digamma}{03DD}
    \LWR@mathjax@addletter{#1}{#2}{#3}{delta}{03B4}
    \LWR@mathjax@addletter{#1}{#2}{#3}{epsilon}{03F5}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varepsilon}{03B5}
    \LWR@mathjax@addletter{#1}{#2}{#3}{zeta}{03B6}
    \LWR@mathjax@addletter{#1}{#2}{#3}{eta}{03B7}
    \LWR@mathjax@addletter{#1}{#2}{#3}{theta}{03B8}
    \LWR@mathjax@addletter{#1}{#2}{#3}{vartheta}{03D1}
    \LWR@mathjax@addletter{#1}{#2}{#3}{iota}{03B9}
    \LWR@mathjax@addletter{#1}{#2}{#3}{kappa}{03BA}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varkappa}{03F0}
    \LWR@mathjax@addletter{#1}{#2}{#3}{lambda}{03BB}
    \LWR@mathjax@addletter{#1}{#2}{#3}{mu}{03BC}
    \LWR@mathjax@addletter{#1}{#2}{#3}{nu}{03BD}
    \LWR@mathjax@addletter{#1}{#2}{#3}{xi}{03BE}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omicron}{03BF}
    \LWR@mathjax@addletter{#1}{#2}{#3}{pi}{03C0}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varpi}{03D6}
    \LWR@mathjax@addletter{#1}{#2}{#3}{rho}{03C1}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varrho}{03F1}
    \LWR@mathjax@addletter{#1}{#2}{#3}{sigma}{03C3}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varsigma}{03C2}
    \LWR@mathjax@addletter{#1}{#2}{#3}{tau}{03C4}
    \LWR@mathjax@addletter{#1}{#2}{#3}{upsilon}{03C5}
    \LWR@mathjax@addletter{#1}{#2}{#3}{phi}{03D5}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varphi}{03C6}
    \LWR@mathjax@addletter{#1}{#2}{#3}{chi}{03C7}
    \LWR@mathjax@addletter{#1}{#2}{#3}{psi}{03C8}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omega}{03C9}
}
```

\LWR@mathjax@addgreek@u@up

* {⟨*2: prefix*⟩} {⟨*3: postfix*⟩}

Star to capitalize the macro names.

Adds `\CustomizeMathjax` expressions to define a set of macros for Greek letters, uppercase upright.

```
\NewDocumentCommand{\LWR@mathjax@addgreek@u@up}{s m m}{
    \LWR@mathjax@addletter{#1}{#2}{#3}{alpha}{0391}
    \LWR@mathjax@addletter{#1}{#2}{#3}{beta}{0392}
    \LWR@mathjax@addletter{#1}{#2}{#3}{gamma}{0393}
    \LWR@mathjax@addletter{#1}{#2}{#3}{digamma}{03DC}
    \LWR@mathjax@addletter{#1}{#2}{#3}{delta}{0394}
    \LWR@mathjax@addletter{#1}{#2}{#3}{epsilon}{0395}
    \LWR@mathjax@addletter{#1}{#2}{#3}{zeta}{0396}
    \LWR@mathjax@addletter{#1}{#2}{#3}{eta}{0397}
    \LWR@mathjax@addletter{#1}{#2}{#3}{theta}{0398}
    \LWR@mathjax@addletter{#1}{#2}{#3}{vartheta}{03F4}
    \LWR@mathjax@addletter{#1}{#2}{#3}{iota}{0399}
    \LWR@mathjax@addletter{#1}{#2}{#3}{kappa}{039A}
    \LWR@mathjax@addletter{#1}{#2}{#3}{lambda}{039B}
    \LWR@mathjax@addletter{#1}{#2}{#3}{mu}{039C}
    \LWR@mathjax@addletter{#1}{#2}{#3}{nu}{039D}
    \LWR@mathjax@addletter{#1}{#2}{#3}{xi}{039E}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omicron}{039F}
    \LWR@mathjax@addletter{#1}{#2}{#3}{pi}{03A0}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varpi}{03D6}
```

```
    \LWR@mathjax@addletter{#1}{#2}{#3}{rho}{03A1}
    \LWR@mathjax@addletter{#1}{#2}{#3}{sigma}{03A3}
    \LWR@mathjax@addletter{#1}{#2}{#3}{tau}{03A4}
    \LWR@mathjax@addletter{#1}{#2}{#3}{upsilon}{03A5}
    \LWR@mathjax@addletter{#1}{#2}{#3}{phi}{03A6}
    \LWR@mathjax@addletter{#1}{#2}{#3}{chi}{03A7}
    \LWR@mathjax@addletter{#1}{#2}{#3}{psi}{03A8}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omega}{03A9}
}
```

* {⟨*2: prefix*⟩} {⟨*3: postfix*⟩}

\LWR@mathjax@addgreek@l@it

Star to capitalize the macro names.

Adds `\CustomizeMathjax` expressions to define a set of macros for Greek letters, lowercase italic.

```
\NewDocumentCommand{\LWR@mathjax@addgreek@l@it}{s m m}{
    \LWR@mathjax@addletter{#1}{#2}{#3}{alpha}{1D6FC}
    \LWR@mathjax@addletter{#1}{#2}{#3}{beta}{1D6FD}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varbeta}{03D0}
    \LWR@mathjax@addletter{#1}{#2}{#3}{gamma}{1D6FE}
    \LWR@mathjax@addletter*{#1}{#2}{#3}{digamma}{03DD}
    \LWR@mathjax@addletter{#1}{#2}{#3}{delta}{1D6FF}
    \LWR@mathjax@addletter{#1}{#2}{#3}{epsilon}{1D716}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varepsilon}{1D700}
    \LWR@mathjax@addletter{#1}{#2}{#3}{zeta}{1D701}
    \LWR@mathjax@addletter{#1}{#2}{#3}{eta}{1D702}
    \LWR@mathjax@addletter{#1}{#2}{#3}{theta}{1D703}
    \LWR@mathjax@addletter{#1}{#2}{#3}{vartheta}{1D717}
    \LWR@mathjax@addletter{#1}{#2}{#3}{iota}{1D704}
    \LWR@mathjax@addletter{#1}{#2}{#3}{kappa}{1D705}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varkappa}{1D718}
    \LWR@mathjax@addletter{#1}{#2}{#3}{lambda}{1D706}
    \LWR@mathjax@addletter{#1}{#2}{#3}{mu}{1D707}
    \LWR@mathjax@addletter{#1}{#2}{#3}{nu}{1D708}
    \LWR@mathjax@addletter{#1}{#2}{#3}{xi}{1D709}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omicron}{1D70A}
    \LWR@mathjax@addletter{#1}{#2}{#3}{pi}{1D70B}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varpi}{1D71B}
    \LWR@mathjax@addletter{#1}{#2}{#3}{rho}{1D70C}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varrho}{1D71A}
    \LWR@mathjax@addletter{#1}{#2}{#3}{sigma}{1D70E}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varsigma}{1D70D}
    \LWR@mathjax@addletter{#1}{#2}{#3}{tau}{1D70F}
    \LWR@mathjax@addletter{#1}{#2}{#3}{upsilon}{1D710}
    \LWR@mathjax@addletter{#1}{#2}{#3}{phi}{1D719}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varphi}{1D711}
    \LWR@mathjax@addletter{#1}{#2}{#3}{chi}{1D712}
    \LWR@mathjax@addletter{#1}{#2}{#3}{psi}{1D713}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omega}{1D714}
}
```

* {⟨*2: prefix*⟩} {⟨*3: postfix*⟩}

\LWR@mathjax@addgreek@u@it

Star to capitalize the macro names.

Adds `\CustomizeMathjax` expressions to define a set of macros for Greek letters, uppercase italic.

```
\NewDocumentCommand{\LWR@mathjax@addgreek@u@it}{s m m}{
    \LWR@mathjax@addletter{#1}{#2}{#3}{alpha}{1D6E2}
```

```
    \LWR@mathjax@addletter{#1}{#2}{#3}{beta}{1D6E3}
    \LWR@mathjax@addletter{#1}{#2}{#3}{gamma}{1D6E4}
    \LWR@mathjax@addletter*{#1}{#2}{#3}{digamma}{03DC}
    \LWR@mathjax@addletter{#1}{#2}{#3}{delta}{1D6E5}
    \LWR@mathjax@addletter{#1}{#2}{#3}{epsilon}{1D6E6}
    \LWR@mathjax@addletter{#1}{#2}{#3}{zeta}{1D6E7}
    \LWR@mathjax@addletter{#1}{#2}{#3}{eta}{1D6E8}
    \LWR@mathjax@addletter{#1}{#2}{#3}{theta}{1D6E9}
    \LWR@mathjax@addletter{#1}{#2}{#3}{vartheta}{1D6F3}
    \LWR@mathjax@addletter{#1}{#2}{#3}{iota}{1D6EA}
    \LWR@mathjax@addletter{#1}{#2}{#3}{kappa}{1D6EB}
    \LWR@mathjax@addletter{#1}{#2}{#3}{lambda}{1D6EC}
    \LWR@mathjax@addletter{#1}{#2}{#3}{mu}{1D6ED}
    \LWR@mathjax@addletter{#1}{#2}{#3}{nu}{1D6EE}
    \LWR@mathjax@addletter{#1}{#2}{#3}{xi}{1D6EF}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omicron}{1D6F0}
    \LWR@mathjax@addletter{#1}{#2}{#3}{pi}{1D6F1}
    \LWR@mathjax@addletter{#1}{#2}{#3}{rho}{1D6F2}
    \LWR@mathjax@addletter{#1}{#2}{#3}{sigma}{1D6F4}
    \LWR@mathjax@addletter{#1}{#2}{#3}{tau}{1D6F5}
    \LWR@mathjax@addletter{#1}{#2}{#3}{upsilon}{1D6F6}
    \LWR@mathjax@addletter{#1}{#2}{#3}{phi}{1D6F7}
    \LWR@mathjax@addletter{#1}{#2}{#3}{chi}{1D6F8}
    \LWR@mathjax@addletter{#1}{#2}{#3}{psi}{1D6F9}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omega}{1D6FA}
}
```

* {⟨*2: prefix*⟩} {⟨*3: postfix*⟩}

\LWR@mathjax@addgreek@l@bfit

Star to capitalize the macro names.

Adds \CustomizeMathjax expressions to define a set of macros for Greek letters, lowercase boldface italic.

```
\NewDocumentCommand{\LWR@mathjax@addgreek@l@bfit}{s m m}{
    \LWR@mathjax@addletter{#1}{#2}{#3}{alpha}{1D736}
    \LWR@mathjax@addletter{#1}{#2}{#3}{beta}{1D737}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varbeta}{03D0}
    \LWR@mathjax@addletter{#1}{#2}{#3}{gamma}{1D738}
    \LWR@mathjax@addletter*{#1}{#2}{#3}{digamma}{03DD}
    \LWR@mathjax@addletter{#1}{#2}{#3}{delta}{1D739}
    \LWR@mathjax@addletter{#1}{#2}{#3}{epsilon}{1D750}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varepsilon}{1D73A}
    \LWR@mathjax@addletter{#1}{#2}{#3}{zeta}{1D73B}
    \LWR@mathjax@addletter{#1}{#2}{#3}{eta}{1D73C}
    \LWR@mathjax@addletter{#1}{#2}{#3}{theta}{1D73D}
    \LWR@mathjax@addletter{#1}{#2}{#3}{vartheta}{1D751}
    \LWR@mathjax@addletter{#1}{#2}{#3}{iota}{1D73E}
    \LWR@mathjax@addletter{#1}{#2}{#3}{kappa}{1D73F}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varkappa}{1D752}
    \LWR@mathjax@addletter{#1}{#2}{#3}{lambda}{1D740}
    \LWR@mathjax@addletter{#1}{#2}{#3}{mu}{1D741}
    \LWR@mathjax@addletter{#1}{#2}{#3}{nu}{1D742}
    \LWR@mathjax@addletter{#1}{#2}{#3}{xi}{1D743}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omicron}{1D744}
    \LWR@mathjax@addletter{#1}{#2}{#3}{pi}{1D745}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varpi}{1D755}
    \LWR@mathjax@addletter{#1}{#2}{#3}{rho}{1D746}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varrho}{1D754}
    \LWR@mathjax@addletter{#1}{#2}{#3}{sigma}{1D748}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varsigma}{1D747}
```

```
    \LWR@mathjax@addletter{#1}{#2}{#3}{tau}{1D749}
    \LWR@mathjax@addletter{#1}{#2}{#3}{upsilon}{1D74A}
    \LWR@mathjax@addletter{#1}{#2}{#3}{phi}{1D753}
    \LWR@mathjax@addletter{#1}{#2}{#3}{varphi}{1D74B}
    \LWR@mathjax@addletter{#1}{#2}{#3}{chi}{1D74C}
    \LWR@mathjax@addletter{#1}{#2}{#3}{psi}{1D74D}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omega}{1D74E}
}
```

* {⟨*2: prefix*⟩} {⟨*3: postfix*⟩}

\LWR@mathjax@addgreek@u@bfit

Star to capitalize the macro names.

Adds \CustomizeMathjax expressions to define a set of macros for Greek letters, uppercase boldface italic.

```
\NewDocumentCommand{\LWR@mathjax@addgreek@u@bfit}{s m m}{
    \LWR@mathjax@addletter{#1}{#2}{#3}{alpha}{1D71C}
    \LWR@mathjax@addletter{#1}{#2}{#3}{beta}{1D71D}
    \LWR@mathjax@addletter{#1}{#2}{#3}{gamma}{1D71E}
    \LWR@mathjax@addletter*{#1}{#2}{#3}{digamma}{03DC}
    \LWR@mathjax@addletter{#1}{#2}{#3}{delta}{1D71F}
    \LWR@mathjax@addletter{#1}{#2}{#3}{epsilon}{1D720}
    \LWR@mathjax@addletter{#1}{#2}{#3}{zeta}{1D721}
    \LWR@mathjax@addletter{#1}{#2}{#3}{eta}{1D722}
    \LWR@mathjax@addletter{#1}{#2}{#3}{theta}{1D723}
    \LWR@mathjax@addletter{#1}{#2}{#3}{vartheta}{1D72D}
    \LWR@mathjax@addletter{#1}{#2}{#3}{iota}{1D724}
    \LWR@mathjax@addletter{#1}{#2}{#3}{kappa}{1D725}
    \LWR@mathjax@addletter{#1}{#2}{#3}{lambda}{1D726}
    \LWR@mathjax@addletter{#1}{#2}{#3}{mu}{1D727}
    \LWR@mathjax@addletter{#1}{#2}{#3}{nu}{1D728}
    \LWR@mathjax@addletter{#1}{#2}{#3}{xi}{1D729}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omicron}{1D72A}
    \LWR@mathjax@addletter{#1}{#2}{#3}{pi}{1D72B}
    \LWR@mathjax@addletter{#1}{#2}{#3}{rho}{1D72C}
    \LWR@mathjax@addletter{#1}{#2}{#3}{sigma}{1D72E}
    \LWR@mathjax@addletter{#1}{#2}{#3}{tau}{1D72F}
    \LWR@mathjax@addletter{#1}{#2}{#3}{upsilon}{1D730}
    \LWR@mathjax@addletter{#1}{#2}{#3}{phi}{1D731}
    \LWR@mathjax@addletter{#1}{#2}{#3}{chi}{1D732}
    \LWR@mathjax@addletter{#1}{#2}{#3}{psi}{1D733}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omega}{1D734}
}
```

\LWR@mathjax@addgreek@u@bfup is not needed.

* {⟨*2: prefix*⟩} {⟨*3: postfix*⟩}

\LWR@mathjax@addgreek@u@bfup

Star to capitalize the macro names.

Adds \CustomizeMathjax expressions to define a set of macros for Greek letters, uppercase boldface upright.

```
\NewDocumentCommand{\LWR@mathjax@addgreek@u@bfup}{s m m}{
    \LWR@mathjax@addletter{#1}{#2}{#3}{alpha}{1D6A8}
    \LWR@mathjax@addletter{#1}{#2}{#3}{beta}{1D6A9}
    \LWR@mathjax@addletter{#1}{#2}{#3}{gamma}{1D6AA}
    \LWR@mathjax@addletter*{#1}{#2}{#3}{digamma}{03DC}
    \LWR@mathjax@addletter{#1}{#2}{#3}{delta}{1D6AB}
    \LWR@mathjax@addletter{#1}{#2}{#3}{epsilon}{1D6AC}
    \LWR@mathjax@addletter{#1}{#2}{#3}{zeta}{1D6AD}
```

```
    \LWR@mathjax@addletter{#1}{#2}{#3}{eta}{1D6AE}
    \LWR@mathjax@addletter{#1}{#2}{#3}{theta}{1D6AF}
    \LWR@mathjax@addletter{#1}{#2}{#3}{vartheta}{1D6B9}
    \LWR@mathjax@addletter{#1}{#2}{#3}{iota}{1D6B0}
    \LWR@mathjax@addletter{#1}{#2}{#3}{kappa}{1D6B1}
    \LWR@mathjax@addletter{#1}{#2}{#3}{lambda}{1D6B2}
    \LWR@mathjax@addletter{#1}{#2}{#3}{mu}{1D6B3}
    \LWR@mathjax@addletter{#1}{#2}{#3}{nu}{1D6B4}
    \LWR@mathjax@addletter{#1}{#2}{#3}{xi}{1D6B5}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omicron}{1D6B6}
    \LWR@mathjax@addletter{#1}{#2}{#3}{pi}{1D6B7}
    \LWR@mathjax@addletter{#1}{#2}{#3}{rho}{1D6B8}
    \LWR@mathjax@addletter{#1}{#2}{#3}{sigma}{1D6BA}
    \LWR@mathjax@addletter{#1}{#2}{#3}{tau}{1D6BB}
    \LWR@mathjax@addletter{#1}{#2}{#3}{upsilon}{1D6BC}
    \LWR@mathjax@addletter{#1}{#2}{#3}{phi}{1D6BD}
    \LWR@mathjax@addletter{#1}{#2}{#3}{chi}{1D6BE}
    \LWR@mathjax@addletter{#1}{#2}{#3}{psi}{1D6BF}
    \LWR@mathjax@addletter{#1}{#2}{#3}{omega}{1D6C0}
}
```

{⟨*prefix*⟩}

`\LWR@mathjax@addlatin@u@bfit` Adds `\CustomizeMathjax` expressions to define a set of macros for bold-face italic Latin letters, uppercase and lowercase.

```
\NewDocumentCommand{\LWR@mathjax@addlatin@u@bfit}{m}{
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{A}{1D468}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{B}{1D469}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{C}{1D46A}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{D}{1D46B}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{E}{1D46C}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{F}{1D46D}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{G}{1D46E}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{H}{1D46F}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{I}{1D470}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{J}{1D471}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{K}{1D472}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{L}{1D473}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{M}{1D474}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{N}{1D475}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{O}{1D476}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{P}{1D477}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{Q}{1D478}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{R}{1D479}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{S}{1D47A}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{T}{1D47B}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{U}{1D47C}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{V}{1D47D}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{W}{1D47E}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{X}{1D47F}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{Y}{1D480}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{Z}{1D481}
}
```

{⟨*prefix*⟩}

`\LWR@mathjax@addlatin@l@bfit` Adds `\CustomizeMathjax` expressions to define a set of macros for bold-face italic Latin letters, uppercase and lowercase.

```
\NewDocumentCommand{\LWR@mathjax@addlatin@l@bfit}{m}{
```

```
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{a}{1D482}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{b}{1D483}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{c}{1D484}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{d}{1D485}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{e}{1D486}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{f}{1D487}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{g}{1D488}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{h}{1D489}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{i}{1D48A}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{j}{1D48B}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{k}{1D48C}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{l}{1D48D}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{m}{1D48E}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{n}{1D48F}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{o}{1D490}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{p}{1D491}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{q}{1D492}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{r}{1D493}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{s}{1D494}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{t}{1D495}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{u}{1D496}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{v}{1D497}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{w}{1D498}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{x}{1D499}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{y}{1D49A}
    \LWR@mathjax@addletter{\BooleanFalse}{#1}{}{z}{1D49B}
}

\end{warpMathJax}
```

File 586 **lwarp-common-mathjax-newpxtxmath.sty**

§ 695 Package

common-mathjax-newpxtxmath

(*Emulates or patches code by* Michael Sharpe.)

Pkg lwarp-common-mathjax-newpxtxmath

Common code used by newpxmath, newtxmath, and newtxsf for MathJax.

for HTML output:

```
\ProvidesPackage{lwarp-common-mathjax-newpxtxmath}[2020/09/20]
```

For MathJax:

```
\LWR@origRequirePackage{lwarp-common-mathjax-nonunicode}
\LWR@origRequirePackage{lwarp-common-mathjax-overlaysymbols}

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\fAlt}{f}}
\CustomizeMathJax{\newcommand{\rhoAlt}{\rho}}

\CustomizeMathJax{\newcommand{\imathscr}{\mathord{\mathscr{i}}}}
\CustomizeMathJax{\newcommand{\jmathscr}{\mathord{\mathscr{j}}}}
```

`lwarp_mathjax.txt` adds `\left`/`\right` support for delimiters.

```
\CustomizeMathJax{\let\llbracket\lBrack}
\CustomizeMathJax{\let\rrbracket\rBrack}
```

```
13
14 \CustomizeMathJax{\let\smlbrace\{}
15 \CustomizeMathJax{\let\smrbrace\}}
16 \CustomizeMathJax{\newcommand{\Perp}{\mathrel{\unicode{x02AEB}}}}
17 \CustomizeMathJax{\newcommand{\nPerp}{\mathrel{\not{\!\unicode{x02AEB}}}}}
18 \CustomizeMathJax{\newcommand{\Zbar}{\mathord{\unicode{x01B5}}}}
19 \CustomizeMathJax{\newcommand{\Angstrom}{\mathord{\unicode{x212B}}}}
20 \CustomizeMathJax{\newcommand{\Euler}{\mathord{\unicode{x2107}}}}
21 \CustomizeMathJax{\newcommand{\transp}{\mathord{\unicode{xFF34}}}}
22 \CustomizeMathJax{\newcommand{\hermtransp}{\mathord{\unicode{xFF28}}}}
23 \CustomizeMathJax{\let\htransp=\hermtransp}
24 \CustomizeMathJax{\newcommand{\circledplus}{\mathbin{\unicode{x2295}}}}
25 \CustomizeMathJax{\newcommand{\circledminus}{\mathbin{\unicode{x2296}}}}
26 \CustomizeMathJax{\newcommand{\circledtimes}{\mathbin{\unicode{x2297}}}}


27 \CustomizeMathJax{\newcommand{\circledslash}{\mathbin{\unicode{x2298}}}}
28 %
29 \CustomizeMathJax{\newcommand{\circleddot}{\mathbin{\unicode{x2299}}}}
30 \CustomizeMathJax{\let\overgroup\overparen}
31 \CustomizeMathJax{\let\overgroupra\overrightarrow}
32 \CustomizeMathJax{\let\undergroup\underparen}
33 \CustomizeMathJax{\let\undergroupla\underleftarrow}
34 \CustomizeMathJax{\newcommand{\widering}[1]{%
35     \stackrel{\unicode{x2218}}{\overgroup{#1}}%
36 }}
37 \CustomizeMathJax{\let\widearc\overparen}
38 \CustomizeMathJax{\let\wideOarc\overrightarrow}
39 \CustomizeMathJax{\newcommand{\LWRvvstar}[2]{{\overrightarrow{#1}_{#2}}}}
40 \CustomizeMathJax{\newcommand{\vv}{\ifstar\LWRvvstar\overrightarrow}}
41 %
42 \CustomizeMathJax{\let\smallintsl\smallint}
43 \CustomizeMathJax{\newcommand{\smalliintsl}{\mathop{\unicode{x222C}}\limits}}
44 \CustomizeMathJax{\newcommand{\smalliiintsl}{\mathop{\unicode{x222D}}\limits}}
45 \CustomizeMathJax{\newcommand{\smalliiiintsl}{\mathop{\unicode{x2A0C}}\limits}}
46 \CustomizeMathJax{\newcommand{\smallointsl}{\mathop{\unicode{x222E}}\limits}}
47 \CustomizeMathJax{\newcommand{\smalloiintsl}{\mathop{\unicode{x222F}}\limits}}
48 \CustomizeMathJax{\newcommand{\smalloiiintsl}{\mathop{\unicode{x2230}}\limits}}
49 \CustomizeMathJax{\newcommand{\smallvarointclockwisesl}{%
50     \mathop{\unicode{x2232}}\limits%
51 }}
52 \CustomizeMathJax{\newcommand{\smallointctrclockwisesl}{%
53     \mathop{\unicode{x2233}}\limits%
54 }}
55 \CustomizeMathJax{\newcommand{\smallsumintsl}{\mathop{\unicode{x2A0B}}\limits}}
56 \CustomizeMathJax{\newcommand{\smallfintsl}{\mathop{\unicode{x2A0F}}\limits}}
57 \CustomizeMathJax{\newcommand{\smallsqintsl}{\mathop{\unicode{x2A16}}\limits}}
58 %
59 \CustomizeMathJax{\let\smallintup\smallint}
60 \CustomizeMathJax{\newcommand{\smalliintup}{\mathop{\unicode{x222C}}\limits}}
61 \CustomizeMathJax{\newcommand{\smalliiintup}{\mathop{\unicode{x222D}}\limits}}
62 \CustomizeMathJax{\newcommand{\smalliiiintup}{\mathop{\unicode{x2A0C}}\limits}}
63 \CustomizeMathJax{\newcommand{\smallointup}{\mathop{\unicode{x222E}}\limits}}
64 \CustomizeMathJax{\newcommand{\smalloiintup}{\mathop{\unicode{x222F}}\limits}}
65 \CustomizeMathJax{\newcommand{\smalloiiintup}{\mathop{\unicode{x2230}}\limits}}
66 \CustomizeMathJax{\newcommand{\smallvarointclockwiseup}{%
67     \mathop{\unicode{x2232}}\limits%
68 }}
69 \CustomizeMathJax{\newcommand{\smallointctrclockwiseup}{%
70     \mathop{\unicode{x2233}}\limits%
71 }}
```

```
\CustomizeMathJax{\newcommand{\smallsumintup}{\mathop{\unicode{x2A0B}}\limits}}
\CustomizeMathJax{\newcommand{\smallfintup}{\mathop{\unicode{x2A0F}}\limits}}
\CustomizeMathJax{\newcommand{\smallsqintup}{\mathop{\unicode{x2A16}}\limits}}
%
\CustomizeMathJax{\newcommand{\iint}{\mathop{\unicode{x222C}}\limits}}
\CustomizeMathJax{\newcommand{\iiint}{\mathop{\unicode{x222D}}\limits}}
\CustomizeMathJax{\newcommand{\iiiint}{\mathop{\unicode{x2A0C}}\limits}}
\CustomizeMathJax{\newcommand{\oiint}{\mathop{\unicode{x222F}}\limits}}
\CustomizeMathJax{\newcommand{\oiiint}{\mathop{\unicode{x2230}}\limits}}
\CustomizeMathJax{\newcommand{\varointclockwise}{\mathop{\unicode{x2232}}\limits}}
\CustomizeMathJax{\newcommand{\ointctrclockwise}{\mathop{\unicode{x2233}}\limits}}
\CustomizeMathJax{\newcommand{\sumint}{\mathop{\unicode{x2A0B}}\limits}}
\CustomizeMathJax{\newcommand{\fint}{\mathop{\unicode{x2A0F}}\limits}}
\CustomizeMathJax{\newcommand{\sqint}{\mathop{\unicode{x2A16}}\limits}}
%
\CustomizeMathJax{\let\intsl\int}
\CustomizeMathJax{\newcommand{\iintsl}{\mathop{\unicode{x222C}}\limits}}
\CustomizeMathJax{\newcommand{\iiintsl}{\mathop{\unicode{x222D}}\limits}}
\CustomizeMathJax{\newcommand{\iiiintsl}{\mathop{\unicode{x2A0C}}\limits}}
\CustomizeMathJax{\let\ointsl\oint}
\CustomizeMathJax{\newcommand{\oiintsl}{\mathop{\unicode{x222F}}\limits}}
\CustomizeMathJax{\newcommand{\oiiintsl}{\mathop{\unicode{x2230}}\limits}}
\CustomizeMathJax{\newcommand{\varointclockwisesl}{\mathop{\unicode{x2232}}\limits}}
\CustomizeMathJax{\newcommand{\ointctrclockwisesl}{\mathop{\unicode{x2233}}\limits}}
\CustomizeMathJax{\newcommand{\sumintsl}{\mathop{\unicode{x2A0B}}\limits}}
\CustomizeMathJax{\newcommand{\fintsl}{\mathop{\unicode{x2A0F}}\limits}}
\CustomizeMathJax{\newcommand{\sqintsl}{\mathop{\unicode{x2A16}}\limits}}
%
\CustomizeMathJax{\let\intup\int}
\CustomizeMathJax{\newcommand{\iintup}{\mathop{\unicode{x222C}}\limits}}
\CustomizeMathJax{\newcommand{\iiintup}{\mathop{\unicode{x222D}}\limits}}
\CustomizeMathJax{\newcommand{\iiiintup}{\mathop{\unicode{x2A0C}}\limits}}
\CustomizeMathJax{\let\ointup\oint}
\CustomizeMathJax{\newcommand{\oiintup}{\mathop{\unicode{x222F}}\limits}}
\CustomizeMathJax{\newcommand{\oiiintup}{\mathop{\unicode{x2230}}\limits}}
\CustomizeMathJax{\newcommand{\varointclockwiseup}{%
    \mathop{\unicode{x2232}}\limits%
}}
\CustomizeMathJax{\newcommand{\ointctrclockwiseup}{%
    \mathop{\unicode{x2233}}\limits%
}}
\CustomizeMathJax{\newcommand{\sumintup}{\mathop{\unicode{x2A0B}}\limits}}
\CustomizeMathJax{\newcommand{\fintup}{\mathop{\unicode{x2A0F}}\limits}}
\CustomizeMathJax{\newcommand{\sqintup}{\mathop{\unicode{x2A16}}\limits}}
%
\CustomizeMathJax{\newcommand{\bigcupdot}{\mathop{\unicode{x2A03}}}}
\CustomizeMathJax{\newcommand{\bigcupplus}{\mathop{\unicode{x2A04}}}}
\CustomizeMathJax{\newcommand{\bigsqcap}{\mathop{\unicode{x2A05}}}}
%


%
\CustomizeMathJax{\newcommand{\bigtimes}{\mathop{\unicode{x2A09}}}}
\CustomizeMathJax{\let\varprod\bigtimes}
%


\CustomizeMathJax{\newcommand{\mappedfrom}{\mathrel{\unicode{x021A4}}}}
\CustomizeMathJax{\let\mappedfromchar\mappedfrom}
\CustomizeMathJax{\newcommand{\mapsfrom}{\mathrel{\unicode{x021A4}}}}
\CustomizeMathJax{\newcommand{\longmappedfrom}{\mathrel{\unicode{x027FB}}}}
```

```
%
\CustomizeMathJax{\newcommand{\Mapsto}{\mathrel{\unicode{x02907}}}}
\CustomizeMathJax{\let\Mapstochar\Mapsto}
\CustomizeMathJax{\newcommand{\Longmapsto}{\mathrel{\unicode{x027FE}}}}
\CustomizeMathJax{\newcommand{\Mappedfrom}{\mathrel{\unicode{x02906}}}}
\CustomizeMathJax{\let\Mappedfromchar\Mappedfrom}
\CustomizeMathJax{\newcommand{\Mapsfrom}{\mathrel{\unicode{x02906}}}}
\CustomizeMathJax{\newcommand{\Longmappedfrom}{\mathrel{\unicode{x27FD}}}}
%

\CustomizeMathJax{\newcommand{\medcirc}{\mathbin{\unicode{x025CB}}}}
\CustomizeMathJax{\newcommand{\medbullet}{\mathbin{\unicode{x025CF}}}}
\CustomizeMathJax{\newcommand{\varparallel}{\mathrel{\unicode{x02AFD}}}}
\CustomizeMathJax{\newcommand{\varparallelinv}{\mathrel{\unicode{x244A}}}}
\CustomizeMathJax{\newcommand{\nvarparallel}{%
    \mathrel{\LWRoverlaysymbols{-}{\unicode{x02AFD}}}%
}}
\CustomizeMathJax{\newcommand{\nvarparallelinv}{%
    \mathrel{\LWRoverlaysymbols{-}{\unicode{x244A}}}%
}}
%

\CustomizeMathJax{\newcommand{\coloneq}{\mathrel{\unicode{x02254}}}}
\CustomizeMathJax{\newcommand{\eqcolon}{\mathrel{\unicode{x02255}}}}
%
\CustomizeMathJax{\newcommand{\VDash}{\mathrel{\unicode{x22AB}}}}

%
\CustomizeMathJax{\newcommand{\preceqq}{\mathrel{\unicode{x02AB3}}}}
\CustomizeMathJax{\newcommand{\succeqq}{\mathrel{\unicode{x02AB4}}}}
%

\CustomizeMathJax{\newcommand{\nprecsim}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x0227E}}}%
}}
\CustomizeMathJax{\newcommand{\nsuccsim}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x0227F}}}%
}}
\CustomizeMathJax{\newcommand{\nlesssim}{\mathrel{\unicode{x02274}}}}
\CustomizeMathJax{\newcommand{\ngtrsim}{\mathrel{\unicode{x02275}}}}
%

\CustomizeMathJax{\newcommand{\nsubset}{\mathrel{\unicode{x02284}}}}
\CustomizeMathJax{\newcommand{\nsupset}{\mathrel{\unicode{x02285}}}}
\CustomizeMathJax{\newcommand{\notni}{\mathrel{\unicode{x220C}}}}
\CustomizeMathJax{\let\notowns\notni}
%
\CustomizeMathJax{\newcommand{\nlessapprox}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x02A85}}}%
}}
\CustomizeMathJax{\newcommand{\ngtrapprox}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x02A86}}}%
}}
%
\CustomizeMathJax{\newcommand{\npreccurlyeq}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x0227C}}}%
}}
```

```
\CustomizeMathJax{\newcommand{\nsucccurlyeq}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x0227D}}}%
}}
\CustomizeMathJax{\newcommand{\ngtrless}{\mathrel{\unicode{x02279}}}}
\CustomizeMathJax{\newcommand{\nlessgtr}{\mathrel{\unicode{x2278}}}}
\CustomizeMathJax{\newcommand{\nbumpeq}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x0224F}}}%
}}
\CustomizeMathJax{\newcommand{\nBumpeq}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x0224E}}}%
}}
%
\CustomizeMathJax{\newcommand{\nbacksim}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x0223D}}}%
}}
\CustomizeMathJax{\newcommand{\nbacksimeq}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x022CD}}}%
}}
\CustomizeMathJax{\newcommand{\nasymp}{\mathrel{\unicode{x226D}}}}
\CustomizeMathJax{\newcommand{\nequiv}{\mathrel{\unicode{x2262}}}}
\CustomizeMathJax{\newcommand{\napprox}{\mathrel{\unicode{x2249}}}}
%
\CustomizeMathJax{\newcommand{\nll}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x0226A}}}%
}}
\CustomizeMathJax{\newcommand{\ngg}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x0226B}}}%
}}
\CustomizeMathJax{\newcommand{\nthickapprox}{%
    \mathrel{\LWRoverlaysymbols{/}{{\mathbf{\unicode{x02248}}}}}%
}}
\CustomizeMathJax{\newcommand{\napproxeq}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x0224A}}}%
}}
\CustomizeMathJax{\newcommand{\nprecapprox}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x02AB7}}}%
}}
\CustomizeMathJax{\newcommand{\nsuccapprox}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x02AB8}}}%
}}
\CustomizeMathJax{\newcommand{\npreceqq}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x02AB3}}}%
}}
\CustomizeMathJax{\newcommand{\nsucceqq}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x02AB4}}}%
}}
\CustomizeMathJax{\newcommand{\nsimeq}{\mathrel{\unicode{x02244}}}}
%
\CustomizeMathJax{\newcommand{\nSubset}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x022D0}}}%
}}
\CustomizeMathJax{\newcommand{\nSupset}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x022D1}}}%
}}
\CustomizeMathJax{\newcommand{\nsqsubseteq}{\mathrel{\unicode{x022E2}}}}
\CustomizeMathJax{\newcommand{\nsqsupseteq}{\mathrel{\unicode{x022E3}}}}
%
\CustomizeMathJax{\newcommand{\coloneqq}{\mathrel{\unicode{x02254}}}}
\CustomizeMathJax{\newcommand{\eqqcolon}{\mathrel{\unicode{x02255}}}}
\CustomizeMathJax{\newcommand{\Coloneqq}{\mathrel{\unicode{x02A74}}}}
```

```
\CustomizeMathJax{\newcommand{\Coloneq}{\mathrel{\unicode{x2237}-}}}
\CustomizeMathJax{\newcommand{\Eqcolon}{\mathrel{-\unicode{x2237}}}}
%
\CustomizeMathJax{\newcommand{\lvec}[1]{%
    \mathord{\overset{\unicode{x02190}}{#1}}%
}}
\CustomizeMathJax{\newcommand{\lrvec}[1]{%
    \mathord{\overset{\unicode{x2194}}{#1}}%
}}
\CustomizeMathJax{\newcommand{\harpoonacc}[1]{%
    \mathord{\overset{\unicode{x021C0}}{#1}}%
}}
\CustomizeMathJax{\newcommand{\lharpoonacc}[1]{%
    \mathord{\overset{\unicode{x021BC}}{#1}}%
}}
\CustomizeMathJax{\newcommand{\lrharpoonacc}[1]{%
    \mathord{\overset{\unicode{x0294E}}{#1}}%
}}
\CustomizeMathJax{\newcommand{\barbar}[1]{\mathord{\overset{=}{#1}}}}
\CustomizeMathJax{\newcommand{\bartilde}[1]{\mathord{\overset{\simeq}{#1}}}}
\CustomizeMathJax{\newcommand{\barhat}[1]{\mathord{\hat{\bar{#1}}}}}
\CustomizeMathJax{\newcommand{\tildebar}[1]{\mathord{\overset{\eqsim}{#1}}}}
\CustomizeMathJax{\newcommand{\tildetilde}[1]{\mathord{\overset{\approx}{#1}}}}
\CustomizeMathJax{\newcommand{\tildehat}[1]{\mathord{\hat{\tilde{#1}}}}}
\CustomizeMathJax{\newcommand{\hatbar}[1]{\mathord{\bar{\hat{#1}}}}}
\CustomizeMathJax{\newcommand{\hattilde}[1]{\mathord{\tilde{\hat{#1}}}}}
\CustomizeMathJax{\newcommand{\hathat}[1]{\mathord{\hat{\hat{#1}}}}}
\CustomizeMathJax{\newcommand{\cdotB}{\mathord{\boldsymbol{\cdot}}}}
\CustomizeMathJax{\newcommand{\cdotBB}{\mathord{\unicode{x2022}}}}
\CustomizeMathJax{\newcommand{\circS}{\boldsymbol{\circ}}}
\CustomizeMathJax{\newcommand{\bulletSSS}{\bullet}}
\CustomizeMathJax{\newcommand{\bulletSS}{\mathord{\unicode{x025CF}}}}
\CustomizeMathJax{\newcommand{\bulletS}{\mathord{\unicode{x02B24}}}}
\CustomizeMathJax{\newcommand{\primeS}{\prime}}
\CustomizeMathJax{\newcommand{\invamp}{\mathbin{\unicode{x0214B}}}}
```

`lwarp_mathjax.txt` adds `\left`/`\right` support for delimiters.

```
\CustomizeMathJax{\newcommand{\Lbag}{\mathopen{\large\unicode{x027C5}}}}
\CustomizeMathJax{\newcommand{\Rbag}{\mathclose{\large\unicode{x027C6}}}}
\CustomizeMathJax{\newcommand{\circledless}{\mathrel{\unicode{x029C0}}}}
\CustomizeMathJax{\newcommand{\circledgtr}{\mathrel{\unicode{x029C1}}}}
\CustomizeMathJax{\newcommand{\circledbslash}{\mathbin{\unicode{x029B8}}}}

\CustomizeMathJax{\newcommand{\lJoin}{\mathrel{\unicode{x22C9}}}}
\CustomizeMathJax{\newcommand{\rJoin}{\mathrel{\unicode{x22CA}}}}
\CustomizeMathJax{\newcommand{\lrJoin}{\mathrel{\unicode{x2A1D}}}}

\CustomizeMathJax{\newcommand{\lrtimes}{\mathrel{\unicode{x2A1D}}}}
\CustomizeMathJax{\newcommand{\Diamondblack}{\mathord{\unicode{x025C6}}}}
\CustomizeMathJax{\newcommand{\nplus}{%
    \mathrel{\LWRoverlaysymbols{+}{\unicode{x02229}}}%
}}
\CustomizeMathJax{\newcommand{\nsqsubset}{%
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x0228F}}}%
}}
\CustomizeMathJax{\newcommand{\nsqsupset}{%
```

```
    \mathrel{\LWRoverlaysymbols{/}{\unicode{x02290}}}%
}}
\CustomizeMathJax{\newcommand{\dasharrow}{\mathrel{\unicode{x021E2}}}}
\CustomizeMathJax{\newcommand{\leftsquigarrow}{\mathrel{\unicode{x021DC}}}}
\CustomizeMathJax{\newcommand{\ntwoheadrightarrow}{\mathrel{\unicode{x02900}}}}
\CustomizeMathJax{\newcommand{\ntwoheadleftarrow}{\mathrel{\unicode{x02B34}}}}
\CustomizeMathJax{\newcommand{\boxast}{\mathbin{\unicode{x029C6}}}}
\CustomizeMathJax{\newcommand{\boxbslash}{\mathbin{\unicode{x29C5}}}}
\CustomizeMathJax{\newcommand{\boxbar}{\mathbin{\unicode{x025EB}}}}
\CustomizeMathJax{\newcommand{\boxslash}{\mathbin{\unicode{x029C4}}}}

\CustomizeMathJax{\newcommand{\varclubsuit}{\mathord{\unicode{x02667}}}}
\CustomizeMathJax{\newcommand{\vardiamondsuit}{\mathord{\unicode{x02666}}}}
\CustomizeMathJax{\newcommand{\varheartsuit}{\mathord{\unicode{x02665}}}}
\CustomizeMathJax{\newcommand{\varspadesuit}{\mathord{\unicode{x02664}}}}

\CustomizeMathJax{\newcommand{\Nearrow}{\mathrel{\unicode{x021D7}}}}
\CustomizeMathJax{\newcommand{\Searrow}{\mathrel{\unicode{x021D8}}}}
\CustomizeMathJax{\newcommand{\Nwarrow}{\mathrel{\unicode{x021D6}}}}
\CustomizeMathJax{\newcommand{\Swarrow}{\mathrel{\unicode{x021D9}}}}
\CustomizeMathJax{\newcommand{\Top}{\mathord{\unicode{x02AEA}}}}
\CustomizeMathJax{\newcommand{\Bot}{\mathord{\unicode{x02AEB}}}}

\CustomizeMathJax{\newcommand{\leadstoext}{\mathrel{\unicode{xFF5E}}}}

\CustomizeMathJax{\newcommand{\sqcupplus}{%
    \mathbin{\LWRoverlaysymbols{+}{\unicode{x02294}}}%
}}
\CustomizeMathJax{\newcommand{\sqcapplus}{%
    \mathbin{\LWRoverlaysymbols{+}{\unicode{x02293}}}%
}}

\CustomizeMathJax{\newcommand{\dlb}{\mathopen{\unicode{x027E6}}}}
\CustomizeMathJax{\newcommand{\drb}{\mathopen{\unicode{x027E7}}}}

\CustomizeMathJax{\newcommand{\varg}{g}}
\CustomizeMathJax{\newcommand{\vary}{y}}
\CustomizeMathJax{\newcommand{\varv}{v}}
\CustomizeMathJax{\newcommand{\varw}{w}}

\CustomizeMathJax{\newcommand{\nexistsAlt}{\mathord{\unicode{x02204}}}}
\CustomizeMathJax{\newcommand{\existsAlt}{\mathord{\unicode{x02203}}}}
\CustomizeMathJax{\newcommand{\forallAlt}{\mathord{\unicode{x02200}}}}
\CustomizeMathJax{\newcommand{\emptysetAlt}{\mathord{\unicode{x02205}}}}

\CustomizeMathJax{\newcommand{\uppartial}{%
    \mathord{\unicode{x02202}}%
}}% not upright

\CustomizeMathJax{\let\varmathbb\mathbb}
\CustomizeMathJax{\let\vmathbb\mathbb}
\CustomizeMathJax{\let\vvmathbb\mathbb}

\CustomizeMathJax{\let\smallprod\prod}
\CustomizeMathJax{\let\smallsum\sum}
\CustomizeMathJax{\let\smallcoprod\coprod}

\CustomizeMathJax{\newcommand{\openbox}{\mathord{\unicode{x25FD}}}}
\CustomizeMathJax{\let\textsquare\openbox}
```

```
\CustomizeMathJax{\let\varemptyset\emptyset}
%
% for newpxmath:
\CustomizeMathJax{\newcommand{\mathsterling}{\mathord{\unicode{x000A3}}}}
\CustomizeMathJax{\newcommand{\mathcent}{\mathord{\unicode{x000A2}}}}

\end{warpMathJax}
```

File 587 **lwarp-common-mathjax-nonunicode.sty**

§ 696 Package

common-mathjax-nonunicode

(*Emulates or patches code by* Daniel Flipo, Michael Sharpe.)

Pkg lwarp-common-mathjax-nonunicode

Common code used by newpxmath, newtxmath, newtxsf, kpfonts-otf for MathJax. These are symbols not found in Unicode.

Factored from lwarp-common-mathjax-newpxtxmath.

for HTML output:

```
\ProvidesPackage{lwarp-common-mathjax-nonunicode}[2020/09/20]
```

For MathJax:

```
\LWR@origRequirePackage{lwarp-common-mathjax-overlaysymbols}

\begin{warpMathJax}
\CustomizeMathJax{\newcommand{\mmapsto}{\mathrel{\unicode{x021A6}}}}
\CustomizeMathJax{\let\mmapstochar\mmapsto}
\CustomizeMathJax{\newcommand{\longmmapsto}{\mathrel{\unicode{x021A6}}}}
\CustomizeMathJax{\newcommand{\mmappedfrom}{\mathrel{\unicode{x021A4}}}}
\CustomizeMathJax{\let\mmappedfromchar\mmappedfrom}
\CustomizeMathJax{\newcommand{\longmmappedfrom}{\mathrel{\unicode{x021A4}}}}
\CustomizeMathJax{\let\mmapsfrom\mmappedfrom}% from kpfonts-otf
\CustomizeMathJax{\let\longmmapsfrom\longmmappedfrom}% from kpfonts-otf

\CustomizeMathJax{\newcommand{\Mmapsto}{\mathrel{\unicode{x02907}}}}
\CustomizeMathJax{\let\Mmapstochar\Mmapsto}
\CustomizeMathJax{\newcommand{\Longmmapsto}{\mathrel{\unicode{x027FE}}}}
\CustomizeMathJax{\newcommand{\Mmappedfrom}{\mathrel{\unicode{x02906}}}}
\CustomizeMathJax{\let\Mmappedfromchar\Mmappedfrom}
\CustomizeMathJax{\newcommand{\Longmmappedfrom}{\mathrel{\unicode{x027FD}}}}
\CustomizeMathJax{\let\Mmapsfrom\Mmappedfrom}% from kpfonts-otf
\CustomizeMathJax{\let\Longmmapsfrom\Longmmappedfrom}% from kpfonts-otf
%
\CustomizeMathJax{\newcommand{\boxright}{%
    \mathrel{\unicode{x025A1}\!\unicode{x02192}}%
}}
\CustomizeMathJax{\newcommand{\boxleft}{%
    \mathrel{\unicode{x02190}\!\unicode{x025A1}}%
}}
\CustomizeMathJax{\newcommand{\boxdotright}{%
    \mathrel{\unicode{x022A1}\!\unicode{x02192}}%
}}
\CustomizeMathJax{\newcommand{\boxdotleft}{%
    \mathrel{\unicode{x02190}\!\unicode{x022A1}}%
}}

```

```
\CustomizeMathJax{\newcommand{\Diamondright}{%
    \mathrel{\unicode{x025C7}\!\unicode{x02192}}%
}}
\CustomizeMathJax{\newcommand{\Diamondleft}{%
    \mathrel{\unicode{x02190}\!\unicode{x025C7}}%
}}
\CustomizeMathJax{\newcommand{\Diamonddotright}{%
    \mathrel{\unicode{x027D0}\!\unicode{x02192}}%
}}
\CustomizeMathJax{\newcommand{\Diamonddotleft}{%
    \mathrel{\unicode{x02190}\!\unicode{x027D0}}%
}}

\CustomizeMathJax{\newcommand{\boxRight}{%
    \mathrel{\unicode{x025A1}\!\unicode{x021D2}}%
}}
\CustomizeMathJax{\newcommand{\boxLeft}{%
    \mathrel{\unicode{x021D0}\!\unicode{x025A1}}%
}}
\CustomizeMathJax{\newcommand{\boxdotRight}{%
    \mathrel{\unicode{x022A1}\!\unicode{x021D2}}%
}}
\CustomizeMathJax{\newcommand{\boxdotLeft}{%
    \mathrel{\unicode{x021D0}\!\unicode{x022A1}}%
}}

\CustomizeMathJax{\newcommand{\DiamondRight}{%
    \mathrel{\unicode{x025C7}\!\unicode{x021D2}}%
}}
\CustomizeMathJax{\newcommand{\DiamondLeft}{%
    \mathrel{\unicode{x021D0}\!\unicode{x025C7}}%
}}
\CustomizeMathJax{\newcommand{\DiamonddotRight}{%
    \mathrel{\unicode{x027D0}\!\unicode{x021D2}}%
}}
\CustomizeMathJax{\newcommand{\DiamonddotLeft}{%
    \mathrel{\unicode{x021D0}\!\unicode{x027D0}}%
}}
\CustomizeMathJax{\newcommand{\Diamonddot}{\mathrel{\unicode{x027D0}}}}

\CustomizeMathJax{\newcommand{\circleright}{%
    \mathrel{\unicode{x025CB}\!\unicode{x02192}}%
}}
\CustomizeMathJax{\newcommand{\circleleft}{%
    \mathrel{\unicode{x02190}\!\unicode{x025CB}}%
}}
\CustomizeMathJax{\newcommand{\circledotright}{%
    \mathrel{\unicode{x02299}\!\unicode{x02192}}%
}}
\CustomizeMathJax{\newcommand{\circledotleft}{%
    \mathrel{\unicode{x02190}\!\unicode{x02299}}%
}}
\CustomizeMathJax{\let\circleddotright\circledotright}
\CustomizeMathJax{\let\circleddotleft\circledotleft}

\CustomizeMathJax{\newcommand{\multimapinv}{\mathrel{\unicode{x027DC}}}}
\CustomizeMathJax{\newcommand{\multimapboth}{\mathrel{\unicode{x029DF}}}}
\CustomizeMathJax{\newcommand{\multimapdot}{{\mathrel{-\!\bullet}}}}
\CustomizeMathJax{\newcommand{\multimapdotinv}{\mathrel{\bullet\!-}}}
\CustomizeMathJax{\newcommand{\multimapdotboth}{%
```

```
    \mathrel{{\bullet\!\!-\!\!\bullet}}%
}}
\CustomizeMathJax{\newcommand{\multimapdotbothA}{\mathrel{\unicode{x022B6}}}}
\CustomizeMathJax{\newcommand{\multimapdotbothB}{\mathrel{\unicode{x22B7}}}}

\CustomizeMathJax{\newcommand{\multimapbothvert}{%
    \mathrel{\overset{\unicode{x025CB}}{\underset{\unicode{x025CB}}{|}}}%
}}
\CustomizeMathJax{\newcommand{\multimapdotbothvert}{%
    \mathrel{\overset{\unicode{x025CF}}{\underset{\unicode{x025CF}}{|}}}%
}}
\CustomizeMathJax{\newcommand{\multimapdotbothBvert}{% bug in kpfonts-otf
    \mathrel{\overset{\unicode{x025CF}}{\underset{\unicode{x025CB}}{|}}}%
}}
\CustomizeMathJax{\newcommand{\multimapdotbothAvert}{% bug in kpfonts-otf
    \mathrel{\overset{\unicode{x025CB}}{\underset{\unicode{x025CF}}{|}}}%
}}

\CustomizeMathJax{\newcommand{\bignplus}{%
    \mathop{\LWRoverlaysymbols{\unicode{xFF0B}}{\unicode{x22C2}}}%
}}
\CustomizeMathJax{\let\bigcapplus\bignplus}
\CustomizeMathJax{\let\capplus\bignplus}% from kpfonts-otf

\CustomizeMathJax{\newcommand{\bigsqcapplus}{%
    \mathop{\LWRoverlaysymbols{\unicode{xFF0B}}{\unicode{x2A05}}}
}}
\CustomizeMathJax{\let\sqcapplus\bigsqcapplus}% from kpfonts-otf

\CustomizeMathJax{\newcommand{\bigsqcupplus}{%
    \mathop{\LWRoverlaysymbols{\unicode{xFF0B}}{\unicode{x2A06}}}
}}
\CustomizeMathJax{\let\sqcupplus\bigsqcupplus}% from kpfonts-otf

\CustomizeMathJax{\newcommand{\parallelslant}{\mathrel{\unicode{x02AFD}}}}
\CustomizeMathJax{\newcommand{\parallelbackslant}{%
    \mathrel{\unicode{x0005C}\!\!\unicode{x0005C}}%
}}

\CustomizeMathJax{\newcommand{\Eqqcolon}{\mathrel{=\!\unicode{x2237}}}}
\CustomizeMathJax{\let\eqqColon\Eqqcolon}% for kpfonts-otf
\CustomizeMathJax{\newcommand{\dashColon}{\mathrel{-\unicode{x2237}}}}
\CustomizeMathJax{\newcommand{\Colondash}{\mathrel{\unicode{x2237}-}}}

\CustomizeMathJax{\newcommand{\colonapprox}{\mathrel{:\approx}}}
\CustomizeMathJax{\newcommand{\colonsim}{\mathrel{:\sim}}}
\CustomizeMathJax{\newcommand{\Colonapprox}{%
    \mathrel{\unicode{x2237}\!\approx}%
}}
\CustomizeMathJax{\newcommand{\Colonsim}{\mathrel{\unicode{x2237}\!\sim}}}

\CustomizeMathJax{\newcommand{\strictif}{%
    \mathrel{\unicode{x0297D}}%
}}% right fish tail
\CustomizeMathJax{\newcommand{\strictfi}{%
    \mathrel{\unicode{x0297C}}%
}}% left fish tail
\CustomizeMathJax{\newcommand{\strictiff}{%
    \mathrel{\unicode{x0297C}\!\!\unicode{x0297D}}%
}}% left/right fish tails
```

```
\CustomizeMathJax{\newcommand{\circledwedge}{%
    \mathbin{\LWRoverlaysymbols{\unicode{x025EF}}{\unicode{x02227}}}%
}}
\CustomizeMathJax{\newcommand{\circledvee}{%
    \mathbin{\LWRoverlaysymbols{\unicode{x025EF}}{\unicode{0x02228}}}%
}}
\CustomizeMathJax{\newcommand{\circledbar}{\mathbin{\unicode{x029B6}}}}

\CustomizeMathJax{\newcommand{\openJoin}{%
    \mathrel{\unicode{x2AA4}}%
}}% overlapping ><
\CustomizeMathJax{\newcommand{\opentimes}{%
    \mathrel{\unicode{x2AA4}}%
}}% overlapping ><

\CustomizeMathJax{\newcommand{\VvDash}{\mathrel{\unicode{x22AA}}}}

\CustomizeMathJax{\newcommand{\lambdabar}{%
    \mathord{\LWRoverlaysymbols{\raise{.5ex}{-}}{\lambda}}%
}}

\CustomizeMathJax{\newcommand{\lambdaslash}{\mathord{\unicode{x019B}}}}

\CustomizeMathJax{\newcommand{\Wr}{%
    \mathbin{\unicode{x02240}\!\unicode{x02240}}%
}}

\CustomizeMathJax{\newcommand{\dashleftrightarrow}{%
    \mathrel{\unicode{x021E0}\!\unicode{x021E2}}%
}}
\CustomizeMathJax{\let\leftrightdasharrow\dashleftrightarrow}% for kpfonts-otf

\end{warpMathJax}
```

File 588 **lwarp-common-mathjax-overlaysymbols.sty**

§ 697 Package

common-mathjax-overlaysymbols

Pkg lwarp-common-mathjax-overlaysymbols

Common code used by a number of packages to overlay two symbols for MathJax.

for HTML output:

```
\ProvidesPackage{lwarp-common-mathjax-overlaysymbols}[2020/08/17]
```

\LWRoverlaysymbols {⟨*symbol*⟩} {⟨*symbol*⟩}

Overlays one symbol over another.

```
\begin{warpMathJax}

\CustomizeMathJax{\newcommand{\LWRoverlaysymbols}[2]{%
    \mathord{%
        \smash{%
            \mathop{#2\strut}%
            \limits^{\smash{\lower3ex{#1}}}%
        }%
        \strut%
    }%
```

```
}}

\end{warpMathJax}
```

Change History

§ 698 ## Chg Hist

For the most recent changes, see page 1328.

v0.0.895
General: maybemath: Added. . . . 928
v0.10
General: 2016/03/08 Initial version 1
v0.11
General: 2016/03/11 1
Added section: Operating-System portability. 225
Added section: Selecting the operating system. 115
Test Suite: MS-Windows in README.txt 1
Test Suite: limages and index in README.txt 1
v0.12
\LWR@newhtmlfile: Bugfix: TOC with numbered files. 383
General: 2016/03/14 1
Global: Uses \p@(type) in float captions. 1
Test Suite: Sub-figures 1
v0.13
\CaptionSeparator: Fix for newer babel package. 507
\LWR@LwarpStart: \up and \fup . . 402
General: 2016/03/24 1
Fix dollar-redefined bug for newer package. 1161
Removed package: subfig 1
Test Suite: Ordinals, Subcaption . 1
v0.14
\LWR@htmlsectionfilename: Fix: Links to home page. 337
General: 2016/03/31 1
floatrow: Added. 795
Docs: Commands for a successful HTML conversion. . 119
Docs: Commands into a warpprint environment. . . . 116
Docs: Newclude limitations. . . 170
Docs: Table: Cross-referencing data structures. 490
Docs: Table: Float data structures. 503
Docs: Trademarks section. . . . 197
Docs: Troubleshooting cross-references. 192
Test Suite: Assigned cleveref name for Test Float. 1
Test Suite: Floatrow 1
v0.15
General: 2016/04/06 1
Added. 799
Ampersand (&): Fixed handling when passed as an argument. 438
Docs: Added warning icons for items needing special attention. 200
Docs: Clarify print/HTML output. 115
Docs: Moved the supported features table to the introduction. 66
Files: lwarp_formal.css added. . . 1
Fix: steps counter 799
Fixed & handling. 797
Test Suite: test_suite_formal.css file added. 1
v0.16
General: 2016/04/11 1
\titlingpage: Improved print-output spacing. 410
xfrac: Adjusted for the use of any font: 1226
Added XeLaTeX, LuaLaTeX support. 201
Docs: Font and UTF-8 support. 100
Docs: Moved location of \usepackage{lwarp}. 102
Docs: Text not converting. . . . 192
Lwarp no longer selects fonts. 100, 235
Removed package: suffix 1
Test Suite: Improved titlingpage. 410
Test Suite: Lwarp no longer selects fonts. 1
Test Suite: Supports XeLaTeX, LuaLaTeX. 1
v0.17
\LWR@htmlsectionfilename: Fix: Links when entire doc is one HTML page. 337
General: 2016/04/14 1
mdframed: Added. 929
Test Suite: Fix: Print-version front-matter page numbers. . . 1
Test Suite: Mdframed 1
v0.18
\LWR@myshorttoc: Reorganize \HomeHTMLFilename logic. . . . 511

\LWR@newhtmlfile: sideTOC after title, improving responsive design. 382
\LWR@requesttoc: Reorganize \HomeHTMLFilename logic. . . . 404
\LWR@subhyperref: Improved HTML output linebreaks. 500
\LWR@subhyperrefclass: Improved HTML output linebreaks. . . . 500
\LWR@subinlineimage: Suppress extra space. 501
\hspace: \hspace supported. 603
General: 2016/05/19 1
graphics: Add: SVG file extension. 831
graphics: Fix: \linewidth, \textwidth, \textheight inside a minipage. 831
graphics: Improved HTML output linebreaks. 831
graphics: em, ex, %, px dimensions preserved. 831
File: lwarp.css: Improved TOC outline display. 1
Files: lwarp.css and lwarp_formal.css: Improved responsive design. 1
Microtype disabled during HTML generation 236
PDF Unicode input characters. . 218
Test Suite: Verse package 1
lateximage: pdfcrop: --hires added. 562
Reorganize \HomeHTMLFilename logic. 562
Suppress extra space. 562
verse: Supports verse, memoir packages. 1201
minipage: Fix: \linewidth, \textwidth, \textheight inside a minipage. 582
v0.19
\HTMLFilename: Docs: Escape filename underscores. 336
\HomeHTMLFilename: Docs: Escape filename underscores. 336
\LWR@LwarpStart: Enabled \\ equal to \newline. 401
\LWR@doequation: MathJax support. 550
\LWR@doubledollar: MathJax support. 543
\LWR@filestart: lwarp_mathjax.txt loaded. 398
\LWR@minipagestartpars: Suppresses paragraph tags between minipages. 602
\LWR@subsingledollar: MathJax support. 541
\LateximageFontSizeName: Add: User-adjustable math/lateximage font size. . . 559
\hspace: Fix: \hspace length computations. 603
\minipagefullwidth: Added: No width tag for the next minipage in HTML. 581
\warpHTMLonly: Added. 233
\warpprintonly: Replaces \rowprintedonly. 233
\xfracHTMLfontsize: Added. . . 1225
General: 2016/06/08 1
css for table note item. 1158
MathJax support added. 547, 554, 555
multirow: Added optional args. . 960
xcolor: Supports colored \rule. 1217
Adapts to tikz version. 1161
Avoids MathJax. 535
cleveref: Loaded \AtEndPreamble. 578
Docs: Math options. 102
Docs: Table: Cross-referencing data structures, updated. . . . 490
File: lwarp.css: tnoteitemheader added. 1
File: lwarp_mathjax.txt added. 1
Introduction: MathJax support mentioned. 63
Options: mathsvg and mathjax 228
titleps: null \pagestyle and \thispagestyle for HTML. . 1162
v0.20
\BlockClassSingle: Renamed from "LWR@htmldivclassline". . . . 351
\HTMLDescription: Added \NewHTMLdescription. (Renamed in v0.30.) 362
\HTMLFilename: No longer escape underscores. 336
\HomeHTMLFilename: No longer escape underscores. 336
\InlineClass: Renamed from "inlineclass". 352
\LWR@closeparagraph: \unskip extra spaces. 356
No break tags in the start/end of a tabular. 356
\LWR@endofline: Fix: \\ 602
\LWR@filestart: Adds meta description. 398
\LWR@htmldivclass: Added optional style. 350
\LWR@htmlelementclass: Added optional style. 350
\LWR@htmlsectionfilename: HTMLFilename: removed additional trailing '-', and may be empty. 337

Sections called “Index” or “index” have an underscore prepended to their filenames if no prefix. 337
\LWR@hyperindexrefsubtwo: Print mode provided in case hyperref not used. 526
\LWR@longtabledatacaptiontag: Fix: Pars in captions. 474
\LWR@section: Combined higher-level sections together into files. 389
\LWR@setOSWindows: Auto-detects operating system. 226
\LWR@subhtmlelementclass: Factored code. 349
\SetHTMLFileNumber: Add: Control file numbers. 336
\cpagerefFor: User-redefinable word for page references. . . . 728
\dotfill: Inserts an ellipsis. 602
\hfill: Inserts a \qquad. 601
\hrulefill: Inserts a short rule. . 601
\hspace: Add: Supports HTML thin breakable space. 603
\pageref: Added. 498
\tracinglwarp: Added. 248
General: 2017/02/09 1
afterpage: Added. 630
alltt: Added. 635
bookmark: Added. 675
caption and subcaption supported. 1
cleveref and referencing patches: Applied \AfterEndPreamble. . 727
draftwatermark: Added. 745
eso-pic: Added. 765
everypage: Added. 769
extramarks: Added. 770
fancyhdr: Added. 776
float: Improved float caption type handling. 792
graphics: Fix: Expands filename. 831
graphics: Fix: \linewidth in a floatrow. 831
hyperref: Additional user macros. 843
keyfloat: Added. 867
letterspace: User-interface emulated. 881
listings: Added. 891
ltcaption: Added. 903
lwarp-newproject: Added. . . . 260
microtype: User-interface emulated. 945
needspace: Added. 971
nowidow: Added. 986
placeins: Added. 1022
ragged2e: Added. 1030
setspace: Improved support. . 1055
sympytex: Added. 1132
textpos: Added. 1151
titleps: Added. 1162
titlesec: Added. 1165
titletoc: Added. 1167
titling: Improved compatibility. 1169
tocloft: Added. 1177
wallpaper: Added. 1206
wrapfig: Added. 1208
xetexko: Added. 1224
Added @, <, > columns. 431
Added single-expansion data arrays. 332
Code factored into independent lwarp_html files. 619
Docs: Examples for generating HTML file names. 113
Docs: Improved index. 1
Enhanced titling support. . . . 409
File: lwarp.css: Minor fixes for validation. 1
File: lwarpmk used to compile print, HTML, indexes, and lateximages. 1
Fix: \linewidth in a floatrow. . 798
Moved sidebar and example code to test suite. 1
Page geometry set to 6in wide with large margins. 236
Parallel versions of aux files for print/HTML. 1
Removed reliance on make, grep, gawk. 1
Tabular: \unskip extra spaces. . 431
Test Suite: HTML meta descriptions. 1
verbatim: Added. 420
BlockClass: Added optional style. 351
Renamed from "blockclass". . . 351
LWR@nestspan: Fix: Minipages inside a span. 347
v0.21
\LWR@LwarpStart: Changed lateximages to a .txt file. . . 401
\LWR@filestart: Skip title if not given. 398
\LWR@newhtmlfile: Skip title if not given. 382
\marginpar: Fixed source listing. . 369
\marginparBlock: Fixed source listing. 369
General: 2017/02/23 1
fontenc: Added. 804
lwarpmk: Fix: **lwarpmk again** for WINDOWS. 311
lwarpmk: Fix: **lwarpmk limages** for WINDOWS. 311
lwarpmk: Fix: *lwarpmk* uses lateximages text file instead of shell script. 311

Add: Errors for misplaced packages. 201
Docs: Added internet class. . . . 72
Docs: Added TeX2page, GladTeX. 72
Docs: Installing on WINDOWS. . 78
File: lwarp_tutorial.txt added. 82
v0.22
\LWR@parsebangcolumn: Added tabular ! column. 443
\LWR@parsetablecols: Unknown table column types become l. Added tabular D, !, X columns. 452
\LWR@printmccoldata: Added tabular D, !, and X columns. . 469
General: 2017/03/02 1
abstract: Added. 621
changepage: Added. 690
dcolumn: Added. 739
ftnright: Added. 814
geometry: Nullified commands. 819
layout: Added. 877
lscape: Added. 902
mcaption: Added. 929
nameref: Added. 967
nextpage: Added. 974
parskip: Added. 1007
showkeys: Added. 1057
sidecap: Added. 1059
tabularx: Added. 1134
varioref: Supported. 128
verse: Added. 1200
v0.23
\LWR@parsetablecols: Fix for vert bar column type. 452
\LWR@printmccoldata: Fix for vert bar column type. 469
General: 2017/03/02 1
v0.24
\LWR@htmlfileref: Fix: Index links while \tracinglwarp. 492
\hspace: Add: \hspace \fill converts to 2em 603
\hypertocfloat: List of floats responds to lofdepth, lotdepth. 517
General: 2017/03/15 1
floatrow: Support for subfig. . . 795
subfig: Added. 1124
tikz: For tikz v3.0.0 or later, auto-loads tikz babel library if necessary. 1161
Docs: Filename underscore. 102, 121
Fix for inline images. 1161
No longer preloads subcaption; conflicted with subfig. 240
picture: Fix for inline images. . . 579
v0.25
\LWR@loadnever: Added the ability to prevent conflicting packages. 203
\addcontentsline: Handles theorems. 510
General: 2016/03/22 1
amsthm: Added. 640
ellipsis: Added. 750
emptypage: Added. 751
framed: Added. 811
lips: Added. 890
mdframed: Help avoid hyphenation. 930
ntheorem: Added. 987
showidx: Added. 1057
theorem: Added. 1152
Basic LaTeX theorems: improved css. 421
Docs: Adds credits for patched code. 1
Docs: Testing lwarp. 188
Fix: Allows XeLaTeX and LuaLaTeX to preload graphics and graphicx. 207
v0.26
General: 2017/03/31 1
lwarp.css: Improved responsive marginpar and marginblock. 267
cutwin: Added. 738
endnotes: Added. 752
floatflt: Added. 794
footmisc: Added. 805
footnotehyper: Added. 808
footnote: Added. 806
marginfix: Added. 914
marginnote: Added. 915
mparhack: Added. 954
pagenote: Supported as-is. . . 1001
sidenotes: Added. 1059
Docs: Improved MiKTeX install instructions. 77, 78
Dollar span avoided in a lateximage. 535
Footnotes now are LaTeX boxes instead of pagenotes. 363
lateximage: Labels track page numbers of lateximages. 562
Print mode now uses a minipage of \linewidth. 562
picture: Fix for \makebox in picture. 579
v0.27
\LWR@@footnotetext: Fix for table footnote par tags. 365
General: 2017/04/04 1
lettrine: Added. 881
microtype: Fix with XeLaTeX, LuaLaTeX. 945
soul: Added. 1104
ulem: Added. 1190
Docs: Installing utilities for MacOS. 80
Docs: Limitations of saveboxes. 122

Page geometry modified to reduce line overflow. 236
v0.28
\@wrindex: Improved indexing. . . 521
\HTMLAuthor: Added \HTMLauthor. (Renamed in v0.30.) 362
\LWR@LwarpEnd: If FormatEPUB or FormatWP, no bottom nav. . . . 404
\LWR@LwarpStart: FormatWordProcessor forces single-file output. 401
\LWR@filestart: Adds HTML meta author. 398
\LWR@forcenewpage: Forces new PDF page before major environments. 343
\LWR@htmlcomment: Breaks ligatures in HTML comments. 349
\LWR@hyperindexrefsubtwo: Improved indexing. 526
\LWR@newhtmlfile: If FormatEPUB or FormatWP: skips headers, footers, nav. 382
\LWR@parsetablecols: Added L, C, R, J column types. 452
\LWR@startref: Removed space. . 495
\chapter: If EPUB, prints footnotes before each section. 395
\textup: Fixed span class. 592
General: 2017/04/14 1
glossaries: Added. 823
graphics: Adapts to graphics syntax. 831
graphics: Added. 824
tabularx: Fix for optional pos. . 1134
tabulary: Added. 1134
lwarpmk: Add: **printglossary** and **htmlglossary** commands. 311
Added boolean FormatEPUB. . . 254
Added boolean FormatWP. . . . 254
Added boolean HTMLDebugComments. 249
Added boolean HTMLMarkFloats, changed to WPMarkFloats as of v0.42. 254
Docs: Modfying lwarpmk and index processing. 189
File: lwarp_mathjax.txt: Updated CDN repository. . . . 307
Forced oneside to maintain large right margin. 236
v0.29
General: 2017/04/15 1
*.lwarpmkconf: Add: language option for config files. 267
lwarpmk.conf: Add: language option for config files. 266
graphics: Fix: Error when no optional arguments. 831
lwarpmk: Add: language option for config files. 311
Add: lwarpmklang option for lwarp. 228
Docs: Using a glossary 93
v0.30
\CSSFilename: Renamed from \NewCSS. 361
\HTMLAuthor: Renamed from \HTMLauthor. 362
\HTMLDescription: Renamed from \NewHTMLdescription. 362
\HTMLFirstPageTop: Renamed from \SetFirstPageTop. 360
\HTMLLanguage: Renamed from \MetaLanguage. 397
\HTMLPageBottom: Renamed from \SetPageBottom. 360
\HTMLPageTop: Renamed from \SetPageTop. 360
General: 2017/04/29 1
lwarp-newproject removed, and combined with lwarp. 260
lwarpmk: Add: xdyfile configuration option. 311
lwarpmk: Fix: *xindy* and *texindy* adjusted for *pdflatex*, *xelatex* and *lualatex*. 311
lwarpmk: Fix: *xindy* now used for print index generation with *latexmk*. 311
lwarpmk: language now used for both index and glossary generation. 311
File: lwarp_html.xdy renamed to lwarp.xdy. 306
Fix: *.css files only written in print mode. 267
Fix: lwarp.xdy only written in print mode. 306
Fix: lwarp_mathjax.txt: Only written in print mode. 307
Option lwarpmklang changed to IndexLanguage. 228
Option OSWindows replaces macro \warpOSwindows. . . . 229
Option xdyFilename added. . . . 228
Option *latexmk* replaces macro \UseLatexmk. 230
Options HomeHTMLFilename and HTMLFilename replace macros \HomeHTMLFilename and \HTMLFilename. 229
v0.31
General: 2017/05/15 1
keyfloat: Improved compatibility. 867
v0.32
\RequirePackage: Fix: Ignores blanks in package list. 243

General: 2016/06/09 1
glossaries: Prevent error with \glo@name not defined. 527
lwarpmk: Fix: **io.lines()** changed to **file:lines()** due to *luatex* changes. 311
v0.33
\HTMLAuthor: Fix: Provides empty default author if none given. . 362
\LWR@loadbefore: Fix: No \PackageError if already loaded. 203
\LWR@parseatcolumn: Fix: Column alignment with leftmost @. . . 442
\LWR@tabledatasinglecolumntag: Fix: Macros in tabular could cause extra data cell. 457
\LWR@vspace: Add: \vspace nullified. 605
\StartDefiningTabulars: Add: Avoids error: Misplaced alignment tab character &. 333
General: 2017/07/10 1
amsmath: Removed fleqn option. 636
fancyhdr: Fix: Optional args for \lhead, etc. 776
Add: Tabular at and bang columns now have their own HTML columns. 431
cleveref: Fix: Loaded \AtEndPreamble. 578
Fix: Incorrectly-inline math environments. 555
New handling of & to localize catcode changes. 431
v0.34
\@fnsymbol: Text symbols instead of math. 412
\InlineClass: Moved optional argument in front of mandatory. 352
\LWR@htmldivclass: Moved optional argument in front of mandatory. 350
\LWR@htmlelementclass: Moved optional argument in front of mandatory. 350
\LWR@htmlelementclassline: Moved optional argument in front of mandatory. 350
\LWR@htmlspanclass: Moved optional argument in front of mandatory. 348
\LWR@nullfonts: Improved font control. 530
\LWR@restoreorigformatting: booktabs: Works inside lateximage. 528
Improved font control. 528
\LWR@subhtmlelementclass: Moved optional argument in front of mandatory. 349
\LWR@tabledatacolumntag: booktabs: Works inside lateximage. 480
\fboxBlock: Added. 588
\makebox: Fix: Handles paren arg. 586
General: 2017/08/08 1
babel-french: Adds fixed-width HTML spaces to punctuation. 344
balance: Added. 660
booktabs: Works inside lateximage. 483, 675
boxedminipage2e: Added. . . . 678
crop: Added. 735
enumerate: Added. 759
enumitem: Added, no longer required. 760
everyshi: Added. 769
fancybox: Added. 772
fancyvrb: Added, no longer required. 779
figcaps: Added. 788
filecontents: Required. Patched for morewrites. 239
floatpag: Added. 795
flushend: Added. 800
fullpage: Added. 815
hyperxmp: Added. 852
idxlayout: Added. 854
marginfit: Added. 914
mdframed: Improved mdtheorem patch. 935
moreverb: Added. 952
paralist: Added. 1001
pdflscape: Added. 1011
pdfsync: Added. 1014
prelim2e: Added. 1024
rotfloat: Added. 1040
savetrees: Added. 1041
shadow: Added. 1056
syntonly: Added. 1133
titleps: No longer required. . . 1162
titleref: Prevented. 1165
xcolor: Added \LWR@subfcolorminipage. . 1220
xmpincl: Added. 1228
Docs: Horizontal space limitations. 1
Docs: Misplaced alignment character. 192
File: lwarp_mathjax.txt: Version change. 307
File: README.txt: updated. . . . 1
Fix: Added the eqnarray environments. 555
Improved font control. 591
Lists refactored to remove enumitem requirement. . . . 423

Verbatim refactored to remove fancyvrb requirement. 418
tabular: booktabs: Works inside lateximage. 485
lateximage: Fix: lateximage with minipage, \parbox, \makebox, \fbox, \framebox, \raisebox, \scalebox, \reflectbox. . . . 562
BlockClass: Moved optional argument in front of mandatory. 351
fminipage: Added. 588
LWR@nestspan: Fix: Minipages, BlocksClass, and lists inside a span. 347
v0.35
General: 2017/08/08 1
Fix: \textbf and related. 591
v0.36
\LWR@@footnotetext: Extra HTML source space after paragraphs. 365
Force HTML superscripts. 365
\LWR@HTMLsanitizeexpanded: Fix for babel-french. 378
\LWR@closeparagraph: Extra HTML source space after paragraphs. 356
\LWR@currenttextcolor: Fix for \rule when xcolor not loaded. 599
\LWR@nullfonts: Fix: Filenames while using MathJax. 530
\LWR@restoreorigformatting: siunitx: Improved super/subscripts in a lateximage. 528
\LWR@section: Improved spacing. 389
\LWR@stoppars: Extra HTML source space after paragraphs. 359
\LWR@subHTMLsanitize: Fix for babel-french. 377
\fbox: Fix: Uses \fboxrule and \fboxsep. 587
\framebox: Fix: Handles width and horiz position. 587
\makebox: Fix: Handles width and horiz position. 586
General: 2017/08/17 1
babel-french: Adjustements for French variants, load order, footnotes, ellipses. 344
footnote: Extra HTML source space after paragraphs. 806
siunitx: Fix for babel-french. . . 572
siunitx: Improved symbol support. 1080
transparent: Added. 1186
upref: Added. 1199
xcolor: Added \fcolorboxBlock, \colorboxBlock. 1213
xcolor: Fix: Background none in print mode. 1213
xcolor: Refactored \LWR@colorstyle. 1217
xcolor: Uses \fboxrule and \fboxsep. 1213
xcolor: \fcolorbox etc. now work inside lateximage. . . . 1213
Docs: Reorganized: Special cases and limitations. 119
Source: Improved formatting. . . 1
tabular: Fix for babel-french. . . . 485
lateximage: Footnotes appear in regular text instead of the lateximage minipage. 562
v0.37
\@include: Maintains independent aux files for HTML. 247
General: 2017/08/19 1
LaTeX accents: Added. 258
babel-french: Adjustment for load order. 344
color: Prevented. 732
siunitx: Improved symbol support. 1080
textcomp: Improved support. 1147
lwarpmk: Removes additional HTML aux files. 311
File handles reorganized. 246
v0.38
\@seccntformat: Added for appendix. 388
\ForceHTMLPage: Added. 386
\ForceHTMLTOC: Added. 387
\LWR@section: \part* starts a new HTML page, for appendix. . . . 389
Modified spacing, uses \numberline. 389
\numberline: Added trailing \quad. 516
\part: Fix with article class. 395
General: 2017/08/27 1
appendix: Added. 645
arabicfront: Added. 647
chappg: Added. 696
color: Forces xcolor as well. . . . 732
fix2col: Added. 789
fncychap: Added. 801
grffile: Added. 836
metalogo: Added. 941
nonumonpart: Added. 985
nopageno: Added. 985
pagenote: Option page disabled. 1001
realscripts: Added. 1031
relsize: Added. 1035
romanbarpagenumber: Added. 1039
romanbar: Added. 1039
scalefnt: Added. 1041
siunitx: Removed from lwarp core. 1080
textcomp: Removed from lwarp core. 1147

tocbibind: Added. 1174
xltxtra: Added. 1228
lwarpmk: Added **print1** and **html1** actions. 311
Added \markboth, \sloppy, etc. 342
Docs: Enhanced *Supported Features* table. 66
Docs: Index, tocbibind. 134
Docs: Starred sections. 130
v0.39
\@maketitle: titling version. . . . 1171
Native LaTeX version. 413
Removed minipages. . . . 413, 1171
Supports authblk with s of class oneauthor instead of tabular. 413, 1171
\AddSubtitlePublished: Added. . 414
\LWR@domulticolumn: Add: Optional vpos and # rows. . . 471
\LWR@restoreorigformatting: Appended with \appto instead of calling various macros. . . . 528
\LWR@tabledatacolumntag: Don't start a data cell if see \TabularMacro. 480
\ResumeTabular: Added. 479
\TabularMacro: Added. 479
\multicolumnrow: multirow: Added. 961
Added. 478
\printauthor: Removed minipages. 410
Supports authblk with s of class oneauthor instead of tabular. 410
\thanksmarkseries: Removed minipage footnotes. 1172
General: 2017/09/05 1
a4wide: Added. 620
a4: Added. 620
a5comb: Added. 621
addlines: Added. 630
anysize: Added. 645
authblk: Added. 654
bigdelim: Added. 671
bigstrut: Added. 673
ebook: Added. 746
fullwidth: Added. 815
midpage: Added. 946
multirow: Add: New optional vpos argument. 960
multirow: Add: Supports left/right border for bigdelim. 960
multirow: Fix: Long text argument. 960
supertabular: Added. 1130
textarea: Added. 1147
titling: Improved compatibility. 1169
titling: Removed extraneous center environments. . . . 1170
typearea: Added. 1189
xtabular: Added. 1231
zwpagelayout: Added. 1235
Docs: Reorganized tabular discussion. 161
Titlepage \published and \subtitle removed. \AddSubtitlePublished restores. 414
titlepage: Clear pending footnotes. 409
Removed minipages. 409
titlingpage: Clear pending footnotes. 1169
v0.40
\@chapcntformat: Added for tocbibind, anonchap. 389
\LWR@HTMLhline: Added. 484
\LWR@nullfonts: Fix: Long arguments for expandable command. 530
\LWR@restoreorigformatting: Improved LaTeX logos inside a lateximage. 528
Improved symbols inside a lateximage. 528
Nullified \InlineClass, etc. inside a lateximage. 528
\LWR@tabledatacolumntag: Fix for bigdelim: \ldelim, \rdelim. . 480
\chapter: Added support for quotchap. 395
\multicolumnrow: Fix: Adapts to older multirow and xparse. . . 478
\simplechapterdelim: Added for tocbibind, anonchap. 388
\underline: Added. 599
General: 2017/09/25 1
adjmulticol: Added. 629
anonchap: Added. 644
bigdelim: Improved documentation. 671
cuted: Added. 738
dblfnote: Added. 739
fnpos: Added. 802
graphics: Add: Full \graphicspath support. 831
graphics: Moved out of the lwarp core. 824
graphics: Restores \includegraphics and \DeclareGraphicsExtensions in a lateximage. 824
graphicx: Moved out of the lwarp core. 836
grffile: Directly supported. . . . 836
midfloat: Added. 945
multirow: Improved bigdelim borders. 960
pfnote: Added. 1017

quotchap: Added. 1029
sectsty: Added. 1052
stabular: Added. 1109
tabls: Added. 1134
textcomp: Additional symbols, improved XeLaTeX and LuaLaTeX support. 1147
tocbibind: Improved for \simplechapter. 1174
xfrac: No longer preloaded. . . . 240
xltxtra: Fix for \showhyphens with XeLaTeX. 1228
v0.41
\LWR@addcmidruletrim: Add: \cmidrule trims. 462
\LWR@clearmidrules: Add: \cmidrule trims. 460
\LWR@closetabledatacell: Add: Mute > for \bottomrule. 436
Fix: At/bang column with \multirow. 437
Fix: Cancel < for \multicolumn. 437
\LWR@domulticolumn: Add: \cmidrule trims. 471
Added vertical rules. 472
\LWR@nullifyNoAutoSpacing: babel-french: Fix: \NoAutoSpacing in a tabular. . 484
\LWR@parsebarcolumn: Added vertical rules. 445
\LWR@printatbang: Add: \cmidrule trims. 456
Add: Mute at and bang columns for \bottomrule. 456
\LWR@printbartag: Added vertical rules. 456
\LWR@subaddcmidruletrim: Added. 462
\LWR@subcmidrule: Add: \cmidrule trims. 460
\LWR@tabledatasinglecolumntag: Add: \cmidrule trims. 457
Add: Mute < for \bottomrule. . 457
\LWR@tabularfinishrow: Unfinished tabular rows automatically filled. 439
\mcolrowcell: Added for \multicolumrow cells. 483
General: 2017/10/07 1
booktabs: Improved rules. . . . 676
multirow: Add: \cmidrule trims. 960
multirow: Added vertical rules. . 960
multirow: Fix: < spec. 961
tabular: Fix: \NoAutoSpacing in a tabular with babel-french. . . 485
v0.42
\@ensuredmath: Improved \ensuremath. 545
\@textsubscript: Added. 599
\@textsuperscript: Added. . . . 598
\LWR@HTMLhline: If FormatWP force explicit border. 484
\LWR@addformatwpalignment: If FormatWP add explicit style for cell alignment. 464
\LWR@addrulewidth: If FormatWP force explicit border. 462
\LWR@amsmathbody: Fix: Numbering and naming AMS math environments. 560
\LWR@amsmathbodynumbered: Fix: Numbering and naming AMS math environments. 561
\LWR@doequation: If FormatWP print LaTeX expression. 550
\LWR@domulticolumn: If FormatWP add cell alignment. 473
\LWR@doubledollar: If FormatWP print LaTeX expression. . . . 543
Improved \ensuremath. 543
Improved line spacing with mathjax. 543
\LWR@floatbegin: If FormatWP add a text frame. 504
\LWR@floatend: If FormatWP add a text frame. 505
\LWR@remembertag: Fix: Numbering and naming AMS math environments. 560
\LWR@restoreorigformatting: Improved \ensuremath. . . . 529
\LWR@subaddcmidruletrim: 0pt if no rule given. 462
\LWR@subsingledollar: If FormatWP print LaTeX expression. 541
\LWR@tabledatasinglecolumntag: If FormatWP add cell alignment. 458
\LaTeX: If FormatWP use explicit style. 609
\TeX: If FormatWP use explicit style. 609
\hspace: If FormatWP add \quads. . 604
\listoffigures: Added boolean WPMarkLOFT. 513
\listoftables: Added boolean WPMarkLOFT. 514
\marginpar: If FormatWP emulate a wrapfig. 369
\marginparBlock: If FormatWP emulate a wrapfig. 369
\rule: If FormatWP add \quads. . . 607
\tableofcontents: Added boolean WPMarkTOC. 513
\underline: If FormatWP, use explicit styles for \underline, etc. 599
General: 2017/10/30 1
\textbf and related: If FormatWP, use explicit styles for \textsc, etc. 591

algorithmicx: If FormatWP add \quads. 634
booktabs: If FormatWP force explicit border. 676
epigraph: If FormatWP add HTML styles. 760
fancybox: If FormatWP add HTML styles. 772
floatflt: Added width. 794
graphics: Fix: Class key. 828
graphics: Fix: Filename expansion. 831
graphics: If FormatWP, use explicit size. 829
keyfloat: If FormatWP add explicit HTML style. 872
moreverb: Simplified formatting of listings. 952
multirow: If FormatWP add cell alignment. 960
overpic: Added. 1000
realscripts: Fix for subscripts in a lateximage. 1031
sidenotes: If FormatWP add explicit HTML style. 1060
siunitx-v2: Improved \ensuremath. 1080
soul: If FormatWP, add explicit styles. 1104
textcomp: Improved \interrobangdown. 1147
wrapfig: If FormatWP add explicit HTML style. 1209
Added boolean WPMarkLOFT. . . 255
Added boolean WPMarkMath. . . 255
Added boolean WPMarkMinipages. 254
Added boolean WPMarkTOC. . . . 254
Added boolean WPTitleHeading. 255
Docs: Added support page. . . . 2
Docs: Improper \prevdepth. . . 192
Docs: Reorganized math limitations 147
File: lwarp_mathjax.txt: Updated siunitx script. 307
Fix: Numbering and naming AMS math environments. 559
If FormatWP, shift section headings. 255
tabbing: Added. 421
lateximage: Fix: Numbering and naming AMS math environments. 562
center: If FormatWP use explicit text-align. 567
minipage: Added boolean WPMarkMinipages. 584
If FormatWP add a text frame. . . 583
eqnarray: Fix: Numbering and naming AMS math environments. 556
If FormatWP print LaTeX expression. 555
LWR@BlockClassWP: Added to factor code. 352
LWR@figcaption: If FormatWP forces italic captions. 508
v0.43
\LWR@domulticolumn: Fix for vertical rules. 472
Fix: Multicolumn trim. 472
\LWR@href: Made robust. 500
\LWR@maybeprintpendingfootnotes: Added FootnoteDepth. 368
\LWR@nolinkurl: Made robust. . . 501
\LWR@nullfonts: Fix: Nullify dollar inside filesnames. 530
\LWR@parsetablecols: Ignore spaces in col spec. 452
\LWR@section: Fix: Expansion in comparison. 390
Fix: Math in section name. 391, 394
Fix: Nullify fonts inside HTML comment. 391
\LWR@url: Made robust. 501
\TabularMacro: \newcommand instead of \relax to fix supertabular and xtab. 479
\nameref: Made robust. 498
General: 2017/11/08 1
LWR@currentautosecpage: Added. 370
breakurl: Added. 679
hyperref: Made robust. 848, 849, 851
hyperref: \Gauge added. 852
luatodonotes: Added. 907
todonotes: Added. 1183
Added FootnoteDepth. 364
Docs: HTML settings table. . . . 107
Docs: Reorganized HTML customization. 107
v0.44
\@currentlabelname: Adjustment for koma-script. 490
\HTMLTitle: Added. 362
\LWR@addformatwpalignment: Fix for multicolumn alignment if FormatWP. 464
\LWR@backgroundcolor: xcolor: Added \LWR@backgroundcolor. . . 1217
\LWR@filestart: Add \HTMLTitle. 399
Fix \HTMLAuthor. 399
\LWR@listitem: Added list and trivlist. 425
\LWR@patchlists: Added list and trivlist. 428

\LWR@strresult: Fix: \providecommand. 435
\LWR@textcurrentcolor: xcolor: Added \LWR@textcurrentcolor. . . 1216
\addcontentsline: Automatic \LWR@newfloatanchor. 510
\chapter: Add preamble for koma-script. 395
\marginparBlock: Added. 369
\nopagecolor: xcolor: Fix for \nopagecolor. 1218
\part: Add preamble for koma-script. 395
\title: Added \thetitle. 362
General: 2017/11/22 1
algorithmicx: Improved comment symbol. 634
atbegshi: Added. 651
cancel: Added. 682
changepage: Additional options. 691
easy-todo: Added. 746
fancyref: Added. 778
fixmetodonotes: Added. 791
fixme: Added. 790
fontenc: Allowed after lwarp. . . 804
hang: Added. 838
ifoddpage: Added. 855
ltxtable: Added. 903
luatodonotes: Improved. 907
lwarp-patch-komascript: Added. 1237
overpic: Fix: Groups for lateximages. 1000
pdfsync: Fixes. 1014
preview: Added. 1025
scrextend: Added. 1043
scrhack: Added. 1046
scrlayer-notecolumn: Added. . 1048
scrlayer-scrpage: Added. 1049
scrlayer: Added. 1047
section: Added. 1051
soulpos: Added. 1105
soulutf8: Added. 1106
supertabular: Fix for caption. . 1130
tikz: Fix: Groups for lateximages. 1161
tocbasic: Added. 1173
tocloft: Added \newlistentry. 1181
tocloft: Improved \newlistof. 1181
tocstyle: Added. 1182
todonotes: Improved. 1183
todo: Added. 1182
typearea: Added expert commands. 1189
watermark: Added. 1206
xcolor: Added \LWR@currenttextcolorstyle. 1216
xcolor: Added \LWR@findcurrenttextcolor. 1216
xtab: Fix for caption. 1232
Adjustment for koma-script. . . 216
AMS environments: Fix: Groups for lateximages. 637
If pdfLaTeX, require T1 and UTF-8 encoding. 218
picture: overpic: Fix: Groups for lateximages. 579
list: Added list and trivlist. . 425
LWR@nestspan: Added list and trivlist. 347
v0.45
\@currentHref: Added. 499
\@donoparitem: Modified for HTML. 423
\@item: Modified for HTML. 423
\@mklab: Modified for HTML. . . . 423
\CSSFilename: Improved filenames with underscores. 361
\LWR@LwarpStart: Fix: Lateximages on incorrect pages with MATHJAX. 402
\LWR@label@createtag: Fix: Labels with underscores. 494
\LWR@newautoidanchor: Fix: No anchor if frozen autoid. . . . 506
\LWR@nolinkurl: Fix: Underscore in URL. 501
\LWR@notmemoirloadafter: Added. 202
\LWR@printpendingmpfootnotes: Added. 368
\LWR@startref: Fix: Labels with underscores. 496
\LWR@subhyperref: Improved URLs with underscores. 500
\LWR@subhyperrefclass: Improved URLs with underscores. . . . 500
\LWR@tabledatacolumntag: Fix: Empty line between rows. . . 482
\LWR@url: Improved URLs with underscores. 501
\chapter: Add optional heading title for memoir. 395
\newpage: Added. 602
\normalmarginpar: Added. 370
\reversemarginpar: Added. . . . 370
\section: Add optional heading title for memoir. 396
\tableofcontents: Fix: Empty sidetoc. 513
Fix: Patch \AtBeginDocument. . 513
General: 2018/01/14 1
array: Added. 647
babel-french: Robust commands. 344
backref: Added. 660
breakurl: Fix: Underscore in URL. 679
changebar: Added. 689
cite: Added. 725

continue: Added. 734
endfloat: Added. 751
fancyvrb: Improvements. . 779–781
flafter: Added. 792
fltrace: Added. 800
footnpag: Added. 808
fwlw: Added. 818
graphics: Improved URLs with underscores. 831
hanging: Added. 839
hyperref: Fix: Underscore in URL. 848, 849
lwarp-patch-memoir: Added. . 1240
memhfixc: Added. 940
memoir: Added. 613
natbib: Added. 967
pagesel: Added. 1001
prettyref: Added. 1025
subfigure: Added. 1128
subfig: Fix for subcaption end tag. 1127
subfig: Fix: Math in subcaptions. 1125
textfit: Added. 1150
titleref: Added. 1165
turnthepage: Added. 1188
Allows memoir's preloaded packages. 207
Docs: Fix for double hyphens. . 80
Docs: Improved install instructions. 80
Docs: Improved MiKTEX install instructions. 77
Docs: Moved table so doesn't interfere with install docs. 76
File: lwarp_mathjax.txt: Allow MathJax inside tabbing. . . . 307
File: lwarp_mathjax.txt: Allow MathJax inside verse. 307
Fix: Empty sidetoc. 513
Improved: Robust \,, \ , and \textellipsis commands. . . 600
Separate LWR@thisautoidWP for word processor s. 506
thebibliography: Patched to emphasize titles. 527
minipage: Fix: Improper \prevdepth. 584
v0.46
\LWR@closeparagraph: Fix: Tabular empty lines. 357
\LWR@closeprevious: Fix: Stack unnesting. 342
\LWR@forcenewpage: Fix: Improper \prevdepth. 343
\LWR@lookforpackagename: Fix: Spaces in \usepackage. . . . 243
\LWR@popclose: Fix: Stack unnesting. 331
\LWR@providelength: Added. . . 220
\LWR@pushclose: Fix: Stack unnesting. 330
\LWRPrintStack: Name changed from \PrintStack. 341
General: 2018/01/23 1
LWR@tabularpardepth added. . 434
amsthm: Adapted to trivlist changes. 642
mdframed: Fixes for SVG math or lateximage in title. 932
mdframed: Fixes for footnotes. 933
ntheorem: Adapted to trivlist changes. 987
theorem: Adapt to trivlist changes. 1153, 1155
tabular: Fix: Tabular empty lines. 488
list: Fix: Stack unnesting. 426
v0.47
\LWR@HTML@caption@begin: Fix: Argument passed to \LWR@origcaption@begin. . . 509
\LWR@LwarpStart: Fix for SVG math in \nameref. 403
\LWR@WPcell: Fix: Line wrap at HTML hyphen. 463
\LWR@createautosec: Fix: Line wrap at HTML hyphen. 388
\LWR@domulticolumn: Fix: Line wrap at HTML hyphen. 473
\LWR@floatbegin: Fix: Line wrap at HTML hyphen. 504
\LWR@htmlclosecomment: Add \mbox to prevent line breaks. . 348
\LWR@label@createtag: Fix: Line wrap at HTML hyphen. 494
\LWR@newautoidanchor: Fix: Line wrap at HTML hyphen. 506
\LWR@printopenlist: Fix: Line wrap at HTML hyphen. 423
\LWR@startref: Fix: Line wrap at HTML hyphen. 495
\LWR@subsingledollar: Added SVG math image baseline adjust and em sizing. 541
\LWR@subsingledollarsvg: Fix: Line wrap at HTML hyphen. . . 539
\captionlistentry: Fix: Line wrap at HTML hyphen. 510
\hypertoc: Fix: Line wrap at HTML hyphen. 516
\hypertocfloat: Fix: Line wrap at HTML hyphen. 518
General: 2018/01/30 1
adjmulticol: Fix: Line wrap at HTML hyphen. 630
blowup: Added. 674
caption: Added. 683
changepage: Fix for pagecheck macros. 691
endheads: Added. 751

epigraph: Fix: Line wrap at HTML hyphen. 760
hanging: Fix: Line wrap at HTML hyphen. 839
hang: Fix: Line wrap at HTML hyphen. 838
keyfloat: Fix for SVG math in captions. 869
midpage: Fix: Line wrap at HTML hyphen. 946
multirow: Fix: Line wrap at HTML hyphen. 960
multitoc: Added. 962
ntheorem: Fix: Line wrap at HTML hyphen. 991
realscripts: Fix: Line wrap at HTML hyphen. 1031
scrextend: Fix: Line wrap at HTML hyphen. 1043
sectionbreak: Added. 1051
sidenotes: Fix for SVG math in captions. 1060
subfig: Fix for SVG math in captions. 1125
subfig: Fix: Support \nameref. 1124
xurl: Added. 1234
lwarpmk: *pdfcrop*: Removed hires option for improved crop accuracy. 311
lateximage: Added CSS style option. 562
Fix: Line wrap at HTML hyphen. 566
center: Fix: Line wrap at HTML hyphen. 567
minipage: Fix: Line wrap at HTML hyphen. 583
flushleft: Fix: Line wrap at HTML hyphen. 568
flushright: Fix: Line wrap at HTML hyphen. 567
enumerate: Fix: Line wrap at HTML hyphen. 427
itemize: Fix: Line wrap at HTML hyphen. 426
LWR@BlockClassWP: Fix: Line wrap at HTML hyphen. 352
v0.48
\@@@setcpageref: Fix for new v0.21 of cleveref. 728
\@@@setcref: Fix for new v0.21 of cleveref. 727
\@@@setcrefrange: Fix for new v0.21 of cleveref. 728
\@biblabel: Improved bibliography label. 527
\@item: Honors \makelabel. . . . 423
\@maketitle: Fix: Errors with IEEEtran class. 413
\LWR@LwarpStart: Adjusted space around captions. 402
\LWR@ProvidesPackageDropB: Fix: Options with braces. 246
\LWR@addtabularhrulecolor: colortbl: Added. 464
\LWR@addtabularrulecolors: colortbl: Added. 465
\LWR@closetabledatacell: colortbl: Added. 437, 438
\LWR@lookforpackagename: Fix: Parsing similar package names. 242
\LWR@newautopagelabel: Fix: TOC, LOF, LOT links. 371
\LWR@newhtmlfile: Fix: TOC, LOF, LOT links. 384
\LWR@nullfonts: Fix: \newline in title. 530
\LWR@parsedrequirepackagenames: Fix: Parsing similar package names. 241
\LWR@parsetablecols: Fix: Ignore optional tabular column arguments. 453
\LWR@restoreorigformatting: Fix: Spacing in SVG math, lateximage, Ti*k*z. 528
\LWR@section: Fix: TOC, LOF, LOT links. 394
\LWR@tabledatasinglecolumntag: colortbl: Added. 458
\LWR@textcurrentfont: Added. Improves font control. 595
\centerline: Added. 569
\l@part: Adapts to classes without \part. 518
\leftline: Added. 568
\mbox: Nullified for HTML. 585
\rightline: Added. 569
\thempfootnote: Removed \itshape. 367
General: 2018/02/14 1
acronym: Added. 628
acro: Added. 626
chapterbib: Added. 696
colortbl: Added. . . . 454, 464, 732
fancyref: Now directly supported. 778
graphics: Fix: Virtual page size limited to a group. 831, 833
hypcap: Added. 842
hypernat: Added. 843
hyperref: \texorpdfstring now uses the TEX string. 851
luatodonotes: Improved \todototoc. 907
siunitx-v2: Changes fraction to symbol. 1083, 1084
siunitx-v2: Improved SVG math. 1080, 1082
siunitx-v2: Improved color output. 1081

stfloats: Added. 1122
todonotes: Improved \todototoc. 1184
vmargin: Added. 1203
xfrac: Fix: Added groups around super/subscripts to localize LWR@nestspan changes. . . . 1226
Docs: Converting an existing document. 97
Improved font control. . . 594, 595
tabular: colortbl: Added. 486
abstract: Allow optional name. . . 415
v0.49
\LWR@addtabularcellcolor: xcolor: Added tabular row colors. . . . 467
\LWR@domulticolumn: xcolor: Added tabular row colors. . . . 473
\LWR@href: Fix: Adapt to classes. . 500
\LWR@printlength: Fix: Group printlen changes. 240
\LWR@url: Fix: Adapt to classes. . . 501
\affiliation: Fix: Adapts to classes which already provide. 408
\noalign: Fix: \noalign inside tabular. 483
General: 2018/02/19 1
amsmath: Fix: Patches for \eqref. 636
eso-pic: Fix for \AddToShipoutPicture. . . . 766
figsize: Added. 788
fnlineno: Added. 801
hypdestopt: Added. 843
hyphenat: Added. 853
lineno: Added. 888
luacolor: Added. 904
pagegrid: Added. 1000
pdfrender: Added. 1014
resizegather: Added. 1037
vertbars: Added. 1202
vwcol: Added. 1204
xcolor: Added tabular row colors. 454, 1221
Fix: Adapt to classes. 601
v0.50
\@ensuredmath: Fix: Use lateximage even if MathJax. 545
Improved SVG math alt tags. . . 545
\LWR@@footnotetext: Robustify macros. 366
\LWR@atbeginverbatim: Improved column alignment. 419
\LWR@doequation: Improved SVG math display. 551
\LWR@doubledollar: Improved SVG math alt tags. 544
Improved SVG math display. . . . 544
\LWR@htmlrefsectionfilename: Fix: SVG math in a section name. 338
\LWR@newhtmlfile: Fix: SVG math in a section name. 384
\LWR@nullfonts: Fix: \underline in sectioning file name. . . . 532
\LWR@overline: Added. 599
\LWR@subsingledollar: Fix: Use lateximage even if MathJax. 541
Improved SVG math alt tags. . . 541
\LWR@subsingledollarsvg: MD5 hash avoids duplicate SVG math. 539
\LWR@vspace: Robustify macros. . . 605
\newline: Robustify macros. . . . 602
\textsubscript: Robustify macros. 598
\textsuperscript: Robustify macros. 598
General: 2018/03/03 1
lwarp.css: Improved SVG display math centering. 267
lwarp_one_limage.txt: Added. 306
amsmath: Fix: Upright tags for SVGmath. 636
axodraw2: Added. 658
bytefield: Added. 682
dblfloatfix: Added. 739
diagbox: Added. 740
epstopdf: Added. 762
listings: Force flexible columns. 891
morefloats: Added. 952
nonfloat: Added. 985
ntheorem: Fix: Not standard nor amsthm selected. 993
pbox: Added. 1008
phfqit: Added. 1017
schemata: Added. 1042
siunitx-v2: Improved SVG math alt tags. 1082
siunitx-v2: Improved units. 1080, 1084
siunitx: Fix: Loads xcolor. . . . 1080
siunitx: Improved units. 572
xy: Added. 1234
lwarpmk: Error if lateximages.txt does not exist. 311
lwarpmk: Error if lwarpmk.conf points to lwarp. 311
lwarpmk: Improved error messages. 311
lwarpmk: MD5 hash avoids duplicate SVG math. 311
lwarpmk: Multiprocess support making lateximages. 311
AMS environments: Improved SVG math display. 637
Fix: Load fontspec if necessary. 235
Robustify macros. 595
lateximage: Fix: SVG math in a section name. 565

MD5 hash avoids duplicate SVG math. 563, 566
eqnarray: Improved SVG math display. 556
v0.51
\@ensuredmath: Hashes \ensuremath. 545
\@item: Restored list label space. . 424
\LWR@HTMLsanitizeexpanded: Fix: Escapes double quotes. 378
\LWR@LwarpStart: MathJax: Nullifies \ensuremath. 403
\LWR@addbaselinemarker: Improved SVG math baseline. 535
\LWR@atbeginverbatim: Adds vertical offset. 419
\LWR@doequation: Fix: \addcontentsline inside SVG math. Provides an autoid anchor. 551
\LWR@doubledollar: Fix: \addcontentsline inside SVG math. Provides an autoid anchor. 544
\LWR@findcurrenttextcolor: Added \LWR@findcurrenttextcolor when no xcolor. 599
\LWR@newautoidanchor: Fix: No autoid is inside a lateximage. 506
\LWR@singledollarmeasure: Fix: lateximage inside $\mathcal{AMS}$ \text. 537
Fix: Honors text font around SVG math. 537
Improved SVG math baseline. . . 537
Typeset SVG math only once during measurement. 537
\LWR@subHTMLsanitize: Fix: Escapes double quotes. 377
\LWR@subsingledollar: Fix: \ensuredmath inside SVG image. 542
\LWR@subsingledollarsvg: Fix: SVG math with enclosed lateximage. 538
SVG math baseline improved with invisible rule at corner. . 540
\LWR@textcurrentcolor: xcolor: \LWR@textcurrentcolor if xcolor not loaded. 600
\addcontentsline: Add missing support for float mechanism if necessary. 510
No anchor ID if inside SVG image. 510
\displaymathnormal: Processing for complicated display math. 553
\displaymathother: Processing for complicated display math. . . 554
General: 2018/03/24 1
MathJax: Nullifies \ensuremath. 380
lwarp_one_limage.txt: *pdftocairo* -noshrink added. . 306
afterpackage: No longer required. 238
chemfig: Added. 696
chemformula: Added. 698
chemgreek: Added. 703
chemmacros: Added. 704
chemnum: Added. 723
epstopdf-base: Added. 762
fancybox: Fix: Optional tag for \item in a span. 775
grid: Added. 837
listings: Forces cleared options. 892
ltxgrid: Added. 903
mhchem: Added. 942
tikz: Fix for \tikz macro. 1161
tikz: Fix for tikz with optional argument. 1161
titling: Fix for \thanks mark. . 1170
lwarpmk: *pdfcrop*: Restored hires option. 311
lwarpmk: *pdftocairo* -noshrink added. 311
AMS environments: Fix: \addcontentsline inside SVG math. Provides an autoid anchor. 637
Docs: tikz limitations. 157
Docs: Multiple authors and affiliations. 130
Docs: Things to avoid. 119
Docs: Updated Converting an existing document. 97
Fix: Remember original \# in case is redefined. 257
Named HTML entity used for text dollar. 535
lateximage: Added additional hashing option. 562
Fix: lateximage inside $\mathcal{AMS}$ \text. 562
Processing for complicated display math. 565
alignat: amsmath: Fix: Added. . . 639
eqnarray: Fix: \addcontentsline inside SVG math. Provides an autoid anchor. 556
LWR@displaymathother: Processing for complicated display math. 546
LWR@equationother: Processing for complicated display math. . . 546
v0.52
\@ensuredmath: Improved hashing expansion. 545
\@mpfootnotetext: Fix: Paragraph handling. 367
\CustomizeMathJax: Added. . . . 379

\LWR@addbaselinemarker:
Warnings if lwarp_baseline_marker.png is not present or if graphicx/s not loaded. 535
\LWR@customizedMathJax: Added. 379
\LWR@doequation: Fix: equation* now based on equation instead of displaymath. 551
Fix: equation* with split. . . . 550
\LWR@filenamenoblanks: Fix: \FileDepth with non-utf8 encoding. 375
\LWR@href: Fix: #, %, &, ~, _ in URL. 500
\LWR@nolinkurl: Fix: #, %, &, ~, _ in URL. 501
\LWR@nullfonts: Fix: \texorpdfstring in section names. 532
\LWR@section: Fix: Footnote numbering: Limited HTML comment if starred. 391
Fix: Footnote numbering: Use short TOC entry for HTMLDebug comments. . . . 391
\LWR@singledollarmeasure: Added user-adjustable SVG math font scaling. 538
\LWR@url: Fix: #, %, &, ~, _ in URL. . 501
\LateximageFontScale: Added user-adjustable SVG math font scaling. 559
\theHTMLTitleSeparator: Fix: \FileDepth with non-utf8 encoding. 397
General: 2018/04/01 1
breakurl: Fix: #, %, &, ~, _ in URL. 679
endfloat: Updated for v2.6. . . . 751
fancybox: Initial support for \VerbatimFootnotes. 772
fancyvrb: Initial support for \VerbatimFootnotes. 779
graphics: Added defaults. . 826, 827
graphics: Updated for v1.1a. . . . 827
graphics: Updated for v1.1b. . . . 827
hyperref: Fix: #, %, &, ~, _ in URL. 848–850
nicefrac: Added. 980
url: Added. 1199
lwarpmk: Fix: Memory overflow when spawning tasks. 311
lwarpmk: Fix: Skip image generation if from page 0. . . . 311
Changed FootnoteDepth default to \subsubsection. 364
Docs: Improved install instructions. 78
Fix: MathJax script line wraps. Reduced right margin. 236
If pdfLaTeX, allow other input encoding. 218
Restore \kill in a lateximage. 901
tabbing: Fix to allow inside lateximage. 421
lateximage: Fix for hash expansion. 563
v0.53
General: 2018/04/01 1
lwarpmk: Added **lwarpmk cleanlimages**. 311
lwarpmk: Added warning for corrupted images. 311
Docs: **lwarpmk cleanlimages**. . 94
Docs: **lwarpmk pdftohtml**. . . . 94
v0.54
\@xdlbfloat: Honor \centering, etc. in floats. 505
\LWR@afterendverbatim: Added vspace argument. 419
\LWR@atbeginverbatim: Improved column alignment. 419
\LWR@endfloatalignment: Honor \centering, etc. in floats. . . . 507
\LWR@floatalignment: Honor \centering, etc. in floats. . . . 506
\LWR@floatend: Honor \centering, etc. in floats. 505
\LateximageFontSizeName: Defaults to normalsize. 559
\centering: Added debug comment. 568
\raggedleft: Added debug comment. 568
\raggedright: Added debug comment. 568
General: 2018/04/22 1
*.lwarpmkconf: Option IndexLanguage changed to xindyLanguage. 267
*.lwarpmkconf: Option pdftotextEnc added. 267
*.lwarpmkconf: Option xdyFilename changed to xindyStyle. 267
*.lwarpmkconf: Option xindyCodepage added. 267
lwarp.css: Fix: Text-decoration-skip: auto. . . 267
lwarpmk.conf: Option IndexLanguage changed to xindyLanguage. 266
lwarpmk.conf: Option pdftotextEnc added. 266
lwarpmk.conf: Option xdyFilename changed to xindyStyle. 266
lwarpmk.conf: Option xindyCodepage added. 266
bibunits: Added. 671

chngpage: Added. 724
forest: Added. 809
glossaries: Fix when not using babel or polyglossia. 823
gridset: Added. 837
hyperref: Fix: \hyperref and \hyperlink with special chars in text. 849, 850
hyperref: Fix: \ref in \hyperref and \hyperlink caused nested link. 849, 850
lwarp-patch-memoir: Update for v3.7g. 1244
magaz: Added. 911
ragged2e: Fix: \centering, etc. 1030
textcomp: Fix for \textperthousand. 1147
tikz: Fixes for \pgfpicture, minipages, fit, align, font. . . 1161
lwarpmk: Added pdftotextenc. 311
lwarpmk: Added xindycodepage. 311
lwarpmk: Changed language to xindylanguage. 311
lwarpmk: Changed xdyfile to xindystyle. 311
lwarpmk: Improved error if configuration file does not exist. 311
lwarpmk: Increased prominence for error for an unknown command. 311
lwarpmk: Verifies HTML version exists before lwarpmk limages. 311
lwarpmk: Verifies image references before lwarpmk limages. 311
Add: pdftotextEnc. 229
Add: xindyCodepage. 228
Added early check for disallowed packages. 205
Docs: BibTeX. 132
Docs: Macros in sectioning names. 119
Never load aecompl. 205
Option IndexLanguage changed to xindyLanguage. 228
Option xdyFilename changed to xindyStyle. 228
verse: Fix: Line spacing. 417
v0.55
\@xdlbfloat: Fix: Float optional args. 505
\LWR@LwarpStart: Fix: Overfull boxes in lateximages. 401
\LWR@nullfonts: Removed extraneous space which appeared in file links. 532
\LWR@phantomsection: Fix: \ForceHTMLTOC with \phantomsection. 608
General: 2018/04/26 1
clrdblpg: Added. 730
Fix: \centering, etc. for koma-script. 504
Fix: QED symbols in lateximage. 643, 997
v0.56
\LWR@addcdashline: arydshln: Added. 463
\LWR@addmulticolvertrulecolor: Adds support for dashed vertical rules. 470
Adds support for double vertical rules. 470
\LWR@addtabularhrulecolor: Adds support for arydshln dashed rules. 464
Adds support for double \hlines and \midrules. 464
\LWR@addtabularrulecolors: Adds support for dashed vertical rules. 465
Adds support for double vertical rules. 465
\LWR@closeparagraph: Added support for parnotes. 357
\LWR@domulticolumn: Adds support for dashed vertical rules. 472
Adds support for double vertical rules. 472
\LWR@floatbegin: Adds a <class> per float package style. 504
\LWR@openparagraph: Added support for parnotes. 355
\LWR@parsebarcolumn: Adds support for double vertical rules. 445
\LWR@parsecoloncolumn: arydshln: Added. 446
\LWR@parsesemicoloncolumn: arydshln: Added. 446
\LWR@tabledatacolumntag: Fix: \morecmidrules 481
\LWR@textcurrentfont: Added span.textbf, etc. 595
General: 2018/05/12 1
*.lwarpmkconf: Records --shell-escape. 267
lwarp.css: Added div.textbf, etc. 267
lwarp.css: Added span.textbf, etc. 267
lwarpmk.conf: Records --shell-escape. 266
arydshln: Added. 431, 648
lua-check-hyphen: Added. . . . 903
paralist: Fixes for compactenum, compactitem, compactdesc. 1001
parnotes: Added. 1005
quoting: Added. 1030

tocenter: Added. 1176
underscore: Added. 1192
lwarpmk: Added `lwarpmk pdftosvg`. 311
lwarpmk: Supports `--shell-escape`. 311
Added `\thinspace`. 600
Docs: **`lwarpmk pdftosvg`**. . . . 94
`LWR@blocktextcurrentfont`: Added `div.textbf`, etc. 595
v0.57
`\BlockClassSingle`: Improved print/HTML output selection. 351
`\InlineClass`: Improved print/HTML output selection. 352
`\LWR@href`: Fix: Text catcodes. . . . 500
`\LWR@listof`: Fix: Provide `\l@name` if not defined. 514
`\LWR@singledollarmeasure`: Fix: Dynamic inline math expressions. 537
`\LWR@subhyperref`: Fix: Text catcodes. 500
`\LWR@subhyperreftext`: Fix: Text catcodes. 500
`\LWR@subsingledollar`: Fix: Dynamic inline math expressions. 542
`\LWR@subsingledollarsvg`: Fix: Dynamic inline math expressions. 539
`\LWR@vspace`: Improved print/HTML output selection. 605
`\MathImageAltText`: Added. 533
`\PackageDiagramAltText`: Added. 533
`\StartDefiningMath`: Added. . . . 333
`\boxframe`: xcolor: Fix: Colored `\boxframe`. 1221
`\colorbox`: xcolor: New system for switching print and HTML outputs. 1218
`\colorboxBlock`: xcolor: New system for switching print and HTML outputs. 1218
`\fboxBlock`: Improved print/HTML output selection. 588
`\fcolorbox`: xcolor: New system for switching print and HTML outputs. 1219
`\framebox`: Improved print/HTML output selection. 587
`\inlinemathother`: Added. 334
`\makebox`: Improved print/HTML output selection. 586
`\mbox`: Improved print/HTML output selection. 585
`\multicolumnrow`: multirow: Improved print/HTML output selection. 961
Improved print/HTML output selection. 478
`\newfloat`: rotfloat: Added float styles. 1041
rotfloat: Fix for listof sideways floats. 1041
`\parbox`: Improved print/HTML output selection. 585
`\raisebox`: Improved print/HTML output selection. 590
`\reflectbox`: Improved print/HTML output selection. 836
`\resizebox`: Improved print/HTML output selection. 836
`\rotatebox`: Improved print/HTML output selection. 834
`\rule`: Fix: Colored rules. 606
`\scalebox`: Improved print/HTML output selection. 835
`\textcolor`: xcolor: New system for switching print and HTML outputs. 1218
General: 2018/06/06 1
MathJax: Supports `\footnote`, `\footnotemark`. 380
`lwarp.css`: Added ruled, boxed, boxruled floats. 267
`lwarp.css`: Increased float vertical margins. 267
algorithm2e: Added. 630
bigdelim: Improved print/HTML output selection. 671
breakurl: Fix: Text catcodes. . . 679
colortbl: New system for switching print and HTML outputs. 732, 733
ellipsis: Added `\midwordellipsis`. 750
errata: Added. 764
float: Added float styles. 793
float: Fix: Do not pre-define `\l@name`. 793
ltablex: Added. 902
marginnote: Fix: Long optional argument. 915
multirow: Improved print/HTML output selection. 960
register: Added. 1034
subcaption: Fix: `\subref`. 849
trimclip: Added. 1186
vowel: Added. 1203
xellipsis: Added. 1223
xfrac: Improved print/HTML `\scalebox` control. 1226
xltabular: Added. 1227
xpiano: Added. 1229
lwarpmk: Improved code factoring. 311
lwarpmk: Improved error handling. 311

Docs: Recompiling *lwarpmk* or CSS files. 188
Docs: Recreating the index for lwarp source. 186
New system for switching print and HTML outputs. 251
minipage: Improved print/HTML output selection. 582
BlockClass: Improved print/HTML output selection. 351
fminipage: Improved print/HTML output selection. 588
LWR@BlockClassWP: Improved print/HTML output selection. 352
v0.58
\LWR@HTML@caption@begin: Improved print/HTML output selection. 509
\LWR@HTML@caption@end: Improved print/HTML output selection. 509
\LWR@HTML@ref: Improved print/HTML output selection. 497
\LWR@doindexentrysubsub: Adds support for \see, \seealso, \emph, \textbf, etc. 524
\LWR@hyperindexrefnullified: Adds support for \see, \seealso, \emph, \textbf, etc. 524
\LWR@hyperindexrefsubtwo: Adds support for \see, \seealso, \emph, \textbf, etc. 526
\LWR@indexitem: Accepts optional arg for repeatindex. 520
\dotfill: Improved print/HTML output selection. 602
\hfill: Improved print/HTML output selection. 601
\hrulefill: Improved print/HTML output selection. 601
\printindex: Fix: Extra \newpage to flush pending \index writes. 911
General: 2018/07/07 1
*.lwarpmkconf: Added option makeindexstyle. 267
*.lwarpmkconf: Added options makeindex and xindy. 267
*.lwarpmkconf: Generated \AtBeginDocument. 267
lwarp.xdy: Requires makeindex.xdy. 306
lwarp.xdy: Supports bold, italic. 306
lwarp_html.ist: Added. 305
lwarpmk.conf: Added option makeindexstyle. 266
lwarpmk.conf: Added options makeindex and xindy. 266
lwarpmk.conf: Generated \AtBeginDocument. 266
array: Improved print/HTML output selection. 647
attachfile2: Added. 652
attachfile: Added. 651
cases: Added. 687
imakeidx: Added. 855
index: Added. 859
intopdf: Added. 861
lwarp-patch-komascript: Modified indexing. 1237
lwarp-patch-memoir: Fix for \specialindex. 1260
lwarp-patch-memoir: Fix for multiple indexes. 1261
makeidx: Added. Moved from lwarp core. 911
memoir: Fix for \firsthlline, \lasthline. 479
memoir: Fix for booktabs. 483
pdfpages: Added. 1012
pdfx: Added. 1015
repeatindex: Added. 1037
splitidx: Added. 1107
textcomp: Improved print/HTML output selection. 1147
lwarpmk: Added makeindex and xindy options. 311
lwarpmk: Added -p option for project name. 311
lwarpmk: Added optional list of names for **lwarpmk printindex** and /cmdslwarpmk htmlindex. 311
lwarpmk: Glossary generation now uses *makeglossaries*. . . . 311
lwarpmk: **lwarpmk clean** removes all *.ind and *.idx files. 311
Added makeindex option. . . . 230
Added xindy option. 230
Added option makeindexStyle. 228
Docs: Index, *makeindex*, imakeidx. 134
Docs: Misplaced \omit. 192
Fix: memoir and ccaption. . . . 207
Improved print/HTML output selection. 600
Replaced each \csuse with \@nameuse to force error if undefined. 1
tabbing: Improved print/HTML output selection. 421
v0.59
\LWR@addbaselinemarker: Uses .eps if DVI *latex*. 535
\LWR@latexmkcmd: Fix: --shell-escape with *latexmk*. 262
\LWR@writeconf: Compilation commands now preassigned by lwarp instead of being computed by *lwarpmk*. 266
\[: Fix with \displaymathnormal. 545
General: 2018/09/07 1

SIunits: Added. 1062
accsupp: Added. 625
amsmath: Moved from the lwarp core. 636
asymptote: Added. 650
axessibility: Added. 657
breqn: Added. 679
bxpapersize: Added. 681
canoniclayout: Added. 683
chemformula: Fix for \NMR. . . . 721
draftcopy: Added. 744
epstopdf-base: Improved. . . . 762
epstopdf: Improved. 762
fnbreak: Added. 800
graphics: Fix: Expand filename. 832
graphics: Now works with .pdf and .eps filename extensions. 831
nccfancyhdr: Added. 968
pdftricks: Added. 1015
pst-eps: Added. 1026
pstricks: Added. 1027
units: Added support for MathJax. 1197
xunicode: Added. 1233
lwarpmk: Added **lwarpmk epstopdf**. 311
lwarpmk: Consolidated compiling options into printlatexcmd and HTMLlatexcmd. 311
lwarpmk: Double insead of single-dashed --shell-escape option. 311
lwarpmk: Error if lwarpmk.conf format changed. 311
lwarpmk: Warning if operating system changed. 311
Added option dvipdfmx. 231
Added option dvipdfm. 230
Added option dvips. 230
Docs: **lwarpmk epstopdf**. . . . 94
File: lwarp_mathjax.txt: Fix: Removed chapter number from tagged non-numeric MathJax equations. 307
File: lwarp_mathjax.txt: Updated to MathJax v2.7.4. . 307
picture: Added an alt tag. 579

v0.60

\LWR@clearmidrules: tabular: Fix for midrules. 460
\LWR@parsenormalcolumn: tabular: Improved memory management: Not using xstring. 447
\LWR@tabledatasinglecolumntag: tabular: Improved memory management: Not using xstring. 458
\LWR@tabularendofline: Fix: Slowdown for long tables. . . 441
General: 2018/09/19 1
tabular: Improved memory management: Global boolean. 433
tabular: Improved memory management: Not using xstring. 434
2up: Added. 620
booklet: Added. 674
bophook: Added. 677
diagbox: Fix for par tags. 741
draftfigure: Added. 744
fancytabs: Added. 778
fullminipage: Added. 815
grid-system: Added. 837
layaureo: Added. 877
leading: Added. 880
listings: Fix for HTML entities. . . 891
listings: Fix if inside a list. 893, 896
multirow: tabular: Improved memory management: Not using xstring. 960
thumbs: Added. 1160
thumb: Added. 1160
widows-and-orphans: Added. 1207

v0.61

\DeclareGraphicsExtensions: Fix: EPS for DVI LaTeX. 824
\LWR@HTMLLatexCmd: Added HTMLLatexCmd option. 266
Added PrintLatexCmd option. . 266
\LWR@addcompilecmd: Removed spaces. 261
\LWR@closetabledatacell: Fix: Par tags in tabular. 436
\LWR@hyperindexrefnullified: Made robust, ... 524
\LWR@listof: Fix: newfloat lists. . 514
\LWRopseq: Added spaces. 226
\RequirePackage: Support up to 20 packages. 243
\inlinemathnormal: Changed name from \StopDynamicMath to \inlinemathnormal. 334
\inlinemathother: Changed name from \StartDynamicMath to \inlinemathother. 334
\lwarpsetup: Added. 227
General: 2018/10/13 1
lwarp.css: Footnotes text align left. 267
lwarp.css: Minipage table and footnotes: tighter margin. . . . 267
chkfloat: Added. 724
cmdtrack: Added. 731
copyrightbox: Added. 734
dprogress: Added. 744
epsfig: Added. 761
graphics: Fix: EPS for DVI LaTeX. 829
graphics: Set keys before using filename, for epsfig. 832

lua-visual-debug: Added. 904
pdfprivacy: Added. 1014
psfragx: Added. 1026
psfrag: Added. 1025
pstool: Added. 1027
refcheck: Added. 1034
srcltx: Added. 1108
srctex: Added. 1109
supertabular: Fix for caption w/o opt arg. 1130
thinsp: Added. 1155
threadcol: Added. 1158
uspace: Added. 1200
vpe: Added. 1204
xbmks: Added. 1213
xtab: Fix for caption w/o opt arg. 1232
Added HTMLLatexCmd option. . . 229
Added PrintLatexCmd option. . 229
Docs: \tracinglwarp 248
Docs: HTML entities. 120
Docs: Compiling using custom shell commands. 173
Docs: Fonts. 100
Docs: HTMLDebugComments . 107, 248
Docs: Multiple indexes. 197
Don't write configuration files if processing pstool image. . . . 260
Spaces redefined \AtBeginDocument. 600
v0.62
\@partcntformat: Added for ctex. 389
\@partnameformat: Added for ctex. 389
\InlineClass: Added optional word-processing style. Replaces \LWR@HTMLtextstyle. 352
\LWR@PreloadedPackage: Added. . 569
\LWR@ProvidesPackagePass: Fix: Unknown option error. 245
\LWR@endofline: Extra space if optional arg. 602
\LWR@filestart: Refactored. 399
\LWR@isolate: Added. 222
\LWR@textcurrentfont: Added print version. 600
Tracks depth to avoid nesting repeated font changes. 595
\colorboxBlock: xcolor: Fix: Horiz white space. 1218, 1219
\fcolorbox: Fix: No longer requires xifthen. 576
\fcolorboxBlock: xcolor: Fix: Horiz white space. 1219, 1220
\l@chapter: Don't define if no \chapter. Fix for algorithm2e. 518
\slshape: Added. 597
\textup: Fixed WP span class. . . . 592
\theHTMLSection: Added. 397
\theHTMLTitleSection: Added. . . 397
\theHTMLTitleSeparator: Refactored. 397
General: 2018/11/19 1
\textbf and related: Improved font detection. 591
lwarp.css: Added css for xfrac, nicefrac. 267
lwarp.css: Fixed css for \textup. 267
lwarp.css: Reduced margins in titlepage. 267
lwarp_formal.css: Fix: Font for verse. 301
2in1: Added. 620
CJKutf8: Prevented unless xeCJK. 726
CJK: Prevented unless xeCJK. . . 726
asymptote: Improved alt tags. 650
bitpattern: Added. 673
calc: Fix: Required for print version. 238
chngpage: Fix: Loads lwarp-chngpage. 724
ctexpatch: Added patch. 615
flippdf: Added. 792
graphics: Fix: Filename expansion. 830
graphics: Fix: FormatWP. 829
musicography: Added. 963
nicefrac: Improved font control and css, honors nice, ugly. . 980
notespages: Added. 986
octave: Added. 998
pdfcomment: Added. 1010
pdfmarginpar: Added. 1011
register: Updated to v1.8. 1034
rviewport: Added. 1041
semantic-markup: Added. . . . 1053
textcomp: Fix conflict with xunicode. 1149
tram: Added. 1185
twoup: Added. 1188
ulem: Improved compatibility with CJKulem. 1190
ulem: Now works in a lateximage. 1190
unitsdef: Added. 1198
units: Improved font control and css, honors loose, tight. . . 1197
xcolor: Fix: Horiz white space. 1220
xechangebar: Added. 1223
xfrac: Improved css. 1226
xunicode: Fix conflict with textcomp. 1233
Added early checks for CJK, CJKutf8. 205
Docs: asymptote. 159
Docs: miktex-poppler-bin-* . . . 81
Docs: *MiKTeX Console* 77
Docs: Improved MiKTEX install instructions. 77

Docs: UTF-8 locale. 176
File: lwarp_mathjax.txt: Removed inoperable siunitx extension. 307
Logos: CSS instead of <sup>, <sub>. 608
Logos: Fix for XeTeX logo if graphics is not loaded. 608
Logos: Improved CSS. 608
Logos: Made robust. 608
fcolorminipage: xcolor: Fix: Horiz white space. 1221
Fix: No longer requires xifthen. 577
fminipage: Fix: Horiz white space. 589, 590
LWR@blocktextcurrentfont: Added print version. 600
v0.63
\LWR@HTMLLatexCmd: ujarticle and related: Compile options. . . . 265
\LWR@LwarpStart: Fixes for xeCJK. 401
\LWR@atbeginverbatim: Fix for xeCJK. 419
\LWR@checkloadbefore: Added. . . 203
\LWR@checkloadfilename: Added to reduce number of lwarp-* files. 241
\LWR@compileuplatex: Added. . . . 262
\LWR@createautosec: Fix for xeCJK. 388
\LWR@earlyclassloadnever: Added. 204
\LWR@filestart: Fix: Break ligature for luatexko. 399
\LWR@firstoffive: Added. 222
\LWR@htmlclosecomment: Fix: Break ligature for luatexko. 348
\LWR@isolate: Fix for xeCJK. 222
\LWR@notltjloadafter: Added more classes. 202
Added. 202
\LWR@subhtmlelementclass: Fix for xeCJK. 349
\LinkHome: Fix: Print version. . . . 339
\linkhomename: Added. 339
General: 2018/12/03 1
lwarp.css: Added css for vertical writing. 267
lwarp.css: Improved css for mdframed. 267
amsthm, mdframed: Fix for enforced load order. 640
emumitem: v3.6: Nullifiy \DrawEnumitemLabel. 760
geometry: Fix for bxjs* classes. . 237
mdframed: Avoid thin rules. . . 931
mdframed: Improved font control. 934, 935
stfloats: Adapted to ltj* classes. 1122
xpinyin: Added. 1229
zhlineskip: Added. 1235
Added pTeXsupport. 201
Docs: \linkhomename. 107
Docs: \sidetocname. 109
Fix: Default \LWR@mdfive. . . . 217
Improved titles. 933, 934
pTeX: Encoding. 218
pTeX: Load upquote. 219
pTeX: No newunicodechar. . . . 218
LWR@BlockClassWP: Fix for xeCJK. . 352
v0.64
\LWR@HTMLLatexCmd: utarticle and related: Added. 265
\LWR@checkloadfilename: Prevented bitfield, doublespace, newthm, rplain, si. 241
\LWR@section: Support for ujarticle and related. 392
\enskip: Made robust. 603
\qquad: Made robust. 603
\quad: Made robust. 603
\theHTMLTitleSeparator: Added utarticle and related. 397
General: 2018/12/08 1
addlines: Updated to v0.3. . . . 630
biblatex: Added patch for CTeX. 667
bsheaders: Added. 681
gmeometric: Added. 824
marginal: Added. 914
rmpage: Added. 1039
scrlayer-scrpage: Fixes. 1049
scrlayer: Fixes. 1048
scrpage2: Added. 1050
ujarticle and related: Improved \today. 613
Added utarticle and related. . . 613
v0.65
\LWR@LwarpEnd: Improved css for page layout. 404
\LWR@LwarpStart: Improved css for page layout. 403
\LWR@PreloadedPackage: \AtBeginDocument to avoid option clashes. 569
\LWR@hyperindexrefnullified: Added \textsi. 524
\LWR@newhtmlfile: Error if duplicate file name. 383
Improved css for page layout. 383, 385
\LWR@nullfonts: Added \textsi. . 530
\LWR@restoreorigformatting: Fix: tabular*. 529
\enskip: Changed to Unicode EN SPACE. 603
\quad: Changed to Unicode EM SPACE. 603
\sishape: Added \sishape. 597
\textsi: Added. 593
General: 2018/12/22 1

lwarp.css: Added \sishape, \textsi. 267
lwarp.css: Improved CSS for page layout. 267
lwarp.css: Improved CSS for quotations. 267
lwarp.css: SideTOCto left for improved \marginpars. . . . 267
lwarp_formal.css: SideTOCto left for improved \marginpars. 301
lwarp_sagebrush.css: SideTOCto left for improved \marginpars. 297
bounddvi: Added. 677
embrac: Added. 750
footnoterange: Added. 808
gentombow: Added. 819
geometry: Fix for bxjs* classes. . 237
graphics: Added \includegraphics alt key. . 574, 825, 827, 828, 831, 832
lltjext: Added. 897
multicolrule: Added. 956
multicol: Added \docolaction. 956
plarydshln: Added. 1022
plextarydshln: Added. 1023
plextcolortbl: Added. 1024
plext: Added. 1022
pxatbegshi: Added. 1028
pxeveryshi: Added. 1028
pxftnright: Added. 1028
pxjahyper: Added. 1029
tascmac: Added. 1138
versonotes: Added. 1202
Added early checks for jarticle, tarticle, and related. 205
Fix for \rensuji. 613
Fix space between class and id. 353
tabular: Added support for plext. 485
Fix: tabular*. 485
Fix: Rule color. 486
minipage: Refactored to later allow Japanese <t/y> argument. . . . 582
LWR@figcaption: Uses <figurecaption> instead of <figcaption>. 508
v0.66
\@mpfootnotetext: Improved HTML formatting. 367
\IgnoreMinipageWidths: Added, . 581
\LWR@@footnotetext: Improved HTML formatting. 366
\LWR@LwarpStart: Fix: TOC, LOF, LOT links. 403
\LWR@checkloadfilename: Prevented colortab, epsf, hyper, picinpar, picins, sistyle, ucs. . . 241
\LWR@closeparagraph: Fix: Combined span, tabular, and lateximage. 357
Improved HTML formatting. . . . 357
\LWR@closeparagraph@br: Factored. 356
\LWR@fboxstyle: Use current text color. 587
\LWR@filenamenoblanks: Fix: Section names detokenized. . 374
Fix: Section names with macros. 375
Fix: Section names with percent. 375
Improved file name generation. 373
Limits filename length. 376
\LWR@findcurrenttextcolor: Fix: Color if xcolor not loaded. . . . 599
\LWR@htmlfileref: No longer use zref. 492
\LWR@htmlsectionfilename: Sanitize underscores. 337
\LWR@hyperindexrefsubtwo: Fix: Long index entries. 526
\LWR@indentHTML: Added. 345
\LWR@lateximagedepthref: No longer use zref. 492
\LWR@lateximagenumberref: No longer use zref. 492
\LWR@nameref: No longer use zref. 492
\LWR@nullfonts: Logos. 532
\LWR@openparagraph: Improved HTML formatting. 355
\LWR@section: Fix: TOC, LOF, LOT links. 394
Improved HTML formatting. 393, 394
\LWR@setexparray: Fix with \par. 332
\LWR@setref: No longer use zref. . 492
\LWR@simplifyname: Added. . . . 372
\LWR@startref: No longer use zref. 495
\LWR@stoppars: Improved HTML formatting. 359
\LWR@subhtmlelementclass: Improved HTML formatting. . 349
\LWR@subhyperrefclass: Improved HTML formatting. 500
\LWR@subinlineimage: Improved HTML formatting. 501
\LWR@write@lwarplabel: No longer use zref. 493
\LWR@writeconf: Added ImagesDirectory and ImagesName. 266
\LinkHome: Fix: Document cross-references. 339
\UseMinipageWidths: Added, . . . 581
\fbox: Fix: Removed extra space. . 587
\minipagefullwidth: Made \global. 581
\rotatebox: Improved HTML formatting. 834
\rule: Improved HTML formatting. 606
\scalebox: Improved HTML formatting. 835
\textgreater: Made robust. 336

\textless: Made robust. 336
General: 2019/02/08 1
LWR@currentautosecpage: Fix for LOF, LOTfloat in home page. 370
lwarp.css: Added niceframe. . . 267
lwarp.css: Improved CSS for definition lists. 267
lwarp_formal.css: Improved CSS for table notes. 301
lwarp_one_limage.txt: Image directory and prefix. 306
acronym: Fix for acronym in caption. 628
acronym: No longer uses zref. . 629
ar: Added. 646
ed: Added. 749
extramarks: Updated to v3.10. . 770
fancybox: Improved HTML formatting. 772
fancyhdr: Updated to v3.10. . . . 776
graphics: Improved HTML formatting. 831
kotexutf: Patch for references. . 615
memoir: Docs re: version numbers. 168
multicolrule: Updated for v1.2. . 956
nameauth: Added. 966
register: Verified for v1.9. 1034
subcaption: Added. 1123
tocbasic: Updated to v3.26a. . 1173
truncate: Added. 1187
zref: No longer used. 240
lwarpmk: Added ImagesDirectory and ImagesName. 311
lwarpmk: Fix for **cleanlimages**. 311
Added early checks for colortab, epsf, hyper, picinpar, picins, sistyle, ucs. 205
Added option ImagesDirectory. 228
Added option ImagesName. 228
Added support for indentfirst. . 360
Docs: Updated Converting an existing document. 97
Fix: Minipages inside multicols. 956
Improved HTML formatting. . . . 780
Package dates added where possible. 620
Sanitize filenames. 231
tabular: Fix: Minipages inside tabular. 488
lateximage: Added \BaseJobname for multiple projects. 562
Improved HTML formatting. . . . 563
minipage: Honor \LWR@forceminipagefullwidth. 583
v0.67
\FilenameNullify: Added. . 532, 600
\FilenameSimplify: Added. 373, 382
\LWR@doequation: xfakebold: Added support. 551
\LWR@doubledollar: xfakebold: Added support. 544
\LWR@filenamenoblanks: Improved file name generation. 373
\LWR@lookforpackagename: easyReview: Supported. 242
\LWR@nullfonts: Add'l symbols. . 530
\LWR@simplifycustom: Added. . . . 373
\LWR@subsingledollar: xfakebold: Added support. 541
\LWR@subsingledollarsvg: xfakebold: Added support. . . 540
General: 2019/02/23 1
academicons: Added. 623
bbding: Added. 660
changes: Added. 691
color: Fix for version number. . 732
dingbat: Added. 742
eurosym: Added. 769
fitbox: Added. 789
fontawesome5: Added. 803
fontawesome: Added. 802
foreign: Added. 808
gloss: Added. 821
karnaugh-map: Added. 864
marvosym: Added. 915
multicap: Added. 955
nomencl: Added. 984
notes: Added. 985
pifont: Added. 1021
struktex: Added. 1123
textcomp: Nullify in filenames. 1150
typicons: Added. 1190
umoline: Added. 1192
xfakebold: Added support. . . . 534
xfakebold: Added. 1225
xunicode: Nullify in filenames. 1233
AMS environments: Added xfakebold support. 637
eqnarray: xfakebold: Added support. 556
v0.68
\LWR@@footnotetext: Factored for multiple foot boxes. 365
\LWR@checkloadfilename: Prevented alg, algorithmic, fncylab, pdfcprot. 241
\LWR@printpendingfootnotes: Factored for multiple footnote boxes. 368
\LWR@tabular@warpprintonly: Added. 484
General: 2019/03/05 1
bigfoot: Added. 672
fnpara: Added. 801
footnotebackref: Added. 807
layouts: Added. 878
listings: Fix for listings v1.7. . . 896

longtable: Improved error handling. 901
manyfoot: Added. 912
niceframe: Added. 981
perpage: Added. 1016
showtags: Added. 1058
tablefootnote: Added. 1133
threeparttablex: Added. 1159
threeparttable: Fix for caption type. 1158
lwarpmk: Improved error handling if incomplete compile. 311
Prevented alg, algorithmic, fncylab, pdfcprot. 205
tabular: Fix: \warpprintonly inside tabular. 486
v0.69
\LWR@maybetocdata: Added support for tocdata. 516
\framebox: Fix: Handle paren arg. 587
\hypertoc: Added support for tocdata. 517
\hypertocfloat: Added support for tocdata. 518
\makebox: Fix: Handle paren arg. . 586
\multicolumnrow: multirow: Error if \multirow without \mrowcell. 961
General: 2019/03/21 1
array: Fix for \tabularnewline. 648
ctable: Added. 735
eqlist: Added. 763
eqparbox: Added. 763
ftcap: Added. 814
graphics: Warning if using scale option. 827
keyfloat: Updated for v2.00. . . . 867
listliketab: Added. 896
longtable: Fix for \tabularnewline. 901
minitoc: Added. 947
multirow: Error if \multirow without \mrowcell. 960
rotating: Requires graphicx. . . 1039
supertabular: Fix: Clear caption after use. 1131
tabularx: Require array. 1134
tabulary: Require array. 1134
tocdata: Added. 1175
topcapt: Added. 1185
xtab: Fix: Clear caption after use. 1232
tabular: Error if \multirow without \mrowcell. 485, 487, 489
lateximage: Fix for *pdftotext* errors from font size change. 566
fminipage: Honors \minipagefullwidth. 589
v0.70
\LWR@closeparagraph: Reduced underfull \hbox warnings. . . . 357
\LWR@lookforpackagename: changes: Updated to v3.1.2. . 242
\LWR@mathjaxfilename: Added. . . 361
\LWR@restoreorigformatting: Fix: \& in a lateximage. 528
\MathJaxFilename: Added. 361
\enddocument: If labels changed, require recompile before making limages. 405
\framebox: Fix: Accept long arg. . 587
\makebox: Fix: Accept long arg. . . 586
Fix: Ignore width of 0pt. 586
Fix: No width given. 586
General: 2019/04/03 1
autonum: Added. 656
changelayout: Added. 690
changes: Updated to v3.1.2. . . . 691
inputtrc: Added. 861
mathtools: Added. 923
metalogox: Added. 941
metalogo: Used in print mode. 941
textcomp: Fix for \textinterrobang. 1147
textpos: Added optional arg to textblock. 1151
xunicode: Fix for \textinterrobang. 1233
AMS environments: Refactored. 637
Ensure vector font. 219
File: lwarp_mathjax.txt: Loads autoload-all.js extension. . 307
File: lwarp_mathjax.txt: Updated to MathJax v2.7.5. . 307
Logos: Improved for metalogox, lateximages. 608
LWR@nestspan: Improved minipage, \parbox inside a span. 347
v0.71
\@mpfootnotetext: Improved HTML formatting. 367
Reduced underfull \hbox warnings. 367
\LWR@closeparagraph: Flush left captions. 357
\LWR@closetabledatacell: Fix: Tabular par tags. 437
\LWR@stoppars: Reduced underfull \hbox warnings. 359
General: 2019/04/29 1
caption: Reduced underfull \hbox warnings. 684
chemfig: Updated to v1.4. 696
endfloat: Updated for v2.7. . . . 751
lwarp-common-multimedia: Added. 1266
media9: Added. 938
movie15: Added. 954

multimedia: Added. 957
textpos: Updated for v1.9.1. . . 1151
lwarpmk: If wrong `lwarpmk.conf` version, or wrong OS, displays the print command to recompile. 311
Docs: Error testing. 190
`quotation`: Fix: `blockquotation` tag. 416
v0.72
`\LWR@newautopagelabel`: Fix: References for xr, xr-hyper. . . 371
`\LWR@restoreorigformatting`: Use `\LWR@formatted` for `\bfseries`, etc. 529
`\chapter`: Added support for hypbmsec. 395
`\ebweight`: nfssext-cfr: Added. . . 596
`\hypertoc`: Fix: References for xr, xr-hyper. 516
`\hypertocfloat`: Fix: References for xr, xr-hyper. 518
`\lgweight`: nfssext-cfr: Added. . . 596
`\paragraph`: Added support for hypbmsec. 396
`\part`: Added support for hypbmsec. 395
`\section`: Added support for hypbmsec. 396
`\subparagraph`: Added support for hypbmsec. 396
`\subsection`: Added support for hypbmsec. 396
`\subsubsection`: Added support for hypbmsec. 396
`\texteb`: nfssext-cfr: Added. . . . 591
`\textlg`: nfssext-cfr: Added. . . . 592
`\textulc`: fontaxes: Added. 593
`\ulcshape`: fontaxes: Added. . . . 597
General: 2019/06/08 1
`lwarp.css`: Added backnaur. . . 267
`lwarp.css`: Removed unneeded support for `\sishape`, `\textsi`. 267
backnaur: Added. 659
boxedminipage2e: Added support for `latexmages`. . . . 678
changes: Fix references for xr, xr-hyper. 691
fontaxes: Added. 594, 804
gloss: Fix references for xr, xr-hyper. 821
hypbmsec: Added. 842
minibox: Added. 946
nfssext-cfr: Added. 974
nomencl: Fix references for xr, xr-hyper. 984
pdfcrypt: Added. 1011
shapepar: Added. 1056
slantsc: Added. 1103
soulutf8: Fix: Loads soul. 1106
tabfigures: Added. 1133
xr-hyper: Added. 1231
xr: Added. 1230
zhlineskip: Updated to v1.0e. . 1235
Use `\LWR@formatted` for `\bfseries`, etc. 257, 595
v0.73
`\@include`: Fix: `\newpage` instead of `\clearpage`. 247
`\HTMLTitle`: Added default title if none specified. 362
`\LWR@LwarpStart`: Fix: Empty header/footer. 402
`\LWR@addbaselinemarker`: Improved warning messages. 535
`\LWR@createfooter`: Fix: Empty header/footer. 382
`\LWR@descitem`: Fix: HTML tags. . . 427
`\LWR@forceemptyline`: Added. . . . 222
`\LWR@gsavebox`: Added global save boxes. 223
`\LWR@htmlelementclass`: Vertical space. 350
`\LWR@htmlelementclassline`: Vertical space. 350
`\LWR@indentHTMLtwo`: Added. . . . 346
`\LWR@indexitem`: Fix: Avoid empty `<span>`. 520
`\LWR@indexsubitem`: Fix: Avoid empty `<span>`. 520
`\LWR@indexsubsubitem`: Fix: Avoid empty `<span>`. 520
`\LWR@newhtmlfile`: Fix: Empty header/footer. 385
`\LWR@nullfonts`: Fix: `\hspace` in sectioning file name. 532
`\LWR@titlingmaketitle`: titling: Fix: Paragraph tags. . . . 413, 1172
Fix: Paragraph tags. 414
`\attribution`: Fix: Paragraph tags. 416
`\color`: xcolor: Added HTML support. 1217
`\fboxBlock`: Fix: Paragraph tags. . 588
`\hspace`: Fix: Avoid empty `<span>`. 604
`\l@book`: Added `\book` for memoir. 518
`\maketitle`: titling: Fix: Paragraph tags. 1171
Fix: Paragraph tags. 412
`\marginparBlock`: Fix: Paragraph tags. 369
`\postbookname`: Added `\book` for memoir. 394
`\printthanks`: Fix: Paragraph tags. 409
`\rule`: Fix: Avoid empty `<span>`. . 607
General: 2019/07/11 1
`lwarp.css`: Added `\book` for memoir. 267
`lwarp.css`: Improved pkgtocdata formatting. 267

lwarp_formal.css: Added \book for memoir. 297, 301
boxedminipage2e: Fix: Paragraph tags. 678
epigraph: Fix: Paragraph tags. . 760
fancyvrb: Fix: Nested /<pre>. 781, 784
fancyvrb: Btrivlist: Fixed paragraph tags. 774
intopdf: Updated to v0.2.1. . . . 861
listings: Fix: Paragraph tags. . . . 895
lwarp-common-multimedia: Fix: No size for audio file. . 1266, 1267
lwarp-common-multimedia: Fix: Paragraph tags. 1269
lwarp-patch-komascript: Fix for captions. 1238
lwarp-patch-memoir: Added \book. 1245
lwarp-patch-memoir: Fix for \frontmatter* and \mainmatter*. 1245
lyluatex: Added. 909
musicography: Updated to 2019/05/28. Now supports lateximages. 963
quotchap: Fix: Paragraph tags. 1030
quotchap: Updated to v1.2. . . 1029
quoting: Fix: Paragraph tags. . 1030
scrextend: Fix: Paragraph tags. 1045, 1046
stackengine: Added. 1109
threeparttable: Added measuredfigure. 1159
tocdata: Honors \tocdataformat. 1175
tocdata: Improved formatting. 1175
tocdata: Updated to v2.03. . . . 1175
versonotes: Updated to v0.4. . 1202
vwcol: Fix: Paragraph tags. . . . 1204
xy: Fix for \xybox. 1234
xy: Improved xy, reverted \xymatrix, for qcicuit. 1234
Added \book for memoir. 328, 344
AMS environments: Fix: alt tags. 637
AMS environments: Fix: Paragraph tags. 637, 638
Numbered HTML entity used for text dollar. 535
tabular: Fix and warning for tabular inside a 485
LWR@blocktextcurrentfont: Fix: Paragraph tags. 595
LWR@nestspan: Fix: quote, quotation inside a span. . . . 347

v0.74

\@ensuredmath: Add \ThisAltText. 546
\AltTextClose: Added. 533
\AltTextOpen: Added. 533
\ImageAltText: Added. 533
\LWR@ThisAltText: Add \ThisAltText. 533
\LWR@addlinktitle: Added. . . . 495
\LWR@doequation: Add \ThisAltText. 551, 552
\LWR@doubledollar: Add \ThisAltText. 544
\LWR@lateximage@oneimage: Factored from lateximage. . . 561
\LWR@lateximage@oneimageb: Factored from lateximage. . . 561
\LWR@setcurrentfont: Factored. . 534
\LWR@singledollar: Add \ThisAltText. 544
\LWR@singledollarmeasure: Fix: Font control. 537
\LWR@subinlineimage: Add \ThisAltText. 501
\LWR@subsingledollar: Add \ThisAltText. 542
\LWR@subsingledollarsvg: Adds star argument for lateximage. 539
\LateximageFontScale: Adjusted SVG math font scaling default to 1. 559
\MathImageAltText: Renamed from \mathimage. 533
\PackageDiagramAltText: Renamed from \packagediagramname. 533
\ThisAltText: Add \ThisAltText. 533
\hspace: Ignore negative space. . . 603
General: 2019/09/02 1
lwarp.css: Added lyluatex. . . . 267
amsmath: Add \ThisAltText. . 638
forest: alt text. 809
geometry: Remembers user's geometry. 819
graphics: Add \ThisAltText. 827, 832, 833
lyluatex: Adapts to user's geometry. 910
lyluatex: Preserves left margin. . 910
lyluatex: Renamef \lyluateximagename. 909
lyluatex: Split system images, assign class. 909
mhchem: Modified for new lateximage. 942
pdfpages: Adjust to user's paper size. 1013, 1014
stackengine: alt tags. 1109
struktex: alt text. 1123
tikz: Added alt text. 1161
lwarpmk: **lwarpmk clean** removes add'l files. 311
lwarpmk: **lwarpmk epstopdf** and **pdftosvg** honor directories. . 311

Remembers user's geometry. . . 236
lateximage: Add \ThisAltText. . 567
Added second starred argument. 562
Improved alt text. 563
New syntax for \LWR@subinlineimage. 566
eqnarray: Add \ThisAltText. . . . 557
LWR@displaymathother: Uses \MathImageAltText. 546
LWR@equationother: Uses \MathImageAltText. 546
v0.75
\normalcolor: xcolor: Added for HTML. 1216
General: 2019/09/23 1
lwarp.css: Improved marginblock. 267
keyfloat: Fix: \normalcolor. . . . 868
wrapfig: Fix for \linewidth. . . 1209
wrapfig: Fix for width. 1209
minipage: Fix: \linewidth. 584
v0.76
General: 2019/10/08 1
lwarp.css: Fix for small caps. . 267
acro: Updated for v2.10. 626
xr-hyper: Updated for v6.1. . . 1231
xr: Updated for v5.05 and xr-hyper v6.1. 1230
Docs expanded: Multiple projects. 94
File: lwarp_mathjax.txt: Updated to MathJax v2.7.6. . 307
v0.77
General: 2019/10/15 1
booktabs: Updated to v1.6180339. 676
chemformula: Updated to v4.15. 699
v0.78
\LWR@linkcatcodes: babel-french: Fix: Hyperlinks. 499
Factored. 499
\LWR@linkmediacatcodes: babel-french: Fix: Hyperlinks. 500
Factored. 499
\LWR@nullifyNoAutoSpacing: babel-french: Fix: Hyperlinks. 484
\LWR@subhyperrefclass: Remove extra space. 500
\normalfont: Uses \LWR@formatted. 598
General: 2019/11/07 1
accessibility: Added. 625
babel-french: Fix: Hyperlinks. . 344
caption: Added warning regarding passing options. . . 683
filecontents: Fix to overwrite existing files using new filecontents environment. . 239
geometry: Cleaner option handling. 820
graphics: Fix: alt tag expansion. 832
lwarp-common-multimedia: Fix links with new LaTeX kernel. 1266, 1267
titlesec: Fix for \titleclass. . 1167
v0.79
\CustomizeMathJax: Fix: Sanitize for HTML. 379
\LWR@ProvidesPackagePass: Fix: catoptions. 245
\LWR@checkloadfilename: Prevented bxcjkjatype, hangul. 241
\LWR@closetabledatacell: Fix: Nested tabulars. 438
\LWR@customizeMathJax: MathJax: Hide definitions. 381
\LWR@forcenewautoidanchor: Factored. 506
\LWR@mathjaxwarn: Warn if using packages partially supported by MathJax. 617
\LWR@parseaftercolumn: Remove outermost braces. 445
\LWR@parseatcolumn: Remove outermost braces. 442
\LWR@parsebangcolumn: Remove outermost braces. 443
\LWR@parsebeforecolumn: Remove outermost braces. 444
\LWR@setexparray: Fix: Nested tabulars. 332
\LWR@singledollarmeasure: Factored. 537
\LWR@subHTMLsanitize: Fix: \&. Factored. 377
\LWR@subsingledollarsvg: Adjust for unknown size. 539
Factored. 538
\LWR@tabularendofline: Fix: Nested tabulars. 441
\captionlistentry: Fix: Duplicate auto-id. 510
\macrotocsname: Added. 224
\makebox: Fix: Adjust for virtual page size. 586
\multicolumnrow: multirow: Fix: Nested tabulars. 962
\noalign: Fix: Nested tabulars. . 483
General: 2020/02/01 1
MathJax: Additional macros. . . 380
lwarp.css: Fix: Nested tabulars. 267
amsmath: Added MathJax emulation. 639
arydshln: Added MathJax emulation. 650
ar: Added MathJax emulation. . 647
awesomebox: Added. 656
babel and polyglossia: Added info messages. 616

bigdelim: Added MathJax emulation. 672
bigstrut: Added MathJax emulation. 673
bm: Added. 674
booktabs: Added MathJax emulation. 677
booktabs: Fix for memoir with lateximage. 483, 675
braket: Added. 678
floatflt: Improved width control. 794
fontawesome5: Supports font size, color. 803
fontawesome: Refactored with fix for \FAthree. 802
fontawesome: Supports font size, color. 802
geometry: Also save \textwidth, \textheight. 237
graphics: Factored from \LWR@includegraphicsb. 829, 830
graphics: Fix for negative angles. 828
ifpdf, ifptex: Provided by iftex. . 201
keyfloat: Factored to \LWR@setvirtualpage. 872
ltablex: Fix: Require longtable. . 902
ltxtable: Fix: Required packages. 903
luatex85: Removed. 201
mathtools: Added MathJax emulation. 924
multirow: Add: MathJax emulation. 962
multirow: Fix: Centered vertical alignment. 960
niceframe: Fix: Adjust for virtual page size. 981
parallel: Added. 1002
parcolumns: Added. 1004
pdfcolfoot: Added. 1009
pdfcolmk: Added. 1009
pdfcolparallel: Added. 1009
pdfcolparcolumns: Added. . . . 1010
pdfcol: Added. 1008
physics: Added. 1018
siunitx-v2: Fix: \square, \cubed. 1085
siunitx-v2: Improved MathJax. 1082, 1083
slashed: Added. 1103
steinmetz: Added. 1122
svg: Added. 1131
transparent: Supports lateximages. 1186
unicode-math: Added. 1193
widetable: Added. 1207
witharrows: Added. 1207
xcolor: Fix: Nested tabulars. 1221, 1222
xltabular: Fix: Require ltablex. 1227
xurl: Updated to v0.08. 1234
AMS environments: Fix: Nested. 637, 638
Factored to \LWR@setvirtualpage. . . 798, 831
Fix: Use newfloat instead of float. 798
Fix: Use full \linewidth. 798
Remember HTML font size. . . . 600
tabular: colortbl: Fix: Nested tabulars. 486
Fix: Nested tabulars. 489
warpMathJax: Added. 235
lateximage: Improved \linewidth. 564
minipage: Fix: \linewidth frame padding. 584
Fix: Adjust for virtual page size. 582
fminipage: Fix: Adjust for virtual page size. 589
LWR@setvirtualpage: Factored. . . 581
v0.80
\CustomizeMathJax: Fix: Made \@onlypreamble. 379
Warn of slow compile. 379
\LWR@checkloadfilename: Prevented formula, shadethm, slashbox. 241
\LWR@infoprocessingmathjax: Add: Info message. 379
\LWR@restoreorigformatting: Improved math, displaymath. 529
\fcolorbox: Made robust. 576
\fcolorboxBlock: Made robust. . 576
\includegraphics: Made robust. . 833
General: 2020/02/19 1
\textbf and related: Use HTML series, etc. 591
accessibility: Added MathJax emulation. 625
accsupp: Added MathJax emulation. 625
autobreak: Added. 655
biblatex: Creates hyperlinks. . . 667
centernot: Added. 689
chemmacros: Updated to v5.10. . . . . 710, 719
extarrows: Added. 770
fewerfloatpages: Added. 788
fouridx: Added. 809
gensymb: Added. 819
ghsystem: Added. 820
gmeometric: Requires geometry. 824
hhline: Added. 841
leftidx: Added. 880
mathcomp: Added. 917
mathdots: Added. 919
mathfixs: Added. 920
mismath: Added. 948
nccmath: Added. 969

noitcrul: Added. 984
pdfcomment: Added MathJax emulation. 1011
relsize: Added MathJax emulation. 1036
rmathbr: Added. 1038
subsupscripts: Added. 1129
tagpdf: Added. 1135
unicode-math: Improved MathJax. 1193, 1195
url: Creates hyperlinks. 1199
xfrac: Added MathJax emulation. 1227
AMS environments: Fix: Centering starred envs. . . 637, 638
Improved math, displaymath. . 546
Prevented formula, shadethm, slashbox. 205
lateximage: Fix: Rule color in lateximage. 565
eqnarray: Fix: eqnarray*. 556
v0.81
\LWR@addbaselinemarker: Improved warning messages. 535
\LWR@checkloadfilename: Prevented statex. 241
\LWR@replacestrings: Added. . . . 376
\LWR@subHTMLsanitize: Faster. . . 377
\textcolor: xcolor: \textcolor: Spurrious space. 1218
General: 2020/03/04 1
lwarp.css: Added nolbreaks. . . 267
DotArrow: Added. 743
SIunits: Improved \unit. Fixed in math mode. Added MathJax emulation. 1062
axessibility: Added MathJax emulation. 658
axessibility: Updated to 2020/01/08 version. 657
colonequals: Added. 731
decimal: Added. 740
dotlessi: Added. 743
econometrics: Added. 747
engtlc: Added. 753
gridset: Updated to v0.3. 837
hyperref: Added \pdfstringdefDisableCommands. 851
luamplib: Added. 904
multiobjective: Added. 958
nolbreaks: Added. 984
physunits: Added. 1018
returntogrid: Added. 1038
stackrel: Added. 1111
statex2: Added. 1112
statmath: Added. 1120
lwarpmk: Improved error if in lwarp source directory. 311
Prevented statex. 205
v0.82
\LWR@disablepinyin: Added. . . . 222
\LWR@doequation: MathJax: Improved footnotes. 551
\LWR@syncmathjax: Removed <par> tags. 548
General: 2020/03/25 1
MathJax: Improved footnotes. 380, 552
amsmath: Fixed: \intertext for MathJax. 639
chemfig: Updated to v1.5. . . . 696
draftwatermark: Updated to v2.0. 745
endnotes: Added MathJax emulation. 753
endnotes: Fix: Mark in print mode. 753
etoc: Added. 767
luatexko: Added. 904
lwarp-patch-memoir: Supports tocvsec2. . . . . 1245, 1249
marginnote: Added MathJax emulation. 915
marginnote: Fix: Neutralize in print mode. 915
nccfoots: Added MathJax emulation. 969
pagenote: Added MathJax emulation. 1001
parnotes: Added MathJax emulation. 1007
sidenotes: Added MathJax emulation. 1061
soul: Fixed: \<. 1104
syntonly: Added \nopages@. . . 1133
syntonly: Added to \LWR@loadafter. 207
ulem: Fixed: \dashuline. . . . 1190
xpinyin: Added full pinyin support. 1229
v0.83
General: 2020/03/27 1
lwarp-patch-memoir: Fixed framed. 1240
lwarp-patch-memoir: Fixed: \specialindex. 1260
lwarp-patch-memoir: No longer requires subfigure. 1240
lwarp-patch-memoir: Updated for new sizes. 1241
lwarp-patch-memoir: Updated. 1244, 1245
physunits: Updated to v1.0.4. . 1018
v0.84
\@currentHref: backref: Fixed from lwarp v0.72 changes. 499
\@currentlabelname: Default name for previous/next links. 490
\@fnsymbol: \LWR@formatted, fixed double bar. 412

\@makecaption: caption now optional. 507
Warn inside a 507
\@textsubscript: Use \LWR@formatted. No longer \AtBeginDocument. 599
\@textsuperscript: Use \LWR@formatted. 598
\@xdlbfloat: caption now optional. 505
\AddSubtitlePublished: Added \subtitle, \published for koma*. 415
Fixed \subtitle, \printsubtitle if no titling. . 415
\HTMLFirstPageBottom: Added \FirstPageBottom. 360
\LWR@LwarpEnd: Added prev/next links. 404
Fix: No footer for EPUB 404
\LWR@LwarpStart: Added prev/next links. 403
\LWR@createfooter: Added \FirstPageBottom. 382
\LWR@domulticolumn: Fix: Multicolumn style. 472
\LWR@excludecomment: Independent cut files. 233
\LWR@filenamenoblanks: Fix: Dashes in filename. 375
\LWR@filestart: Improved HTML title. 398
\LWR@floatbegin: Warn inside a 503
\LWR@forcenewautoidanchor: <par> handling. 506
\LWR@htmlsectionfilename: Fix: Sections called “Index” or “index” have -0 appended to their filenames if no prefix. . . 337
\LWR@new@label: Removed optional args. 495
\LWR@newhtmlfile: Added prev/next links. 383, 385
\LWR@nullfonts: Add’l symbols. . 530
Factored out redefinitions. 530
Fix: Accents. 530
Revised \texorpdfstring. 532
\LWR@section: Added prev/next links. 394
Warn inside a 389
\LWR@startpars: Ignore if in lateximage. 358
\LWR@stoppars: Ignore if in lateximage. 359
\LinkNext: Added prev/next links. 341
\LinkPrevious: Added prev/next links. 340
\attribution: Added print mode. 416
\caption@end: caption now optional. 509
\captionlistentry: caption now optional. 510
\captionof: caption now optional. 511
\end@dlbfloat: caption now optional. 505
\linknextname: Added prev/next links. 340
\linkpreviousname: Added prev/next links. 340
\printthanks: Fix: \printthanks in print mode. 409
\sscshape: Moved to core. 598
\textssc: Moved to core. 594
\textsubscript: Use \LWR@formatted. No longer \AtBeginDocument. 598
\textsuperscript: Use \LWR@formatted. 598
\theHTMLTitleSeparator: Improved spacing for xeCJK. . 397
\verbatiminput: Added print mode. 420
General: 2020/04/24 1
LaTeX accents: Add’l symbols. . 258
lwarp.css: Added koma-* subject. 267
lwarp.css: Fix: Minipage tex align. 267
lwarp.css: Fix: Top nav if narrow window. 267
lwarp.css: Improved nfssext-cfr. 267
lwarp.css: Improved realscripts. 267
abstract: Updated for memoir. . 621
alltt: Added print mode. 635
amsthm: Fix for \nameref. 642
backref: Fixed from lwarp v0.72 changes. 660
biblatex: Fixed: Requires hyperref. 667
boxedminipage: Renamed from boxedminipage2e per author. 678
caption: Improved integration. . 684
caption: Non-width \parboxes. 683
caption: Simplified. 683
epigraph: Added print mode. . . 760
fixme: Added section name. . . . 790
float: Fix: Recursive name. . . . 793
fontaxes: Moved sscshape to core. \FilenameNullify. . . . 804
lwarp-patch-memoir: Creates mark macros. 1248
lwarp-patch-memoir: Fix: \label. 1241
lwarp-patch-memoir: Fixed pagenotes. 1257
lwarp-patch-memoir: Improved cleveref support. 1258

lwarp-patch-memoir: No longer requires subcaption. 1240
lwarp-patch-memoir: No longer uses subcaption. 1255
lwarp-patch-memoir: Use LaTeX captions. 1253
lwarp-patch-memoir: Uses memoir's \newcomment, \commentsoff, \commentson. 1259
lwarp-patch-memoir: \contsubtop, etc. now as-is. 1265
lwarp-patch-memoir: caption now optional, removed dup caption. 1255
mdframed: Warn inside a 931
memoir: Preloads xcolor. 613
multirow: Fix: Multirow style. . . 960
nfssext-cfr: Improved. 974
nfssext-cfr: \FilenameNullify. 976, 979
ntheorem: Warning if thref. . . 987
parcolumns: Fixed: Missing \colplacechunks. 1004
realscripts: Added print mode. 1031
realscripts: Fixed starred \textsuperscript, \textsubscript. 1031
realscripts: Improved supersub scripts. 1031
rotfloat: Fix: Requires rotating. 1040
scrextend: Added \titlehead, \subject, \subtitle, \published. 1043
scrextend: Updated to v3.29. . 1043
sidenotes: \sidecaption not long arg. 1060
slantsc: \FilenameNullfiy. . . 1103
sympytex: Added print mode. 1132
titling: \AtBeginDocument. . . . 1170
xpinyin: Disables pinyin when null fonts. 1230
lwarpmk: clean also removes comment_*.cut 311
Added \FirstPageBottom. 360
Added prev/next links. 337
Docs: JetBrain Mono font. . . . 101
Docs: \linkpreviousname. . . . 107
Fixed: textcomp now in kernel. 612
Logos: Only warn about graphics if actually use \Xe. 608
tabbing: Restore spacing. 421
center: Added print mode. 567
verbatim: Added print mode. . . . 420
verse: Added print mode. 417
flushleft: Added print mode. . . 568
flushright: Added print mode. . . 567
longtable: caption now optional. 900
quotation: Added print mode. . . 416
quote: Added print mode. 416
LWR@nestspan: Issue warnings inside a span. 347
Nullified minipage, \parbox inside a span. 347
v0.85
\LWR@atbeginverbatim: Fix: Added print macros for fontspec. . . 419
\LWR@htmlclosecomment: Fix: Added print macros for fontspec. 348
\LWR@htmlcomment: Fix: Added print macros for fontspec. . . 349
\LWR@htmltagc: Fix: Added print macros for fontspec. 346
General: 2020/05/01 1
idxlayout: Fixed: \AtBeginDocument for load order. 854
titlesec: pagestyles option. . . 1165
url: Fixed print mode. 1199
Fix: Added print macros for fontspec. 595
v0.86
\LWR@filenamenoblanks: Fix: *, (,), . in filename. 374
\LWR@filestart: Error if missing file. 400
\LWR@href: hyperref: Adjusted emulation. 500
\LWR@label@createtag: Fix: Labels in eqnarray. 494
\LWR@label@inmathcomment: Fix: Labels in eqnarray. 493
\LWR@nolinkurl: hyperref: Adjusted emulation. 501
\LWR@phantomsection: hyperref: Adjusted emulation. 608
\LWR@startref: Fixed: \label inside lateximage. 496
\LWR@syncmathjax: Improved MathJax equation numbers. . 548
\LWR@url: hyperref: Adjusted emulation. 501
\textcolor: xcolor: \textcolor: Fixed for babel-french. 1218
General: 2020/05/12 1
LWR@insidemathcomment: Added. 534
amsmath: Added support for MathJax. 639
hyperref: Adjusted emulation. . 847
nccmath: Added \displaybreak. 970
nccmath: Fixed \nr, added starred. 970
File: lwarp_mathjax.txt: Added support for starred macros. . . 307
File: lwarp_mathjax.txt: Improved equation numbering. 307

File: lwarp_mathjax.txt: Updated to MathJax v3 current. 307
v0.87
\LWR@checkloadfilename: Prevented csvtools. 241
\bibliography: Reverted to original. 527
\scshape: Added FixSmallCaps to remove \LWR@print@scshape for erewhon, et. al. 597
\sishape: Added FixSmallCaps to remove \LWR@print@scshape for erewhon, et. al. 597
General: 2020/06/03 1
cancel: Now uses MathJax v3 extension. 682
citeref: Added. 725
drftcite: Added. 745
embrac: Neutralized kerning. . . 750
ifpdf, ifptex: Restored to work on TL2019 and earlier. 201
jurabib: Added. 863
mathtools: Improved \underbraket, \overbracket. 924
mathtools: Updated starred macros. 924
mhchem: Now uses MathJax v3 extension. 942
multibib: Added. 955
nccmath: Updated starred, improved \underref. 970
physics: Now uses MathJax v3 extension. 1018
splitbib: Added. 1106
statex2: \pBin exponent. 1112
Added FixSmallCaps to remove \LWR@print@scshape for erewhon, et. al. 590
Docs: Updated docs to compile lwarp documentation. 186
File: lwarp_mathjax.txt: Now provides \ifstar, \ifnextchar. 307
Prevented csvtools. 205
v0.88
\@wrindex: Added support for *xindex*. 521
\IndexRangeSeparator: Added. . . 519
\LWR@HTML@ref: Added MathJax. . 498
Fixed: Starred. 497
\LWR@LetLtxMacrocs: Added. . . . 224
\LWR@absorbstar: Added. 224
\LWR@checkloadfilename: Prevented shadethm. 241
\LWR@doindexentry: Adapts to gindex. 524
\LWR@doindexentrysub: Adapts to gindex. 524
\LWR@doindexentrysubsub: Handles a range, for *xindex*. . . 524
\LWR@forcenewautoidanchor: Inline handling. 506
\LWR@hyperindexrefsubtwo: Adds support for a range, for *xindex*. 526
\LWR@indexnameref: Added IndexRef option, refactored. . 523
\LWR@maybe@orignewpage: Added. 223
\LWR@printchaptername: Conditionally print \chaptername. 389
\LWR@restoreMathJaxformatting: Added. 528
\LWR@restoreorigformatting: Added \vdots. 528
Support for MathJax. 529
\LWR@section: Conditionally print \chaptername. 393
\LWR@xindex@modifyentry: Added support for *xindex*. 520
\hrulefill: Full line if not started paragraph. 601
\hyperindexformat: Added. . . . 526
\hyperindexref: Rewritten to parse commas and ranges. 525
\hyperpage: Added. 526
\nohyperpage: Added. 526
General: 2020/07/19 1
lwarp.css: Added indexheading for gindex. 267
lwarp.css: Added tcolorbox, thmbox. 267
amsmath: Added \dotso text mode. 636
amsthm: Requires amsmath. . . 640
caption, scrextend: Fixed \caption*. 685
cleveref, varioref: Fix for starred macros. 729
fancyref: Now uses varioref which ignores page-related output. 778
fbox: Added. 785
gindex: Added. 821
hhtensor: Added. 842
mleftright: Added. 951
pdfrender: Restored for xfakebold. 1014
shadethm: Added. 1056
tcolorbox: Added. 1140
termcal: Added. 1146
thm-listof: Added. 1156
thm-restate: Added. 1156
thmbox: Added. 1157
ushort: Added. 1199
varioref: Removed page-related text. 1200
xfakebold: Now works with pdfrender. 1225

Added \vdots. 257, 600
Added LWR@texboxdepth. 223
Added IndexRef option. 230
Added xindex option. 230
Option xindexConfig added. . . 229
Prevented shadethm. 205
v0.883
General: nfssext-cfr: Fixed \textsw. 977
v0.89
\@opargbegintheorem: Allow preload of amsmath, amsthm, centernot. 422
\LWR@HTMLsanitizeexpanded: Fix: Nested MathJax environments. 378
\LWR@LwarpStart: MathJax: Improved info message. . . . 403
\LWR@addmathjax: TT font for MathJax. 549
\LWR@amsmathbodynumbered: \textendash for number range. 561
\LWR@customizeMathJax: Print MathJax customizations with typewriter font. 381
\LWR@doubledollar: TT font for MathJax. 543
\LWR@patcherror: Improved message. 221
\LWR@singledollar: TT font for MathJax. 544
\LWR@subsingledollar: TT font for MathJax. 542
\enddocument: Adapt to LaTeX core changes. 405
General: 2020/09/03 1
accents: Added. 624
atbegshi: Adapt to LaTeXkernel changes. 651
caption3: Split from lwarp-caption. 685
caption: Adapt to v3.5. 683
centernot: Improved. 689
econometrics: Uses lwarp-common-mathjax-letters. 747
everyshi: Adapt to LaTeXkernel changes. 769
everyshi: Included in LaTeX core. 612
hepunits: Added. 840
lwarp-common-mathjax-letters: Added. 1270
lwarp-common-mathjax-newpxtxmath: Added. 1276
lwarp-common-mathjax-overlaysymbols: Added. 1286
mathalpha: Added. 916
mathdesign: Added. 918
mathpazo: Added. 920
mathptmx: Added. 921
mismath: Improved math operators. 948
newpxmath: Added. 971
newtxmath: Added. 972
newtxsf: Added. 973
pxfonts: Added. 1028
shuffle: Added. 1058
siunitx: Fix: MathJax for \tothe, \raiseto. 1089
siunitx: Unicode for endash. . . 1094
statmath: Fixed abcbm, uses lwarp-common-mathjax-letters. 1120
thm-listof: Updated to v0.72. . 1156
thm-restate: Updated to v0.72, no changes needed. 1156
thmtools: Added. 1157
txfonts: Added. 1188
upgreek: Added. 1198
lwarpmk: clean also removes *.bbl 311
Allow preload of amsmath, amsthm, centernot. 207, 612
AMS environments: Fix: <ALT> text env name. 637
Foreground/background hooks: Adapt to LaTeX core changes. . 406
MathJax: Added \protect, and \mathcode and related. 381
Removed \let of \[, \]. 546
eqnarray: \textendash for number range. 556
v0.891
\LWR@atbeginverbatim: Fix for verbatim, alltt with lists 419
\LWR@checkloadfilename: Prevented libgreek. 241
\LWR@excludecomment: Error if nested comment. 233
\LWR@subHTMLsanitize: Neutralized single quotes. . . . 377
\verb: \verb as \texttt. 418
General: 2020/09/22 1
biblatex: Fixed: Back page references. 668
bussproofs: Added. 681
caption: Improved integration. . 684
cmbright: Added. 730
colonequals: Uses Unicode and \mathrel. 731
fancyvrb: Fix: BVerbatim with labels. 781
fourier: Added. 810
hyperref: Added backref, pagebackref. 843
hyperref: Fixed \texorpdfstring with babel-french. 851
kpfonts-otf: Added. 875
kpfonts: Added. 874
libertinust1math: Added. 882

listings: Fix for MathJax: Moved \LWR@forcenewpage to start. 892, 893
listings: Improved HTML sanitizing. 891
listings: Improved spacing around ampersand. 891
lwarp-common-mathjax-newpxtxmath: Expanded for kpfonts. 1277–1279, 1283
lwarp-common-mathjax-newpxtxmath: Factored non-Unicode. . . 1278, 1279, 1281
lwarp-common-mathjax-newpxtxmath: Reverse factored out Greek, non-Unicode. 1276
lwarp-common-mathjax-nonunicode: Added. 1283
mathdesign: Added \mathinner, \mathbin. 919
mathdesign: Added \mathop. . . 919
mathdesign: Added \mathrel, \mathord. 918
mathdesign: Honors greekuppercase, greeklowercase. 918
mathdots: Added more macros, \mathinner. 919
mathfixs: Added \mathinner. . . 920
mathpazo: Honors slantedGreek. 920
mathptmx: Honors slantedGreek. 921
mathtools: Improved \underbraket, \overbracket. 924
multiobjective: Improved. 958
newpxmath: Honors uprightGreek, slantedGreek. 971, 973
newtxmath: Honors uprightGreek, slantedGreek. 972
nicefrac: Added \mathinner, improved fraction. 980
scalerel: Added. 1042
shuffle: Added \mathbin, improved bar. 1059
txgreeks: Added. 1189
unicode-math: Added sans-style. 1194
units: Added \mathinner, improved fraction. 1197
File: lwarp_mathjax.txt: Renamed tagformat extension. 307
Prevented libgreek. 205
BVerbatim: fancyvrb: Fix: BVerbatim with labels. 785
v0.892
\LWR@subhtmlelementclass: Ignore empty class. 349
\fcolorbox: xcolor: Fixed second optional arg. 1219
\fcolorboxBlock: xcolor: Fixed second optional arg. 1219
General: 2020/10/07 1
fancyvrb: Adapted to fvextra. . . 785
fancyvrb: Provided \FV@FrameFillLine. 783
fourier: Added \left/\right support in lwarp_mathjax.txt. 810
fvextra: Added. 815
graphics: Fix path from kernel change. 832
libertinust1math: Added \left/\right support in lwarp_mathjax.txt. 883
lineno: Fix for internallinenumbers*. . . . 888
lwarp-common-mathjax-newpxtxmath: Added \left/\right support in lwarp_mathjax.txt. 1276, 1281
minted: Added. 947
unicode-math: Adeed MathJax support for \left/\right. . 1195
File: lwarp_mathjax.txt: Added \left/\right delimiters. . . . 307
fcolorminipage: xcolor: Fixed second optional arg. 1220
v0.893
\LWR@checkloadfilename: Allowed picinpar. 241
\LWR@expandableformatted: Improved error handling. . . . 252
\LWR@expandableformattedenv: Improved error handling. . . . 253
\LWR@formatted: Improved error handling. 252
\LWR@formatted@checkendname: Added. 251
\LWR@formatted@checkname: Added. 251
\LWR@formattedenv: Improved error handling. 253
\LWR@htmlcomment: Disabled in math mode. 349
\LWR@subHTMLsanitize: Optionally neutralized single quotes. . . . 377
General: 2020/11/26 1
MathJax: Added \mathnormal. 380
lwarp.css: Added keystroke. . . 267
braket: Now uses MathJax extension. 678
caption3: Updated date to v2.2e. 685
caption: Updated date to v3.5g. 683
epstopdf-base: Updated date to v2.11. 762
epstopdf: Updated date to v2.11. 762
esvect: Added. 766
fixmath: Added. 789

graphics: Updated date to v1.4c. 824
graphicx: Updated date to v1.2b. 836
keystroke: Added. 873
lwarp-common-mathjax-letters: Added \varbeta. 1270
mathastext: Added. 916
mathspec: Added. 921
menukeys: Added. 940
menukeys: Updated to v1.6.1. . 940
picinpar: Added. 1020
plimsoll: Added. 1024
pstricks: Fixed pspicture*. . . 1027
repltext: Added. 1037
schemata: Added <alt> text. . 1042
selectp: Added. 1052
seqsplit: Added. 1054
simplebnf: Added. 1061
statistics: Added. 1115
struktex: Removed package date. 1123
svg: Updated date to v2.02j. . . 1131
swfigure: Added. 1132
tikz: Fixed font macros. 1161
tocloft: Fix: \cftpagenumbersoff, \cftpagenumberson. 1180
Allowed picinpar. 205
v0.894
\LWR@forceSVGmessage: Improved MathJax warnings. 618
\LWR@mathjaxwarn: Improved MathJax warnings. 618
General: 2020/12/24 1
MathJax: Accept starred \hspace. 380
MathJax: Added \arabic, \number, \noalign. 380
lwarp.css: TEX logos no longer below baseline. 267
booktabs: MathJax: Absorb \cmidrule trim arg. 677
colortbl: Added MathJax emulation. 733
nicematrix: Added. 981
rmathbr: Updated to v1.1. . . . 1038
v0.895
\LWR@addlinktitle: Improved HTML quotes. 495
\LWR@checkloadfilename: kpfonts load before lwarp. 242
Allowed epsf. 241
\LWR@domulticolumn: Improved HTML quotes. 472, 473
\LWR@floatbegin: Improved HTML quotes. 504
\LWR@forceSVGmessage: Improved MathJax warning. 618
\LWR@forcenewautoidanchor: Improved HTML quotes. . . . 506
\LWR@hook@processingtags: Added. 344
\LWR@label@subcreatetag: Improved HTML quotes. . . . 493
\LWR@mathjaxwarn: Added MathJax warnings for aligned-overset, autoaligne, boldtensors, liberitinust1math, tensind. . . . 618
Improved MathJax warning for unicode-math. 618
\LWR@maybenewtablerow: Improved HTML quotes. 455
\LWR@printatbang: Improved HTML quotes. 456
\LWR@printopenlist: Improved HTML quotes. 423
\LWR@startref: Improved HTML quotes. 495, 496
\LWR@subaddtabularcellcolor: Improved HTML quotes. . . . 467
\LWR@subhyperref: Improved HTML quotes. 500
\LWR@subhyperrefclass: Improved HTML quotes. 500
\LWR@subinlineimage: Improved HTML quotes. 501
\LWR@tabledatasinglecolumntag: Improved HTML quotes. . . . 458
\LWR@tdaddstyle: Improved HTML quotes. 461
\LWR@tdendstyles: Improved HTML quotes. 461
\hspace: Improved HTML quotes. . 604
\rotatebox: Improved HTML quotes. 834
\rule: Improved HTML quotes. 606, 607
\scalebox: Improved HTML quotes. 835
\verb: Improved HTML quotes. . . 418
General: 2021/02/18 1
acro: Updated to v3.5. 626
amscdx: Added. 636
amsmath: Added \Hat, etc.. . . . 639
changes: Updated to v4.0.1. . . 691
epsfig: Supports lateximage. . . 761
epsf: Added. 761
fancyhdr: Updated to v4.0. . . . 776
impnattypo: Added. 859
isomath: Added. 861
isotope: Added. 862
libertinust1math: MathJax: Fixed for Greek, ignoring sans. 883
lpic: Added. 901
luavlna: Added. 908
mattens: Added. 926
mdwmath: Added. 937
multirow: Allow \par. 961
multirow: Improved HTML quotes. 960
pinlabel: Added. 1022
rlepsf: Added. 1038

rotating: Supports lateximage. 1039
siunitx, MathJax: Scientific notation. 1092
siunitx, MathJax: \num sci notation, multiples, +-, decimals, comma. 1090
siunitx: Fix: MathJax for \ang. 1090
siunitx: MathJax: \SI prefix parsing. 1093
skmath: Added. 1098
tensor: Added MathJax. 1145
tikz-imagelabels: Added. 1162
xevlna: Added. 1224
Allowed epsf. 205
File: lwarp_mathjax.txt: Added \ifblank, \ifstrequal macros. 307
Fixed libertinus-otf \textquotedbl kern. 257
Improved HTML quotes. 255, 344, 634, 781, 830, 831, 838, 848, 849, 893, 931, 991
Use kpfonts-otf if LuaLaTeX, XeLaTeX. 220
lateximage: Improved HTML quotes. 563
minipage: Improved HTML quotes. 583
enumerate: Improved HTML quotes. 427
itemize: Improved HTML quotes. . 426
v0.896
\@begintheorem: Intersperse footnotes. 422
\@currentHref: backref: Improved back refs. 499
\@endtheorem: Intersperse footnotes. 422
\LWR@@footnotetext: Fix: autopage references in footnotes. . . . 365
\LWR@@printpendingfootnotes: Added ARIA role. 367
Fix: Backref to footnote. 367
\LWR@LwarpEnd: Added <main>. . . 404
Fix: Footnotes at end of document. 404
\LWR@LwarpStart: Added <main>. . 403
\LWR@currentautosecpageref: Added. 492
\LWR@doequation: Added ARIA role. 551
\LWR@doubledollar: Added ARIA role. 544
Fix: Displaymath notes with MathJax. 543
\LWR@firstoffive: Changed to firstoffive instead of four. . . . 222
\LWR@htmldivclass: Added ARIA role. 350
\LWR@htmlelementclass: Added ARIA role. 350
\LWR@htmlspanclass: Added ARIA role. 348
\LWR@lateximage@oneimage: Added ARIA role. 561
\LWR@lateximage@oneimageb: Added ARIA role. 561
\LWR@new@label: Revert to a simple \newcommand*. 495
\LWR@newautopagelabel: Fix: Refs if page changed. 371
\LWR@newhtmlfile: Added <main>. 383, 385
\LWR@null@newautopagelabel: Fix: Refs in footnotes. 371
\LWR@nullfonts: Added ARIA role. 532
Added groups. 532
\LWR@popclose: Stack 19 deep. . . 331
\LWR@printpendingmpfootnotes: Added ARIA role. 368
\LWR@pushclose: Error if stack overflow. 330
Stack 19 deep. 330
\LWR@refwithsection: Added. . . . 497
\LWR@subhtmlelementclass: Added ARIA role. 349
\LWR@subinlineimage: Added ARIA role. 501
\LWR@subsingledollarsvg: Added ARIA role. 539
\LWR@synconenotename: Fix: MathJax: Footnote names. . . 552
\LWR@write@lwarplabel: Added \LWR@currentautosecpage. . . 493
\LWRPrintStack: Stack 19 deep. . . 341
\RequirePackage: Warn if package option has braces. 244
\marginpar: Added ARIA role. . . . 369
\marginparBlock: Added ARIA role. 369
\mbox: Added a group. 585
General: 2021/04/08 1
lwarp.css: Added <main>, adjusted <sidetoccontainer> margin. 267 760
amsthm: Improved back refs. 642, 644
amsthm: Intersperse footnotes. 642–644
backref: Improved backrefs. . . . 660
biblatex: Fix: Back references. . 668
biblatex: Fix: Citation references. 668
biblatex: Improved refs: \ref to \LWR@refwithsection. 668
bigdelim: Updated to v2.8. 671
ccicons: Added. 688
chemfig: Updated to v1.6a. 696, 697
citeref: Improved refs: \ref to \LWR@refwithsection. 725
classicthesis: Added. 726
cleveref: Undo memoir changes. 729
cleveref: Undo subfig changes. . 730
enotez: Added. 757

fancybox: Fix: autopage references in footnotes. 772
floatflt: Added ARIA role. 794
hyperref: Fix: Added *autorefname macros. 850
hyperref: Fix: No \hyperlink in HTML comment. 850
hyperxmp: Added keys. 852
keyfloat: Added ARIA role. 872
listings: Escapes accepted but disabled. 892
listings: Fix: Labels. 892
lwarp-patch-memoir: Added ARIA role. 1254
natbib: Fix: Citation references.. 968
ntheorem: Intersperse footnotes. 988, 989, 996
orcidlink: Added. 999
parnotes: Added ARIA role. . . . 1005
pdflscape: Fix: Added landscape. 1011
picinpar: Added ARIA role. . . . 1020
scrlayer-scrpage: Added \automark, \manualmark. . . 1049
scrlayer-scrpage: Added \headmeark, \pagemark. . . . 1049
theorem: Intersperse footnotes. 1155
threeparttablex: Fix: \TPTL@tnotex if not referrable. 1160
tocloft: Fix: \cftpagenumbersoff, \cftpagenumberson with memoir. 1180
wrapfig: Added ARIA role. 1209
Docs: Theorem references. . . . 152
Fix: autopage references in footnotes. 780
Stack 19 deep. 329
lateximage: Added ARIA role. 562, 566
center: Spurrious space in a 567
description: Fix: Footnotes inside description label. 427
minipage: Improved back refs. . . . 584
BlockClass: Added ARIA role. . . . 351
flushleft: Spurrious space in a 568
flushright: Spurrious space in a 567
LWR@BlockClassWP: Added ARIA role. 352
LWR@displaymathother: Added ARIA role. 546
LWR@equationother: Added ARIA role. 546
LWR@nestspan: Issue BlockClassWP warning inside a span. 347
v0.897
\LWR@afterloadnever: Refactored. 204
\LWR@checkloadfilename: Refactored. 242
\LWR@checkloadnever: Refactored. 207
\LWR@checkloadnevers: Refactored. 205
\LWR@earlyclassloadnever: Replacements now optional. . 204
\LWR@earlyloadnever: Refactored. 204
\LWR@listof: Improved compatibility with newfloat, keyfloat. 514
\LWR@loadnever: Replacements now optional. 203
\RequirePackage: Fixed warning. 244
General: 2021/05/24 1
centerlastline: Added. 689
decorule: Added. 740
fancypar: Added. 777
fixme: Modified \AtBeginDocument. 790
float: Improved compatibility with newfloat, keyfloat. 794
froufrou: Added. 813
pbalance: Added. 1008
siunitx-v2: Do not use math mode. 1081
siunitx-v2: Rollback for v2. . . . 1080
siunitx: Rollback for v2. . 572, 1070
v0.898
\LWR@atbeginverbatim: Reduced underfull \hbox warnings. . . . 419
\LWR@beginhideamsmath: Reduced underfull \hbox warnings. . . . 554
\LWR@hidelatexequation: Reduced underfull \hbox warnings. . . . 549
General: 2021/05/29 1
listings: Reduced underfull \hbox warnings. 892
wrapfig: Improved integration with keyfloat. 1209
Reduced underfull \hbox warnings. 831
lateximage: Reduced underfull \hbox warnings. 563
LWR@figcaption: Reduced underfull \hbox warnings. . . . 508
v0.899
\LWR@LwarpStart: Warn if lwarp package not detected. 402
General: 2021/06/29 1
lwarp.css: Improved multicol. . 267
graphics: Supports keepaspectratio. 826, 832
keyfloat: Fix: lw w/ h. 869
lwarpmk: Warn if lwarp package not detected. 311
v0.900
\LWR@addmathjax: Fix: alignat with MathJax. 549
\LWR@filestart: Spurrious space. 400

General: 2021/07/17 1
changes: Updated to v4.2.1. . . . 691
froufrou: Updated to v1.4.0. . . . 813
lipsum: Added. 890
Fix: alignat with MathJax. . . . 637
Fix: flalign name. 656
v0.901
\HTMLnewcolumntype: Improved \newcolumntype emulation. . 451
\LWR@checkmathcolpar: Error if math in column specifier. . . . 443
\LWR@formatted@checkendname: Improved error handling. . . . 251
\LWR@formatted@checkname: Improved error handling. . . . 251
\LWR@modifycolumntype: Improved \newcolumntype emulation. . 448
\LWR@parseaftercolumn: Error if math in column specifier. . . . 445
\LWR@parsebeforecolumn: Error if math in column specifier. . . . 444
Tabular cell text alignment. . . . 444
\LWR@parsenormalcolumn: Improved \newcolumntype emulation. 447
\LWR@parsetablecols: Improved \newcolumntype emulation. . 453
\LWR@printmccoldata: Improved \newcolumntype emulation. . 469
\LWR@printmccoltype: Improved \newcolumntype emulation. . 468
\LWR@tabledatasinglecolumntag: Tabular cell text alignment. . . 458
General: 2021/08/27 1
lwarp.css: Improved captions. 267
lwarp.css: Tabular cell text alignment. 267
array: Fixed if array already loaed. 647
array: Improved \newcolumntype emulation. 648
array: Now required. 612
centernot: Now uses MathJax 3.2 package. 689
dcolumn: Works inside lateximage. 739
gensymb: Use MathJax 3.2 package. 819
keyfloat: More room. 872
lltjp-tascmac: Added. 898
mathtools: Uses MathJax 3.2 package. 924
mwe: Added. 965
nicematrix: Added \Hline. . . . 983
siunitx-v2: Improved \newcolumntype emulation. 1080
tabularx: Improved \newcolumntype emulation. 1134
tabulary: Improved \newcolumntype emulation. 1135
textcomp: Uses MathJax 3.2 package. 1150
upgreek: Use MathJax package. 1198
xcolor: Moved \LWR@formatted. 577
Added print versions of \LWR@formatted, etc. 253
warpsvg: Added. 235
v0.902
\@makefntext: Fixed: Footnotes inside square brackets. 365
\@mpfootnotetext: Improved par tags. 367
\LWR@@footnotetext: Improved footnote par tags. 366
\LWR@closeparagraph: Improved parnotes. 357
\LWR@nameref: Nullify footnotes in \nameref. 492
\LWR@openparagraph: Improved parnotes. 355
Improved par tags. 355
\LWR@restoreorigformatting: Improved minipage footnotes. 529
\maketitle: Now named \LWR@maketitle to avoid being overwritten later. 412
\textnormal: Reduce nested spans. 594
General: 2021/10/01 1
lwarp.css: Added textnormal. 267
lwarp.css: Added beamerarticle. 267
lwarp.css: Centered author. 267
amsthm: Fixed empty theoremendmark 644
beamerarticle: Added. 665
fancybox: Improved footnote par tags. 772, 773
fancyvrb: Improved footnote par tags. 780
footnote: Fixed missing number. 807
footnote: Improved par tags. 806, 807
luatexko: Removed deprecated <rb>. 905
luatexko: Updated to v3.3. . . . 904
memoir: Fixed \memorigpar. . 1249
multimedia: Added \hyperlinksound, \hyperlinkmute. 957
sympytex: Improved sympyblock. 1132
xetexko: Updated to v4.0. . . . 1224
xpinyin: Removed deprecated <rb>. 1230
Fixed: Footnotes inside square brackets. 364
Forbid beamer. 207
Improved footnote par tags. . . 365
Improved footnotes. 582

Improved par tags. 354
MathJax: Added std. intl. symbols. 381
lateximage: Improved footnotes. . 565
Removed varwidth. 567
description: Improved footnotes. 427
minipage: Improved footnotes. . . 584
v0.903
\@ensuredmath: Improved math sanitization. 545
\InlineClass: Now using \NewCommandCopy. 352
\LWR@HTMLLatexCmd: Allow transparency. 265
\LWR@HTMLsanitizedetokenized: Added. 378
\LWR@LwarpStart: Par handling. . 402
\LWR@checkloadnevers: Alternative for cellspace. 205
\LWR@closeparagraph: Par handling. 356
\LWR@closeparagraph@br: Par handling. 356
\LWR@doubledollar: Improved alt tag sanitization. 544
Improved math sanitization. . . 543
\LWR@expandableformatted: Now using \NewCommandCopy. 252
\LWR@expandableformattedenv: Now using \NewCommandCopy. 253
\LWR@formatted: Now using \NewCommandCopy. 252
\LWR@formattedenv: Now using \NewCommandCopy. 253
\LWR@futurenonspacelet: Now ignores \par. 432
\LWR@itemizeitem: Par handling. . 426
\LWR@listitem: Par handling. . . . 425
\LWR@nullifyfootnotes: Added. . 368
\LWR@openparagraph: Par handling. 355
\LWR@refwithsection: Fixed: Ref undefined or w/o label. 497
\LWR@restoreorigformatting: Par handling. 528
\LWR@section: Add: Sectioning HTML comment divider. 391
Fix: Nullfiy footnotes in HTML comment. 391
\LWR@setexparray: Par handling. . 332
\LWR@singledollar: Improved alt tag sanitization. 544
\LWR@startpars: Par handling. . . 358
\LWR@stoppars: Par handling. . . . 359
\LWR@subsingledollar: Improved math sanitization. 542
\NewEnvironmentCopy: Added. . . . 221
\csNewCommandCopycs: Added. . . . 221
General: 2022/02/01 1
lwarp.css: Improved pars in lists. 267
SIunits: Improved alt tag sanitization. 1062
cases: Updated to v3.2. 688
chemformula: Improved alt tag sanitization. 699–701
chemmacros: Improved alt tag sanitization. 705, 713, 717, 721, 943
color: Par handling. 732
cuted: Updated to v2.0. 738
endnotes: Nullify endnotes. . . . 753
etoolbox: Patch for \NewCommandCopy. 201
fancybox: Par handling. 775
fancybox: Warn if span. 775
flushend: Updated to v4.0. 800
graphics: alt now in graphicx core. 574, 828
lipsum: Par handling. 891
mathalpha: Updated for v1.14+. 916
mhchem: Improved alt tag sanitization. 943
minted: Updated to v2.6. 947
multirow: Par handling. 961
nccfoots: Nullify footnotes. . . . 969
parnotes: Fixed if no cleveref. 1007
parnotes: Nullify footnotes. . . 1007
parnotes: Par handling. . 1006, 1007
showlabels: Added. 1057
siunitx-v2: Improved alt tag sanitization. 1082, 1083
siunitx, MathJax: Improved decimal commas. 1090, 1091, 1093
siunitx, MathJax: Leading zero. 1090
siunitx: Improved \per. 1095
siunitx: MathJax: Improved \SIlist. 1094
siunitx: MathJax: Improved \numlist. 1093
todo: Fix if no cleveref. 1183
wrapfig2: Added. 1210
wrapfig: Fix: width style. 1209
xcolor: Par handling. 1215
lwarpmk: Error if *pdftotext* not available. 311
Docs: Math images. 87
Docs: Now using \NewCommandCopy, xparse OK. 249
Now uses \IfPackageLoadedTF, etc. 1
Par handling. 354, 357
tabbing: Converted to env. 421
tabular: Par handling. 485, 486
fcolorminipage: Now using \NewCommandCopy. 576
verbatim: Added verbatim*. 420
BlockClass: Now using \NewCommandCopy. 351

fminipage: Now using \NewCommandCopy. 588
LWR@BlockClassWP: Now using \NewCommandCopy. 352
LWR@nestspan: Par handling. 347
v0.904
\HTMLentity: Improved font control. 335
\HTMLnewcolumntype: Added optional arg. 451
\LWR@fontfortags: Improved font control. 335
\LWR@htmltagc: Improved font control. 346
\LWR@textcurrentfont: Uses textnormal if possible. 595
\fcolorboxBlock: xcolor: Added optional HTML style. 1219
\textnormal: Improved. 594
General: 2022/03/09 1
array: Improved W and w processing. 648
cancel: Now \LWR@formatted. . 682
caption: Added \captiontext. . 684
chemmacros: Accept lwarp version of pkgs. 704
chemmacros: Nullify hyperref detection. 705
common-mathjax-siunitx: Factored from siunitx-v2. . . 1089
fbox: Added border colors. 786, 787
hyperref: Added \HyperDest*. . 848
hyperref: Added \hyperget. . . . 848
lltjp-siunitx: Added. 898
multicol: Added \newcolumn. . . 956
siunitx-v2, MathJax: Use range-phrase. 1089
siunitx-v2: Improved range phrase. 1088
siunitx-v2: Updated to v2.8e. . 1080
siunitx, MathJax: Fixed \pm. . 1091
siunitx, MathJax: Split by x before e. 1092
siunitx, MathJax: Use range-phrase. 1078, 1094
siunitx: Added v3. . . . . 572, 1070
wrapfig2: Update to v5.0. 1211
File: lwarp_mathjax.txt: Added \gsub macro. 307
File: lwarp_mathjax.txt: Defaults to SVG instead of CHTML. 307
Warn if & outside tabular. . . . 333
v0.904a
General: 2022/03/16 1
Fixed missing common-mathjax-siunitx. 1

Index of Objects

This is an index of macros, environments, booleans, counters, lengths, packages, classes, options, keys, files, and various other programming objects. Each is listed by itself, and also by category. In some cases, they are further subdivided by [class].

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition.

Symbols

\$ *535*
\& *335*, 8863
\(. 11941
*-images.txt (file) *562*
*_html.aux (file) *370*, *490*, *562*
*_html.lof (file) *508*
*_html.lot (file) *508*
*_html.tex (file) *260*
\, ... *120*
--shell-escape (option) *100*
\@@@setcpageref 39
\@@@setcref 2
\@@@setcrefrange 17
\@author *407*
\@begintheorem 8479
\@biblabel 11376
\@caption 10802
\@captype 10779
\@chapcntformat 7535
\@currentHref 10578
\@currentlabelname 10358
\@date *407*
\@donoparitem 8511
\@endtheorem 8494
\@ensuredmath 11951
\@fnsymbol 8198
\@footnotetext 6875
\@include 1646
\@item 8524
\@makecaption 10802
\@makefnmark 6844
\@makefntext 6843
\@maketitle 57, 8232
\@mklab 8505
\@mpfootnotetext 6877
\@nbitem 8589
\@opargbegintheorem 8486
\@partcntformat 7536
\@partnameformat 7537
\@rowc@lors 9286
\@rowcolors 9285
\@seccntformat 7533
\@starttoc 10942
\@textsubscript 13436
\@textsuperscript 13432
\@title *407*
\@wrglossary 11195
\@wrindex 11167
\@xdlbfloat 10723
\@xfloat 10723
\[. 11941
\\ *602*
$ *543*
$$ *543*
\@nameauth@Hook (hook) [nameauth] . *966*
\KFLT@LWR@hook@boxouter (hook) [keyfloat] *868*
\KFLT@LWR@hook@keyfloatsminipage (hook) [keyfloat] *868*
\KFLT@LWR@hook@keyfloats (hook) [keyfloat] *868*
\KFLT@LWR@hook@keysubfloats (hook) [keyfloat] *868*
\LWR@hook@processingtags (hook) [lwarp] *344*
\fancyrefhook (hook) [fancyref] *778*
2in1 (package) *620*
2up (package) *620*

A

a4 (package) *620*
a4wide (package) *620*
a5comb (package) *621*
abstract (environment) 8300
abstract (package) *131*, *621*
\abstractname *110*, 8299
academicons (package) *623*
accents (package) *624*
accessibility (package) *625*
accsupp (package) *625*
acro (package) *626*
acronym (package) *628*
\addcontentsline 10891
addlines (package) *630*
\AddSubtitlePublished 8263
adjmulticol (package) *629*
Adobe (program) *73*
\affiliation 8096
afterpage (package) *630*
algorithm2e (package) *630*
algorithmicx (package) *166*, *634*
align (environment) 95
align* (environment) 98
alignat (environment) 107
alignat* (environment) 110

alltt (package) 635
\AltTextClose 112, 11593
\AltTextOpen 112, 11592
\AmS 13795
amscdx (package) 635
amsmath (package) 636
amsthm (package) 640
\and 407
anonchap (package) 644
anysize (package) 645
appendix (package) 132, 645
ar (package) 646
arabicfront (package) 647
array (package) 647
\arrayrulecolor 9293
\arrayrulecolornexttoken 9293
arydshln (package) 648
AsciiDoc (program) 73
AsciiDoctor (program) 73
Asciidoctor-LaTeX (program) 73
asymptote (package) 159, 650
atbegshi (package) 651
attachfile (package) 651
attachfile2 (package) 652
\attrib 170, 417, 1200
\attribution 8310
authblk (package) 131, 654
\author 117, 407
autobreak (package) 655
autonum (package) 655
autosec 387
awesomebox (package) 656
axessibility (package) 657
axodraw2 (package) 658

B

babel (package) 171
\backmatter 7511
backnaur (package) 659
backref (package) 660
balance (package) 660
\BaseJobname 6038
BaseJobname (option) 106, 228
bbding (package) 660
beamerarticle (package) 665
\bfseries 13332
biblatex (package) 667
\bibliography 11376
\BibTeX 13788
bibunits (package) 671
bigdelim (package) 166, 671
bigfoot (package) 672
bigstrut (package) 673
bitpattern (package) 673
BlockClass (environment) . . . 115, 6516
\BlockClassSingle 6527
blowup (package) 674
bm (package) 674
booklet (package) 674
bookmark (package) 675
booktabs (package) 675
boolean:
CombineHigherDepths 109, 372
FileSectionNames 109, 336
FixSmallCaps 109, 120, 590
FormatEPUB 178, 254
FormatWP 180, 254
HTMLDebugComments 110, 249
LWR@algocf@dopars 354
LWR@allowanothergeometry 237
LWR@amsmultline 554
LWR@copiedsidetoc 513
LWR@doingapar 354
LWR@doingcmidrule 433
LWR@doingparhooks 354
LWR@doingstartpars 354
LWR@doingtbrule 433
LWR@dynamicmath 334
LWR@emptyatbang 434
LWR@exitingtabular 434
LWR@forceminipagefullwidth . . . 581
LWR@foundmrowcell 433
LWR@freezethisautoid 506
LWR@in@multirow@par 354
LWR@indisplaymathimage 534
LWR@insidemathcomment 534
LWR@intabularmetadata 434
LWR@isstartingequation 560
LWR@MathJax@silentquotes 377
LWR@mathmacro 333
LWR@minipagefullwidth 581
LWR@minipagethispar 582
LWR@opttablecol 434
LWR@origmathjax 227
LWR@setseqfilelabel 337
LWR@skipatbang 433
LWR@skippingmcolrowcell 433
LWR@skippingmrowcell 433
LWR@spewingnotes 365
LWR@starredlongtable 436
LWR@startedrow 432
LWR@starting@fancybox 354
LWR@tableparcell 433
LWR@tabularcelladded 433
LWR@tabularmutemods 434
LWR@tracinglwarp 248
LWR@unknownmathsize 536
LWR@usedmultirow 433
LWR@validtablecol 434
LWR@verbtags 418
LWR@warnbaselinemarker 536
LWR@warnedcustomizemathjax . . . 379
LWR@xfakebold 534
mathjax 227
usingOSWindows 226
warpingHTML 227
warpingprint 227
WPMarkFloats 181, 254
WPMarkLOFT 182, 255
WPMarkMath 182, 255

WPMarkMinipages 181, 254
WPMarkTOC 182, 254
WPTitleHeading 182, 255
bophook (package) 677
bounddvi (package) 677
boxedminipage (package) 678
boxedminipage2e (package) 678
\boxframe 180
braket (package) 678
breakurl (package) 679
breqn (package) 679
bsheaders (package) 681
bussproofs (package) 681
BVerbatim (environment) 257
bxpapersize (package) 681
bytefield (package) 682

C

calc (package) 238
cancel (package) 682
canoniclayout (package) 683
capt-of (package) 510
caption (package) 166, 510, 683
caption3 (package) 685
\caption@begin 10859
\caption@end 10859
\captionlistentry 10866
\captionof 10907
\CaptionSeparator 10801
cases (package) 687
ccicons (package) 688
center (environment) 12554
\centering 12584
centerlastline (package) 689
\centerline 12603
centernot (package) 689
changebar (package) 689
changelayout (package) 690
changepage (package) 690
changes (package) 691
chappg (package) 696
\chapter 7757
chapterbib (package) 696
chemfig (package) 696
chemformula (package) 698
chemgreek (package) 703
chemmacros (package) 704
chemnum (package) 723
chkfloat (package) 724
chngpage (package) 724
cite (package) 725
citeref (package) 725
CJK (package) 726
CJKutf8 (package) 726
class (key) [Gin] 828
class:
internet 72
komascript 168
memoir 168, 170, 1201
classicthesis (package) 726
\cleardoublepage 13617
\clearpage 13617
cleveref (package) 128, 727
clrdblpg (package) 730
cm-super (package) 100
cmap (package) 101
cmbright (package) 730
cmdtrack (package) 731
colonequals (package) 731
\color 54
color (package) 158, 732
\colorbox 81
\colorboxBlock 90, 12676
colortbl (package) 165, 732
CombineHigherDepths (boolean) 109, 372
comment (package) 233
common-mathjax-siunitx (package) 1089
\ConTeXt 13783
continue (package) 734
copyrightbox (package) 734
core.ins (file) 188
counter:
FileDepth 109, 372
FootnoteDepth 109, 364
footnoteReset 364
lofdepth 517
lotdepth 517
LWR@cellcolordepth 435
LWR@currentautosecfloatpage . . 370
LWR@currentautosecpage 370
LWR@externalfilecnt 534
LWR@hdashedlines 433
LWR@hlines 433
LWR@htmlfilenumber 337
LWR@htmlseqfilenumber 337
LWR@lateximagedepth 558
LWR@lateximagenumber 558
LWR@LIpage 559
LWR@maxfields@ 637
LWR@midrulecounter 436
LWR@minipage@depth 582
LWR@mpfootnote@store 582
LWR@nextautoid 508
LWR@nextautopage 508
LWR@nextequation 547
LWR@prevFileDepth 388
LWR@previousautopagelabel . . . 371
LWR@spandepth 354
LWR@startingequation 559
LWR@tablecolspecindex 435
LWR@tablecolspecwidth 435
LWR@tableLaTeXcolindex 435
LWR@tabletotalLaTeXcols 435
LWR@tabletotalLaTeXcolsnext . . 435
LWR@tabularDepth 434
LWR@tabularpardepth 434
LWR@thisautoid 505
LWR@thisautoidWP 506
LWR@virtualpagedepth 580
SideTOCDepth 107, 515

tocdepth 107
\cpagerefFor 38
crop (package) 735
\csNewCommandCopycs 951
\CSSFilename 110, 113, 6781
ctable (package) 735
\CustomizeMathJax 7254, 7365
cuted (package) 738
cutwin (package) 738

D

\date 117
dblfloatfix (package) 739
dblfnote (package) 739
dcolumn (package) 739
decimal (package) 740
\DeclareGraphicsExtensions 2
\DeclareSIUnit 154, 571, 1079
decorule (package) 740
\defaddtocounter 939
dejavu (package) 100
description (environment) 8677
diagbox (package) 740
dingbat (package) 742
\displaymathnormal . . . 152, 553, 12208
\displaymathother 152, 553, 12219
ditaa (package) 177
DotArrow (package) 743
\dotfill 13535
dotlessi (package) 743
\doublerulesepcolor 9295
\doublerulesepcolornexttoken . . . 9295
dprogress (package) 744
draftcopy (package) 744
draftfigure (package) 744
draftwatermark (package) 745
drftcite (package) 745
dvipdfm (option) 102, 230
dvipdfmx (option) 102, 231
dvips (option) 102, 230

E

easy-todo (package) 745
ebook (package) 746
\ebweight 13337
econometrics (package) 747
ed (package) 749
ellipsis (package) 750
embrac (package) 750
\emph 13119
emptypage (package) 751
\end@dlbfloat 10748
\end@float 10748
\enddocument 8032
enddocument/info (hook) [LaTeX] . . . 405
endfloat (package) 751
endheads (package) 751
endnotes (package) 132, 752
engtlc (package) 753
\enlargethispage 13616
enotez (package) 757
\enskip 602, 13561
enumerate (environment) 8651
enumerate (package) 759
enumitem (package) 760
environ (package) 240
environment:
BlockClass 115
fminipage 123
lateximage 557
picture 579
titlepage 117
titlingpage 117
warpall 116
warpHTML 112, 115
warpMathJax 116
warpprint 112, 116
warpsvg 116
environments:
abstract 8300
align 95
align* 98
alignat 107
alignat* 110
BlockClass 6516
BVerbatim 257
center 12554
description 8677
enumerate 8651
eqnarray 12256
equation 12186
equation* 12194
fcolorminipage 160, 12716
flalign 101
flalign* 104
flushleft 12574
flushright 12564
fminipage 13050
gather 89
gather* 92
itemize 8643
lateximage 12400, 12550
list 8611
longtable 4
LWR@BlockClassWP 6555
LWR@blocktextcurrentfont 13318, 13464
LWR@displaymathnormal 11995
LWR@displaymathother 11998
LWR@equationother 12011
LWR@figcaption 10829
LWR@glrbox 1001
LWR@nestspan 6349
LWR@setvirtualpage 12799
LWRcreatelwarpmk 1312
math 11994
minipage 12828
multline 82
multline* 85
picture 12790

quotation 8337
quote 8329
tabbing 8458
tabular 10200
thebibliography 11377
theindex 11118
titlepage 8113
titlingpage 14
verbatim 8424
verse 2, 8347
warpall 1287
warpHTML 1288
warpMathJax 1294
warpprint 1291
warpsvg 1303
epigraph (package) *760*
epsf (package) *761*
epsfig (package) *761*
epstopdf (package) *158*, *762*
epstopdf (program) *156*, *573*
epstopdf-base (package) *762*
eqlist (package) *763*
eqnarray (environment) 12256
eqparbox (package) *763*
equation (environment) 12186
equation* (environment) 12194
errata (package) *764*
eso-pic (package) *766*
esvect (package) *766*
\etalchar *132*
etoc (package) *766*
etoolbox (package) *201*
eurosym (package) *769*
everypage (package) *769*
everyshi (package) *769*
expl3 (package) *238*
extarrows (package) *770*
extramarks (package) *770*

F

fancybox (package) *124*, *771*
fancyhdr (package) *776*
fancypar (package) *777*
[fancyref]:
\fancyrefhook (hook) *778*
fancyref (package) *778*
fancytabs (package) *778*
fancyvrb (package) *779*
\fbox *123*, 13020
fbox (package) *785*
\fboxBlock *123*, 13031
\fcolorbox 103, 12678
\fcolorboxBlock 122, 12714
fcolorminipage (environment) 160, 12716
fewerfloatpages (package) *788*
figcaps (package) *788*
figsize (package) *788*
file:
*-images.txt *562*
*_html.aux *370*, *490*, *562*
*_html.lof *508*
*_html.lot *508*
*_html.tex *260*
core.ins *188*
glyphtounicode.tex *101*
lwarp.css *114*, *267*
lwarp.ist *143*, *305*
lwarp.xdy *144*, *306*
lwarp_baseline_marker.eps . . . *535*
lwarp_baseline_marker.png . . . *535*
lwarp_formal.css *301*
lwarp_mathjax.txt *307*
lwarp_one_limage.cmd *306*
lwarp_sagebrush.css *297*
lwarp_tutorial.txt *82*
lwarpmk.conf *266*
lwarpmk.lua *189*
project.css *114*
project.lwarpmkconf *267*
sample_project.css *114*, *305*
tutorial.tex *82*
filecontents (package) *239*
FileDepth (counter) *109*, *372*
\FilenameLimit *109*, 7006
\FilenameNullify *127*, 11587, 13465
\FilenameSimplify *126*, 7027, 7366
FileSectionNames (boolean) . . *109*, *336*
fitbox (package) *789*
fix2col (package) *789*
fixmath (package) *789*
fixme (package) *171*, *790*
fixmetodonotes (package) *791*
FixSmallCaps (boolean) . . . *109*, *120*, *590*
flafter (package) *792*
\flagverse *1201*
flalign (environment) 101
flalign* (environment) 104
Flare (program) *73*
flippdf (package) *792*
float (package) *166*, *792*
floatflt (package) *794*
floatpag (package) *795*
floatrow (package) *167*, *795*
fltrace (package) *800*
\flushbottom 6237
flushend (package) *800*
flushleft (environment) 12574
flushright (environment) 12564
fminipage (environment) *123*, 13050
fnbreak (package) *800*
fncychap (package) *801*
fnlineno (package) *801*
fnpara (package) *801*
fnpos (package) *802*
fontawesome (package) *802*
fontawesome5 (package) *803*
fontaxes (package) *804*
fontenc (package) *101*, *804*
fontspec (package) *100*, *235*
footmisc (package) *805*

footnote (package) 806
footnotebackref (package) 807
FootnoteDepth (counter) 109, 364
footnotehyper (package) 808
footnoterange (package) 808
footnoteReset (counter) 364
footnpag (package) 808
\ForceHTMLPage 131, 7486
\ForceHTMLTOC 131, 7492
foreign (package) 808
forest (package) 809
FormatEPUB (boolean) 178, 254
FormatWP (boolean) 180, 254
fouridx (package) 809
fourier (package) 810
\framebox 12997
framed (package) 811
FrameMaker (program) 73
\frontmatter 7508
froufrou (package) 813
ftcap (package) 814
ftnright (package) 814
fullminipage (package) 815
fullpage (package) 815
fullwidth (package) 815
\fup 13439
\fussy 6239
fvextra (package) 815
fwlw (package) 818

G

gather (environment) 89
gather* (environment) 92
GELLMU (program) 72
gensymb (package) 819
gentombow (package) 819
geometry (package) 236, 819
gettitlestring (package) 238
ghsystem (package) 820
[Gin]:
  class (key) 828
gindex (package) 135, 821
GladTeX (program) 72
gloss (package) 132, 821
glossaries (package) 133, 822
GlossaryCmd (option) . . 106, 133, 230, 822
glyphtounicode.tex (file) 101
gmeometric (package) 824
graphics (package) 155, 824
graphicx (package) 155, 836
grffile (package) 157, 836
grid (package) 837
grid-system (package) 837
gridset (package) 837

H

hang (package) 838
hanging (package) 839
hepunits (package) 840
Hevea (program) 72
\hfill 13514
hhline (package) 841
hhtensor (package) 842
\HomeHTMLFilename 6040
HomeHTMLFilename (option) . . . 102, 229
hook:
  [LaTeX]:
    enddocument/info 405
    para/begin 357
    para/end 358
    shipoout/background 406
    shipoout/foreground 406
  [fancyref]:
    \fancyrefhook 778
  [keyfloat]:
    \KFLT@LWR@hook@boxouter . . . 868
    \KFLT@LWR@hook@keyfloatsminipage 868
    \KFLT@LWR@hook@keyfloats . . 868
    \KFLT@LWR@hook@keysubfloats 868
  [lwarp]:
    \LWR@hook@processingtags . . 344
  [nameauth]:
    \@nameauth@Hook 966
\hrule 120
\hrulefill 120, 13516
\hskip 120
\hspace . . 120, 602, 13569, 13600, 13606
htlatex (program) 72
\HTMLAuthor 111, 118, 6818
HTMLDebugComments (boolean) . . 110, 249
\HTMLDeclareSIUnit . 154, 323, 571, 1079
\HTMLDescription 111, 118, 6823
\HTMLEntity 6021
\HTMLFilename 6039
HTMLFilename (option) 102, 229
\HTMLFirstPageBottom 107, 6769
\HTMLFirstPageTop 107, 6766
htmlglossary (option) [lwarpmk] 133, 822
HTMLIndexCmd (option) 105, 230
\HTMLLanguage 110, 7790
HTMLLatexCmd (option) 104, 173, 229
\HTMLleftmargini (length) 170, 417, 418, 1201
\HTMLnewcolumntype 112, 9201
\HTMLPageBottom 111, 407, 6775
\HTMLPageTop 111, 6772
\HTMLTitle 110, 118, 6813
\HTMLTitleAfterSection 110, 7813
\HTMLTitleBeforeSection . . . 110, 7808
\HTMLunicode 6030
\HTMLvleftskip (length) 170, 417, 418, 1201
hypbmsec (package) 842
hypcap (package) 842
hypdestopt (package) 843
\hyperindexformat 11365
\hyperindexref 11323
hypernat (package) 843
\hyperpage 11363
hyperref (package) 128, 499, 843

\hypertoc 11051
\hypertocfloat 11074
hyperxmp (package) *852*
hyphenat (package) *853*

I

idxlayout (package) *854*
\if@titlepage 8091
\ifnextchar *150*
ifoddpage (package) *855*
ifplatform (package) *201*
\ifstar *150*
\IgnoreMinipageWidths . *123*, *580*, 12815
\ImageAltText *111*, 11594
ImagesDirectory (option) *102*, *228*
ImagesName (option) *102*, *228*
imakeidx (package) *855*
imakeidx (program) *138*
impnattypo (package) *859*
\includegraphics 323
indentfirst (package) *360*
InDesign (program) *73*
index (package) *859*
index (program) *136*
\IndexPageSeparator *110*, 11116
\IndexRangeSeparator *110*, 11116
IndexRef (option) *105*, *230*
\InlineClass *115*, 6537
\inlinemathnormal *152*, 5991
\inlinemathother *152*, 5987
inputenc (package) *101*
inputenx (package) *101*
inputtrc (package) *861*
internet (class) *72*
intopdf (package) *861*
isomath (package) *861*
isotope (package) *862*
itemize (environment) 8643
\itshape 13371

J

jurabib (package) *863*

K

karnaugh-map (package) *864*
\kern *120*
key:
  [Gin]:
    class *828*
[keyfloat]:
  \KFLT@LWR@hook@boxouter (hook) *868*
  \KFLT@LWR@hook@keyfloatsminipage (hook) *868*
  \KFLT@LWR@hook@keyfloats (hook) *868*
  \KFLT@LWR@hook@keysubfloats (hook) *868*
keyfloat (package) *168*, *867*
keystroke (package) *873*
komascript (class) *168*
kotex (package) *172*
kpfonts (package) *874*
kpfonts-otf (package) *875*
kvoptions (package) *227*

L

\l@book 11094
\l@chapter 11096
\l@figure 11107
\l@paragraph 11105
\l@part 11095
\l@section 11102
\l@subparagraph 11106
\l@subsection 11103
\l@subsubsection 11104
\l@table 11108
[LaTeX]:
  enddocument/info (hook) *405*
  para/begin (hook) *357*
  para/end (hook) *358*
  shipoout/background (hook) . . . *406*
  shipoout/foreground (hook) . . . *406*
\LaTeX 13737
LaTeX2HTML (program) *72*
\LaTeXe 13737
lateximage (environment) *557*, 12400, 12550
\LateximageFontScale 12329
\LateximageFontSizeName 12328
latexmk (option) *102*, *230*
latexmk (program) *174*
LatexmkIndexCmd (option) *105*, *230*
LaTeXML (program) *72*
layaureo (package) *877*
layout (package) *877*
layouts (package) *878*
leading (package) *880*
leftidx (package) *880*
\leftline 12602
length:
  \HTMLleftmargini *170*, *417*, *418*, *1201*
  \HTMLvleftskip . . *170*, *417*, *418*, *1201*
  \LWR@cmidrulewidth *459*
  \LWR@heavyrulewidth *459*
  \LWR@lightrulewidth *459*
  \LWR@minipageheight *580*
  \LWR@minipagewidth *580*
  \LWR@tempheight *603*
  \LWR@tempraise *603*
  \LWR@tempwidth *603*
  \LWR@thiscmidrulewidth *460*
  \VerbatimHTMLWidth *418*
  \vleftmargini *170*, *417*, *1201*
  \vleftskip *170*, *417*, *1201*
letltxmacro (package) *201*
letterspace (package) *881*
lettrine (package) *881*
\lgweight 13344
libertinust1math (package) *882*
LibreOffice (program) *73*
\linebreak 13610

lineno (package) 888
\LinkHome 111, 6109, 6114
\linkhomename 107, 6106
\LinkNext 111, 6142, 6155
\linknextname 107, 6138
\LinkPrevious 111, 6141, 6145
\linkpreviousname 107, 6137
Linux (program) 115, 225
lips (package) 890
lipsum (package) 890
list (environment) 8611
listings (package) 891
listliketab (package) 896
\listoffigures 10972
\listoftables 10985
lltjext (package) 897
lltjp-siunitx (package) 898
lltjp-tascmac (package) 898
lmodern (package) 100, 101
lofdepth (counter) 517
longtable (environment) 4
longtable (package) 164, 899
lotdepth (counter) 517
lpic (package) 901
lscape (package) 902
ltablex (package) 902
ltcaption (package) 903
ltxgrid (package) 903
ltxtable (package) 903
lua-check-hyphen (package) 903
lua-visual-debug (package) 904
luacolor (package) 904
\LuaLaTeX 13766
LuaLaTeX (program) [requirement] . . 76
luamplib (package) 904
\LuaTeX 13766
luatexko (package) 904
luatodonotes (package) 171, 907
luavlna (package) 908
[lwarp]:
\LWR@hook@processingtags (hook) 344
lwarp (package) 102
lwarp-common-mathjax-letters (package) 1270
lwarp-common-mathjax-newpxtxmath (package) 1276
lwarp-common-mathjax-nonunicode (package) 1283
lwarp-common-mathjax-overlaysymbols (package) 1286
lwarp-common-multimedia (package) 1265
lwarp-patch-komascript (package) 1236
lwarp-patch-memoir (package) 1238
lwarp.css (file) 114, 267
lwarp.ist (file) 143, 305
lwarp.xdy (file) 144, 306
lwarp_baseline_marker.eps (file) . . 535
lwarp_baseline_marker.png (file) . . 535
lwarp_formal.css (file) 301
lwarp_mathjax.txt (file) 307
lwarp_one_limage.cmd (file) 306
lwarp_sagebrush.css (file) 297
lwarp_tutorial.txt (file) 82
[lwarpmk]:
htmlglossary (option) 133, 822
printglossary (option) . . . 133, 822
lwarpmk (option) 106, 229, 311
lwarpmk (program) 189, 311
lwarpmk epstopdf (program) . . 156, 573
lwarpmk pdftosvg (program) . . 156, 573
lwarpmk.conf (file) 266
lwarpmk.lua (file) 189
\lwarpsetup 1075
\LWR@@footnotetext 6847
\LWR@@makebox@align 12953
\LWR@@makebox@paren 12938
\LWR@@printpendingfootnotes 6902
\LWR@absorbstar 1028
\LWR@addbaselinemarker 11629
\LWR@addcdashline 9558
\LWR@addcmidruletrim 9524
\LWR@addcmidrulewidth 9555
\LWR@addcompilecmd 2086
\LWR@addformatwpalignment 9574
\LWR@addleftmostbartag 9365
\LWR@addlinktitle 10479
\LWR@addmathjax 12091
\LWR@addmulticolvertrulecolor . . 9788
\LWR@addrulewidth 9529
\LWR@addtabularcellcolor 9700
\LWR@addtabularhrulecolor 9599
\LWR@addtabularrowcolor 9584
\LWR@addtabularrulecolors 9645
\LWR@afterendverbatim 8408
\LWR@afterloadnever 94
LWR@algocf@dopars (boolean) 354
LWR@allowanothergeometry (boolean) 237
\LWR@amsmathbody 12362
\LWR@amsmathbodynumbered 12368
LWR@amsmultline (boolean) 554
\LWR@applyxfakebold 11611
\LWR@atbeginverbatim 8387
\LWR@avoiddupfilenames 7038
\LWR@backgroundcolor 42
\LWR@beginhideamsmath 12238
LWR@BlockClassWP (environment) . . 6555
LWR@blocktextcurrentfont (environment) 13318, 13464
\LWR@botnavigation 6132
LWR@cdashlines 459
LWR@cellcolordepth (counter) 435
\LWR@cellHTMLcolor 9290
\LWR@checkbeforeaddclass 9013
\LWR@checkloadbefore 68
\LWR@checkloadfilename 1474
\LWR@checkloadnever 233, 1473
\LWR@checkloadnevers 125
\LWR@checkmathcolpar 9021
\LWR@clearmidrules 9444
\LWR@closeparagraph 6671

\LWR@closeparagraph@br 6659
\LWR@closeprevious 6200
\LWR@closetabledatacell 8816
\LWR@cmidrulewidth (length) *459*
LWR@coladdclass *435*
LWR@colafterspec *435*
LWR@colatspec *435*
LWR@colbangspec *435*
LWR@colbarspec *435*
LWR@colbeforespec *435*
\LWR@columnHTMLcolor 9288
\LWR@columnspeclookahead 8947
\LWR@compilecmd 2083
\LWR@compileuplatex 2118
\LWR@convertto 934
LWR@copiedsidetoc (boolean) *513*
\LWR@copyfile 1681
\LWR@createautosec 7517
\LWR@createfooter 7369
LWR@currentautosecfloatpage (counter) *370*
LWR@currentautosecpage (counter) . . *370*
\LWR@currentautosecpageref . . . 10380
\LWR@currentcss 6780
\LWR@currenttextcolor 13450
\LWR@customizedMathJax 7239
\LWR@customizeMathJax 7346
\LWR@descitem 8659
\LWR@disablepinyin 968
LWR@displaymathnormal (environment) 11995
LWR@displaymathother (environment) 11998
\LWR@docdashline 9493
\LWR@docmidrule 9477
\LWR@doequation 12116
\LWR@doindexentry 11304
\LWR@doindexentrysub 11302
\LWR@doindexentrysubsub 11291
LWR@doingapar (boolean) *354*
LWR@doingcmidrule (boolean) *433*
LWR@doingparhooks (boolean) *354*
LWR@doingstartpars (boolean) *354*
LWR@doingtbrule (boolean) *433*
\LWR@domulticolumn 9826
\LWR@doubledollar 11875
LWR@dynamicmath (boolean) *334*
\LWR@earlyclassloadnever 104
\LWR@earlyloadnever 99
LWR@emptyatbang (boolean) *434*
\LWR@endfloatalignment 10795
\LWR@endhideamsmath 12248
\LWR@endofline 13542
\LWR@ensuredoingapar 6631
LWR@equationother (environment) 12011
\LWR@equationtag 12348
\LWR@excludecomment 1247
LWR@exitingtabular (boolean) *434*
\LWR@expandableformatted 1783
\LWR@expandableformattedenv 1812
\LWR@expandpreamble 9137
LWR@externalfilecnt (counter) *534*
\LWR@fboxstyle 13013
\LWR@fifthoffive 973
LWR@figcaption (environment) . . . 10829
\LWR@filenamenoblanks 7051
\LWR@filestart 7822
\LWR@findcurrenttextcolor 13454
\LWR@findword 1470
\LWR@firstoffive 973
\LWR@floatalignment 10781
\LWR@floatalignmentname 10780
\LWR@floatbegin 10686
\LWR@floatend 10733
\LWR@floatstyle 2
\LWR@fontfortags 5998
\LWR@footnotebox 6841
\LWR@footnotetext 6874
\LWR@forceemptyline 969
LWR@forceminipagefullwidth (boolean) *581*
\LWR@forceminwidth 13002
\LWR@forcenewautoidanchor 10756
\LWR@forcenewpage 6220
\LWR@forceSVGmessage 14030
\LWR@formatted 1768
\LWR@formatted@checkendname 1748
\LWR@formatted@checkname 1728
\LWR@formattedenv 1798
\LWR@formatting 1727
LWR@foundmrowcell (boolean) *433*
\LWR@fourthoffive 973
LWR@freezethisautoid (boolean) . . . *506*
\LWR@futurenonspacelet 8736
\LWR@FVstyle 56
\LWR@getexparray 5951
\LWR@getmynexttoken 8753
LWR@glrbox (environment) 1001
\LWR@gsavebox 987
LWR@hdashedlines (counter) *433*
\LWR@heavyrulewidth (length) *459*
\LWR@hidelatexequation 12074
LWR@hlines (counter) *433*
\LWR@hook@processingtags 6263
\LWR@href 10622
\LWR@HTML@caption@begin 10839
\LWR@HTML@caption@end 10850
\LWR@HTML@ref 10522
\LWR@htmlblockcomment 6447
\LWR@htmlblocktag 6449
\LWR@HTMLcline 10181
\LWR@htmlclosecomment 6418
\LWR@htmlcomment 6435
\LWR@htmldivclass 6490
\LWR@htmldivclassend 6495
\LWR@htmlelement 6506
\LWR@htmlelementclass 6474
\LWR@htmlelementclassend 6482
\LWR@htmlelementclassline 6498
\LWR@htmlelementend 6509

LWR@htmlfilenumber (counter) 337
\LWR@htmlfileref 10383
\LWR@HTMLhline 10162
\LWR@HTMLLatexCmd 2128
\LWR@htmlmulticolumn 9894
\LWR@htmlopencomment 6418
\LWR@htmlrefsectionfilename 6096
\LWR@HTMLsanitizedetokenized . . . 7207
\LWR@HTMLsanitizeexpanded 7217
\LWR@htmlsectionfilename 6056
LWR@htmlseqfilenumber (counter) . . 337
\LWR@htmlspan 6395
\LWR@htmlspanclass 6403
\LWR@htmltag 6415
\LWR@htmltagc 6323
\LWR@hyperindexref@@comma 11334
\LWR@hyperindexref@comma 11327
\LWR@hyperindexref@range 11339
\LWR@hyperindexrefnullified . . . 11308
\LWR@hyperindexrefsub 11342
\LWR@hyperindexrefsubtwo 11349
LWR@in@multirow@par (boolean) 354
\LWR@includecomment 1247
\LWR@indentHTML 6317
\LWR@indentHTMLtwo 6320
\LWR@indexitem 11133
\LWR@indexnameref 11262
\LWR@indexnameref@anonref 11203
\LWR@indexnameref@cref 11229
\LWR@indexnameref@crefnameref . 11246
\LWR@indexnameref@ref 11208
\LWR@indexnameref@refnameref . . 11217
\LWR@indexsubitem 11137
\LWR@indexsubsubitem 11141
LWR@indisplaymathimage (boolean) . 534
\LWR@infoprocessingmathjax 7274
LWR@insidemathcomment (boolean) . . 534
\LWR@instertatbangcols 8808
LWR@intabularmetadata (boolean) . . 434
\LWR@isolate 959
LWR@isstartingequation (boolean) . 560
\LWR@itemizeitem 8634
\LWR@label@createtag 10430
\LWR@label@inmathcomment 10416
\LWR@label@subcreatetag 10412
\LWR@lateximage@oneimage 12384
\LWR@lateximage@oneimageb 12375
LWR@lateximagedepth (counter) 558
\LWR@lateximagedepthref 10386
LWR@lateximagenumber (counter) . . . 558
\LWR@lateximagenumberref 10389
\LWR@lateximagesfile 1643
\LWR@latexmkcmd 2104
\LWR@latexmkdvipdfm 2109
\LWR@latexmkvar 2098
\LWR@LetLtxMacrocs 1024
\LWR@lightrulewidth (length) 459
\LWR@linkcatcodes 10581
\LWR@linkmediacatcodes 10589
LWR@LIpage (counter) 559
\LWR@listitem 8594
\LWR@listof 10998
\LWR@loadafter 21
\LWR@loadbefore 56
\LWR@loadnever 73
\LWR@longtabledatacaptiontag . . . 9903
\LWR@lookforpackagename 1496
\LWR@lwarpconfversion 2077
\LWR@LwarpEnd 8012, 13814
\LWR@LwarpStart 7924, 13814
\LWR@maketitlesetup 34, 8188
LWR@MathJax@silentquotes (boolean) 377
\LWR@mathjaxfilename 6791
\LWR@mathjaxwarn 13986
LWR@mathmacro (boolean) 333
LWR@maxfields@ (counter) 637
\LWR@maybe@orignewpage 980
\LWR@maybenewtablerow 9297
\LWR@maybeprintpendingfootnotes 6922
\LWR@maybetocdata 11050
LWR@midrulecounter (counter) 436
LWR@midrules 459
LWR@minipage@depth (counter) 582
LWR@minipagefullwidth (boolean) . . 581
\LWR@minipageheight (length) 580
\LWR@minipagestartpars 13549
\LWR@minipagestoppars 13552
LWR@minipagethispar (boolean) 582
\LWR@minipagewidth (length) 580
\LWR@modifycolumntype 9145
LWR@mpfootnote@store (counter) . . . 582
\LWR@multirowborder 3
\LWR@mynexttoken 8735
\LWR@myshorttoc 10919
\LWR@nameref 10374
LWR@nestspan (environment) 6349
\LWR@new@label 10459
\LWR@newautoidanchor 10774
\LWR@newautopagelabel 6989
\LWR@newhtmlfile 7388
LWR@nextautoid (counter) 508
LWR@nextautopage (counter) 508
LWR@nextequation (counter) 547
\LWR@nolinkurl 10634
\LWR@notltjloadafter 43
\LWR@notmemoirloadafter 40
\LWR@null@newautopagelabel 7000
\LWR@nullfonts 11454
\LWR@nullifycomment 1464
\LWR@nullifyfootnotes 6941
\LWR@nullifyNoAutoSpacing 10187
\LWR@nulllistfills 8603
\LWR@openparagraph 6631
LWR@opttablecol (boolean) 434
\LWR@orig@setBold 11609
\LWR@orig@unsetBold 11610
\LWR@origcolspec 8791
LWR@origmathjax (boolean) 227
\LWR@overline 13445
\LWR@parseaftercolumn 9057

\LWR@parseatcolumn 8957
\LWR@parsebangcolumn 8987
\LWR@parsebarcolumn 9070
\LWR@parsebeforecolumn 9036
\LWR@parsecoloncolumn 9095
\LWR@parsedrequirepackagenames . 1463
\LWR@parsenormalcolumn 9119
\LWR@parsesemicoloncolumn 9116
\LWR@parsestarcolumn 9136
\LWR@parsetablecols 9219
\LWR@patcherror 942
\LWR@patchlists 8683
\LWR@pdfencoding 845
\LWR@phantomsection 13676
\LWR@popclose 5896
\LWR@PreloadedPackage 12607
LWR@prevFileDepth (counter) *388*
LWR@previousautopagelabel (counter) *371*
\LWR@printatbang 9340
\LWR@printbartag 9330
\LWR@printchaptername 7538
\LWR@printcloselist 8501
\LWR@PrintLatexCmd 2128
\LWR@printlength 1447
\LWR@printmccoldata 9762
\LWR@printmccoldata@normal 9752
\LWR@printmccoldata@other 9742
\LWR@printmccoldata@paragraph . . 9756
\LWR@printmccoldata@skip 9748
\LWR@printmccoltype 9733
\LWR@printmccoltype@colon 9727
\LWR@printmccoltype@ignore 9721
\LWR@printmccoltype@normal 9717
\LWR@printmccoltype@semicolon . . 9732
\LWR@printmccoltype@vertbar 9722
\LWR@printopenlist 8502
\LWR@printpendingfootnotes 6919
\LWR@printpendingmpfootnotes . . . 6931
\LWR@printpercentlength 935
\LWR@printthetitle 8140
\LWR@providelength 931
\LWR@ProvidesPackageDrop 1633
\LWR@ProvidesPackageDropA 1618
\LWR@ProvidesPackageDropB 1627
\LWR@ProvidesPackagePass 1587
\LWR@pushclose 5848
\LWR@pushoneclose 7523
\LWR@quickfile 1640
\LWR@refwithsection 10531
\LWR@remembertag 12352
\LWR@replacestrings 7166
\LWR@requesttoc 8005
\LWR@requirepackagenames 1462
\LWR@restoreMathJaxformatting . 11401
\LWR@restoreorigaccents 2026
\LWR@restoreorigformatting . . . 11402
\LWR@restoreoriglists 8711
\LWR@rowHTMLcolor 9289
\LWR@ruleHTMLcolor 9291
\LWR@sanitize 1149
\LWR@sanitized 1148
\LWR@secondoffive 973
\LWR@section 7541
\LWR@sectionnumber 7514
\LWR@select@html@hspace 13569
\LWR@select@html@nohspace 13600
\LWR@select@print@hspace 13603
\LWR@setcurrentfont 11612
\LWR@setexparray 5937
\LWR@setlatestname 10360
\LWR@setOSWindows 1063
\LWR@setref 10368
LWR@setseqfilelabel (boolean) *337*
LWR@setvirtualpage (environment) 12799
\LWR@shellescapecmd 2078
\LWR@sidetoc 11024
\LWR@simplifycustom 7026
\LWR@simplifyname 7015
\LWR@singledollar 11918
\LWR@singledollarmeasure 11684
LWR@skipatbang (boolean) *433*
LWR@skippingmcolrowcell (boolean) . *433*
LWR@skippingmrowcell (boolean) . . . *433*
LWR@spandepth (counter) *354*
\LWR@spanwarnformat 6333
\LWR@spanwarninvalid 6341
LWR@spewingnotes (boolean) *365*
LWR@starredlongtable (boolean) . . . *436*
LWR@startedrow (boolean) *432*
LWR@starting@fancybox (boolean) . . *354*
LWR@startingequation (counter) . . . *559*
\LWR@startingequationtag 12347
\LWR@startnewdepth 7527
\LWR@startpars 6717
\LWR@startref 10485
\LWR@stoppars 6732
\LWR@stripperiod 10359
\LWR@strresult 8789
\LWR@subaddcmidruletrim 9511
\LWR@subaddtabularcellcolor 9692
\LWR@subcdashline 9480
\LWR@subcmidrule 9462
\LWR@subcustomizedmathjax 7242
\LWR@subhtmlelementclass 6454
\LWR@subHTMLsanitize 7187
\LWR@subhyperref 10597
\LWR@subhyperrefclass 10611
\LWR@subhyperreftext 10606
\LWR@subinlineimage 10660
\LWR@subnewref 10516
\LWR@subsingledollar 11815
\LWR@subsingledollarsvg 11730
\LWR@subtableofcontents 10932
\LWR@subtabularhtmlcolumns 9974
\LWR@syncmathjax 12062
\LWR@syncnotenames 12179
\LWR@syncnotenumbers 12173
\LWR@synconenotename 12174
\LWR@synconenotenumber 12168
LWR@tablecolspec *434*

LWR@tablecolspecindex (counter) . . 435
LWR@tablecolspecwidth (counter) . . 435
\LWR@tabledatacolumntag 10063
\LWR@tabledatasinglecolumntag . . 9379
LWR@tableLaTeXcolindex (counter) . . 435
LWR@tableparcell (boolean) 433
LWR@tabletotalLaTeXcols (counter) . 435
LWR@tabletotalLaTeXcolsnext (counter) 435
\LWR@tabular@warpprintonly . . . 10183
LWR@tabularcelladded (boolean) . . . 433
LWR@tabularDepth (counter) 434
\LWR@tabularendofline 8926
\LWR@tabularfinishrow 8877
\LWR@tabularhtmlcolumns 9984
\LWR@tabularleftedge 9370
LWR@tabularmutemods (boolean) 434
LWR@tabularpardepth (counter) 434
\LWR@tdaddstyle 9498
\LWR@tdendstyles 9504
\LWR@tdstartstyles 9497
\LWR@tempcolor 13451
\LWR@tempcolorthree 13451
\LWR@tempcolortwo 13451
\LWR@tempheight (length) 603
\LWR@tempraise (length) 603
\LWR@tempwidth (length) 603
\LWR@textcurrentcolor 25, 13457
\LWR@textcurrentfont . . . 13287, 13463
\LWR@thirdoffive 973
\LWR@ThisAltText 11596
LWR@thisautoid (counter) 505
LWR@thisautoidWP (counter) 506
\LWR@thiscmidrulewidth (length) . . . 460
\LWR@thiscolspec 9378
\LWR@thisfilename 7009
\LWR@thisnewfilename 7014
\LWR@titlingmaketitle 85, 8255
\LWR@topnavigation 6129
\LWR@traceinfo 1709
LWR@tracinglwarp (boolean) 248
LWR@trimlrules 459
LWR@trimrrules 459
\LWR@unknownengine 2090
LWR@unknownmathsize (boolean) 536
\LWR@url 10647
LWR@usedmultirow (boolean) 433
LWR@validtablecol (boolean) 434
LWR@verbtags (boolean) 418
LWR@virtualpagedepth (counter) . . . 580
\LWR@vspace 13607
LWR@warnbaselinemarker (boolean) . 536
LWR@warnedcustomizemathjax (boolean) 379
\LWR@WPcell 9570
\LWR@write@lwarplabel 10392
\LWR@writeconf 2230
\LWR@xcolorrowHTMLcolor 9287
LWR@xfakebold (boolean) 534
\LWR@xindex@modifyentry 11145
LWRcreatelwarpmk (environment) . . 1312
\LWRopquote 1058
\LWRopseq 1059
\LWRPrintStack 6175
\LWRsetnextfloat 10825
\LWRtexttitlecase 1019
lyluatex (package) 909
\LyX 13810

M

Mac OS (program) 115, 225
\macrotocsname 1013
Madcap (program) 73
magaz (package) 911
\mainmatter 7504
make (program) 176
\makebox 12962
makeidx (package) . . 146, 911, 1173, 1174
\MakeIndex 13788
makeindex (option) 104, 230
makeindex (program) 134, 143
makeindexStyle (option) . . 104, 144, 228
\makelabel 423
\maketitle 48, 117, 8211
manyfoot (package) 912
marginal (package) 914
marginfit (package) 914
marginfix (package) 914
marginnote (package) 915
\marginpar 122, 369, 6947
\marginparBlock . . . 122, 369, 6959, 6981
\markboth 6234
\markright 6235
marvosym (package) 915
math (environment) 11994
mathalpha (package) 916
mathastext (package) 916
mathcomp (package) 917
mathdesign (package) 918
mathdots (package) 919
mathfixs (package) 920
\MathImageAltText 112, 11595
MathJax (program) 148, 150
MathJax (program) [requirement] . . . 76
mathjax (boolean) 227
mathjax (option) 102, 228
\MathJaxFilename 110, 6792
mathpazo (package) 920
mathptmx (package) 921
mathspec (package) 921
mathsvg (option) 102, 228
mathtools (package) 153, 923
mattens (package) 926
maybemath (package) 928
\mbox 12935
mcaption (package) 929
\mcolrowcell 10141
mdframed (package) 125, 929
\mdseries 13327
mdwmath (package) 937

media9 (package) 160, 938
memhfixc (package) 940
memoir (class) 168, 170, 1201
menukeys (package) 940
metalogo (package) 941
metalogox (package) 941
mhchem (package) 942
microtype (package) 236, 945
midfloat (package) 945
midpage (package) 946
\MiKTeX 13808
minibox (package) 946
minipage (environment) 12828
\minipagefullwidth 12813
minitoc (package) 947
minted (package) 947
mismath (package) 948
mleftright (package) 951
mmap (package) 101
morefloats (package) 952
moreverb (package) 952
movie15 (package) 160, 953
mparhack (package) 954
\mrowcell 10138
MS-Windows (program) 115, 225
multibib (package) 955
multicap (package) 955
multicol (package) 955
multicolrule (package) 956
\multicolumnrow 48, 10007
multimedia (package) 160, 957
multiobjective (package) 958
\multirow 960
multirow (package) 958
multitoc (package) 962
multline (environment) 82
multline* (environment) 85
musicography (package) 963
mwe (package) 965

N

[nameauth]:
\@nameauth@Hook (hook) 966
nameauth (package) 966
\Nameref 10575
\nameref 10566
nameref (package) 967
natbib (package) 967
nccfancyhdr (package) 968
nccfoots (package) 969
nccmath (package) 969
needspace (package) 971
newclude (package) 170
\NewEnvironmentCopy 955
\newfloat 5
newfloat (package) 240
\newline 13540
\newpage 13537
newpxmath (package) 971
\newtheorem 421
newtxmath (package) 972
newtxsf (package) 973
newunicodechar (package) 101
nextpage (package) 974
nfssext-cfr (package) 974
nicefrac (package) 155, 980
niceframe (package) 981
nicematrix (package) 981
\noalign 10151
\nohyperpage 11364
noitcrul (package) 984
nolbreaks (package) 984
\nolinebreak 13611
nomencl (package) 134, 984
nonfloat (package) 985
nonumonpart (package) 985
\nopagebreak 13615
\nopagecolor 80
nopageno (package) 985
\normalcolor 9
\normalfont 13409
\normalmarginpar 6978
notes (package) 985
notespages (package) 986
nowidow (package) 986
ntheorem (package) 153, 987
\numberline 11045
numindex (option) [tocbibind] . 147, 1174

O

octave (package) 998
OpenOffice (program) 73
option:
--shell-escape 100
[lwarpmk]:
htmlglossary 133, 822
printglossary 133, 822
[tocbibind]:
numindex 147, 1174
[tocloft]:
titles 131
BaseJobname 106, 228
dvipdfm 102, 230
dvipdfmx 102, 231
dvips 102, 230
GlossaryCmd 106, 133, 230, 822
HomeHTMLFilename 102, 229
HTMLFilename 102, 229
HTMLIndexCmd 105, 230
HTMLLatexCmd 104, 173, 229
ImagesDirectory 102, 228
ImagesName 102, 228
IndexRef 105, 230
latexmk 102, 230
LatexmkIndexCmd 105, 230
lwarpmk 106, 229, 311
makeindex 104, 230
makeindexStyle 104, 144, 228
mathjax 102, 228
mathsvg 102, 228

OSWindows 106, 115, 225, 229
pdftotextEnc 106, 229
PrintIndexCmd 104, 230
PrintLatexCmd 104, 173, 229
warpHTML 106, 227
warpprint 106, 227
xindex 104, 230
xindexConfig 104, 145, 229
xindy 104, 230
xindyCodepage 104, 228
xindyLanguage 104, 228
xindyStyle 104, 145, 228
orcidlink (package) 999
\OSPathSymbol 1062
OSWindows (option) . . . 106, 115, 225, 229
overpic (package) 159, 1000

P

package:
2in1 620
2up 620
a4 620
a4wide 620
a5comb 621
abstract 131, 621
academicons 623
accents 624
accessibility 625
accsupp 625
acro 626
acronym 628
addlines 630
adjmulticol 629
afterpage 630
algorithm2e 630
algorithmicx 166, 634
alltt 635
amscdx 635
amsmath 636
amsthm 640
anonchap 644
anysize 645
appendix 132, 645
ar 646
arabicfront 647
array 647
arydshln 648
asymptote 159, 650
atbegshi 651
attachfile 651
attachfile2 652
authblk 131, 654
autobreak 655
autonum 655
awesomebox 656
axessibility 657
axodraw2 658
babel 171
backnaur 659
backref 660
balance 660
bbding 660
beamerarticle 665
biblatex 667
bibunits 671
bigdelim 166, 671
bigfoot 672
bigstrut 673
bitpattern 673
blowup 674
bm 674
booklet 674
bookmark 675
booktabs 675
bophook 677
bounddvi 677
boxedminipage 678
boxedminipage2e 678
braket 678
breakurl 679
breqn 679
bsheaders 681
bussproofs 681
bxpapersize 681
bytefield 682
calc 238
cancel 682
canoniclayout 683
capt-of 510
caption 166, 510, 683
caption3 685
cases 687
ccicons 688
centerlastline 689
centernot 689
changebar 689
changelayout 690
changepage 690
changes 691
chappg 696
chapterbib 696
chemfig 696
chemformula 698
chemgreek 703
chemmacros 704
chemnum 723
chkfloat 724
chngpage 724
cite 725
citeref 725
CJK 726
CJKutf8 726
classicthesis 726
cleveref 128, 727
clrdblpg 730
cm-super 100
cmap 101
cmbright 730
cmdtrack 731
colonequals 731

color 158, 732
colortbl 165, 732
comment 233
common-mathjax-siunitx 1089
continue 734
copyrightbox 734
crop 735
ctable 735
cuted 738
cutwin 738
dblfloatfix 739
dblfnote 739
dcolumn 739
decimal 740
decorule 740
dejavu 100
diagbox 740
dingbat 742
ditaa 177
DotArrow 743
dotlessi 743
dprogress 744
draftcopy 744
draftfigure 744
draftwatermark 745
drftcite 745
easy-todo 745
ebook 746
econometrics 747
ed 749
ellipsis 750
embrac 750
emptypage 751
endfloat 751
endheads 751
endnotes 132, 752
engtlc 753
enotez 757
enumerate 759
enumitem 760
environ 240
epigraph 760
epsf 761
epsfig 761
epstopdf 158, 762
epstopdf-base 762
eqlist 763
eqparbox 763
errata 764
eso-pic 766
esvect 766
etoc 766
etoolbox 201
eurosym 769
everypage 769
everyshi 769
expl3 238
extarrows 770
extramarks 770
fancybox 124, 771
fancyhdr 776
fancypar 777
fancyref 778
fancytabs 778
fancyvrb 779
fbox 785
fewerfloatpages 788
figcaps 788
figsize 788
filecontents 239
fitbox 789
fix2col 789
fixmath 789
fixme 171, 790
fixmetodonotes 791
flafter 792
flippdf 792
float 166, 792
floatflt 794
floatpag 795
floatrow 167, 795
fltrace 800
flushend 800
fnbreak 800
fncychap 801
fnlineno 801
fnpara 801
fnpos 802
fontawesome 802
fontawesome5 803
fontaxes 804
fontenc 101, 804
fontspec 100, 235
footmisc 805
footnote 806
footnotebackref 807
footnotehyper 808
footnoterange 808
footnpag 808
foreign 808
forest 809
fouridx 809
fourier 810
framed 811
froufrou 813
ftcap 814
ftnright 814
fullminipage 815
fullpage 815
fullwidth 815
fvextra 815
fwlw 818
gensymb 819
gentombow 819
geometry 236, 819
gettitlestring 238
ghsystem 820
gindex 135, 821
gloss 132, 821
glossaries 133, 822

gmeometric 824
graphics 155, 824
graphicx 155, 836
grffile 157, 836
grid 837
grid-system 837
gridset 837
hang 838
hanging 839
hepunits 840
hhline 841
hhtensor 842
hypbmsec 842
hypcap 842
hypdestopt 843
hypernat 843
hyperref 128, 499, 843
hyperxmp 852
hyphenat 853
idxlayout 854
ifoddpage 855
ifplatform 201
imakeidx 855
impnattypo 859
indentfirst 360
index 859
inputenc 101
inputenx 101
inputtrc 861
intopdf 861
isomath 861
isotope 862
jurabib 863
karnaugh-map 864
keyfloat 168, 867
keystroke 873
kotex 172
kpfonts 874
kpfonts-otf 875
kvoptions 227
layaureo 877
layout 877
layouts 878
leading 880
leftidx 880
letltxmacro 201
letterspace 881
lettrine 881
libertinust1math 882
lineno 888
lips 890
lipsum 890
listings 891
listliketab 896
lltjext 897
lltjp-siunitx 898
lltjp-tascmac 898
lmodern 100, 101
longtable 164, 899
lpic 901
lscape 902
ltablex 902
ltcaption 903
ltxgrid 903
ltxtable 903
lua-check-hyphen 903
lua-visual-debug 904
luacolor 904
luamplib 904
luatexko 904
luatodonotes 171, 907
luavlna 908
lwarp 102
lwarp-common-mathjax-letters 1270
lwarp-common-mathjax-newpxtxmath 1276
lwarp-common-mathjax-nonunicode 1283
lwarp-common-mathjax-overlaysymbols 1286
lwarp-common-multimedia 1265
lwarp-patch-komascript 1236
lwarp-patch-memoir 1238
lyluatex 909
magaz 911
makeidx 146, 911, 1173, 1174
manyfoot 912
marginal 914
marginfit 914
marginfix 914
marginnote 915
marvosym 915
mathalpha 916
mathastext 916
mathcomp 917
mathdesign 918
mathdots 919
mathfixs 920
mathpazo 920
mathptmx 921
mathspec 921
mathtools 153, 923
mattens 926
maybemath 928
mcaption 929
mdframed 125, 929
mdwmath 937
media9 . . . . . 160, 938
memhfixc 940
menukeys 940
metalogo 941
metalogox 941
mhchem 942
microtype 236, 945
midfloat 945
midpage 946
minibox 946
minitoc 947
minted 947
mismath 948

mleftright 951
mmap 101
morefloats 952
moreverb 952
movie15 . . . . . 160, 953
mparhack 954
multibib 955
multicap 955
multicol 955
multicolrule 956
multimedia 160, 957
multiobjective 958
multirow 958
multitoc 962
musicography 963
mwe 965
nameauth 966
nameref 967
natbib 967
nccfancyhdr 968
nccfoots 969
nccmath 969
needspace 971
newclude 170
newfloat 240
newpxmath 971
newtxmath 972
newtxsf 973
newunicodechar 101
nextpage 974
nfssext-cfr 974
nicefrac 155, 980
niceframe 981
nicematrix 981
noitcrul 984
nolbreaks 984
nomencl 134, 984
nonfloat 985
nonumonpart 985
nopageno 985
notes 985
notespages 986
nowidow 986
ntheorem 153, 987
octave 998
orcidlink 999
overpic 159, 1000
pagegrid 1000
pagenote 132, 1000
pagesel 1001
paralist 1001
parallel 1002
parcolumns 1003
parnotes 1005
parskip 1007
pbalance 1008
pbox 1008
pdfcol 1008
pdfcolfoot 1009
pdfcolmk 1009
pdfcolparallel 1009
pdfcolparcolumns 1010
pdfcomment 1010
pdfcrypt 1011
pdflscape 1011
pdfmarginpar 1011
pdfpages 1012
pdfprivacy 1014
pdfrender 1014
pdfsync 1014
pdftricks 158, 1015
pdfx 1015
perltex 175
perpage 1016
pfnote 1017
phfqit 1017
physics 155, 1018
physunits 1018
picinpar 1020
pifont 1021
pinlabel 1022
placeins 1022
plarydshln 1022
plext 1022
plextarydshln 1023
plextcolortbl 1024
plimsoll 1024
polyglossia 171
prelim2e 1024
prettyref 1025
preview 1025
printlen 240
psfrag 159, 1025
psfragx 1026
pst-eps 1026
pstool 159, 1027
pstricks 158, 1027
pxatbegshi 1028
pxeveryshi 1028
pxfonts 1028
pxftnright 1028
pxjahyper 1029
pythontex 175
quotchap 1029
quoting 1030
ragged2e 1030
realscripts 1031
refcheck 1034
refcount 240
register 1034
relsize 122, 1035
repeatindex 1036
repltext 1037
resizegather 1037
returntogrid 1038
rlepsf 1038
rmathbr 1038
rmpage 1039
romanbar 1039
romanbarpagenumber 1039

rotating 1039
rotfloat 1040
rterface 176
rviewport 1041
sagetex 174
savetrees 1041
scalefnt 1041
scalerel 1042
schemata 1042
scrextend 1043
scrhack 1046
scrlayer 1047
scrlayer-notecolumn 1048
scrlayer-scrpage 1049
scrpage2 1050
section 1051
sectionbreak 1051
sectsty 1052
selectp 1052
semantic-markup 1053
seqsplit 1054
setspace 1055
shadethm 1056
shadow 1056
shapepar 1056
showidx 1057
showkeys 1057
showlabels 1057
showtags 1058
shuffle 1058
sidecap 1059
sidenotes 1059
simplebnf 1061
SIunits 1062
siunitx 153, 570, 1070
siunitx-v2 1078
skmath 1098
slantsc 1103
slashed 1103
soul 1104
soulpos 1105
soulutf8 1106
splitbib 1106
splitidx 1107
srcltx 1108
srctex 1109
stabular 1109
stackengine 1109
stackrel 1111
statex2 1112
statistics 1115
statmath 1120
steinmetz 1122
stfloats 1122
struktex 1123
subcaption 166, 1123
subfig 167, 1124
subfigure 1128
subsupscripts 1129
supertabular 165, 1130
svg 1131
swfigure 1132
sympytex 175, 1132
syntonly 1133
tabfigures 1133
tablefootnote 1133
tabls 1134
tabularx 1134
tabulary 1134
tagpdf 1135
tascmac 1138
tcolorbox 126, 1139
tensor 1145
termcal 1146
textarea 1147
textcomp 101, 121, 1147
textfit 1150
textpos 1151
theorem 1152
thinsp 1155
thm-listof 1156
thm-restate 1156
thmbox 1157
thmtools 1157
threadcol 1158
threeparttable 1158
threeparttablex 165, 1159
thumb 1160
thumbs 1160
tikz 157, 1160
tikz-imagelabels 1162
titleps 1162
titleref 1165
titlesec 1165
titletoc 1167
titling 131, 1169
tocbasic 1173
tocbibind 146, 147, 1173, 1174
tocdata 1175
tocenter 1176
tocloft . . . 131, 147, 644, 1176, 1177
tocstyle 1182
todo 1182
todonotes 171, 1183
topcapt 1185
tram 1185
transparent 1186
trimclip 1186
trivfloat 166, 1186
truncate 1187
turnthepage 1188
twoup 1188
txfonts 1188
txgreeks 1189
typearea 1189
typicons 1190
ulem 1190
umoline 1192
underscore 1192
unicode-math 1193

units 155, 1197
unitsdef 1198
upgreek 1198
upref 1199
url 128, 1199
ushort 1199
uspace 1200
varioref 128, 1200
verbatim 240
verse 170, 1200, 1201
versonotes 1202
vertbars 1202
vmargin 1203
vowel 1203
vpe 1204
vwcol 1204
wallpaper 1206
watermark 1206
widetable 1207
widows-and-orphans 1207
witharrows 1207
wrapfig 1208
wrapfig2 1210
xbmks 1213
xcolor 158, 575, 1213
xechangebar 1223
xellipsis 1223
xetexko 1224
xevlna 1224
xfakebold 1224
xfrac 1225
xifthen 240
xltabular 1227
xltxtra 1228
xmpincl 1228
xparse 238
xpatch 201
xpiano 1229
xpinyin 1229
xr 1230
xr-hyper 1231
xstring 240
xtab 165, 1231
xunicode 1233
xurl 1234
xy 1234
zhlineskip 1235
zwpagelayout 1235
\PackageDiagramAltText 112, 11600
\pagebreak 13612
\pagecolor 79
pagegrid (package) 1000
pagenote (package) 132, 1000
\pagenumbering 6240
\pageref 10561
\pagerefPageFor 10560
pagesel (package) 1001
\pagestyle 6232
Pandoc (program) 73
para/begin (hook) [LaTeX] 357
para/end (hook) [LaTeX] 358
\paragraph 7782
paralist (package) 1001
parallel (package) 1002
\parbox 12926
parcolumns (package) 1003
parnotes (package) 1005
\parsemulticolumnalignment 9773
parskip (package) 1007
\part 7749
pbalance (package) 1008
pbox (package) 1008
pdfcol (package) 1008
pdfcolfoot (package) 1009
pdfcolmk (package) 1009
pdfcolparallel (package) 1009
pdfcolparcolumns (package) 1010
pdfcomment (package) 1010
pdfcrop (program) [requirement] . . . 76
pdfcrypt (package) 1011
pdfLaTeX (program) [requirement] . . 76
pdflscape (package) 1011
pdfmarginpar (package) 1011
pdfpages (package) 1012
pdfprivacy (package) 1014
pdfrender (package) 1014
pdfseparate (program) [requirement] 76, 80
pdfsync (package) 1014
pdftocairo (program) 156, 573
pdftocairo (program) [requirement] 76, 80
pdftotext (program) [requirement] 76, 80
pdftotextEnc (option) 106, 229
pdftricks (package) 158, 1015
pdfx (package) 1015
perl (program) [requirement] 81
perltex (package) 175
perpage (package) 1016
pfnote (package) 1017
phfqit (package) 1017
physics (package) 155, 1018
physunits (package) 1018
picinpar (package) 1020
picture (environment) 579, 12790
pifont (package) 1021
pinlabel (package) 1022
placeins (package) 1022
plarydshln (package) 1022
Plastex (program) 72
plext (package) 1022
plextarydshln (package) 1023
plextcolortbl (package) 1024
plimsoll (package) 1024
\PN@parnotes@auto 6630
polyglossia (package) 171
\postbookname 7729
\postchaptername 7733
\postpartname 7731
\postsectionname 7735

\prebookname 7729
\prechaptername 7733
prelim2e (package) *1024*
\prepartname 7731
\presectionname 7735
prettyref (package) *1025*
preview (package) *1025*
\printauthor *407*, 8148, 8167
\printdate *407*, 8159, 8169
printglossary (option) [lwarpmk] *133*, *822*
\printindex 2
PrintIndexCmd (option) *104*, *230*
PrintLatexCmd (option) . . . *104*, *173*, *229*
printlen (package) *240*
\printthanks *407*, 8125
\printtitle *407*, 8132, 8166
program:
  [requirement]:
    LuaLaTeX *76*
    MathJax *76*
    pdfcrop *76*
    pdfLaTeX *76*
    pdfseparate *76*, *80*
    pdftocairo *76*, *80*
    pdftotext *76*, *80*
    perl *81*
    XeLaTeX *76*
  Adobe *73*
  AsciiDoc *73*
  AsciiDoctor *73*
  Asciidoctor-LaTeX *73*
  epstopdf *156*, *573*
  Flare *73*
  FrameMaker *73*
  GELLMU *72*
  GladTeX *72*
  Hevea *72*
  htlatex *72*
  imakeidx *138*
  InDesign *73*
  index *136*
  LaTeX2HTML *72*
  latexmk *174*
  LaTeXML *72*
  LibreOffice *73*
  Linux *115*, *225*
  lwarpmk *189*, *311*
  lwarpmk epstopdf *156*, *573*
  lwarpmk pdftosvg *156*, *573*
  Mac OS *115*, *225*
  Madcap *73*
  make *176*
  makeindex *134*, *143*
  MathJax *148*, *150*
  MS-Windows *115*, *225*
  OpenOffice *73*
  Pandoc *73*
  pdftocairo *156*, *573*
  Plastex *72*
  splitidx *136*
  TeX2page *72*
  TeX4ht *72*
  TeXMaths *182*
  TtH *72*
  Unix *115*, *225*
  Windows *115*, *225*
  Word *73*
  xindex *135*, *145*
  xindy *135*, *144*
project.css (file) *114*
project.lwarpmkconf (file) *267*
psfrag (package) *159*, *1025*
psfragx (package) *1026*
pst-eps (package) *1026*
pstool (package) *159*, *1027*
pstricks (package) *158*, *1027*
pxatbegshi (package) *1028*
pxeveryshi (package) *1028*
pxfonts (package) *1028*
pxftnright (package) *1028*
pxjahyper (package) *1029*
pythontex (package) *175*

Q

\qquad *602*, 13560
\quad *602*, 13555
quotation (environment) 8337
quotchap (package) *1029*
quote (environment) 8329
quoting (package) *1030*

R

ragged2e (package) *1030*
\raggedbottom 6236
\raggedleft 12590
\raggedright 12596
\raisebox 13108
realscripts (package) *1031*
\ref 10522
refcheck (package) *1034*
refcount (package) *240*
\reflectbox 397
register (package) *1034*
relsize (package) *122*, *1035*
repeatindex (package) *1036*
repltext (package) *1037*
[requirement]:
  LuaLaTeX (program) *76*
  MathJax (program) *76*
  pdfcrop (program) *76*
  pdfLaTeX (program) *76*
  pdfseparate (program) *76*, *80*
  pdftocairo (program) *76*, *80*
  pdftotext (program) *76*, *80*
  perl (program) *81*
  XeLaTeX (program) *76*
\RequirePackage 1529
\resizebox 406
resizegather (package) *1037*
\ResumeTabular 10052

returntogrid (package) 1038
\reversemarginpar 6977
\rightline 12604
rlepsf (package) 1038
rmathbr (package) 1038
\rmfamily 13351
rmpage (package) 1039
romanbar (package) 1039
romanbarpagenumber (package) 1039
\rotatebox 355
rotating (package) 1039
rotfloat (package) 1040
\rowcolor 9292
\rownum 9284
rterface (package) 176
\rule 120, 13619
rviewport (package) 1041

S

sagetex (package) 174
sample_project.css (file) 114, 305
savetrees (package) 1041
\sb 13429
\scalebox 378
scalefnt (package) 1041
scalerel (package) 1042
schemata (package) 1042
scrextend (package) 1043
scrhack (package) 1046
scrlayer (package) 1047
scrlayer-notecolumn (package) . . . 1048
scrlayer-scrpage (package) 1049
scrpage2 (package) 1050
\scshape 13376
\section 7773
section (package) 1051
sectionbreak (package) 1051
sectsty (package) 1052
selectp (package) 1052
semantic-markup (package) 1053
seqsplit (package) 1054
\SetHTMLFileNumber 6041
setspace (package) 1055
\sffamily 13356
\sfrac 1225
shadethm (package) 1056
shadow (package) 1056
shapepar (package) 1056
shipoout/background (hook) [LaTeX] 406
shipoout/foreground (hook) [LaTeX] 406
showidx (package) 1057
showkeys (package) 1057
showlabels (package) 1057
showtags (package) 1058
shuffle (package) 1058
sidecap (package) 1059
sidenotes (package) 1059
SideTOCDepth (counter) 107, 515
\sidetocname 109, 11021
simplebnf (package) 1061
\simplechapterdelim 7534
\sishape 13391
SIunits (package) 1062
siunitx (package) 153, 570, 1070
siunitx-v2 (package) 1078
skmath (package) 1098
slantsc (package) 1103
slashed (package) 1103
\sloppy 6238
\slshape 13402
soul (package) 1104
soulpos (package) 1105
soulutf8 (package) 1106
\sp 13428
splitbib (package) 1106
splitidx (package) 1107
splitidx (program) 136
srcltx (package) 1108
srctex (package) 1109
\sscshape 13407
stabular (package) 1109
stackengine (package) 1109
stackrel (package) 1111
\StartDefiningMath 5966
\StartDefiningTabulars 5956
statex2 (package) 1112
statistics (package) 1115
statmath (package) 1120
steinmetz (package) 1122
stfloats (package) 1122
\StopDefiningMath 5970
\StopDefiningTabulars 5960
struktex (package) 1123
subcaption (package) 166, 1123
subfig (package) 167, 1124
subfigure (package) 1128
\subparagraph 7785
\subsection 7776
\subsubsection 7779
subsupscripts (package) 1129
supertabular (package) 165, 1130
svg (package) 1131
swfigure (package) 1132
sympytex (package) 175, 1132
syntonly (package) 1133

T

tabbing (environment) 8458
tabfigures (package) 1133
tablefootnote (package) 1133
\tableofcontents 111, 10951
tabls (package) 1134
tabular (environment) 10200
\TabularMacro 10050
tabularx (package) 1134
tabulary (package) 1134
tagpdf (package) 1135
tascmac (package) 1138
tcolorbox (package) 126, 1139
tensor (package) 1145

termcal (package) 1146
\TeX 13724
TeX2page (program) 72
TeX4ht (program) 72
TeXMaths (program) 182
textarea (package) 1147
\textbf 13135
\textcolor 66
textcomp (package) 101, 121, 1147
\texteb 13143
textfit (package) 1150
\textgreater 6034
\textit 13199
\textless 6032
\textlg 13155
\textmd 13127
\textnormal 13250
textpos (package) 1151
\textrm 13167
\textsc 13207
\textsf 13175
\textsi 13223
\textsl 13240
\textssc 13248
\textsubscript 13434
\textsuperscript 13430
\texttt 13183
\textulc 13215
\textup 13191
\tfl@chapter@fix 1187
\thanks 118
\thanksmarkseries 93
\theauthor 407
thebibliography (environment) . . 11377
\thedate 407
\theHTMLSection 7819
\theHTMLTitleSection 7818
\theHTMLTitleSeparator 7795
theindex (environment) 11118
\thempfootnote 6899
theorem (package) 1152
\thetitle 407
thinsp (package) 1155
\ThisAltText 111, 11597
\thispagestyle 6233
thm-listof (package) 1156
thm-restate (package) 1156
thmbox (package) 1157
thmtools (package) 1157
threadcol (package) 1158
threeparttable (package) 1158
threeparttablex (package) . . 165, 1159
thumb (package) 1160
thumbs (package) 1160
tikz (package) 157, 1160
tikz-imagelabels (package) 1162
\title 117, 6802
titlepage (environment) 117, 8113
titleps (package) 1162
titleref (package) 1165
titles (option) [tocloft] 131
titlesec (package) 1165
titletoc (package) 1167
titling (package) 131, 1169
titlingpage (environment) 14, 117
tocbasic (package) 1173
[tocbibind]:
numindex (option) 147, 1174
tocbibind (package) 146, 147, 1173, 1174
tocdata (package) 1175
tocdepth (counter) 107
tocenter (package) 1176
[tocloft]:
titles (option) 131
tocloft (package) 131, 147, 644, 1176, 1177
tocstyle (package) 1182
todo (package) 1182
todonotes (package) 171, 1183
topcapt (package) 1185
\tracinglwarp 196, 1708
tram (package) 1185
transparent (package) 1186
trimclip (package) 1186
trivfloat (package) 166, 1186
truncate (package) 1187
\ttfamily 13361
TtH (program) 72
turnthepage (package) 1188
tutorial.tex (file) 82
twoup (package) 1188
txfonts (package) 1188
txgreeks (package) 1189
typearea (package) 1189
typicons (package) 1190

U

\ulcshape 13383
ulem (package) 1190
umoline (package) 1192
\underline 13440
underscore (package) 1192
unicode-math (package) 1193
units (package) 155, 1197
unitsdef (package) 1198
Unix (program) 115, 225
\up 13438
upgreek (package) 1198
upref (package) 1199
\upshape 13366
url (package) 128, 1199
\UseMinipageWidths . . . 123, 580, 12814
ushort (package) 1199
usingOSWindows (boolean) 226
uspace (package) 1200

V

varioref (package) 128, 1200
\verb 8372
verbatim (environment) 8424
verbatim (package) 240

\VerbatimHTMLWidth (length) *418*
\verbatiminput 8416
verse (environment) 2, 8347
verse (package) *170*, *1200*, *1201*
versonotes (package) *1202*
vertbars (package) *1202*
\vleftmargini (length) . . *170*, *417*, *1201*
\vleftskip (length) *170*, *417*, *1201*
vmargin (package) *1203*
vowel (package) *1203*
vpe (package) *1204*
\vrule *120*
\vspace *120*
vwcol (package) *1204*

W

wallpaper (package) *1206*
warpall (environment) *116*, 1287
warpHTML (environment) . . *112*, *115*, 1288
warpHTML (option) *106*, *227*
\warpHTMLonly *113*, *116*, 1245
warpingHTML (boolean) *227*
warpingprint (boolean) *227*
warpMathJax (environment) . . *116*, 1294
warpprint (environment) . *112*, *116*, 1291
warpprint (option) *106*, *227*
\warpprintonly *112*, *116*, 1244
warpsvg (environment) *116*, 1303
watermark (package) *1206*
widetable (package) *1207*
widows-and-orphans (package) *1207*
Windows (program) *115*, *225*
witharrows (package) *1207*
Word (program) *73*
WPMarkFloats (boolean) *181*, *254*
WPMarkLOFT (boolean) *182*, *255*
WPMarkMath (boolean) *182*, *255*
WPMarkMinipages (boolean) . . . *181*, *254*
WPMarkTOC (boolean) *182*, *254*
WPTitleHeading (boolean) *182*, *255*
wrapfig (package) *1208*
wrapfig2 (package) *1210*

X

xbmks (package) *1213*
xcolor (package) *158*, *575*, *1213*
xechangebar (package) *1223*
\XeLaTeX 13771
XeLaTeX (program) [requirement] . . . *76*
xellipsis (package) *1223*
\XeTeX 13771
xetexko (package) *1224*
xevlna (package) *1224*
xfakebold (package) *1224*
xfrac (package) *1225*
\xfracHTMLfontsize 2
xifthen (package) *240*
xindex (option) *104*, *230*
xindex (program) *135*, *145*
xindexConfig (option) *104*, *145*, *229*
xindy (option) *104*, *230*
xindy (program) *135*, *144*
xindyCodepage (option) *104*, *228*
xindyLanguage (option) *104*, *228*
xindyStyle (option) *104*, *145*, *228*
xltabular (package) *1227*
xltxtra (package) *1228*
xmpincl (package) *1228*
xparse (package) *238*
xpatch (package) *201*
xpiano (package) *1229*
xpinyin (package) *1229*
xr (package) *1230*
xr-hyper (package) *1231*
xstring (package) *240*
xtab (package) *165*, *1231*
xunicode (package) *1233*
xurl (package) *1234*
xy (package) *1234*

Z

zhlineskip (package) *1235*
zwpagelayout (package) *1235*

General Index

This is an index of instructions and concepts. Look here when wondering how to do something, and check the Troubleshooting Index when something goes wrong.

Symbols

\@ifnextchar with MathJax 150
\@ifstar with MathJax 150
\, ... 120
~ 120

A

accents
  in section & file names 386
accessibility 98
adapting
  class 188
  document 97
  package 187
affiliation
  multiple authors 130
algorithmicx
  with newfloat, trivfloat 1187
alt text 98
ARIA 98
array
  mhchem 942
  \newcolumntype and \HTMLnewcolumntype 112
audio 160
author
  HTML meta tag 118, 362
  multiple 130

B

baseline
  tabular 448
bibliography
  HTML page and TOC 130
bitmapped fonts 100
bugs 190

C

Calibre 178
chemistry
  Greek symbols 703
class
  modifying for lwarp 188
code listings 120
compiling
  custom 173
Computer Modern 100
converting
  class 188
  document 97
  package 187
CSS
  class 114
  file selection 114
  lwarp.css 114
  per HTML page 114
  project-specific changes 114
  span 114
ctable 165

D

danger icon 200
debugging 190
  HTML debug comments 248
  tracing log 248
defining print / HTML macros / envs . . 249
Deja Vu 100
description
  HTML meta tag 118, 362
display math
  complicated objects 152
document
  convert existing 97
documentation
  compile 186
DVI LaTeX 92, 100
dynamic math 152
dynamic math expressions 334

E

endnotes
  HTML page and TOC 130
EPS image
  converting 94
  using 156, 573
EPUB
  conversion software 178
  HTML conversion settings . . 178, 254
equation numbering
  MathJax 149
error messages 190
export
  to word processor 180

F

FAQ 190
filename
  accent in 386
  graphics 155, 573
  hashed 541, 562
  images 155, 573
  international languages 170
  length 109

simplify 126
underscore in 102, 121
unique 109
font
Computer Modern 100
Deja Vu 100
ligatures 101
MathJax 149
packages 101
selection 100
size
lateximage 148, 558
math, SVG 148, 558
xfrac 1225
type 1 vector 100
type 3 bitmapped 100
footnotes 363
MathJax 129
numbering 129
foreign
section names 170
framed objects 123
Frequently Asked Questions 190

G

generator
HTML meta tag 399
GIF images 156, 574
gindex 135
gloss 132
glossaries
HTML page and TOC 130
language 133
options 133
processing 93
graphics
file formats 156, 573
file names 155, 573
Greek
chemistry symbols 703

H

hash
SVG image filename 541, 562
heading, word processor 183
horizontal and vertical space 120
horizontal rule 120
horizontal space
between minipages 602
\hrule 120
HTML
alt text 98
class 114
conversion settings 107
debug comments 248
EPUB 178, 254
word processor 180, 254
conversion suggestions 119
defining print / HTML macros / envs 249
 114
entities, conversion 120
filename generation 113
headings 199
meta tag
author 118, 362
description 118, 362
generator 399
title 110, 118, 362
viewport 399
 114
style 114
tabular column conversion 449
verbatim, in 120
\HTMLnewcolumntype and \newcolumntype 112
hyperref
and *xindy* 134
title text 98

I

icon
warning 200
\@ifnextchar with MathJax 150
\@ifnextstar with MathJax 150
image
alt text 98
file formats 156, 573
file names 155, 573
GIF 156, 574
graphicx package 573
hashed filename 541, 562
PDF or EPS
converting 94, 156, 573
using 156, 573
PNG and JPG 156, 573
processing 311
\includegraphics
file names 155, 573
using 156, 573
index
custom display styles 146
formatting 524
gindex
setup 135
HTML page and TOC 130
imakeidx
setup 138
index
setup 136
letter headings 855
makeindex
custom style file 143
setup 134
memoir
setup 141
placement 146
placement and TOC options 146, 1173
processing 86, 87, 134
see, seealso, ranges 134
source code 134

splitidx
setup 136
table of contents 146, 1173
tocbibind 146
UTF-8 101
xindex
custom configuration file 145
setup 135
xindy
custom style file 144
and hyperref 134
setup 135
inline math
complicated objects 152
international
section names 170
item
empty 422

J

JavaScript
MathJax 147
JPG images 156, 573

L

language
glossaries 133
localization 98
language HTML metadata 397
lateximage
font size 148, 558
processing 311
Latin Modern font 100
LibreOffice
conversion recommendations . . . 183
import into 180
section headings 183
ligatures 101, 236
line numbers 200
link
home / previous / next page 111
`title` text 98
list
empty item 422
filename 121
listings, program code 120
locale 176
localization 98
LuaLaTeX
detection 201
file & section names 386
lwarp
compiling documentation 186
loading 102
options 102
`lwarp.ist`
customizing 143
`lwarp.xdy`
customizing 144
lwarpmk
customizing 189
`\LWR@formatted` print / HTML 249

M

make utility 176
makeindex 134
customizing 143
margin
numbers 200
tags 200
markup languages 73
math
`alt` text 98
display with complicated objects . 152
dynamic 152, 334
MathJax 149
font size — SVG 148, 558
inline with complicated objects . . 152
MathJax custom functions 149
MathJax summary 148
`mathjax` option 228
`mathsvg` option 228
mhchem 942
SVG summary 148
word processor conversion 182
MathJax
`\@ifnextchar` macros 150
`\@ifstar` macros 150
accessibility 98
custom functions 149
custom script 307
equation numbering 149
font 149
`mathjax` option 228
rendering 149
starred macros 150
summary 148
`\mcolrowcell` 163
MD5 hash
SVG image filename 541, 562
memoir
`framewithtitle`, `titledframe` . . . 169
meta tag, HTML
author 118, 362
description 118, 362
generator 399
title 118, 362
viewport 399
minipage
framed 123
horizontal space between 602
modifying
class 188
document 97
package 187
`\mrowcell` 163
`\multicolumn`
with `\multirow` 163
multimedia 160

multiple projects in a directory 94
\multirow
with \multicolumn 163
multirow
\mrowcell and \mcolrowcell . . . 163

N

navigation
link to home / previous / next page 111
\newcolumntype and \HTMLnewcolumntype 112
newfloat
with trivfloat, algorithmicx 1187
nomencl 134
numbers
left margin 200

P

package
modifying for lwarp 187
required 235
PDF image
converting 94
using 156, 573
Perl 81
PNG images 156, 573
Poppler 76, 80
print
defining print / HTML macros / envs 249
problems 190
program listings 120
programs
utility 75
projects 94
\published 414

R

roles
ARIO 98
rule
horizontal 120

S

section
depths 199
file names 126
heading, word processor 183
international languages 170
settings
accessibility 98
CSS project-specific 114
CSS selection 114
filenames 107
HTML conversion 107
language 98
lwarp package options 102
selecting print/HTML output 115
title page 117
shell escape 100
sidetoc
name 98
sidetoc
depth 107
siunitx
with *TeXMaths* 182
space
horizontal
between minipages 602
horizontal and vertical 120
stack depths 199
starred macros 150
\StartDefiningTabulars 161, 429
\subtitle 414
SVG
converting from PDF or EPS 94
dynamic math 334
image processing 311
math summary 148
mathsvg option 228

T

tabular
baseline 448
column specifier 162, 430
HTML columnmn conversion 449
in environments, catcode of & 161, 429
macros inside 162, 430
\multicolumn with \multirow . . . 163
multirow \mrowcell and \mcolrowcell 163
\newcolumntype and \HTMLnewcolumntype 112
\StartDefiningTabulars . . 161, 429
text-align 162, 430
text-align 162, 430
tikz
catcodes 1161
dollar redefined 1161
title
HTML meta tag 118, 362
titlepage
\subtitle and \published 414
tracing log 248
trivfloat
with newfloat, algorithmicx 1187
troubleshooting 190
HTML debug comments 248
tracing log 248
type 1 vector fonts 100
type 3 bitmapped fonts 100

U

underscore
filename 102, 121
Unicode
enhanced coverage 100
file & section names 386
input characters 218
selection 100
UTF-8
enhanced coverage 100

file & section names 386
index 101
locale 176
selection 100
utility
programs 75

V

vector fonts 100
verbatim
code and HTML tags 120
vertical space 120
video 160
viewport
HTML meta tag 399

W

warning icon 200
word processor
conversion recommendations . . . 183
HTML conversion settings . . 180, 254
section headings 183

X

xcite 94
XeLaTeX
detection 201
file & section names 386
xindex 135
customizing 145
xindy 135
and hyperref 134
customizing 144
xr 94
xr-hyper 94

Troubleshooting Index

This index is a sorted reference of problems and solutions. In order to make it easier to locate a solution, the same issue may be addressed by more than one entry.

Entries starting with page 200 are often duplicates of entries with lower page numbers, as the same warning may occur within the user manual and again within the source code.

A

abstract
  missing TOC 131, 621
accents
  file names 386
acro 172
acronym
  multiply-defined labels 628
\AddSubtitlePublished 414
affiliation 408
alt tags 152, 194
amscdx 635
AMSmath
  ntheorem
    numbering 153, 987
appendix
  incorrect TOC link 132, 645
array
  chemformula 172
  MATHJAX 150
  \newcolumntype and \HTMLnewcolumntype 112
arydshln 648
audio 160
authblk
  \theauthor 407, 408
  titling 131, 406, 654, 1169
author
  affiliation 408
  formatting 117
autonum 656

B

babel
  French 171
backref 660
backref 128
bibliography
  HTML page and TOC 130
bibtex
  \etalchar 132
  Improper \prevdepth 132
bigdelim 166, 671
bigfoot 130, 912
booktabs 675
boxes 122
breqn
  darray 679
bussproofs 681

C

Calibre
  EPUB conversion 178
caption
  numbering 167
  options 119
changes 691
character encoding
  MATHJAX 151
chemfig 172
chemformula
  MATHJAX 172, 698
chemgreek
  fontspec mapping 703
  text-mode symbols 703
chemmacros
  \makepolymerdelims 704
  redox reactions 704
Chinese
  font 120
CJK
  font 120
cleveref
  cref reference format undefined . . 152
cmbright 730
colortbl 165, 732
Command \textquoteright invalid in math mode 193
comment 168, 1239
compiling
  slow MATHJAX 149
cref reference format undefined 152
cross reference
  incorrect link 194
  MATHJAX 151
  missing 194
CSS 195
ctable 165

D

ditaa 177
documentation
  index cross-references 186

dotless j 101
dotlessj 192
duplcate filename 127

E

encoding
  MathJax 151
\endhead, etc. 164
endnotes
  HTML page and TOC 130
  numbering 132
\ensuremath 193
epstopdf 158, 762
EPUB
  encoding 178
  page order 178
  search order 178
  section breaks 178
equation numbering
  MathJax 149
error messages 190
\etalchar 132

F

fancybox
  \VerbatimFootnotes . . 129, 772, 779
fancypar 777
fancyvrb
  \VerbatimFootnotes . . 129, 772, 779
figure
  macro in name 193
file
  inaccessible 109
  multiple projects in directory . . . 94
File ended while scanning use of \next 192
filename
  accents 386
  corrupted 127, 170
  duplicate 127
  image extension 155, 573
  international, UTF-8 170
  Korean 172
  macro in name 127
  math in 97, 127, 147
  Missing $ inserted 192
fixme 171, 790
float
  alignment 121, 166
  not seem to be a floating environment 792
  numbering 167
  out of sequence 195
float 792
floatrow
  \FBwidth and \FBheight . . . 167, 795
  \ttabbox 161, 429
  with subfig 167, 795
font
  CJK 120
  JetBrain Mono 101
  ligatures 101
  MathJax 149
  missing symbols 121, 1147
  monospace 101
  package conflicts 100
  selection 100
  small caps 120
  UTF-8 100
fontspec
  with monospaced fonts 101
  with XeLaTeX, LuaLaTeX. 100
footmisc 129, 363
footnote
  displaymath 129, 772, 779
  in math 129
  in sectioning command 129
  MathJax 129
  memoir 129, 363
  numbering 129
  paragraph tags 129, 772, 779
  sectioning, footmisc 129, 363
  sectioning, verbatim . . . 129, 772, 779
  title 407
  verbatim 129
  \VerbatimFootnotes . . 129, 772, 779
forest 809
formatting
  \bfseries etc. 120, 590
fourier 810
frames 123
framewithtitle 169

G

gloss 132
glossaries
  HTML page and TOC 130
  makeglossaries not found . . . 133, 822
  page numbers 133, 823
  style 133, 823
graphics
  \graphicspath 155, 573
  \rotatebox, \scalebox, \reflectbox 157, 574
  image format priorities 156, 574
  image not displayed
    duplicate file 156, 574
    extension 155, 573
  incorrect
    added or removed 88, 195
    page counter 88, 195
  multimedia 160
  optional arguments 157, 574
  scale option 97, 157, 574
  scaled 825
  viewport 157, 574
\graphicspath 156, 574
Greek packages 703
grffile 158, 836

H

\hrule 120
HTML
  &, <, > 120, 590
  alt tags 152
  author 362
  corrupted 101, 117, 122, 191, 192, 195
  entities 120, 590
  image appear as HTML code . 88, 195
  inaccessible pages 109, 111
    starred section 131
  invalid 119
  missing pages
    filename not unique 109
    recompile 195
    SideTOCDepth and FileDepth . 109
    SideTOCDepth and tocdepth . . 109
  page did not update 109, 195
  settings
    changed 107
    undefined 192
  validation 119
\HTMLAuthor 362
HTMLIndexCmd
  filenames 105
\HTMLnewcolumntype 112
hyperref
  backref 128
  comments between arguments . . 128
  incorrect link 194
  Token not allowed in a PDF string 193

I

image
  appears as HTML code 88, 195
  filename extension 155, 573
  format priorities 156, 574
  incorrect
    added or removed 88, 195
    page counter 88, 195
  not displayed
    duplicate file 156, 574
    extension 155, 573
  SVG math size and baseline 148
  viewport 157, 574
Improper \prevdepth
  bibtex 132
  boxes 193
\includegraphics
  optional arguments 157, 574
  scale 97, 157, 574
index
  ?? and non-functional link 106
  documentation references 186
  empty 146
  empty link 127, 194
  formatting 106, 524
  HTML page and TOC 130
  missing entries 134
  numbers, not links 240
  reference ranges 146
  see and seealso 146
  styling references 146
  xindy
    and hyperref 146
  xstring bug 240
isomath 861

J

\j 101
Japanese
  font 120
JetBrain Mono 101

K

keyfloat 168, 867
Korean
  font 120
kpfonts 874
kpfonts-otf 875

L

label
  \nameref empty 127, 194
  characters 127, 194
Label(s) may have changed 193
LaTeX was unable to guess the total... 193
\LateximageFontSizeName 559
Leaders not followed by proper glue . 193
LibreOffice
  import 180
ligatures 101
link
  empty 127, 194
Linux 115, 225
list
  empty item 121, 422
listings 194
lists
  label formatting 423
locale 176
longtable
  \endhead, etc. 164
lrbox 122
ltxtable
  numbering 903
luaLaTeX 100
lwarpmk.conf 86, 87
lwarpmk 86, 87
\LWRbackslash 173
\LWRdollar 173
\LWRhash 173
\LWRopquote 173
\LWRopseq 173
\LWRpercent 173

M

Mac OS 115, 225
makeglossaries
  not found 133, 822
\makelabel 423

manyfoot 130, 912
\marginpar 122, 369
math
  \@ifnextchar macros and MathJax 150
  \@ifstar macros and MathJax . . 150
  alt tags 194
  appears as HTML code 88, 195
  baseline incorrect 148
  chemformula 172
  Command \textquoteright invalid in math mode 193
  custom macros 193
  dynamic 334
  equation numbering
    MathJax 149
    ntheorem 153, 987
  file name 97, 127, 147
  footnote 129
    MathJax 129
  in TEX boxes 148
  incorrect
    added or removed 88, 195
    dynamic 334
  non-math contents 193
  section name 97, 127, 147
  size incorrect 148
  slow or failed compile 194
  MathJax 150
  tabbing 160, 421
  Tikz 152
mathalpha 916
mathdesign 918
MathJax
  \@ifnextchar macros 150
  \@ifstar macros 150
  arydshln 648
  booktabs 675
  character encoding 151
  chemformula 172, 698
  custom script 307
  encoding 151
  equation numbering 149
  errors 152, 194, 334
  font 149
  footnotes 129
  mathtools 153, 923
  mhchem 942
  \multicolumn 150
  \multirow 150, 164, 959
  physics 155
  references 151
  rendering 149
  siunitx 154, 572, 1079
  slow compilation 149
  starred macros 150
  Unicode 151
  unicode-math 1193
  unsupported packages 151, 194
mathpazo 920
mathptmx 921
mathspec 921
mathtools 153, 923
maybemath 928
\mcolrowcell 163
media9 160
memoir
  framewithtitle, titledframe . . . 169
  captions 168, 1239
  comment 168, 1239
  footmisc 129, 363
  options clash 168, 1239
  page notes 169, 1239
  verse
    margin 170, 417, 1201
  version clash 168, 1239
mhchem
  MathJax 942
  nested dollar signs 942
minipage
  alignment 123, 580
  horizontal space between 602
  in a span 122, 580
  inline 122, 579
  multicols, width in 123, 580
  size 123, 580
  tabular, width in 123, 580
minted 947
Misplaced \noalign 164, 899
  tabular
    rules 163, 431
Misplaced \omit
  tabular 251
Misplaced alignment tab character &
  ctable 165, 735
  floatrow 167, 795
  frames 124
  supertabular 165, 1130, 1231
  tabular
    macros 161, 332, 429
Missing $ inserted
  filename or URL 192
Missing \begin{document}
  package options 119
morewrites 146, 192
movie15 160
\mrowcell 163
MS-Windows 115, 225
multicol
  \linewidth 123, 580
\multicolumn
  MathJax 150
multimedia 160
multiple projects in a directory 94
multiply-defined labels
  acronym 628
\multirow and \multicolumn . . 164, 959
multirow
  MathJax 150, 164, 959
  \mrowcell and \mcolrowcell . . . 163

N

newclude 171
\newcolumntype 112, 162, 430
newpxmath 971
newtxmath 972
newtxsf 973
nicefrac 155
nicematrix 981
No room for a new \write 192
nomencl 134
ntheorem 987
  cref reference format undefined . . 152
  font 153, 987
  numbering 153, 987

O

operating system 115, 225
options
  clash with memoir 168, 1239
  with braces 119
overpic 159, 1000

P

package
  MathJax support 151
  options with braces 119
  version numbers with memoir 168, 1239
page
  inacessible 109
page counter
  references 128
  SVG images 88, 195
page numbers 128, 194, 727
pagenote 132, 1001
pdfcrop 80
pdfseparate 80
pdftocairo 80
pdftotex 80
pdftricks 158, 1015
perl 80
perltex 175
pfnote
  numbering 130, 1017
physics
  MathJax 155
polyglossia
  Undefined control seq … begindocument 171, 616
poppler
  install 80
  Syntax Warning (ligature) 802
PrintIndexCmd 104
projects
  multiple 94
psfrag 159
pstool 159, 1027
pstricks 158, 1027
pythontex 175

R

reference
  % character between arguments . 194
  empty link 127, 194
  incorrect link 194
  label characters 127, 194
  MathJax 151
  missing or incorrect 194
  page number 128, 194, 727
  undefined
    tcolorbox 126
repeatindex 1036
rlepsf 1038
rterface 176
Runaway argument? File ended … . . 192

S

sample_projects.css
  overwritten 114
\savebox 122
\sbox 122
scale (\includegraphics option) 97, 157, 574
sectioning
  accents 386
  duplicate name 127
  international language 170
  macro in name 127, 193
  math in name 97, 127, 147
  missing 109
  starred section 131
  word processor import 183
seqsplit 1054
sidenotes
  numbering 129
siunitx
  \HTMLDeclareSIUnit . 154, 571, 1079
  drop-exponent 153, 571, 1078
  MathJax 154, 572, 1079
  S column 163, 431
  table-auto-roound . . 153, 571, 1078
  tabular S and s columns 153, 571, 1078
  with *TeXMaths* 182
small caps 120
splitidx
  \thepage and \AtWriteToIndex 136, 1107
statistics 1115
subcaption
  numbering 167
subfig
  inline 167, 1124
  numbering 167, 1124
  options 167, 1124
  with floatrow 167, 795
subtable
  numbering
    subfig 167, 1124
SVG image
  appears as HTML code 88, 195

incorrect
added or removed 195
page counter 88, 195
math incorrect
dymamic 334
math size and baseline 148
out of order 88, 195
sympytex 175
Syntax Warning (ligature) 802

T

tabbing
math 160, 421
table
macro in name 193
numbering
ltxtable 903
subfig 167, 1124
Table of Contents
missing 111
tabular
baselines 448
column specifier 162, 430
corrupt rows 161, 429, 479
\endhead, \endfoot, \endlastfoot 164, 899
inside an environment . 161, 429, 479
\kill 164, 899
macro inside 162, 430
Misplaced \noalign 163, 431
Misplaced alignment tab character &
macros 161, 429
rules 332
\multicolumn with \multirow . . . 163
multirow \mrowcell and \mcolrowcell 163
\newcolumntype and \HTMLnewcolumntype 112, 162, 430
numbering 1227
row corruption 162, 430
rules 163, 431
S column 163, 431
text-align 162, 430
tcolorbox 126
Temporary page … unable to guess … 193
tensor 1145
TeX capacity exceeded
Text input levels equals 15 192
TeXMaths 182
text
&, <, > 120, 590
\bfseries etc. 120, 590
corrupted 100
Text input levels equals 15 192
text-align 162, 430
textcomp
missing symbols 121, 1147
\textquoteright invalid in math mode 193
\theauthor and authblk 407, 408
theorem
cref reference format undefined . . 152
threeparttablex 165
tikz
in math 152
matrices, & 157, 1160
title
affiliation 408
newlines 117
\thanks 407
titledframe 169
titling
authblk 131, 406, 654, 1169
hooks 414
tocloft
chapter titles 131, 147, 644, 1177
todonotes 171, 907, 1183
Token not allowed in a PDF string . . . 193
tracing lwarp 196
tram 1185
transparent 1186

U

Undefined control seq … begindocument
polyglossia 171, 616
Unicode
fonts 100
MathJax 151
UTF-8 locale 176
unicode-math 1193
units 155
Unix 115, 225
URL
Missing $ inserted 192
\usebox 122
UTF-8
locale 176

V

varioref 128
verbatim
footnote 129
framed 125, 771
VerbatimFootnotes 129, 772, 779
verse
spacing 170, 417, 1201
verse
margin 170, 417, 1201
version numbers
with memoir 168, 1239
video 160
viewport 157, 574

W

warning messages 190
warpall 116, 192
warpHTML 116, 192
warpMathJax 116, 192
warpprint 116, 192

warpsvg 116
WINDOWS 115, 225
word processor
  import 180
  sectioning headings 183

X

xcite 94
xeLaTeX 100
xfakebold 1225
xfrac 1225
xindy
  and hyperref 146
  options
    HTMLIndexCmd 105
    LatexmkIndexCmd 105
    PrintIndexCmd 104
xltabular
  numbering 1227
xr 94
xr-hyper 94
xstring 240

Index of Indexes

C

Change History 1288

G

General Index 1352

I

Index of Objects 1329

T

Troubleshooting Index 1357