

# Hypertext marks in L<sup>A</sup>T<sub>E</sub>X

Sebastian Rahtz (deceased)

Heiko Oberdiek (inactive)

The L<sup>A</sup>T<sub>E</sub>X Project

<https://github.com/latex3/hyperref/issues>

2023-11-07 v7.01e

## 1 Documentation overview for hyperref

The documentation for package `hyperref` consists of several files:


**Manual** The **USER MANUAL** (also available as HTML).

**ChangeLog** This file records the version history.

**Bookmark talk, slides** Slides for the talk “PDF information and navigation elements with hyperref, pdfTeX and thumbpdf” at EuroT<sub>E</sub>X 1999.

**Bookmark talk, paper** The paper version of the talk.

Source code documentation:

 **hyperref.dtx** This is the source code documentation for hyperref (this file).

**backref.dtx** “Back referencing from bibliographical citations”

**nameref.dtx** “Section name references in L<sup>A</sup>T<sub>E</sub>X”

## 2 Contents

<b>1</b>	<b>Documentation overview for hyperref</b>	<b>1</b>
<b>2</b>	<b>Contents</b>	<b>2</b>
<b>3</b>	<b>File hycheck.tex</b>	<b>7</b>
<b>4</b>	<b>Package options and setup</b>	<b>11</b>
4.1	Save catcodes . . . . .	11
4.2	Version check . . . . .	13
4.3	Checks with regular expressions . . . . .	14
4.4	Compatibility with format dumps . . . . .	15
4.5	Switches . . . . .	15
<b>5</b>	<b>Common help macros</b>	<b>17</b>
5.1	Macros for recursions . . . . .	17
5.2	Babel's protection of shorthand characters . . . . .	18
5.3	Coordinate transformations . . . . .	18
<b>6</b>	<b>Dealing with PDF strings</b>	<b>18</b>
6.1	Description of PDF strings . . . . .	18
6.2	Definition of <code>\pdfstringdef</code> . . . . .	19
6.2.1	Preprocessing . . . . .	20
6.2.2	Expansion . . . . .	26
6.2.3	Postprocessing . . . . .	27
6.3	Encodings . . . . .	32
6.3.1	XeTeX . . . . .	32
6.3.2	Workaround for package linguex . . . . .	32
6.3.3	Catcodes saving and restoring for <code>.def</code> files . . . . .	33
6.3.4	PD1 encoding . . . . .	34
6.3.5	PU encoding . . . . .	34
6.4	Additional user commands . . . . .	35
6.4.1	<code>\texorpdfstring</code> . . . . .	35
6.4.2	Hooks for <code>\pdfstringdef</code> . . . . .	35
6.5	Help macros for expansion . . . . .	36
6.5.1	<code>\ignorespaces</code> . . . . .	36
6.5.2	Babel languages . . . . .	36
6.5.3	CJK patch . . . . .	37
6.5.4	CJK bookmarks . . . . .	37
6.5.5	CJK unicode . . . . .	39
6.5.6	<code>\@inmathwarn-Patch</code> . . . . .	44
6.5.7	Unexpandable spaces . . . . .	45
6.5.8	Marker for commands . . . . .	45
6.5.9	<code>\hspace fix</code> . . . . .	45
6.5.10	Fix for AMS classes . . . . .	46
6.5.11	Reference commands . . . . .	46
6.5.12	Redefining the defining commands . . . . .	48
6.5.13	<code>\ifnextchar</code> . . . . .	50
6.5.14	<code>\@protected@testoptifnextchar</code> . . . . .	50

6.6	Help macros for postprocessing	50
6.6.1	Generic warning.	50
6.6.2	Protecting spaces	51
6.6.3	Remove grouping braces	51
6.6.4	Catcode check	52
6.6.5	Check for wrong glyphs	56
6.6.6	Replacing tokens	57
6.6.7	Support for package <code>xspace</code>	58
6.6.8	Converting to Unicode	59
6.6.9	Support for UTF-8 input encoding	61
6.6.10	Support for die faces (ifsym et. al.)	65
6.6.11	Support for moon phases of package <code>china2e</code>	66
6.6.12	Support for package <code>pifont</code>	66
<b>7</b>	<b>Support of other packages</b>	<b>68</b>
7.1	Package subfigure	68
7.2	Package <code>xr</code> and <code>xr-hyper</code>	69
<b>8</b>	<b>Help macros for links</b>	<b>69</b>
<b>9</b>	<b>Options</b>	<b>71</b>
9.1	Help macros	71
9.2	Defining the options	74
<b>10</b>	<b>Options for different drivers</b>	<b>79</b>
<b>11</b>	<b>Options to add extra features</b>	<b>84</b>
<b>12</b>	<b>Language options</b>	<b>85</b>
<b>13</b>	<b>Options to change appearance of links</b>	<b>94</b>
<b>14</b>	<b>Bookmarking</b>	<b>95</b>
<b>15</b>	<b>PDF-specific options</b>	<b>97</b>
15.1	Package <code>xspace</code> support	111
15.2	Option <code>draft</code>	112
15.3	PDF/A	112
15.4	Patch for babel's <code>\texttilde</code>	113
15.4.1	Driver loading	115
15.4.2	Bookmarks	119
<b>16</b>	<b>User hypertext macros</b>	<b>122</b>
16.1	Link box support for XeTeX	129
<b>17</b>	<b>Underlying basic hypertext macros</b>	<b>130</b>
<b>18</b>	<b>Option ‘<code>destlabel</code>’</b>	<b>134</b>

<b>19 Forms creation</b>	<b>136</b>
19.1 Field flags	136
19.1.1 Declarations of field flags	138
19.1.2 Set submit flags	140
19.1.3 Set annot flags in fields	141
19.1.4 Pushbutton field	141
19.1.5 Check box field	142
19.1.6 Radio button field	142
19.1.7 Text fields	142
19.1.8 Choice fields	143
19.2 Choice field	144
19.3 Forms	146
<b>20 Setup</b>	<b>154</b>
<b>21 Low-level utility macros</b>	<b>154</b>
<b>22 Localized nullifying of package</b>	<b>156</b>
<b>23 Package nohyperref</b>	<b>156</b>
<b>24 The Mangling Of Aux and Toc Files</b>	<b>157</b>
<b>25 Title strings</b>	<b>158</b>
<b>26 Page numbers</b>	<b>160</b>
<b>27 Every page</b>	<b>160</b>
27.1 PDF /PageLabels	161
27.1.1 pdfTeX and VTeX	165
27.1.2 xetex	166
27.1.3 pdfmarkbase, dvipdfm, xetex	167
<b>28 Automated L<sup>A</sup>T<sub>E</sub>X hypertext cross-references</b>	<b>169</b>
<b>29 Package ifthen support</b>	<b>175</b>
<b>30 Package varwidth support</b>	<b>175</b>
<b>31 Package titlesec and titletoc support</b>	<b>175</b>
<b>32 Package longtable support</b>	<b>176</b>
<b>33 Equations</b>	<b>177</b>
<b>34 Support for theorems</b>	<b>179</b>
<b>35 Footnotes</b>	<b>181</b>
<b>36 Float captions</b>	<b>186</b>

<b>37 Bibliographic references</b>	<b>189</b>
37.1 Package harvard	191
37.2 Package chicago	193
<b>38 Page numbers</b>	<b>193</b>
<b>39 Table of contents</b>	<b>196</b>
<b>40 New counters</b>	<b>198</b>
<b>41 AMSI<sup>A</sup>T<sub>E</sub>X compatibility</b>	<b>198</b>
41.1 \@addtoreset and \numberwithin patches	199
<b>42 Included figures</b>	<b>200</b>
<b>43 hyperindex entries</b>	<b>201</b>
<b>44 Configuration files</b>	<b>210</b>
44.1 PS/PDF strings	210
44.2 pdftex	211
44.2.1 Fix for problem with different nesting levels	224
44.3 hypertex	224
44.4 dviwindo	227
44.5 dvipdfm/xetex dvi to PDF converter	232
44.6 VTeX typesetting system	243
44.7 Fix for Adobe bug number 466320	256
44.8 Direct pdfmark support	257
44.9 Rokicki's dvips	271
44.10 VTeX's vtexpdfmark driver	274
44.11 Textures	275
44.12 dvipsone	280
44.13 TeX4ht	284
<b>45 Driver-specific form support</b>	<b>286</b>
45.1 pdfmarks	286
45.2 HyperTeX	295
45.3 TeX4ht	296
45.4 pdfTeX	298
45.5 dvipdfm, xetex	308
45.6 Common forms part	315
<b>46 Bookmarks in the PDF file</b>	<b>323</b>
46.1 Bookmarks	323
46.1.1 Rerun warning	327
46.1.2 Driver stuff	327
<b>47 Encoding definition files for encodings of PDF strings</b>	<b>333</b>
47.1 PD1 encoding	333
47.2 PU encoding	342
47.2.1 NFSS2 accents	342
47.2.2 Basic Latin: U+0000 to U+007F	344

47.2.3	Latin-1 Supplement: U+0080 to U+00FF	347
47.2.4	Latin Extended-A: U+0080 to U+017F	351
47.2.5	Latin Extended-B: U+0180 to U+024F	356
47.2.6	IPA Extensions: U+0250 to U+02AF	360
47.2.7	Spacing Modifier Letters: U+02B0 to U+02FF	367
47.2.8	Combining Diacritical Marks: U+0300 to U+036F	367
47.2.9	Greek and Coptic: U+0370 to U+03FF	368
47.2.10	Cyrillic: U+0400 to U+04FF	368
47.2.11	Hebrew: U+0590 to U+05FF	379
47.2.12	Thai: U+0E00 to U+0E7F	380
47.2.13	Phonetic Extensions: U+1D00 to U+1D7F	380
47.2.14	Phonetic Extensions Supplement: U+1D80 to U+1DBF	381
47.2.15	Latin Extended Additional: U+1E00 to U+1EFF	382
47.2.16	General Punctuation: U+2000 to U+206F	388
47.2.17	Superscripts and Subscripts: U+2070 to U+209F	389
47.2.18	Currency Symbols: U+20A0 to U+20CF	391
47.2.19	Letterlike Symbols: U+2100 to U+214F	391
47.2.20	Number Forms: U+2150 to U+218F	392
47.2.21	Arrows: U+2190 to U+21FF	393
47.2.22	Mathematical Operators: U+2200 to U+22FF	396
47.2.23	Miscellaneous Technical: U+2300 to U+23FF	407
47.2.24	Control Pictures: U+2400 to U+243F	409
47.2.25	Optical Character Recognition: U+2440 to U+245F	409
47.2.26	Enclosed Alphanumerics: U+2460 to U+24FF	409
47.2.27	Box Drawing: U+2500 to U+257F	412
47.2.28	Geometric Shapes: U+25A0 to U+25FF	412
47.2.29	Miscellaneous Symbols: U+2600 to U+26FF	413
47.2.30	Dingbats: U+2700 to U+27BF	417
47.2.31	Miscellaneous Mathematical Symbols-A: U+27C0 to U+27EF	421
47.2.32	Supplemental Arrows-A: U+27F0 to U+27FF	421
47.2.33	Supplemental Arrows-B: U+2900 to U+297F	422
47.2.34	Miscellaneous Mathematical Symbols-B: U+2980 to U+29FF	423
47.2.35	Supplemental Mathematical Operators: U+2A00 to U+2AFF	424
47.2.36	Miscellaneous Symbols and Arrows: U+2B00 to U+2BFF	427
47.2.37	Latin Extended-C: U+2C60 to U+2C7F	428
47.2.38	Supplemental Punctuation: U+2E00 to U+2E7F	428
47.2.39	Modifier Tone Letters: U+A700 to U+A71F	428
47.2.40	Latin Extended-D: U+A720 to U+A7FF	428
47.2.41	Alphabetic Presentation Forms: U+FB00 to U+FB4F	428
47.2.42	Musical Symbols: U+1D100 to U+1D1FF	428
47.2.43	Miscellaneous Symbols and Pictographs: U+1F300 to U+1F5FF	429
47.2.44	Transport and Map Symbols: U+1F680 to U+1F6FF	429
47.2.45	Miscellaneous	429
47.2.46	Aliases	430
47.3	PU encoding, additions for VnTeX	430
47.4	PU encoding, additions for Arabi	433
<b>48</b>	<b>End of file hycheck.tex</b>	<b>458</b>
<b>49</b>	<b>Index</b>	<b>459</b>

### 3 File hycheck.tex

Many commands of L<sup>A</sup>T<sub>E</sub>X or other packages cannot be overloaded, but have to be redefined by hyperref directly. If these commands change in newer versions, these changes are not noticed by hyperref. With this test file this situation can be checked. It defines the command `\checkcommand` that is more powerful than L<sup>A</sup>T<sub>E</sub>X's `\CheckCommand`, because it takes `\DeclareRobustCommand` and optional parameters better into account.

```
1 <*check>
2 \documentclass{article}
3 \makeatletter
```

`\checklatex` Optional argument: release date of L<sup>A</sup>T<sub>E</sub>X.

```
4 \newcommand*{\checklatex}[1][]{%
5   \typeout{}}%
6   \typeout{* Format: `LaTeX2e' #1}%
7   \typeout{\space\space Loaded: `fmtname' fmtversion}%
8 }
```

`\checkpackage` The argument of `\checkpackage` is the package name without extension optionally followed by a release date.

```
9 \newcommand*{\checkpackage}[1]{%
10   \def\HyC@package{#1}%
11   \let\HyC@date\@empty
12   \@ifnextchar[\HyC@getDate\HyC@checkPackage
13 }
```

`\HyC@getDate` The release date is scanned.

```
14 \def\HyC@getDate[#1]{%
15   \def\HyC@date{#1}%
16   \HyC@checkPackage
17 }
```

`\HyC@checkPackage`

```
18 \def\HyC@checkPackage{%
19   \typeout{}}%
20   \begingroup
21   \edef\x{\endgroup
22     \noexpand\RequirePackage{\HyC@package}%
23     \ifx\HyC@date\@empty\relax\else\HyC@date\fi%
24   }%
25   \x
26   \typeout{}}%
27   \typeout{%
28     * Package `HyC@package'%
29     \ifx\HyC@date\@empty
30       \else
31         \space\HyC@date
32       \fi
33   }%
34   \@ifundefined{ver@\HyC@package.sty}{%
35     }{%
36     \typeout{%
```

```

37 \space\space Loaded: `\'HyC@package' %
38 \csname ver@\'HyC@package.sty\endcsname
39 }%
40 }%
41 }

```

`\checkcommand` The macro `\checkcommand` parses the next tokens as a L<sup>A</sup>T<sub>E</sub>X definition and compares this definition with the current meaning of that command.

```

42 \newcommand*{\checkcommand}[1]{%
43 \begingroup
44 \ifx\long#1\relax
45 \expandafter\'HyC@checklong
46 \else
47 \def\'HyC@defcmd{#1}%
48 \expandafter\let\expandafter\'HyC@next
49 \csname HyC@\expandafter\@gobble\string#1\endcsname
50 \expandafter\'HyC@checkcommand
51 \fi
52 }

```

`\HyC@checklong` The definition command `\def` or `\edef` is read.

```

53 \def\'HyC@checklong#1{%
54 \def\'HyC@defcmd{\long#1}%
55 \expandafter\let\expandafter\'HyC@next
56 \csname HyC@\expandafter\@gobble\string#1\endcsname
57 \'HyC@checkcommand
58 }

```

`\HyC@checkcommand` The optional star of L<sup>A</sup>T<sub>E</sub>X's definitions is parsed.

```

59 \def\'HyC@checkcommand{%
60 \ifx\'HyC@next\relax
61 \PackageError{hycheck}{%
62 Unknown command `\'expandafter\strip@prefix\meaning\'HyC@cmd'%
63 }{\@ehd
64 \expandafter\endinput
65 \fi
66 \@ifstar{%
67 \def\'HyC@star{*}%
68 \'HyC@check
69 }{%
70 \let\'HyC@star\@empty
71 \'HyC@check
72 }%
73 }

```

`\HyC@check` The macro `\HyC@check` reads the definition command.

```

74 \def\'HyC@check#1{%
75 \def\'HyC@cmd{#1}%
76 \let\'HyC@org@cmd#1%
77 \let#1\relax
78 \let\'HyC@param\@empty
79 \'HyC@Toks{}%
80 \let\'HyC@org@optcmd\'HyC@noValue
81 \let\'HyC@org@robustcmd\'HyC@noValue

```



```

82 \let\HyC@org@robustoptcmd\HyC@noValue
83 \HyC@next
84 }

```

`\HyC@noValue`

```

85 \def\HyC@noValue{NoValue}

```

`\HyC@newcommand` The code for `\newcommand`.

```

86 \def\HyC@newcommand{%
87 \let\HyC@@cmd\HyC@cmd
88 \@ifnextchar\HyC@nc@opt\HyC@nc@noopt
89 }

```

`\HyC@Toks` A register for storing the default value of an optional argument.

```

90 \newtoks\HyC@Toks

```

`\HyC@nc@noopt` This macro `\HyC@nc@noopt` is called, if the parser has reached the definition text.

```

91 \long\def\HyC@nc@noopt#1{%
92 \edef\x{%
93 \expandafter\noexpand\HyC@defcmd
94 \HyC@star
95 \expandafter\noexpand\HyC@cmd
96 \HyC@param\the\HyC@Toks
97 }%
98 \x{#1}%
99 \HyC@doCheck
100 }

```

`\HyC@nc@opt` This macro scans the first optional argument of a  $\text{\LaTeX}$  definition (number of arguments).

```

101 \def\HyC@nc@opt[#1]{%
102 \def\HyC@param{{#1}}}%
103 \@ifnextchar\HyC@nc@default\HyC@nc@noopt
104 }

```

`\HyC@nc@default` Macro `\HyC@nc@default` scans the default for an optional argument.

```

105 \def\HyC@nc@default[#1]{%
106 \HyC@Toks={{#1}}}%
107 \edef\HyC@optcmd{%
108 \expandafter\noexpand
109 \csname\expandafter\string\HyC@@cmd\endcsname
110 }%
111 \expandafter\let\expandafter\HyC@org@optcmd\HyC@optcmd
112 \HyC@nc@noopt
113 }

```

`\HyC@DeclareRobustCommand` `\DeclareRobustCommand{\cmd}` makes the command `\cmd` robust, that then calls `\cmd_` with an space at the end of the command name, defined by `\newcommand`. Therefore the further parsing is done by `\HyC@nc@opt` or `\HyC@nc@noopt` of the `\HyC@newcommand` chain.

```

114 \def\HyC@DeclareRobustCommand{%
115 \edef\HyC@robustcmd{%

```

```

116 \expandafter\noexpand
117 \csname\expandafter\expandafter\expandafter@gobble
118 \expandafter\string\HyC@cmd\space\endcsname
119 }%
120 \expandafter\let\expandafter\HyC@org@robustcmd\HyC@robustcmd
121 \expandafter\let\HyC@robustcmd\relax
122 \let\HyC@@@cmd\HyC@robustcmd
123 \@ifnextchar[\HyC@nc@opt\HyC@nc@noopt
124 }

\HyC@def The parameter text of \def or \edef is stored in the token register \HyC@Toks.
\HyC@edef 125 \def\HyC@def#1#{%
126 \HyC@Toks={#1}%
127 \HyC@nc@noopt
128 }
129 \let\HyC@edef\HyC@def

\HyC@doCheck This command performs the checks and prints the result.
130 \def\HyC@doCheck{%
131 \typeout{* Checking ` \HyC@string\HyC@cmd':}%
132 \HyC@checkItem{cmd}%
133 \HyC@checkItem{robustcmd}%
134 \HyC@checkItem{optcmd}%
135 \HyC@checkItem{robustoptcmd}%
136 \endgroup
137 }

\HyC@checkItem A single check.
138 \def\HyC@checkItem#1{%
139 \expandafter\ifx\csname HyC@org@#1\endcsname\HyC@noValue
140 \else
141 \expandafter\expandafter\expandafter\ifx
142 \csname HyC@#1\expandafter\endcsname
143 \csname HyC@org@#1\endcsname
144 \expandafter\HyC@checkOk\csname HyC@#1\endcsname
145 \else
146 \expandafter\HyC@checkFailed
147 \csname HyC@#1\expandafter\endcsname
148 \csname HyC@org@#1\endcsname
149 \fi
150 \fi
151 }

\HyC@string Some shorthands.
\HyC@meaning 152 \def\HyC@string#1{\expandafter\string#1}
153 \def\HyC@meaning#1{\expandafter\meaning#1}

\HyC@checkOk The result, if the check succeeds.
154 \def\HyC@checkOk#1{%
155 \typeout{\space\space` \HyC@string#1' ok.}%
156 }

\HyC@checkFailed The result, if the check fails.

```

```

157 \def\HyC@checkFailed#1#2{%
158   \typeout{\space\space`\HyC@string#1' failed.}%
159   \typeout{\space\space* original: \meaning#2}%
160   \typeout{\space\space* expected: \HyC@meaning#1}%
161 }

162 % *****
163 \</check>
164 \<package>

```

## 4 Package options and setup

### 4.1 Save catcodes

There are many packages that change the standard catcodes.

First we save the original meaning of ` and = in the token register \toks@, because we need the two characters in the macros \Hy@SetCatcodes and \Hy@RestoreCatcodes.

```

165 \begingroup
166   \@makeother`\%
167   \@makeother\=%
168   \edef\x{%
169     \edef\noexpand\x{%
170       \endgroup
171       \noexpand\toks@{%
172         \catcode 96=noexpand\the\catcode`\noexpand`\relax
173         \catcode 61=noexpand\the\catcode`\noexpand\=\relax
174       }%
175     }%
176     \noexpand\x
177   }%
178   \x
179   \@makeother`\
180   \@makeother\=

```

\Hy@SetCatcodes

```

181 \def\Hy@SetCatcodes{%
182   \@makeother`\%
183   \@makeother\=%
184   \catcode`\$=3 %
185   \catcode`\&=4 %
186   \catcode`\^=7 %
187   \catcode`\_ =8 %
188   \@makeother\| %
189   \@makeother\: %
190   \@makeother\(%
191   \@makeother\)%
192   \@makeother\[ %
193   \@makeother\] %
194   \@makeother\/ %
195   \@makeother\! %
196   \@makeother\<%

```

```

197 \@makeother\>%
198 \@makeother\.%
199 \@makeother\;%
200 \@makeother\+%
201 \@makeother\-%
202 \@makeother\"%
203 \@makeother\'%
204 }

```

\Hy@RestoreCatcodes

```

205 \begingroup
206 \def\x#1{\catcode`\noexpand#1=\the\catcode`#1\relax}%
207 \xdef\Hy@RestoreCatcodes{%
208   \the\toks@
209   \x\$%
210   \x\&%
211   \x\~%
212   \x\_%
213   \x\|%
214   \x\:%
215   \x\(%
216   \x\) %
217   \x\[ %
218   \x\] %
219   \x\/%
220   \x\!%
221   \x\<%
222   \x\>%
223   \x\.%
224   \x\;%
225   \x\+%
226   \x\-%
227   \x\"%
228   \x\'%
229 }%
230 \endgroup

```

231 \Hy@SetCatcodes

change 2020-07-24: require newer pdftexcmds and remove fallback code for version older than 2010. change 2021-08-14: require expl3

```

232 \ifx\ExplSyntaxOn\undefined \RequirePackage{expl3}\fi
233 \RequirePackage{ltxcmds}[2010/11/12]
234 \RequirePackage{iftex}[2019/10/24]
235 \RequirePackage{pdftexcmds}[2018/09/10]
236 \RequirePackage{infwarerr}[2010/04/08]
237 \RequirePackage{keyval}[1997/11/10]
238 \RequirePackage{kvsetkeys}[2007/09/29]
239 \RequirePackage{kvdefinekeys}[2011/04/07]
240 \RequirePackage{pdfescape}[2007/11/11]
241 \RequirePackage{hycolor}
242 \RequirePackage{letltxmacro}[2008/06/13]
243 \RequirePackage{auxhook}[2009/12/14]
244 \RequirePackage{nameref}[2012/07/28]

```

```

245 \RequirePackage{etoolbox}
246 \def\Hy@Error{\@PackageError{hyperref}}
247 \def\Hy@Warning{\@PackageWarning{hyperref}}
248 \def\Hy@WarningNoLine{\@PackageWarningNoLine{hyperref}}
249 \def\Hy@Info{\@PackageInfo{hyperref}}
250 \def\Hy@InfoNoLine{\@PackageInfoNoLine{hyperref}}
251 \def\Hy@Message#1{%
252   \GenericWarning{%
253     (hyperref)\@spaces\@spaces\@spaces\@spaces
254   }{%
255     Package hyperref Message: #1\ltx@gobble
256   }%
257 }

```

## 4.2 Version check

\Hy@VersionChecked

```

258 \chardef\Hy@VersionChecked=0 %

```

\Hy@VersionCheck

```

259 \def\Hy@VersionCheck#1{%
260   \begingroup
261   \ltx@ifundefined{ver@hyperref.sty}{%
262     \Hy@Error{%
263       This should not happen!\MessageBreak
264       Missing hyperref version%
265     }\@ehd
266   }{%
267     \ltx@ifundefined{ver@#1}{%
268       \Hy@Error{%
269         This should not happen!\MessageBreak
270         Missing version of `#1'%
271       }\@ehd
272     }{%
273       \def\x##1##2##3{%
274         \expandafter\expandafter\expandafter\Hy@@VersionCheck
275         \expandafter\expandafter\expandafter##2%
276         \csname ver@##3\endcsname##1##1\@nil
277       }%
278       \x{ }\y{hyperref.sty}%
279       \x{ }\z{#1}%
280       \ifx\y\z
281         \else
282         \edef\a{#1}%
283         \edef\b{\HyOpt@CustomDriver.def}%
284         \ifx\a\b
285           \Hy@WarningNoLine{%
286             Version mismatch (custom driver)!\MessageBreak
287             * \y: hyperref.sty\MessageBreak
288             * \z: \a
289           }%
290         \else
291           \Hy@Error{%
292             Version mismatch!\MessageBreak

```

```

293      * \y: hyperref.sty\MessageBreak
294      * \z: \a
295      }\@ehd
296      \fi
297      \fi
298      }%
299      }%
300 \endgroup
301 \chardef\Hy@VersionChecked=1 %
302 }

```

\Hy@@VersionCheck

```

303 \def\Hy@@VersionCheck #1#2 #3 #4\@nil{%
304 \def#1{#2 #3}%
305 }

```

### 4.3 Checks with regular expressions

```

306 \ltx@ifundefined{pdfmatch}{%
307 \def\Hy@Match#1#2#3#4#5{%
308 }{%
309 \def\Hy@Match#1#2#3{%
310 \begingroup
311 \edef\~{\ltx@backslashchar\string~}%
312 \edef\.{\ltx@backslashchar.}%
313 \edef\[{\ltx@backslashchar[]}%
314 \edef\${\ltx@backslashchar$}%
315 \edef\({\ltx@backslashchar(}%
316 \edef\){\ltx@backslashchar)}%
317 \edef\|{\ltx@backslashchar|}%
318 \edef\*{\ltx@backslashchar*}%
319 \edef\+{\ltx@backslashchar+}%
320 \edef\?{\ltx@backslashchar?}%
321 \edef\{{\ltx@backslashchar\ltx@leftbracechar}%
322 \edef\}{\ltx@rightbracechar}%
323 \edef\\{\ltx@backslashchar\ltx@backslashchar}%
324 \let\ \ltx@space
325 \ifcase\pdfmatch#2{#3}{#1} %
326 \endgroup
327 \expandafter\ltx@secondoftwo
328 \or
329 \endgroup
330 \expandafter\ltx@firstoftwo
331 \else
332 \Hy@Warning{%
333 Internal error: Wrong pattern!\MessageBreak
334 --> #3 <--\MessageBreak
335 Pattern check ignored%
336 }%
337 \endgroup
338 \expandafter\ltx@firstoftwo
339 \fi
340 }%
341 }

```

## 4.4 Compatibility with format dumps

`\AfterBeginDocument` For use with pre-compiled formats, created using the `ldump` package, there needs to be 2 hooks for adding material delayed until `\begin{document}`. These are called `\AfterBeginDocument` and `\AtBeginDocument`. If `ldump` is not loaded, then a single hook suffices for normal L<sup>A</sup>T<sub>E</sub>X processing.

The default definition of `\AfterBeginDocument` cannot be done by `\let` because of problems with `xypic`.

```
342 \@ifundefined{AfterBeginDocument}{%
343   \def\AfterBeginDocument{\AtBeginDocument}%
344 }{}%
```

`\Hy@AtBeginDocument` For the case that package ‘hyperref’ is loaded using `\AtBeginDocument`, we have to wrap the calls of `\AtBeginDocument`/`\AfterBeginDocument` in `\AtEndOfPackage`. However, packages must be loaded in `\AtEndOfPackage` *before* package ‘kvoptions’ has to perform its option cleanup. Therefore we use a hook.

```
345 \def\Hy@AtBeginDocument{%
346   \ltx@LocalAppendToMacro\Hy@AtBeginDocumentHook
347 }
```

`\Hy@AtEndOfPackage`

```
348 \def\Hy@AtEndOfPackage{%
349   \ltx@LocalAppendToMacro\Hy@AtEndOfPackageHook
350 }
```

`\Hy@AtBeginDocumentHook`

```
351 \let\Hy@AtBeginDocumentHook\ltx@empty
```

`\Hy@AtEndOfPackageHook`

```
352 \let\Hy@AtEndOfPackageHook\ltx@empty
```

Install the hook, before package ‘kvoptions’ is loaded.

```
353 \AtEndOfPackage{%
354   \Hy@AtEndOfPackageHook
355   \let\Hy@AtEndOfPackageHook\@undefined
356   \AfterBeginDocument{%
357     \Hy@AtBeginDocumentHook}%
358   \let\Hy@AtBeginDocumentHook\@undefined
359 }%
360 }
```

Package `kvoptions` is used for processing options that are given as key value pairs. The package provides `\ProcessKeyvalOptions`, formerly known as `\ProcessOptionsWithKV`.

```
361 \RequirePackage{kvoptions}[2009/07/21]
```

## 4.5 Switches

```
362 \newif\ifHy@stoppedearly
363 \newif\ifHy@typexml
364 \newif\ifHy@activeanchor
365 \newif\ifHy@backref
366 \newif\ifHy@bookmarks
```

```

367 \newif\ifHy@bookmarksnumbered
368 \newif\ifHy@bookmarksopen
369 \newif\ifHy@breaklinks
370 \newif\ifHy@pdfcenterwindow
371 \newif\ifHy@CJKbookmarks
372 \newif\ifHy@colorlinks
373 \newif\ifHy@destlabel
374 \newif\ifHy@draft
375 \let\Hy@finaltrue\Hy@draftfalse
376 \let\Hy@finalfalse\Hy@drafttrue
377 \newif\ifHy@pdfescapeform
378 \newif\ifHy@hyperfigures
379 \newif\ifHy@pdfitwindow
380 \newif\ifHy@frenchlinks
381 \newif\ifHy@hyperfootnotes
382 \newif\ifHy@hyperindex
383 \newif\ifHy@hypertextnames
384 \newif\ifHy@implicit
385 \newif\ifHy@linktopage
386 \newif\ifHy@localanchorname
387 \newif\ifHy@pdfmenubar
388 \newif\ifHy@naturalnames
389 \newif\ifHy@nesting
390 \newif\ifHy@pdfnewwindowset
391 \newif\ifHy@pdfnewwindow
392 \newif\ifHy@ocgcolorlinks
393 \newif\ifHy@pageanchor
394 \newif\ifHy@pdfpagelabels
395 \newif\ifHy@pdfstring
396 \newif\ifHy@plainpages
397 \newif\ifHy@psize
398 \newif\ifHy@raiselinks
399 \newif\ifHy@seminarslides
400 \newif\ifHy@setpagesize
401 \newif\ifHy@texht
402 \newif\ifHy@psdextra
403 \newif\ifHy@pdftoolbar
404 \newif\ifHy@unicode
405 \newif\ifHy@pdfusetitle
406 \newif\ifHy@verbose
407 \let\Hy@debugtrue\Hy@verbosetrue
408 \let\Hy@debugfalse\Hy@verbosefalse
409 \newif\ifHy@pdfwindowui
410 \newif\ifHy@pdfdisplaydoctitle
411 \newif\ifHy@pdfa

```

Defaults for the switches are now set.

```

412 \Hy@backreffalse
413 \Hy@bookmarksnumberedfalse
414 \Hy@bookmarksopenfalse
415 \Hy@bookmarkstrue
416 \Hy@breaklinksfalse
417 \Hy@pdfcenterwindowfalse
418 \Hy@CJKbookmarksfalse
419 \Hy@destlabelfalse

```



```

420 \Hy@pdfescapeformfalse
421 \Hy@hyperfiguresfalse
422 \Hy@pdffitwindowfalse
423 \Hy@hyperfootnotesttrue
424 \Hy@hyperindextrue
425 \Hy@hypertextnamestrue
426 \Hy@implicitttrue
427 \Hy@linktocpagefalse
428 \Hy@localanchornamefalse
429 \Hy@pdfmenubartrue
430 \Hy@naturalnamesfalse
431 \Hy@nestingfalse
432 \Hy@pdfnewwindowsetfalse
433 \Hy@pdfnewwindowfalse
434 \Hy@pageanchortrue
435 \Hy@pdfpagelabelstrue
436 \Hy@pdfstringfalse
437 \Hy@plainpagesfalse
438 \Hy@raiselinksfalse
439 \Hy@setpagesizetrue
440 \Hy@texhtfalse
441 \Hy@psdextrafalse
442 \Hy@pdftoolbartrue
443 \Hy@unicodetrue
444 \ifx\kanjiskip\@undefined
445 \else
446 \ifx\forcecjktoken\@undefined
447 \Hy@unicodefalse
448 \fi
449 \fi
450 \Hy@pdfusetitlefalse
451 \Hy@verbosefalse
452 \Hy@pdfwindowuitrue
453 \Hy@pdfdisplaydoctitlefalse
454 \Hy@pdfafalse

```

## 5 Common help macros

\Hy@StepCount

```

455 \def\Hy@StepCount#1{\advance#1 by 1 }%

```

\Hy@GlobalStepCount

```

456 \def\Hy@GlobalStepCount#1{\global\advance#1 by 1 }%

```

```

457 \newdimen\@linkdim
458 \let\Hy@driver\ltx@empty
459 \let\MaybeStopEarly\relax
460 \newcount\Hy@linkcounter
461 \newcount\Hy@pagecounter
462 \Hy@linkcounter0
463 \Hy@pagecounter0

```

### 5.1 Macros for recursions

```

464 \let\Hy@ReturnEnd\@empty
465 \long\def\Hy@ReturnAfterFiFiEnd#1\fi#2\Hy@ReturnEnd{\fi\fi#1}
466 \long\def\Hy@ReturnAfterElseFiFiEnd#1\else#2\Hy@ReturnEnd{\fi\fi#1}

```

## 5.2 Babel's protection of shorthand characters

`\Hy@safe@activetrue` Babel's switch setting commands cannot be used directly, because they can be undefined if babel is not loaded.

```

467 \def\Hy@safe@activetrue{\csname @safe@activetrue\endcsname}
468 \def\Hy@safe@activesfalse{\csname @safe@activesfalse\endcsname}

```

## 5.3 Coordinate transformations

At some places numbers in pdf units are expected (eg: FitBH, ...). The following macros perform the transformation from TeX units (pt) to PDF units (bp).

`\hypercalcbp` The user macro `\hypercalcbp` can be used, for example, inside option values:

```
pdfstartview={FitBH \hypercalcbp{\paperheight-\topmargin-1in}}
```

- It cannot be used inside `\usepackage`, because LaTeX expands the options before package `hyperref` is loaded and `\hypercalcbp` is defined.
- With the now required e-TeX extensions an expandable implementation is very easy; `\hypercalcbp` can be used everywhere and is expanded at use.

Example (TeX):

```

\usepackage[...]{hyperref}
\hypersetup{
  pdfstartview={FitBH \hypercalcbp{\paperheight-\topmargin-1in
    -\headheight-\headsep}}
}

```

`\hypercalcbp`

```

469 \def\hypercalcbp#1{%
470   \strip@pt\dimexpr 0.99626401\dimexpr(#1)\relax\relax
471 }%
472 \def\hypercalcbpdef{\def}%

```

## 6 Dealing with PDF strings

The PDF string stuff done by Heiko Oberdiek.

Naming convention: All internal commands that are only needed by `\pdfstringdef` are prefixed with `\HyPsd@`.

### 6.1 Description of PDF strings

The PDF specification defines several places to hold text strings (bookmark names, document information, text annotations, etc.). The PDF strings have following properties:

- They are surrounded by parentheses. The hexadecimal form is not supported.

- Like PostScript language strings they use the same escaping mechanism:
 

<code>\\</code>	the backslash itself
<code>\), \((</code>	unbalanced parentheses
<code>\n, \r, \t, \b, \f</code>	special white space escape sequences
<code>\ddd</code>	octal character code <code>ddd</code>
- Strings are stored either in PDFDocEncoding, which is a superset of ISO-Latin1 and is compatible with Unicode with character codes below 256, or in Unicode.

## 6.2 Definition of `\pdfstringdef`

The central macro for dealing with PDF strings is `\pdfstringdef`. It defines a command `#1` to be the result of the conversion from the string in `#2` to a legal PDFDocEncoded string. Currently the definition is global, but this can be changed in the future.

Important: In  $\text{\TeX}$ 's view PDF strings are written to a file and are expanded only in its mouth. Stomach commands that cannot be expanded further aren't executed, they are written verbatim. But the PDF reader that reads such a string isn't a  $\text{\TeX}$  interpreter!

The macro `\pdfstringdef` consists of three main parts:

1. Preprocessing. Here the expansion is prepared. The encoding is set and many commands are redefined, so that they work appropriate.
2. Expansion. The  $\text{\TeX}$  string is expanded the first time to get a PDF string.
3. Postprocessing. The result of the expansion is checked and converted to the final form.

`\MakeUppercase` and `\MakeLowercase` do not work by expansion in legacy code but if the `expl3` code is available we can handle them. If a current babel or polyglossia is used we can also make use of the language.

`\MakeUppercaseUnsupportedInPdfStrings`  
`\MakeLowercaseUnsupportedInPdfStrings`

```

473 \providecommand*\BCPdata[1]{}
474 \ExplSyntaxOn
475 \@ifundefined{text_uppercase:n}{}
476 {
477   \def\MakeUppercaseUnsupportedInPdfStrings#1
478     {\use:e
479       {\exp_args:Ne
480         \text_uppercase:nn{\BCPdata { casing }}{#1}
481       }
482     }
483   \def\MakeLowercaseUnsupportedInPdfStrings#1
484     {\use:e
485       {\exp_args:Ne
486         \text_lowercase:nn{\BCPdata { casing }}{#1}
487       }
488     }
489 }
490 \ExplSyntaxOff

```

`\pdfstringdef` `\pdfstringdef` works on the tokens in `#2` and converts them to a PDF string as far as possible:

- The result should obey the rules of the PDF specification for strings.
- The string can safely be processed by  $\text{\TeX}$ , because the tokens have only cat-codes 10 until 12.

The result is stored in the command token given in `#1`.

```
491 \def\pdfstringdef#1#2{%
```

Many redefinitions are needed, so all the work is done in a group.

```
492 \begingroup
```

### 6.2.1 Preprocessing

**Octal escape sequences.** To avoid problems with eight bit or non printable characters, the octal escape notation is supported. So most glyphs in the encoding definitions for PD1 and PU produce these octal escape sequences. All three octal digits have to be used:

- Wrong results are avoided, if digits follow that are not part of the octal sequence.
- Macros rely on the fact that the octal sequences always consist of three digits (vtex driver, Unicode support).

The escape sequences start with a backslash. By `\string` it will be printed. Therefore it is ensured that the  $\text{\TeX}$  escape character indeed prints as a normal backslash. Eventually this line can be removed, because this is standard  $\text{\LaTeX}$  behaviour.

```
493 \escapechar`\\%
```

From the view of  $\text{\TeX}$  an octal sequence consists of the command tokens `\0` until `\3` and two digits. For saving tokens `\0`, `\1`, `\2`, and `\3` are directly used without a preceding `\string` in the glyph definitions. This is done here locally by defining the `\0` until `\3` commands. So the user can use octal escape sequences directly, the disadvantage is that a previous definition of this short commands does not apply.

```
494 \edef\0{\string\0}%
```

```
495 \edef\1{\string\1}%
```

```
496 \edef\2{\string\2}%
```

```
497 \edef\3{\string\3}%
```

**Setting font encoding.** The unicode encoding uses `\8` and `\9` as marker for the higher byte. `\8` is an abbreviation for the higher bytes 0 until 7 that can be expressed by one digit. `\8` will be converted to `\00`. However `\9` only marks the next three digits as higher byte and will be removed later.

The encoding is set by `\enc@update` for optimizing reasons.

```
498 \ifHy@unicode
```

```
499 \edef\8{\string\8}%
```

```
500 \edef\9{\string\9}%
```

```
501 \fontencoding{PU}%
```

```

502 \HyPsd@UTFviii
503 \def\ifpdfstringunicode##1##2{##1}%
504 \else
505 \fontencoding{PD1}%
506 \def\ifpdfstringunicode##1##2{##2}%
507 \fi
508 \let\utf@viii@undeferr\HyPsd@utf@viii@undeferr
509 \enc@update

```

**Internal encoding commands.** `\pdfstringdef` interpretes text strings which are not allowed to contain mathematical stuff. The text glyph commands will produce a warning, if called in math mode. But this warning disturbs while expanding. Therefore we check for math mode here, before `\@inmathwarn` will be disabled (see below).

```

510 \@inmathwarn\pdfstringdef

```

If a glyph is used, that isn't in the PD1/PU encoding there will be an infinite error loop, because the NFSS encoding stuff have to be expanded unprotected (`\edef`), so that the assignments of `\@changed@cmd` don't take place. To patch this behaviour I only found `\@inmathwarn` as a usable hook. While an `\edef` a warning message by `\@inmathwarn` or `\TextSymbolUnavailable` cannot be give out, so `\@inmathwarn` should be disabled. And with the help of it the assignments in `\@changed@cmd` can easily be caught (see below).

```

511 \let\@inmathwarn\HyPsd@inmathwarn

```

Unknown composite characters are built with `\add@accent`, so it is redefined to provide a warning.

```

512 \let\add@accent\HyPsd@add@accent

```

**Commands that don't use NFSS directly.** There are several commands that prints characters in the printable ASCII area that don't obey the NFSS, so they have to be redefined here. UF 29.09.2017: added a mapping for `\noboundary`, see issue #37 <https://github.com/latex3/hyperref/issues/37> No test for PU, if some definition for PD1 is added it will work too.

```

513 \let\{\textbraceleft
514 \let\}\textbraceright
515 \let\\\textbackslash
516 \let\#\textnumbersign
517 \let\$\textdollar
518 \let\%\textpercent
519 \let\&\textampersand
520 % \let\~\textasciitilde
521 \let\_ \textunderscore
522 \let\P\textparagraph
523 \let\ldots\textellipsis
524 \let\dots\textellipsis
525 \ltx@ifundefined{textEncodingNoboundary}%
526 {}{\let\noboundary\textEncodingNoboundary}%

```

**Newline** `\newline` or `\\` do not work in bookmarks, in text annotations they should expand to `\r`. In pdf strings `\\` stands for a backslash. Therefore the

commands are disabled now. The user can redefine them for a result what he want:

**backslash:** `\pdfstringdefDisableCommands{\let\\\textbackslash}`

**new line:** `\pdfstringdefDisableCommands{\let\\\textCR}`

**disabled:** `\pdfstringdefDisableCommands{\let\\\empty}`

At any case, however, the optional argument or the star cannot be scanned in a 100% sure manner.

```
527 \def\{\pdfstringdefWarn\}%
528 \def\newline{\pdfstringdefWarn\newline}%
```

**Logos.** Because the box shifting used in the  $\text{\TeX}$  logo does not work while writing to a file, the standard  $\text{\TeX}$  logos are redefined. We use the direct PU code to avoid problems if `\textepsilon` is not defined.

```
529 \def\TeX{\TeX}%
530 \def\LaTeX{\LaTeX}%
531 \def\LaTeXe{%
532   \LaTeX2%
533   \ifHy@unicode\83\265\else e\fi
534 }%
535 \def\eTeX{%
536   \ifHy@unicode\83\265\else e\fi
537   -\TeX%
538 }%
539 \def\SliTeX{\SliTeX}%
540 \def\MF{Metafont}%
541 \def\MP{Metapost}%
```

**Standard font commands.** Because font changes do not work, the standard font switching commands are disabled.

```
542 \let\fontencoding\@gobble
543 \let\fontfamily\@gobble
544 \let\fontseries\@gobble
545 \let\fontshape\@gobble
546 \let\fontsize\@gobbletwo
547 \let\selectfont\@empty
548 \let\usefont\@gobblefour
549 \let\emph\@firstofone
550 \let\textnormal\@firstofone
551 \let\textrm\@firstofone
552 \let\textsf\@firstofone
553 \let\texttt\@firstofone
554 \let\textbf\@firstofone
555 \let\textmd\@firstofone
556 \let\textit\@firstofone
557 \let\textsc\@firstofone
558 \let\textsl\@firstofone
559 \let\textup\@firstofone
560 \let\normalfont\@empty
561 \let\rmfamily\@empty
```

```

562 \let\sfamily\@empty
563 \let\ttfamily\@empty
564 \let\bfseries\@empty
565 \let\mdseries\@empty
566 \let\itshape\@empty
567 \let\scshape\@empty
568 \let\slshape\@empty
569 \let\upshape\@empty
570 \let\em\@empty
571 \let\rm\@empty
572 \let\Huge\@empty
573 \let\LARGE\@empty
574 \let\Large\@empty
575 \let\footnotesize\@empty
576 \let\huge\@empty
577 \let\large\@empty
578 \let\normalsize\@empty
579 \let\scriptsize\@empty
580 \let\small\@empty
581 \let\tiny\@empty
582 \let\mathversion\@gobble
583 \let\phantom\@gobble
584 \let\vphantom\@gobble
585 \let\hphantom\@gobble

```

#### Package pifont.

```

586 \let\ding\HyPsd@ding
587 \let\Cube\HyPsd@DieFace
588 %* \HyPsd@DieFace -> \epsdice (epsdice)
589 %* \HyPsd@DieFace -> \fcdice (hhcount)

```

#### Environments.

```

590 \def\begin##1{\csname##1\endcsname}%
591 \def\end##1{\csname end##1\endcsname}%

```

#### Package color.

```

592 \def\textcolor##1##{\@secondoftwo}%

```

#### Upper- and lowercase.

```

593 \def\MakeUppercase{\MakeUppercaseUnsupportedInPdfStrings}%
594 \def\MakeLowercase{\MakeLowercaseUnsupportedInPdfStrings}%

```

**TextOrMath** The `\TextOrMath` command is protected in a current L<sup>A</sup>T<sub>E</sub>X and so can not be processed.

```

595 \def\TextOrMath{\ifmmode\expandafter\@secondoftwo\else\expandafter\@firstoftwo\fi}%

```

**Support of math commands without prefix text.** This is controlled by option “psdextra” and only activated with Unicode PDF strings.

```

596 \ifHy@psdextra
597 \ifHy@unicode

```

```

598     \csname psdmapshortnames\endcsname
599     \csname psdaliasnames\endcsname
600     \fi
601     \fi

```

**Package babel.** Whereever “naturalnames” is used, disable `\textlatin` (from Babel 3.6k). Thanks to Felix Neubauer (Email: [Felix.Neubauer@gmx.net](mailto:Felix.Neubauer@gmx.net)).

```

602     \let\foreignlanguage\@secondoftwo
603     \let\textlatin\@firstofone
604     \ltx@ifundefined{language@group}{\relax}{%
605         \let\bbl@info\@gobble
606         \csname HyPsd@babel@\language@group\endcsname
607     }%

608     \let\@safe@activetrue\relax
609     \let\@safe@activesfalse\relax

    Disable \cyr, used in russianb.ldf.
610     \let\cyr\relax

```

**Package german.**

```

611     \let\glqq\textglqq
612     \let\grqq\textgrqq
613     \let\glq\textglq
614     \let\grq\textgrq
615     \let\flqq\textflqq
616     \let\frqq\textfrqq
617     \let\flq\textflq
618     \let\frq\textfrq

```

**Package french.** The support is deferred, because it needs `\GenericError` to be disabled (see below).

**Package FrenchPro.** This package uses:

```

    \if@mid@expandable{not fully expandable code}{fully expandable
    code}

619     \let\if@mid@expandable\@firstoftwo

```

**AMS classes.**

```

620     \HyPsd@AMSClassfix

```

**Redefinition of `\hspace`** `\hspace` don’t work in bookmarks, the following fix tries to set a space if the argument is a positive length.

```

621     \let\hspace\HyPsd@hspace

```



**Commands of referencing and indexing systems.** Some L<sup>A</sup>T<sub>E</sub>X commands that are legal in \section commands have to be disabled here.

```
622 \let\label\@gobble
623 \let\index\@gobble
624 \let\glossary\@gobble
625 \let\href\HyPsd@href
626 \let\@mkboth\@gobbletwo
```

The \ref and \pageref is much more complicate because of their star form.

```
627 \let\ref\HyPsd@ref
628 \let\pageref\HyPsd@pageref
629 \let\nameref\HyPsd@nameref
630 \let\autoref\HyPsd@autoref
```

**Miscellaneous commands.**

```
631 \let\leavevmode\@empty
632 \let\mbox\@empty
```

\halign causes error messages because of the template character #.

```
633 \def\halign{\pdfstringdefWarn\halign\@gobble}%
634 \let\ignorespaces\HyPsd@ignorespaces
635 \let\Hy@SectionAnchorHref\@gobble
636 \let\ensuremath\@firstofone
```

**Patch for cjk bookmarks.**

```
637 \HyPsd@CJKhook
```

**User hook.** The switch \Hy@pdfstring is turned on. So user commands can detect that they are processed not to be typesetted within T<sub>E</sub>X's stomach, but to be expanded by the mouth to give a PDF string. At this place before interpreting the string in #2 additional redefinitions can be added by the hook \pdfstringdef-PreHook.

The position in the middle of the redefinitions is a compromise: The user should be able to provide his own (perhaps better) redefinitions, but some commands should have their original meaning, because they can be used in the hook (\bgroup, or \@protected@testopt, and \@ifnextchar for \renewcommand).

```
638 \Hy@pdfstringtrue
639 \pdfstringdefPreHook
```

**Spaces.** For checking the token of the string, spaces must be masked, because they cannot be caught by undelimited arguments.

```
640 \HyPsd@LetUnexpandableSpace\space
641 \HyPsd@LetUnexpandableSpace\ %
642 \HyPsd@LetUnexpandableSpace~%
643 \HyPsd@LetUnexpandableSpace\nobreakspace
```

### Package xspace.

```
644 \ltx@ifundefined{@xspace}{%
645   \let\xspace\HyPsd@ITALCORR
646 }{%
647   \let\xspace\HyPsd@XSPACE
648 }%
649 \let\/\HyPsd@ITALCORR
650 \let\bgroup\/%
651 \let\egroup\/%
```

**Redefinitions of miscellaneous commands.** Hyphenation does not make sense.

```
652 \let\discretionary\@gobbletwo
```

\@ifstar is defined in L<sup>A</sup>T<sub>E</sub>X as follows:

```
\def\@ifstar#1{\@ifnextchar *{\@firstoftwo{#1}}}
```

\@ifnextchar doesn't work, because it uses stomach commands like \let and \futurelet. But it doesn't break. Whereas \@firstoftwo{#1} gives an error message because \@firstoftwo misses its second argument.

A mimicry of \@ifnextchar only with expandible commands would be very extensive and the result would be only an approximation. So here a cheaper solution follows in order to get rid of the error message at least:

```
653 \def\@ifnextchar{\HyPsd@ifnextchar\@ifnextchar}%
654 \def\kernel@ifnextchar{\HyPsd@ifnextchar\kernel@ifnextchar}%
655 \def\new@ifnextchar{\HyPsd@ifnextchar\new@ifnextchar}%
656 \let\@protected@testopt\HyPsd@protected@testopt
```

Support for package 'xargs':

```
657 \let\@protected@testopt@xargs\HyPsd@protected@testopt
```

### 6.2.2 Expansion

There are several possibilities to expand tokens within L<sup>A</sup>T<sub>E</sub>X:

**\protected@edef:** The weakest form isn't usable, because it does not expand the font encoding commands. They are made robust and protect themselves.

**\csname:** First the string is expanded within a \csname and \endcsname. Then the command name is converted to characters with catcode 12 by \string and the first escape character removed by \@gobble. This method has the great *advantage* that stomach tokens that aren't allowed in PDF strings are detected by T<sub>E</sub>X and reported as errors in order to force the user to write correct things. So he get no wrong results by forgetting the proofreading of his text. But the *disadvantage* is that old wrong code cannot processed without errors. Mainly the error message is very cryptic and for the normal user hard to understand. T<sub>E</sub>X provides no way to catch the error caused by \csname or allows to support the user with a descriptive error message. Therefore the experienced user had to enable this behaviour by an option **exactdef** in previous versions less or equal 6.50.

**\edef** This version uses this standard form for expansion. It is stronger than L<sup>A</sup>T<sub>E</sub>X's `\protected@edef`. So the font encoding mechanism works and the glyph commands are converted to the correct tokens for PDF strings with the definitions of the PD1 encoding. Because the protecting mechanism of L<sup>A</sup>T<sub>E</sub>X doesn't work within an `\edef`, there are situations thinkable where code can break. For example, assignments and definitions aren't performed and so undefined command errors or argument parsing errors can occur. But this is only a compatibility problem with old texts. Now there are possibilities to write code that gives correct PDF strings (see `\texorpdfstring`). In the most cases unexpandable commands and tokens (math shift, grouping characters) remains. They don't cause an error like with `\csname`. However a PDF reader isn't T<sub>E</sub>X, so these tokens are viewed verbatim. So this version detects them now, and removes them with an descriptive warning for the user. As additional features xspace support is possible and grouping characters can be used without problems, because they are removed silently.

**Generic messages.** While expanding via `\xdef` the `\Generic...` messages don't work and causes problems (error messages, invalid .out file). So they are disabled while expanding and removed silently, because a user warning would be too expensive (memory and runtime, `\pdfstringdef` is slow enough).

```
658 \begingroup
659 \let\GenericError\@gobblefour
660 \let\GenericWarning\@gobbletwo
661 \let\GenericInfo\@gobbletwo
```

**Package french.** This fix only works, if `\GenericError` is disabled.

```
662 \ifx\nofrenchguillemets\@undefined
663 \else
664 \nofrenchguillemets
665 \fi
```

**Definition commands and expansion.** Redefining the defining commands (see sec. 6.5.12). The original meaning of `\xdef` is saved in `\Hy@temp`.

```
666 \let\Hy@temp\xdef
667 \let\def\HyPsd@DefCommand
668 \let\gdef\HyPsd@DefCommand
669 \let\edef\HyPsd@DefCommand
670 \let\xdef\HyPsd@DefCommand
671 \let\futurelet\HyPsd@LetCommand
672 \let\let\HyPsd@LetCommand
673 \Hy@temp#1{#2}%
674 \endgroup
```

### 6.2.3 Postprocessing

If the string is empty time can be saved by omitting the postprocessing process.

```
675 \ifx#1\@empty
676 \else
```

**Protecting spaces and removing grouping characters.** In order to check the tokens we must separate them. This will be done with  $\text{\TeX}$ 's argument parsing. With this method we must the following item takes into account, that makes makes things a litte more complicate:

- $\text{\TeX}$  does not accept a space as an undelimited argument, it cancels space tokens while looking for an undelimited argument. Therefore we must protect the spaces now.
- An argument can be a single token or a group of many tokens. And within curly braces tokens aren't find by  $\text{\TeX}$ 's argument scanning process. Third curly braces as grouping characters cannot be expanded further, so they don't vanish by the string expansion above. So these characters with catcode 1 and 2 are removed in the following and replaced by an marker for the xspace support.
- $\text{\TeX}$  silently removes the outmost pair of braces of an argument. To prevent this on unwanted places, in the following the character | is appended to the string to make an outer brace to an inner one.

First the top level spaces are protected by replacing. Then the string is scanned to detect token groups. Each token group will now be space protected and again scanned for another token groups.

```

677 \HyPsd@ProtectSpaces#1%
678 \let\HyPsd@String\@empty
679 \expandafter\HyPsd@RemoveBraces\expandafter{#1|}%
680 \global\let#1\HyPsd@String

```

**Check tokens.** After removing the spaces and the grouping characters the string now should only consists of the following tokens/catcodes:

- 0 command names with start with an escape character.
- 3 math shift
- 4 alignment tabs
- 6 parameter, but this is unlikely.
- 7 superscript
- 8 subscript
- 11 letter
- 12 other
- 13 commands that are active characters.

After  $\text{\HyPsd@CheckCatcodes}$  the command  $\text{\HyPsd@RemoveMask}$  is reused to remove the group protection character |. This character is needed to ensure that the string at least consists of one token if  $\text{\HyPsd@CheckCatcodes}$  is called.

Because of internal local assignments and tabulars group braces are used.

```

681 \let\HyPsd@SPACEOPTI\relax
682 {%
683 \let\HyPsd@String\@empty
684 \expandafter\HyPsd@CheckCatcodes#1\HyPsd@End
685 \global\let#1\HyPsd@String
686}%
687 \expandafter\HyPsd@RemoveMask\expandafter
688 |\expandafter\@empty#1\HyPsd@End#1%

```

`\HyPsd@CheckCatcodes` should no have removed the tokens with catcode 3, 4, 7, and 8. Because a parameter token (6) would cause to many errors before, there should now be only tokens with catcodes 11 or 12. So I think there is no need for a safety step like:

```
\xdef#1{\expandafter\strip@prefix\meaning#1}%
```

**Looking for wrong glyphs.** The case that glyphs aren't defined in the PD1 encoding is caught above in such a way, that the glyph name and a marker is inserted into the string. Now we can safely scan the string for this marker and provide a descriptive warning.

```
689 \expandafter
690 \HyPsd@Subst\expandafter{\HyPsd@GLYPHERR}{\relax}#1%
691 \let\HyPsd@String\@empty
692 \expandafter\HyPsd@GlyphProcess#1\relax\@empty
693 \global\let#1\HyPsd@String
```

**Backslash.** The double backslash disturbs parsing octal sequences, for example in an string like `abc\\051` the sequence `\051` is detected although the second `\` belongs to the first backslash.

```
694 \HyPsd@StringSubst{\}{\textbackslash}#1%
```

**Spaces.** All spaces have already the form `\040`. The last postprocessing step will be an optimizing of the spaces, so we already introduce already the necessary command `\HyPsd@SPACEOPTI`. But first it is defined to be `\relax` in order to prevent a too early expansion by an `\edef`. Secondly a `\relax` serves as a marker for a token that is detected by `\xspace`.

The code of `frenchb.ldf` can produce an additional space before `\guillemetright`, because `\lastskip` and `\unskip` do not work. Therefore it is removed here.

```
695 \ifHy@unicode
696 \expandafter\HyPsd@StringSubst\csname 80\040\endcsname
697 \HyPsd@SPACEOPTI#1%
698 \edef\Hy@temp@A{\HyPsd@SPACEOPTI\HyPsd@SPACEOPTI\80\273}%
699 \expandafter\HyPsd@Subst\expandafter{\Hy@temp@A}%
700 {\HyPsd@SPACEOPTI\80\273}#1%
701 \else
702 \HyPsd@StringSubst{\040}\HyPsd@SPACEOPTI#1%
703 \expandafter\HyPsd@Subst\expandafter{%
704 \expandafter\HyPsd@SPACEOPTI\expandafter\HyPsd@SPACEOPTI
705 \string\273}\HyPsd@SPACEOPTI\273}#1%
706 \fi
```

**Right parenthesis.** Also `\xspace` detects a right parenthesis. For the `\xspace` support and the following parenthesis check the different parenthesis notations `)`, `\)`, and `\051` are converted to one type `\)` and before `\HyPsd@empty` with the meaning of `\relax` is introduced for `\xspace`. By redefining to `\@empty` `\HyPsd@empty` can easily removed later.

```
707 \ifHy@unicode
708 \HyPsd@StringSubst{\)}{\80\051}#1%
709 \HyPsd@Subst){\80\051}#1%
```

```

710 \let\HyPsd@empty\relax
711 \expandafter\HyPsd@StringSubst\csname 80\051\endcsname
712 {\HyPsd@empty\80\051}#1%
713 \else
714 \HyPsd@StringSubst{\}){\051}#1%
715 \HyPsd@Subst){\051}#1%
716 \let\HyPsd@empty\relax
717 \HyPsd@StringSubst{\051}{\HyPsd@empty\string\}){\051}#1%
718 \fi

```

**Support for package `xspace`.** `\xspace` looks for the next token and decides if it expands to a space or not. Following tokens prevent its transformation to a space: Beginning and end of group, handled above by replacing by an italic correction, several punctuation marks, a closing parentheses, and several spaces.

Without package `xspace` there are tokens with catcode 11 and 12, `\HyPsd@empty` and `\HyPsd@SPACEOPTI`. With package `xspace` marker for the italic correction `\/` and `\xspace` come with. In the package `xspace` case the two markers are replaced by commands and an `\edef` performs the `\xspace` processing.

In the opposite of the original `\xspace` `\HyPsd@xspace` uses an argument instead of a `\futurelet`, so we have to provide such an argument, if `\HyPsd@xspace` comes last. Because `\HyPsd@Subst` with several equal tokens (`--`) needs a safe last token, in both cases the string gets an additional `\HyPsd@empty`.

```

719 \expandafter\HyPsd@Subst\expandafter{\}/\HyPsd@empty#1%
720 \ltx@ifundefined{@xspace}{%
721 }{%
722 \let\HyPsd@xspace\relax
723 \expandafter\HyPsd@Subst\expandafter
724 {\HyPsd@XSPACE}\HyPsd@xspace#1%
725 \let\HyPsd@xspace\HyPsd@doxspace
726 }%
727 \xdef#1{#1\HyPsd@empty}%

```

**Ligatures.**  $\TeX$  forms ligatures in its stomach, but the PDF strings are treated only by  $\TeX$ 's mouth. The PDFDocEncoding contains some ligatures, but the current version 3 of the AcrobatReader lacks the `fi` and `fl` glyphs, and the Linux version lacks the `emdash` and `endash` glyphs. So the necessary code is provided here, but currently disabled, hoping that version 4 of the AcrobatReader is better. To break the ligatures the user can use an empty group, because it leads to an insertion of an `\HyPsd@empty`. If this ligature code will be enabled some day, then the italic correction should also break the ligatures. Currently this occurs only, if package `xspace` is loaded.

Since newer AcrobatReader versions now show the en- and emdash in a correct way (AR7/Linux, AR8/Linux), the substitution code for them is enabled starting with version 6.78l.

```

728 \HyPsd@Subst{---}\textemdash#1%
729 \HyPsd@Subst{--}\textendash#1%
730 % \HyPsd@Subst{fi}\textfi#1%
731 % \HyPsd@Subst{fl}\textfl#1%
732 \HyPsd@Subst{!`}\textexclamdown#1%
733 \HyPsd@Subst{?`}\textquestiondown#1%

```

With the next `\edef` we get rid of the token `\HyPsd@empty`.

```
734 \let\HyPsd@empty\@empty
```

**Left parentheses.** Left parentheses are now converted to safe forms to avoid problems with unmatched ones (`\(` with PDFDocEncoding, the octal sequence with Unicode).

An optimization is possible. Matched parentheses can be replaced by a `()` pair. But this code is removed to save TeX memory and time.

```
735 \ifHy@unicode
736 \HyPsd@StringSubst\(\textparenleft#1%
737 \HyPsd@Subst\(\textparenleft#1%
738 \else
739 \HyPsd@StringSubst\({\050}#1%
740 \HyPsd@Subst\({\050}#1%
741 \HyPsd@StringSubst{\050}{\string\}#1%
742 \fi
```

**Optimizing spaces.** Spaces are often used, but they have a very long form `\040`. They are converted back to real spaces, but not all, so that no space follows after another. In the bookmark case several spaces are written to the `.out` file, but if the entries are read back, several spaces are merged to a single one.

With Unicode the spaces are replaced by their octal sequences.

```
743 \ifHy@unicode
744 \edef\HyPsd@SPACEOPTI{\80\040}%
745 \else
746 \let\HyPsd@SPACEOPTI\HyPsd@spaceopti
747 \fi
748 \xdef#1{#1\@empty}%
749 \fi
```

**Converting to Unicode.** At last the eight bit letters have to be converted to Unicode, the masks `\8` and `\9` are removed and the Unicode marker is added.

```
750 \endgroup
751 \begingroup
752 \ifHy@unicode
753 \HyPsd@ConvertToUnicode#1%
```

**Try conversion back to PDFDocEncoding.**

```
754 \ifx\HyPsd@pdfencoding\HyPsd@pdfencoding@auto
755 \ltx@ifundefined{StringEncodingConvertTest}{%
756 }{%
757 \EdefUnescapeString\HyPsd@temp#1%
758 \iftutex
759 \let\HyPsd@UnescapedString\HyPsd@temp
760 \StringEncodingConvertTest\HyPsd@temp\HyPsd@temp
761 {utf16be}{ascii-print}{%
762 \EdefEscapeString\HyPsd@temp\HyPsd@temp
763 \global\let#1\HyPsd@temp
764 \HyPsd@EscapeTeX#1%
765 \Hy@unicodedefalse
766 }{%
```

```

767      \HyPsd@EscapeTeX#1%
768    }%
769  \else
770    \StringEncodingConvertTest\HyPsd@temp\HyPsd@temp
771      {utf16be}{pdfdoc}{%
772      \EdefEscapeString\HyPsd@temp\HyPsd@temp
773      \global\let#1\HyPsd@temp
774      \HyPsd@EscapeTeX#1%
775      \Hy@unicodedefalse
776    }{}%
777  \fi
778 }%
779 \fi
780 \fi

```

**User hook.** The hook `\pdfstringdefPostHook` can be used for the purpose to postprocess the string further.

```

781 \pdfstringdefPostHook#1%
782 \endgroup
783 }

```

`\Hy@pdfstringdef`

```

784 \def\Hy@pdfstringdef#1#2{%
785 \pdfstringdef\Hy@gtemp{#2}%
786 \let#1\Hy@gtemp
787 }

```

## 6.3 Encodings

### 6.3.1 XeTeX

change 2020-05-13: the special code for XeTeX big chars has been removed as no longer needed.

### 6.3.2 Workaround for package linguex

```

788 \@ifpackageloaded{linguex}{%
789 \let\HyLinguex@OrgB\b
790 \let\HyLinguex@OrgC\c
791 \let\HyLinguex@OrgD\d
792 \def\HyLinguex@Restore{%
793 \let\b\HyLinguex@OrgB
794 \let\c\HyLinguex@OrgC
795 \let\d\HyLinguex@OrgD
796 }%
797 \Hy@AtEndOfPackage{%
798 \pdfstringdefDisableCommands{%
799 \ltx@ifundefined{oldb}{\let\b\oldb}%
800 \ltx@ifundefined{oldc}{\let\c\oldc}%
801 \ltx@ifundefined{oldd}{\let\d\oldd}%
802 }%
803 }%
804 }{%

```



```

805 \let\HyLinguex@Restore\relax
806 }%

```

### 6.3.3 Catcodes saving and restoring for .def files

\Hy@SaveCatcodeSettings

```

807 \def\Hy@SaveCatcodeSettings#1{%
808 \expandafter\edef\csname Hy@cat@#1\endcsname{%
809 \endlinechar=\the\endlinechar\relax
810 \catcode32 \the\catcode32\relax % (space)
811 \catcode34 \the\catcode34\relax % "
812 \catcode35 \the\catcode35\relax % #
813 \catcode37 \the\catcode37\relax % (percent)
814 \catcode40 \the\catcode40\relax % (
815 \catcode41 \the\catcode41\relax % )
816 \catcode42 \the\catcode42\relax % *
817 \catcode46 \the\catcode46\relax % .
818 \catcode58 \the\catcode58\relax % :
819 \catcode60 \the\catcode60\relax % <
820 \catcode61 \the\catcode61\relax % =
821 \catcode62 \the\catcode62\relax % >
822 \catcode64 \the\catcode64\relax % @
823 \catcode91 \the\catcode91\relax % [
824 \catcode92 \the\catcode92\relax % (backslash)
825 \catcode93 \the\catcode93\relax % ]
826 \catcode123 \the\catcode123\relax % {
827 \catcode124 \the\catcode124\relax % |
828 \catcode125 \the\catcode125\relax % }
829 }%
830 \endlinechar=-1 %
831 \catcode32 10 % (space)
832 \catcode34 12 % "
833 \catcode35 6 % #
834 \catcode37 14 % (percent)
835 \catcode40 12 % (
836 \catcode41 12 % )
837 \catcode42 12 % *
838 \catcode46 12 % .
839 \catcode58 12 % :
840 \catcode60 12 % <
841 \catcode61 12 % =
842 \catcode62 12 % >
843 \catcode91 12 % [
844 \catcode92 0 % (backslash)
845 \catcode93 12 % ]
846 \catcode123 1 % {
847 \catcode124 12 % |
848 \catcode125 2 % }
849 \makeatletter
850 }

```

\Hy@RestoreCatcodeSettings

```

851 \def\Hy@RestoreCatcodeSettings#1{%
852 \csname Hy@cat@#1\endcsname
853 \expandafter\let\csname Hy@cat@#1\endcsname\relax

```

854 }

### 6.3.4 PD1 encoding

The PD1 encoding implements the PDFDocEncoding for use with L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>'s NFSS. Because the informational strings are not set by T<sub>E</sub>X's typesetting mechanism but for interpreting by the PDF reader, the glyphs of the PD1 encoding are implemented to be safely written to a file (PDF output file, .out file).

The PD1 encoding can be specified as an option of the 'fontenc' package or loaded here. It does not matter what font family is selected, as T<sub>E</sub>X does not process it anyway. So use CM.

```

855 \@ifundefined{T@PD1}{%
856   \Hy@SaveCatcodeSettings{pd1}%
857   \input{pd1enc.def}%
858   \Hy@RestoreCatcodeSettings{pd1}%
859   \HyLinguex@Restore
860 }{}
861 \DeclareFontFamily{PD1}{pdf}{}
862 \DeclareFontShape{PD1}{pdf}{m}{n}{ <-> cmr10 }{}
863 \DeclareFontSubstitution{PD1}{pdf}{m}{n}

```

### 6.3.5 PU encoding

The PU encoding implements the Unicode encoding for use with L<sup>A</sup>T<sub>E</sub>X's NFSS. Because of large memory requirements the encoding file for Unicode support is only loaded, if option `unicode` is specified as package option. change 2020-08-14: Starting with version v7.00f the file is always loaded and unicode is the default option.

`\HyPsd@LoadUnicode` Because the file `puenc.def` takes a lot of memory, the loading is defined in the macro `\HyPsd@LoadUnicode` called by the package option `unicode`.

```

864 \def\HyPsd@LoadUnicode{%
865   \@ifundefined{T@PU}{%
866     \Hy@SaveCatcodeSettings{pu}%
867     \input{puenc.def}%
868     \Hy@RestoreCatcodeSettings{pu}%
869     \HyLinguex@Restore
870   }{}%
871   \DeclareFontFamily{PU}{pdf}{}%
872   \DeclareFontShape{PU}{pdf}{m}{n}{ <-> cmr10 }{}%
873   \DeclareFontSubstitution{PU}{pdf}{m}{n}%
874   \HyPsd@LoadExtra
875   \let\HyPsd@LoadUnicode\relax
876 }

```

`\HyPsd@LoadExtra`

```

877 \def\HyPsd@LoadExtra{%
878   \ifHy@psdextra
879     \ltx@iffileloaded{puenc.def}{%
880       \Hy@SaveCatcodeSettings{psdextra}%
881       \input{psdextra.def}%
882       \Hy@RestoreCatcodeSettings{psdextra}%
883       \let\HyPsd@LoadExtra\relax

```

```

884   }{}%
885   \fi
886 }

```

## 6.4 Additional user commands

### 6.4.1 `\texorpdfstring`

`\texorpdfstring` While expanding the string in `\pdfstringdef` the switch `\ifHy@pdfstring` is set. This is used by the full expandible macro `\texorpdfstring`. It expects two arguments, the first contains the string that will be set and processed by T<sub>E</sub>X's stomach, the second contains the replacement for PDF strings.

```

887 \def\texorpdfstring{%
888   \ifHy@pdfstring
889     \expandafter\@secondoftwo
890   \else
891     \expandafter\@firstoftwo
892   \fi
893 }

```

### 6.4.2 Hooks for `\pdfstringdef`

`\pdfstringdefPreHook` Default definition of the hooks for `\pdfstringdef`. The construct `\@ifundefined`  
`\pdfstringdefPostHook` with `\let` is a little bit faster than `\providecommand`.

```

894 \@ifundefined{pdfstringdefPreHook}{%
895   \let\pdfstringdefPreHook\@empty
896 }{}
897 \@ifundefined{pdfstringdefPostHook}{%
898   \let\pdfstringdefPostHook\@gobble
899 }{}

```

`\pdfstringdefDisableCommands` In `\pdfstringdefPreHook` the user can add code that is executed before the string, that have to be converted by `\pdfstringdef`, is expanded. So replacements for problematic macros can be given. The code in `\pdfstringdefPreHook` should not be replaced perhaps by an `\renewcommand`, because a previous meaning gets lost.

Macro `\pdfstringdefDisableCommands` avoids this, because it reuses the old meaning of the hook and appends the new code to `\pdfstringdefPreHook`, e.g.:

```

\pdfstringdefDisableCommands{%
  \let~\textasciitilde
  \def\url{\pdfstringdefWarn\url}%
  \let\textcolor\@gobble
}%

```

In the argument of `\pdfstringdefDisableCommands` the character `@` can be used in command names. So it is easy to use useful L<sup>A</sup>T<sub>E</sub>X commands like `\@gobble` or `\@firstofone`.

```

900 \def\pdfstringdefDisableCommands{%
901   \begingroup
902     \makeatletter
903     \HyPsd@DisableCommands
904 }

```

`\HyPsd@DisableCommands`

```
905 \long\def\HyPsd@DisableCommands#1{%
906   \ltx@GlobalAppendToMacro\pdfstringdefPreHook{#1}%
907   \endgroup
908 }
```

`\pdfstringdefWarn` The purpose of `\pdfstringdefWarn` is to produce a warning message, so the user can see, that something can go wrong with the conversion to PDF strings.

The prefix `\<>-` is added to the token. `\noexpand` protects the probably undefined one during the first expansion step. Then `\HyPsd@CheckCatcodes` can detect the not allowed token, `\HyPsd@CatcodeWarning` prints a warning message, after `\HyPsd@RemovePrefix` has removed the prefix.

`\pdfstringdefWarn` is intended for document authors or package writers, examples for use can be seen in the definition of `\HyPsd@ifnextchar` or `\HyPsd@protected@testopt`.

```
909 \def\pdfstringdefWarn#1{%
910   \expandafter\noexpand\csname<>-string#1\endcsname
911 }
```

## 6.5 Help macros for expansion

### 6.5.1 `\ignorespaces`

`\HyPsd@ignorespaces` With the help of a trick using `\romannumeral` the effect of `\ignorespaces` can be simulated a little, In a special case using an alphabetic constant `\romannumeral` eats an optional space. If the constant is zero, then the `\romannumeral` expression vanishes. The following macro uses this trick twice, thus `\HyPsd@ignorespaces` eats up to two following spaces.

```
912 \begingroup
913   \catcode0=12 %
914   \def\x{\endgroup
915     \def\HyPsd@ignorespaces{%
916       \romannumeral\expandafter`\expandafter^^@%
917       \romannumeral^^^@%
918     }%
919   }%
920 \x
```

### 6.5.2 Babel languages

change 2020-10-10: moved language patches to its own file as a first step toward removing them completely.

```
921 \newif\ifHy@next
922 </package>
```

Since version 2008/03/16 v3.8j babel used inside `\AtBeginDocument`:

```
\pdfstringdefDisableCommands{%
  \languageshorthands{system}%
}
```

As consequence the shorthands were shown in the bookmarks, and required a hyperref patch. In version 3.48 babel removed this unneeded code and so the patch could be removed.

Nothing to do for english. change 2020/07/16: removed patch for french. No longer needed. change 2020/07/21: removed patches for german, ngerman. Will be done by the language package. <https://github.com/jspitz/babel-german/issues/4> change 2020/10/10: removed patches for danish, dutch, finnish, portugues, swedish, usorbian, slovene see <https://github.com/latex3/babel/issues/84> change 2020/10/10: removed patch for macedonian, ukrainian; maintainers notified. change 2020/10/11: removed patch for russian, has been merged into babel-russian see <https://github.com/kia999/babel-russian/pull/3> change 2021/02/04: removed patches for greek numerals, code is now in babel-greek. spanish: Nested quoting environments are not supported (<<, >>). change 2021/07/19: removed patches for spanish, code is now in babel-spanish.

```
923 <*package>
```

### 6.5.3 CJK patch

```
924 \RequirePackage{intcalc}[2007/09/27]
```

```
\HyPsd@CJKhook
```

```
925 \def\HyPsd@CJKhook{%
926   \ltx@ifpackageloaded{CJK}{%
927     \let\CJK@kern\relax
928     \let\CJKkern\relax
929     \let\CJK@CJK\relax
930     \ifHy@CJKbookmarks
931       \HyPsd@CJKhook@bookmarks
932     \fi
933     \HyPsd@CJKhook@unicode
934   }{}%
935 }
```

### 6.5.4 CJK bookmarks

\HyPsd@CJKhook Some internal commands of package cjk are redefined to avoid error messages. For a rudimental support of CJK bookmarks the active characters are redefined so that they print themselves.

After preprocessing of Big5 encoded data the following string for a double-byte character is emitted:

```
^^7f<arg1>^^7f<arg2>^^7f
```

<arg1> is the first byte in the range (always > 0x80); <arg2> is the second byte in decimal notation ( $\geq 0x40$ ).

```
936 \beginingroup
937 \catcode"7F=\active
938 \toks@{%
939   \let\CJK@ignorespaces\empty
940   \def\CJK@char#1{\@gobbletwo}%
941   \let\CJK@charx\@gobblefour
942   \let\CJK@punctchar\@gobblefour
943   \def\CJK@punctcharx#1{\@gobblefour}%
944   \catcode"7F=\active
945   \def^^7f#1^^7f#2^^7f{%
946     \string #1\HyPsd@DecimalToOctal{#2}%
```

```

947 }%
948 % ... ?
949 \ifHy@unicode
950 \def\Hy@cjkpu{\80}%
951 \else
952 \let\Hy@cjkpu\@empty
953 \fi
954 \HyPsd@CJKActiveChars
955 }%
956 \count@=127 %
957 \@whilenum\count@<255 \do{%
958 \advance\count@ by 1 %
959 \lccode\~=\count@
960 \lowercase{%
961 \toks@\expandafter{\the\toks@ ~}%
962 }%
963 }%
964 \toks@\expandafter{\the\toks@ !}%
965 \xdef\HyPsd@CJKhook@bookmarks{%
966 \the\toks@
967 }%
968 \endgroup

```

`\HyPsd@CJKActiveChars` The macro `\HyPsd@CJKActiveChars` is only defined to limit the memory consumption of `\HyPsd@CJKhook`.

```

969 \def\HyPsd@CJKActiveChars#1{%
970 \ifx#1!%
971 \let\HyPsd@CJKActiveChars\relax
972 \else
973 \edef#1{\noexpand\Hy@cjkpu\string#1}%
974 \fi
975 \HyPsd@CJKActiveChars
976 }

```

`\HyPsd@DecimalToOctal` A character, given by the decimal number is converted to a PDF character.

```

977 \def\HyPsd@DecimalToOctal#1{%
978 \ifcase #1 %
979 \000\or \001\or \002\or \003\or \004\or \005\or \006\or \007%
980 \or \010\or \011\or \012\or \013\or \014\or \015\or \016\or \017%
981 \or \020\or \021\or \022\or \023\or \024\or \025\or \026\or \027%
982 \or \030\or \031\or \032\or \033\or \034\or \035\or \036\or \037%
983 \or \040\or \041\or \042\or \043\or \044\or \045\or \046\or \047%
984 \or \050\or \051\or \052\or \053\or \054\or \055\or \056\or \057%
985 \or 0\or 1\or 2\or 3\or 4\or 5\or 6\or 7%
986 \or 8\or 9\or \072\or \073\or \074\or \075\or \076\or \077%
987 \or @\or A\or B\or C\or D\or E\or F\or G%
988 \or H\or I\or J\or K\or L\or M\or N\or O%
989 \or P\or Q\or R\or S\or T\or U\or V\or W%
990 \or X\or Y\or Z\or \133\or \134\or \135\or \136\or \137%
991 \or \140\or a\or b\or c\or d\or e\or f\or g%
992 \or h\or i\or j\or k\or l\or m\or n\or o%
993 \or p\or q\or r\or s\or t\or u\or v\or w%
994 \or x\or y\or z\or \173\or \174\or \175\or \176\or \177%
995 \or \200\or \201\or \202\or \203\or \204\or \205\or \206\or \207%

```

```

996 \or \210\or \211\or \212\or \213\or \214\or \215\or \216\or \217%
997 \or \220\or \221\or \222\or \223\or \224\or \225\or \226\or \227%
998 \or \230\or \231\or \232\or \233\or \234\or \235\or \236\or \237%
999 \or \240\or \241\or \242\or \243\or \244\or \245\or \246\or \247%
1000 \or \250\or \251\or \252\or \253\or \254\or \255\or \256\or \257%
1001 \or \260\or \261\or \262\or \263\or \264\or \265\or \266\or \267%
1002 \or \270\or \271\or \272\or \273\or \274\or \275\or \276\or \277%
1003 \or \300\or \301\or \302\or \303\or \304\or \305\or \306\or \307%
1004 \or \310\or \311\or \312\or \313\or \314\or \315\or \316\or \317%
1005 \or \320\or \321\or \322\or \323\or \324\or \325\or \326\or \327%
1006 \or \330\or \331\or \332\or \333\or \334\or \335\or \336\or \337%
1007 \or \340\or \341\or \342\or \343\or \344\or \345\or \346\or \347%
1008 \or \350\or \351\or \352\or \353\or \354\or \355\or \356\or \357%
1009 \or \360\or \361\or \362\or \363\or \364\or \365\or \366\or \367%
1010 \or \370\or \371\or \372\or \373\or \374\or \375\or \376\or \377%
1011 \fi
1012 }

```

## 6.5.5 CJK unicode

\HyPsd@CJKhook@unicode

```

1013 \def\HyPsd@CJKhook@unicode{%
1014 \let\Unicode\HyPsd@CJK@Unicode
1015 \let\CJKnumber\HyPsd@CJKnumber
1016 \let\CJKdigits\HyPsd@CJKdigits
1017 }

```

\HyPsd@CJK@Unicode

```

1018 \def\HyPsd@CJK@Unicode#1#2{%
1019 \ifnum#1<256 %
1020 \HyPsd@DecimalToOctalFirst{#1}%
1021 \HyPsd@DecimalToOctalSecond{#2}%
1022 \else
1023 \933%
1024 \expandafter\expandafter\expandafter\HyPsd@HighA
1025 \intcalcDiv{#1}{4}!%
1026 \933%
1027 \ifcase\intcalcMod{#1}{4} %
1028 4\or 5\or 6\or 7%
1029 \fi
1030 \HyPsd@DecimalToOctalSecond{#2}%
1031 \fi
1032 }

1033 \def\HyPsd@HighA#1!{%
1034 \expandafter\expandafter\expandafter\HyPsd@HighB
1035 \IntCalcDiv#1!64!!%
1036 \expandafter\expandafter\expandafter\HyPsd@HighD
1037 \IntCalcMod#1!64!!%
1038 }

1039 \def\HyPsd@HighB#1!{%
1040 \expandafter\expandafter\expandafter\HyPsd@HighC
1041 \IntCalcDec#1!!%
1042 }

```

```

1043 \def\HyPsd@HighC#1!{%
1044   \IntCalcDiv#1!4!%
1045   \@backslashchar
1046   \IntCalcMod#1!4!%
1047 }
1048 \def\HyPsd@HighD#1!{%
1049   \ifcase\IntCalcDiv#1!8! %
1050     0\or 1\or 2\or 3\or 4\or 5\or 6\or 7%
1051   \fi
1052   \ifcase\IntCalcMod#1!8! %
1053     0\or 1\or 2\or 3\or 4\or 5\or 6\or 7%
1054   \fi
1055 }
1056 \def\HyPsd@DecimalToOctalFirst#1{%
1057   \9%
1058   \ifcase#1 %
1059     000\or 001\or 002\or 003\or 004\or 005\or 006\or 007%
1060     \or 010\or 011\or 012\or 013\or 014\or 015\or 016\or 017%
1061     \or 020\or 021\or 022\or 023\or 024\or 025\or 026\or 027%
1062     \or 030\or 031\or 032\or 033\or 034\or 035\or 036\or 037%
1063     \or 040\or 041\or 042\or 043\or 044\or 045\or 046\or 047%
1064     \or 050\or 051\or 052\or 053\or 054\or 055\or 056\or 057%
1065     \or 060\or 061\or 062\or 063\or 064\or 065\or 066\or 067%
1066     \or 070\or 071\or 072\or 073\or 074\or 075\or 076\or 077%
1067     \or 100\or 101\or 102\or 103\or 104\or 105\or 106\or 107%
1068     \or 120\or 111\or 112\or 113\or 114\or 115\or 116\or 117%
1069     \or 120\or 121\or 122\or 123\or 124\or 125\or 126\or 127%
1070     \or 130\or 131\or 132\or 133\or 134\or 135\or 136\or 137%
1071     \or 140\or 141\or 142\or 143\or 144\or 145\or 146\or 147%
1072     \or 150\or 151\or 152\or 153\or 154\or 155\or 156\or 157%
1073     \or 160\or 161\or 162\or 163\or 164\or 165\or 166\or 167%
1074     \or 170\or 171\or 172\or 173\or 174\or 175\or 176\or 177%
1075     \or 200\or 201\or 202\or 203\or 204\or 205\or 206\or 207%
1076     \or 210\or 211\or 212\or 213\or 214\or 215\or 216\or 217%
1077     \or 220\or 221\or 222\or 223\or 224\or 225\or 226\or 227%
1078     \or 230\or 231\or 232\or 233\or 234\or 235\or 236\or 237%
1079     \or 240\or 241\or 242\or 243\or 244\or 245\or 246\or 247%
1080     \or 250\or 251\or 252\or 253\or 254\or 255\or 256\or 257%
1081     \or 260\or 261\or 262\or 263\or 264\or 265\or 266\or 267%
1082     \or 270\or 271\or 272\or 273\or 274\or 275\or 276\or 277%
1083     \or 300\or 301\or 302\or 303\or 304\or 305\or 306\or 307%
1084     \or 310\or 311\or 312\or 313\or 314\or 315\or 316\or 317%
1085     \or 320\or 321\or 322\or 323\or 324\or 325\or 326\or 327%
1086     \or 330\or 331\or 332\or 333\or 334\or 335\or 336\or 337%
1087     \or 340\or 341\or 342\or 343\or 344\or 345\or 346\or 347%
1088     \or 350\or 351\or 352\or 353\or 354\or 355\or 356\or 357%
1089     \or 360\or 361\or 362\or 363\or 364\or 365\or 366\or 367%
1090     \or 370\or 371\or 372\or 373\or 374\or 375\or 376\or 377%
1091   \fi
1092 }
1093 \def\HyPsd@DecimalToOctalSecond#1{%
1094   \ifcase #1 %
1095     \000\or \001\or \002\or \003\or \004\or \005\or \006\or \007%
1096     \or \010\or \011\or \012\or \013\or \014\or \015\or \016\or \017%

```



```

1097 \or \020\or \021\or \022\or \023\or \024\or \025\or \026\or \027%
1098 \or \030\or \031\or \032\or \033\or \034\or \035\or \036\or \037%
1099 \or \040\or \041\or \042\or \043\or \044\or \045\or \046\or \047%
1100 \or \050\or \051\or \052\or \053\or \054\or \055\or \056\or \057%
1101 \or \060\or \061\or \062\or \063\or \064\or \065\or \066\or \067%
1102 \or \070\or \071\or \072\or \073\or \074\or \075\or \076\or \077%
1103 \or \100\or \101\or \102\or \103\or \104\or \105\or \106\or \107%
1104 \or \110\or \111\or \112\or \113\or \114\or \115\or \116\or \117%
1105 \or \120\or \121\or \122\or \123\or \124\or \125\or \126\or \127%
1106 \or \130\or \131\or \132\or \133\or \134\or \135\or \136\or \137%
1107 \or \140\or \141\or \142\or \143\or \144\or \145\or \146\or \147%
1108 \or \150\or \151\or \152\or \153\or \154\or \155\or \156\or \157%
1109 \or \160\or \161\or \162\or \163\or \164\or \165\or \166\or \167%
1110 \or \170\or \171\or \172\or \173\or \174\or \175\or \176\or \177%
1111 \or \200\or \201\or \202\or \203\or \204\or \205\or \206\or \207%
1112 \or \210\or \211\or \212\or \213\or \214\or \215\or \216\or \217%
1113 \or \220\or \221\or \222\or \223\or \224\or \225\or \226\or \227%
1114 \or \230\or \231\or \232\or \233\or \234\or \235\or \236\or \237%
1115 \or \240\or \241\or \242\or \243\or \244\or \245\or \246\or \247%
1116 \or \250\or \251\or \252\or \253\or \254\or \255\or \256\or \257%
1117 \or \260\or \261\or \262\or \263\or \264\or \265\or \266\or \267%
1118 \or \270\or \271\or \272\or \273\or \274\or \275\or \276\or \277%
1119 \or \300\or \301\or \302\or \303\or \304\or \305\or \306\or \307%
1120 \or \310\or \311\or \312\or \313\or \314\or \315\or \316\or \317%
1121 \or \320\or \321\or \322\or \323\or \324\or \325\or \326\or \327%
1122 \or \330\or \331\or \332\or \333\or \334\or \335\or \336\or \337%
1123 \or \340\or \341\or \342\or \343\or \344\or \345\or \346\or \347%
1124 \or \350\or \351\or \352\or \353\or \354\or \355\or \356\or \357%
1125 \or \360\or \361\or \362\or \363\or \364\or \365\or \366\or \367%
1126 \or \370\or \371\or \372\or \373\or \374\or \375\or \376\or \377%
1127 \fi
1128 }

1129 \def\HyPsd@CJKnumber#1{%
1130 \ifnum#1<\z@
1131 \CJK@minus
1132 \expandafter\HyPsd@@CJKnumber\expandafter{\number-\number#1}%
1133 \else
1134 \expandafter\HyPsd@@CJKnumber\expandafter{\number#1}%
1135 \fi
1136 }

1137 \def\HyPsd@@CJKnumber#1{%
1138 \ifcase#1 %
1139 \CJK@zero\or\CJK@one\or\CJK@two\or\CJK@three\or\CJK@four\or
1140 \CJK@five\or\CJK@six\or\CJK@seven\or\CJK@eight\or\CJK@nine\or
1141 \CJK@ten\or\CJK@ten\CJK@one\or\CJK@ten\CJK@two\or
1142 \CJK@ten\CJK@three\or\CJK@ten\CJK@four\or\CJK@ten\CJK@five\or
1143 \CJK@ten\CJK@six\or\CJK@ten\CJK@seven\or\CJK@ten\CJK@eight\or
1144 \CJK@ten\CJK@nine
1145 \else
1146 \ifnum#1<10000 %
1147 \HyPsd@CJKnumberFour#1!\@empty{20}%
1148 \@empty
1149 \else
1150 \ifnum#1<100000000 %

```

```

1151 \expandafter\expandafter\expandafter\HyPsd@CJKnumberFour
1152 \IntCalcDiv#1!10000!%
1153 !\CJK@zero{10}%
1154 \CJK@tenthousand
1155 \expandafter\expandafter\expandafter\HyPsd@CJKnumberFour
1156 \IntCalcMod#1!10000!%
1157 !\CJK@zero{10}%
1158 \@empty
1159 \else
1160 \expandafter\HyPsd@CJKnumberLarge
1161 \number\IntCalcDiv#1!100000000!\expandafter!%
1162 \number\IntCalcMod#1!100000000!!%
1163 \fi
1164 \fi
1165 \fi
1166 }
1167 \def\HyPsd@CJKnumberLarge#1!#2!{%
1168 \HyPsd@CJKnumberFour#1!{20}%
1169 \CJK@hundredmillion
1170 \ifnum#2=\z@
1171 \else
1172 \expandafter\expandafter\expandafter\HyPsd@CJKnumberFour
1173 \IntCalcDiv#2!10000!%
1174 !\CJK@zero{10}%
1175 \CJK@tenthousand
1176 \expandafter\expandafter\expandafter\HyPsd@CJKnumberFour
1177 \IntCalcMod#2!10000!%
1178 !\CJK@zero{10}%
1179 \@empty
1180 \fi
1181 }
1182 \def\HyPsd@CJKnumberFour#1!#2#3{%
1183 \ifnum#1=\z@
1184 \expandafter\@gobble
1185 \else
1186 \ifnum#1<1000 %
1187 #2%
1188 \HyPsd@CJKnumberThree#1!{3}%
1189 \else
1190 \HyPsd@@@CJKnumber{\IntCalcDiv#1!1000!}%
1191 \CJK@thousand
1192 \expandafter\expandafter\expandafter\HyPsd@CJKnumberThree
1193 \IntCalcMod#1!1000!%
1194 !\CJK@zero{10}%
1195 \fi
1196 \fi
1197 }
1198 \def\HyPsd@CJKnumberThree#1!#2#3{%
1199 \ifnum#1=\z@
1200 \else
1201 \ifnum#1<100 %
1202 #2%
1203 \HyPsd@CJKnumberTwo#1!{3}%
1204 \else

```

```

1205 \HyPsd@@CJKnumber{\IntCalcDiv#1!100!}%
1206 \CJK@hundred
1207 \expandafter\expandafter\expandafter\HyPsd@CJKnumberTwo
1208 \IntCalcMod#1!100!%
1209 !\CJK@zero{10}%
1210 \fi
1211 \fi
1212 }
1213 \def\HyPsd@CJKnumberTwo#1!#2#3{%
1214 \ifnum#1=\z@
1215 \else
1216 \ifnum#1<#3 %
1217 #2%
1218 \HyPsd@@CJKnumber{#1}%
1219 \else
1220 \HyPsd@@CJKnumber{\IntCalcDiv#1!10!}%
1221 \CJK@ten
1222 \ifnum\IntCalcMod#1!10!=\z@
1223 \else
1224 \HyPsd@@CJKnumber{\IntCalcMod#1!10!}%
1225 \fi
1226 \fi
1227 \fi
1228 }
1229 \def\HyPsd@CJKdigits#1{%
1230 \ifx*#1\relax
1231 \expandafter\HyPsd@@CJKdigits\expandafter\CJK@zero
1232 \else
1233 \HyPsd@@CJKdigits\CJK@null{#1}%
1234 \fi
1235 }
1236 \def\HyPsd@@CJKdigits#1#2{%
1237 \ifx\#2\%
1238 \else
1239 \HyPsd@@@CJKdigits#1#2\@nil
1240 \fi
1241 }%
1242 \def\HyPsd@@@CJKdigits#1#2#3\@nil{%
1243 \HyPsd@CJKdigit#1{#2}%
1244 \ifx\#3\%
1245 \expandafter\@gobble
1246 \else
1247 \expandafter\@firstofone
1248 \fi
1249 {%
1250 \HyPsd@@@CJKdigits#1#3\@nil
1251 }%
1252 }
1253 \def\HyPsd@CJKdigit#1#2{%
1254 \ifcase#2 %
1255 #1\or
1256 \CJK@one\or\CJK@two\or\CJK@three\or\CJK@four\or
1257 \CJK@five\or\CJK@six\or\CJK@seven\or\CJK@eight\or\CJK@nine
1258 \fi

```

### 6.5.6 \@inmathwarn-Patch

`\HyPsd@inmathwarn` The patch of `\@inmathwarn` is needed to get rid of the infinite error loop with glyphs of other encodings (see the explanation above). Potentially the patch is dangerous, if the code in `ltoutenc.dtx` changes. Checked with L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> versions [1998/06/01] and [1998/12/01]. I expect that versions below [1995/12/01] don't work.

To understand the patch easier, the original code of `\@current@cmd` and `\@changed@cmd` follows (L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> release [1998/12/01]). In the normal case `\pdfstringdef` is executed in a context where `\protect` has the meaning of `\@typeset-protect` (`=\relax`).

```

\def\@current@cmd#1{%
  \ifx\protect\@typeset@protect
    \@inmathwarn#1%
  \else
    \noexpand#1\expandafter\@gobble
  \fi}
\def\@changed@cmd#1#2{%
  \ifx\protect\@typeset@protect
    \@inmathwarn#1%
    \expandafter\ifx\csname\cf@encoding\string#1\endcsname\relax
      \expandafter\ifx\csname?\string#1\endcsname\relax
        \expandafter\def\csname?\string#1\endcsname{%
          \TextSymbolUnavailable#1%
        }%
      \fi
      \global\expandafter\let
        \csname\cf@encoding\string#1\expandafter\endcsname
        \csname?\string#1\endcsname
    \fi
    \csname\cf@encoding\string#1%
      \expandafter\endcsname
  \else
    \noexpand#1%
  \fi}
\gdef\TextSymbolUnavailable#1{%
  \@latex@error{%
    Command \protect#1 unavailable in encoding \cf@encoding%
  }\@eha}
\def\@inmathwarn#1{%
  \ifmmode
    \@latex@warning{Command \protect#1 invalid in math mode}%
  \fi}

1260 \def\HyPsd@inmathwarn#1#2{%
1261   \ifx#2\expandafter
1262     \expandafter\ifx\csname\cf@encoding\string#1\endcsname\relax
1263       \HyPsd@GLYPHERR
1264       \expandafter\@gobble\string#1%
1265       >%
1266       \expandafter\expandafter\expandafter\HyPsd@EndWithElse

```

```

1267 \else
1268 \expandafter\expandafter\expandafter\HyPsd@GobbleFiFi
1269 \fi
1270 \else
1271 \expandafter#2%
1272 \fi
1273 }
1274 \def\HyPsd@GobbleFiFi#1\fi#2\fi{}
1275 \def\HyPsd@EndWithElse#1\else{\else}

```

`\HyPsd@add@accent`

```

1276 \def\HyPsd@add@accent#1#2{%
1277 \HyPsd@GLYPHERR\expandafter\@gobble\string#1+\string#2>%
1278 #2%
1279 }%

```

### 6.5.7 Unexpandable spaces

`\HyPsd@LetUnexpandableSpace` In `\HyPsd@@ProtectSpaces` the space tokens are replaced by not expandable commands, that work like spaces:

- So they can be caught by undelimited arguments.
- And they work in number, dimension, and skip assignments.

These properties are used in `\HyPsd@CheckCatcodes`.

```

1280 \def\HyPsd@LetUnexpandableSpace#1{%
1281 \expandafter\futurelet\expandafter#1\expandafter\@gobble\space\relax
1282 }

```

`\HyPsd@UnexpandableSpace` `\HyPsd@UnexpandableSpace` is used in `\HyPsd@@ProtectSpaces`. In `\HyPsd@@ProtectSpaces` the space tokens are replaced by unexpandable commands `\HyPsd@UnexpandableSpace`, but that have the effect of spaces.

```

1283 \HyPsd@LetUnexpandableSpace\HyPsd@UnexpandableSpace

```

### 6.5.8 Marker for commands

`\HyPsd@XSPACE` Some commands and informations cannot be utilized before the string expansion and the checking process. Command names are filtered out, so we need another way to transport the information: An unusual `#` with catcode 12 marks the beginning of the extra information.

```

1284 \edef\HyPsd@XSPACE{\string#\string X}
1285 \edef\HyPsd@ITALCORR{\string#\string I}
1286 \edef\HyPsd@GLYPHERR{\string#\string G}

```

### 6.5.9 `\hspace` fix

`\HyPsd@hspace`

```

1287 \def\HyPsd@hspace#1{\HyPsd@@hspace#1*END}

```

`\HyPsd@@hspace` `\HyPsd@@hspace` checks whether `\hspace` is called in its star form.

```

1288 \def\HyPsd@@hspace#1*#2END{%
1289 \ifx\#2\%

```

```

1290 \HyPsd@hspacetest{#1}%
1291 \else
1292 \expandafter\HyPsd@hspacetest
1293 \fi
1294 }

```

`\HyPsd@hspacetest` `\HyPsd@hyspacetest` replaces the `\hspace` by a space, if the length is greater than zero.

```

1295 \def\HyPsd@hspacetest#1{\ifdim\dimexpr#1\relax>\z@\space\fi}

```

#### 6.5.10 Fix for AMS classes

```

1296 \ltx@ifundefined{tocsection}{%
1297 \let\HyPsd@AMSclassfix\relax
1298 }{%
1299 \def\HyPsd@AMSclassfix{%
1300 \let\tocpart\HyPsd@tocsection
1301 \let\tocchapter\HyPsd@tocsection
1302 \let\tocappendix\HyPsd@tocsection
1303 \let\tocsection\HyPsd@tocsection
1304 \let\tocsubsection\HyPsd@tocsection
1305 \let\tocsubsubsection\HyPsd@tocsection
1306 \let\tocparagraph\HyPsd@tocsection
1307 }%
1308 \def\HyPsd@tocsection#1#2#3{%
1309 \if @#2@ \else \if @#1@ \else #1 \fi #2. \fi
1310 #3%
1311 }%
1312 }

```

#### 6.5.11 Reference commands

`\HyPsd@href`

```

1313 \def\HyPsd@href#1#{\@secondoftwo}

```

`\HyPsd@ref` Macro `\HyPsd@ref` calls the macro `\HyPsd@@ref` for star checking. The same methods like in `\HyPsd@hspace` is used.

```

1314 \def\HyPsd@ref#1{\HyPsd@@ref#1*\END}%

```

`\HyPsd@@ref` Macro `\HyPsd@@ref` checks if a star is present.

```

1315 \def\HyPsd@@ref#1*#2\END{%
1316 \ifx\#2\%
1317 \HyPsd@@@ref{#1}%
1318 \else
1319 \expandafter\HyPsd@@@ref
1320 \fi
1321 }%

```

`\HyPsd@@@ref` `\HyPsd@@@ref` does the work and extracts the first argument.

```

1322 \def\HyPsd@@@ref#1{%
1323 \expandafter\ifx\csname r@#1\endcsname\relax
1324 ??%
1325 \else
1326 \expandafter\expandafter\expandafter

```

```

1327 \car\csname r@#1\endcsname\@nil
1328 \fi
1329 }

```

\HyPsd@pageref Macro \HyPsd@pageref calls the macro \HyPsd@@pageref for star checking. The same methods like in \HyPsd@hspace is used.

```

1330 \def\HyPsd@pageref#1{\HyPsd@@pageref#1*END}

```

\HyPsd@@pageref Macro \HyPsd@@pageref checks if a star is present.

```

1331 \def\HyPsd@@pageref#1*#2END{%
1332 \ifx\#2\%
1333 \HyPsd@@@pageref{#1}%
1334 \else
1335 \expandafter\HyPsd@@@pageref
1336 \fi
1337 }

```

\HyPsd@@@pageref \HyPsd@@@pageref does the work and extracts the second argument.

```

1338 \def\HyPsd@@@pageref#1{%
1339 \expandafter\ifx\csname r@#1\endcsname\relax
1340 ??%
1341 \else
1342 \expandafter\expandafter\expandafter\expandafter
1343 \expandafter\expandafter\expandafter\@car
1344 \expandafter\expandafter\expandafter\@gobble
1345 \csname r@#1\endcsname{}\@nil
1346 \fi
1347 }

```

\HyPsd@nameref Macro \HyPsd@nameref calls the macro \HyPsd@@nameref for star checking. The same methods like in \HyPsd@hspace is used.

```

1348 \def\HyPsd@nameref#1{\HyPsd@@nameref#1*END}

```

\HyPsd@@nameref Macro \HyPsd@@nameref checks if a star is present.

```

1349 \def\HyPsd@@nameref#1*#2END{%
1350 \ifx\#2\%
1351 \HyPsd@@@nameref{#1}%
1352 \else
1353 \expandafter\HyPsd@@@nameref
1354 \fi
1355 }

```

\HyPsd@@@nameref \HyPsd@@@nameref does the work and extracts the third argument.

```

1356 \def\HyPsd@@@nameref#1{%
1357 \expandafter\ifx\csname r@#1\endcsname\relax
1358 ??%
1359 \else
1360 \expandafter\expandafter\expandafter\expandafter
1361 \expandafter\expandafter\expandafter\@car
1362 \expandafter\expandafter\expandafter\@gobbletwo
1363 \csname r@#1\endcsname{}\@nil
1364 \fi
1365 }

```

`\HyPsd@autoref` Macro `\HyPsd@autoref` calls the macro `\HyPsd@@autoref` for star checking. The same methods like in `\HyPsd@hspace` is used.

```
1366 \def\HyPsd@autoref#1{\HyPsd@@autoref#1*\END}
```

`\HyPsd@@autoref` Macro `\HyPsd@@autoref` checks if a star is present.

```
1367 \def\HyPsd@@autoref#1*#2\END{%
1368   \ifx\#2\%
1369     \HyPsd@@@autoref{#1}%
1370   \else
1371     \expandafter\HyPsd@@@autoref
1372   \fi
1373 }
```

`\HyPsd@@@autoref` `\HyPsd@@@autoref` does the work and extracts the second argument.

```
1374 \def\HyPsd@@@autoref#1{%
1375   \expandafter\ifx\csname r@#1\endcsname\relax
1376     ??%
1377   \else
1378     \expandafter\expandafter\expandafter\HyPsd@autorefname
1379       \csname r@#1\endcsname{}{}{}{}\@nil
1380     \expandafter\expandafter\expandafter
1381       \@car\csname r@#1\endcsname\@nil
1382   \fi
1383 }
```

`\HyPsd@autorefname` At least a basic definition for getting the `\autoref` name.

```
1384 \def\HyPsd@autorefname#1#2#3#4#5\@nil{%
1385   \ifx\#4\%
1386   \else
1387     \HyPsd@@autorefname#4.\@nil
1388   \fi
1389 }
```

`\HyPsd@@autorefname`

```
1390 \def\HyPsd@@autorefname#1.#2\@nil{%
1391   \ltx@ifundefined{#1autorefname}{%
1392     \ltx@ifundefined{#1name}{%
1393       }{%
1394         \csname#1name\endcsname\space
1395       }%
1396     }{%
1397       \csname#1autorefname\endcsname\space
1398     }%
1399 }
```

### 6.5.12 Redefining the defining commands

Definitions aren't allowed, because they aren't executed in an only expanding context. So the command to be defined isn't defined and can perhaps be undefined. This would causes TeX to stop with an error message. With a deep trick it is possible to define commands in such a context: `\csname` does the job, it defines the command to be `\relax`, if it has no meaning.



Active characters cannot be defined with this trick. It is possible to define all undefined active characters (perhaps that they have the meaning of `\relax`). To avoid side effects this should be done in `\pdfstringdef` shortly before the `\xdef` job. But checking and defining all possible active characters of the full range (0 until 255) would take a while. `\pdfstringdef` is slow enough, so this isn't done.

`\HyPsd@DefCommand` and `\HyPsd@LetCommand` expands to the commands `\<def>-command` and `\<let>-command` with the meaning of `\def` and `\let`. So it is detected by `\HyPsd@CheckCatcodes` and the command name `\<def>-command` or `\<let>-command` should indicate a forbidden definition command.

The command to be defined is converted to a string and back to a command name with the help of `\csname`. If the command is already defined, `\noexpand` prevents a further expansion, even though the command would expand to legal stuff. If the command don't have the meaning of `\relax`, `\HyPsd@CheckCatcodes` will produce a warning. (The command itself can be legal, but the warning is legitimate because of the position after a defining command.)

The difference between `\HyPsd@DefCommand` and `\HyPsd@LetCommand` is that the first one also cancels this arguments, the parameter and definition text. The right side of the `\let` commands cannot be canceled with an undelimited parameter because of a possible space token after `\futurelet`.

To avoid unmatched `\if...` tokens, the cases `\let\if...\iftrue` and `\let\if...\iffalse` are checked and ignored.

```

\HyPsd@DefCommand
\HyPsd@LetCommand 1400 \begingroup
1401   \def\x#1#2{%
1402     \endgroup
1403     \let#1\def
1404     \def\HyPsd@DefCommand##1##2###{%
1405       #1%
1406       \expandafter\noexpand
1407       \csname\expandafter\@gobble\string##1\@empty\endcsname
1408       \@gobble
1409     }%
1410     \let#2\let
1411     \def\HyPsd@@LetCommand##1{%
1412       \expandafter\ifx\csname##1\expandafter\endcsname
1413         \csname iftrue\endcsname
1414       \pdfstringdefWarn\let
1415       \expandafter\@gobble
1416     \else
1417       \expandafter\ifx\csname##1\expandafter\endcsname
1418         \csname iffalse\endcsname
1419       \pdfstringdefWarn\let
1420       \expandafter\expandafter\expandafter\@gobble
1421     \else
1422       #2%
1423       \expandafter\noexpand
1424       \csname##1\expandafter\expandafter\expandafter\endcsname
1425     \fi
1426   \fi
1427 }%
1428 }%
```

```

1429 \expandafter\x\csname <def>-command\expandafter\endcsname
1430         \csname <let>-command\endcsname
1431 \def\HyPsd@LetCommand#1{%
1432 \expandafter\expandafter\expandafter\HyPsd@@LetCommand
1433 \expandafter\expandafter\expandafter{%
1434 \expandafter\@gobble\string#1\@empty
1435 }%
1436 }

```

### 6.5.13 \ifnextchar

`\HyPsd@ifnextchar` In `\pdfstringdef \ifnextchar` is disabled via a `\let` command to save time. First a warning message is given, then the three arguments are canceled. `\ifnextchar` cannot work in a correct manner, because it uses `\futurelet`, but this is a stomach feature, that doesn't work in an expanding context. There are several variants of `\ifnextchar`:

- `\@ifnextchar`
- `\kernel@ifnextchar`
- `\new@ifnextchar` from package `amsgen.sty` (bug report latex/3662).

```

1437 \def\HyPsd@ifnextchar#1{%
1438 \pdfstringdefWarn#1%
1439 \expandafter\@gobbletwo\@gobble
1440 }

```

### 6.5.14 \@protected@testoptifnextchar

`\HyPsd@protected@testopt` Macros with optional arguments doesn't work properly, because they call `\@ifnextchar` to detect the optional argument (see the explanation of `\HyPsd@ifnextchar`). But a warning, that `\@ifnextchar` doesn't work, doesn't help the user very much. Therefore `\@protected@testopt` is also disabled, because its first argument is the problematic macro with the optional argument and it is called before `\@ifnextchar`.

```

1441 \def\HyPsd@protected@testopt#1{%
1442 \pdfstringdefWarn#1%
1443 \@gobbletwo
1444 }

```

## 6.6 Help macros for postprocessing

### 6.6.1 Generic warning.

`\HyPsd@Warning` For several reasons `\space` is masked and does not have its normal meaning. But it is used in warning messages, so it is redefined locally:

```

1445 \def\HyPsd@Warning#1{%
1446 \begingroup
1447 \let\space\ltx@space
1448 \Hy@Warning{#1}%
1449 \endgroup
1450 }

```

## 6.6.2 Protecting spaces

`\HyPsd@ProtectSpaces` `\HyPsd@ProtectSpaces` calls with the expanded string `\HyPsd@@ProtectSpacesFi`. The expanded string is protected by `|` at the beginning and end of the expanded string. Because of this there can be no group at the beginning or end of the string and grouping characters are not removed by the call of `\HyPsd@@ProtectSpacesFi`.

```

1451 \let\HyPsd@fi\fi
1452 \def\HyPsd@ProtectSpaces#1{%
1453   \xdef#1{%
1454     \iftrue
1455       \expandafter\HyPsd@@ProtectSpacesFi
1456       \expandafter|\expandafter\@empty#1| %
1457     \HyPsd@fi
1458   }%
1459   \expandafter\HyPsd@RemoveMask#1\HyPsd@End#1%
1460 }%
```

`\HyPsd@@ProtectSpacesFi` The string can contain command tokens, so it is better to use an `\def` instead of an `\edef`.

```

1461 \def\HyPsd@@ProtectSpacesFi#1 #2\HyPsd@fi{%
1462   \fi
1463   \unexpanded{#1}%
1464   \ifx\scrollmode#2\scrollmode
1465   \else
1466     \HyPsd@@ProtectSpacesFi\HyPsd@UnexpandableSpace#2%
1467   \HyPsd@fi
1468 }%
```

### Remove mask.

`\HyPsd@RemoveMask` `\HyPsd@RemoveMask` removes the protecting `|`. It is used by `\HyPsd@@ProtectSpacesFi` and by the code in `\pdfstringdef` that removes the grouping characters.

```

1469 \def\HyPsd@RemoveMask|#1|\HyPsd@End#2{%
1470   \xdef#2{\unexpanded\expandafter{#1}}%
1471 }%
```

## 6.6.3 Remove grouping braces

`\HyPsd@RemoveBraces` `#1` contains the expanded string, the result will be locally written in command `\HyPsd@String`.

```

1472 \def\HyPsd@RemoveBraces#1{%
1473   \ifx\scrollmode#1\scrollmode
1474   \else
1475     \HyPsd@@RemoveBracesFi#1\HyPsd@End{#1}%
1476   \fi
1477 }
```

`\HyPsd@@RemoveBraces` `\HyPsd@@RemoveBraces` is called with the expanded string, the end marked by `\HyPsd@End`, the expanded string again, but enclosed in braces and the string command. The first expanded string is scanned by the parameter text `#1#2`. By a comparison with the original form in `#3` we can decide whether `#1` is a single

token or a group. To avoid the case that `#2` is a group, the string is extended by a `|` before.

While removing the grouping braces an italic correction marker is inserted for supporting package `xspace` and letting ligatures broken.

Because the string is already expanded, the `\if` commands should disappeared. So we can move some parts out of the argument of `\ltx@ReturnAfterFi`.

```

1478 \def\HyPsd@@RemoveBracesFi#1#2\HyPsd@End#3\fi{%
1479   \fi
1480   \def\Hy@temp@A{#1#2}%
1481   \def\Hy@temp@B{#3}%
1482   \ifx\Hy@temp@A\Hy@temp@B
1483     \expandafter\def\expandafter\HyPsd@String\expandafter{%
1484       \HyPsd@String#1%
1485     }%
1486     \ifx\scrollmode#2\scrollmode
1487       \else
1488         \Hy@ReturnAfterFiFiEnd{%
1489           \HyPsd@RemoveBraces{#2}%
1490         }%
1491       \fi
1492     \else
1493       \def\Hy@temp@A{#1}%
1494       \HyPsd@AppendItalcrr\HyPsd@String
1495       \ifx\Hy@temp@A\@empty
1496         \Hy@ReturnAfterElseFiFiEnd{%
1497           \HyPsd@RemoveBraces{#2}%
1498         }%
1499       \else
1500         \HyPsd@ProtectSpaces\Hy@temp@A
1501         \HyPsd@AppendItalcrr\Hy@temp@A
1502         \Hy@ReturnAfterFiFiEnd{%
1503           \expandafter\HyPsd@RemoveBraces\expandafter
1504             {\Hy@temp@A#2}%
1505         }%
1506       \fi
1507     \fi
1508   \Hy@ReturnEnd
1509 }
```

`\HyPsd@AppendItalcrr` The string can contain commands yet, so it is better to use `\def` instead of a shorter `\edef`. The two help macros limit the count of `\expandafter`.

```

1510 \def\HyPsd@AppendItalcrr#1{%
1511   \expandafter\HyPsd@@AppendItalcrr\expandafter{\/#1%
1512 }
1513 \def\HyPsd@@AppendItalcrr#1#2{%
1514   \expandafter\def\expandafter#2\expandafter{#2#1}%
1515 }
```

#### 6.6.4 Catcode check

**Workaround for LuaTeX.** `\HyPsd@CheckCatcodes` might trigger a bug of LuaTeX (0.60.2, 0.70.1, 0.70.2, ...) in the comparison with `\ifcat`, see <http://tracker.luaotex.org/view.php?id=773>.

```

1516 \ltx@ifundefined{directlua}{%
1517 }{%
1518 \expandafter\ifx\csname\endcsname\relax\fi
1519 }

```

### Check catcodes.

\HyPsd@CheckCatcodes Because \ifcat expands its arguments, this is prevented by \noexpand. In case of command tokens and active characters \ifcat now sees a \relax. After protecting spaces and removing braces #1 should be a single token, no group of several tokens, nor an empty group. (So the \expandafter\relax between \ifcat and \noexpand is only for safety and it should be possible to remove it.)

\protect and \relax should be removed silently. But it is too dangerous and breaks some code giving them the meaning of \@empty. So commands with the meaning of \protect are removed here. (\protect should have the meaning of \@typeset@protect that is equal to \relax).

For the comparison with active characters, ~ cannot be used because it has the meaning of a blank space here. And active characters need to be checked, if they have been defined using \protected.

```

1520 \begingroup
1521 \catcode`\Q=\active
1522 \let Q\ltx@empty
1523 \gdef\HyPsd@CheckCatcodes#1#2\HyPsd@End{%
1524 \global\let\HyPsd@Rest\relax
1525 \ifcat\relax\noexpand#1\relax
1526 \ifx#1\protect
1527 \else
1528 \ifx#1\penalty
1529 \setbox\z@=\hbox{%
1530 \afterassignment\HyPsd@AfterCountRemove
1531 \count@=#2\HyPsd@End
1532 }%
1533 \else
1534 \ifx#1\kern
1535 \setbox\z@=\hbox{%
1536 \afterassignment\HyPsd@AfterDimenRemove
1537 \dimen@=#2\HyPsd@End
1538 }%
1539 \else
1540 \ifx#1\hskip
1541 \setbox\z@=\hbox{%
1542 \afterassignment\HyPsd@AfterSkipRemove
1543 \skip@=#2\HyPsd@End
1544 }%
1545 \else
1546 \HyPsd@CatcodeWarning{#1}%
1547 \fi
1548 \fi
1549 \fi
1550 \fi
1551 \else
1552 \ifcat\noexpand#1\noexpandQ% active character
1553 \expandafter\expandafter\expandafter\def

```

```

1554 \expandafter\expandafter\expandafter\HyPsd@String
1555 \expandafter\expandafter\expandafter{%
1556 \expandafter\HyPsd@String\string#1%
1557 }%
1558 \else
1559 \ifcat#1A% letter
1560 \expandafter\def\expandafter\HyPsd@String\expandafter{%
1561 \HyPsd@String#1%
1562 }%
1563 \else
1564 \ifcat#1 % SPACE
1565 \expandafter\def\expandafter\HyPsd@String\expandafter{%
1566 \HyPsd@String\HyPsd@SPACEOPTI
1567 }%
1568 \else
1569 \ifcat$#1%
1570 \HyPsd@CatcodeWarning{math shift}%
1571 \else
1572 \ifcat&#1%
1573 \HyPsd@CatcodeWarning{alignment tab}%
1574 \else
1575 \ifcat^#1%
1576 \HyPsd@CatcodeWarning{superscript}%
1577 \else
1578 \ifcat_#1%
1579 \HyPsd@CatcodeWarning{subscript}%
1580 \else
1581 \expandafter\def\expandafter\HyPsd@String\expandafter{%
1582 \HyPsd@String#1%
1583 }%
1584 \fi
1585 \fi
1586 \fi
1587 \fi
1588 \fi
1589 \fi
1590 \fi
1591 \fi
1592 \ifx\HyPsd@Rest\relax
1593 \ifx\scrollmode#2\scrollmode
1594 \else
1595 \Hy@ReturnAfterFiFiEnd{%
1596 \HyPsd@CheckCatcodes#2\HyPsd@End
1597 }%
1598 \fi
1599 \else
1600 \ifx\HyPsd@Rest\@empty
1601 \else
1602 \Hy@ReturnAfterFiFiEnd{%
1603 \expandafter\HyPsd@CheckCatcodes\HyPsd@Rest\HyPsd@End
1604 }%
1605 \fi
1606 \fi
1607 \Hy@ReturnEnd

```

```

1608 }%
1609 \endgroup

```

### Remove counts, dimens, skips.

`\HyPsd@AfterCountRemove` Counts like `\penalty` are removed silently.

```

1610 \def\HyPsd@AfterCountRemove#1\HyPsd@end{%
1611   \gdef\HyPsd@Rest{#1}%
1612 }

```

`\HyPsd@AfterDimenRemove` If the value of the `dimen` (`\kern`) is zero, it can be removed silently. All other values are difficult to interpret. Negative values do not work in bookmarks. Should positive values be removed or should they be replaced by space(s)? The following code replaces positive values greater than `1ex` with a space and removes them else.

```

1613 \def\HyPsd@AfterDimenRemove#1\HyPsd@end{%
1614   \ifdim\ifx\HyPsd@String\@empty\z@\else\dimen@>1ex %
1615     \HyPsd@ReplaceSpaceWarning{\string\kern\space\the\dimen@}%
1616     \gdef\HyPsd@Rest{\HyPsd@UnexpandableSpace #1}%
1617   \else
1618     \ifdim\dimen@=\z@
1619     \else
1620       \HyPsd@RemoveSpaceWarning{\string\kern\space\the\dimen@}%
1621     \fi
1622     \gdef\HyPsd@Rest{#1}%
1623   \fi
1624 }

```

`\HyPsd@AfterSkipRemove` The glue part of skips do not work in PDF strings and are ignored. Skips (`\hskip`), that are not zero, have the same interpreting problems like `dimens` (see above).

```

1625 \def\HyPsd@AfterSkipRemove#1\HyPsd@end{%
1626   \ifdim\ifx\HyPsd@String\@empty\z@\else\skip@>1ex %
1627     \HyPsd@ReplaceSpaceWarning{\string\hskip\space\the\skip@}%
1628     \gdef\HyPsd@Rest{\HyPsd@UnexpandableSpace #1}%
1629   \else
1630     \ifdim\skip@=\z@
1631     \else
1632       \HyPsd@RemoveSpaceWarning{\string\kern\space\the\skip@}%
1633     \fi
1634     \gdef\HyPsd@Rest{#1}%
1635   \fi
1636 }

```

### Catcode warnings.

`\HyPsd@CatcodeWarning` `\HyPsd@CatcodeWarning` produces a warning for the user.

```

1637 \def\HyPsd@CatcodeWarning#1{%
1638   \HyPsd@Warning{%
1639     Token not allowed in a PDF string (%
1640     \ifHy@unicode
1641       Unicode%
1642     \else
1643       PDFDocEncoding%
1644     \fi

```

```

1645 ):%
1646 \MessageBreak removing ``\HyPsd@RemoveCmdPrefix#1'%
1647 }%
1648 }
1649 \beginngroup
1650 \catcode`\|=0 %
1651 \catcode`\|=12 %
1652 |gdef|HyPsd@RemoveCmdPrefix#1{%
1653 |expandafter|HyPsd@@RemoveCmdPrefix
1654 |string#1|@empty\<>-|@empty|@empty
1655 }%
1656 |gdef|HyPsd@@RemoveCmdPrefix#1\<>-#2|@empty#3|@empty{#1#2}%
1657 |endgroup

```

\HyPsd@RemoveSpaceWarning

```

1658 \def\HyPsd@RemoveSpaceWarning#1{%
1659 \HyPsd@Warning{%
1660 Token not allowed in a PDF string (%)
1661 \ifHy@unicode
1662 Unicode%
1663 \else
1664 PDFDocEncoding%
1665 \fi
1666 ):%
1667 \MessageBreak #1\MessageBreak
1668 removed%
1669 }%
1670 }

```

\HyPsd@ReplaceSpaceWarning

```

1671 \def\HyPsd@ReplaceSpaceWarning#1{%
1672 \HyPsd@Warning{%
1673 Token not allowed in a PDF string (%)
1674 \ifHy@unicode
1675 Unicode%
1676 \else
1677 PDFDocEncoding%
1678 \fi
1679 ):%
1680 \MessageBreak #1\MessageBreak
1681 replaced by space%
1682 }%
1683 }

```

### 6.6.5 Check for wrong glyphs

A wrong glyph is marked with \relax, the glyph name follows, delimited by >. \@empty ends the string.

```

1684 \def\HyPsd@GlyphProcess#1\relax#2\@empty{%
1685 \expandafter\def\expandafter\HyPsd@String\expandafter{%
1686 \HyPsd@String#1%
1687 }%
1688 \ifx\|#2\%
1689 \else

```



```

1690 \ltx@ReturnAfterFi{%
1691 \HyPsd@GlyphProcessWarning#2\@empty
1692 }%
1693 \fi
1694 }
1695 \def\HyPsd@GlyphProcessWarning#1>#2\@empty{%
1696 \HyPsd@@@GlyphProcessWarning#1++>%
1697 \HyPsd@GlyphProcess#2\@empty
1698 }
1699 \def\HyPsd@@@GlyphProcessWarning#1+#2+#3>{%
1700 \ifx\#2\%
1701 \HyPsd@Warning{%
1702 Glyph not defined in %
1703 P\ifHy@unicode U\else D1\fi\space encoding,\MessageBreak
1704 removing \@backslashchar#1'%
1705 }%
1706 \else
1707 \HyPsd@Warning{%
1708 Composite letter \@backslashchar#1+#2'\MessageBreak
1709 not defined in P\ifHy@unicode U\else D1\fi\space encoding,%
1710 \MessageBreak
1711 removing \@backslashchar#1'%
1712 }%
1713 \fi
1714 }

```

## Spaces.

`\HyPsd@spaceopti` In the string the spaces are represented by `\HyPsd@spaceopti` tokens. Within an `\edef` it prints itself as a simple space and looks for its next argument. If another space follows, so it replaces the next `\HyPsd@spaceopti` by an protected space `\040`.

```

1715 \def\HyPsd@spaceopti#1{ % first space
1716 \ifx\HyPsd@spaceopti#1%
1717 \040%
1718 \else
1719 #1%
1720 \fi
1721 }%

```

### 6.6.6 Replacing tokens

`\HyPsd@Subst` To save tokens `\HyPsd@StringSubst` is an wrapper for the command `\HyPsd@Subst` that does all the work: In string stored in command `#3` it replaces the tokens `#1` with `#2`.

```

#1 Exact the tokens that should be replaced.
#2 The replacement (don't need to be expanded).
#3 Command with the string.
1722 \def\HyPsd@Subst#1#2#3{%
1723 \def\HyPsd@@@ReplaceFi##1#1##2\END\fi{%
1724 \fi
1725 ##1%
1726 \ifx\scrollmode##2\scrollmode

```

```

1727 \else
1728   #2%
1729   \HyPsd@@ReplaceFi##2\END
1730 \fi
1731 }%
1732 \xdef#3{%
1733   \iftrue
1734     \expandafter\HyPsd@@ReplaceFi#3#1\END
1735   \fi
1736 }%
1737 }

```

`\HyPsd@StringSubst` To save tokens in `\pdfstringdef` `\HyPsd@StringSubst` is a wrapper, that expands argument `#1` before calling `\HyPsd@Subst`.

```

1738 \def\HyPsd@StringSubst#1{%
1739   \expandafter\HyPsd@Subst\expandafter{\string#1}%
1740 }

```

`\HyPsd@EscapeTeX`

```

1741 \begingroup
1742 \lccode`!=`\\%%
1743 \lccode`|=`\\%%
1744 \lccode`\(=`{\%
1745 \lccode`\)=`}%
1746 \lccode`0=\ltx@zero
1747 \lccode`1=\ltx@zero
1748 \lccode`3=\ltx@zero
1749 \lccode`4=\ltx@zero
1750 \lccode`5=\ltx@zero
1751 \lccode`7=\ltx@zero
1752 \lowercase{\endgroup
1753 \def\HyPsd@EscapeTeX#1{%
1754   \HyPsd@Subst!{|045}#1%
1755   \HyPsd@Subst({|173}#1%
1756   \HyPsd@Subst){|175}#1%
1757 }%
1758 }

```

### 6.6.7 Support for package `xspace`

`\HyPsd@doxspace` `\xspace` does not work, because it uses a `\futurelet` that cannot be executed in  $\text{\TeX}$ 's mouth. So this implementation uses an argument to examine the next token. In a previous version I reused `\@xspace`, but this version is shorter and easier to understand.

```

1759 \def\HyPsd@doxspace#1{%
1760   \ifx#1\relax\else
1761     \ifx#1.\else
1762       \ifx#1:\else
1763         \ifx#1,\else
1764           \ifx#1;\else
1765             \ifx#1!\else
1766               \ifx#1?\else
1767                 \ifx#1/\else

```

```

1768     \ifx#1-\else
1769     \ifx#1'\else
1770     \HyPsd@SPACEOPTI
1771     \fi
1772     \fi
1773     \fi
1774     \fi
1775     \fi
1776     \fi
1777     \fi
1778     \fi
1779     \fi
1780     \fi
1781     #1%
1782 }%

```

### 6.6.8 Converting to Unicode

Eight bit characters are converted to the sixteen bit ones, \8 is replaced by \00, and \9 is removed. The result should be a valid Unicode PDF string without the Unicode marker at the beginning.

```

1783 \beginngroup
1784 \catcode`\|=0 %
1785 \catcode`\|=12 %

```

\HyPsd@ConvertToUnicode

```

1786 |gdef|HyPsd@ConvertToUnicode#1{%
1787 |xdef#1{%
1788 |expandafter|HyPsd@DoConvert#1|@empty|@empty|@empty
1789 }%
1790 |ifx#1|@empty
1791 |else
1792 |xdef#1{%
1793 \376\377%
1794 #1%
1795 }%
1796 |fi
1797 }%

```

\HyPsd@DoConvert

```

1798 |gdef|HyPsd@DoConvert#1{%
1799 |ifx#1|@empty
1800 |else
1801 |ltx@ReturnAfterFi{%
1802 |ifx#1\%%
1803 \%%
1804 |expandafter|HyPsd@DoEscape
1805 |else
1806 |HyPsd@Char{#1}%
1807 |expandafter|HyPsd@DoConvert
1808 |fi
1809 }%
1810 |fi
1811 }%

```

\HyPsd@DoEscape

```

1812 |gdef|HyPsd@DoEscape#1{%
1813   |ifx#19%
1814   |expandafter|HyPsd@GetTwoBytes
1815   |else
1816   |ltx@ReturnAfterFi{%
1817   |ifx#18%
1818     00%
1819   |expandafter|HyPsd@GetTwoBytes
1820   |else
1821     #1%
1822   |expandafter|HyPsd@GetOneByte
1823   |fi
1824 }%
1825 |fi
1826 }%

```

\HyPsd@GetTwoBytes

```

1827 |gdef|HyPsd@GetTwoBytes#1\#2#3#4{%
1828   #1\#2#3#4%
1829   |HyPsd@DoConvert
1830 }%

```

\HyPsd@GetOneByte

```

1831 |gdef|HyPsd@GetOneByte#1#2{%
1832   #1#2%
1833   |HyPsd@DoConvert
1834 }%
1835 |endgroup

```

\HyPsd@@GetNextTwoTokens TeX does only allow nine parameters, so we need another macro to get more arguments.

```

1836 \def\HyPsd@GetNextTwoTokens#1#2#3\END#4{%
1837   \xdef#4{#4#1#2}%
1838   \HyPsd@@ConvertToUnicode#3\END#4%
1839 }

```

\HyPsd@Char

```

1840 \begingroup
1841 \catcode0=9 %
1842 \catcode`\^=7 %
1843 \catcode`\^^=12 %
1844 \def\x{^^^0000}%
1845 \expandafter\endgroup
1846 \ifx\x\@empty
1847   \def\HyPsd@Char#1{%
1848     \ifnum`#1<128 %
1849       \@backslashchar 000#1%
1850     \else
1851       \ifnum`#1<65536 %
1852         \expandafter\HyPsd@CharTwoByte\number`#1!%
1853       \else
1854         \expandafter\expandafter\expandafter\HyPsd@CharSurrogate

```

```

1855     \intcalcSub{`#1}{65536}!%
1856     \fi
1857 \fi
1858 }%
1859 \def\HyPsd@CharTwoByte#1!{%
1860   \expandafter\expandafter\expandafter\HyPsd@CharOctByte
1861   \IntCalcDiv#1!256!!%
1862   \expandafter\expandafter\expandafter\HyPsd@CharOctByte
1863   \IntCalcMod#1!256!!%
1864 }%
1865 \def\HyPsd@CharOctByte#1!{%
1866   \@backslashchar
1867   \IntCalcDiv#1!64!%
1868   \intcalcDiv{\IntCalcMod#1!64!}{8}%
1869   \IntCalcMod#1!8!%
1870 }%
1871 \def\HyPsd@CharSurrogate#1!{%
1872   \@backslashchar 33%
1873   \IntCalcDiv#1!262144!%
1874   \expandafter\expandafter\expandafter\HyPsd@CharOctByte
1875   \intcalcDiv{\IntCalcMod#1!262144!}{1024}!%
1876   \@backslashchar 33%
1877   \expandafter\expandafter\expandafter\IntCalcAdd
1878   \intcalcDiv{\IntCalcMod#1!1024!}{256}!4!%
1879   \expandafter\expandafter\expandafter\HyPsd@CharOctByte
1880   \IntCalcMod#1!256!!%
1881 }%
1882 \else
1883 \def\HyPsd@Char#1{%
1884   \@backslashchar 000#1%
1885 }%
1886 \fi

```

change 2022-02-21 For the case that utf8 chars are protected we need to expand them. This works only is `\UTFviii@loop` is not defined in a group, which will be the case in the new latex code, so we test for it.

```

1887 \ifcsname UTFviii@loop\endcsname
1888 \def\HyPsd@expand@utfvii{%
1889   \count@"C2
1890   \@tempcnta"F5
1891   \def\UTFviii@tmp{\expandafter\def\expandafter~\expandafter{~}}%
1892   \UTFviii@loop
1893 }
1894 \else
1895 \def\HyPsd@expand@utfvii{}
1896 \fi

```

### 6.6.9 Support for UTF-8 input encoding

After `\usepackage[utf8]{inputenc}` there are macros that expect the UTF-8 octets as arguments. Therefore we can calculate the PDF octal sequences directly. Because the PDF format is limited to UCS-2, conversion macros are needed for UTF-8 sequences with two and three octets only.

This calculation must be done in an expandable context, so we use `eTeX` here

for performance reasons. Unhappily the results of divisions are rounded. Thus a circumvention via `\dimexpr` is used, e.g.:

```

\numexpr 123/4\relax is replaced by
\number\dimexpr.25\dimexpr 123sp\relax\relax

1897 \begingroup
1898 \lccode\~=`^^f4\relax
1899 \lowercase{\endgroup}
1900 \def\HyPsd@UTFviii{%
1901   \HyPsd@expand@utfvii
1902   \let\UTFviii@two@octets\HyPsd@UTFviii@two
1903   \let\UTFviii@three@octets\HyPsd@UTFviii@three
1904   \let\UTFviii@four@octets\HyPsd@UTFviii@four
1905   \ifx~\HyPsd@UTFviii@ccxliv@undef
1906     \let~\HyPsd@UTFviii@ccxliv@def
1907   \fi
1908   \let\unichar\HyPsd@unichar
1909 }%
1910 }%
1911 \def\HyPsd@UTFviii@ccxliv@undef{\@inpenc@undefined@{utf8}}%
1912 \edef\HyPsd@UTFviii@ccxliv@def{%
1913   \noexpand\UTFviii@four@octets\string ^^f4%
1914 }%

```

The two octet form of UTF-8 110aaabb (A) and 10cccd (B) must be converted into octal numbers 00a and bcd. The result is `\8a\bcd` (with a, b, c, d as octal numbers). The conversion equations.

$$a := A/4 - 48 \quad (1)$$

$$b := A - 4 * (A/4) \quad (2)$$

$$c := B/8 - 8 * ((8 * (B/8))/8) \quad (3)$$

$$d := B - 8 * (B/8) \quad (4)$$

$$(5)$$

```

1915 \def\HyPsd@UTFviii@two#1#2{%
1916   \expandafter\HyPsd@UTFviii@two
1917   \number\dimexpr.25\dimexpr`#1sp\expandafter\relax\expandafter| %
1918   \number`#1\expandafter| %
1919   \number\dimexpr.125\dimexpr`#2sp\expandafter\relax\expandafter| %
1920   \number`#2 \@nil
1921 }%
1922 \def\HyPsd@UTFviii@two#1|#2|#3|#4|\@nil{%
1923   \expandafter\8%
1924   \number\dimexpr #1-48\expandafter\relax
1925   \csname\number\dimexpr #2-4*#1\relax\expandafter\endcsname
1926   \number\dimexpr #3-8*%
1927   \number\dimexpr.125\dimexpr#3sp\relax\relax\expandafter\relax
1928   \number\dimexpr #4-8*#3\relax
1929 }%

```

Three octet form: 1110aabb (A), 10bcccd (B), and 10eeefff (C). The result is `\9abc\def` (with a, ..., f as octal numbers). The conversion equations:

$$a := A/4 - 56 \quad (6)$$

$$\begin{aligned}
b &:= 2 * (A - 4 * (A/4)) + ((B - 128 < 32)?0 : 1) & (7) \\
c &:= B/4 - 32 - ((B - 128 < 32)?0 : 8) & (8) \\
d &:= B - 4 * (B/4) & (9) \\
e &:= C/8 - 16 & (10) \\
f &:= C - 8 * (C/8) & (11) \\
& & (12)
\end{aligned}$$

```

1930 \def\HyPsd@UTFviii@three#1#2#3{%
1931   \expandafter\HyPsd@UTFviii@@three
1932   \number\dimexpr.25\dimexpr`#1sp\expandafter\relax\expandafter| %
1933   \number`#1\expandafter| %
1934   \number\ifnum\dimexpr`#2-128\relax <32 0\else 1\fi\expandafter| %
1935   \number\dimexpr.25\dimexpr`#2sp\expandafter\relax\expandafter| %
1936   \number`#2\expandafter| %
1937   \number\dimexpr.125\dimexpr`#3sp\expandafter\relax\expandafter| %
1938   \number`#3 \@nil
1939 }%
1940 \def\HyPsd@UTFviii@@three#1|#2|#3|#4|#5|#6|#7\@nil{%
1941   \expandafter\9%
1942   \number\dimexpr #1-56\expandafter\relax
1943   \number\dimexpr 2*(#2-4*#1)+#3\expandafter\relax
1944   \number\dimexpr #4 - 32 -\ifcase#3 0\else 8\fi\expandafter\relax
1945   \csname\number\dimexpr #5-4*#4\relax\expandafter\endcsname
1946   \number\dimexpr #6-16\expandafter\relax
1947   \number\dimexpr #7-8*#6\relax
1948 }%

```

Surrogates: 4 octets in UTF-8, a surrogate pair in UTF-16. High surrogate range: U+D800-U+DBFF, low surrogate range: U+DC00-U+DFFF.

```

UTF-8: 11110uuu 10uuzzzz 10yyyyyy 10xxxxxx
www = uuuu - 1
UTF-16: 110110ww wwzzzyy 11011yy yyxxxxx
octal: 011 011 0ww 0ww zzz zyy 011 011 1yy 0yy xxx xxx

```

```

1949 \def\HyPsd@UTFviii@four#1#2{%
1950   \expandafter\HyPsd@@UTFviii@four\number
1951   \dimexpr-1+(\`#1-240)*4+\dimexpr.0625\dimexpr`#2sp-128sp%
1952   \expandafter|\number
1953   \dimexpr`#2-16*\dimexpr.0625\dimexpr`#2sp| %
1954 }%
1955 \def\HyPsd@@UTFviii@four#1|#2|#3{%
1956   \933\dimexpr.25\dimexpr#1sp\relax\relax
1957   \csname\dimexpr#1-4*\dimexpr.25\dimexpr#1sp\endcsname
1958   \ifodd#2 %
1959     \number\dimexpr(#2-1)/2\relax
1960   \else
1961     \number\dimexpr#2/2\relax
1962   \fi
1963   \number\dimexpr\ifodd#2 4+\fi
1964   \dimexpr.0625\dimexpr`#3sp-128sp\relax\relax\relax
1965   \933%
1966   \expandafter\HyPsd@@@UTFviii@four\number
1967   \dimexpr`#3-16*\dimexpr.0625\dimexpr`#3sp| %

```

```

1968 }%
1969 \def\HyPsd@@@UTFviii@four#1|#2{%
1970   \number\numexpr4+\dimexpr.25\dimexpr#1sp\relax\relax\relax
1971   \csmame\number\numexpr#1-4*\dimexpr.25\dimexpr#1sp\endcsname
1972   \number\dimexpr.125\dimexpr`#2sp-128sp\relax\relax
1973   \number\numexpr`#2-8*\dimexpr.125\dimexpr`#2sp\relax\relax\relax
1974 }%

```

Input encoding utf8x of package ucs uses macro \unichar. Values greater than "FFFF are not supported.

```

1975 \def\HyPsd@unichar#1{%
1976   \ifHy@unicode
1977     \ifnum#1>"10FFFF %
1978       \HyPsd@UnicodeReplacementCharacter % illegal
1979     \else
1980       \ifnum#1>"FFFF %

```

High-surrogate code point. ("D800 = 55296, \p@ = 1pt = 65536sp)

```

1981   \expandafter\HyPsd@unichar\expandafter{%
1982     \number\numexpr 55296+%
1983     \dimexpr.0009765625\dimexpr\number#1sp-\p@
1984     \relax\relax\relax
1985   }%

```

Low-surrogate code point. ("DC00 = 56320, "DC00 - 65536 = -9216)

```

1986   \expandafter\HyPsd@unichar\expandafter{%
1987     \number\numexpr#1-9216%
1988     -1024*\dimexpr.0009765625\dimexpr\number#1sp-\p@
1989     \relax\relax\relax
1990   }%
1991   \else
1992     \ifnum#1>"7FFF %
1993       \9%
1994       \expandafter\HyPsd@unichar@first@byte\expandafter{%
1995         \number
1996         \dimexpr.00390625\dimexpr\number#1sp\relax\relax
1997       }%
1998     \else
1999       \8%
2000       \number\dimexpr.00390625\dimexpr\number#1sp\relax\relax
2001     \fi
2002     \expandafter\HyPsd@unichar@second@byte\expandafter{%
2003       \number
2004       \numexpr#1-256*\number
2005       \dimexpr.00390625\dimexpr\number#1sp\relax\relax\relax
2006     }%
2007     \fi
2008     \fi
2009   \else
2010     .% unsupported (Unicode -> PDF Doc Encoding)
2011     \fi
2012   }%
2013 \def\HyPsd@UnicodeReplacementCharacter{\9377\375}%
2014 \def\HyPsd@unichar@first@byte#1{%
2015   \number\dimexpr.015625\dimexpr#1sp\relax\relax

```



```

2016 \expandafter\HyPsd@unichar@octtwo\expandafter{%
2017 \number
2018 \numexpr#1-64*\number\dimexpr.015625\dimexpr#1sp%
2019 \relax\relax\relax
2020 }%
2021 }%
2022 \def\HyPsd@unichar@second@byte#1{%
2023 \csname\number\dimexpr.015625\dimexpr#1sp\relax\relax\endcsname
2024 \expandafter\HyPsd@unichar@octtwo\expandafter{%
2025 \number
2026 \numexpr#1-64*\number\dimexpr.015625\dimexpr#1sp%
2027 \relax\relax\relax
2028 }%
2029 }%
2030 \def\HyPsd@unichar@octtwo#1{%
2031 \number\dimexpr.125\dimexpr#1sp\relax\relax
2032 \number\dimexpr#1-8*\number\dimexpr.125\dimexpr#1sp%
2033 \relax\relax\relax
2034 }%

```

\HyPsd@utf@viii@undeferr \utf@viii@undeferr comes from file utf8x.def from package ucs.

```

2035 \def\HyPsd@utf@viii@undeferr#1#2#3#4#5#6{%
2036 \ifx\@gobble#1%
2037 \else
2038 [Please insert \textbackslash PrerenderUnicode%
2039 \textbraceleft#1\textbraceright\space
2040 into preamble]%
2041 \fi
2042 }%

```

### 6.6.10 Support for die faces (ifsym et. al.)

\HyPsd@DieFace Die faces are provided by

Package	Macro
ifsym	\Cube
epsdice	\epsdice
hhcount	\fcdice

\Cube and \epsdice restrict the range to the numbers one to six. \fcdice generates for larger numbers several dice faces with the sum matching the number. The implementation for the PDF strings follows \fcdice.

```

2043 \def\HyPsd@DieFace#1{%
2044 \ifHy@unicode
2045 \ifnum#1<1 %
2046 \HyPsd@UnicodeReplacementCharacter
2047 \else
2048 \ifnum#1>6 %
2049 \9046\205%
2050 \expandafter\expandafter\expandafter
2051 \HyPsd@DieFaceLarge\intcalcSub{#1}{6}!%
2052 \else
2053 \9046\20\intcalcDec{#1}%
2054 \fi

```

```

2055 \fi
2056 \else
2057 .% Die faces are not part of PDFDocEncoding
2058 \fi
2059 }

```

\HyPsd@DieFaceLarge

```

2060 \def\HyPsd@DieFaceLarge#1{%
2061 \ifnum#1>6 %
2062 \expandafter\ltx@firstoftwo
2063 \else
2064 \expandafter\ltx@secondoftwo
2065 \fi
2066 {%
2067 \9046\205%
2068 \expandafter\expandafter\expandafter
2069 \HyPsd@DieFaceLarge\IntCalcSub#1!6!!%
2070 }{%
2071 \9046\20\IntCalcDec#1!%
2072 }%
2073 }

```

#### 6.6.11 Support for moon phases of package china2e

```

2074 \def\HyPsd@MoonPha#1{%
2075 \ifcase\intcalcNum{#1} %
2076 \HyPsd@UnicodeReplacementCharacter
2077 \or % 1
2078 % U+1F31A NEW MOON WITH FACE; \MoonPha{1} (china2e)
2079 \9330\074\9337\032%
2080 \or % 2
2081 \HyPsd@UnicodeReplacementCharacter
2082 \or % 3
2083 % U+1F31D FULL MOON WITH FACE; \MoonPha{3} (china2e)
2084 \9330\074\9337\035%
2085 \or % 4
2086 % U+1F31C LAST QUARTER MOON WITH FACE; \MoonPha{4} (china2e)
2087 \9330\074\9337\034%
2088 \else
2089 \HyPsd@UnicodeReplacementCharacter
2090 \fi
2091 }
2092 %* \HyPsd@MoonPha -> \MoonPha

```

#### 6.6.12 Support for package pifont

\HyPsd@ding

```

2093 \def\HyPsd@ding#1{%
2094 \ifHy@unicode
2095 \ifnum#1<32 %
2096 \HyPsd@UnicodeReplacementCharacter
2097 \else
2098 \ifnum#1>254 %
2099 \HyPsd@UnicodeReplacementCharacter
2100 \else

```

```

2101 \ifnum#1<127 %
2102 \expandafter\expandafter\expandafter
2103 \HyPsd@@ding\intcalcNum{#1}!%
2104 \else
2105 \ifnum#1>160 %
2106 \expandafter\expandafter\expandafter
2107 \HyPsd@@ding\intcalcNum{#1}!%
2108 \else
2109 \HyPsd@UnicodeReplacementCharacter
2110 \fi
2111 \fi
2112 \fi
2113 \fi
2114 \else
2115 .% Dingbats are not part of PDFDocEncoding
2116 \fi
2117 }

```

\HyPsd@@ding

```

2118 \def\HyPsd@@ding#1!{%
2119 \ltx@ifundefined{HyPsd@ding@#1}{%
2120 \ifnum#1<127 %
2121 \9047%
2122 \HyPsd@DecimalToOctalSecond{\IntCalcSub#1!32!}%
2123 \else
2124 \ifnum#1<168 %
2125 \9047\14\IntCalcSub#1!160!%
2126 \else
2127 \ifnum#1>181 %
2128 \9047\HyPsd@DecimalToOctalSecond{\IntCalcSub#1!64!}%
2129 \else
2130 % 172..181 -> U+2460..U+2469
2131 \9044\HyPsd@DecimalToOctalSecond{\IntCalcSub#1!76!}%
2132 \fi
2133 \fi
2134 \fi
2135 }{%
2136 \csname HyPsd@ding@#1\endcsname
2137 }%
2138 }

2139 \@namedef{HyPsd@ding@32}{\space}
2140 % U+260E BLACK TELEPHONE
2141 \@namedef{HyPsd@ding@37}{\9046\016}% U+260E
2142 % U+261B BLACK RIGHT POINTING INDEX
2143 \@namedef{HyPsd@ding@42}{\9046\033}% U+261B
2144 % U+261E WHITE RIGHT POINTING INDEX
2145 \@namedef{HyPsd@ding@43}{\9046\036}% U+261E
2146 % U+2605 BLACK STAR
2147 \@namedef{HyPsd@ding@72}{\9046\005}% U+2605
2148 % U+25CF BLACK CIRCLE
2149 \@namedef{HyPsd@ding@108}{\9045\317}% U+25CF
2150 % U+25A0 BLACK SQUARE
2151 \@namedef{HyPsd@ding@110}{\9045\240}% U+25A0

```

```

2152 % U+25B2 BLACK UP-POINTING TRIANGLE
2153 \@namedef{HyPsd@ding@115}{\9045\262}% U+25B2
2154 % U+25BC BLACK DOWN-POINTING TRIANGLE
2155 \@namedef{HyPsd@ding@116}{\9045\274}% U+25BC
2156 % U+25C6 BLACK DIAMOND
2157 \@namedef{HyPsd@ding@117}{\9045\306}% U+25C6
2158 % U+25D7 RIGHT HALF BLACK CIRCLE
2159 \@namedef{HyPsd@ding@119}{\9045\327}% U+25D7
2160 \@namedef{HyPsd@ding@168}{\textclubsuitblack}%
2161 \@namedef{HyPsd@ding@169}{\textdiamondsuitblack}%
2162 \@namedef{HyPsd@ding@170}{\textheartsuitblack}%
2163 \@namedef{HyPsd@ding@171}{\textspadesuitblack}%
2164 \@namedef{HyPsd@ding@213}{\textrightarrow}%
2165 \@namedef{HyPsd@ding@214}{\textleftarrow}%
2166 \@namedef{HyPsd@ding@215}{\textupdownarrow}%
2167 \@namedef{HyPsd@ding@240}{\HyPsd@UnicodeReplacementCharacter}

```

## 7 Support of other packages

### 7.1 Package subfigure

Added fix for version 2.1. Here `\sub@label` is defined.

```

2168 \@ifpackageloaded{subfigure}{%
2169   \ltx@ifundefined{sub@label}{%
2170     \Hy@hypertextnamesfalse
2171   }{%
2172     \renewcommand*{\sub@label}[1]{%
2173       \@bsphack
2174       \subfig@oldlabel{#1}%
2175       \if@filesw
2176         \begingroup
2177           \edef\@currentlabstr{%
2178             \expandafter\strip@prefix\meaning\@currentlabelname
2179           }%
2180           \protected@write\@auxout{}{%
2181             \string\newlabel{sub@#1}{%
2182               {\@nameuse{@@thesub}\@capytype}}%
2183             {\thepage}%
2184             {%
2185               \expandafter\strip@period\@currentlabstr
2186               \relax.\relax\@@@%
2187             }%
2188             {\@currentHref}%
2189             {}%
2190           }%
2191         }%
2192       \endgroup
2193     \fi
2194     \@esphack
2195   }%
2196 }%
2197 }{}

```

## 7.2 Package xr and xr-hyper

The beta version of xr that supports \XR@addURL is called **xr-hyper**. If reading external aux files check whether they have a non zero fourth field in \newlabel and if so, add the URL as the fifth field. Change 2023-05-14: xr-hyper adds the field.

```
2198 \def\Hy@true{true}
2199 \def\Hy@false{false}

    Providing dummy definitions.

2200 \let\literalps@out\@gobble
2201 \newcommand\pdfbookmark[3][]{ }
2202 \def\Acrobatmenu#1#2{\leavevmode#2}
2203 \def\Hy@writebookmark#1#2#3#4#5{ }%
```

## 8 Help macros for links

Anchors get created on the baseline of where they occur. If an XYZ PDF view is set, this means that the link places the top of the screen *on the baseline* of the target. If this is an equation, for instance, it means that you cannot see anything. Some links, of course, are created at the start of environments, and so it works. To allow for this, anchors are raised, where possible, by some small amount. This defaults to \baselineskip, but users can set it to something else in two ways (thanks to Heiko Oberdiek for suggesting this):

1. Redefine \HyperRaiseLinkDefault to be eg the height of a \strut
2. Redefine \HyperRaiseLinkHook to do something complicated; it must give a value to \HyperRaiseLinkLength, which is what actually gets used

```
2204 \let\HyperRaiseLinkHook\@empty
2205 \def\HyperRaiseLinkDefault{\baselineskip}
```

\HyperRaiseLinkHook allows the user to reassign \HyperRaiseLinkLength.

```
2206 \newcount\Hy@SavedSpaceFactor
2207 \def\Hy@SaveSpaceFactor{%
2208   \global\Hy@SavedSpaceFactor=\ifhmode\spacefactor\else\z@\fi
2209 }
2210 \def\Hy@RestoreSpaceFactor{%
2211   \relax
2212   \ifhmode
2213     \ifnum\Hy@SavedSpaceFactor>\z@
2214       \spacefactor=\Hy@SavedSpaceFactor
2215     \fi
2216   \fi
2217 }
2218 \def\Hy@SaveSavedSpaceFactor{%
2219   \edef\Hy@RestoreSavedSpaceFactor{%
2220     \global\Hy@SavedSpaceFactor=\the\Hy@SavedSpaceFactor\relax
2221   }%
2222 }
```

Packages like varwidth need an option to change the handling in vmode. (Issue #204). With a new format we therefore insert a socket.

```

2223 \@if@t@r\fmtversion{2023-11-01}
2224 {\NewSocket{hyp/raisedlink}{1}}
2225 {\providecommand\UseSocket[2]{#2}}
2226 \def\Hy@raisedlink#1{%
2227   \ifvmode
2228     \UseSocket{hyp/raisedlink}{#1}%
2229   \else
2230     \Hy@SaveSpaceFactor
2231     \penalty\@M
2232     \smash{%
2233       \begin{group}
2234         \let\HyperRaiseLinkLength\@tempdima
2235         \setlength\HyperRaiseLinkLength\HyperRaiseLinkDefault
2236         \HyperRaiseLinkHook
2237       \expandafter\endgroup
2238       \expandafter\raise\the\HyperRaiseLinkLength\hbox{%
2239         \Hy@RestoreSpaceFactor
2240         #1%
2241         \Hy@SaveSpaceFactor
2242       }%
2243     }%
2244     \Hy@RestoreSpaceFactor
2245   \fi
2246 }

```

\Hy@SaveLastskip Inserting a \special command to set a destination destroys the \lastskip value.

```

\Hy@RestoreLastskip 2247 \def\Hy@SaveLastskip{%
2248   \let\Hy@RestoreLastskip\relax
2249   \ifvmode
2250     \ifdim\lastskip=\z@
2251       \ifnum\lastnodetype=1 %
2252         \let\Hy@RestoreLastskip\relax
2253       \else
2254         \let\Hy@RestoreLastskip\nobreak
2255       \fi
2256     \else
2257       \begin{group}
2258         \skip@=-\lastskip
2259         \edef\x{%
2260           \endgroup
2261           \def\noexpand\Hy@RestoreLastskip{%
2262             \noexpand\ifvmode
2263               \noexpand\nobreak
2264               \vskip\the\skip@
2265               \vskip\the\lastskip\relax
2266             \noexpand\fi
2267           }%
2268         }%
2269       \x
2270     \fi
2271   \else
2272     \ifhmode
2273       \ifdim\lastskip=\z@
2274         \let\Hy@RestoreLastskip\nobreak

```

```

2275 \else
2276 \begingroup
2277 \skip@=-\lastskip
2278 \edef\x{%
2279 \endgroup
2280 \def\noexpand\Hy@RestoreLastskip{%
2281 \noexpand\ifhmode
2282 \noexpand\nobreak
2283 \hskip\the\skip@
2284 \hskip\the\lastskip\relax
2285 \noexpand\fi
2286 }%
2287 }%
2288 \x
2289 \fi
2290 \fi
2291 \fi
2292 }%

```

## 9 Options

```

2293 \SetupKeyvalOptions{%
2294 family=Hyp,%
2295 prefix=HyOpt%
2296 }

```

### 9.1 Help macros

Package like hyperxmp want to retrieve the value of keys like `pdfauthor`. To avoid that we have two parallel interfaces we provide the interface from the `pdfmanagement/ltldocinit` if it doesn't exist.

```

\AddToDocumentProperties
\GetDocumentProperties 2297 \ExplSyntaxOn
2298 \@ifundefined{AddToDocumentProperties}
2299 {
2300 \prop_new:N \g__hyp_documentproperties_prop
2301 \NewDocumentCommand\AddToDocumentProperties{O{\@currname}mm}
2302 {
2303 \exp_args:NNx
2304 \prop_gput:Nnn \g__hyp_documentproperties_prop
2305 {
2306 \tl_if_blank:eTF {#1}{top-level/}{#1/} #2
2307 }
2308 { #3}
2309 }
2310 \NewExpandableDocumentCommand\GetDocumentProperties{m}
2311 {
2312 \prop_item:Nn \g__hyp_documentproperties_prop {#1}
2313 }
2314 }{}
2315 \ExplSyntaxOff

\IfHyperBooleanExists

```

```

2316 \def\IfHyperBooleanExists#1{%
2317   \ltx@ifundefined{Hy@#1}{false}\ltx@secondoftwo{%
2318     \ltx@ifundefined{KV@Hyp@#1@default}\ltx@secondoftwo\ltx@firstoftwo
2319   }%
2320 }

2321 \@namedef{KV@Hyp@stoppeearly@default}{}

```

\IfHyperBoolean

```

2322 \def\IfHyperBoolean#1{%
2323   \IfHyperBooleanExists{#1}{%
2324     \csname ifHy@#1\endcsname
2325     \expandafter\ltx@firstoftwo
2326   \else
2327     \expandafter\ltx@secondoftwo
2328   \fi
2329 } \ltx@secondoftwo
2330 }

```

\Hy@boolkey

```

2331 \def\Hy@boolkey#1#2{%
2332   \edef\Hy@tempa{#2}%
2333   \lowercase\expandafter{%
2334     \expandafter\def\expandafter\Hy@tempa\expandafter{\Hy@tempa}%
2335   }%
2336   \ifx\Hy@tempa\@empty
2337     \let\Hy@tempa\Hy@true
2338   \fi
2339   \ifx\Hy@tempa\Hy@true
2340   \else
2341     \ifx\Hy@tempa\Hy@false
2342     \else
2343       \let\Hy@tempa\relax
2344     \fi
2345   \fi
2346   \ifx\Hy@tempa\relax
2347     \Hy@WarnOptionValue{#2}{#1}{`true' or `false'}%
2348   \else
2349     \Hy@Info{Option `#1' set ``\Hy@tempa'}%
2350     \csname Hy@#1\Hy@tempa\endcsname
2351   \fi
2352 }

```

\Hy@WarnOptionValue

```

2353 \def\Hy@WarnOptionValue#1#2#3{%
2354   \Hy@Warning{%
2355     Unexpected value `#1'\MessageBreak
2356     of option `#2' instead of\MessageBreak
2357     #3%
2358   }%
2359 }

```

\Hy@DisableOption

```

2360 \def\Hy@DisableOption#1{%

```



```

2361 \ltx@ifundefined{KV@Hyp@#1@default}{%
2362   \define@key{Hyp}{#1}%
2363 }{%
2364   \define@key{Hyp}{#1}[]%
2365 }%
2366 {\Hy@WarnOptionDisabled{#1}}%
2367 }
2368

```

`\Hy@WarnOptionDisabled`

```

2369 \def\Hy@WarnOptionDisabled#1{%
2370   \Hy@Warning{%
2371     Option `#1' has already been used,\MessageBreak
2372     setting the option has no effect%
2373   }%
2374 }

```

`\Hy@CheckOptionValue` Some options take a string value out of a limited set of values. Macro `\Hy@CheckOptionValue` checks whether the given value `#1` for option `#2` is a member of the value list `#3`.

```

2375 \def\Hy@CheckOptionValue#1#2#3{%
2376   \begingroup
2377   \edef\x{#1}%
2378   \@onelevel@sanitize\x
2379   \let\y=y%
2380   \def\do##1##2{%
2381     \def\z{##1}%
2382     \@onelevel@sanitize\z
2383     \ifx\x\z
2384       \let\y=n%
2385       \let\do\@gobbletwo
2386     \fi
2387   }%
2388   #3%
2389   \ifx\y y%
2390     \def\do##1##2{%
2391       * `##1'%
2392       \ifx\\##2\\\else\space(##2)\fi
2393       \MessageBreak
2394     }%
2395     \Hy@Warning{%
2396       Values of option `#2':\MessageBreak
2397       #3%
2398       * An empty value disables the option.\MessageBreak
2399       Unknown value `x'%
2400     }%
2401   \fi
2402   \endgroup
2403 }

```

`\Hy@DefNameKey` `#1`: option name

`#2`: `\do` list with known values, first argument of `\do` is value, second argument is a comment.

```

2404 \def\Hy@DefNameKey#1{%
2405   \expandafter\Hy@@DefNameKey\csname @#1\endcsname{#1}%
2406 }

```

\Hy@@DefNameKey #1: macro for value storage

#2: option name

#3: \do list with known values.

```

2407 \def\Hy@@DefNameKey#1#2#3{%
2408   \define@key{Hyp}{#2}{%
2409     \edef#1{##1}%
2410     \ifx#1\@empty
2411       \else
2412         \Hy@CheckOptionValue{##1}{#2}{#3}%
2413       \fi
2414     }%
2415     \let#1\@empty
2416 }

```

\Hy@UseNameKey

```

2417 \def\Hy@UseNameKey#1#2{%
2418   \ifx#2\@empty
2419     \else
2420       /#1/#2%
2421     \fi
2422 }

```

## 9.2 Defining the options

```

2423 \define@key{Hyp}{implicit}[true]{%
2424   \Hy@boolkey{implicit}{#1}%
2425 }
2426 \define@key{Hyp}{draft}[true]{%
2427   \Hy@boolkey{draft}{#1}%
2428 }
2429 \define@key{Hyp}{final}[true]{%
2430   \Hy@boolkey{final}{#1}%
2431 }
2432 \let\KV@Hyp@nolinks\KV@Hyp@draft
2433 \def\Hy@ObsoletePaperOption#1{%
2434   \Hy@WarningNoLine{%
2435     Option `#1' is no longer used%
2436   }%
2437   \define@key{Hyp}{#1}[true]{}%
2438 }
2439 \def\Hy@temp#1{%
2440   \define@key{Hyp}{#1}[true]{%
2441     \Hy@ObsoletePaperOption{#1}%
2442   }%
2443 }
2444 \Hy@temp{a4paper}
2445 \Hy@temp{a5paper}
2446 \Hy@temp{b5paper}
2447 \Hy@temp{letterpaper}

```

```

2448 \Hy@temp{legalpaper}
2449 \Hy@temp{executivepaper}

2450 \define@key{Hyp}{setpagesize}[true]{%
2451   \Hy@boolkey{setpagesize}{#1}%
2452 }
2453 \define@key{Hyp}{debug}[true]{%
2454   \Hy@boolkey{debug}{#1}%
2455 }
2456 \define@key{Hyp}{linktocpage}[true]{%
2457   \Hy@boolkey{linktocpage}{#1}%
2458   \ifHy@linktocpage
2459     \let\Hy@linktoc\Hy@linktoc@page
2460   \else
2461     \let\Hy@linktoc\Hy@linktoc@section
2462   \fi
2463 }
2464 \chardef\Hy@linktoc@none=0 %
2465 \chardef\Hy@linktoc@section=1 %
2466 \chardef\Hy@linktoc@page=2 %
2467 \chardef\Hy@linktoc@all=3 %
2468 \ifHy@linktocpage
2469   \let\Hy@linktoc\Hy@linktoc@page
2470 \else
2471   \let\Hy@linktoc\Hy@linktoc@section
2472 \fi
2473 \define@key{Hyp}{linktoc}{%
2474   \@ifundefined{Hy@linktoc@#1}{%
2475     \Hy@Warning{%
2476       Unexpected value `#1' of\MessageBreak
2477       option `linktoc' instead of `none',\MessageBreak
2478       `section', `page' or `all'%
2479     }%
2480   }{%
2481     \expandafter\let\expandafter\Hy@linktoc
2482     \csname Hy@linktoc@#1\endcsname
2483   }%
2484 }
2485 \define@key{Hyp}{extension}{\def\XR@ext{#1}}
2486 \let\XR@ext\relax
2487 \define@key{Hyp}{verbose}[true]{%
2488   \Hy@boolkey{verbose}{#1}%
2489 }

```

If we are going to PDF via HyperTeX `\special` commands, the dvips (-z option) processor does not know the *height* of a link, as it works solely on the position of the closing `\special`. If we use this option, the `\special` is raised up by the right amount, to fool the dvi processor.

```

2490 \define@key{Hyp}{raiselinks}[true]{%
2491   \Hy@boolkey{raiselinks}{#1}%
2492 }

```

Most PDF-creating drivers do not allow links to be broken

```

2493 \def\Hy@setbreaklinks#1{%
2494   \csname breaklinks#1\endcsname
2495 }

```

```

2496 \def\Hy@breaklinks@unsupported{%
2497   \ifx\Hy@setbreaklinks\@gobble
2498     \ifHy@breaklinks
2499       \Hy@WarningNoLine{%
2500         You have enabled option `breaklinks'.\MessageBreak
2501         But driver ``\Hy@driver.def' does not support this.\MessageBreak
2502         Expect trouble with the link areas of broken links%
2503       }%
2504     \fi
2505   \fi
2506 }

2507 \define@key{Hyp}{breaklinks}[true]{%
2508   \Hy@boolkey{breaklinks}{#1}%
2509   \let\Hy@setbreaklinks\@gobble
2510 }

2511 \define@key{Hyp}{localanchorname}[true]{%
2512   \Hy@WarningNoLine{%
2513     Option `localanchorname' is deprecated%
2514   }%
2515   \Hy@boolkey{localanchorname}{#1}%
2516 }

Determines whether an automatic anchor is put on each page
2517 \define@key{Hyp}{pageanchor}[true]{%
2518   \Hy@boolkey{pageanchor}{#1}%
2519 }

Are the page links done as plain arabic numbers, or do they follow the formatting
of the package? The latter loses if you put in typesetting like \textbf or the like.
2520 \define@key{Hyp}{plainpages}[true]{%
2521   \Hy@boolkey{plainpages}{#1}%
2522 }

Are the names for anchors made as per the HyperTeX system, or do they simply
use what LATEX provides?
2523 \define@key{Hyp}{naturalnames}[true]{%
2524   \Hy@boolkey{naturalnames}{#1}%
2525 }

Completely ignore the names as per the HyperTeX system, and use unique coun-
ters.
2526 \define@key{Hyp}{hypertexnames}[true]{%
2527   \Hy@boolkey{hypertexnames}{#1}%
2528 }

Currently, dvips doesn't allow anchors nested within targets, so this option tries
to stop that happening. Other processors may be able to cope.
2529 \define@key{Hyp}{nesting}[true]{%
2530   \Hy@boolkey{nesting}{#1}%
2531 }

2532 \define@key{Hyp}{destlabel}[true]{%
2533   \Hy@boolkey{destlabel}{#1}%
2534 }

2535 \define@key{Hyp}{unicode}[true]{%
2536   \Hy@boolkey{unicode}{#1}%

```

```

2537 \ifHy@unicode
2538   \def\HyPsd@pdfencoding{unicode}%
2539   \HyPsd@LoadUnicode
2540 \else
2541   \def\HyPsd@pdfencoding{pdfdoc}%
2542 \fi
2543 }
2544 \Hy@AtBeginDocument{%
2545   \ifx\HyPsd@LoadUnicode\relax
2546   \else
2547     \def\HyPsd@LoadUnicode{%
2548       \Hy@Error{%
2549         Unicode support for bookmarks is not available.\MessageBreak
2550         Activate unicode support by using one of the options\MessageBreak
2551         `unicode', `pdfencoding=unicode', `pdfencoding=auto'\MessageBreak
2552         in the preamble%
2553       }\@ehc
2554       \global\let\HyPsd@LoadUnicode\relax
2555       \global\Hy@unicodedefalse
2556       \global\let\Hy@unicodetrue\Hy@unicodedefalse
2557     }%
2558   \fi
2559 }

2560 \define@key{Hyp}{pdfencoding}{%
2561   \edef\HyPsd@temp{#1}%
2562   \ifx\HyPsd@temp\HyPsd@pdfencoding@pdfdoc
2563     \let\HyPsd@pdfencoding\HyPsd@temp
2564     \Hy@unicodedefalse
2565   \else
2566     \ifcase\ifx\HyPsd@temp\HyPsd@pdfencoding@unicode
2567       \z@
2568     \else
2569       \ifx\HyPsd@temp\HyPsd@pdfencoding@auto
2570         \z@
2571       \else
2572         \@ne
2573       \fi
2574     \fi
2575     \let\HyPsd@pdfencoding\HyPsd@temp
2576     \hypersetup{unicode}%
2577     \ifHy@unicode
2578       \def\HyPsd@pdfencoding{#1}%
2579       \ifx\HyPsd@pdfencoding\HyPsd@pdfencoding@auto
2580         \HyPsd@LoadStringEncoding
2581       \fi
2582     \else
2583       \Hy@Warning{Cannot switch to unicode bookmarks}%
2584       \let\HyPsd@pdfencoding\HyPsd@pdfencoding@pdfdoc
2585     \fi
2586   \else
2587     \@onelevel@sanitize\HyPsd@temp
2588     \Hy@Warning{%
2589       Values of option `pdfencoding':\MessageBreak
2590       `pdfdoc', `unicode', `auto'.\MessageBreak

```

```

2591     Ignoring unknown value ``\HyPsd@temp'%
2592   }%
2593   \fi
2594 \fi
2595 }
2596 \def\HyPsd@pdfencoding@auto{auto}
2597 \def\HyPsd@pdfencoding@pdfdoc{pdfdoc}
2598 \def\HyPsd@pdfencoding@unicode{unicode}

```

change 2020-08-14, use unicode by default:

```

2599 \let\HyPsd@pdfencoding\HyPsd@pdfencoding@unicode
2600 \HyPsd@LoadUnicode
2601 \def\HyPsd@LoadStringEnc{%
2602   \RequirePackage{stringenc}[2009/12/15]%
2603   \let\HyPsd@LoadStringEnc\relax
2604 }
2605 \Hy@AtBeginDocument{%
2606   \ifpackageloaded{stringenc}{%
2607     \let\HyPsd@LoadStringEnc\relax
2608   }{%
2609     \def\HyPsd@LoadStringEnc{%
2610       \Hy@WarningNoLine{%
2611         Missing package `stringenc'. Use `pdfencoding=auto'\MessageBreak
2612         in the preamble or load the package there%
2613       }%
2614     }%
2615   }%
2616 }
2617 \define@key{Hyp}{psdextra}[true]{%
2618   \Hy@boolkey{psdextra}{#1}%
2619   \HyPsd@LoadExtra
2620 }
2621 \def\hypersetup{\kvsetkeys{Hyp}}
2622 \newif\ifHy@setpdfversion
2623 \define@key{Hyp}{pdfversion}{%
2624   \@ifundefined{Hy@pdfversion@#1}{%
2625     \PackageWarning{hyperref}{%
2626       Unsupported PDF version `#1'.\MessageBreak
2627       Valid values: 1.2-1.7, 2.0%
2628     }%
2629   }{%
2630     \Hy@setpdfversiontrue
2631     \@nameuse{Hy@pdfversion@#1}%
2632   }%
2633 }

```

\Hy@pdfminorversion already used elsewhere to denote \pdfminorversion or \pdfvariable majorversion} so introduce new names here.

```

2634 \@namedef{Hy@pdfversion@1.2}{\def\Hy@pdf@majorversion{1}\def\Hy@pdf@mi-
  norversion{2}}%
2635 \@namedef{Hy@pdfversion@1.3}{\def\Hy@pdf@majorversion{1}\def\Hy@pdf@mi-
  norversion{3}}%
2636 \@namedef{Hy@pdfversion@1.4}{\def\Hy@pdf@majorversion{1}\def\Hy@pdf@mi-
  norversion{4}}%

```

```

2637 \@namedef{Hy@pdfversion@1.5}{\def\Hy@pdf@majorversion{1}\def\Hy@pdf@mi-
norversion{5}}%
2638 \@namedef{Hy@pdfversion@1.6}{\def\Hy@pdf@majorversion{1}\def\Hy@pdf@mi-
norversion{6}}%
2639 \@namedef{Hy@pdfversion@1.7}{\def\Hy@pdf@majorversion{1}\def\Hy@pdf@mi-
norversion{7}}%
2640 \@namedef{Hy@pdfversion@2.0}{\def\Hy@pdf@majorversion{2}\def\Hy@pdf@mi-
norversion{0}}%
2641 \def\Hy@pdf@majorversion{1}\def\Hy@pdf@minorversion{5}
Legacy name, earlier releases assumed 1.x
2642 \let\Hy@pdfversion\Hy@pdf@minorversion
2643 \def\Hy@pdf@majorminor@version{\numexpr100*\Hy@pdf@majorversion+\Hy@pdf@mi-
norversion\relax}
2644 \def\Hy@pdfmajorminor@version{\numexpr100*\Hy@pdfmajorversion+\Hy@pdfmi-
norversion\relax}
if pdfminorversion is defined, make sure pdfmajorversion is too.
2645 \@ifundefined{pdfminorversion}{}{%
2646 \@ifundefined{pdfmajorversion}{}%
2647 \newcount\pdfmajorversion
2648 \pdfmajorversion=1
2649 }{}%
2650 }
2651 \ifx\pdfmajorversion\@undefined\else
2652 \def\Hy@pdfmajorversion{\pdfmajorversion}
2653 \fi

```

## 10 Options for different drivers

```

2654 \newif\ifHy@DviMode
2655 \let\Hy@DviErrMsg\ltx@empty
2656 \ifpdf
2657 \def\Hy@DviErrMsg{pdfTeX or LuaTeX is running in PDF mode}%
2658 \else
2659 \ifxetex
2660 \def\Hy@DviErrMsg{XeTeX is running}%
2661 \else
2662 \ifvtex
2663 \ifnum\OpMode=\z@
2664 \Hy@DviModetrue
2665 \else
2666 \def\Hy@DviErrMsg{VTeX is running, but not in DVI mode}%
2667 \fi
2668 \else
2669 \Hy@DviModetrue
2670 \fi
2671 \fi
2672 \fi
2673 \def\Hy@Opt@CheckDvi#1{%
2674 \ifHy@DviMode
2675 \expandafter\ltx@firstofone
2676 \else
2677 \Hy@Error{%
2678 Wrong DVI mode driver option `#1',\MessageBreak
2679 because \Hy@DviErrMsg

```

```

2680   }\@ehc
2681   \expandafter\ltx@gobble
2682 \fi
2683 }

2684 \DeclareVoidOption{tex4ht}{%
2685   \Hy@texhttrue
2686   \kvsetkeys{Hyp}{colorlinks=true}%
2687   \def\BeforeTeXIVht{\RequirePackage{color}}%
2688   \def\Hy@driver{htex4ht}%
2689   \def\MaybeStopEarly{%
2690     \Hy@Message{Stopped early}%
2691     \Hy@AtBeginDocument{%
2692       \PDF@FinishDoc
2693       \gdef\PDF@FinishDoc{}%
2694     }%
2695     \endinput
2696   }%
2697 }

2698 \DeclareVoidOption{pdftex}{%
2699   \ifpdf
2700     \def\Hy@driver{hpdftex}%
2701     \PassOptionsToPackage{pdftex}{color}%
2702   \else
2703     \Hy@Error{%
2704       Wrong driver option `pdftex',\MessageBreak
2705       because pdfTeX in PDF mode is not detected%
2706     }\@ehc
2707   \fi
2708 }

2709 \DeclareVoidOption{luatex}{%
2710   \ifpdf
2711     \ifx\pdfextension\@undefined
2712       \def\Hy@driver{hpdftex}%
2713       \PassOptionsToPackage{pdftex}{color}%
2714     \else
2715       \def\Hy@driver{hluatex}%
2716       \PassOptionsToPackage{luatex}{color}%
2717     \fi
2718   \else
2719     \Hy@Error{%
2720       Wrong driver option `luatex',\MessageBreak
2721       because luaTeX in PDF mode is not detected%
2722     }\@ehc
2723   \fi
2724 }

2725 \DeclareVoidOption{nativepdf}{%
2726   \HyOpt@CheckDvi{nativepdf}{%
2727     \def\Hy@driver{hdvips}%
2728     \PassOptionsToPackage{dvips}{color}%
2729   }%
2730 }

2731 \DeclareVoidOption{dvipdfm}{%
2732   \HyOpt@CheckDvi{dvipdfm}{%
2733     \def\Hy@driver{hdvipdfm}%

```



```

2734 }%
2735 }
2736 \DeclareVoidOption{dvipdfmx}{%
2737   \HyOpt@CheckDvi{dvipdfmx}{%
2738     \def\Hy@driver{hdvipdfm}%
2739     \PassOptionsToPackage{dvipdfmx}{color}%
2740   }%
2741 }
2742 \define@key{Hyp}{dvipdfmx-outline-open}[true]{%
2743   \expandafter\ifx\csname if#1\expandafter\endcsname
2744     \csname iftrue\endcsname
2745     \chardef\SpecialDvipdfmxOutlineOpen\@ne
2746   \else
2747     \chardef\SpecialDvipdfmxOutlineOpen\z@
2748   \fi
2749 }
2750 \DeclareVoidOption{xetex}{%
2751   \ifxetex
2752     \def\Hy@driver{hxetex}%
2753   \else
2754     \Hy@Error{%
2755       Wrong driver option `xetex',\MessageBreak
2756       because XeTeX is not detected%
2757     }\@ehc
2758   \fi
2759 }
2760 \DeclareVoidOption{pdfmark}{%
2761   \HyOpt@CheckDvi{pdfmark}{%
2762     \def\Hy@driver{hdvips}%
2763   }%
2764 }
2765 \DeclareVoidOption{dvips}{%
2766   \HyOpt@CheckDvi{dvips}{%
2767     \def\Hy@driver{hdvips}%
2768     \PassOptionsToPackage{dvips}{color}%
2769   }%
2770 }
2771 \DeclareVoidOption{hypertex}{%
2772   \HyOpt@CheckDvi{hypertex}{%
2773     \def\Hy@driver{hypertex}%
2774   }%
2775 }
2776 \let\Hy@MaybeStopNow\relax
2777 \DeclareVoidOption{vtex}{%
2778   \ifvtex
2779     \ifnum 0\ifnum\OpMode<1 1\fi \ifnum\OpMode>3 1\fi =0 %
2780     \def\Hy@driver{hvtex}%
2781   \else
2782     \ifnum\OpMode=10\relax
2783     \def\Hy@driver{hvtexhtm}%
2784     \def\MaybeStopEarly{%
2785       \Hy@Message{Stopped early}%
2786       \Hy@AtBeginDocument{%
2787         \PDF@FinishDoc

```

```

2788         \gdef\PDF@FinishDoc{%
2789         }%
2790         \endinput
2791     }%
2792     \else
2793         \Hy@Error{%
2794             Wrong driver option `vtex',\MessageBreak
2795             because of wrong OpMode (\the\OpMode)%
2796         }\@ehc
2797     \fi
2798 \fi
2799 \else
2800     \Hy@Error{%
2801         Wrong driver option `vtex',\MessageBreak
2802         because VTeX is not running%
2803     }\@ehc
2804 \fi
2805 }
2806 \DeclareVoidOption{vtexpdfmark}{%
2807     \ifvtex
2808         \ifnum 0\ifnum\OpMode<1 1\fi \ifnum\OpMode>3 1\fi =0 %
2809         \def\Hy@driver{hvtexmrk}%
2810     \else
2811         \Hy@Error{%
2812             Wrong driver option `vtexpdfmark',\MessageBreak
2813             because of wrong OpMode (\the\OpMode)%
2814         }\@ehc
2815     \fi
2816 \else
2817     \Hy@Error{%
2818         Wrong driver option `vtexpdfmark,\MessageBreak
2819         because VTeX is not running%
2820     }\@ehc
2821 \fi
2822 }
2823 \DeclareVoidOption{dviwindo}{%
2824     \HyOpt@CheckDvi{dviwindo}{%
2825         \def\Hy@driver{hdviwind}%
2826         \kvsetkeys{Hyp}{colorlinks}%
2827         \PassOptionsToPackage{dviwindo}{color}%
2828     }%
2829 }
2830 \DeclareVoidOption{dvipsone}{%
2831     \HyOpt@CheckDvi{dvipsone}{%
2832         \def\Hy@driver{hdvipson}%
2833         \PassOptionsToPackage{dvipsone}{color}%
2834     }%
2835 }
2836 \DeclareVoidOption{textures}{%
2837     \HyOpt@CheckDvi{textures}{%
2838         \def\Hy@driver{htexture}%
2839     }%
2840 }
2841 \DeclareVoidOption{latex2html}{%

```

```

2842 \Hy@Warning{Option `latex2html` is obsolete. \MessageBreak
2843 A current html.sty will do all necessary (re)definitions%
2844 }%
2845 }
2846 \DeclareVoidOption{hitex}{%
2847 \ifhint
2848 \IfFileExists{hhitex.def}
2849 {\def\Hy@driver{hhitex}}}%
2850 {\Hy@Warning{%
2851 Missing driver file `hhitex.def',\MessageBreak
2852 ignoring hitex driver%
2853 }}%
2854 \else
2855 \Hy@Error{%
2856 Wrong driver option `hitex',\MessageBreak
2857 because HiTeX is not detected%
2858 } \@ehc
2859 \fi
2860 }

```

No more special treatment for ps2pdf. Let it sink or swim.

```

2861 \DeclareVoidOption{ps2pdf}{%
2862 \HyOpt@CheckDvi{ps2pdf}{%
2863 \def\Hy@driver{hdvips}%
2864 \PassOptionsToPackage{dvips}{color}%
2865 }%
2866 }
2867 \let\HyOpt@DriverFallback\ltx@empty
2868 \define@key{Hyp}{driverfallback}{%
2869 \ifHy@DviMode
2870 \def\HyOpt@DriverFallback{#1}%
2871 \Hy@Match\HyOpt@DriverFallback{}{%
2872 ~(|dvipdfm|dvipdfmx|dvips|dvipsone|dviwindo|hypertex|ps2pdf|
2873 latex2html|tex4ht)$%
2874 }{}{%
2875 \Hy@Warning{%
2876 Invalid driver `#1' for option\MessageBreak
2877 `driverfallback'%
2878 }%
2879 \let\HyOpt@DriverFallback\ltx@empty
2880 }%
2881 \fi
2882 }
2883 \let\HyOpt@CustomDriver\ltx@empty
2884 \define@key{Hyp}{customdriver}{%
2885 \IfFileExists{#1.def}{%
2886 \def\HyOpt@CustomDriver{#1}%
2887 }{%
2888 \Hy@Warning{%
2889 Missing driver file `#1.def',\MessageBreak
2890 ignoring custom driver%
2891 }%
2892 }%
2893 }

```

## 11 Options to add extra features

Make included figures (assuming they use the standard graphics package) be hypertext links. Off by default. Needs more work.

```
2894 \define@key{Hyp}{hyperfigures}[true]{%
2895   \Hy@boolkey{hyperfigures}{#1}%
2896 }
```

The automatic footnote linking can be disabled by option hyperfootnotes.

```
2897 \define@key{Hyp}{hyperfootnotes}[true]{%
2898   \Hy@boolkey{hyperfootnotes}{#1}%
2899 }
```

Set up back-referencing to be hyper links, by page, slide or section number,

```
2900 \def\back@none{none}
2901 \def\back@section{section}
2902 \def\back@page{page}
2903 \def\back@slide{slide}
2904 \define@key{Hyp}{backref}[section]{%
2905   \lowercase{\def\Hy@tempa{#1}}%
2906   \ifx\Hy@tempa\@empty
2907     \let\Hy@tempa\back@section
2908   \fi
2909   \ifx\Hy@tempa\Hy@false
2910     \let\Hy@tempa\back@none
2911   \fi
2912   \ifx\Hy@tempa\back@slide
2913     \let\Hy@tempa\back@section
2914   \fi
2915   \ifx\Hy@tempa\back@page
2916     \PassOptionsToPackage{hyperpageref}{backref}%
2917     \Hy@backreftrue
2918   \else
2919     \ifx\Hy@tempa\back@section
2920       \PassOptionsToPackage{hyperref}{backref}%
2921       \Hy@backreftrue
2922     \else
2923       \ifx\Hy@tempa\back@none
2924         \Hy@backreffalse
2925       \else
2926         \Hy@WarnOptionValue{#1}{backref}{%
2927           `section', `slide', `page', `none',\MessageBreak
2928           or `false'}%
2929       \fi
2930     \fi
2931   \fi
2932 }
2933 \define@key{Hyp}{pagebackref}[true]{%
2934   \edef\Hy@tempa{#1}%
2935   \lowercase\expandafter{%
2936     \expandafter\def\expandafter\Hy@tempa\expandafter{\Hy@tempa}%
2937   }%
2938   \ifx\Hy@tempa\@empty
2939     \let\Hy@tempa\Hy@true
2940   \fi
```

```

2941 \ifx\Hy@tempa\Hy@true
2942   \PassOptionsToPackage{hyperpageref}{backref}%
2943   \Hy@backreftrue
2944 \else
2945   \ifx\Hy@tempa\Hy@false
2946     \Hy@backreffalse
2947   \else
2948     \Hy@WarnOptionValue{#1}{pagebackref}{`true' or `false'}%
2949   \fi
2950 \fi
2951 }

```

Make index entries be links back to the relevant pages. By default this is turned on, but may be stopped.

```

2952 \define@key{Hyp}{hyperindex}[true]{%
2953   \Hy@boolkey{hyperindex}{#1}%
2954 }

```

Configuration of encap char.

```

2955 \define@key{Hyp}{encap}[|]{%
2956   \def\HyInd@EncapChar{#1}%
2957 }

```

## 12 Language options

The \autoref feature depends on the language.

```

2958 \def\HyLang@afrikaans{%
2959   \def\equationautorefname{Vergelyking}%
2960   \def\footnoteautorefname{Voetnota}%
2961   \def\itemautorefname{Item}%
2962   \def\figureautorefname{Figuur}%
2963   \def\tableautorefname{Tabel}%
2964   \def\partautorefname{Deel}%
2965   \def\appendixautorefname{Bylae}%
2966   \def\chapterautorefname{Hoofstuk}%
2967   \def\sectionautorefname{Afdeling}%
2968   \def\subsectionautorefname{Subafdeling}%
2969   \def\subsubsectionautorefname{Subsubafdeling}%
2970   \def\paragraphautorefname{Paragraaf}%
2971   \def\subparagraphautorefname{Subparagraaf}%
2972   \def\FancyVerbLineautorefname{Lyn}%
2973   \def\theoremautorefname{Teorema}%
2974   \def\pageautorefname{Bladsy}%
2975 }
2976 \def\HyLang@english{%
2977   \def\equationautorefname{Equation}%
2978   \def\footnoteautorefname{footnote}%
2979   \def\itemautorefname{item}%
2980   \def\figureautorefname{Figure}%
2981   \def\tableautorefname{Table}%
2982   \def\partautorefname{Part}%
2983   \def\appendixautorefname{Appendix}%
2984   \def\chapterautorefname{chapter}%
2985   \def\sectionautorefname{section}%

```

```

2986 \def\subsectionautorefname{subsection}%
2987 \def\subsubsectionautorefname{subsubsection}%
2988 \def\paragraphautorefname{paragraph}%
2989 \def\subparagraphautorefname{subparagraph}%
2990 \def\FancyVerbLineautorefname{line}%
2991 \def\theoremautorefname{Theorem}%
2992 \def\pageautorefname{page}%
2993 }
2994 \def\HyLang@french{%
2995 \def\equationautorefname{'equation}%
2996 \def\footnoteautorefname{note}%
2997 \def\itemautorefname{item}%
2998 \def\figureautorefname{figure}%
2999 \def\tableautorefname{tableau}%
3000 \def\partautorefname{partie}%
3001 \def\appendixautorefname{annexe}%
3002 \def\chapterautorefname{chapitre}%
3003 \def\sectionautorefname{section}%
3004 \def\subsectionautorefname{sous-section}%
3005 \def\subsubsectionautorefname{sous-sous-section}%
3006 \def\paragraphautorefname{paragraphe}%
3007 \def\subparagraphautorefname{sous-paragraphe}%
3008 \def\FancyVerbLineautorefname{ligne}%
3009 \def\theoremautorefname{th'eor'eme}%
3010 \def\pageautorefname{page}%
3011 }
3012 \def\HyLang@german{%
3013 \def\equationautorefname{Gleichung}%
3014 \def\footnoteautorefname{Fu'ss note}%
3015 \def\itemautorefname{Punkt}%
3016 \def\figureautorefname{Abbildung}%
3017 \def\tableautorefname{Tabelle}%
3018 \def\partautorefname{Teil}%
3019 \def\appendixautorefname{Anhang}%
3020 \def\chapterautorefname{Kapitel}%
3021 \def\sectionautorefname{Abschnitt}%
3022 \def\subsectionautorefname{Unterabschnitt}%
3023 \def\subsubsectionautorefname{Unterunterabschnitt}%
3024 \def\paragraphautorefname{Absatz}%
3025 \def\subparagraphautorefname{Unterabsatz}%
3026 \def\FancyVerbLineautorefname{Zeile}%
3027 \def\theoremautorefname{Theorem}%
3028 \def\pageautorefname{Seite}%
3029 }
3030 \def\HyLang@italian{%
3031 \def\equationautorefname{Equazione}%
3032 \def\footnoteautorefname{nota}%
3033 \def\itemautorefname{punto}%
3034 \def\figureautorefname{Figura}%
3035 \def\tableautorefname{Tabella}%
3036 \def\partautorefname{Parte}%
3037 \def\appendixautorefname{Appendice}%
3038 \def\chapterautorefname{Capitolo}%
3039 \def\sectionautorefname{sezione}%

```

```

3040 \def\subsectionautorefname{sottosezione}%
3041 \def\subsubsectionautorefname{sottosottosezione}%
3042 \def\paragraphautorefname{paragrafo}%
3043 \def\subparagraphautorefname{sottoparagrafo}%
3044 \def\FancyVerbLineautorefname{linea}%
3045 \def\theoremautorefname{Teorema}%
3046 \def\pageautorefname{Pag.\@}%
3047 }
3048 \def\HyLang@magyar{%
3049 \def\equationautorefname{Egyenlet}%
3050 \def\footnoteautorefname{l'abjegyzet}%
3051 \def\itemautorefname{Elem}%
3052 \def\figureautorefname{'Abra}%
3053 \def\tableautorefname{T\abl'azat}%
3054 \def\partautorefname{R'esz}%
3055 \def\appendixautorefname{F\"uggel'ek}%
3056 \def\chapterautorefname{fejezet}%
3057 \def\sectionautorefname{szakasz}%
3058 \def\subsectionautorefname{alszakasz}%
3059 \def\subsubsectionautorefname{alalszakasz}%
3060 \def\paragraphautorefname{bekezd'es}%
3061 \def\subparagraphautorefname{albekezd'es}%
3062 \def\FancyVerbLineautorefname{sor}%
3063 \def\theoremautorefname{T'etel}%
3064 \def\pageautorefname{oldal}%
3065 }
3066 \def\HyLang@portuges{%
3067 \def\equationautorefname{Equa\c c\~ao}%
3068 \def\footnoteautorefname{Nota de rodap'e}%
3069 \def\itemautorefname{Item}%
3070 \def\figureautorefname{Figura}%
3071 \def\tableautorefname{Tabela}%
3072 \def\partautorefname{Parte}%
3073 \def\appendixautorefname{Ap\~endice}%
3074 \def\chapterautorefname{Cap\itulo}%
3075 \def\sectionautorefname{Se\c c\~ao}%
3076 \def\subsectionautorefname{Subse\c c\~ao}%
3077 \def\subsubsectionautorefname{Subsubse\c c\~ao}%
3078 \def\paragraphautorefname{par'agrafo}%
3079 \def\subparagraphautorefname{subpar'agrafo}%
3080 \def\FancyVerbLineautorefname{linha}%
3081 \def\theoremautorefname{Teorema}%
3082 \def\pageautorefname{P'agina}%
3083 }

```

Next commented section for Russian is provided by Olga Lapko.

Next follow the checked reference names with commented variants and explanations. All they are abbreviated and they won't create a grammatical problems in the *middle* of sentences.

The most weak points in these abbreviations are the `\equationautorefname`, `\theoremautorefname` and the `\FancyVerbLineautorefname`. But those three, and also the `\footnoteautorefname` are not *too* often referenced. Another rather weak point is the `\appendixautorefname`.

```

3084 \def\HyLang@russian{%

```

The abbreviated reference to the equation: it is not for “the good face of the book”, but maybe it will be better to get the company for the `\theoremautorefname`?

```
3085 \def\equationautorefname{\cyr\cyrv\cyrrery\cyrr.}%
```

The name of the equation reference has common form for both nominative and accusative but changes in other forms, like “of `\autoref{auto}`” etc. The full name must follow full name of the `\theoremautorefname`.

```
3086 % \def\equationautorefname{%
3087 %   \cyr\cyrv\cyrrery\cyrr\cyra\cyrrzh\cyre\cyrn\cyri\cyre
3088 % }%
```

The variant of footnote has abbreviation form of the synonym of the word “footnote”. This variant of abbreviated synonym has alternative status (maybe obsolete?).

```
3089 \def\footnoteautorefname{%
3090   \cyr\cyrp\cyro\cyrd\cyrs\cyrt\cyrr.\ \cyrp\cyrr\cyri\cyrm.%
3091 }%
```

Commented form of the full synonym for “footnote”. It has common form for both nominative and accusative but changes in other forms, like “of `\autoref{auto}`”

```
3092 % \def\footnoteautorefname{%
3093 %   \cyr\cyrp\cyro\cyrd\cyrs\cyrt\cyrr\cyro\cyrch\cyrn\cyro\cyre\ %
3094 %   \cyrp\cyrr\cyri\cyrm\cyre\cyrch\cyra\cyrn\cyri\cyre
3095 % }%
```

Commented forms of the “footnote”: have different forms, the same is for the nominative and accusative. (The others needed?)

```
3096 % \def\Nomfootnoteautorefname{\cyr\cyrs\cyrn\cyro\cyrs\cyrk\cyra}%
3097 % \def\Accfootnoteautorefname{\cyr\cyrs\cyrn\cyro\cyrs\cyrk\cyru}%
```

Name of the list item, can be confused with the paragraph reference name, but reader could understand meaning from context(?). Commented variant has common form for both nominative and accusative but changes in other forms, like “of `\autoref{auto}`” etc.

```
3098 \def\itemautorefname{\cyr\cyrp.}%
3099 % \def\itemautorefname{\cyr\cyrp\cyru\cyrn\cyrk\cyrt}%
```

Names of the figure and table have stable (standard) abbreviation forms. No problem in the middle of sentence.

```
3100 \def\figureautorefname{\cyr\cyrr\cyri\cyrs.}%
3101 \def\tableautorefname{\cyr\cyrt\cyra\cyrb\cyrl.}%
```

Names of the part, chapter, section(s) have stable (standard) abbreviation forms. No problem in the middle of sentence.

```
3102 \def\partautorefname{\cyr\cyrch.}%
3103 \def\chapterautorefname{\cyr\cyrg\cyrl.}%
3104 \def\sectionautorefname{\cyr\cyrr\cyra\cyrz\cyrd.}%
```

Name of the appendix can use this abbreviation, but it is not standard for books, i.e, not for “the good face of the book”. Commented variant has common form for both nominative and accusative but changes in other forms, like “of `\autoref{auto}`” etc.

```
3105 \def\appendixautorefname{\cyr\cyrp\cyrr\cyri\cyrl.}%
3106 % \def\appendixautorefname{%
3107 %   \cyr\cyrp\cyrr\cyri\cyrl\cyro\cyrrzh\cyre\cyrn\cyri\cyre
3108 % }%
```



The sectioning command have stable (almost standard) and common abbreviation form for all levels (the meaning of these references visible from the section number). No problem.

```
3109 \def\subsectionautorefname{\cyr\cyrr\cyra\cyrz\cyrd.}%
3110 \def\subsubsectionautorefname{\cyr\cyrr\cyra\cyrz\cyrd.}%
```

The names of references to paragraphs also have stable (almost standard) and common abbreviation form for all levels (the meaning of these references is visible from the section number). No problem in the middle of sentence.

```
3111 \def\paragraphautorefname{\cyr\cyrp.}%
3112 \def\subparagraphautorefname{\cyr\cyrp.}%
```

Commented variant can be used in books but since it has common form for both nominative and accusative but it changes in other forms, like “of \autoref{auto}” etc.

```
3113 % \def\paragraphautorefname{\cyr\cyrp\cyru\cyrn\cyrk\cyrt}%
3114 % \def\subparagraphautorefname{\cyr\cyrp\cyru\cyrn\cyrk\cyrt}%
```

The name of verbatim line. Here could be a standard of the abbreviation (used very rare). But the author preprint publications (which have not any editor or corrector) can use this abbreviation for the page reference. So the meaning of the line reference can be read as reference to the page.

```
3115 \def\FancyVerbLineautorefname{\cyr\cyrs\cyrt\cyrr.}%
```

Commented names of the “verbatim line”: have different forms, also the nominative and accusative.

```
3116 % \def\NomFancyVerbLineautorefname{\cyr\cyrs\cyrt\cyrr\cyro\cyrk\cyra}%
3117 % \def\AccFancyVerbLineautorefname{\cyr\cyrs\cyrt\cyrr\cyro\cyrk\cyru}%
```

The alternative, ve-e-e-ery professional abbreviation, was used in typography markup for typesetters.

```
3118 % \def\FancyVerbLineautorefname{\cyr\cyrs\cyrt\cyrr\cyrk.}%
```

The names of theorem: if we want have “the good face of the book”, so the theorem reference must have the full name (like equation reference). But ...

```
3119 \def\theoremautorefname{\cyr\cyrt\cyre\cyro\cyrr.}%
```

Commented forms of the “theorem”: have different forms, also the nominative and accusative.

```
3120 % \def\Nomtheoremautorefname{\cyr\cyrt\cyre\cyro\cyrr\cyre\cyrm\cyra}%
3121 % \def\Acctheoremautorefname{\cyr\cyrt\cyre\cyro\cyrr\cyre\cyrm\cyru}%
```

Name of the page stable (standard) abbreviation form. No problem.

```
3122 \def\pageautorefname{\cyr\cyrs.}%
3123 }
```

```
3124 \def\HyLang@spanish{%
3125 \def\equationautorefname{Ecuaci\'on}%
3126 \def\footnoteautorefname{Nota a pie de p\'agina}%
3127 \def\itemautorefname{Elemento}%
3128 \def\figureautorefname{Figura}%
3129 \def\tableautorefname{Tabla}%
3130 \def\partautorefname{Parte}%
3131 \def\appendixautorefname{Ap\'endice}%
3132 \def\chapterautorefname{Cap\'itulo}%
3133 \def\sectionautorefname{Secci\'on}%
```

```

3134 \def\subsectionautorefname{Subsecci\`on}%
3135 \def\subsubsectionautorefname{Subsubsecci\`on}%
3136 \def\paragraphautorefname{P\`arrafo}%
3137 \def\subparagraphautorefname{Subp\`arrafo}%
3138 \def\FancyVerbLineautorefname{L\`inea}%
3139 \def\theoremautorefname{Teorema}%
3140 \def\pageautorefname{P\`agina}%
3141 }

3142 \def\HyLang@catalan{%
3143 \def\equationautorefname{Equaci\`o}%
3144 \def\footnoteautorefname{Nota al peu de p\`agina}%
3145 \def\itemautorefname{Element}%
3146 \def\figureautorefname{Figura}%
3147 \def\tableautorefname{Taula}%
3148 \def\partautorefname{Part}%
3149 \def\appendixautorefname{Ap\`endix}%
3150 \def\chapterautorefname{Cap\`itol}%
3151 \def\sectionautorefname{Secci\`o}%
3152 \def\subsectionautorefname{Subsecci\`o}%
3153 \def\subsubsectionautorefname{Subsubsecci\`o}%
3154 \def\paragraphautorefname{Par\`agraf}%
3155 \def\subparagraphautorefname{Subpar\`agraf}%
3156 \def\FancyVerbLineautorefname{L\`inia}%
3157 \def\theoremautorefname{Teorema}%
3158 \def\pageautorefname{P\`agina}%
3159 }

3160 \def\HyLang@vietnamese{%
3161 \def\equationautorefname{Ph\`uhorn\`o\`horn\`ng tr\`inh}%
3162 \def\footnoteautorefname{Ch\`u th\`ich}%
3163 \def\itemautorefname{m\`d\`u\`c}%
3164 \def\figureautorefname{H\`inh}%
3165 \def\tableautorefname{B\`h\`a\`ng}%
3166 \def\partautorefname{Ph\`acircumflex\`n}%
3167 \def\appendixautorefname{Ph\`d\`u\`l\`d\`u\`c}%
3168 \def\chapterautorefname{ch\`uhorn\`o\`horn\`ng}%
3169 \def\sectionautorefname{m\`d\`u\`c}%
3170 \def\subsectionautorefname{m\`d\`u\`c}%
3171 \def\subsubsectionautorefname{m\`d\`u\`c}%
3172 \def\paragraphautorefname{\`dj\`o\`d\`a\`n}%
3173 \def\subparagraphautorefname{\`dj\`o\`d\`a\`n}%
3174 \def\FancyVerbLineautorefname{d\`ong}%
3175 \def\theoremautorefname{\`DJ\`d\`i\`nh l\`y}%
3176 \def\pageautorefname{Trang}%
3177 }

```

Greek, see github issue 52

```

3178 \def\HyLang@greek{%
3179 \def\equationautorefname{\textEpsilon\textxi\acctonos\textiota\textsigma\textomega\textsigma\texteta}%
3180 \def\footnoteautorefname{\textupsilon\textpi\textomicron\textsigma\texteta\textmu\textepsilon\acctonos\textiota\textomega\textsigma\texteta}%
3181 \def\itemautorefname{\textalpha\textnu\texttau\textiota\textkappa\textepsilon\acctonos\textiota\textmu\textepsilon\textnu\textomicron}%

```

```

3182 \def\figureautorefname{\textSigma\textchi\acconos\texteta\textmu\textal-
pha}%
3183 \def\tableautorefname{\textPi\acconos\textiota\textnu\textalpha\textkappa\textal-
pha}%
3184 \def\partautorefname{\textMu\acconos\textepsilon\textrho\textomicron\textvar-
sigma}%
3185 \def\appendixautorefname{\textPi\textalpha\textrho\acconos\textalpha\text-
rho\texttau\texteta\textmu\textalpha}%
3186 \def\chapterautorefname{\textkappa\textepsilon\textphi\acconos\textal-
pha\textlambda\textalpha\textiota\textomicron}%
3187 \def\sectionautorefname{\textepsilon\textnu\acconos\textomicron\texttau\text-
eta\texttau\textalpha}%
3188 \def\subsectionautorefname{\textupsilon\textpi\textomicron\textepsilon\textnu\ac-
conos\textomicron\texttau\texteta\texttau\textalpha}%
3189 \def\subsubsectionautorefname{\textupsilon\textpi\textomicron\textepsilon\textnu\ac-
conos\textomicron\texttau\texteta\texttau\textalpha}%
3190 \def\paragraphautorefname{\textpi\textalpha\textrho\acconos\textalpha\textgamma\text-
rho\textalpha\textphi\textomicron\textvarsigma}%
3191 \def\subparagraphautorefname{\textupsilon\textpi\textomicron\textpi\text-
alpha\textrho\acconos\textalpha\textgamma\textrho\textalpha\textphi\textomi-
cron\textvarsigma}%
3192 \def\FancyVerbLineautorefname{\textgamma\textrho\textalpha\textmu\textmu\ac-
conos\texteta}%
3193 \def\theoremautorefname{\textTheta\textepsilon\acconos\textomega\text-
rho\texteta\textmu\textalpha}%
3194 \def\pageautorefname{\textsigma\textepsilon\textlambda\acconos\textiota\textdelta\text-
alpha}%
3195 }

3196 \def\HyLang@dutch{%
3197 \def\equationautorefname{Vergelijking}%
3198 \def\footnoteautorefname{voetnoot}%
3199 \def\itemautorefname{punt}%
3200 \def\figureautorefname{Figuur}%
3201 \def\tableautorefname{Tabel}%
3202 \def\partautorefname{Deel}%
3203 \def\appendixautorefname{Bijlage}%
3204 \def\chapterautorefname{hoofdstuk}%
3205 \def\sectionautorefname{paragraaf}%
3206 \def\subsectionautorefname{deelparagraaf}%
3207 \def\subsubsectionautorefname{deel-deelparagraaf}%
3208 \def\paragraphautorefname{alinea}%
3209 \def\subparagraphautorefname{deelalinea}%
3210 \def\FancyVerbLineautorefname{regel}%
3211 \def\theoremautorefname{Stelling}%
3212 \def\pageautorefname{pagina}%
3213 }

3214 \def\HyLang@norsk{%
3215 \def\equationautorefname{Ligning}%
3216 \def\footnoteautorefname{fotnote}%
3217 \def\itemautorefname{element}%
3218 \def\figureautorefname{Figur}%
3219 \def\tableautorefname{Tabell}%
3220 \def\partautorefname{Del}%
3221 \def\appendixautorefname{Tillegg}%
3222 \def\chapterautorefname{kapittel}%

```

```

3223 \def\sectionautorefname{seksjon}%
3224 \def\subsectionautorefname{underseksjon}%
3225 \def\subsubsectionautorefname{under-underseksjon}%
3226 \def\paragraphautorefname{avsnitt}%
3227 \def\subparagraphautorefname{underavsnitt}%
3228 \def\FancyVerbLineautorefname{Linje}%
3229 \def\theoremautorefname{Teorem}%
3230 \def\pageautorefname{side}%
3231 }
3232 \def\HyLang@danish{%
3233 \def\equationautorefname{Ligning}%
3234 \def\footnoteautorefname{fodnote}%
3235 \def\itemautorefname{element}%
3236 \def\figureautorefname{Figur}%
3237 \def\tableautorefname{Tabel}%
3238 \def\partautorefname{Del}%
3239 \def\appendixautorefname{Bilag}%
3240 \def\chapterautorefname{kapitel}%
3241 \def\sectionautorefname{sektion}%
3242 \def\subsectionautorefname{under-sektion}%
3243 \def\subsubsectionautorefname{under-under-sektion}%
3244 \def\paragraphautorefname{afsnit}%
3245 \def\subparagraphautorefname{underafsnit}%
3246 \def\FancyVerbLineautorefname{linje}%
3247 \def\theoremautorefname{Teorem}%
3248 \def\pageautorefname{side}%
3249 }
3250 \def\HyLang@swedish{%
3251 \def\equationautorefname{Ekvation}%
3252 \def\footnoteautorefname{fotnot}%
3253 \def\itemautorefname{punkt}%
3254 \def\figureautorefname{Figur}%
3255 \def\tableautorefname{Tabell}%
3256 \def\partautorefname{Del}%
3257 \def\appendixautorefname{Bilaga}%
3258 \def\chapterautorefname{kapitel}%
3259 \def\sectionautorefname{avsnitt}%
3260 \def\subsectionautorefname{underavsnitt}%
3261 \def\subsubsectionautorefname{under-underavsnitt}%
3262 \def\paragraphautorefname{paragraf}%
3263 \def\subparagraphautorefname{underparagraf}%
3264 \def\FancyVerbLineautorefname{linje}%
3265 \def\theoremautorefname{Teorem}%
3266 \def\pageautorefname{sida}%
3267 }

```

Instead of package babel's definition of `\addto` the implementation of package `varioref` is used. Additionally argument `#1` is checked for `\relax`.

```

3268 \def\HyLang@addto#1#2{%
3269 #2%
3270 \@temptokena{#2}%
3271 \ifx#1\relax
3272 \let#1\@empty
3273 \fi

```

```

3274 \ifx#1\@undefined
3275 \edef#1{\the\@temptokena}%
3276 \else
3277 \toks@\expandafter{#1}%
3278 \edef#1{\the\toks@\the\@temptokena}%
3279 \fi
3280 \@temptokena{}\toks@\@temptokena
3281 }

3282 \def\HyLang@DeclareLang#1#2#3{%
3283 \ifcsname extras#1\endcsname
3284 \expandafter\HyLang@addto
3285 \csname extras#1\expandafter\endcsname
3286 \csname HyLang@#2\endcsname
3287 \begingroup
3288 \edef\x{\endgroup
3289 #3%
3290 }%
3291 \x
3292 \@namedef{HyLang@#1@done}{}%
3293 \fi
3294 \begingroup
3295 \edef\x##1##2{%
3296 \noexpand\ifx##2\relax
3297 \errmessage{No definitions for language #2' found!}%
3298 \noexpand\fi
3299 \endgroup
3300 \noexpand\define@key{Hyp}{#1}[]{%
3301 \noexpand\@ifundefined{HyLang@#1@done}{%
3302 \noexpand\HyLang@addto{\noexpand##1}{\noexpand##2}%
3303 #3%
3304 \noexpand\@namedef{HyLang@#1@done}{}%
3305 }{}%
3306 }%
3307 }%
3308 \expandafter\x\csname extras#1\expandafter\endcsname
3309 \csname HyLang@#2\endcsname
3310 }

3311 \HyLang@DeclareLang{english}{english}{}
3312 \HyLang@DeclareLang{UKenglish}{english}{}
3313 \HyLang@DeclareLang{british}{english}{}
3314 \HyLang@DeclareLang{USenglish}{english}{}
3315 \HyLang@DeclareLang{american}{english}{}
3316 \HyLang@DeclareLang{german}{german}{}
3317 \HyLang@DeclareLang{austrian}{german}{}
3318 \HyLang@DeclareLang{ngerman}{german}{}
3319 \HyLang@DeclareLang{naustrian}{german}{}
3320 \HyLang@DeclareLang{nswissgerman}{german}{}
3321 \HyLang@DeclareLang{swissgerman}{german}{}
3322 \HyLang@DeclareLang{russian}{russian}{\noexpand\hypersetup{unicode}}
3323 \HyLang@DeclareLang{brazil}{portuges}{}
3324 \HyLang@DeclareLang{brazilian}{portuges}{}
3325 \HyLang@DeclareLang{portuguese}{portuges}{}
3326 \HyLang@DeclareLang{spanish}{spanish}{}
3327 \HyLang@DeclareLang{catalan}{catalan}{}

```

```

3328 \HyLang@DeclareLang{afrikaans}{afrikaans}{}
3329 \HyLang@DeclareLang{french}{french}{}
3330 \HyLang@DeclareLang{frenchb}{french}{}
3331 \HyLang@DeclareLang{français}{french}{}
3332 \HyLang@DeclareLang{acadian}{french}{}
3333 \HyLang@DeclareLang{canadien}{french}{}
3334 \HyLang@DeclareLang{italian}{italian}{}
3335 \HyLang@DeclareLang{magyar}{magyar}{}
3336 \HyLang@DeclareLang{hungarian}{magyar}{}
3337 \HyLang@DeclareLang{greek}{greek}{}
3338 \HyLang@DeclareLang{dutch}{dutch}{}
3339 \HyLang@DeclareLang{norsk}{norsk}{}
3340 \HyLang@DeclareLang{norwegian}{norsk}{}
3341 \HyLang@DeclareLang{danish}{danish}{}
3342 \HyLang@DeclareLang{swedish}{swedish}{}

```

More work is needed in case of options `vietnamese` and `vietnam`.

```

3343 \DeclareVoidOption{vietnamese}{%
3344   \HyLang@addto\extrasvietnamese\HyLang@vietnamese
3345   \Hy@AtEndOfPackage{%
3346     \@ifundefined{T@PU}{}{}%
3347     \input{puvnenc.def}%
3348   }%
3349 }%
3350 }
3351 \DeclareVoidOption{vietnam}{%
3352   \HyLang@addto\extrasvietnam\HyLang@vietnamese
3353   \Hy@AtEndOfPackage{%
3354     \@ifundefined{T@PU}{}{}%
3355     \input{puvnenc.def}%
3356   }%
3357 }%
3358 }

```

Similar for option `arabic` that just loads the additions to PU encoding for Arabi.

```

3359 \DeclareVoidOption{arabic}{%
3360   \Hy@AtEndOfPackage{%
3361     \@ifundefined{T@PU}{}{}%
3362     \input{puarenc.def}%
3363   }%
3364 }%
3365 }

```

## 13 Options to change appearance of links

Colouring links at the L<sup>A</sup>T<sub>E</sub>X level is useful for debugging, perhaps.

```

3366 \define@key{Hyp}{colorlinks}[true]{%
3367   \Hy@boolkey{colorlinks}{#1}%
3368 }
3369 \DeclareVoidOption{hidelinks}{%
3370   \Hy@colorlinksfalse
3371   \Hy@ocgcolorlinksfalse
3372   \Hy@frenchlinksfalse

```

```

3373 \def\Hy@colorlink##1{\begingroup}%
3374 \def\Hy@endcolorlink{\endgroup}%
3375 \def\@pdfborder{0 0 0}%
3376 \let\@pdfborderstyle\ltx@empty
3377 }
3378 \define@key{Hyp}{ocgcolorlinks}[true]{%
3379 \Hy@boolkey{ocgcolorlinks}{#1}%
3380 }
3381 \Hy@AtBeginDocument{%
3382 \begingroup
3383 \@ifundefined{OBJ@OCG@view}{%
3384 \ifHy@ocgcolorlinks
3385 \Hy@Warning{%
3386 Driver does not support `ocgcolorlinks',\MessageBreak
3387 using `colorlinks' instead%
3388 }%
3389 \fi
3390 }{}%
3391 \endgroup
3392 }
3393 \define@key{Hyp}{frenchlinks}[true]{%
3394 \Hy@boolkey{frenchlinks}{#1}%
3395 }

```

## 14 Bookmarking

```

3396 \begingroup\expandafter\expandafter\expandafter\endgroup
3397 \expandafter\ifx\csname chapter\endcsname\relax
3398 \def\toclevel@part{0}%
3399 \else
3400 \def\toclevel@part{-1}%
3401 \fi
3402 \def\toclevel@chapter{0}
3403 \def\toclevel@section{1}
3404 \def\toclevel@subsection{2}
3405 \def\toclevel@subsubsection{3}
3406 \def\toclevel@paragraph{4}
3407 \def\toclevel@subparagraph{5}
3408 \def\toclevel@figure{0}
3409 \def\toclevel@table{0}
3410 \define@key{Hyp}{bookmarks}[true]{%
3411 \Hy@boolkey{bookmarks}{#1}%
3412 }
3413 \define@key{Hyp}{bookmarksopen}[true]{%
3414 \Hy@boolkey{bookmarksopen}{#1}%
3415 }

```

The depth of the outlines is controlled by option `bookmarksdepth`. The option acts globally and distinguishes three cases:

- `bookmarksdepth`: Without value `hyperref` uses counter `tocdepth` (compatible behaviour and default).
- `bookmarksdepth=<number>`: the depth is set to `<number>`.

- `bookmarksdepth=<name>`: The `<name>` must not start with a number or minus sign. It is a document division name (part, chapter, section, ...). Internally the value of macro `\toclevel@<name>` is used.

```

3416 \let\Hy@bookmarksdepth\c@tocdepth
3417 \define@key{Hyp}{bookmarksdepth}[]{%
3418   \begingroup
3419     \edef\x{#1}%
3420     \ifx\x\empty
3421       \global\let\Hy@bookmarksdepth\c@tocdepth
3422     \else
3423       \ifundefined{toclevel@\x}{%
3424         \@onelevel@sanitize\x
3425         \edef\y{\expandafter\@car\x\@nil}%
3426         \ifcase 0\expandafter\ifx\y-1\fi
3427           \expandafter\ifnum\expandafter`\y>47 %
3428             \expandafter\ifnum\expandafter`\y<58 1\fi\fi\relax
3429           \Hy@Warning{Unknown document division name (\x)}%
3430         \else
3431           \setbox\z@=\hbox{%
3432             \count@=\x
3433             \xdef\Hy@bookmarksdepth{\the\count@}%
3434           }%
3435         \fi
3436       }{%
3437         \setbox\z@=\hbox{%
3438           \count@=\csname toclevel@\x\endcsname
3439           \xdef\Hy@bookmarksdepth{\the\count@}%
3440         }%
3441       }%
3442     \fi
3443   \endgroup
3444 }
```

‘bookmarksopenlevel’ to specify the open level. From Heiko Oberdiek.

```

3445 \define@key{Hyp}{bookmarksopenlevel}{%
3446   \def\@bookmarksopenlevel{#1}%
3447 }
3448 \def\@bookmarksopenlevel{\maxdimen}
3449 % `bookmarkstype' to specify which `toc' file to mimic
3450 \define@key{Hyp}{bookmarkstype}{%
3451   \def\Hy@bookmarkstype{#1}%
3452 }
3453 \def\Hy@bookmarkstype{toc}
```

Richard Curnow <richard@curnow.demon.co.uk> suggested this functionality. It adds section numbers etc to bookmarks.

```

3454 \define@key{Hyp}{bookmarksnumbered}[true]{%
3455   \Hy@boolkey{bookmarksnumbered}{#1}%
3456 }
```

Option `CJKbookmarks` enables the patch for CJK bookmarks.

```

3457 \define@key{Hyp}{CJKbookmarks}[true]{%
3458   \Hy@boolkey{CJKbookmarks}{#1}%
3459 }
```



```

3460 \def\Hy@temp#1{%
3461   \expandafter\Hy@@temp\csname @##1color\endcsname{#1}%
3462 }
3463 \def\Hy@@temp#1#2#3{%
3464   \define@key{Hyp}{#2color}{%
3465     \HyColor@HyperrefColor{##1}#1%
3466   }%
3467   \def#1{#3}%
3468 }
3469 \Hy@temp{link}{red}
3470 \Hy@temp{anchor}{black}
3471 \Hy@temp{cite}{green}
3472 \Hy@temp{file}{cyan}
3473 \Hy@temp{url}{magenta}
3474 \Hy@temp{menu}{red}
3475 \Hy@temp{run}{\@filecolor}
3476 \define@key{Hyp}{pagecolor}{%
3477   \Hy@WarningPageColor
3478 }
3479 \def\Hy@WarningPageColor{%
3480   \Hy@WarningNoLine{Option 'pagecolor' is not available anymore}%
3481   \global\let\Hy@WarningPageColor\relax
3482 }
3483 \define@key{Hyp}{allcolors}{%
3484   \HyColor@HyperrefColor{#1}\@linkcolor
3485   \HyColor@HyperrefColor{#1}\@anchorcolor
3486   \HyColor@HyperrefColor{#1}\@citecolor
3487   \HyColor@HyperrefColor{#1}\@filecolor
3488   \HyColor@HyperrefColor{#1}\@urlcolor
3489   \HyColor@HyperrefColor{#1}\@menucolor
3490   \HyColor@HyperrefColor{#1}\@runcolor
3491 }

3492 \def\hyperbaseurl#1{\def\@baseurl{#1}}
3493 \define@key{Hyp}{baseurl}{\hyperbaseurl{#1}}
3494 \let\@baseurl\empty
3495 \def\hyperlinkfileprefix#1{\def\Hy@linkfileprefix{#1}}
3496 \define@key{Hyp}{linkfileprefix}{\hyperlinkfileprefix{#1}}
3497 \hyperlinkfileprefix{file:}

```

## 15 PDF-specific options

`\@pdfpagetransition` The value of option `pdfpagetransition` is stored in `\@pdfpagetransition`. Its initial value is set to `\relax` in order to be able to differentiate between a not used option and an option with an empty value.

```

3498 \let\@pdfpagetransition\relax
3499 \define@key{Hyp}{pdfpagetransition}{%
3500   \def\@pdfpagetransition{#1}%
3501 }

```

`\@pdfpageduration` The value of option `pdfpageduration` is stored in `\@pdfpageduration`. Its initial value is set to `\relax` in order to be able to differentiate between a not used option and an option with an empty value.

```

3502 \let\@pdfpageduration\relax
3503 \define@key{Hyp}{pdfpageduration}{%
3504   \def\@pdfpageduration{#1}%
3505   \Hy@Match\@pdfpageduration}{}%
3506   ^(|[0-9]+\.\?[0-9]*|[0-9]*\.\?[0-9]+)$%
3507 }{}{%
3508   \Hy@Warning{%
3509     Invalid value ` \@pdfpageduration'\MessageBreak
3510     of option `pdfpageduration'\MessageBreak
3511     is replaced by an empty value%
3512   }%
3513   \let\@pdfpageduration\ltx@empty
3514 }%
3515 }

```

The value of the `bordercolor` options are not processed by the color package. Therefore the value consists of space separated rgb numbers in the range 0 until 1.

Package `xcolor` provides `\XC@bordercolor` since version 1.1. If the two spaces in the color specification are missing, then the value is processed as color specification from package `xcolor` by using `\XC@bordercolor` (since `xcolor` 2004/05/09 v1.11, versions 2005/03/24 v2.02 until 2006/11/28 v2.10 do not work because of a bug that is fixed in 2007/01/21 v2.11).

```

3516 \def\Hy@ColorList{cite,file,link,menu,run,url}
3517 \@for\Hy@temp:=\Hy@ColorList\do{%
3518   \edef\Hy@temp{%
3519     \noexpand\define@key{Hyp}{\Hy@temp bordercolor}{%
3520       \noexpand\HyColor@HyperrefBorderColor
3521       {##1}%
3522       \expandafter\noexpand\csname @\Hy@temp bordercolor\endcsname
3523       {hyperref}%
3524       {\Hy@temp bordercolor}%
3525     }%
3526   }%
3527   \Hy@temp
3528 }
3529 \define@key{Hyp}{pagebordercolor}{%
3530   \Hy@WarningPageBorderColor
3531 }
3532 \def\Hy@WarningPageBorderColor{%
3533   \Hy@WarningNoLine{Option `pagebordercolor' is not available anymore}%
3534   \global\let\Hy@WarningPageBorderColor\relax
3535 }
3536 \define@key{Hyp}{allbordercolors}{%
3537   \def\Hy@temp##1##2{%
3538     \HyColor@HyperrefBorderColor{#1}##1{hyperref}{##2bordercolor}%
3539   }%
3540   \Hy@temp\@citebordercolor{cite}%
3541   \Hy@temp\@filebordercolor{file}%
3542   \Hy@temp\@linkbordercolor{link}%
3543   \Hy@temp\@menubordercolor{menu}%
3544   \Hy@temp\@runbordercolor{run}%
3545   \Hy@temp\@urlbordercolor{url}%
3546 }

```

```

3547 \define@key{Hyp}{pdfhighlight}{\def\@pdfhighlight{#1}}
3548 \Hy@DefNameKey{pdfhighlight}{%
3549   \do{/I}{Invert}%
3550   \do{/N}{None}%
3551   \do{/O}{Outline}%
3552   \do{/P}{Push}%
3553 }
3554 \def\Hy@setpdfhighlight{%
3555   \ifx\@pdfhighlight\@empty
3556   \else
3557     /H\@pdfhighlight
3558   \fi
3559 }
3560 \define@key{Hyp}{pdfborder}{%
3561   \let\Hy@temp\@pdfborder
3562   \def\@pdfborder{#1}%
3563   \Hy@Match\@pdfborder{}{%
3564     ~\HyPat@NonNegativeReal/ %
3565     \HyPat@NonNegativeReal/ %
3566     \HyPat@NonNegativeReal/%
3567     ( ?\[\HyPat@NonNegativeReal/( \HyPat@NonNegativeReal/)*])?$$%
3568   }{}{%
3569     \Hy@Warning{%
3570       Invalid value ` \@pdfborder'\MessageBreak
3571       for option `pdfborder'.\MessageBreak
3572       Option setting is ignored%
3573     }%
3574     \let\@pdfborder\Hy@temp
3575   }%
3576 }
3577 \define@key{Hyp}{pdfborderstyle}{%
3578   \let\Hy@temp\@pdfborderstyle
3579   \def\@pdfborderstyle{#1}%
3580   \Hy@Match\@pdfborderstyle{}{%
3581     ~%
3582     ( */Type */Border%
3583     | */W +\HyPat@NonNegativeReal/%
3584     | */S */[SDBIU]%
3585     | */D *\[ *(\HyPat@NonNegativeReal/( \HyPat@NonNegativeReal/))?)?]%
3586     )* *$%
3587   }{}{%
3588     \Hy@Warning{%
3589       Invalid value ` \@pdfborderstyle'\MessageBreak
3590       for option `pdfborderstyle'.\MessageBreak
3591       Option setting is ignored%
3592     }%
3593     \let\@pdfborderstyle\Hy@temp
3594   }%
3595 }
3596 \def\Hy@setpdfborder{%
3597   \ifx\@pdfborder\@empty
3598   \else
3599     /Border[\@pdfborder]%
3600   \fi

```

```

3601 \ifx\@pdfborderstyle\@empty
3602 \else
3603 /BS<<\@pdfborderstyle>>%
3604 \fi
3605 }
3606 \Hy@DefNameKey{pdfpagemode}{%
3607 \do{UseNone}{}%
3608 \do{UseOutlines}{}%
3609 \do{UseThumbs}{}%
3610 \do{FullScreen}{}%
3611 \do{UseOC}{PDF 1.5}%
3612 \do{UseAttachments}{PDF 1.6}%
3613 }
3614 \Hy@DefNameKey{pdfnonfullscreenpagemode}{%
3615 \do{UseNone}{}%
3616 \do{UseOutlines}{}%
3617 \do{UseThumbs}{}%
3618 \do{FullScreen}{}%
3619 \do{UseOC}{PDF 1.5}%
3620 \do{UseAttachments}{PDF 1.6}%
3621 }
3622 \Hy@DefNameKey{pdfdirection}{%
3623 \do{L2R}{Left to right}%
3624 \do{R2L}{Right to left}%
3625 }
3626 \Hy@DefNameKey{pdfviewarea}{%
3627 \do{MediaBox}{}%
3628 \do{CropBox}{}%
3629 \do{BleedBox}{}%
3630 \do{TrimBox}{}%
3631 \do{ArtBox}{}%
3632 }
3633 \Hy@DefNameKey{pdfviewclip}{%
3634 \do{MediaBox}{}%
3635 \do{CropBox}{}%
3636 \do{BleedBox}{}%
3637 \do{TrimBox}{}%
3638 \do{ArtBox}{}%
3639 }
3640 \Hy@DefNameKey{pdfprintarea}{%
3641 \do{MediaBox}{}%
3642 \do{CropBox}{}%
3643 \do{BleedBox}{}%
3644 \do{TrimBox}{}%
3645 \do{ArtBox}{}%
3646 }
3647 \Hy@DefNameKey{pdfprintclip}{%
3648 \do{MediaBox}{}%
3649 \do{CropBox}{}%
3650 \do{BleedBox}{}%
3651 \do{TrimBox}{}%
3652 \do{ArtBox}{}%
3653 }
3654 \Hy@DefNameKey{pdfprintscaling}{%

```

```

3655 \do{AppDefault}{}%
3656 \do{None}{}%
3657 }
3658 \Hy@DefNameKey{pdfduplex}{%
3659 \do{Simplex}{}%
3660 \do{DuplexFlipShortEdge}{}%
3661 \do{DuplexFlipLongEdge}{}%
3662 }
3663 \Hy@DefNameKey{pdfpicktraybypdfsize}{%
3664 \do{true}{}%
3665 \do{false}{}%
3666 }
3667 \define@key{Hyp}{pdfprintpagerange}{%
3668 \def\@pdfprintpagerange{#1}%
3669 }
3670 \Hy@DefNameKey{pdfnumcopies}{%
3671 \do{2}{two copies}%
3672 \do{3}{three copies}%
3673 \do{4}{four copies}%
3674 \do{5}{five copies}%
3675 }

3676 \define@key{Hyp}{pdfusetitle}[true]{%
3677 \Hy@boolkey{pdfusetitle}{#1}%
3678 }
3679 \def\HyXeTeX@CheckUnicode{%
3680 \ifxetex
3681 \ifHy@unicode
3682 \else
3683 \Hy@WarningNoLine{%
3684 XeTeX driver only supports unicode.\MessageBreak
3685 Enabling option `unicode'%
3686 }%
3687 \kvsetkeys{Hyp}{unicode}%
3688 \fi
3689 \else
3690 \let\HyXeTeX@CheckUnicode\relax
3691 \fi
3692 }
3693 \def\HyPsd@PrerenderUnicode#1{%
3694 \begingroup
3695 \expandafter\ifx\csname PrerenderUnicode\endcsname\relax
3696 \else
3697 \sbox0{%
3698 \let\GenericInfo\@gobbletwo
3699 \let\GenericWarning\@gobbletwo
3700 \let\GenericError\@gobblefour
3701 \PrerenderUnicode{#1}%
3702 }%
3703 \fi
3704 \endgroup
3705 }
3706 \define@key{Hyp}{pdftitle}{%
3707 \AddToDocumentProperties[hyperref]{pdftitle}{#1}%
3708 \HyXeTeX@CheckUnicode

```

```

3709 \HyPsd@PrerenderUnicode{#1}%
3710 \pdfstringdef\@pdftitle{#1}%
3711 }
3712 \define@key{Hyp}{pdfauthor}{%
3713 \AddToDocumentProperties[hyperref]{pdfauthor}{#1}%
3714 \HyXeTeX@CheckUnicode
3715 \HyPsd@PrerenderUnicode{#1}%
3716 \pdfstringdef\@pdfauthor{#1}%
3717 }
3718 \define@key{Hyp}{pdfproducer}{%
3719 \AddToDocumentProperties[hyperref]{pdfproducer}{#1}%
3720 \HyXeTeX@CheckUnicode
3721 \HyPsd@PrerenderUnicode{#1}%
3722 \pdfstringdef\@pdfproducer{#1}%
3723 }
3724 \define@key{Hyp}{pdfcreator}{%
3725 \AddToDocumentProperties[hyperref]{pdfcreator}{#1}%
3726 \HyXeTeX@CheckUnicode
3727 \HyPsd@PrerenderUnicode{#1}%
3728 \pdfstringdef\@pdfcreator{#1}%
3729 }
3730 \define@key{Hyp}{addtopdfcreator}{%
3731 \HyXeTeX@CheckUnicode
3732 \HyPsd@PrerenderUnicode{#1}%
3733 \pdfstringdef\@pdfcreator{\@pdfcreator, #1}%
3734 }
3735 \define@key{Hyp}{pdfcreationdate}{%
3736 \begingroup
3737 \Hy@unicodfalse
3738 \pdfstringdef\@pdfcreationdate{#1}%
3739 \endgroup
3740 }
3741 \define@key{Hyp}{pdfmoddate}{%
3742 \begingroup
3743 \Hy@unicodfalse
3744 \pdfstringdef\@pdfmoddate{#1}%
3745 \endgroup
3746 }
3747 \define@key{Hyp}{pdfsubject}{%
3748 \AddToDocumentProperties[hyperref]{pdfsubject}{#1}%
3749 \HyXeTeX@CheckUnicode
3750 \HyPsd@PrerenderUnicode{#1}%
3751 \pdfstringdef\@pdfsubject{#1}%
3752 }
3753 \define@key{Hyp}{pdfkeywords}{%
3754 \AddToDocumentProperties[hyperref]{pdfkeywords}{#1}%
3755 \HyXeTeX@CheckUnicode
3756 \HyPsd@PrerenderUnicode{#1}%
3757 \pdfstringdef\@pdfkeywords{#1}%
3758 }
3759 \define@key{Hyp}{pdftrapped}{%
3760 \lowercase{\edef\Hy@temp{#1}}%
3761 \ifx\Hy@temp\HyInfo@trapped@true
3762 \def\@pdftrapped{True}%

```

```

3763 \else
3764 \ifx\Hy@temp\HyInfo@trapped@false
3765 \def\@pdftrapped{False}%
3766 \else
3767 \ifx\Hy@temp\HyInfo@trapped@unknown
3768 \def\@pdftrapped{Unknown}%
3769 \else
3770 \ifx\Hy@temp\@empty
3771 \else
3772 \Hy@Warning{%
3773     Unsupported value `#1'\MessageBreak
3774     for option `pdftrapped'%
3775 }%
3776 \fi
3777 \def\@pdftrapped{}%
3778 \fi
3779 \fi
3780 \fi
3781 }
3782 \def\HyInfo@trapped@true{true}
3783 \def\HyInfo@trapped@false{false}
3784 \def\HyInfo@trapped@unknown{unknown}
3785 \def\HyInfo@TrappedUnsupported{%
3786 \ifx\@pdftrapped\@empty
3787 \else
3788 \Hy@WarningNoLine{`pdftrapped' is not supported by this driver}%
3789 \gdef\HyInfo@TrappedUnsupported{}%
3790 \fi
3791 }
3792 \define@key{Hyp}{pdfinfo}{%
3793 \kvsetkeys{pdfinfo}{#1}%
3794 }
3795 \def\Hy@temp#1{%
3796 \lowercase{\Hy@temp@A{#1}}{#1}%
3797 }
3798 \def\Hy@temp@A#1#2{%
3799 \define@key{pdfinfo}{#2}{%
3800 \hypersetup{pdf#1={#1}}}%
3801 }%
3802 }
3803 \Hy@temp{Title}
3804 \Hy@temp{Author}
3805 \Hy@temp{Keywords}
3806 \Hy@temp{Subject}
3807 \Hy@temp{Creator}
3808 \Hy@temp{Producer}
3809 \Hy@temp{CreationDate}
3810 \Hy@temp{ModDate}
3811 \Hy@temp{Trapped}
3812 \newif\ifHyInfo@AddonUnsupported
3813 \kv@set@family@handler{pdfinfo}{%
3814 \HyInfo@AddonHandler{#1}{#2}%
3815 }
3816 \let\HyInfo@do\relax

```

```

3817 \def\HyInfo@AddonHandler#1#2{%
3818   \ifx\kv@value\relax
3819     \Hy@Warning{%
3820       Option `pdfinfo': ignoring key `\'kv@key' without value%
3821     }%
3822   \else
3823     \EdefEscapeName\HyInfo@KeyEscaped{\kv@key}%
3824     \EdefUnescapeName\HyInfo@Key{\HyInfo@KeyEscaped}%
3825     \expandafter\ifx\csname KV@pdfinfo@\HyInfo@Key\endcsname\relax
3826       \ifHyInfo@AddonUnsupported
3827         \Hy@Warning{%
3828           This driver does not support additional\MessageBreak
3829           information entries, therefore\MessageBreak
3830           `\'kv@key' is ignored%
3831         }%
3832       \else
3833         \def\HyInfo@tmp###1{%
3834           \kv@define@key{pdfinfo}{###1}{%
3835             \HyXeTeX@CheckUnicode
3836             \HyPsd@PrerenderUnicode{####1}%
3837             \pdfstringdef\HyInfo@Value{####1}%
3838             \global\expandafter
3839             \let\csname HyInfo@Value@##1\endcsname
3840             \HyInfo@Value
3841           }%
3842         }%
3843         \expandafter\HyInfo@tmp\expandafter{\HyInfo@Key}%
3844         \global\expandafter
3845         \let\csname KV@pdfinfo@\HyInfo@Key\expandafter\endcsname
3846         \csname KV@pdfinfo@\HyInfo@Key\endcsname
3847         \xdef\HyInfo@AddonList{%
3848           \HyInfo@AddonList
3849           \HyInfo@do{\HyInfo@Key}%
3850         }%
3851         \expandafter\kv@parse@normalized\expandafter{%
3852           \HyInfo@Key={#2}%
3853         }{%
3854           \kv@processor@default{pdfinfo}%
3855         }%
3856       \fi
3857     \else
3858       \expandafter\kv@parse@normalized\expandafter{%
3859         \HyInfo@Key={#2}%
3860       }{%
3861         \kv@processor@default{pdfinfo}%
3862       }%
3863     \fi
3864   \fi
3865 }
3866 \def\HyInfo@GenerateAddons{%
3867   \ifHyInfo@AddonUnsupported
3868     \def\HyInfo@Addons{}%
3869   \else
3870     \begingroup

```



```

3871 \toks@{}%
3872 \def\HyInfo@do###1{%
3873 \EdefEscapeName\HyInfo@Key{###1}%
3874 \edef\x{%
3875 \toks@{}%
3876 \the\toks@
3877 /\HyInfo@Key(\csname HyInfo@Value@###1\endcsname)%
3878 }%
3879 }%
3880 \x
3881 }%
3882 \HyInfo@AddonList
3883 \edef\x{\endgroup
3884 \def\noexpand\HyInfo@Addons{\the\toks@}%
3885 }%
3886 \x
3887 \fi
3888 }
3889 \global\let\HyInfo@AddonList\ltx@empty

3890 \define@key{Hyp}{pdfview}{\calculate@pdfview#1 \\\}
3891 \define@key{Hyp}{pdfinkmargin}{\setpdfinkmargin{#1}}
3892 \let\setpdfinkmargin\gobble
3893 \def\calculate@pdfview#1 #2\{\%
3894 \def\@pdfview{#1}%
3895 \ifx\#2\%
3896 \def\@pdfviewparams{-32768}%
3897 \else
3898 \def\@pdfviewparams{#2}%
3899 \fi
3900 }

3901 \def\Hy@number#1{%
3902 \the\numexpr#1\relax
3903 }%
3904 \define@key{Hyp}{pdfstartpage}{\%
3905 \ifx\#1\%
3906 \let\@pdfstartpage\ltx@empty
3907 \else
3908 \edef\@pdfstartpage{\Hy@number{#1}}%
3909 \fi
3910 }%
3911 \define@key{Hyp}{pdfstartview}{\%
3912 \ifx\#1\%
3913 \let\@pdfstartview\ltx@empty
3914 \else
3915 \def\@pdfstartview{/#1}%
3916 \fi
3917 }

3918 \def\HyPat@NonNegativeReal/{\%
3919 \ *([0-9]+\.[0-9]*|[0-9]*\.[0-9]+) *%
3920 }

3921 \define@key{Hyp}{pdfremotestartview}{\%
3922 \ifx\#1\%
3923 \def\@pdfremotestartview{/Fit}%
3924 \else

```

```

3925 \edef\@pdfremotestartview{#1}%
3926 \Hy@Match\@pdfremotestartview{}\{%
3927   ^{XYZ(%
3928     ()| %
3929     (null|-?\HyPat@NonNegativeReal/) %
3930     (null|-?\HyPat@NonNegativeReal/) %
3931     (null|\HyPat@NonNegativeReal/)%
3932   )| % end of "XYZ"
3933   Fit(%
3934     ()| %
3935     B| %
3936     (H|V|BH|BV)(%
3937       ()| %
3938       (null|\HyPat@NonNegativeReal/)%
3939     )| %
3940     R %
3941     \HyPat@NonNegativeReal/ %
3942     \HyPat@NonNegativeReal/ %
3943     \HyPat@NonNegativeReal/ %
3944     \HyPat@NonNegativeReal/%
3945   ) % end of "Fit"
3946   )$%
3947   }{}{%
3948     \Hy@Warning{%
3949       Invalid value ` \@pdfremotestartview'\MessageBreak
3950       of `pdfremotestartview'\MessageBreak
3951       is replaced by `Fit'%
3952     }%
3953     \let\@pdfremotestartview\@empty
3954   }%
3955   \ifx\@pdfremotestartview\@empty
3956     \def\@pdfremotestartview{/Fit}%
3957   \else
3958     \edef\@pdfremotestartview{/ \@pdfremotestartview}%
3959   \fi
3960 \fi
3961 }
3962 \define@key{Hyp}{pdfpagescrop}{\edef\@pdfpagescrop{#1}}
3963 \define@key{Hyp}{pdftoolbar}[true]{%
3964   \Hy@boolkey{pdftoolbar}{#1}%
3965 }
3966 \define@key{Hyp}{pdfmenubar}[true]{%
3967   \Hy@boolkey{pdfmenubar}{#1}%
3968 }
3969 \define@key{Hyp}{pdfwindowui}[true]{%
3970   \Hy@boolkey{pdfwindowui}{#1}%
3971 }
3972 \define@key{Hyp}{pdffitwindow}[true]{%
3973   \Hy@boolkey{pdffitwindow}{#1}%
3974 }
3975 \define@key{Hyp}{pdfcenterwindow}[true]{%
3976   \Hy@boolkey{pdfcenterwindow}{#1}%
3977 }
3978 \define@key{Hyp}{pdfdisplaydoctitle}[true]{%

```

```

3979 \Hy@boolkey{pdfdisplaydoctitle}{#1}%
3980 }
3981 \define@key{Hyp}{pdfa}[true]{%
3982 \Hy@boolkey{pdfa}{#1}%
3983 }
3984 \define@key{Hyp}{pdfnewwindow}[true]{%
3985 \def\Hy@temp{#1}%
3986 \ifx\Hy@temp\@empty
3987 \Hy@pdfnewwindowsetfalse
3988 \else
3989 \Hy@pdfnewwindowsettrue
3990 \Hy@boolkey{pdfnewwindow}{#1}%
3991 \fi
3992 }
3993 \def\Hy@SetNewWindow{%
3994 \ifHy@pdfnewwindowset
3995 /NewWindow %
3996 \ifHy@pdfnewwindow true\else false\fi
3997 \fi
3998 }
3999 \Hy@DefNameKey{pdfpagelayout}{%
4000 \do{SinglePage}{}%
4001 \do{OneColumn}{}%
4002 \do{TwoColumnLeft}{}%
4003 \do{TwoColumnRight}{}%
4004 \do{TwoPageLeft}{PDF 1.5}%
4005 \do{TwoPageRight}{PDF 1.5}%
4006 }
4007 \define@key{Hyp}{pdflang}{%
4008 \edef\@pdflang{#1}%
4009 \def\Hy@temp{\relax}%
4010 \ifx\@pdflang\Hy@temp
4011 \let\@pdflang\relax
4012 \fi
4013 \ifx\@pdflang\relax
4014 \else
4015 \ifx\@pdflang\ltx@empty
4016 \else

```

Test according to ABNF of RFC 3066.

```

4017 \Hy@Match\@pdflang{icase}{%
4018 ~%
4019 [a-z]{1,8}%
4020 (-[a-z0-9]{1,8})*%
4021 $%
4022 }{%

```

Test according to ABNF of RFC 5646.

```

4023 \Hy@Match\@pdflang{icase}{%
4024 ~%
4025 (%
4026 % langtag
4027 (% language
4028 [a-z]{2,3}%
4029 ([a-z]{3}(-[a-z]{3}){0,2})?% extlang

```

```

4030         |[a-z]{4}% reserved for future use
4031         |[a-z]{5,8}% registered language subtag
4032     )%
4033     (-[a-z]{4})?% script
4034     (-([a-z]{2}|[0-9]{3}))?% region
4035     (-([a-z]{5,8}|[0-9][a-z0-9]{3}))% variant
4036     (-[0-9a-wyz](-[a-z0-9]{2,8})+)% extension
4037     (-x(-[a-z0-9]{1,8})+)?% privateuse
4038 % privateuse
4039     |x(-[a-z0-9]{1,8})+)%
4040 % grandfathered/irregular
4041     |en-GB-oed%
4042     |i-(ami|bnn|default|enochian|hak|klinton|lux|
4043         mingo|navajo|pwn|tao|tay|tsu)%
4044     |sgn-(BE-FR|BE-NL|CH-DE)%
4045 % grandfathered/regular
4046     |art-lojban%
4047     |cel-gaulish%
4048     |no-(bok|nyn)%
4049     |zh-(guoyu|hakka|min|min-nan|xiang)%
4050 )%
4051 $%
4052 }{%

```

Test for unique extensions.

```

4053 \Hy@Match{-\@pdflang}{icase}{-[a-wyz0-9]-}{%
4054 \Hy@Match\@pdflang{icase}{~x-}{}%
4055 % remove privateuse
4056 \edef\Hy@temp{-\@pdflang}%
4057 \Hy@Match\Hy@temp{icase}{{%
4058 ~%
4059 (%
4060     (-[a-wyz0-9]|-[a-z0-9]{2,8})%
4061 )%
4062 -x-%
4063 }{%
4064 \edef\Hy@temp{%
4065     \expandafter\strip@prefix\pdfastmatch1%
4066 }%
4067 }}%
4068 \Hy@Match\Hy@temp{icase}{{%
4069     (-[a-wyz0-9]-).*\ltx@backslashchar1%
4070 }{%
4071 \Hy@Warning{%
4072     Invalid language identifier `#1'\MessageBreak
4073     for option `pdfang', because it violates\MessageBreak
4074     well-formedness defined in RFC 4646\MessageBreak
4075     by duplicate singleton subtags%
4076 }%
4077 \let\@pdfang\relax
4078 }}%
4079 }%
4080 }{}%

```

User-assigned country codes are forbidden in language tags (RFC 3066).

```

4081 \ifx\@pdflang\relax
4082 \else
4083 \Hy@Match\@pdflang{icase}{%
4084 ~%
4085 [a-zA-Z]{2}-%
4086 (%
4087 aa|AA|%
4088 [qQ][m-zA-Z]|%
4089 [xX][a-zA-Z]|%
4090 zz|ZZ%
4091 )%
4092 (-|$)%
4093 }{%
4094 \Hy@Warning{%
4095 Invalid language identifier `#1'\MessageBreak
4096 for option `pdflang' because of invalid country code%
4097 \MessageBreak
4098 in second subtag (RFC 3066)%
4099 }%
4100 \let\@pdflang\relax
4101 }{%}%
4102 \fi
4103 }{%
4104 \Hy@Warning{%
4105 Invalid language identifier `#1'\MessageBreak
4106 for option `pdflang', because it violates\MessageBreak
4107 well-formedness defined in RFC 5646%
4108 }%
4109 \let\@pdflang\relax
4110 }%
4111 }{%
4112 \Hy@Warning{%
4113 Invalid language identifier `#1'\MessageBreak
4114 for option `pdflang' (RFC 3066)%
4115 }%
4116 \let\@pdflang\relax
4117 }%
4118 \fi
4119 \fi
4120 }
4121 \define@key{Hyp}{pdfpagelabels}[true]{%
4122 \Hy@boolkey{pdfpagelabels}{#1}%
4123 }
4124 \define@key{Hyp}{pdfescapeform}[true]{%
4125 \Hy@boolkey{pdfescapeform}{#1}%
4126 }

```

Default values:

```

4127 \def\@linkbordercolor{1 0 0}
4128 \def\@urlbordercolor{0 1 1}
4129 \def\@menubordercolor{1 0 0}
4130 \def\@filebordercolor{0 .5 .5}
4131 \def\@runbordercolor{0 .7 .7}
4132 \def\@citebordercolor{0 1 0}
4133 \def\@pdfhighlight{/I}

```

```

4134 \let\@pdftitle\ltx@empty
4135 \let\@pdfauthor\ltx@empty
4136 \let\@pdfproducer\relax
4137 \def\@pdfcreator{LaTeX with hyperref}
4138 \let\@pdfcreationdate\ltx@empty
4139 \let\@pdfmoddate\ltx@empty
4140 \let\@pdfsubject\ltx@empty
4141 \let\@pdfkeywords\ltx@empty
4142 \let\@pdftrapped\ltx@empty
4143 \let\@pdfpagescrop\ltx@empty
4144 \def\@pdfstartview{/Fit}
4145 \def\@pdfremotestartview{/Fit}
4146 \def\@pdfstartpage{1}
4147 \let\@pdfprintpagerange\ltx@empty
4148 \let\@pdflang\relax
4149 \let\PDF@SetupDoc\@empty
4150 \let\PDF@FinishDoc\@empty
4151 \let\phantomsection\@empty
4152 \let\special@paper\@empty
4153 \def\HyperDestNameFilter#1{#1}
4154 \Hy@AtBeginDocument{%
4155   \begingroup
4156     \edef\x{\ifdim\stockheight>\z@ \stockheight\else\paperheight\fi}%
4157     \dimen@=\x\relax
4158     \ifdim\dimen@>\z@
4159       \else
4160         \dimen@=11in\relax
4161         \Hy@WarningNoLine{%
4162           Height of page (\expandafter\string\x) %
4163           is invalid (\the\x),\MessageBreak
4164           using 11in%
4165         }%
4166       \fi
4167       \dimen@=0.99626401\dimen@
4168       \xdef\Hy@pageheight{\strip@pt\dimen@}%
4169     \endgroup
4170 }
4171 \def\HyInd@EncapChar{\|}

```

Allow the user to use `\ExecuteOptions` in the `cfg` file even though this package does not use the normal option mechanism. Use `\hyper@normalise` as a scratch macro, since it is going to be defined in a couple of lines anyway.

```

4172 \let\hyper@normalise\ExecuteOptions
4173 \let\ExecuteOptions\hypersetup
4174 \Hy@RestoreCatcodes
4175 \InputIfFileExists{hyperref.cfg}{-}{-}
4176 \Hy@SetCatcodes
4177 \let\ExecuteOptions\hyper@normalise
4178 \ifx\Hy@MaybeStopNow\relax
4179 \else
4180   \Hy@stoppedearlytrue
4181   \expandafter\Hy@MaybeStopNow
4182 \fi
4183 \Hy@stoppedearlyfalse

```

To add flexibility, we will not use the ordinary processing of package options, but put them through the *keyval* package. This section was written by David Carlisle.

```

4184 \SetupKeyvalOptions{family=Hyp}
4185 \DeclareLocalOptions{%
4186   a4paper,a5paper,b5paper,letterpaper,legalpaper,executivepaper%
4187 }

```

Add option `tex4ht` if package `tex4ht` is loaded.

```

4188 \@ifpackagewith{hyperref}{tex4ht}{%
4189 }{%
4190   \@ifpackageloaded{tex4ht}{%
4191     \PassOptionsToPackage{tex4ht}{hyperref}%
4192   }{%
4193     \ltx@ifundefined{HCode}{%
4194     }{%
4195       \begingroup
4196       \def\Hy@pkg{tex4ht}%
4197       \def\Hy@temp@A#1\RequirePackage[#2]#3#4\Hy@NIL{%
4198         \def\Hy@param{#2#3}%
4199         \ifx\Hy@param\ltx@empty
4200           \expandafter\ltx@gobble
4201         \else
4202           \def\Hy@param{#3}%
4203           \ifx\Hy@param\Hy@pkg
4204             \PassOptionsToPackage{#2}{tex4ht}%
4205             \expandafter\expandafter\expandafter\@gobble
4206           \else
4207             \expandafter\expandafter\expandafter\ltx@firstofone
4208           \fi
4209         \fi
4210         {\Hy@temp@A#4\Hy@NIL}%
4211       }%
4212       \expandafter
4213       \Hy@temp@A\@documentclasshook\RequirePackage[]{}\Hy@NIL
4214     \endgroup
4215     \PassOptionsToPackage{tex4ht}{hyperref}%
4216   }%
4217 }%
4218 }

4219 \let\ReadBookmarks\relax
4220 \ProcessKeyvalOptions{Hyp}

```

After processing options.

## 15.1 Package `xspace` support

```

4221 \def\Hy@xspace@end{}
4222 \ltx@ifundefined{xspaceaddexceptions}{%
4223   \Hy@AtBeginDocument{%
4224     \ltx@ifundefined{xspaceaddexceptions}{%
4225     }{%
4226       \def\Hy@xspace@end{%
4227         \ltx@gobble{end for xspace}%
4228       }%

```

```

4229 \xspaceaddexceptions{%
4230 \Hy@xspace@end,\hyper@linkend,\hyper@anchorend
4231 }%
4232 }%
4233 }%
4234 }{%
4235 \def\Hy@xspace@end{%
4236 \ltx@gobble{end for xspace}%
4237 }%
4238 \xspaceaddexceptions{\Hy@xspace@end,\hyper@linkend,\hyper@anchorend}%
4239 }

```

## 15.2 Option draft

```

4240 \Hy@AtBeginDocument{%
4241 \ifHy@draft
4242 \let\hyper@@anchor\@gobble
4243 \gdef\hyper@link#1#2#3{#3\Hy@xspace@end}%
4244 \def\hyper@anchorstart#1#2{#2\Hy@xspace@end}%
4245 \def\hyper@anchorend{\Hy@xspace@end}%
4246 \let\hyper@linkstart\@gobbletwo
4247 \def\hyper@linkend{\Hy@xspace@end}%
4248 \def\hyper@linkurl#1#2{#1\Hy@xspace@end}%
4249 \def\hyper@linkfile#1#2#3{#1\Hy@xspace@end}%
4250 \def\hyper@link@{#1}#2#3#4{#4\Hy@xspace@end}%
4251 \def\Acrobatmenu#1#2{\leavevmode#2\Hy@xspace@end}%
4252 \let\PDF@SetupDoc\@empty
4253 \let\PDF@FinishDoc\@empty
4254 \let\ReadBookmarks\relax
4255 \let\WriteBookmarks\relax
4256 \Hy@WarningNoLine{Draft mode on}%
4257 \fi
4258 \Hy@DisableOption{draft}%
4259 \Hy@DisableOption{nolinks}%
4260 \Hy@DisableOption{final}%
4261 }

```

## 15.3 PDF/A

```

4262 \Hy@DisableOption{pdfa}
4263 \ifHy@pdfa
4264 \ifnum \Hy@pdf@majorminor@version < 104
4265 \kvsetkeys{Hyp}{pdfversion=1.4}%
4266 \fi
4267 \Hy@DisableOption{pdfversion}%
4268 \def\Hy@Acrobatmenu#1#2{%
4269 \leavevmode
4270 \begingroup
4271 \edef\x{#1}%
4272 \@onelevel@sanitize\x
4273 \ifx\x\Hy@NextPage
4274 \let\y=Y%
4275 \else
4276 \ifx\x\Hy@PrevPage
4277 \let\y=Y%

```



```

4278     \else
4279     \ifx\x\Hy@FirstPage
4280     \let\y=Y%
4281     \else
4282     \ifx\x\Hy@LastPage
4283     \let\y=Y%
4284     \else
4285     \let\y=N%
4286     \fi
4287     \fi
4288     \fi
4289     \fi
4290 \expandafter\endgroup
4291 \ifx\y Y%
4292 \else
4293   \Hy@Error{%
4294     PDF/A: Named action `#1' is not permitted%
4295   }\@ehc
4296   {#2}%
4297   \expandafter\@gobble
4298 \fi
4299 }%
4300 \def\Hy@temp#1{%
4301   \expandafter\def\csname Hy@#1\endcsname{#1}%
4302   \expandafter\@onelevel@sanitize\csname Hy@#1\endcsname
4303 }%
4304 \Hy@temp{NextPage}%
4305 \Hy@temp{PrevPage}%
4306 \Hy@temp{FirstPage}%
4307 \Hy@temp{LastPage}%
4308 \else
4309 \def\Hy@Acrobatmenu#1#2{\leavevmode}%
4310 \fi

```

## 15.4 Patch for babel's \texttilde

Babel does not define \texttilde in NFSS2 manner, so the NFSS2 definitions of PD1 or PU encoding is not compatible. To fix this, \texttilde is defined in babel manner.

change 2020-10-10: no trace of \texttilde can be found in the three languages spanish, galician and estonian so the patch has been removed as outdated.

```

4311 \def\Hy@wrapper@babel#1#2{%
4312   \begingroup
4313   \Hy@safe@activetrue
4314   \set@display@protect
4315   \edef\x{#2}%
4316   \@onelevel@sanitize\x
4317   \toks@{#1}%
4318   \edef\x{\endgroup\the\toks@{\x}}%
4319   \x
4320 }
4321 \def\Hy@WrapperDef#1{%
4322   \begingroup
4323   \escapechar=\m@ne

```

```

4324 \xdef\Hy@gtemp{%
4325 \expandafter\noexpand\csname HyWrap@\string#1\endcsname
4326 }%
4327 \endgroup
4328 \edef#1{%
4329 \noexpand\Hy@wrapper@babel
4330 \expandafter\noexpand\Hy@gtemp
4331 }%
4332 \expandafter\def\Hy@gtemp
4333 }

4334 \ifHy@hyperfigures
4335 \Hy@Info{Hyper figures ON}%
4336 \else
4337 \Hy@Info{Hyper figures OFF}%
4338 \fi
4339 \ifHy@nesting
4340 \Hy@Info{Link nesting ON}%
4341 \else
4342 \Hy@Info{Link nesting OFF}%
4343 \fi
4344 \ifHy@hyperindex
4345 \Hy@Info{Hyper index ON}%
4346 \else
4347 \Hy@Info{Hyper index OFF}%
4348 \fi
4349 \ifHy@plainpages
4350 \Hy@Info{Plain pages ON}%
4351 \else
4352 \Hy@Info{Plain pages OFF}%
4353 \fi
4354 \ifHy@backref
4355 \Hy@Info{Backreferencing ON}%
4356 \else
4357 \Hy@Info{Backreferencing OFF}%
4358 \fi
4359 \ifHy@implicit
4360 \Hy@InfoNoLine{Implicit mode ON; LaTeX internals redefined}%
4361 \else
4362 \Hy@InfoNoLine{Implicit mode OFF; no redefinition of LaTeX internals}%
4363 \def\MaybeStopEarly{%
4364 \Hy@Message{Stopped early}%
4365 \Hy@AtBeginDocument{%
4366 \PDF@FinishDoc
4367 \gdef\PDF@FinishDoc{}}%
4368 }%
4369 \endinput
4370 }%
4371 \Hy@AtBeginDocument{%
4372 \let\autoref\ref
4373 \let\autopageref\pageref
4374 \ifx\@pdfpagemode\@empty
4375 \gdef\@pdfpagemode{UseNone}%
4376 \fi
4377 \global\Hy@backreffalse

```

```

4378 }%
4379 \Hy@AtEndOfPackage{%
4380   \global\let\ReadBookmarks\relax
4381   \global\let\WriteBookmarks\relax
4382 }%
4383 \fi
4384 \Hy@DisableOption{implicit}

```

#### 15.4.1 Driver loading

Ensure that `\stockwidth` and `\stockheight` are defined

```

4385 \@ifundefined{stockwidth}{\newdimen\stockwidth}{}
4386 \@ifundefined{stockheight}{\newdimen\stockheight}{}

4387 \Hy@AtEndOfPackage{%
4388   \@ifpackageloaded{tex4ht}{%
4389     \def\Hy@driver{htex4ht}%
4390     \Hy@texhttrue
4391   }{}%

```

Some drivers can be detected. Check for these drivers, whether the given driver option is ok. Otherwise force the right driver or use the default driver.

```

4392 \ifx\Hy@driver\@empty
4393 \else
4394   \ifx\pdfextension\@undefined
4395     \def\Hy@temp{hpdfTeX}%
4396   \else
4397     \def\Hy@temp{hluatex}%
4398   \fi
4399 \ifpdf
4400   \ifx\Hy@driver\Hy@temp
4401   \else
4402     \Hy@WarningNoLine{%
4403       Wrong driver `\'Hy@driver.def';\MessageBreak
4404       pdfTeX is running in PDF mode.\MessageBreak
4405       Forcing driver `\'Hy@temp.def'%
4406     }%
4407     \let\Hy@driver\Hy@temp
4408   \fi
4409 \else
4410   \ifx\Hy@driver\Hy@temp
4411     \Hy@WarningNoLine{%
4412       Wrong driver `\'Hy@driver.def';\MessageBreak
4413       pdfTeX is not running in PDF mode.\MessageBreak
4414       Using default driver%
4415     }%
4416     \let\Hy@driver\@empty
4417   \fi
4418 \fi
4419 \fi
4420 \ifHy@texht
4421 \else
4422   \ifx\Hy@driver\@empty
4423   \else
4424     \def\Hy@temp{hxeTeX}%

```

```

4425 \ifxetex
4426 \ifx\Hy@driver\Hy@temp
4427 \else
4428 \Hy@WarningNoLine{%
4429   Wrong driver ``\Hy@driver.def';\MessageBreak
4430   XeTeX is running.\MessageBreak
4431   Forcing driver ``\Hy@temp.def' for XeTeX%
4432 }%
4433 \let\Hy@driver\Hy@temp
4434 \fi
4435 \fi
4436 \fi
4437 \fi
4438 \ifx\Hy@driver\@empty
4439 \else
4440 \def\Hy@temp{hhitex}%
4441 \ifhint
4442 \ifx\Hy@driver\Hy@temp
4443 \else
4444 \Hy@WarningNoLine{%
4445   Wrong driver ``\Hy@driver.def';\MessageBreak
4446   hitex is running.\MessageBreak
4447   Forcing driver ``\Hy@temp.def'%
4448 }%
4449 \let\Hy@driver\Hy@temp
4450 \fi
4451 \fi
4452 \fi
4453 \ifx\Hy@driver\@empty
4454 \else
4455 \def\Hy@temp{hvtexhtm}%
4456 \ifnum\ifvtex\OpMode\else\m@ne\fi=10 %
4457 \ifx\Hy@driver\Hy@temp
4458 \else
4459 \Hy@WarningNoLine{%
4460   Wrong driver ``\Hy@driver.def';\MessageBreak
4461   VTeX is running in HTML mode.\MessageBreak
4462   Forcing driver ``\Hy@temp.def'%
4463 }%
4464 \let\Hy@driver\Hy@temp
4465 \fi
4466 \else
4467 \ifx\Hy@driver\Hy@temp
4468 \Hy@WarningNoLine{%
4469   Wrong driver ``\Hy@driver.def';\MessageBreak
4470   VTeX is not running in HTML mode.\MessageBreak
4471   Using default driver%
4472 }%
4473 \let\Hy@driver\@empty
4474 \fi
4475 \fi
4476 \fi

```

If the driver is not given, find the right driver or use the default driver.

```

4477 \let\HyOpt@DriverType\ltx@empty

```

```

4478 \ifx\HyOpt@CustomDriver\ltx@empty
4479 \ifx\Hy@driver@empty
4480 \def\HyOpt@DriverType{ (autodetected)}%
4481 \providecommand*{\Hy@defaultdriver}{hdvips}%
4482 \ifpdf
4483 \ifx\pdfextension\@undefined
4484 \def\Hy@driver{hpdfTEX}%
4485 \else
4486 \def\Hy@driver{hLATEX}%
4487 \fi
4488 \else
4489 \ifxetex
4490 \def\Hy@driver{HXTEX}%
4491 \else
4492 \ifnum\ifvtex\OpMode\else\m@ne\fi=10 %
4493 \def\Hy@driver{hvtexhtm}%
4494 \def\MaybeStopEarly{%
4495 \Hy@Message{Stopped early}}%
4496 \Hy@AtBeginDocument{%
4497 \PDF@FinishDoc
4498 \gdef\PDF@FinishDoc{}}%
4499 }%
4500 \endinput
4501 }%
4502 \else
4503 \ifhint
4504 \def\Hy@driver{hhitex}
4505 \else
4506 \ifnum\ifvtex\OpMode\else\m@ne\fi=\@ne
4507 \def\Hy@driver{hvtex}%
4508 \else
4509 \ifnum\ifvtex\OpMode\else\m@ne\fi=\tw@
4510 \def\Hy@driver{hvtex}%
4511 \else
4512 \ifx\HyOpt@DriverFallback\ltx@empty
4513 \let\Hy@driver\Hy@defaultdriver
4514 \def\HyOpt@DriverType{ (default)}%
4515 \else
4516 \begingroup
4517 \toks@{\expandafter{\HyOpt@DriverFallback}}%
4518 \edef\x{\endgroup
4519 \noexpand\kvsetkeys{Hyp}{\the\toks@}}%
4520 }%
4521 \x
4522 \ifx\Hy@driver\ltx@empty
4523 \let\Hy@driver\Hy@defaultdriver
4524 \def\HyOpt@DriverType{ (default)}%
4525 \else
4526 \def\HyOpt@DriverType{ (fallback)}%
4527 \fi
4528 \fi
4529 \fi
4530 \fi
4531 \fi

```

```

4532     \fi
4533   \fi
4534 \fi
4535 \ifx\Hy@driver\Hy@defaultdriver
4536   \def\Hy@temp{hdvwind}%
4537   \ifx\Hy@temp\Hy@driver
4538     \kvsetkeys{Hyp}{colorlinks}%
4539     \PassOptionsToPackage{dviwindo}{color}%
4540   \fi
4541 \fi
4542 \fi
4543 \else
4544   \def\HyOpt@DriverType{ (custom)}%
4545   \let\Hy@driver\HyOpt@CustomDriver
4546 \fi
4547 \Hy@InfoNoLine{Driver\HyOpt@DriverType: \Hy@driver}%
4548 \chardef\Hy@VersionChecked=0 %
4549 \input{\Hy@driver.def}%
4550 \ifcase\Hy@VersionChecked
4551   \Hy@VersionCheck{\Hy@driver.def}%
4552 \fi
4553 \let\@unprocessedoptions\relax
4554 \Hy@RestoreCatcodes
4555 \Hy@DisableOption{tex4ht}%
4556 \Hy@DisableOption{pdftex}%
4557 \Hy@DisableOption{nativepdf}%
4558 \Hy@DisableOption{dvipdfm}%
4559 \Hy@DisableOption{dvipdfmx}%
4560 \Hy@DisableOption{dvipdfmx-outline-open}%
4561 \Hy@DisableOption{pdfmark}%
4562 \Hy@DisableOption{dvips}%
4563 \Hy@DisableOption{hypertex}%
4564 \Hy@DisableOption{vtex}%
4565 \Hy@DisableOption{vtexpdfmark}%
4566 \Hy@DisableOption{dviwindo}%
4567 \Hy@DisableOption{dvipsone}%
4568 \Hy@DisableOption{textures}%
4569 \Hy@DisableOption{latex2html}%
4570 \Hy@DisableOption{ps2pdf}%
4571 \Hy@DisableOption{xetex}%
4572 \Hy@DisableOption{driverfallback}%
4573 \Hy@DisableOption{customdriver}%
4574 \Hy@DisableOption{pdfversion}%
4575 }

```

Support for open outlines is enabled for XeTeX  $\geq 0.9995$ . I don't know, if older versions also support this. AFAIK older dvipdfmx versions will break, thus the switch cannot be turned on by default.

```

4576 \newif\ifHy@DvipdfmxOutlineOpen
4577 \ifxetex
4578   \ifdim\number\XeTeXversion\XeTeXrevision in<0.9995in %
4579   \else
4580     \chardef\SpecialDvipdfmxOutlineOpen\@ne
4581     \Hy@DvipdfmxOutlineOpen>true

```

```

4582 \fi
4583 \fi
4584 \begingroup\expandafter\expandafter\expandafter\endgroup
4585 \expandafter\ifx\csname SpecialDvipdfmxOutlineOpen\endcsname\relax
4586 \else
4587 \ifnum\SpecialDvipdfmxOutlineOpen>\z@
4588 \Hy@DvipdfmxOutlineOpentru
4589 \fi
4590 \fi

```

### 15.4.2 Bookmarks

```

4591 \def\WriteBookmarks{0}
4592 \def\@bookmarkopenstatus#1{%
4593 \ifHy@bookmarksopen

```

The purpose of the \@firstofone-number-space-construct is that no \relax will be inserted by T<sub>E</sub>X before the \else:

```

4594 \ifnum#1<\expandafter\@firstofone\expandafter
4595 {\number\@bookmarkopenlevel} % explicit space
4596 \else
4597 -%
4598 \fi
4599 \else
4600 -%
4601 \fi
4602 }
4603 \ifHy@bookmarks
4604 \Hy@Info{Bookmarks ON}%
4605 \ifx\@pdfpagemode\@empty
4606 \def\@pdfpagemode{UseOutlines}%
4607 \fi
4608 \else
4609 \let\@bookmarkopenstatus\ltx@gobble
4610 \Hy@Info{Bookmarks OFF}%
4611 \Hy@AtEndOfPackage{%
4612 \global\let\ReadBookmarks\relax
4613 \global\let\WriteBookmarks\relax
4614 }%
4615 \ifx\@pdfpagemode\@empty
4616 \def\@pdfpagemode{UseNone}%
4617 \fi
4618 \fi
4619 \Hy@DisableOption{bookmarks}

```

Add wrapper for setting standard catcodes (babel's shorthands).

```

4620 \def\Hy@CatcodeWrapper#1{%
4621 \let\Hy@endWrap\ltx@empty
4622 \def\TMP@EnsureCode##1##2{%
4623 \edef\Hy@endWrap{%
4624 \Hy@endWrap
4625 \catcode##1 \the\catcode##1\relax
4626 }%
4627 \catcode##1 ##2\relax
4628 }%

```

```

4629 \TMP@EnsureCode{10}{12}% ^^J
4630 \TMP@EnsureCode{33}{12}% !
4631 \TMP@EnsureCode{34}{12}% "
4632 \TMP@EnsureCode{36}{3}% $ (math)
4633 \TMP@EnsureCode{38}{4}% & (alignment)
4634 \TMP@EnsureCode{39}{12}% '
4635 \TMP@EnsureCode{40}{12}% (
4636 \TMP@EnsureCode{41}{12}% )
4637 \TMP@EnsureCode{42}{12}% *
4638 \TMP@EnsureCode{43}{12}% +
4639 \TMP@EnsureCode{44}{12}% ,
4640 \TMP@EnsureCode{45}{12}% -
4641 \TMP@EnsureCode{46}{12}% .
4642 \TMP@EnsureCode{47}{12}% /
4643 \TMP@EnsureCode{58}{12}% :
4644 \TMP@EnsureCode{59}{12}% ;
4645 \TMP@EnsureCode{60}{12}% <
4646 \TMP@EnsureCode{61}{12}% =
4647 \TMP@EnsureCode{62}{12}% >
4648 \TMP@EnsureCode{63}{12}% ?
4649 \TMP@EnsureCode{91}{12}% [
4650 \TMP@EnsureCode{93}{12}% ]
4651 \TMP@EnsureCode{94}{7}% ^ (superscript)
4652 \TMP@EnsureCode{95}{8}% _ (subscript)
4653 \TMP@EnsureCode{96}{12}% `
4654 \TMP@EnsureCode{124}{12}% |
4655 \TMP@EnsureCode{126}{13}% ~ (active)
4656 #1\relax
4657 \Hy@EndWrap
4658 }

```

\HyColor@UseColor expects a macro as argument. It contains the color specification.

```

4659 \Hy@AtBeginDocument{%
4660   \ifHy@ocgcolorlinks
4661     \kvsetkeys{Hyp}{colorlinks}%
4662     \ifHy@pdfa
4663       \Hy@Warning{%
4664         PDF/A: Optional Content Groups are prohibited,\MessageBreak
4665         using `colorlinks' instead of `ocgcolorlinks'%
4666       }%
4667       \Hy@ocgcolorlinksfalse
4668     \fi
4669   \fi
4670   \ifHy@ocgcolorlinks
4671   \else
4672     \Hy@DisableOption{ocgcolorlinks}%
4673   \fi
4674   \ifHy@colorlinks
4675     \def\@pdfborder{0 0 0}%
4676     \let\@pdfborderstyle\@empty
4677     \Hy@CatcodeWrapper{%
4678       \RequirePackage{color}%
4679     }%
4680     \def\Hy@colorlink#1{%

```



```

4681 \begingroup
4682 \HyColor@UseColor#1%
4683 }%
4684 \def\Hy@endcolorlink{\endgroup}%
4685 \Hy@Info{Link coloring ON}%
4686 \else
4687 \ifHy@frenchlinks
4688 \def\Hy@colorlink#1{\begingroup\fontshape{\scdefault}\selectfont}%
4689 \def\Hy@endcolorlink{\endgroup}%
4690 \Hy@Info{French linking ON}%
4691 \else

```

for grouping consistency:

```

4692 \def\Hy@colorlink#1{\begingroup}%
4693 \def\Hy@endcolorlink{\endgroup}%
4694 \Hy@Info{Link coloring OFF}%
4695 \fi
4696 \fi
4697 \Hy@DisableOption{colorlinks}%
4698 \Hy@DisableOption{frenchlinks}%
4699 \ifHy@texht
4700 \else

```

With active links we have to redefine the starred versions to avoid that they get links from the include \@setref:

```

4701 \ifHy@implicit
4702 \let \T@Ref\HyRef@Ref
4703 \def\@refstar#1{%
4704 \NR@ref@showkeys{#1}%
4705 \HyRef@StarSetRef{#1}\@firstoffive
4706 }
4707 \def\@pagerefstar#1{%
4708 \NR@ref@showkeys{#1}%
4709 \HyRef@StarSetRef{#1}\@secondoffive
4710 }
4711 \def\@namerefstar#1{%
4712 \NR@ref@showkeys{#1}%
4713 \HyRef@StarSetRef{#1}\@thirdoffive
4714 }
4715 \def\@Refstar#1{%
4716 \NR@ref@showkeys{#1}%
4717 \HyRef@StarSetRef{#1}\HyRef@MakeUppercaseFirstOfFive
4718 }%
4719 \else
4720 \fi
4721 \fi
4722 }
4723 \Hy@AtBeginDocument{%
4724 \ifx\ReadBookmarks\relax
4725 \else
4726 \Hy@CatcodeWrapper\ReadBookmarks
4727 \fi
4728 }
4729 \ifHy@backref
4730 \RequirePackage{backref}%

```

```

4731 \else
4732 \let\Hy@backout\@gobble
4733 \fi
4734 \Hy@DisableOption{backref}
4735 \Hy@DisableOption{pagebackref}
4736 \Hy@activeanchorfalse

```

## 16 User hypertext macros

We need to normalise all user commands taking a URL argument; Within the argument the following special definitions apply: \#, \%, ~ produce #, %, ~ respectively. for consistency ~ produces ~ as well. At the *top level only* ie not within the argument of another command, you can use # and % unescaped, to produce themselves. even if, say, # is entered as # it will be converted to \# so it does not die if written to an aux file etc. \# will write as # locally while making \specials.

```

4737 \begingroup
4738 \endlinechar=-1 %
4739 \catcode`\^^A=14 %
4740 \catcode`\^^M\active
4741 \catcode`\%\active
4742 \catcode`\#\active
4743 \catcode`\_\active
4744 \catcode`\$\active
4745 \catcode`\&\active
4746 \gdef\hyper@normalise{^^A
4747 \begingroup
4748 \catcode`\^^M\active
4749 \def^^M{ }^^A
4750 \catcode`\%\active
4751 \let%\@percentchar
4752 \let%\@percentchar
4753 \catcode`\#\active
4754 \def#{\hyper@hash}^^A
4755 \def#{\hyper@hash}^^A
4756 \@makeother\&^^A
4757 \edef&{\string&}^^A
4758 \edef&{\string&}^^A
4759 \edef\textunderscore{\string_}^^A
4760 \let_\textunderscore
4761 \catcode`\_\active
4762 \let_\textunderscore
4763 \let~\hyper@tilde
4764 \let~\hyper@tilde
4765 \let\textasciitilde\hyper@tilde
4766 \let\\\@backslashchar
4767 \edef${\string$}^^A
4768 \Hy@safe@activetrue
4769 \hyper@n@rmalise
4770 }^^A
4771 \catcode`\#=6 ^^A
4772 \gdef\Hy@ActiveCarriageReturn{^^M}^^A
4773 \gdef\hyper@n@rmalise#1#2{^^A

```

```

4774 \def\Hy@tempa{#2}^^A
4775 \ifx\Hy@tempa\Hy@ActiveCarriageReturn
4776 \ltx@ReturnAfterElseFi{^^A
4777 \hyper@@normalise{#1}^^A
4778 }^^A
4779 \else
4780 \ltx@ReturnAfterFi{^^A
4781 \hyper@@normalise{#1}{#2}^^A
4782 }^^A
4783 \fi
4784 }^^A
4785 \gdef\hyper@@normalise#1#2{^^A
4786 \edef\Hy@tempa{^^A
4787 \endgroup
4788 \noexpand#1{\Hy@RemovePercentCr#2%^M\@nil}^^A
4789 }^^A
4790 \Hy@tempa
4791 }^^A
4792 \gdef\Hy@RemovePercentCr#1%^M#2\@nil{^^A
4793 #1^^A
4794 \ifx\limits#2\limits
4795 \else
4796 \ltx@ReturnAfterFi{^^A
4797 \Hy@RemovePercentCr #2\@nil
4798 }^^A
4799 \fi
4800 }^^A
4801 \endgroup
4802 \providecommand*\hyper@chars{%
4803 \let\#\hyper@hash
4804 \let\%\@percentchar
4805 \Hy@safe@activetrue
4806 }

4807 \def\hyperlink#1#2{%
4808 \hyper@@link{}{#1}{#2}%
4809 }

4810 \def\Hy@VerboseLinkStart#1#2{%
4811 \ifHy@verbose
4812 \begingroup
4813 \Hy@safe@activetrue
4814 \xdef\Hy@VerboseGlobalTemp{(#1) `#2'}%
4815 \Hy@Info{Reference \Hy@VerboseGlobalTemp}%
4816 \xdef\Hy@VerboseGlobalTemp{%
4817 \Hy@VerboseGlobalTemp, %
4818 line \the\inputlineno
4819 }%
4820 \endgroup
4821 \let\Hy@VerboseLinkInfo\Hy@VerboseGlobalTemp
4822 \@onelevel@sanitize\Hy@VerboseLinkInfo
4823 \fi
4824 }

4825 \def\Hy@VerboseLinkInfo{<VerboseLinkInfo>}
4826 \def\Hy@VerboseLinkStop{%

```

```

4827 \ifHy@verbose
4828 \begingroup
4829 \edef\x{\endgroup
4830 \write\m@ne{%
4831 Package `hyperref' Info: %
4832 End of reference \Hy@VerboseLinkInfo.%
4833 }%
4834 }%
4835 \x
4836 \fi
4837 }

4838 \def\Hy@VerboseAnchor#1{%
4839 \ifHy@verbose
4840 \begingroup
4841 \Hy@safe@activertrue
4842 \Hy@Info{Anchor `\'HyperDestNameFilter{#1}'}%
4843 \endgroup
4844 \fi
4845 }

4846 \def\Hy@AllowHyphens{%
4847 \relax
4848 \ifhmode
4849 \penalty\@M
4850 \hskip\z@skip
4851 \fi
4852 }

4853 \DeclareRobustCommand*{\href}[1][]{%
4854 \begingroup
4855 \setkeys{href}{#1}%
4856 \@ifnextchar\bgroup\Hy@href{\hyper@normalise\href@}%
4857 }
4858 \def\Hy@href#1{%
4859 \hyper@normalise\href@
4860 }
4861 \begingroup
4862 \catcode`\$=6 %
4863 \catcode`\#=12 %
4864 \gdef\href@\$1{\expandafter\href@split$1##\}%
4865 \gdef\href@split$1#$2#$3\\$4{%
4866 \hyper@@link{$1}{$2}{$3}{$4}%
4867 \endgroup
4868 }%
4869 \endgroup

```

Option ‘page’.

```

4870 \define@key{href}{page}{%
4871 \def\Hy@href@page{#1}%
4872 }
4873 \let\Hy@href@page\@empty
4874 \newcount\c@Hy@tempcnt
4875 \def\theHy@tempcnt{\the\c@Hy@tempcnt}
4876 \def\Hy@MakeRemoteAction{%
4877 \ifx\Hy@href@page\@empty

```

```

4878 \def\Hy@href@page{0}%
4879 \else
4880 \setcounter{Hy@tempcnt}{\Hy@href@page}%
4881 \ifnum\c@Hy@tempcnt<\@ne
4882 \Hy@Warning{%
4883   Invalid page number (\theHy@tempcnt)\MessageBreak
4884   for remote PDF file.\MessageBreak
4885   Using page 1%
4886 }%
4887 \def\Hy@href@page{0}%
4888 \else
4889 \global\advance\c@Hy@tempcnt\m@ne
4890 \edef\Hy@href@page{\theHy@tempcnt}%
4891 \fi
4892 \fi

```

If a next action is set, then also a new window should be opened. Otherwise AR reclaims that it closes the current file with discarding the next actions.

```

4893 \ifx\Hy@href@nextactionraw\@empty
4894 \else
4895 \Hy@pdfnewwindowsettrue
4896 \Hy@pdfnewwindowtrue
4897 \fi
4898 }

```

Option ‘pdfremotestartview’.

```

4899 \define@key{href}{pdfremotestartview}{%
4900 \setkeys{Hyp}{pdfremotestartview={#1}}}%
4901 }

```

Option ‘pdfnewwindow’.

```

4902 \let\KV@href@pdfnewwindow\KV@Hyp@pdfnewwindow
4903 \let\KV@href@pdfnewwindow@default\KV@Hyp@pdfnewwindow@default

```

Option ‘ismap’.

```

4904 \newif\ifHy@href@ismap
4905 \define@key{href}{ismap}[true]{%
4906 \ltx@ifundefined{Hy@href@ismap#1}{%
4907 \Hy@Error{%
4908   Invalid value (#1) for key `ismap'.\MessageBreak
4909   Permitted values are `true' or `false'.\MessageBreak
4910   Ignoring `ismap'%
4911 }\@ehc
4912 }{%
4913 \csname Hy@href@ismap#1\endcsname
4914 }%
4915 }

```

Option ‘nextactionraw’.

```

4916 \let\Hy@href@nextactionraw\@empty
4917 \define@key{href}{nextactionraw}{%
4918 \edef\Hy@href@nextactionraw{#1}%
4919 \ifx\Hy@href@nextactionraw\@empty
4920 \else
4921 \Hy@Match\Hy@href@nextactionraw{}{%
4922   ~(\HyPat@ObjRef|<<.*[/S[/].+>>|}%

```

```

4923 \[( ?\HyPat@ObjRef/|<<.*[/].+>>)+ ?)]$%
4924 }{}{%
4925 \Hy@Warning{Invalid value for `nextactionraw':\MessageBreak
4926 \Hy@href@nextactionraw\MessageBreak
4927 The action is discarded%
4928 }%
4929 }%
4930 \ifx\Hy@href@nextactionraw\@empty
4931 \else
4932 \edef\Hy@href@nextactionraw{/Next \Hy@href@nextactionraw}%
4933 \fi
4934 \fi
4935 }
4936 \def\HyPat@ObjRef/{.+}

```

Load package `url.sty` and save the meaning of the original `\url` in `\HyOrg@url`.

```

4937 \RequirePackage{url}
4938 \let\HyOrg@url\url
4939 \def\Hurl{\begingroup \Url}
4940 \DeclareRobustCommand*\nolinkurl{\hyper@normalise\nolinkurl@}
4941 \def\nolinkurl@#1{\Hurl{#1}}
4942 \DeclareRobustCommand*\url{\hyper@normalise:url@}
4943 \def\url@#1{\hyper@linkurl{\Hurl{#1}}{#1}}
4944 \DeclareRobustCommand*\hyperimage{\hyper@normalise\hyper@image}
4945 \providecommand\hyper@image[2]{#2}
4946 \def\hypertarget#1#2{%
4947 \ifHy@nesting
4948 \hyper@@anchor{#1}{#2}%
4949 \else
4950 \hyper@@anchor{#1}{\relax}#2%
4951 \fi
4952 }

```

`\hyperref` is more complicated, as it includes the concept of a category of link, used to make the name. This is not really used in this package. `\hyperdef` sets up an anchor in the same way. They each have three parameters of category, linkname, and marked text, and `\hyperref` also has a first parameter of URL. If there is an optional first parameter to `\hyperdef`, it is the name of a  $\LaTeX$  label which can be used in a short form of `\hyperref` later, to avoid remembering the name and category.

```

4953 \DeclareRobustCommand*\hyperref{%
4954 \@ifnextchar{\Hy@babelnormalise\label@hyperref}\@hyperref
4955 }
4956 \def\Hy@babelnormalise#1[#2]{%
4957 \begingroup
4958 \Hy@safe@activestru
4959 \let\protect\@unexpandable@protect
4960 \edef\Hy@tempa{%
4961 \endgroup
4962 \noexpand#1[{#2}]%
4963 }%
4964 \Hy@tempa
4965 }

```

```

4966 \def\@hyperref{\hyper@normalise\@hyperref}
4967 \def\@hyperref#1#2#3{%
4968   \edef\ref@one{\ifx\#2\else#2.\fi#3}%
4969   \expandafter\tryhyper@link\ref@one\{#1}%
4970 }
4971 \def\tryhyper@link#1\#2{%
4972   \hyper@@link{#2}{#1}%
4973 }

4974 \def\hyperdef{\@ifnextchar{\label@hyperdef}\@hyperdef}}
4975 \def\@hyperdef#1#2#3{%, category, name, text
4976   \ifx\#1\%
4977     \def\Hy@AnchorName{#2}%
4978   \else
4979     \def\Hy@AnchorName{#1.#2}%
4980   \fi
4981   \ifHy@nesting
4982     \expandafter\hyper@@anchor\expandafter{\Hy@AnchorName}{#3}%
4983   \else
4984     \expandafter\hyper@@anchor\expandafter{\Hy@AnchorName}{\relax}#3%
4985   \fi
4986 }

```

We also have a need to give a L<sup>A</sup>T<sub>E</sub>X *label* to a hyper reference, to ease the pain of referring to it later. `\hyperrefundefinedlink` may be redefined by a user to add colour or other formatting.

```

4987 \let\hyperrefundefinedlink\@firstofone
4988 \def\label@hyperref#1{%
4989   \expandafter\label@@hyperref\csname r@#1\endcsname{#1}%
4990 }%
4991 \def\label@@hyperref#1#2#3{%
4992   \ifx#1\relax
4993     \protect\G@refundefinedtrue
4994     \@latex@warning{%
4995       Hyper reference `#2' on page \thepage \space undefined%
4996     }%
4997     \begingroup
4998       \hyperrefundefinedlink{#3}%
4999     \endgroup
5000   \else
5001     \hyper@@link{\expandafter\@fifthoffive#1}%
5002     {\expandafter\@fourthoffive#1\@empty\@empty}{#3}%
5003   \fi
5004 }
5005 \def\label@hyperdef[#1]#2#3#4{% label name, category, name,
5006                               % anchor text
5007   \@bsphack
5008   \ifx\#2\%
5009     \def\Hy@AnchorName{#3}%
5010   \else
5011     \def\Hy@AnchorName{#2.#3}%
5012   \fi
5013   \if@files@
5014     \protected@write\@auxout{}{%
5015       \string\newlabel{#1}{\{ }\{ }\{ }\Hy@AnchorName\} }%

```

```

5016 }%
5017 \fi
5018 \@esphack
5019 \ifHy@nesting
5020   \expandafter\hyper@@anchor\expandafter{\Hy@AnchorName}{#4}%
5021 \else
5022   \expandafter\hyper@@anchor\expandafter{\Hy@AnchorName}{\relax}#4%
5023 \fi
5024 }

```

`\hyperget` To create manually bookmarks one need the destination name. If there is a label, the name can be retrieved with commands from `refcount`. Such a destination name must take `\HyperDestNameFilter` into account

```
\HyperDestNameFilter{\getrefbykeydefault{label}{anchor}{Doc-Start}}
```

To make this easier, we define `\hyperget`

```

5025 \ExplSyntaxOn
5026 \cs_new:Npn \hyperget #1 #2
5027 {
5028   \use:c { __hyp_get_#1:n } { #2}
5029 }
5030
5031 \cs_new:Npn \__hyp_get_anchor:n #1
5032 {
5033   \HyperDestNameFilter
5034   {
5035     \cs_if_exist:cTF {r@#1}
5036     {
5037       \tl_item:cn {r@#1}{4}
5038     }
5039     {
5040       Doc-Start
5041     }
5042   }
5043 }
5044 \cs_new:Npn \__hyp_get_pageanchor:n #1
5045 {
5046   \HyperDestNameFilter
5047   {
5048     \cs_if_exist:cTF {r@#1}
5049     {
5050       page. \tl_item:cn {r@#1}{2}
5051     }
5052     {
5053       Doc-Start
5054     }
5055   }
5056 }
5057 \cs_new:Npn \__hyp_get_currentanchor:n #1
5058 {
5059   \HyperDestNameFilter { \@currentHref }
5060 }
5061 \ExplSyntaxOff

```



## 16.1 Link box support for XeTeX

```

5062 \newdimen\XeTeXLinkMargin
5063 \setlength{\XeTeXLinkMargin}{2pt}
5064 \ifxetex
5065   \font\XeTeXLink@font=pzdr at 1sp\relax
5066   \newcommand*{\XeTeXLink@space}{%
5067     \begingroup
5068       \XeTeXLink@font
5069       \@xxxii
5070     \endgroup
5071   }%
5072   \newcommand{\XeTeXLinkBox}[1]{%
5073     \begingroup
5074       \leavevmode
5075       \sbox\z@{#1}%
5076       \begingroup
5077         \dimen@=\dp\z@
5078         \advance\dimen@\XeTeXLinkMargin
5079         \setbox\tw@=\llap{%
5080           \hb@xt@\XeTeXLinkMargin{%
5081             \lower\dimen@\hbox{\XeTeXLink@space}%
5082             \hss
5083           }%
5084         }%
5085         \dp\tw@=\dp\z@
5086         \ht\tw@=\ht\z@
5087         \copy\tw@
5088       \endgroup
5089       \copy\z@
5090       \dimen@=\ht\z@
5091       \advance\dimen@\XeTeXLinkMargin
5092       \setbox\tw@=\rlap{%
5093         \hb@xt@\XeTeXLinkMargin{%
5094           \hss
5095           \raise\dimen@\hbox{\XeTeXLink@space}%
5096         }%
5097       }%
5098       \dp\tw@=\dp\z@
5099       \ht\tw@=\ht\z@
5100       \copy\tw@
5101     \endgroup
5102   }%
5103 \else
5104   \newcommand*{\XeTeXLinkBox}[1]{%
5105     \begingroup
5106       \leavevmode
5107       \sbox\z@{#1}%
5108       \copy\z@
5109     \endgroup
5110   }%
5111 \fi

```

## 17 Underlying basic hypertext macros

Links have an optional type, a filename (possibly a URL), an internal name, and some marked text. (Caution: the internal name may contain babel shorthand characters.) If the second parameter is empty, its an internal link, otherwise we need to open another file or a URL. A link start has a type, and a URL.

```

5112 \def\hyper@@link{\let\Hy@reserved@a\relax
5113 \ifnextchar{\hyper@link@}{\hyper@link@[link]}%
5114 }
5115 % #1: type
5116 % #2: URL
5117 % #3: destination name
5118 % #4: text
5119 \def\hyper@link@[#1]#2#3#4{%
5120 \ltx@ifempty{#4}{% link text
5121   \Hy@Warning{Suppressing empty link}%
5122 }{%
5123   \begingroup
5124   \protected@edef\Hy@tempa{#2}%
5125   \edef\Hy@tempb{#3}%
5126   \ifx\Hy@tempa\ltx@empty
5127     \ifx\Hy@tempb\ltx@empty
5128       \Hy@Warning{Suppressing link with empty target}%
5129       \toks@{%
5130         \endgroup
5131         \ltx@secondoftwo
5132       }%
5133     \else
5134       \toks@{%
5135         \endgroup
5136         \hyper@link{#1}%
5137       }%
5138     \fi
5139   \else
5140     \toks@{%
5141       \endgroup
5142       \expandafter\hyper@readexternallink#2\{#1}%
5143     }%
5144   \fi
5145   \Hy@safe@activesfalse
5146   \toks@\expandafter{%
5147     \the\expandafter\toks@
5148     \expandafter{\Hy@tempb}{#4}%
5149   }%
5150   \the\toks@
5151 }%
5152 }

```

The problem here is that the first (URL) parameter may be a local file: reference (in which case some browsers treat it differently) or a genuine URL, in which case we'll have to activate a real Web browser. Note that a simple name is also a URL, as that is interpreted as a relative file name. We have to worry about # signs in a local file as well.

```

5153 \def\hyper@readexternallink#1\{#2#3#4{%

```

```

5154 \begingroup
5155   \let\\\relax
5156 \expandafter\endgroup
5157 \expandafter\@hyper\@readexternallink#1\{\#2}\{\#3}\{\#4}%
5158 }
5159 \def\@hyper\@readexternallink#1\{\#2\#3\#4}%

```

Parameters are:

1. The URL or file name
2. The type
3. The internal name
4. The link string

We need to get the 1st parameter properly expanded, so we delimit the arguments rather than passing it inside a group.

```

5160 \@hyper\@readexternallink{\#2}\{\#3}\{\#4}\#1::\{\#1}%
5161 }

```

Now (potentially), we are passed: 1) The link type 2) The internal name, 3) the link string, 4) the URL type (http, mailto, file etc), 5) the URL details 6) anything after a real : in the URL 7) the whole URL again

```

5162 \def\@pdftempwordfile{file}%
5163 \def\@pdftempwordrun{run}%
5164 \def\@hyper\@readexternallink#1\#2\#3\#4:\#5:\#6\\\#7{%

```

If there are no colons at all (**#6** is blank), its a local file; if the URL type (**#4**) is blank, its probably a Mac filename, so treat it like a **file: URL**. The only flaw is if its a relative Mac path, with several colon-separated elements — then we lose. Such names must be prefixed with an explicit **dvi**:

```

5165 \ifx\\\#6\\\%
5166   \@hyper\linkfile file:\#7\\\{\#3}\{\#2}\{\#7}%
5167 \else
5168   \ifx\\\#4\\\%
5169     \@hyper\linkfile file:\#7\\\{\#3}\{\#2}\{\#7}%
5170   \else

```

If the URL type is ‘file’, pass it for local opening

```

5171   \def\@pdftempa{\#4}%
5172   \ifx\@pdftempa\@pdftempwordfile
5173     \@hyper\linkfile\#7\\\{\#3}\{\#2}\{\#7}%
5174   \else

```

if it starts ‘run:’, its to launch an application.

```

5175     \ifx\@pdftempa\@pdftempwordrun
5176       \ifHy@pdfa
5177         \Hy@Error{%
5178           PDF/A: Launch action is prohibited%
5179       }\@ehc
5180     \begingroup
5181     \leavevmode
5182     \#2%
5183   \endgroup

```

```

5184      \else
5185      \@hyper@launch#7\{\#3}\#2}%
5186      \fi
5187      \else

```

otherwise its a URL

```

5188      \hyper@linkurl{\#3}\#7\ifx\#2\else\hyper@hash#2\fi}%
5189      \fi
5190      \fi
5191      \fi
5192      \fi
5193 }

```

By default, turn run: into file:

```

5194 \def\@hyper@launch run:#1\#2#3{% filename, anchor text, linkname
5195   \hyper@linkurl{\#2}{%
5196     \Hy@linkfileprefix
5197     #1%
5198     \ifx\#3\%
5199     \else
5200     \hyper@hash
5201     #3%
5202     \fi
5203   }%
5204 }

```

D P Story <story@uakron.edu> pointed out that relative paths starting .. fell over. Switched to using \filename@parse to solve this.

```

5205 \def\@hyper@linkfile file:#1\#2#3#4{%
5206   %file url,link string, name, original uri
5207   \filename@parse{\#1}%
5208   \ifx\filename@ext\relax
5209   \edef\filename@ext{\XR@ext}%
5210   \fi
5211   \def\use@file{\filename@area\filename@base.\filename@ext}%
5212   \Hy@ifStringEndsWith\filename@ext\XR@ext{%
5213     \hyper@linkfile{\#2}\use@file{\#3}%
5214   }{%
5215     \ifx\@baseurl\@empty
5216     \hyper@linkurl{\#2}{%
5217       #4\ifx\#3\else\hyper@hash#3\fi
5218     }%
5219     \else
5220     \hyper@linkurl{\#2}\use@file\ifx\#3\else\hyper@hash#3\fi}%
5221     \fi
5222   }%
5223 }

5224 \def\Hy@ifStringEndsWith#1#2{%
5225   \begingroup
5226   \edef\x{\#1}%
5227   \@onelevel@sanitize\x
5228   \edef\x{.\x}%
5229   \edef\y{\#2}%
5230   \@onelevel@sanitize\y
5231   \edef\y{.\y}%

```

```

5232 \expandafter\def\expandafter\z\expandafter##\expandafter1\y##2\@nil{%
5233 \endgroup
5234 \ifx\relax##2\relax
5235 \expandafter\ltx@secondoftwo
5236 \else
5237 \expandafter\ltx@firstoftwo
5238 \fi
5239 }%
5240 \expandafter\expandafter\expandafter\z\expandafter\x\y\@nil
5241 }

5242 \def\Hy@StringLocalhost{localhost}
5243 \@onelevel@sanitize\Hy@StringLocalhost
5244 \def\Hy@CleanupFile#1{%
5245 \edef#1{#1}%
5246 \expandafter\Hy@@CleanupFile#1\hbox{//\hbox\@nil{#1}%
5247 }
5248 \def\Hy@@CleanupFile#1//#2/#3\hbox#4\@nil#5{%
5249 \begingroup
5250 \toks@{\endgroup}%
5251 \def\x{#1}%
5252 \ifx\x\@empty
5253 \def\x{#2}%
5254 \ifx\x\@empty
5255 \toks@{\endgroup\def#5{/#3}}%
5256 \else
5257 \@onelevel@sanitize\x
5258 \ifx\x\Hy@StringLocalhost
5259 \toks@{\endgroup\def#5{/#3}}%
5260 \fi
5261 \fi
5262 \fi
5263 \the\toks@
5264 }

```

Anchors have a name, and marked text. We have to be careful with the marked text, as if we break off part of something to put a `\special` around it, all hell breaks loose. Therefore, we check the category code of the first token, and only proceed if its safe. Tanmoy sorted this out.

A curious case arises if the original parameter was in braces. That means that `#2` comes here a multiple letters, and the `noexpand` just looks at the first one, putting the rest in the output. Yuck.

```

5265 \long\def\hyper@@@anchor#1#2{\@hyper@@anchor#1\relax#2\relax}
5266 \long\def\@hyper@@@anchor#1\relax#2#3\relax{%
5267 \ifx\#1\%
5268 #2\Hy@Warning{Ignoring empty anchor}%
5269 \else
5270 \def\anchor@spot{#2#3}%
5271 \let\put@me@back\@empty
5272 \ifx\relax#2\relax
5273 \else
5274 \ifHy@nesting
5275 \else
5276 \ifcat a\noexpand#2\relax
5277 \else

```

```

5278     \ifcat 0\noexpand#2 \relax
5279     \else
5280 %       \typeout{Anchor start is not alphanumeric %
5281 %         on input line\the\inputlineno%
5282 %       }%
5283     \let\anchor@spot\@empty
5284     \def\put@me@back{#2#3}%
5285     \fi
5286   \fi
5287 \fi
5288 \fi
5289 \ifHy@activeanchor
5290   \anchor@spot
5291 \else
5292   \hyper@anchor{#1}%
5293 \fi
5294 \expandafter\put@me@back
5295 \fi
5296 \let\anchor@spot\@empty
5297 }
5298 \let\anchor@spot\ltx@empty

```

## 18 Option ‘destlabel’

```

5299 \ifHy@destlabel

\hyper@newdestlabel

5300 \def\hyper@newdestlabel#1#2{%
5301   \begingroup
5302     \Hy@safe@activetrue
5303     \edef\x{\endgroup
5304       \noexpand\@newl@bel{HyDL}{#1}{#2}%
5305     }%
5306   \x
5307 }%

\hyper@destlabel@hook

5308 \providecommand*\hyper@destlabel@hook{}%

\Hy@DestRename

5309 \newcommand*\Hy@DestRename[2]{%
5310   \ltx@ifundefined{HyDL!#1}{%
5311     \begingroup
5312       \Hy@safe@activetrue
5313       \edef\dest@name{#1}%
5314       \edef\label@name{#2}%
5315       \hyper@destlabel@hook
5316       \Hy@IsNotEmpty{dest@name}{%
5317         \Hy@IsNotEmpty{label@name}{%
5318           \global\expandafter
5319           \let\csname HyDL!#1\endcsname\ltx@empty
5320         \if@files
5321           \protected@write\@auxout{}{%

```

```

5322         \string\hyper@newdestlabel
5323         {#1}%
5324         {\label@name}%
5325     }%
5326     \fi
5327 }%
5328 }%
5329 \endgroup
5330 }{}%
5331 }%

```

#### \HyperDestRename

```

5332 \newcommand*{\HyperDestRename}[2]{%
5333     \AtBeginDocument{%
5334         \Hy@DestRename{#1}{#2}%
5335     }%
5336 }%
5337 \AtBeginDocument{%
5338     \let\HyperDestRename\Hy@DestRename
5339 }%

```

#### \Hy@IsNotEmpty

```

5340 \def\Hy@IsNotEmpty#1{%
5341     \ltx@ifundefined{#1}\ltx@gobble{%
5342         \expandafter\ifx\csname#1\endcsname\ltx@empty
5343         \expandafter\ltx@gobble
5344     \else
5345         \expandafter\ltx@firstofone
5346     \fi
5347 }%
5348 }%
5349 \ltx@GlobalAppendToMacro\label@hook{%
5350     \HyperDestRename\@currentHref\label@name
5351 }%

```

#### \HyperDestLabelReplace

```

5352 \def\HyperDestLabelReplace#1{%
5353     \ltx@ifundefined{HyDL@#1}{%
5354         #1%
5355     }{%
5356         \csname HyDL@#1\endcsname
5357     }%
5358 }%

```

#### \HyperDestNameFilter

```

5359 \let\HyperDestNameFilter\HyperDestLabelReplace
5360 \else

```

#### \hyper@newdestlabel

```

5361 \let\hyper@newdestlabel\ltx@gobbletwo

```

#### \HyperDestLabelReplace

```

5362 \let\HyperDestLabelReplace\ltx@firstofone

```

\HyperDestRename

```
5363 \let\HyperDestRename\ltx@gobbletwo
```

```
5364 \fi
```

```
5365 \Hy@DisableOption{destlabel}
```

Provide a dummy default definition of \hyper@newdestlabel inside the .aux files.

```
5366 \AddToHook{include/before}
```

```
5367 {\immediate\write\@partaux{\string\providecommand\string\hyper@newdest-  
label[2]{}}}
```

```
5368 \AddToHook{begindocument}
```

```
5369 {\immediate\write\@mainaux{\string\providecommand\string\hyper@newdest-  
label[2]{}}}
```

## 19 Forms creation

Allow for creation of PDF or HTML forms. The effects here are limited somewhat by the need to support both output formats, so it may not be as clever as something which only wants to make PDF forms.

I (Sebastian) could not have started this without the encouragement of T V Raman.

### 19.1 Field flags

The field flags are organized in a bit set.

```
5370 \RequirePackage{bitset}
```

Each flag has a option name, an \if switch, and a bit position. The default is always 'false', the flag is clear. This is also the default of the switch created by \newif.

The names of the flags in the PDF specification (1.7) are used as lowercase option names.

\HyField@NewFlag #1: type: F annot flags, Ff field flags

#2: PDF name

#3: PDF position

```
5371 \def\HyField@NewFlag#1#2{%
```

```
5372 \lowercase{\HyField@NewOption{#2}}%
```

```
5373 \lowercase{\HyField@NewBitsetFlag{#2}}{#2}{#1}%
```

```
5374 }
```

\HyField@NewFlagOnly

```
5375 \def\HyField@NewFlagOnly#1#2{%
```

```
5376 \lowercase{\HyField@NewBitsetFlag{#2}}{#2}{#1}%
```

```
5377 }
```

\HyField@NewOption #1: option name

```
5378 \def\HyField@NewOption#1{%
```

```
5379 \expandafter\newif\csname ifFld@#1\endcsname
```

```
5380 \define@key{Field}{#1}[true]{%
```

```
5381 \lowercase{\Field@boolkey{##1}}{#1}%
```



```

5382 }%
5383 }

```

`\HyField@NewBitsetFlag` Package ‘bitset’ uses zero based positions, the PDF specification starts with one.

```

#1: option
#2: PDF name
#3: type: F annot flags, Ff field flags
#4: PDF position
5384 \def\HyField@NewBitsetFlag#1#2#3#4{%
5385   \begingroup
5386     \count@=#4\relax
5387     \advance\count@\m@ne
5388     \def\x##1{%
5389       \endgroup
5390       \expandafter\def\csname HyField@#3@#1\endcsname{##1}%
5391       \expandafter\ifx\csname HyField@#3@#1\endcsname\relax
5392         \expandafter\edef\csname HyField@#3@#1\endcsname{%
5393           (\number#4) #2%
5394         }%
5395       \else
5396         \expandafter\edef\csname HyField@#3@#1\endcsname{%
5397           \csname HyField@#3@#1\endcsname
5398             /#2%
5399         }%
5400       \fi
5401     }%
5402   \expandafter\x\expandafter{\the\count@}%
5403 }

```

`\HyField@UseFlag` The bit set is `HyField@#1`

```

5404 \def\HyField@UseFlag#1#2{%
5405   \lowercase{\HyField@@UseFlag{#2}}{#1}%
5406 }

```

`\HyField@@UseFlag`

```

5407 \def\HyField@@UseFlag#1#2{%
5408   \bitsetSetValue{HyField@#2}{%
5409     \csname HyField@#2@#1\endcsname
5410   }{%
5411     \csname ifFld@#1\endcsname 1\else 0\fi
5412   }%
5413 }

```

`\HyField@SetFlag` The bit set is `HyField@#1`

```

5414 \def\HyField@SetFlag#1#2{%
5415   \lowercase{\HyField@@SetFlag{#2}}{#1}%
5416 }

```

`\HyField@@SetFlag`

```

5417 \def\HyField@@SetFlag#1#2{%
5418   \bitsetSetValue{HyField@#2}{%
5419     \csname HyField@#2@#1\endcsname
5420   }{1}%
5421 }

```

\HyField@PrintFlags

```

5422 \def\HyField@PrintFlags#1#2{%
5423   \ifHy@verbose
5424     \begingroup
5425     \let\Hy@temp\@empty
5426     \let\MessageBreak\relax
5427     \expandafter\@for\expandafter\x\expandafter:\expandafter=%
5428     \bitsetGetSetBitList{HyField@#1}\do{%
5429       \edef\Hy@temp{%
5430         \Hy@temp
5431         \csname HyField@#1@\x\endcsname\MessageBreak
5432       }%
5433     }%
5434   \edef\x{\endgroup
5435     \noexpand\Hy@Info{%
5436       Field flags: %
5437       \expandafter\ifx\@car#1\@nil S\else/\fi
5438       #1 %
5439       \bitsetGetDec{HyField@#1} %
5440       (0x\bitsetGetHex{HyField@#1}{32})\MessageBreak
5441       \Hy@temp
5442       for #2%
5443     }%
5444   }\x
5445   \fi
5446 }

```

### 19.1.1 Declarations of field flags

“Table 8.70 Field flags common to all field types”

```

5447 \HyField@NewFlag{Ff}{ReadOnly}{1}
5448 \HyField@NewFlag{Ff}{Required}{2}
5449 \HyField@NewFlag{Ff}{NoExport}{3}

```

“Table 8.75 Field flags specific to button fields”

```

5450 \HyField@NewFlag{Ff}{NoToggleToOff}{15}
5451 \HyField@NewFlag{Ff}{Radio}{16}
5452 \HyField@NewFlag{Ff}{Pushbutton}{17}
5453 \HyField@NewFlag{Ff}{RadiosInUnison}{26}

```

“Table 8.77 Field flags specific to text fields”

```

5454 \HyField@NewFlag{Ff}{Multiline}{13}
5455 \HyField@NewFlag{Ff}{Password}{14}
5456 \HyField@NewFlag{Ff}{FileSelect}{21}% PDF 1.4
5457 \HyField@NewFlag{Ff}{DoNotSpellCheck}{23}% PDF 1.4
5458 \HyField@NewFlag{Ff}{DoNotScroll}{24}% PDF 1.4
5459 \HyField@NewFlag{Ff}{Comb}{25}% PDF 1.4
5460 \HyField@NewFlag{Ff}{RichText}{26}% PDF 1.5

```

“Table 8.79 field flags specific to choice fields”

```

5461 \HyField@NewFlag{Ff}{Combo}{18}
5462 \HyField@NewFlag{Ff}{Edit}{19}
5463 \HyField@NewFlag{Ff}{Sort}{20}
5464 \HyField@NewFlag{Ff}{MultiSelect}{22}% PDF 1.4
5465 % \HyField@NewFlag{Ff}{DoNotSpellCheck}{23}% PDF 1.4

```

5466 \HyField@NewFlag{Ff}{CommitOnSelChange}{27}% PDF 1.5

Signature fields are not supported.

Until 6.76i hyperref uses field option ‘combo’ to set three flags ‘Combo’, ‘Edit’, and ‘Sort’. Option ‘popdown’ sets flag ‘Combo’ only.

```
5467 \newif\ifFld@popdown
5468 \define@key{Field}{popdown}[true]{%
5469   \lowercase{\Field@boolkey{#1}}{popdown}%
5470 }
```

Annotation flags. The form objects are widget annotations. There are two flags for readonly settings, the one in the annotation flags is ignored, instead the other in the field flags is used.

Flag **Print** is not much useful, because hyperref do not use the appearance entry of the annotations for most fields.

```
5471 \HyField@NewFlag{F}{Invisible}{1}
5472 \HyField@NewFlag{F}{Hidden}{2}% PDF 1.2
5473 \HyField@NewFlag{F}{Print}{3}% PDF 1.2
5474 \HyField@NewFlag{F}{NoZoom}{4}% PDF 1.2
5475 \HyField@NewFlag{F}{NoRotate}{5}% PDF 1.3
5476 \HyField@NewFlag{F}{NoView}{6}% PDF 1.3
5477 \HyField@NewFlag{F}{Locked}{8}% PDF 1.4
5478 \HyField@NewFlag{F}{ToggleNoView}{9}% PDF 1.5
5479 \HyField@NewFlag{F}{LockedContents}{10}% PDF 1.7

5480 \ifHy@pdfa
5481   \def\HyField@PDFAFFlagWarning#1#2{%
5482     \Hy@Warning{%
5483       PDF/A: Annotation flag `#1' must\MessageBreak
5484       be set to `#2'%
5485     }%
5486   }%
5487   \Fld@invisiblefalse
5488   \def\Fld@invisibletrue{%
5489     \HyField@PDFAFFlagWarning{invisible}{false}%
5490   }%
5491   \Fld@hiddenfalse
5492   \def\Fld@hiddentrue{%
5493     \HyField@PDFAFFlagWarning{hidden}{false}%
5494   }%
5495   \Fld@printtrue
5496   \def\Fld@printfalse{%
5497     \HyField@PDFAFFlagWarning{print}{true}%
5498   }%
5499   \Fld@nozoomtrue
5500   \def\Fld@nozoomfalse{%
5501     \HyField@PDFAFFlagWarning{nozoom}{true}%
5502   }%
5503   \Fld@norotatetrue
5504   \def\Fld@norotatefalse{%
5505     \HyField@PDFAFFlagWarning{norotate}{true}%
5506   }%
5507   \Fld@noviewfalse
5508   \def\Fld@noviewtrue{%
5509     \HyField@PDFAFFlagWarning{noview}{false}%
5510   }
```

```

5510 }%
5511 \fi

```

Submit flags. Flag 1 Include/Exclude is not supported, use option noexport instead.

```

5512 \HyField@NewFlag{Submit}{IncludeNoValueFields}{2}
5513 \HyField@NewFlagOnly{Submit}{ExportFormat}{3}
5514 \HyField@NewFlag{Submit}{GetMethod}{4}
5515 \HyField@NewFlag{Submit}{SubmitCoordinates}{5}
5516 \HyField@NewFlagOnly{Submit}{XFDF}{6}
5517 \HyField@NewFlag{Submit}{IncludeAppendSaves}{7}
5518 \HyField@NewFlag{Submit}{IncludeAnnotations}{8}
5519 \HyField@NewFlagOnly{Submit}{SubmitPDF}{9}
5520 \HyField@NewFlag{Submit}{CanonicalFormat}{10}
5521 \HyField@NewFlag{Submit}{ExclNonUserAnnots}{11}
5522 \HyField@NewFlag{Submit}{ExclFKey}{12}
5523 \HyField@NewFlag{Submit}{EmbedForm}{14}

5524 \define@key{Field}{export}{%
5525   \lowercase{\def\Hy@temp{#1}}%
5526   \@ifundefined{Fld@export@\Hy@temp}{%
5527     \@onelevel@sanitize\Hy@temp
5528     \Hy@Error{%
5529       Unknown export format `'\Hy@temp'.\MessageBreak
5530       Known formats are `FDF', `HTML', `XFDF', and `PDF'%
5531     }\@ehc
5532   }%
5533   \let\Fld@export\Hy@temp
5534 }%
5535 }

5536 \def\Fld@export{fdf}
5537 \@namedef{Fld@export@fdf}{0}%
5538 \@namedef{Fld@export@html}{1}%
5539 \@namedef{Fld@export@xfdf}{2}%
5540 \@namedef{Fld@export@pdf}{3}%

```

### 19.1.2 Set submit flags

`\HyField@FlagsSubmit`

```

5541 \def\HyField@FlagsSubmit{%
5542   \bitsetReset{HyField@Submit}%
5543   \ifcase\@nameuse{Fld@export@\Fld@export} %
5544     % FDF
5545     \HyField@UseFlag{Submit}{IncludeNoValueFields}%
5546     \HyField@UseFlag{Submit}{SubmitCoordinates}%
5547     \HyField@UseFlag{Submit}{IncludeAppendSaves}%
5548     \HyField@UseFlag{Submit}{IncludeAnnotations}%
5549     \HyField@UseFlag{Submit}{CanonicalFormat}%
5550     \HyField@UseFlag{Submit}{ExclNonUserAnnots}%
5551     \HyField@UseFlag{Submit}{ExclFKey}%
5552     \HyField@UseFlag{Submit}{EmbedForm}%
5553   \or % HTML
5554     \HyField@SetFlag{Submit}{ExportFormat}%
5555     \HyField@UseFlag{Submit}{IncludeNoValueFields}%
5556     \HyField@UseFlag{Submit}{GetMethod}%

```

```

5557 \HyField@UseFlag{Submit}{SubmitCoordinates}%
5558 \HyField@UseFlag{Submit}{CanonicalFormat}%
5559 \or % XFDF
5560 \HyField@SetFlag{Submit}{XFDF}%
5561 \HyField@UseFlag{Submit}{IncludeNoValueFields}%
5562 \HyField@UseFlag{Submit}{SubmitCoordinates}%
5563 \HyField@UseFlag{Submit}{CanonicalFormat}%
5564 \or % PDF
5565 \HyField@SetFlag{Submit}{SubmitPDF}%
5566 \HyField@UseFlag{Submit}{GetMethod}%
5567 \fi
5568 \HyField@PrintFlags{Submit}{submit button field}%
5569 \bitsetIsEmpty{HyField@Submit}{%
5570 \let\Fld@submitflags\ltx@empty
5571 }{%
5572 \edef\Fld@submitflags{/Flags \bitsetGetDec{HyField@Submit}}%
5573 }%
5574 }

```

### 19.1.3 Set annot flags in fields

\HyField@FlagsAnnot

```

5575 \def\HyField@FlagsAnnot#1{%
5576 \bitsetReset{HyField@F}%
5577 \HyField@UseFlag{F}{Invisible}%
5578 \HyField@UseFlag{F}{Hidden}%
5579 \HyField@UseFlag{F}{Print}%
5580 \HyField@UseFlag{F}{NoZoom}%
5581 \HyField@UseFlag{F}{NoRotate}%
5582 \HyField@UseFlag{F}{NoView}%
5583 \HyField@UseFlag{F}{Locked}%
5584 \HyField@UseFlag{F}{ToggleNoView}%
5585 \HyField@UseFlag{F}{LockedContents}%
5586 \HyField@PrintFlags{F}{#1}%
5587 \bitsetIsEmpty{HyField@F}{%
5588 \let\Fld@annotflags\ltx@empty
5589 }{%
5590 \edef\Fld@annotflags{/F \bitsetGetDec{HyField@F}}%
5591 }%
5592 }

```

### 19.1.4 Pushbutton field

\HyField@FlagsPushButton

```

5593 \def\HyField@FlagsPushButton{%
5594 \HyField@FlagsAnnot{push button field}%
5595 \bitsetReset{HyField@Ff}%
5596 \HyField@UseFlag{Ff}{ReadOnly}%
5597 \HyField@UseFlag{Ff}{Required}%
5598 \HyField@UseFlag{Ff}{NoExport}%
5599 \HyField@SetFlag{Ff}{PushButton}%
5600 \HyField@PrintFlags{Ff}{push button field}%
5601 \bitsetIsEmpty{HyField@Ff}{%

```

```

5602 \let\Fld@flags\ltx@empty
5603 }{%
5604 \edef\Fld@flags{/Ff \bitsetGetDec{HyField@Ff}}%
5605 }%
5606 }

```

### 19.1.5 Check box field

\HyField@FlagsCheckBox

```

5607 \def\HyField@FlagsCheckBox{%
5608 \HyField@FlagsAnnot{check box field}%
5609 \bitsetReset{HyField@Ff}%
5610 \HyField@UseFlag{Ff}{ReadOnly}%
5611 \HyField@UseFlag{Ff}{Required}%
5612 \HyField@UseFlag{Ff}{NoExport}%
5613 \HyField@PrintFlags{Ff}{check box field}%
5614 \bitsetIsEmpty{HyField@Ff}{%
5615 \let\Fld@flags\ltx@empty
5616 }{%
5617 \edef\Fld@flags{/Ff \bitsetGetDec{HyField@Ff}}%
5618 }%
5619 }

```

### 19.1.6 Radio button field

\HyField@FlagsRadioButton

```

5620 \def\HyField@FlagsRadioButton{%
5621 \HyField@FlagsAnnot{radio button field}%
5622 \bitsetReset{HyField@Ff}%
5623 \HyField@UseFlag{Ff}{ReadOnly}%
5624 \HyField@UseFlag{Ff}{Required}%
5625 \HyField@UseFlag{Ff}{NoExport}%
5626 \HyField@UseFlag{Ff}{NoToggleToOff}%
5627 \HyField@SetFlag{Ff}{Radio}%
5628 \HyField@UseFlag{Ff}{RadiosInUnison}%
5629 \HyField@PrintFlags{Ff}{radio button field}%
5630 \bitsetIsEmpty{HyField@Ff}{%
5631 \let\Fld@flags\ltx@empty
5632 }{%
5633 \edef\Fld@flags{/Ff \bitsetGetDec{HyField@Ff}}%
5634 }%
5635 }

```

### 19.1.7 Text fields

\HyField@FlagsText

```

5636 \def\HyField@FlagsText{%
5637 \HyField@FlagsAnnot{text field}%
5638 \bitsetReset{HyField@Ff}%
5639 \HyField@UseFlag{Ff}{ReadOnly}%
5640 \HyField@UseFlag{Ff}{Required}%
5641 \HyField@UseFlag{Ff}{NoExport}%
5642 \HyField@UseFlag{Ff}{Multiline}%

```

```

5643 \HyField@UseFlag{Ff}{Password}%
5644 \HyField@UseFlag{Ff}{FileSelect}%
5645 \HyField@UseFlag{Ff}{DoNotSpellCheck}%
5646 \HyField@UseFlag{Ff}{DoNotScroll}%
5647 \ifFld@comb
5648   \ifcase0\ifFld@multiline
5649     \else\ifFld@password
5650     \else\ifFld@fileselect
5651     \else 1\fi\fi\fi\relax
5652   \Hy@Error{%
5653     Field option `comb' cannot used together with\MessageBreak
5654     `multiline', `password', or `fileselect'%
5655   }\@ehc
5656 \else
5657   \HyField@UseFlag{Ff}{Comb}%
5658 \fi
5659 \fi
5660 \HyField@UseFlag{Ff}{RichText}%
5661 \HyField@PrintFlags{Ff}{text field}%
5662 \bitsetIsEmpty{HyField@Ff}{%
5663   \let\Fld@flags\ltx@empty
5664 }{%
5665   \edef\Fld@flags{/Ff \bitsetGetDec{HyField@Ff}}%
5666 }%
5667 }

```

### 19.1.8 Choice fields

\HyField@FlagsChoice

```

5668 \def\HyField@FlagsChoice{%
5669   \HyField@FlagsAnnot{choice field}%
5670   \bitsetReset{HyField@Ff}%
5671   \HyField@UseFlag{Ff}{ReadOnly}%
5672   \HyField@UseFlag{Ff}{Required}%
5673   \HyField@UseFlag{Ff}{NoExport}%
5674   \HyField@UseFlag{Ff}{Combo}%
5675   \ifFld@combo
5676     \HyField@UseFlag{Ff}{Edit}%
5677   \fi
5678   \HyField@UseFlag{Ff}{Sort}%
5679   \HyField@UseFlag{Ff}{MultiSelect}%
5680   \ifFld@combo
5681     \ifFld@edit
5682       \HyField@UseFlag{Ff}{DoNotSpellCheck}%
5683     \fi
5684   \fi
5685   \HyField@UseFlag{Ff}{CommitOnSelChange}%
5686   \HyField@PrintFlags{Ff}{choice field}%
5687   \bitsetIsEmpty{HyField@Ff}{%
5688     \let\Fld@flags\ltx@empty
5689   }{%
5690     \edef\Fld@flags{/Ff \bitsetGetDec{HyField@Ff}}%
5691   }%
5692 }

```

## 19.2 Choice field

`\HyField@PDFChoices #1:` list of choices in key value syntax, key = exported name, value = displayed text.

Input: `\Fld@default, \Fld@value, \ifFld@multiselect`

Result: `\Fld@choices` with entries: `/Opt, /DV, /V, /I`.

```

5693 \def\HyField@PDFChoices#1{%
5694   \begingroup
5695   \global\let\Fld@choices\ltx@empty
5696   \let\HyTmp@optlist\ltx@empty
5697   \let\HyTmp@optitem\relax
5698   \count@=0 %
5699   \kv@parse{#1}{%
5700     \Hy@pdfstringdef\kv@key\kv@key
5701     \ifx\kv@value\relax
5702       \ifnum\Hy@pdf@majorminor@version<103 % implementation note 122, PDF spec 1.7
5703         \xdef\Fld@choices{\Fld@choices(\kv@key)(\kv@key)}{%
5704           \else
5705             \xdef\Fld@choices{\Fld@choices(\kv@key)}{%
5706             \fi
5707           \else
5708             \Hy@pdfstringdef\kv@value\kv@value
5709             \xdef\Fld@choices{\Fld@choices(\kv@value)(\kv@key)}{%
5710             \fi
5711             \edef\HyTmp@optlist{%
5712               \HyTmp@optlist
5713               \HyTmp@optitem{\the\count@}{\kv@key}0%
5714             }%
5715             \advance\count@ by 1 %
5716             \@gobbletwo
5717           }%
5718           \xdef\Fld@choices{/Opt{\Fld@choices}}%
5719           \ifFld@multiselect
5720             \HyField@@PDFChoices{DV}\Fld@default
5721             \HyField@@PDFChoices{V}\Fld@value
5722           \else
5723             \ifx\Fld@default\relax
5724             \else
5725               \pdfstringdef\Hy@gtemp\Fld@default
5726               \xdef\Fld@choices{\Fld@choices/DV(\Hy@gtemp)}%
5727             \fi
5728             \ifx\Fld@value\relax
5729             \else
5730               \pdfstringdef\Hy@gtemp\Fld@value
5731               \xdef\Fld@choices{\Fld@choices/V(\Hy@gtemp)}%
5732             \fi
5733           \fi
5734   \endgroup
5735 }
```

`\HyField@@PDFChoices`

```

5736 \def\HyField@@PDFChoices#1#2{%
5737   \ifx#2\relax
5738   \else
```



```

5739 \count@=0 %
5740 \def\HyTmp@optitem##1##2##3{%
5741   \def\HyTmp@key{##2}%
5742   \ifx\HyTmp@key\Hy@gtemp
5743     \expandafter\def\expandafter\HyTmp@optlist\expandafter{%
5744       \HyTmp@optlist
5745       \HyTmp@optitem{##1}{##2}1%
5746     }%
5747     \let\HyTmp@found=Y%
5748   \else
5749     \expandafter\def\expandafter\HyTmp@optlist\expandafter{%
5750       \HyTmp@optlist
5751       \HyTmp@optitem{##1}{##2}##3%
5752     }%
5753   \fi
5754 }%
5755 \expandafter\comma@parse\expandafter{#2}{%
5756   \pdfstringdef\Hy@gtemp\comma@entry
5757   \let\HyTmp@found=N %
5758   \expandafter\let\expandafter\HyTmp@optlist\expandafter\@empty
5759   \HyTmp@optlist
5760   \ifx\HyTmp@found Y%
5761     \advance\count@ by 1 %
5762   \else
5763     \@onelevel@sanitize\comma@entry
5764     \PackageWarning{hyperref}{%
5765       \string\ChoiceBox: Ignoring value `\'comma@entry',%
5766       \MessageBreak
5767       it cannot be found in the choices%
5768     }%
5769   \fi
5770   \@gobble
5771 }%
5772 \def\HyTmp@optitem##1##2##3{%
5773   \ifnum##3=1 %
5774     (##2)%
5775   \fi
5776 }%
5777 \ifcase\count@
5778 \or
5779   \xdef\Fld@choices{\Fld@choices/#1\HyTmp@optlist}%
5780 \else
5781   \xdef\Fld@choices{\Fld@choices/#1[\HyTmp@optlist]}%
5782 \ifx#1V%
5783   \def\HyTmp@optitem##1##2##3{%
5784     \ifnum##3=1 %
5785       \@firstofone{ ##1}%
5786     \fi
5787   }%
5788   \edef\HyTmp@optlist{\HyTmp@optlist}%
5789   \xdef\Fld@choices{%
5790     \Fld@choices
5791     /I\expandafter\@firstofone\HyTmp@optlist}%
5792 }%

```

```

5793     \fi
5794     \fi
5795 \fi
5796 }

```

## 19.3 Forms

\HyField@SetKeys

```

5797 \def\HyField@SetKeys{%
5798   \kvsetkeys{Field}%
5799 }

5800 \newif\ifFld@checked
5801 \newif\ifFld@disabled
5802 \Fld@checkedfalse
5803 \Fld@disabledfalse
5804 \newcount\Fld@menulength
5805 \newdimen\Fld@Width
5806 \newdimen\Fld@charsize
5807 \Fld@charsize=10\p@
5808 \def\Fld@maxlen{0}
5809 \def\Fld@align{0}
5810 \def\Fld@color{0 0 0 rg}
5811 \def\Fld@bcolor{1 1 1}
5812 \def\Fld@bordercolor{1 0 0}
5813 \def\Fld@bordersep{1\p@}
5814 \def\Fld@borderwidth{1}
5815 \def\Fld@borderstyle{S}
5816 \def\Fld@cbsymbol{4}
5817 \def\Fld@radiosymbol{H}
5818 \def\Fld@rotation{0}
5819 \def\Form{\@ifnextchar[{\@Form}{\@Form[]}}
5820 \def@endForm{\@endForm}
5821 \newif\ifForm@html
5822 \Form@htmlfalse
5823 \def\Form@boolkey#1#2{%
5824   \csname Form@#2\ifx\relax#1\relax true\else#1\fi\endcsname
5825 }
5826 \define@key{Form}{action}{%
5827   \hyper@normalise\Hy@DefFormAction{#1}%
5828 }
5829 \def\Hy@DefFormAction{\def\Form@action}
5830 \def\enc@@html{html}
5831 \define@key{Form}{encoding}{%
5832   \def\Hy@tempa{#1}%
5833   \ifx\Hy@tempa\enc@@html
5834     \Form@htmltrue
5835     \def\Fld@export{html}%
5836   \else
5837     \Hy@Warning{%
5838       Form `encoding' key with \MessageBreak
5839       unknown value `#1'%
5840     }%
5841     \Form@htmlfalse

```

```

5842 \fi
5843 }
5844 \define@key{Form}{method}{%
5845 \lowercase{\def\Hy@temp{#1}}}%
5846 \@ifundefined{Form@method@\Hy@temp}{%
5847 \onelevel@sanitize\Hy@temp
5848 \Hy@Error{%
5849   Unknown method ``\Hy@temp'.\MessageBreak
5850   Known values are `post' and `get'%
5851 } \@ehc
5852 }{%
5853 \let\Form@method\Hy@temp
5854 \ifcase\@nameuse{Form@method@\Hy@temp} %
5855 \Fld@getmethodfalse
5856 \else
5857 \Fld@getmethodtrue
5858 \fi
5859 }%
5860 }
5861 \def\Form@method{}
5862 \@namedef{Form@method@post}{0}
5863 \@namedef{Form@method@get}{1}

5864 \newif\ifHyField@NeedAppearances
5865 \def\HyField@NeedAppearancesfalse{%
5866 \global\let\ifHyField@NeedAppearances\iffalse
5867 }
5868 \def\HyField@NeedAppearancetrue{%
5869 \global\let\ifHyField@NeedAppearances\iftrue
5870 }
5871 \HyField@NeedAppearancetrue
5872 \define@key{Form}{NeedAppearances}[true]{%
5873 \edef\Hy@tempa{#1}}%
5874 \ifx\Hy@tempa\Hy@true
5875 \HyField@NeedAppearancetrue
5876 \else
5877 \ifx\Hy@tempa\Hy@false
5878 \HyField@NeedAppearancesfalse
5879 \else
5880 \Hy@Error{%
5881   Unexpected value ``\Hy@tempa'.\MessageBreak
5882   of option `NeedAppearances' instead of\MessageBreak
5883   `true' or `false'%
5884 } \@ehc
5885 \fi
5886 \fi
5887 }
5888 \def\Field@boolkey#1#2{%
5889 \csname Fld@#2\ifx\relax#1\relax true\else#1\fi\endcsname
5890 }
5891 \ifHy@texht
5892 \newtoks\Field@toks
5893 \Field@toks={ }%
5894 \def\Field@addtoks#1#2{%
5895 \edef\@processme{\Field@toks{\the\Field@toks\space #1="#2"}}}%

```

```

5896 \@@processme
5897 }%
5898 \else
5899 \def\Hy@WarnHTMLFieldOption#1{%
5900 \Hy@Warning{%
5901 HTML field option `#1'\MessageBreak
5902 is ignored%
5903 }%
5904 }%
5905 \fi
5906 \def\Fld@checkequals#1=#2=#3\\{%
5907 \def\@currDisplay{#1}%
5908 \ifx\\#2\\%
5909 \def\@currValue{#1}%
5910 \else
5911 \def\@currValue{#2}%
5912 \fi
5913 \expandafter\Hy@pdfstringdef\expandafter\@currValue\expandafter{\@currValue}%
5914 }
5915 \define@key{Field}{loc}{%
5916 \def\Fld@loc{#1}%
5917 }
5918 \define@key{Field}{checked}[true]{%
5919 \lowercase{\Field@boolkey{#1}}{checked}%
5920 }
5921 \define@key{Field}{disabled}[true]{%
5922 \lowercase{\Field@boolkey{#1}}{disabled}%
5923 }
5924 \ifHy@texht
5925 \define@key{Field}{accesskey}{%
5926 \Field@addtoks{accesskey}{#1}%
5927 }%
5928 \define@key{Field}{tabkey}{%
5929 \Field@addtoks{tabkey}{#1}%
5930 }%
5931 \else
5932 \define@key{Field}{accesskey}{%
5933 \Hy@WarnHTMLFieldOption{accesskey}%
5934 }%
5935 \define@key{Field}{tabkey}{%
5936 \Hy@WarnHTMLFieldOption{tabkey}%
5937 }%
5938 \fi
5939 \define@key{Field}{name}{%
5940 \def\Fld@name{#1}%
5941 }
5942 \let\Fld@altname\relax
5943 \define@key{Field}{altname}{%
5944 \def\Fld@altname{#1}%
5945 }
5946 \let\Fld@mappingname\relax
5947 \define@key{Field}{mappingname}{%
5948 \def\Fld@mappingname{#1}%
5949 }

```

```

5950 \define@key{Field}{width}{%
5951   \def\Fld@width{#1}%
5952   \Field@Width#1\setbox0=\hbox{m}%
5953 }
5954 \define@key{Field}{maxlen}{%
5955   \def\Fld@maxlen{#1}%
5956 }
5957 \define@key{Field}{menulength}{%
5958   \Fld@menulength=#1\relax
5959 }
5960 \define@key{Field}{height}{%
5961   \def\Fld@height{#1}%
5962 }
5963 \define@key{Field}{charsize}{%
5964   \setlength{\Fld@charsize}{#1}%
5965 }
5966 \define@key{Field}{borderwidth}{%
5967   \Hy@defaultbp\Fld@borderwidth{#1}%
5968 }
5969 \def\Hy@defaultbp#1#2{%
5970   \begingroup
5971   \afterassignment\Hy@defaultbpAux
5972   \dimen@=#2bp\relax{#1}{#2}%
5973 }
5974 \def\Hy@defaultbpAux#1\relax#2#3{%
5975   \ifx!#1!%
5976     \endgroup
5977     \def#2{#3}%
5978   \else
5979     \edef\x{\endgroup
5980       \def\noexpand#2{%
5981         \strip@pt\dimexpr\dimen@*800/803\relax
5982       }%
5983     }\x
5984   \fi
5985 }%
5986 \define@key{Field}{borderstyle}{%
5987   \let\Hy@temp\Fld@borderstyle
5988   \def\Fld@borderstyle{#1}%
5989   \Hy@Match\Fld@borderstyle{}{%
5990     ^[SDBIU]$%
5991   }{}{%
5992     \Hy@Warning{%
5993       Invalid value ` \@pdfborderstyle'\MessageBreak
5994       for option `pdfborderstyle'. Valid values:\MessageBreak
5995       \space\space S (Solid), D (Dashed), B (Beveled),\MessageBreak
5996       \space\space I (Inset), U (Underline)\MessageBreak
5997       Option setting is ignored%
5998     }%
5999     \let\Fld@borderstyle\Hy@temp
6000   }%
6001 }
6002 \define@key{Field}{bordersep}{%
6003   \def\Fld@bordersep{#1}%

```

```

6004 }
6005 \define@key{Field}{default}{%
6006   \Hy@pdfstringdef\Fld@default{#1}%
6007 }
6008 \define@key{Field}{align}{%
6009   \def\Fld@align{#1}%
6010 }
6011 \define@key{Field}{value}{%
6012   \Hy@pdfstringdef\Fld@value{#1}%
6013 }
6014 \define@key{Field}{checkboxsymbol}{%
6015   \Fld@DingDef\Fld@cbsymbol{#1}%
6016 }
6017 \define@key{Field}{radiosymbol}{%
6018   \Fld@DingDef\Fld@radiosymbol{#1}%
6019 }
6020 \def\Fld@DingDef#1#2{%
6021   \let\Fld@temp\ltx@empty
6022   \Fld@@@DingDef#2\ding{ }\@nil
6023   \let#1\Fld@temp
6024 }
6025 \def\Fld@@@DingDef#1\ding#2#3\@nil{%
6026   \expandafter\def\expandafter\Fld@temp\expandafter{%
6027     \Fld@temp
6028     #1%
6029   }%
6030   \ifx\\#3\\%
6031     \expandafter\@gobble
6032   \else
6033     \begingroup
6034     \lccode`0=#2\relax
6035     \lowercase{\endgroup
6036       \expandafter\def\expandafter\Fld@temp\expandafter{%
6037         \Fld@temp
6038         0%
6039       }%
6040     }%
6041     \expandafter\@firstofone
6042   \fi
6043   {%
6044     \Fld@@@DingDef#3\@nil
6045   }%
6046 }

6047 \define@key{Field}{rotation}{%
6048   \def\Fld@rotation{#1}%
6049 }

6050 \define@key{Field}{backgroundcolor}{%
6051   \HyColor@FieldBColor{#1}\Fld@bcolor{hyperref}{backgroundcolor}%
6052 }
6053 \define@key{Field}{bordercolor}{%
6054   \HyColor@FieldBColor{#1}\Fld@bordercolor{hyperref}{bordercolor}%
6055 }
6056 \define@key{Field}{color}{%

```

```

6057 \HyColor@FieldColor{#1}\Fld@color{hyperref}{color}%
6058 }

6059 \let\Fld@onclick@code\ltx@empty
6060 \let\Fld@format@code\ltx@empty
6061 \let\Fld@validate@code\ltx@empty
6062 \let\Fld@calculate@code\ltx@empty
6063 \let\Fld@keystroke@code\ltx@empty
6064 \let\Fld@onfocus@code\ltx@empty
6065 \let\Fld@onblur@code\ltx@empty
6066 \let\Fld@onmousedown@code\ltx@empty
6067 \let\Fld@onmouseup@code\ltx@empty
6068 \let\Fld@onenter@code\ltx@empty
6069 \let\Fld@onexit@code\ltx@empty
6070 \def\Hy@temp#1{%
6071   \expandafter\Hy@@temp\csname Fld@#1@code\endcsname{#1}%
6072 }
6073 \def\Hy@@temp#1#2{%
6074   \ifHy@pdfa
6075     \define@key{Field}{#2}{%
6076       \Hy@Error{%
6077         PDF/A: Additional action `#2' is prohibited%
6078       }\@ehc
6079     }%
6080   \else
6081     \define@key{Field}{#2}{%
6082       \def#1{##1}%
6083     }%
6084   \fi
6085 }
6086 \Hy@temp{keystroke}
6087 \Hy@temp{format}
6088 \Hy@temp{validate}
6089 \Hy@temp{calculate}
6090 \Hy@temp{onfocus}
6091 \Hy@temp{onblur}
6092 \Hy@temp{onenter}
6093 \Hy@temp{onexit}

6094 \let\Fld@calculate@sortkey\ltx@empty
6095 \define@key{Field}{calculatesortkey}[1]{%
6096   \def\Fld@calculate@sortkey{#1}%
6097 }

6098 \ifHy@texht
6099   \def\Hy@temp#1{%
6100     \define@key{Field}{#1}{%
6101       \Field@addtoks{#1}{##1}%
6102     }%
6103   }%
6104 \else
6105   \def\Hy@temp#1{%
6106     \define@key{Field}{#1}{%
6107       \Hy@WarnHTMLFieldOption{#1}%
6108     }%
6109   }%

```

```

6110 \fi
6111 \Hy@temp{ondblclick}
6112 \Hy@temp{onmousedown}
6113 \Hy@temp{onmouseup}
6114 \Hy@temp{onmouseover}
6115 \Hy@temp{onmousemove}
6116 \Hy@temp{onmouseout}
6117 \Hy@temp{onkeydown}
6118 \Hy@temp{onkeyup}
6119 \Hy@temp{onselect}
6120 \Hy@temp{onchange}
6121 \Hy@temp{onkeypress}
6122 \ifHy@texht
6123   \define@key{Field}{onclick}{%
6124     \Field@addtoks{onclick}{#1}%
6125   }%
6126 \else
6127   \ifHy@pdfa
6128     \define@key{Field}{onclick}{%
6129       \Hy@Error{%
6130         PDF/A: Action `onclick' is prohibited%
6131       } \@ehc
6132     }%
6133   \else
6134     \define@key{Field}{onclick}{%
6135       \def\Fld@onclick@code{#1}%
6136     }%
6137   \fi
6138 \fi

6139 \DeclareRobustCommand\TextField{%
6140   \@ifnextchar[{\@TextField}{\@TextField[]}%
6141 }
6142 \DeclareRobustCommand\ChoiceMenu{%
6143   \@ifnextchar[{\@ChoiceMenu}{\@ChoiceMenu[]}%
6144 }
6145 \DeclareRobustCommand\CheckBox{%
6146   \@ifnextchar[{\@CheckBox}{\@CheckBox[]}%
6147 }
6148 \DeclareRobustCommand\PushButton{%
6149   \@ifnextchar[{\@PushButton}{\@PushButton[]}%
6150 }
6151 \DeclareRobustCommand\Gauge{%
6152   \@ifnextchar[{\@Gauge}{\@Gauge[]}%
6153 }
6154 \DeclareRobustCommand\Submit{%
6155   \@ifnextchar[{\@Submit}{\@Submit[]}%
6156 }
6157 \DeclareRobustCommand\Reset{%
6158   \@ifnextchar[{\@Reset}{\@Reset[]}%
6159 }
6160 \def\LayoutTextField#1#2{% label, field
6161   \def\Hy@temp{#1}%
6162   \ifx\Hy@temp\@empty
6163     #2%

```



```

6164 \else
6165   #1 #2%
6166 \fi
6167 }
6168 \def\LayoutChoiceField#1#2{% label, field
6169   \def\Hy@temp{#1}%
6170   \ifx\Hy@temp\@empty
6171     #2%
6172   \else
6173     #1 #2%
6174   \fi
6175 }
6176 \def\LayoutCheckField#1#2{% label, field
6177   \def\Hy@temp{#1}%
6178   \ifx\Hy@temp\@empty
6179     #2%
6180   \else
6181     #1 #2%
6182   \fi
6183 }
6184 \def\LayoutPushButtonField#1{% button
6185   #1%
6186 }
6187 \def\MakeRadioField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
6188 \def\MakeCheckField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
6189 \def\MakeTextField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
6190 \def\MakeChoiceField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
6191 \def\MakeButtonField#1{%
6192   \sbox0{%
6193     \hskip\Fld@borderwidth bp#1\hskip\Fld@borderwidth bp%
6194   }%
6195   \@tempdima\ht0 %
6196   \advance\@tempdima by \Fld@borderwidth bp %
6197   \advance\@tempdima by \Fld@borderwidth bp %
6198   \ht0\@tempdima
6199   \@tempdima\dp0 %
6200   \advance\@tempdima by \Fld@borderwidth bp %
6201   \advance\@tempdima by \Fld@borderwidth bp %
6202   \dp0\@tempdima
6203   \box0\relax
6204 }
6205 \def\DefaultHeightofSubmit{14pt}
6206 \def\DefaultWidthofSubmit{2cm}
6207 \def\DefaultHeightofReset{14pt}
6208 \def\DefaultWidthofReset{2cm}
6209 \def\DefaultHeightofCheckBox{\normalbaselineskip}
6210 \def\DefaultWidthofCheckBox{\normalbaselineskip}
6211 \def\DefaultHeightofChoiceMenu{\normalbaselineskip}
6212 \def\DefaultWidthofChoiceMenu{\normalbaselineskip}
6213 \def\DefaultHeightofText{\normalbaselineskip}
6214 \def\DefaultHeightofTextMultiline{4\normalbaselineskip}
6215 \def\DefaultWidthofText{3cm}
6216 \def\DefaultOptionsofSubmit{print,name=Submit,noexport}
6217 \def\DefaultOptionsofReset{print,name=Reset,noexport}

```

```

6218 \def\DefaultOptionsofPushButton{print}
6219 \def\DefaultOptionsofCheckBox{print}
6220 \def\DefaultOptionsofText{print}

```

Default options for the types of \ChoiceMenu.

```

6221 \def\DefaultOptionsofListBox{print}
6222 \def\DefaultOptionsofComboBox{print,edit,sort}
6223 \def\DefaultOptionsofPopdownBox{print}
6224 \def\DefaultOptionsofRadio{print,notoggletooff}

```

## 20 Setup

```

6225 \ifHy@hyperfigures
6226 \Hy@Info{Hyper figures ON}%
6227 \else
6228 \Hy@Info{Hyper figures OFF}%
6229 \fi
6230 \ifHy@nesting
6231 \Hy@Info{Link nesting ON}%
6232 \else
6233 \Hy@Info{Link nesting OFF}%
6234 \fi
6235 \ifHy@hyperindex
6236 \Hy@Info{Hyper index ON}%
6237 \else
6238 \Hy@Info{Hyper index OFF}%
6239 \fi
6240 \ifHy@backref
6241 \Hy@Info{backreferencing ON}%
6242 \else
6243 \Hy@Info{backreferencing OFF}%
6244 \fi
6245 \ifHy@colorlinks
6246 \Hy@Info{Link coloring ON}%
6247 \else
6248 \Hy@Info{Link coloring OFF}%
6249 \fi
6250 \ifHy@ocgcolorlinks
6251 \Hy@Info{Link coloring with OCG ON}%
6252 \else
6253 \Hy@Info{Link coloring with OCG OFF}%
6254 \fi
6255 \ifHy@pdfa
6256 \Hy@Info{PDF/A mode ON}%
6257 \else
6258 \Hy@Info{PDF/A mode OFF}%
6259 \fi

```

## 21 Low-level utility macros

We need unrestricted access to the #, ~ and " characters, so make them nice macros.

```

6260 \edef\hyper@hash{\string#}

```

```

6261 \edef\hyper@tilde{\string~}
6262 \edef\hyper@quote{\string"}

```

Support \label before \begin{document}.

```

6263 \def\@currentHref{Doc-Start}
6264 \let\Hy@footnote@currentHref\@empty

```

We give the start of document a special label; this is used in backreferencing-by-section, to allow for cites before any sectioning commands. Set up PDF info.

```

6265 \Hy@AtBeginDocument{%
6266   \Hy@pdfstringtrue
6267   \PDF@SetupDoc
6268   \let\PDF@SetupDoc\@empty
6269   \Hy@DisableOption{pdfpagescrop}%
6270   \Hy@DisableOption{pdfpagemode}%
6271   \Hy@DisableOption{pdfnonfullscreenpagemode}%
6272   \Hy@DisableOption{pdfdirection}%
6273   \Hy@DisableOption{pdfviewarea}%
6274   \Hy@DisableOption{pdfviewclip}%
6275   \Hy@DisableOption{pdfprintarea}%
6276   \Hy@DisableOption{pdfprintclip}%
6277   \Hy@DisableOption{pdfprintscaling}%
6278   \Hy@DisableOption{pdfduplex}%
6279   \Hy@DisableOption{pdfpicktraybypdfsize}%
6280   \Hy@DisableOption{pdfprintpagerange}%
6281   \Hy@DisableOption{pdfnumcopies}%
6282   \Hy@DisableOption{pdfstartview}%
6283   \Hy@DisableOption{pdfstartpage}%
6284   \Hy@DisableOption{pdftoolbar}%
6285   \Hy@DisableOption{pdfmenubar}%
6286   \Hy@DisableOption{pdfwindowui}%
6287   \Hy@DisableOption{pdfwindow}%
6288   \Hy@DisableOption{pdfcenterwindow}%
6289   \Hy@DisableOption{pdfdisplaydoctitle}%
6290   \Hy@DisableOption{pdfpagelayout}%
6291   \Hy@DisableOption{pdflang}%
6292   \Hy@DisableOption{baseurl}%
6293   \ifHy@texht\else\hyper@anchorstart{Doc-Start}\hyper@anchorend\fi
6294   \Hy@pdfstringfalse
6295 }

```

Ignore star from referencing macros: This is only needed if LaTeX doesn't define the starred variants itself.

```

6296 \@ifundefined{@kernel@ref}
6297 {\LetLtxMacro\NoHy@OrgRef\ref
6298  \DeclareRobustCommand*\ref{%
6299   \@ifstar\NoHy@OrgRef\NoHy@OrgRef
6300  }
6301  \LetLtxMacro\NoHy@OrgPageRef\pageref
6302  \DeclareRobustCommand*\pageref{%
6303   \@ifstar\NoHy@OrgPageRef\NoHy@OrgPageRef
6304  }}{}

```

## 22 Localized nullifying of package

Sometimes we just don't want the wretched package interfering with us. Define an environment we can put in manually, or include in a style file, which stops the hypertext functions doing anything. This is used, for instance, in the Elsevier classes, to stop `hyperref` playing havoc in the front matter.

```

6305 \def\NoHyper{%
6306   \def\hyper@link@[##1]##2##3##4{##4\Hy@xspace@end}%
6307   \def\hyper@@anchor##1##2{##2\Hy@xspace@end}%
6308   \global\let\hyper@livelink\hyper@link
6309   \gdef\hyper@link##1##2##3{##3\Hy@xspace@end}%
6310   \let\hyper@anchor\ltx@gobble
6311   \let\hyper@anchorstart\ltx@gobble
6312   \def\hyper@anchorend{\Hy@xspace@end}%
6313   \let\hyper@linkstart\ltx@gobbletwo
6314   \def\hyper@linkend{\Hy@xspace@end}%
6315   \def\hyper@linkurl##1##2{##1\Hy@xspace@end}%
6316   \def\hyper@linkfile##1##2##3{##1\Hy@xspace@end}%
6317   \let\Hy@backout\@gobble
6318 }
6319 \def\stop@hyper{%
6320   \def\hyper@link@[##1]##2##3##4{##4\Hy@xspace@end}%
6321   \let\Hy@backout\@gobble
6322   \let\hyper@@anchor\ltx@gobble
6323   \def\hyper@link##1##2##3{##3\Hy@xspace@end}%
6324   \let\hyper@anchor\ltx@gobble
6325   \let\hyper@anchorstart\ltx@gobble
6326   \def\hyper@anchorend{\Hy@xspace@end}%
6327   \let\hyper@linkstart\ltx@gobbletwo
6328   \def\hyper@linkend{\Hy@xspace@end}%
6329   \def\hyper@linkurl##1##2{##1\Hy@xspace@end}%
6330   \def\hyper@linkfile##1##2##3{##1\Hy@xspace@end}%
6331 }
6332 \def\endNoHyper{%
6333   \global\let\hyper@link\hyper@livelink
6334 }
6335 \end{package}

```

## 23 Package nohyperref

This package is introduced by Sebastian Rahtz.

Package `nohyperref` is a dummy package that defines some low level and some top-level commands. It is done for `jadetex`, which calls `hyperref` low-level commands, but it would also be useful with people using normal `hyperref`, who really do not want the package loaded at all.

Some low-level commands:

```

6336 (*nohyperref)
6337 \RequirePackage{letltxmacro}[2008/06/13]
6338 \let\hyper@@anchor\@gobble
6339 \def\hyper@link##1##2##3{##3}%
6340 \let\hyper@anchorstart\@gobble
6341 \let\hyper@anchorend\@empty

```

```

6342 \let\hyper@linkstart\@gobbletwo
6343 \let\hyper@linkend\@empty
6344 \def\hyper@linkurl#1#2{#1}%
6345 \def\hyper@linkfile#1#2#3{#1}%
6346 \def\hyper@link@[#1]#2#3{#1}%
6347 \let\PDF@SetupDoc\@empty
6348 \let\PDF@FinishDoc\@empty
6349 \def\nohyperpage#1{#1}

```

Some top-level commands:

```

6350 \def\Acrobatmenu#1#2{\leavevmode#2}
6351 \let\pdfstringdefDisableCommands\@gobbletwo
6352 \let\texorpdfstring\@firstoftwo
6353 \let\pdfbookmark\@undefined
6354 \newcommand\pdfbookmark[3][]{ }
6355 \let\phantomsection\@empty
6356 \let\hypersetup\@gobble
6357 \let\hyperbaseurl\@gobble
6358 \newcommand*{\href}[3][]{#3}
6359 \let\hyperdef\@gobbletwo
6360 \let\hyperlink\@gobble
6361 \let\hypertarget\@gobble
6362 \def\hyperref{%
6363   \ifnextchar\@gobbleopt{\expandafter\@gobbletwo\@gobble}%
6364 }
6365 \long\def\@gobbleopt[#1]{ }
6366 \let\hyperpage\@empty

```

Ignore star from referencing macros. This is only needed in older formats.

```

6367 \@if@t@r\fmtversion{2022-06-01}
6368 {}%
6369 {%
6370   \LetLtxMacro\NoHy@OrgRef\ref
6371   \DeclareRobustCommand*{\ref}{%
6372     \ifstar\NoHy@OrgRef\NoHy@OrgRef
6373   }
6374   \LetLtxMacro\NoHy@OrgPageRef\pageref
6375   \DeclareRobustCommand*{\pageref}{%
6376     \ifstar\NoHy@OrgPageRef\NoHy@OrgPageRef
6377   }%
6378 }
6379 \nohyperref

```

## 24 The Mangling Of Aux and Toc Files

Some extra tests so that the hyperref package may be removed or added to a document without having to remove .aux and .toc files (this section is by David Carlisle) All the code is delayed to `\begin{document}` change 2023-08-13: with a new format it is no longer needed to handle different `\newlabel` definitions. The code can be removed completely later.

```

6380 (*package)
6381 \@if@t@r\fmtversion{2023-06-01}{ }
6382 {

```

```
6383 \Hy@AtBeginDocument{%
```

First the code to deal with removing the hyperref package from a document.

Write some stuff into the aux file so if the next run is done without hyperref, then `\newlabel` is defined to cope with the extra arguments. change 2022-03-28: removed the code for `\contentsline`, it is no longer needed as `\contentsline` has now always four arguments.

```
6384 \if@files
6385 \immediate\write\@auxout{%
6386 \string\providecommand\string\HyperFirstAtBeginDocument{%
6387 \string\AtBeginDocument}^^J%
6388 \string\HyperFirstAtBeginDocument{%
6389 \string\ifx\string\hyper@anchor\string\@undefined^^J%
6390 \string\global\string\let\string\oldnewlabel\string\newlabel^^J%
6391 \string\gdef\string\newlabel\string#1\string#2{%
6392 \string\newlabelxx{\string#1}\string#2}^^J%
6393 \string\gdef\string\newlabelxx%
6394 \string#1\string#2\string#3\string#4\string#5\string#6{%
6395 \string\oldnewlabel{\string#1}{\string#2}{\string#3}}^^J%
```

But the new aux file will be read again at the end, with the normal definitions expected, so better put things back as they were.

```
6396 \string\AtEndDocument{%
6397 \string\ifx\string\hyper@anchor\string\@undefined^^J%
6398 \string\let\string\newlabel\string\oldnewlabel^^J%
6399 \string\fi%
6400 }^^J%
```

If the document is being run with hyperref put this definition into the aux file, so we can spot it on the next run.

```
6401 \string\fi%
6402 }^^J%
6403 \string\global\string\let\string\hyper@last\relax^^J%
6404 \string\gdef\string\HyperFirstAtBeginDocument\string#1{\string#1}%
6405 }%
6406 \fi
6407 \let\HyperFirstAtBeginDocument\ltx@firstofone
```

Now the code to deal with adding the hyperref package to a document with aux and toc written the standard way.

If hyperref was used last time, do nothing. change 2022-03-28: removed the test for an old toc. `\contentsline` has now always four arguments.

```
6408 \ifx\hyper@last\@undefined
6409 \def\newlabel#1#2{\@newl@bel r{#1}{#2}{}}}%
6410 \fi
6411 }
6412 }
```

## 25 Title strings

If options `pdftitle` and `pdfauthor` are not used, these informations for the pdf information dictionary can be extracted by the `\title` and `\author`.

```
6413 \ifHy@pdfusetitle
```

```

6414 \let\HyOrg@title\title
6415 \let\HyOrg@author\author
6416 \def\title{\@ifnextchar{\Hy@scanopttitle}{\Hy@scantitle}}%
6417 \def\Hy@scanopttitle[#1]{%
6418   \gdef\Hy@title{#1}%
6419   \HyOrg@title[{#1}]%
6420 }%
6421 \def\Hy@scantitle#1{%
6422   \gdef\Hy@title{#1}%
6423   \HyOrg@title{#1}%
6424 }%
6425 \def\author{\@ifnextchar{\Hy@scanoptauthor}{\Hy@scanauthor}}%
6426 \def\Hy@scanoptauthor[#1]{%
6427   \gdef\Hy@author{#1}%
6428   \HyOrg@author[{#1}]%
6429 }%
6430 \def\Hy@scanauthor#1{%
6431   \gdef\Hy@author{#1}%
6432   \HyOrg@author{#1}%
6433 }%

```

The case, that `\title`, or `\author` are given before `hyperref` is loaded, is much more complicate, because LaTeX initializes the macros `\@title` and `\@author` with LaTeX error and warning messages.

```

6434 \begingroup
6435   \def\process@me#1\@nil#2{%
6436     \expandafter\let\expandafter\x\csname @#2\endcsname
6437     \edef\y{\expandafter\strip@prefix\meaning\x}%
6438     \def\c##1#1##2\@nil{%
6439       \ifx\\##1\\%
6440         \else
6441           \expandafter\gdef\csname Hy@#2\expandafter\endcsname
6442             \expandafter{\x}%
6443         \fi
6444       }%
6445     \expandafter\c\y\relax#1\@nil
6446   }%
6447   \expandafter\process@me\string\@latex@\@nil{title}%
6448   \expandafter\process@me\string\@latex@\@nil{author}%
6449 \endgroup
6450 \fi
6451 \Hy@DisableOption{pdfusetitle}

```

Macro `\Hy@UseMaketitleInfos` is used in the driver files, before the information entries are used.

The newline macro `\newline` or `\\` is much more complicate. In the title a good replacement can be a space, but can be already a space after `\\` in the title string. So this space is removed by scanning for the next non-empty argument.

In the macro `\author` the newline can perhaps separate the different authors, so the newline expands here to a comma with space.

The possible arguments such as space or the optional argument after the newline macros are not detected.

A possible <sup>1</sup> removes its argument.

```

6452 \def\Hy@UseMaketitleString#1{%

```

```

6453 \ltx@ifundefined{Hy@#1}{-}{%
6454   \begingroup
6455   \let\Hy@saved@hook\pdfstringdefPreHook
6456   \pdfstringdefDisableCommands{%
6457     \expandafter\let\expandafter\\\csname Hy@newline@#1\endcsname
6458     \let\newline\\%
6459     \def\and{; }%
6460     \let\thanks\@gobble%
6461   }%
6462   \expandafter\ifx\csname @pdf#1\endcsname\@empty
6463     \expandafter\pdfstringdef\csname @pdf#1\endcsname{%
6464       \csname Hy@#1\endcsname\@empty
6465     }%
6466   \fi
6467   \global\let\pdfstringdefPreHook\Hy@saved@hook
6468 \endgroup
6469 }%
6470 }
6471 \def\Hy@newline@title#1{ #1}
6472 \def\Hy@newline@author#1{, #1}
6473 \def\Hy@UseMaketitleInfos{%
6474   \Hy@UseMaketitleString{title}%
6475   \Hy@UseMaketitleString{author}%
6476 }

```

## 26 Page numbers

This stuff is done by Heiko Oberdiek.

## 27 Every page

```

6477 \RequirePackage{atbegshi}[2007/09/09]
6478 \let\Hy@EveryPageHook\ltx@empty
6479 \let\Hy@EveryPageBoxHook\ltx@empty
6480 \let\Hy@FirstPageHook\ltx@empty
6481 \AtBeginShipout{%
6482   \Hy@EveryPageHook
6483   \ifx\Hy@EveryPageBoxHook\ltx@empty
6484   \else
6485     \setbox\AtBeginShipoutBox=\vbox{%
6486       \offinterlineskip
6487       \Hy@EveryPageBoxHook
6488       \box\AtBeginShipoutBox
6489     }%
6490   \fi
6491 }
6492 \ltx@iffileloaded{hpdfetex.def}{%
6493   \AtBeginShipout{%
6494     \Hy@FirstPageHook
6495     \global\let\Hy@FirstPageHook\ltx@empty
6496   }%
6497 }{%

```



```

6498 \AtBeginShipoutFirst{%
6499   \Hy@FirstPageHook
6500 }%
6501 }
6502 \g@addto@macro\Hy@FirstPageHook{%
6503   \PDF@FinishDoc
6504   \global\let\PDF@FinishDoc\ltx@empty
6505 }

```

## 27.1 PDF /PageLabels

Internal macros of this module are marked with `\HyPL@`.

```

6506 \ifHy@pdfpagelabels
6507   \begingroup\expandafter\expandafter\expandafter\endgroup
6508   \expandafter\ifx\csname thepage\endcsname\relax
6509     \Hy@pdfpagelabelsfalse
6510     \Hy@WarningNoLine{%
6511       Option 'pdfpagelabels' is turned off\MessageBreak
6512       because \string\thepage\space is undefined%
6513     }%
6514     \csname fi\endcsname
6515     \csname iffalse\expandafter\endcsname
6516     \fi

```

`\thispdfpagelabel` The command `\thispdfpagelabel` allows to label a special page without the redefinition of `\thepage` for the page.

```

6517 \def\thispdfpagelabel#1{%
6518   \gdef\HyPL@thisLabel{#1}%
6519 }%
6520 \global\let\HyPL@thisLabel\relax

```

`\HyPL@Labels` The page labels are collected in `\HyPL@Labels` and set at the end of the document.

```

6521 \let\HyPL@Labels\ltx@empty

```

`\Hy@abspage` We have to know the the absolute page number and introduce a new counter for that.

```

6522 \newcount\Hy@abspage
6523 \Hy@abspage=0 %

```

For comparisons with the values of the previous page, some variables are needed:

```

6524 \def\HyPL@LastType{init}%
6525 \def\HyPL@LastNumber{0}%
6526 \let\HyPL@LastPrefix\ltx@empty

```

Definitions for the PDF names of the  $\LaTeX$  pendants.

```

6527 \def\HyPL@arabic{D}%
6528 \def\HyPL@Roman{R}%
6529 \def\HyPL@roman{r}%
6530 \def\HyPL@Alph{A}%
6531 \def\HyPL@alph{a}%
6532 \let\HyPL@SlidesSetPage\ltx@empty
6533 \ltx@ifclassloaded{slides}{%
6534   \def\HyPL@SlidesSetPage{%

```

```

6535 \advance\c@page\ltx@one
6536 \ifnum\value{page}>\ltx@one
6537 \protected@edef\HyPL@SlidesOptionalPage{%
6538 \Hy@SlidesFormatOptionalPage{\thepage}%
6539 }%
6540 \else
6541 \let\HyPL@SlidesOptionalPage\ltx@empty
6542 \fi
6543 \advance\c@page-\ltx@one
6544 \def\HyPL@page{%
6545 \csname the\Hy@SlidesPage\endcsname
6546 \HyPL@SlidesOptionalPage
6547 }%
6548 }%
6549 }{}%

```

`\HyPL@EveryPage` If a page is shipout and the page number is known, `\HyPL@EveryPage` has to be called. It stores the current page label.

```

6550 \def\HyPL@EveryPage{%
6551 \begingroup
6552 \ifx\HyPL@thisLabel\relax
6553 \let\HyPL@page\thepage
6554 \HyPL@SlidesSetPage
6555 \else
6556 \let\HyPL@page\HyPL@thisLabel
6557 \global\let\HyPL@thisLabel\relax
6558 \fi
6559 \let\HyPL@Type\relax
6560 \ifnum\c@page>0 %
6561 \ifx\HyPL@SlidesSetPage\ltx@empty
6562 \expandafter\HyPL@CheckThePage\HyPL@page\@nil
6563 \fi
6564 \fi
6565 \let\Hy@temp Y%
6566 \ifx\HyPL@Type\HyPL@LastType
6567 \else
6568 \let\Hy@temp N%
6569 \fi
6570 \ifx\HyPL@Type\relax
6571 \pdfstringdef\HyPL@Prefix{\HyPL@page}%
6572 \else
6573 \pdfstringdef\HyPL@Prefix\HyPL@Prefix
6574 \fi
6575 \ifx\HyPL@Prefix\HyPL@LastPrefix
6576 \else
6577 \let\Hy@temp N%
6578 \fi
6579 \if Y\Hy@temp
6580 \advance\c@page by -1 %
6581 \ifnum\HyPL@LastNumber=\the\c@page\relax
6582 \else
6583 \let\Hy@temp N%
6584 \fi
6585 \Hy@StepCount\c@page

```

```

6586 \fi
6587 \if N\Hy@temp
6588 \ifx\HyPL@Type\relax
6589 \HyPL@StorePageLabel{/P(\HyPL@Prefix)}%
6590 \else
6591 \HyPL@StorePageLabel{%
6592 \ifx\HyPL@Prefix\@empty
6593 \else
6594 /P(\HyPL@Prefix)%
6595 \fi
6596 /S/\csname HyPL\HyPL@Type\endcsname
6597 \ifnum\the\c@page=1 %
6598 \else
6599 \space/St \the\c@page
6600 \fi
6601 }%
6602 \fi
6603 \fi
6604 \xdef\HyPL@LastNumber{\the\c@page}%
6605 \global\let\HyPL@LastType\HyPL@Type
6606 \global\let\HyPL@LastPrefix\HyPL@Prefix
6607 \endgroup
6608 \Hy@GlobalStepCount\Hy@abspage
6609 }%

```

`\HyPL@CheckThePage` Macro `\HyPL@CheckThePage` calls `\HyPL@@CheckThePage` that does the job.

```

6610 \def\HyPL@CheckThePage#1\@nil{%
6611 \HyPL@@CheckThePage{#1}#1\csname\endcsname\c@page\@nil
6612 }%

```

`\HyPL@@CheckThePage` The first check is, is `\thepage` is defined such as in L<sup>A</sup>T<sub>E</sub>X, e. g.: `\csname @arabic\endcsname\c@page`. In the current implemenation the check fails, if there is another `\csname` before.

The second check tries to detect `\arabic{page}` at the end of the definition text of `\thepage`.

```

6613 \def\HyPL@@CheckThePage#1#2\csname#3\endcsname\c@page#4\@nil{%
6614 \def\Hy@tempa{#4}%
6615 \def\Hy@tempb{\csname\endcsname\c@page}%
6616 \ifx\Hy@tempa\Hy@tempb
6617 \expandafter\ifx\csname HyPL#3\endcsname\relax
6618 \else
6619 \def\HyPL@Type{#3}%
6620 \def\HyPL@Prefix{#2}%
6621 \fi
6622 \else
6623 \begingroup
6624 \let\Hy@next\endgroup
6625 \let\HyPL@found\@undefined
6626 \def\arabic{\HyPL@Format{arabic}}%
6627 \def\Roman{\HyPL@Format{Roman}}%
6628 \def\roman{\HyPL@Format{roman}}%
6629 \def\Alph{\HyPL@Format{Alph}}%
6630 \def\alph{\HyPL@Format{alph}}%
6631 \protected@edef\Hy@temp{#1}%
6632 \ifx\HyPL@found\relax

```

```

6633     \toks@\expandafter{\Hy@temp}%
6634     \edef\Hy@next{\endgroup
6635         \noexpand\HyPL@@@CheckThePage\the\toks@
6636         \noexpand\HyPL@found\relax\noexpand\@nil
6637     }%
6638     \fi
6639     \Hy@next
6640     \fi
6641 }%

```

**\HyPL@Format** The help macro **\HyPL@Format** is executed while a **\protected@edef** in the second check method of **\HyPL@@@CheckPage**. The first occurrences of, for example, **\arabic{page}** is marked by **\HyPL@found** that is also defined by **\csname**.

```

6642 \def\HyPL@Format#1#2{%
6643     \ifx\HyPL@found\@undefined
6644         \expandafter\ifx\csname c@#2\endcsname\c@page
6645             \expandafter\noexpand\csname HyPL@found\endcsname{#1}%
6646         \else
6647             \expandafter\noexpand\csname#1\endcsname{#2}%
6648         \fi
6649     \else
6650         \expandafter\noexpand\csname#1\endcsname{#2}%
6651     \fi
6652 }%

```

**\HyPL@@@CheckThePage** If the second check method is successful, **\HyPL@@@CheckThePage** scans the result of **\HyPL@Format** and stores the found values.

```

6653 \def\HyPL@@@CheckThePage#1\HyPL@found#2#3\@nil{%
6654     \def\Hy@tempa{#3}%
6655     \def\Hy@tempb{\HyPL@found\relax}%
6656     \ifx\Hy@tempa\Hy@tempb
6657         \def\HyPL@Type{#2}%
6658         \def\HyPL@Prefix{#1}%
6659     \fi
6660 }%

```

**\HyPL@StorePageLabel** Dummy for drivers that does not support **/PageLabel**.

```

6661 \providecommand*{\HyPL@StorePageLabel}[1]{}%

```

**\HyPL@Useless** The **/PageLabels** entry does not make sense, if the absolute page numbers and the page labels are the same. Then **\HyPL@Labels** has the meaning of **\HyPL@Useless**.

```

6662 \def\HyPL@Useless{0<</S/D>>}%
6663 \@onelevel@sanitize\HyPL@Useless

```

**\HyPL@SetPageLabels** The page labels are written to the PDF catalogue. The command **\Hy@PutCatalog** is defined in the driver files.

```

6664 \def\HyPL@SetPageLabels{%
6665     \@onelevel@sanitize\HyPL@Labels
6666     \ifx\HyPL@Labels\@empty
6667     \else
6668         \ifx\HyPL@Labels\HyPL@Useless
6669     \else

```

```

6670      \Hy@PutCatalog{/PageLabels<</Nums[\HyPL@Labels]>>}%
6671      \fi
6672  \fi
6673 }%

6674 \g@addto@macro\Hy@EveryPageHook{\HyPL@EveryPage}%
6675 \fi

Option ‘pdfpagelabels’ has been used and is now disabled.
6676 \Hy@DisableOption{pdfpagelabels}
6677 </package>

```

### 27.1.1 pdfTeX and VTeX

Because of pdfTeX’s `\pdfcatalog` command the `/PageLabels` entry can set at end of document in the first run.

```

\Hy@PutCatalog
6678 (*pdfTeX)
6679 \pdf@ifdraftmode{%
6680   \let\Hy@PutCatalog\ltx@gobble
6681 }{%
6682   \let\Hy@PutCatalog\pdfcatalog
6683 }
6684 </pdfTeX>

```

The code for VTeX is more complicate, because it does not allow the direct access to the `/Catalog` object. The command scans its argument and looks for a `/PageLabels` entry.

VTeX 6.59g is the first version, that implements `\special{!pdfpagelabels...}`. For this version `\VTeXversion` reports 660.

```

6685 (*vTeX)
6686 \providecommand*\XR@ext}{pdf}
6687 \edef\Hy@VTeXversion{%
6688   \ifx\VTeXversion\@undefined
6689     \z@
6690   \else
6691     \ifx\VTeXversion\relax
6692       \z@
6693     \else
6694       \VTeXversion
6695     \fi
6696   \fi
6697 }
6698 \begingroup
6699   \ifnum\Hy@VTeXversion<660 %
6700     \gdef\Hy@PutCatalog#1{%
6701       \Hy@WarningNoLine{%
6702         VTeX 6.59g or above required for pdfpagelabels%
6703       }%
6704     }%
6705   \else
6706     \gdef\Hy@PutCatalog#1{%
6707       \Hy@vt@PutCatalog#1/PageLabels<<>>\@nil

```

```

6708 }%
6709 \gdef\Hy@vt@PutCatalog#1/PageLabels<<#2>>#3\@nil{%
6710   \ifx\#2\%
6711     \else
6712       \immediate\special{!pdfpagelabels #2}%
6713     \fi
6714   }%
6715 \fi
6716 \endgroup
6717 </vtex>

6718 <*pdfTeX | vtex>

```

`\HyPL@StorePageLabel` This macro adds the entry `#1` to `\HyPL@Labels`.

```

6719 \ifHy@pdfpagelabels
6720 \def\HyPL@StorePageLabel#1{%
6721   \toks@{\expandafter{\HyPL@Labels}}%
6722   \xdef\HyPL@Labels{%
6723     \the\toks@
6724     \the\Hy@abspage<<#1>>%
6725   }%
6726 }%

```

Package `atveryend` is used to get behind the final `\clearpage` and to avoid a `\clearpage` in `\AtEndDocument`. Then the PDF catalog entry for `\PageLabels` is set.

```

6727 \RequirePackage{atveryend}[2009/12/07]%
6728 \AtVeryEndDocument{%
6729   \HyPL@SetPageLabels
6730 }%

6731 \fi
6732 </pdfTeX | vtex>

```

### 27.1.2 xetex

```

6733 <*xetex>
6734 \HyPsd@LoadUnicode
6735 \Hy@unicodetrue
6736 \ifx\HyPsd@pdfencoding\HyPsd@pdfencoding@unicode
6737 \else
6738   \let\HyPsd@pdfencoding\HyPsd@pdfencoding@auto
6739 \fi
6740 \HyPsd@LoadStringEncoding
6741 \define@key{Hyp}{unicode}[true]{%
6742   \Hy@boolkey{unicode}{#1}%
6743   \ifHy@unicode
6744     \else
6745       \Hy@Warning{%
6746         XeTeX driver only supports `unicode=true'. Ignoring\MessageBreak
6747         option setting `unicode=false'%
6748       }%
6749     \Hy@unicodetrue
6750   \fi
6751 }

```

```

6752 \define@key{Hyp}{pdfencoding}{%
6753   \edef\HyPsd@temp{#1}%
6754   \ifx\HyPsd@temp\HyPsd@pdfencoding@unicode
6755     \let\HyPsd@pdfencoding\HyPsd@temp
6756   \else
6757     \ifx\HyPsd@temp\HyPsd@pdfencoding@auto
6758       \let\HyPsd@pdfencoding\HyPsd@temp
6759     \else
6760       \Hy@Warning{%
6761         XeTeX driver only supports\MessageBreak
6762         `pdfencoding=unicode|auto'. Ignoring option\MessageBreak
6763         setting `pdfencoding=\HyPsd@temp'%
6764       }%
6765     \fi
6766   \fi
6767 }
6768 \let\HyXeTeX@CheckUnicode\relax

```

Since 2016 (x)dvipdfmx has a special to control the spacing of annotation borders.

So let's make use of it:

```

6769 \def\setpdfinkmargin#1{%
6770   \begingroup
6771     \setlength{\dimen@}{#1}%
6772     \special{dvipdfmx:config g \strip@pt\dimen@}%
6773   \endgroup}
6774 \xetex

```

set the pdf version

```

6775 (*dvipdfm | xetex)
6776 \special{pdf:majorversion \Hy@pdf@majorversion}
6777 \special{pdf:minorversion \Hy@pdf@minorversion}
6778 \xetex

```

### 27.1.3 pdfmarkbase, dvipdfm, xetex

```

6779 (*pdfmarkbase)
6780 \begingroup
6781   \@ifundefined{headerps@out}{-}{%
6782     \toks@{\expandafter{\Hy@FirstPageHook}}%
6783     \xdef\Hy@FirstPageHook{%
6784       \noexpand\headerps@out{%
6785         systemdict /pdfmark known%
6786         {%
6787           userdict /?pdfmark systemdict /exec get put%
6788         }{%
6789           userdict /?pdfmark systemdict /pop get put %
6790           userdict /pdfmark systemdict /cleartomark get put%
6791         }%
6792       }%
6793     }%
6794     \the\toks@
6795   }%
6796 }%
6797 \endgroup
6798 \xetex

```

\Hy@PutCatalog

```

6799 <dvipdfm | xetex>\def\Hy@PutCatalog#1{\@pdfmark{docview <<#1>>}}
6800 <*pdfmarkbase>
6801 \def\Hy@PutCatalog#1{%
6802   \pdfmark{pdfmark=/PUT,Raw={\string{Catalog\string} <<#1>>}}%
6803 }
6804 </pdfmarkbase>

6805 <*pdfmarkbase | dvipdfm | xetex>
6806 \ifHy@pdfpagelabels

```

\HyPL@StorePageLabel This macro writes a string to the .aux file.

```

6807 \def\HyPL@StorePageLabel#1{%
6808   \if@filesw
6809     \begingroup
6810     \edef\Hy@tempa{\the\Hy@abspage<<#1>>}%
6811     \immediate\write\@mainaux{%
6812       \string\HyPL@Entry{\Hy@tempa}%
6813     }%
6814   \endgroup
6815 \fi
6816 }%

```

Write a dummy definition of \HyPL@Entry for the case, that the next run is done without hyperref. A marker for the rerun warning is set and the /PageLabels is written.

```

6817 \Hy@AtBeginDocument{%
6818   \if@filesw
6819     \immediate\write\@mainaux{%
6820       \string\providecommand\string*\string\HyPL@Entry[1]{}%
6821     }%
6822   \fi
6823   \ifx\HyPL@Labels\@empty
6824     \Hy@WarningNoLine{Rerun to get /PageLabels entry}%
6825   \else
6826     \HyPL@SetPageLabels
6827   \fi
6828   \let\HyPL@Entry\@gobble
6829 }%

```

\HyPL@Entry

```

6830 \def\HyPL@Entry#1{%
6831   \expandafter\gdef\expandafter\HyPL@Labels\expandafter{%
6832     \HyPL@Labels
6833     #1%
6834   }%
6835 }%

6836 \fi
6837 </pdfmarkbase | dvipdfm | xetex>

6838 <*packageEnd>

6839 \ifx\MaybeStopEarly\relax
6840 \else

```



```

6841 \Hy@stoppedearlytrue
6842 \expandafter\MaybeStopEarly
6843 \fi
6844 \Hy@stoppedearlyfalse

```

## 28 Automated L<sup>A</sup>T<sub>E</sub>X hypertext cross-references

Anything which can be referenced advances some counter; we overload this to put in a hypertext starting point (with no visible anchor), and make a note of that for later use in `\label`. This will fail badly if `\theH<name>` does not expand to a sensible reference. This means that classes or package which introduce new elements need to define an equivalent `\theH<name>` for every `\the<name>`. We do make a trap to make `\theH<name>` be the same as `\arabic{<name>}`, if `\theH<name>` is not defined, but this is not necessarily a good idea. Alternatively, the ‘naturalnames’ option uses whatever L<sup>A</sup>T<sub>E</sub>X provides, which may be useable. But then its up to you to make sure these are legal PDF and HTML names. The ‘hypertextnames=false’ option just makes up arbitrary names.

All the shenanigans is to make sure section numbers etc are always arabic, separated by dots. Who knows how people will set up `\@currentlabel`? If they put spaces in, or brackets (quite legal) then the hypertext processors will get upset.

But this is flaky, and open to abuse. Styles like `subeqn` will mess it up, for starters. Appendices are an issue, too. We just hope to cover most situations. We can at least cope with the standard sectioning structure, allowing for `\part` and `\chapter`.

Start with a fallback for equations

```

6845 \def\Hy@CounterExists#1{%
6846   \begingroup\expandafter\expandafter\expandafter\endgroup
6847   \expandafter\ifx\csname c@#1\endcsname\relax
6848     \expandafter\@gobble
6849   \else
6850     \begingroup\expandafter\expandafter\expandafter\endgroup
6851     \expandafter\ifx\csname the#1\endcsname\relax
6852       \expandafter\expandafter\expandafter\@gobble
6853     \else
6854       \expandafter\expandafter\expandafter\@firstofone
6855     \fi
6856   \fi
6857 }
6858 \Hy@CounterExists{section}{%
6859   \providecommand\theHequation{\theHsection.\arabic{equation}}}%
6860 }
6861 \providecommand\theHequation{\arabic{equation}}}%
6862 \Hy@CounterExists{part}{%
6863   \providecommand\theHpart{\arabic{part}}}%
6864 }
6865 \ltx@ifundefined{thechapter}{%
6866   \providecommand\theHsection  {\arabic{section}}}%
6867   \providecommand\theHfigure   {\arabic{figure}}}%
6868   \providecommand\theHtable    {\arabic{table}}}%
6869 }{%
6870   \providecommand\theHchapter  {\arabic{chapter}}}%

```

```

6871 \providecommand\theHfigure    {\theHchapter.\arabic{figure}}%
6872 \providecommand\theHtable    {\theHchapter.\arabic{table}}%
6873 \providecommand\theHsection   {\theHchapter.\arabic{section}}%
6874 }
6875 \providecommand\theHsubsection {\theHsection.\arabic{subsection}}
6876 \providecommand\theHsubsubsection{\theHsubsection.\arabic{subsubsection}}
6877 \providecommand\theHparagraph  {\theHsubsubsection.\arabic{paragraph}}
6878 \providecommand\theHsubparagraph {\theHparagraph.\arabic{subparagraph}}
6879 \providecommand\theHtheorem    {\theHsection.\arabic{theorem}}
6880 \providecommand\theHthm        {\theHsection.\arabic{thm}}

```

Thanks to Greta Meyer (gbd@pop.cwru.edu) for making me realize that enumeration starts at 0 for every list! But `\item` occurs inside `\trivlist`, so check if its a real `\item` before incrementing counters.

```

6881 \let\H@item\item
6882 \newcounter{Item}
6883 \def\theHItem{\arabic{Item}}
6884 \def\item{%
6885   \@hyper@itemfalse
6886   \if@nmbrrlist\@hyper@itemtrue\fi
6887   \H@item
6888 }
6889 \providecommand\theHenumi      {\theHItem}
6890 \providecommand\theHenumii     {\theHItem}
6891 \providecommand\theHenumiii    {\theHItem}
6892 \providecommand\theHenumiv     {\theHItem}
6893 \providecommand\theHHfootnote {\arabic{Hfootnote}}
6894 \providecommand\theHmpfootnote{\arabic{mpfootnote}}
6895 \@ifundefined{theHHmpfootnote}{%
6896   \let\theHHmpfootnote\theHHfootnote
6897 }{}

```

Tanmoy asked for this default handling of undefined `\theH<name>` situations. It really isn't clear what would be ideal, whether to turn off hyperizing of unknown elements, to pick up the textual definition of the counter, or to default it to something like `\arabic{name}`. We take the latter course, slightly worriedly.

```

6898 \let\H@refstepcounter\refstepcounter
6899 \edef\name@of@eq{equation}%

```

We do not want the handler for `\refstepcounter` to cut in during the processing of `\item` (we handle that separately), so we provide a bypass conditional. change 2022-04-22: removed test for the slide counter and for the equation name. change 2022-05-02: added the new boolean set by `\LinkTargetOn/\LinkTargetOff`

```

6900 \newif\if@hyper@item
6901 \newif\if@skiphyperref
6902 \@hyper@itemfalse
6903 \@skiphyperreffalse
6904 \ExplSyntaxOn
6905 \def\refstepcounter#1{%
6906   \legacy_if:nF {Hy@pdfstring}
6907   {
6908     \H@refstepcounter{#1}%
6909     \bool_lazy_and:nnT
6910       { \l__hyp_target_create_bool }

```

```

6911 { ! \legacy_if_p:n{@skiphyperref} }
6912 {
6913   \legacy_if:nTF {@hyper@item}
6914   {
6915     \stepcounter{Item}%
6916     \hyper@refstepcounter{Item}%
6917     \@hyper@itemfalse
6918   }
6919   {
6920     \hyper@refstepcounter{#1}%
6921   }
6922 }
6923 }
6924 }
6925 \ExplSyntaxOff
6926 \let\Hy@saved@refstepcounter\refstepcounter

```

AMSTeX processes all equations twice; we want to make sure that the hyper stuff is not executed twice, so we use the AMS `\ifmeasuring@`, initialized if AMS math is not used.

```

6927 \newif\ifmeasuring@\measuring@false
6928 \newcommand\Hy@ifnotmeasuring[1]{#1}
6929 \AddToHook{package/amsmath/after}
6930 {
6931   \renewcommand\Hy@ifnotmeasuring[1]
6932   {\ifmeasuring@ \else #1\fi}
6933 }

```

`\hyper@refstepcounter`

```

6934 \def\hyper@refstepcounter#1{%
6935   \HyCnt@ProvideTheHCounter{#1}%
6936   \hyper@makecurrent{#1}%
6937   \Hy@ifnotmeasuring
6938   {\Hy@raisedlink{%
6939     \hyper@anchorstart{\@currentHref}\hyper@anchorend
6940   }}%
6941 }

```

`\Hy@ProvideTheHCounter` `\theH<counter>` is not set for counters that are defined before ‘hyperref’ is loaded. In `\cl@<ckpt>`, the clear counter list of the artificial counter `@ckpt`, L<sup>A</sup>T<sub>E</sub>X remembers the defined counters (needed for `\include`). We check the clear counter lists, whether our counter is present. If we found it, then we add the parent counter value to `\theH<counter>`. The `\@elt` list is used in sanitized form for the comparison, because the list might contain other stuff than `\@elts`. Also it simplifies the implementation, because L<sup>A</sup>T<sub>E</sub>X’, substring search `\in@` can be used.

```

6942 \def\HyCnt@ProvideTheHCounter#1{%
6943   \@ifundefined{theH#1}{%
6944     \expandafter\def\csname theH#1\endcsname{}%
6945     \def\Hy@temp{\@elt{#1}}%
6946     \ltx@onelevel@sanitize\Hy@temp
6947     \let\HyOrg@elt\@elt
6948     \edef\@elt{%
6949       \noexpand\HyCnt@LookForParentCounter

```

```

6950 \expandafter\noexpand\csname theH#1\endcsname
6951 }%
6952 \cl@ckpt
6953 \let\@elt\HyOrg@elt
6954 \expandafter
6955 \ltx@LocalAppendToMacro\csname theH#1\expandafter\endcsname
6956 \expandafter{%
6957 \expandafter\@arabic\csname c@#1\endcsname
6958 }%
6959 }{}%
6960 }

```

\Hy@LookForParentCounter

```

6961 \def\HyCnt@LookForParentCounter#1#2{%
6962 \expandafter\let\expandafter\Hy@temp@A\csname cl@#2\endcsname
6963 \ltx@ifundefined{cl@#2}{%
6964 }{%
6965 \ltx@onelevel@sanitize\Hy@temp@A
6966 \edef\Hy@temp@A{%
6967 \noexpand\in@{\Hy@temp}{\Hy@temp@A}%
6968 }\Hy@temp@A
6969 \ifin@
6970 \ltx@ifundefined{theH#2}{%
6971 \expandafter\ltx@LocalAppendToMacro\expandafter#1%
6972 \expandafter{%
6973 \expandafter\@arabic\csname c@#2\endcsname.%
6974 }%
6975 }{}%
6976 \expandafter\ltx@LocalAppendToMacro\expandafter#1%
6977 \expandafter{%
6978 \csname theH#2\endcsname.%
6979 }%
6980 }%
6981 \fi
6982 }%
6983 }

```

After `\appendix` “chapter” (or “section” for classes without chapter) should be replaced by “appendix” to get `\autoref` work. Macro `\Hy@chapapp` contains the current valid name like `\@chapapp`, which cannot be used, because this string depends on the current language.

The “french” package defines counter `\thechapter` by `\newcounterchapter`, if `\@ifundefinedchapter`.

```

6984 \begingroup\expandafter\expandafter\expandafter\endgroup
6985 \expandafter\ifx\csname chapter\endcsname\relax
6986 \def\Hy@chapterstring{section}%
6987 \else
6988 \def\Hy@chapterstring{chapter}%
6989 \fi
6990 \def\Hy@appendixstring{appendix}
6991 \def\Hy@chapapp{\Hy@chapterstring}
6992 \ltx@ifundefined{appendix}{%
6993 }{}%
6994 \let\HyOrg@appendix\appendix

```

```

6995 \def\Hy@AlphNoErr#1{%
6996   \ifnum\value{#1}>26 %
6997     Alph\number\value{#1}%
6998   \else
6999     \ifnum\value{#1}<1 %
7000       Alph\number\value{#1}%
7001     \else
7002       \Alph{#1}%
7003     \fi
7004   \fi
7005 }%
7006 \def\appendix{%
7007   \ltx@ifundefined{chapter}{%
7008     \gdef\theHsection{\Hy@AlphNoErr{section}}%
7009   }{%
7010     \gdef\theHchapter{\Hy@AlphNoErr{chapter}}%
7011   }%
7012   \xdef\Hy@chapapp{\Hy@appendixstring}%
7013   \HyOrg@appendix
7014 }%
7015 }

```

\Hy@Test@alph

```

7016 \def\Hy@Test@alph#1{%
7017   \ifcase#1\or
7018     a\or b\or c\or d\or e\or f\or g\or h\or i\or j\or
7019     k\or l\or m\or n\or o\or p\or q\or r\or s\or t\or
7020     u\or v\or w\or x\or y\or z%
7021   \else
7022     \@ctrerr
7023   \fi
7024 }

```

\Hy@Test@Alph

```

7025 \def\Hy@Test@Alph#1{%
7026   \ifcase#1\or
7027     A\or B\or C\or D\or E\or F\or G\or H\or I\or J\or
7028     K\or L\or M\or N\or O\or P\or Q\or R\or S\or T\or
7029     U\or V\or W\or X\or Y\or Z%
7030   \else
7031     \@ctrerr
7032   \fi
7033 }

```

We define a hook to allow to overwrite the next destination name.

```

7034 \NewHook{__hyp/target/setname }
7035 \define@key{Hyp}{next-anchor}{%
7036   \AddToHookNext{__hyp/target/setname}%
7037   {\Hy@MakeCurrentHref{#1}}%
7038 }

```

\hyper@makecurrent Because of Babel mucking around, nullify \textlatin when making names. And \@number because of babel's lrbabel.def. change 2021-08-15: For new formats we add a hook which allows to overwrite the name of the next destination.

```

7039 \def\hyper@makecurrent#1{%
7040   \begingroup
7041   \Hy@safe@activetrue
7042   \edef\Hy@param{#1}%
7043   \ifx\Hy@param\Hy@chapterstring
7044     \let\Hy@param\Hy@chapapp
7045   \fi
7046   \ifHy@hypertextnames
7047     \let\@number\@firstofone
7048     \def\@fnsymbol##1{\fnsymbol\number##1}%
7049     \def\@arabic##1{\number##1}%
7050     \ifx\@alph\Hy@Test@alph
7051       \else
7052         \def\@alph{alph\number}%
7053       \fi
7054     \ifx\@Alph\Hy@Test@Alph
7055       \else
7056         \def\@Alph{Alph\number}%
7057       \fi
7058     \ifHy@naturalnames
7059       \let\textlatin\@firstofone
7060       \xdef\HyperGlobalCurrentHref{\csname the#1\endcsname}%
7061     \else
7062       \xdef\HyperGlobalCurrentHref{%
7063         \csname
7064           the%
7065           \expandafter\ifx\csname theH#1\endcsname\relax\else H\fi
7066           #1%
7067         \endcsname
7068       }%
7069     \fi
7070     \xdef\HyperGlobalCurrentHref{%
7071       \Hy@param.\expandafter\strip@prefix\meaning\HyperGlobalCurrentHref
7072     }%
7073   \else
7074     \Hy@GlobalStepCount\Hy@linkcounter
7075     \xdef\HyperGlobalCurrentHref{\Hy@param.\the\Hy@linkcounter}%
7076   \fi
7077 \endgroup
7078 \let\HyperLocalCurrentHref\HyperGlobalCurrentHref
7079 \ifHy@localanchorname
7080   \let\@currentHref\HyperLocalCurrentHref
7081 \else
7082   \global\let\@currentHref\HyperGlobalCurrentHref
7083 \fi
7084 \UseHook{__hyp/target/setname}%
7085 }

```

\Hy@MakeCurrentHref

```

7086 \def\Hy@MakeCurrentHref#1{%
7087   \edef\HyperLocalCurrentHref{#1}%
7088   \@onelevel@sanitize\HyperLocalCurrentHref
7089   \global\let\HyperGlobalCurrentHref\HyperLocalCurrentHref
7090   \let\HyperLocalCurrentHref\HyperGlobalCurrentHref

```

```

7091 \ifHy@localanchorname
7092   \let\@currentHref\HyperLocalCurrentHref
7093 \else
7094   \global\let\@currentHref\HyperGlobalCurrentHref
7095 \fi
7096 }

```

`\Hy@MakeCurrentHrefAuto` This command is e.g. used to create destinations for unnumbered sections and chapters. For new formats we add a hook which allows to overwrite the name of the next destination.

```

7097 \def\Hy@MakeCurrentHrefAuto#1{%
7098   \Hy@GlobalStepCount\Hy@linkcounter
7099   \Hy@MakeCurrentHref{#1.\the\Hy@linkcounter}%
7100   \UseHook{__hyp/target/setname}}

```

`\@currentHlabel` `\@currrentHlabel` is only defined for compatibility with package ‘hypdvips’.

```

7101 \def\@currentHlabel{\@currentHref}

```

## 29 Package ifthen support

Since version 6.75a this is done in package `nameref`.

For compatibility `\hypergetref` and `\hypergetpageref` are still provided. But they do not generate warnings, if the reference is undefined.

```

7102 \def\hypergetref#1{\getrefbykeydefault{#1}{}}{??}}
7103 \def\hypergetpageref#1{\getrefbykeydefault{#1}{page}{0}}

```

## 30 Package varwidth support

2023-11-07: `varwidth` needs a special configuration point to insert its handler. We use a socket for this.

```

7104 \@if@t@r\fmtversion{2023-11-01}
7105 {
7106   \AddToHook{package/varwidth/after}
7107   {
7108     \NewSocketPlug{hyp/raisedlink}{varwidth}{\@vwid@wrap{#1}}
7109     \appto\@vwid@setup{\AssignSocketPlug{hyp/raisedlink}{varwidth}}
7110   }
7111 }{}

```

## 31 Package titlesec and titletoc support

This code is contributed by Javier Bezos (Email: [jbezoz@arrakis.es](mailto:jbezoz@arrakis.es)).

Package `titlesec` support:

```

7112 \@ifpackageloaded{titlesec}{%
7113   \def\ttl@Hy@steplink#1{%
7114     \Hy@MakeCurrentHrefAuto{#1*}%
7115     \edef\ttl@Hy@saveanchor{%
7116       \noexpand\Hy@raisedlink{%
7117         \noexpand\hyper@anchorstart{\@currentHref}%

```

```

7118 \noexpand\hyper@anchorend
7119 \def\noexpand\ttl@Hy@SavedCurrentHref{\@currentHref}%
7120 \noexpand\ttl@Hy@PatchSaveWrite
7121 }%
7122 }%
7123 }%
7124 \def\ttl@Hy@PatchSaveWrite{%
7125 \begingroup
7126 \toks@{\expandafter\ttl@savewrite}%
7127 \edef\x{\endgroup
7128 \def\noexpand\ttl@savewrite{%
7129 \let\noexpand\@currentHref
7130 \noexpand\ttl@Hy@SavedCurrentHref
7131 \the\toks@
7132 }%
7133 }%
7134 \x
7135 }%
7136 \def\ttl@Hy@refstepcounter#1{%
7137 \let\ttl@b\Hy@raisedlink
7138 \def\Hy@raisedlink##1{%
7139 \def\ttl@Hy@saveanchor{\Hy@raisedlink{##1}}%
7140 }%
7141 \refstepcounter{#1}%
7142 \let\Hy@raisedlink\ttl@b
7143 }%
7144 }{}

```

## 32 Package longtable support

Sometimes the anchor of the longtable goes to the previous page. Thus the following patch separates the anchor setting and counter incrementation by hyperref's `\refstepcounter` and the anchor setting is moved after `\vskip\LTpre`.

Patch of `\LT@array`: replace `\refstepcounter` by the original `\H@refstepcounter` without anchor generation

```

7145 \@ifpackageloaded{longtable}{%
7146 \@ifundefined{hyper@nopatch@longtable}{%
7147 \begingroup
7148 \def\y{\LT@array}%
7149 \@ifundefined{scr@LT@array}{%
7150 \@ifundefined{adl@LT@array}{\def\y{\adl@LT@array}}%
7151 }{\def\y{\scr@LT@array}}%
7152 \long\def\x\refstepcounter#1#2\@sharp#3#4\@nil{%
7153 \expandafter\endgroup
7154 \expandafter\def\y[##1]##2{%
7155 \H@refstepcounter{#1}%
7156 \hyper@makecurrent{table}%
7157 \let\Hy@LT@currentHref\@currentHref
7158 #2\@sharp###4%
7159 }%
7160 }%
7161 \expandafter\expandafter\expandafter\x\y[##1]{##2}\@nil

```



Patch of `\LT@start`: add anchor before first line after `\vskip\LTpre`

```

7162 \begingroup
7163 \def\x#1\ifvoid\LT@foot#2\fi#3\@nil{%
7164 \endgroup
7165 \def\LT@start{%
7166 #1%
7167 \ifvoid\LT@foot#2\fi
7168 \let\@currentHref\Hy@LT@currentHref
7169 \Hy@raisedlink{%
7170 \hyper@anchorstart{\@currentHref}\hyper@anchorend
7171 }%
7172 #3%
7173 }%
7174 }%
7175 \expandafter\x\LT@start\@nil
7176 }{}
7177 }{}

```

### 33 Equations

We want to make the whole equation a target anchor. Overload `equation`, temporarily reverting to original `\refstepcounter`. If, however, it is in AMS math, we do not do anything, as the tag mechanism is used there (see section 41). change 2023-06-14: previously `hyperref` contained code that moved the equation incrementation inside the `math` environment to avoid specials outside and a wrong vertical spacing of equation environments. Since 2021/08/24 this code is now in `amsmath` directly and so has been removed here.

This and more math related patches can be suppressed with `\hyper@nopatch@mathenv`

```

7178 \let\new@refstepcounter\refstepcounter
7179 \let\H@equation\equation
7180 \let\H@endequation\endequation
7181 \@ifundefined{hyper@nopatch@mathenv}{%

```

If `amsmath` was loaded before the following does nothing. If `amsmath` is loaded later it will overwrite the definition again, which is what is wanted here. If it is not loaded the new definition of `equation` will be used.

```

7182 \@ifpackageloaded{amsmath}{}{%
7183 \def\equation{%
7184 \let\refstepcounter\H@refstepcounter
7185 \H@equation
7186 \hyper@makecurrent{equation}%

```

`\mathopen` is needed in case the equation starts with an unary minus, for example.

```

7187 \mathopen{%
7188 \Hy@raisedlink{\hyper@anchorstart{\@currentHref}}%
7189 }%
7190 \let\refstepcounter\new@refstepcounter
7191 }%
7192 \def\endequation{%
7193 \ifx\Hy@raisedlink\ltx@empty
7194 \hyper@anchorend
7195 \else

```

```

7196     \mathclose{\Hy@raisedlink{\hyper@anchorend}}}%
7197     \fi
7198     \H@endequation
7199 }%
7200 }
7201 }{}

```

My goodness, why can't L<sup>A</sup>T<sub>E</sub>X be consistent? Why is `\eqnarray` set up differently from other objects?

People (you know who you are, Thomas Beuth) sometimes make an `eqnarray` where *all* the lines end with `\notag`, so there is no suitable anchor at all. In this case, pass by on the other side.

```

7202 \newif\if@eqnstar
7203 \@eqnstarfalse
7204 \let\H@eqnarray\eqnarray
7205 \let\H@endeqnarray\endeqnarray
7206 \@ifundefined{hyper@nopatch@mathenv}{%
7207   \def\eqnarray{%
7208     \let\Hy@reserved@a\relax
7209     \def\@currentHref{}%
7210     \H@eqnarray
7211     \if@eqnstar
7212     \else
7213       \ifx\\\@currentHref\\%
7214       \else
7215         \hyper@makecurrent{equation}%
7216         \mathopen{%
7217           \Hy@raisedlink{%
7218             \hyper@anchorstart{\@currentHref}\hyper@anchorend
7219           }%
7220         }%
7221       \fi
7222     \fi
7223   }
7224   \def\endeqnarray{%
7225     \H@endeqnarray
7226   }
7227 }{}

```

This is quite heavy-handed, but it works for now. If its an `eqnarray*` we need to disable the hyperref actions. There may well be a cleaner way to trap this. Bill Moss found this.

```

7228 \@namedef{eqnarray*}{%
7229   \protected\def\@eqncr{\nonumber\@seqncr}\@eqnstartrue\eqnarray
7230 }
7231 \@namedef{endeqnarray*}{%
7232   \nonumber\endeqnarray\@eqnstarfalse
7233 }

```

Then again, we have the *subeqnarray* package. Tanmoy provided some code for this:

```

7234 \ltx@ifundefined{subeqnarray}{}{%
7235   \let\H@subeqnarray\subeqnarray
7236   \let\H@endsubeqnarray\endsubeqnarray
7237   \def\subeqnarray{%

```

```

7238 \let\Hy@reserved@a\relax
7239 \H@subeqnarray
7240 \hyper@makecurrent{equation}%
7241 \hyper@anchorstart{\@currentHref}{\hyper@anchorend
7242 }%
7243 \def\endsubeqnarray{%
7244 \H@endsubeqnarray
7245 }%
7246 \providecommand\theHsubequation{\theHequation\alph{subequation}}%
7247 }

```

The aim of this macro is to produce a sanitized version of its argument, to make it a safe label.

```

7248 \def\make@stripped@name#1{%
7249 \begingroup
7250 \escapechar\m@ne
7251 \global\let\newname\@empty
7252 \protected@edef\Hy@tempa{#1}%
7253 \edef\@tempb{%
7254 \noexpand\@tfor\noexpand\Hy@tempa:=%
7255 \expandafter\strip@prefix\meaning\Hy@tempa
7256 }%
7257 \@tempb\do{%
7258 \if{\Hy@tempa\else
7259 \if}\Hy@tempa\else
7260 \xdef\newname{\newname\Hy@tempa}%
7261 \fi
7262 \fi
7263 }%
7264 \endgroup
7265 }

```

Support for amsmath's subequations: change 2023-06-14: we use hooks to no longer depend on amsmath being loaded before hyperref. Once amsmath sets the theH-representation itself this can go completely.

```

7266 \AddToHook{cmd/subequations/before}
7267 {%
7268 \stepcounter{equation}%
7269 \protected@edef\theHparentequation{\theHequation}%
7270 \addtocounter{equation}{-1}%
7271 }
7272
7273 \AddToHook{cmd/subequations/after}
7274 {%
7275 \def\theHequation{\theHparentequation\alph{equation}}%
7276 \ignorespaces
7277 }

```

## 34 Support for theorems

Hyperlink support in theorems has to resolve typically three problems:

- The `\refstepcounter` can be issued too early. The target it produces can be separated from the theorem and then the link is wrong (see testfiles thm-

005-xx). It can also affect spacing. This means that it is better if this `\refstepcounter` doesn't produce a target.

- The natural place for the target (before the theorem label) is normally not printed directly but delayed to the next paragraph begin (through the `\item` code or by other means). and `\label` commands used directly at the begin of the environment are perhaps processed *before* the target is created and so do not know the correct `\@currentHref` value. That means that if `\refstepcounter` does not produce a target, it should nevertheless update the target name.
- The target should be placed (in horizontal mode) before the theorem label to avoid side effects on spacing. For this a suitable place must be found depending on the actual theorem definition.

Theorems typically issue the `\refstepcounter` in `\@thm`. The first two points can therefore be resolved by patching this command and replacing the `\refstepcounter`.

The last point is the most complicated. Simply moving at the point `\refstepcounter` is encountered into the next para hook doesn't work, as this can be in a header if there is page break. The next item hook doesn't work for the same reason, also not every theorem environment actually use `\item` (e.g. `amsthm` and `ams-classes`). Patching (or using a hook) `\@begintheorem` doesn't work either as `ntheorem` redefines this on the fly.

For now we move the target creation into the item hook. This is not perfect, as it can end up in header or be too much to the right, but there is not really a better place.

The patch will not apply to `cleveref`, this means that with `cleveref` there can be a page break between target and theorem but beside this it hopefully it does the right thing. `\@currentHref` is updated directly for labels set before the actual start of the paragraph. The target can be behind a target created from a following list, so we restore `\@currentHref` just in case. Later we could use sockets here (or hope that the packages take this over).

```

7278 \newcommand\Hy@theorem@refstepcounter[1]
7279 {%
7280   \H@refstepcounter{#1}%
7281   \hyper@makecurrent{#1}%
7282   \global\let\Hy@dth@currentHref\@currentHref
7283   \Hy@theorem@makelinktarget{\Hy@dth@currentHref}%
7284 }
7285 \newcommand\Hy@theorem@makelinktarget[1]
7286 {
7287   \AddToHookNext{cmd/item/before}
7288   {\AddToHookNext{para/begin}
7289     {\let\Hy@tempa\@currentHref
7290       \MakeLinkTarget*{#1}% \Hy@dth@currentHref
7291       \global\let\@currentHref\Hy@tempa
7292     }%
7293   }%
7294 }
```

`amsthm` doesn't issue an item in the theorem, we delay the target into `\deferred@thm@head` and hope that it always begins a paragraph.

```

7295 \AddToHook{begindocument}
7296 {%
7297 \@ifundefined{deferred@thm@head}{}
7298 {%
7299 \renewcommand\Hy@theorem@makelinktarget[1]
7300 {%
7301 \AddToHookNext{cmd/deferred@thm@head/before}
7302 {\AddToHookNext{para/begin}
7303 {\let\Hy@tempa\@currentHref
7304 \MakeLinkTarget*{#1}%
7305 \global\let\@currentHref\Hy@tempa
7306 }%
7307 }%
7308 }%
7309 }%
7310 }
7311 \@ifundefined{hyper@nopatch@thm}{%
7312 \AtBeginDocument{%
7313 \@ifpackageloaded{cleveref}
7314 {\AddToHook{cmd/@thm/before}{\ifhmode\unskip\fi}}
7315 {%
7316 \ifpatchable\@thm{\refstepcounter}
7317 {\patchcmd\@thm{\refstepcounter}{\Hy@theorem@refstepcounter}{}{}}
7318 {}%
7319 }}}{}

```

## 35 Footnotes

The footnote mark is a hypertext link, and the text is a target. We separately number the footnotes sequentially through the text, separately from whatever labels the text assigns. Too hard to keep track of markers otherwise. If the raw forms `\footnotemark` and `\footnotetext` are used, force them to use un-hyper original. If `\hyper@nopatch@footnote` is defined we don't patch but assume that addings links to footnotes is handled elsewhere.

```

7320 \@ifundefined{hyper@nopatch@footnote}{%
7321 \ifHy@hyperfootnotes
7322 \newcounter{Hfootnote}%
7323 \let\H@@footnotetext\@footnotetext
7324 \let\H@@footnotemark\@footnotemark
7325 \def\xfootnotenext[#1]{%
7326 \begingroup
7327 \csname c@\@mpfn\endcsname #1\relax
7328 \unrestored@protected@xdef\@thefnmark{\thempfn}%
7329 \endgroup
7330 \ifx\@footnotetext\@mpfootnotetext
7331 \expandafter\H@@mpfootnotetext
7332 \else
7333 \expandafter\H@@footnotetext
7334 \fi
7335 }%
7336 \def\xfootnotemark[#1]{%
7337 \begingroup

```

```

7338 \c@footnote #1\relax
7339 \unrestored@protected@xdef\@thefnmark{\thefootnote}%
7340 \endgroup
7341 \H@@footnotemark
7342 }%
7343 \let\H@@mpfootnotetext\@mpfootnotetext
7344 \long\def\@mpfootnotetext#1{%
7345 \H@@mpfootnotetext{%
7346 \ifHy@nesting
7347 \expandafter\ltx@firstoftwo
7348 \else
7349 \expandafter\ltx@secondoftwo
7350 \fi
7351 {%
7352 \expandafter\hyper@@anchor\expandafter{%
7353 \Hy@footnote@currentHref
7354 }{\ignorespaces #1}%
7355 }{%
7356 \Hy@raisedlink{%
7357 \expandafter\hyper@@anchor\expandafter{%
7358 \Hy@footnote@currentHref
7359 }{\relax}%
7360 }\ignorespaces #1%
7361 }%
7362 }%
7363 }%
7364 \long\def\@footnotetext#1{%
7365 \H@@footnotetext{%
7366 \ifHy@nesting
7367 \expandafter\ltx@firstoftwo
7368 \else
7369 \expandafter\ltx@secondoftwo
7370 \fi
7371 {%
7372 \expandafter\hyper@@anchor\expandafter{%
7373 \Hy@footnote@currentHref
7374 }{\ignorespaces #1}%
7375 }{%
7376 \Hy@raisedlink{%
7377 \expandafter\hyper@@anchor\expandafter{%
7378 \Hy@footnote@currentHref
7379 }{\relax}%
7380 }%
7381 \let\@currentHref\Hy@footnote@currentHref
7382 \let\@currentlabelname\@empty
7383 \ignorespaces #1%
7384 }%
7385 }%
7386 }%

```

Redefine `\@footnotemark`, borrowing its code (at the cost of getting out of sync with `latex.ltx`), to take advantage of its white space and hyphenation fudges. If we just overload it, we can get variant documents (the word before the footnote is treated differently). Thanks to David Carlisle and Brian Ripley for confusing and

helping me on this.

```

7387 \def\@footnotemark{%
7388 \leavevmode
7389 \ifhmode\edef\@x@sf{\the\spacefactor}\nobreak\fi
7390 \stepcounter{Hfootnote}%
7391 \global\let\Hy@saved@currentHref\@currentHref
7392 \hyper@makecurrent{Hfootnote}%
7393 \global\let\Hy@footnote@currentHref\@currentHref
7394 \global\let\@currentHref\Hy@saved@currentHref
7395 \hyper@linkstart{link}{\Hy@footnote@currentHref}%
7396 \@makefnmark
7397 \hyper@linkend
7398 \ifhmode\spacefactor\@x@sf\fi
7399 \relax
7400 }%

```

Tabularx causes footnote problems, disable the linking if that is loaded. Since v6.82i footnotes are only disabled inside the environment ‘tabularx’.

```

7401 \@ifpackageloaded{tabularx}{%
7402 \let\HyOrg@TX@endtabularx\TX@endtabularx
7403 \def\Hy@tabularx@hook{%
7404 \let\@footnotetext\H@@footnotetext
7405 \let\@footnotemark\H@@footnotemark
7406 \let\@mpfootnotetext\H@@mpfootnotetext
7407 }%
7408 \begingroup
7409 \toks@\expandafter{\TX@endtabularx}%
7410 \xdef\Hy@gtemp{%
7411 \noexpand\Hy@tabularx@hook
7412 \the\toks@
7413 }%
7414 \endgroup
7415 \let\TX@endtabularx\Hy@gtemp
7416 }{}%

```

Support for footnotes in p columns of longtable. Here \footnote commands are splitted into \footnotemark and a call of \footnotetext with the optional argument, that is not supported by hyperref. The result is a link by \footnotemark without valid anchor

```

7417 \@ifpackageloaded{longtable}{%
7418 \CheckCommand{\LT@p@ftntext}[1]{%
7419 \edef\@tempa{%
7420 \the\LT@p@ftn
7421 \noexpand\footnotetext[\the\c@footnote]%
7422 }%
7423 \global\LT@p@ftn\expandafter{\@tempa{#1}}%
7424 }%
7425 \long\def\LT@p@ftntext#1{%
7426 \edef\@tempa{%
7427 \the\LT@p@ftn
7428 \begingroup
7429 \noexpand\c@footnote=\the\c@footnote\relax
7430 \noexpand\protected\xdef\noexpand\@thefnmark{%
7431 \noexpand\thempfn

```

```

7432     }%
7433     \noexpand\Hy@LT@footnotetext{%
7434       \Hy@footnote@currentHref
7435     }%
7436   }%
7437   \global\LT@p@ftn\expandafter{%
7438     \@tempa{#1}%
7439   \endgroup
7440   }%
7441 }%
7442 \long\def\Hy@LT@footnotetext#1#2{%
7443   \H@@@footnotetext{%
7444     \ifHy@nesting
7445       \hyper@@anchor{#1}{#2}%
7446     \else
7447       \Hy@raisedlink{%
7448         \hyper@@anchor{#1}{\relax}%
7449       }%
7450     \def\@currentHref{#1}%
7451     \let\@currentlabelname\@empty
7452     #2%
7453   \fi
7454   }%
7455 }%
7456 }{}%

```

Footnotes for fancyvrb (Fix by Manuel Pégourié-Gonnard).

```

7457 \ifpackageloaded{fancyvrb}{%
7458   \def\V@@@footnotetext{%
7459     \insert\footins\bgroup
7460     \csname reset@font\endcsname
7461     \footnotesize
7462     \interlinepenalty\interfootnotelinepenalty
7463     \splittopskip\footnotesep
7464     \splitmaxdepth\dp\strutbox
7465     \floatingpenalty \@MM
7466     \hsize\columnwidth
7467     \@parboxrestore
7468     \def\@currentcounter{footnote}%
7469     \protected@edef\@currentlabel{\csname p@footnote\endcsname\@thefn-
mark}%
7470     \@makefnintext{}%
7471     \rule{\z@}{\footnotesep}%
7472     \bgroup
7473     \aftergroup\V@@@footnotetext
7474     \Hy@raisedlink{%
7475       \expandafter\hyper@@anchor\expandafter{%
7476         \Hy@footnote@currentHref
7477       }\relax}%
7478     }%
7479     \let\@currentHref\Hy@footnote@currentHref
7480     \let\@currentlabelname\@empty
7481     \ignorespaces
7482   }%
7483 }{}%

```



KOMA-Script or newer LaTeX defines `\footref` that uses both `\ref` and `\@footnotemark` resulting in two links, one of them wrong.

```

7484 \def\Hy@temp#1{%
7485   \begingroup
7486   \unrestored@protected@xdef\@thefnmark{\ref{#1}}%
7487   \endgroup
7488   \@footnotemark
7489 }%
7490 \ifx\Hy@temp\footref
7491   \def\footref#1{%
7492     \begingroup
7493     \unrestored@protected@xdef\@thefnmark{\ref{#1}}%
7494     \endgroup
7495     \H@@@footnotemark
7496   }%
7497 \fi

```

But the special footnotes in `\maketitle` are much too hard to deal with properly. Let them revert to plain behaviour. The koma classes add an optional argument.

```

7498 \let\HyOrg@maketitle\maketitle
7499 \def\maketitle{%
7500   \let\Hy@saved@footnotemark\@footnotemark
7501   \let\Hy@saved@footnotetext\@footnotetext
7502   \let\@footnotemark\H@@@footnotemark
7503   \let\@footnotetext\H@@@footnotetext
7504   \@ifnextchar[\Hy@maketitle@optarg{% ]
7505     \HyOrg@maketitle
7506     \Hy@maketitle@end
7507   }%
7508 }%
7509 \def\Hy@maketitle@optarg[#1]{%
7510   \HyOrg@maketitle[{#1}]%
7511   \Hy@maketitle@end
7512 }%
7513 \def\Hy@maketitle@end{%
7514   \ifx\@footnotemark\H@@@footnotemark
7515     \let\@footnotemark\Hy@saved@footnotemark
7516   \fi
7517   \ifx\@footnotetext\H@@@footnotetext
7518     \let\@footnotetext\Hy@saved@footnotetext
7519   \fi
7520 }%

```

`\realfootnote` Does anyone remember the function and purpose of `\realfootnote`?

```

7521 \def\realfootnote{%
7522   \@ifnextchar[\@xfootnote%]
7523   {\stepcounter{\@mpfn}%
7524     \protected@xdef\@thefnmark{\thempfn}%
7525     \H@@@footnotemark\H@@@footnotetext
7526   }%
7527 }%
7528 \fi

```

```

7529 }{}
7530 \Hy@DisableOption{hyperfootnotes}

7531 \endpackage
7532 \check
7533 \checklatex
7534 \checkcommand\def\@xfootnotenext[#1]{%
7535   \begingroup
7536     \csname c@\@mpfn\endcsname #1\relax
7537     \unrestored@protected@xdef\@thefnmark{\thempfn}%
7538   \endgroup
7539   \@footnotetext
7540 }
7541 \checkcommand\def\@xfootnotemark[#1]{%
7542   \begingroup
7543     \c@footnote #1\relax
7544     \unrestored@protected@xdef\@thefnmark{\thefootnote}%
7545   \endgroup
7546   \@footnotemark
7547 }
7548 \checkcommand\def\@footnotemark{%
7549   \leavevmode
7550   \ifhmode\edef\@x@sf{\the\spacefactor}\nobreak\fi
7551   \@makefnmark
7552   \ifhmode\spacefactor\@x@sf\fi
7553   \relax
7554 }
7555 \endcheck
7556 \endpackage

```

## 36 Float captions

Make the float caption the hypertext anchor; curiously enough, we can't just copy the definition of `\@caption`. Its all to do with expansion. It screws up. Sigh.

```

7557 \ifundefined{hyper@nopath@caption}{%
7558 \def\caption{%
7559   \ifx\@capttype\@undefined
7560     \@latex@error{\noexpand\caption outside float}\@ehd
7561     \expandafter\@gobble
7562   \else
7563     \H@refstepcounter\@capttype
7564     \let\Hy@tempa\@caption
7565     \ifundefined{float@caption}{%
7566       }{%
7567         \expandafter\ifx\csname @float@c@\@capttype\endcsname
7568           \float@caption
7569         \let\Hy@tempa\Hy@float@caption
7570       \fi
7571     }%
7572     \expandafter\@firstofone
7573   \fi
7574   {\@dblarg{\Hy@tempa\@capttype}}}%
7575 }

```

```

7576 \long\def\@caption#1[#2]#3{%
7577   \expandafter\ifx\csname if@capstart\expandafter\endcsname
7578     \csname iftrue\endcsname
7579     \global\let\@currentHref\hc@currentHref
7580   \else
7581     \hyper@makecurrent{\@captype}%
7582   \fi
7583   \@ifundefined{NR@gettitle}{%
7584     \def\@currentlabelname{#2}%
7585   }{%
7586     \NR@gettitle{#2}%
7587   }%
7588   \par\addcontentsline{\csname ext@#1\endcsname}{#1}{%
7589     \protect\numberline{\csname the#1\endcsname}{\ignorespaces #2}%
7590   }%
7591   \begingroup
7592     \@parboxrestore
7593     \if@minipage
7594       \@setminipage
7595     \fi
7596     \normalsize
7597     \expandafter\ifx\csname if@capstart\expandafter\endcsname
7598       \csname iftrue\endcsname
7599       \global\@capstartfalse
7600       \@makecaption{\csname fnum@#1\endcsname}{\ignorespaces#3}%
7601     \else
7602       \@makecaption{\csname fnum@#1\endcsname}{%
7603         \ignorespaces

```

If we cannot have nesting, the anchor is empty.

```

7604     \ifHy@nesting
7605       \expandafter\hyper@@anchor\expandafter{\@currentHref}{#3}%
7606     \else
7607       \Hy@raisedlink{%
7608         \expandafter\hyper@@anchor\expandafter{%
7609           \@currentHref
7610         }\relax}%
7611       }%
7612       #3%
7613     \fi
7614   }%
7615   \fi
7616   \par
7617 \endgroup
7618 }}{\}%end no patch

```

Compatibility with float.sty: anchor setting at the top of the float, if the float is controlled by float.sty. Several `\caption` commands inside one float are not supported.

`\HyNew@float@makebox` is introduced as feature request of Axel Sommerfeldt to make the life easier for his package ‘caption’.

```

7619 \let\Hy@float@caption\@caption
7620 \newcommand{\HyNew@float@makebox}[1]{%
7621   \HyOrg@float@makebox{%
7622     #1\relax

```

```

7623 \ifx\Hy@float@currentHref\@undefined
7624 \else
7625 \expandafter\hyper@@anchor\expandafter{%
7626 \Hy@float@currentHref
7627 }{\relax}%
7628 \global\let\Hy@float@currentHref\@undefined
7629 \fi
7630 }%
7631 }%
7632 \@ifpackageloaded{float}{%
7633 \def\Hy@float@caption{%
7634 \ifx\Hy@float@currentHref\@undefined
7635 \hyper@makecurrent{\@capttype}%
7636 \global\let\Hy@float@currentHref\@currentHref
7637 \else
7638 \let\@currentHref\Hy@float@currentHref
7639 \fi
7640 \float@caption
7641 }%
7642 \let\HyOrg@float@makebox\float@makebox
7643 \let\float@makebox\HyNew@float@makebox
7644 }{}

7645 \</packageEnd>
7646 \< *check>
7647 \checklatex[1999/06/01 - 2000/06/01]
7648 \checkcommand\def\caption{%
7649 \ifx\@capttype\@undefined
7650 \@latex@error{\noexpand\caption outside float}\@ehd
7651 \expandafter\@gobble
7652 \else
7653 \refstepcounter\@capttype
7654 \expandafter\@firstofone
7655 \fi
7656 {\@dblarg{\@caption\@capttype}}}%
7657 }
7658 \checkcommand\long\def\@caption#1[#2]#3{%
7659 \par
7660 \addcontentsline{\csname ext@#1\endcsname}{#1}{%
7661 \protect\numberline{\csname the#1\endcsname}{\ignorespaces #2}}%
7662 }%
7663 \begingroup
7664 \@parboxrestore
7665 \if@minipage
7666 \@setminipage
7667 \fi
7668 \normalsize
7669 \@makecaption{\csname fnum@#1\endcsname}{\ignorespaces #3}\par
7670 \endgroup
7671 }
7672 \</check>
7673 \< *packageEnd>

```

## 37 Bibliographic references

This is not very robust, since many styles redefine these things. The package used to redefine `\@citex` and the like; then we tried adding the `hyperref` call explicitly into the `.aux` file. Now we redefine `\bibcite`; this still breaks some citation packages so we have to work around them. But this remains extremely dangerous. Any or all of *achemso* and *drftcite* may break.

However, lets make an attempt to get *natbib* right, because that's a powerful, important package. Patrick Daly ([daly@linmpi.mpg.de](mailto:daly@linmpi.mpg.de)) has provided hooks for us, so all we need to do is activate them.

```

7674 \def\hyper@natlinkstart#1{%
7675   \Hy@backout{#1}%
7676   \hyper@linkstart{cite}{cite.#1}%
7677   \def\hyper@nat@current{#1}%
7678 }
7679 \def\hyper@natlinkend{%
7680   \hyper@linkend
7681 }
7682 \def\hyper@natlinkbreak#1#2{%
7683   \hyper@linkend#1\hyper@linkstart{cite}{cite.#2}%
7684 }
7685 \def\hyper@natanchorstart#1{%
7686   \Hy@raisedlink{\hyper@anchorstart{cite.#1}}%
7687 }
7688 \def\hyper@natanchorend{\hyper@anchorend}

```

Do not play games if we have *natbib* support. Macro `extra@binfo` added for *chapterbib* support. *Chapterbib* also wants `\@extra@binfo` in the hyper-link, but since the link tag is not expanded immediately, we use `\@extra@b@citeb`, so cites in a chapter will link to the bibliography in that chapter.

```

7689 \@ifundefined{hyper@nopatch@bib}
7690 {%
7691   \ltx@ifundefined{NAT@parse}{%
7692     \providecommand*\@extra@binfo{%
7693       \providecommand*\@extra@b@citeb{%
7694         \def\bibcite#1#2{%
7695           \@newl@bel{b}{#1\@extra@binfo}{%
7696             \hyper@@link{cite}{cite.#1\@extra@b@citeb}{#2}%
7697           }%
7698         }%
7699         \gdef\@extra@binfo{%

```

Package *babel* redefines `\bibcite` with macro `\bbl@cite@choice`. It needs to be overwritten to avoid the warning “Label(s) may have changed.”.

```

7700   \let\Hy@bibcite\bibcite
7701   \begingroup
7702     \@ifundefined{bbl@cite@choice}{%
7703       \g@addto@macro\bbl@cite@choice{%
7704         \let\bibcite\Hy@bibcite
7705       }%
7706     }%
7707   \endgroup

```

`\@BIBLABEL` is working around a ‘feature’ of *RevTeX*.

```

7708 \providecommand*{\@BIBLABEL}{\@biblabel}%
7709 \def\@lbibitem[#1]#2{%
7710   \@skiphyperreftrue
7711   \H@item{%
7712     \ifx\Hy@raisedlink\@empty
7713       \hyper@anchorstart{cite.#2\@extra@b@citeb}%
7714       \@BIBLABEL{#1}%
7715       \hyper@anchorend
7716     \else
7717       \Hy@raisedlink{%
7718         \hyper@anchorstart{cite.#2\@extra@b@citeb}\hyper@anchorend
7719       }%
7720       \@BIBLABEL{#1}%
7721     \fi
7722     \hfill
7723   }%
7724   \@skiphyperreffalse
7725   \if@filesw
7726     \begingroup
7727     \let\protect\noexpand
7728     \immediate\write\@auxout{%
7729       \string\bibcite{#2}{#1}%
7730     }%
7731     \endgroup
7732   \fi
7733   \ignorespaces
7734 }%

```

Since `\bibitem` is doing its own labelling, call the raw version of `\item`, to avoid extra spurious labels

```

7735 \def\@bibitem#1{%
7736   \@skiphyperreftrue\H@item\@skiphyperreffalse
7737   \Hy@raisedlink{%
7738     \hyper@anchorstart{cite.#1\@extra@b@citeb}\relax\hyper@anchorend
7739   }%
7740   \if@filesw
7741     \begingroup
7742     \let\protect\noexpand
7743     \immediate\write\@auxout{%
7744       \string\bibcite{#1}{\the\value{\@listctr}}%
7745     }%
7746     \endgroup
7747   \fi
7748   \ignorespaces
7749 }%
7750 }{}%
7751 }{}

7752 \</packageEnd>
7753 \< *check>
7754 \checklatex
7755 \checkcommand\def\@lbibitem[#1]#2{%
7756   \item[\@biblabel{#1}]\hfill}%
7757 \if@filesw
7758   {%

```

```

7759 \let\protect\noexpand
7760 \immediate\write\@auxout{%
7761 \string\bibcite{#2}{#1}%
7762 }%
7763 }%
7764 \fi
7765 \ignorespaces
7766 }
7767 \checkcommand\def\@bibitem#1{%
7768 \item
7769 \if@filesw
7770 \immediate\write\@auxout{%
7771 \string\bibcite{#1}{\the\value{\@listctr}}%
7772 }%
7773 \fi
7774 \ignorespaces
7775 }
7776 \</check>
7777 \<packageEnd>

```

### 37.1 Package harvard

Override Peter Williams' Harvard package; we have to a) make each of the citation types into a link; b) make each citation write a backref entry, and c) kick off a backreference section for each bibliography entry.

The redefinitions have to be deferred to `\begin{document}`, because if `harvard.sty` is loaded and `html.sty` is present and detects pdf $\TeX$ , then `hyperref` is already loaded at the begin of `harvard.sty`, and the `\newcommand` macros causes error messages.

```

7778 \<ifpackageloaded{harvard}{%
7779 \Hy@AtBeginDocument{%
7780 \Hy@Info{*** compatibility with harvard **** }%
7781 \Hy@raiselinksfalse
7782 \def\harvardcite#1#2#3#4{%
7783 \global\@namedef{HAR@fn@#1}{\hyper@link[cite]{cite.#1}{#2}}%
7784 \global\@namedef{HAR@an@#1}{\hyper@link[cite]{cite.#1}{#3}}%
7785 \global\@namedef{HAR@yr@#1}{\hyper@link[cite]{cite.#1}{#4}}%
7786 \global\@namedef{HAR@df@#1}{\csname HAR@fn@#1\endcsname}%
7787 }%
7788 \def\HAR@citetoaux#1{%
7789 \if@filesw\immediate\write\@auxout{\string\citation{#1}}\fi%
7790 \ifHy@backref
7791 \ifx\@empty\@currentlabel
7792 \else
7793 \<bsphack
7794 \if@filesw
7795 \protected@write\@auxout{}{%
7796 \string\@writefile{brf}{%
7797 \string\backcite{#1}{%
7798 {\thepage}{\@currentlabel}{\@currentHref}%
7799 }%
7800 }%
7801 }%

```

```

7802     \fi
7803     \@esphack
7804     \fi
7805     \fi
7806 }%
7807 \def\harvarditem{%
7808     \@ifnextchar{\@harvarditem}{\@harvarditem[\null]}%
7809 }%
7810 \def\@harvarditem[#1]#2#3#4#5\par{%
7811     \item[]%
7812     \hyper@anchorstart{cite.#4}\relax\hyper@anchorend
7813     \if@filesw
7814         \begingroup
7815         \def\protect##1{\string ##1\space}%
7816         \ifthenelse{\equal{#1}{\null}}%
7817             {\def\next{{#4}{#2}{#2}{#3}}}%
7818             {\def\next{{#4}{#2}{#1}{#3}}}%
7819         \immediate\write\@auxout{\string\harvardcite\codeof\next}%
7820         \endgroup
7821     \fi
7822     \protect\hspace*{-\labelwidth}%
7823     \protect\hspace*{-\labelsep}%
7824     \ignorespaces
7825     #5%
7826     \ifHy@backref
7827         \newblock
7828         \backref{\csname br@#4\endcsname}%
7829     \fi
7830     \par
7831 }%

```

\HAR@checkcitations Package hyperref has added \hyper@@link, so the original test \HAR@checkcitations will fail every time and always will appear the “Changed labels” warning. So we have to redefine \Har@checkcitations:

```

7832 \long\def\HAR@checkcitations#1#2#3#4{%
7833     \def\HAR@tempa{\hyper@@link[cite]{}{cite.#1}{#2}}%
7834     \expandafter\ifx\csname HAR@fn@#1\endcsname\HAR@tempa
7835         \def\HAR@tempa{\hyper@@link[cite]{}{cite.#1}{#3}}%
7836         \expandafter\ifx\csname HAR@an@#1\endcsname\HAR@tempa
7837             \def\HAR@tempa{\hyper@@link[cite]{}{cite.#1}{#4}}%
7838             \expandafter\ifx\csname HAR@yr@#1\endcsname\HAR@tempa
7839                 \else
7840                 \@tempswatrue
7841             \fi
7842         \else
7843             \@tempswatrue
7844         \fi
7845     \else
7846         \@tempswatrue
7847     \fi
7848 }%
7849 }%
7850 {}

```



## 37.2 Package chicago

The links by `\citeN` and `\shortciteN` should include the closing parentheses.

```

7851 \@ifpackageloaded{chicago}{%

\citeN
7852 \def\citeN{%
7853 \def\@citesep{-1000}%
7854 \def\@cite##1##2{##1}%
7855 \def\citeauthoryear##1##2##3{##1 (##3\@cite@opt)}}%
7856 \@citedata@opt
7857 }%

\shortciteN
7858 \def\shortciteN{%
7859 \def\@citesep{-1000}%
7860 \def\@cite##1##2{##1}%
7861 \def\citeauthoryear##1##2##3{##2 (##3\@cite@opt)}}%
7862 \@citedata@opt
7863 }%

\@citedata@opt
7864 \def\@citedata@opt{%
7865 \let\@cite@opt\@empty
7866 \@ifnextchar [{%
7867 \@tempswatrue
7868 \@citedatax@opt
7869 }{%
7870 \@tempswafalse
7871 \@citedatax[]%
7872 }%
7873 }%

\@citedatax@opt
7874 \def\@citedatax@opt[#1]{%
7875 \def\@cite@opt{, #1}%
7876 \@citedatax[{#1}]%
7877 }%

7878 }{}

```

## 38 Page numbers

The last page should not contain a `/Dur` key, because there is no page after the last page. Therefore at the last page there should be a command `\hypersetup{pdfpageduration={}}`. This can be set with `\AtEndDocument`, but it can be too late, if the last page is already finished, or too early, if lots of float pages will follow. Therefore currently nothing is done by `hyperref`.

Experimental!

This where we supply a destination for each page.

The name of destination is stored in the global command `\@currentHpage`, this allows it to retrieve it with an extended reference system like `zref` or the new property code from L<sup>A</sup>T<sub>E</sub>X 2023-11-01.

```

7879 \def\@currentHpage{Doc-Start}

```

```

7880 \ltx@ifclassloaded{slides}{%
7881 \def\Hy@SlidesFormatOptionalPage#1{(#1)}%
7882 \def\Hy@PageAnchorSlidesPlain{%
7883 \advance\c@page\ltx@one
7884 \xdef\@currentHpage{page.\the\c@slide.\the\c@overlay.\the\c@note%
7885 \ifnum\c@page=\ltx@one
7886 \else
7887 .\the\c@page
7888 \fi}%
7889 \edef\Hy@TempPageAnchor{%
7890 \noexpand\hyper@@anchor{%
7891 \@currentHpage
7892 }%
7893 }%
7894 \advance\c@page-\ltx@one
7895 }%
7896 \def\Hy@PageAnchorSlide{%
7897 \advance\c@page\ltx@one
7898 \ifnum\c@page>\ltx@one
7899 \ltx@ifundefined{theHpage}{%
7900 \protected@edef\Hy@TheSlideOptionalPage{%
7901 \Hy@SlidesFormatOptionalPage{theHpage}%
7902 }%
7903 }{%
7904 \protected@edef\Hy@TheSlideOptionalPage{%
7905 \Hy@SlidesFormatOptionalPage{theHpage}%
7906 }%
7907 }%
7908 \else
7909 \def\Hy@TheSlideOptionalPage{}%
7910 \fi
7911 \advance\c@page-\ltx@one
7912 \pdfstringdef\@the@H@page{%
7913 \csname
7914 the%
7915 \ltx@ifundefined{theH\Hy@SlidesPage}{H}%
7916 \Hy@SlidesPage
7917 \endcsname
7918 \Hy@TheSlideOptionalPage
7919 }%
7920 \ltx@gobblethree
7921 }%
7922 \def\Hy@SlidesPage{slide}%
7923 \g@addto@macro\slide{%
7924 \def\Hy@SlidesPage{slide}%
7925 }%
7926 \g@addto@macro\overlay{%
7927 \def\Hy@SlidesPage{overlay}%
7928 }%
7929 \g@addto@macro\note{%
7930 \def\Hy@SlidesPage{note}%
7931 }%
7932 }{%
7933 \def\Hy@PageAnchorSlidesPlain{}%

```

```

7934 \def\Hy@PageAnchorSlide{%
7935 }
7936 \def\Hy@EveryPageAnchor{%
7937 \Hy@DistillerDestFix
7938 \ifHy@pageanchor
7939 \ifHy@hypertextnames
7940 \ifHy@plainpages
7941 \def\Hy@TempPageAnchor{\hyper@@anchor{page.\the\c@page}}%
7942 \xdef\@currentHpage{page.\the\c@page}%
7943 \Hy@PageAnchorSlidesPlain
7944 \else
7945 \begingroup
7946 \let\@number\@firstofone
7947 \Hy@unicodedefalse
7948 \Hy@PageAnchorSlide
7949 \pdfstringdef\@the@H@page{\thepage}%
7950 \endgroup
7951 \EdefUnescapeString\@the@H@page{\@the@H@page}%
7952 \def\Hy@TempPageAnchor{\hyper@@anchor{page.\@the@H@page}}%
7953 \xdef\@currentHpage{page.\@the@H@page}%
7954 \fi
7955 \else
7956 \Hy@GlobalStepCount\Hy@pagecounter
7957 \def\Hy@TempPageAnchor{%
7958 \hyper@@anchor{page.\the\Hy@pagecounter}%
7959 }%
7960 \xdef\@currentHpage{page.\the\Hy@pagecounter}%
7961 \fi
7962 \vbox to 0pt{%
7963 \kern\voffset
7964 \kern\topmargin
7965 \kern-1bp\relax
7966 \hbox to 0pt{%
7967 \kern\hoffset
7968 \kern\ifodd\value{page}%
7969 \oddsidemargin
7970 \else
7971 \evensidemargin
7972 \fi
7973 \kern-1bp\relax
7974 \Hy@TempPageAnchor\relax
7975 \hss
7976 }%
7977 \vss
7978 }%
7979 \fi
7980 }
7981 \g@addto@macro\Hy@EveryPageBoxHook{%
7982 \Hy@EveryPageAnchor
7983 }

```

## 39 Table of contents

TV Raman noticed that people who add arbitrary material into the TOC generate a bad or null link. We avoid that by checking if the current destination is empty. But if ‘the most recent destination’ is not what you expect, you will be in trouble. In newer L<sup>A</sup>T<sub>E</sub>X releases this is defined to put a % at the end of the line in the tocfile.

```

7984 \providecommand\protected@file@percent{}
7985 \@ifundefined{hyper@nopatch@toc}{%
7986   \def\addcontentsline#1#2#3{% toc extension, type, tag
7987     \begingroup
7988       \let\label\@gobble
7989       \ifx\@currentHref\@empty
7990         \Hy@Warning{%
7991           No destination for bookmark of \string\addcontentsline,%
7992           \MessageBreak destination is added%
7993         }%
7994       \phantomsection
7995     \fi
7996     \expandafter\ifx\csname toplevel@#2\endcsname\relax
7997       \begingroup
7998         \def\Hy@tempa{#1}%
7999         \ifx\Hy@tempa\Hy@bookmarkstype
8000           \Hy@WarningNoLine{%
8001             bookmark level for unknown #2 defaults to 0%
8002           }%
8003         \else
8004           \Hy@Info{bookmark level for unknown #2 defaults to 0}%
8005         \fi
8006       \endgroup
8007       \expandafter\gdef\csname toplevel@#2\endcsname{0}%
8008     \fi
8009     \edef\Hy@toclevel{\csname toplevel@#2\endcsname}%
8010     \Hy@writebookmark{\csname the#2\endcsname}%
8011       {#3}%
8012       {\@currentHref}%
8013       {\Hy@toclevel}%
8014       {#1}%
8015     \ifHy@verbose
8016       \begingroup
8017         \def\Hy@tempa{#3}%
8018         \@onelevel@sanitize\Hy@tempa
8019         \let\temp@online\on@line
8020         \let\on@line\@empty
8021         \Hy@Info{%
8022           bookmark\temp@online:\MessageBreak
8023           thecounter {\csname the#2\endcsname}\MessageBreak
8024           text {\Hy@tempa}\MessageBreak
8025           reference {\@currentHref}\MessageBreak
8026           toplevel {\Hy@toclevel}\MessageBreak
8027           type {#1}%
8028         }%
8029       \endgroup

```

```

8030 \fi
8031 \addtocontents{#1}{%
8032 \protect\contentsline{#2}{#3}{\thepage}{\@currentHref}\protected@file@per-
cent
8033 }%
8034 \endgroup
8035 }
8036 }{}

```

`\contentsline` The page number might be empty. In this case the link for the page number is suppressed to avoid little link boxes.

change 2022-11-13: To avoid problems if `MakeUppercase` is used around the entry we use special protected commands:

```

8037 \protected\def\Hy@toclinkstart{\hyper@linkstart{link}{\Hy@tocdestname}}
8038 \protected\def\Hy@toclinkend{\hyper@linkend}
8039
8040 \@ifundefined{hyper@nopatch@toc}{%
8041 \def\contentsline#1#2#3#4{%
8042 \begingroup
8043 \Hy@safe@activetrue
8044 \edef\x{\endgroup
8045 \def\noexpand\Hy@tocdestname{#4}%
8046 }\x
8047 \ifx\Hy@tocdestname\ltx@empty
8048 \csname l@#1\endcsname{#2}{#3}%
8049 \else
8050 \ifcase\Hy@linktoc % none
8051 \csname l@#1\endcsname{#2}{#3}%
8052 \or % section
8053 \csname l@#1\endcsname{%
8054 \Hy@toclinkstart{#2}\Hy@toclinkend
8055 }{#3}%
8056 \or % page
8057 \def\Hy@temp{#3}%
8058 \ifx\Hy@temp\ltx@empty
8059 \csname l@#1\endcsname{#2}{#3}%
8060 \else
8061 \csname l@#1\endcsname{{#2}}{#3}%
8062 \Hy@toclinkstart{#3}\Hy@toclinkend
8063 }%
8064 \fi
8065 \else % all
8066 \def\Hy@temp{#3}%
8067 \ifx\Hy@temp\ltx@empty
8068 \csname l@#1\endcsname{%
8069 \Hy@toclinkstart{#2}\Hy@toclinkend
8070 }{#3}%
8071 \else
8072 \csname l@#1\endcsname{%
8073 \Hy@toclinkstart{#2}\Hy@toclinkend
8074 }{#3}%
8075 \Hy@toclinkstart{#3}\Hy@toclinkend
8076 }%
8077 \fi

```

```

8078 \fi
8079 \fi
8080 }
8081 }{}

8082 </packageEnd>
8083 <*check>
8084 \checklatex
8085 \checkcommand\def\addcontentsline#1#2#3{%
8086 \addtocontents{#1}{\protect\contentsline{#2}{#3}{\thepage}}}%
8087 }
8088 \checkcommand\def\contentsline#1{\csname l@#1\endcsname}
8089 </check>
8090 <*packageEnd>

```

## 40 New counters

The whole theorem business makes up new counters on the fly; we are going to intercept this. Sigh. Do it at the level where new counters are defined.

```

8091 \@ifundefined{hyper@nopatch@counter}
8092 {
8093 \let\H@definecounter\@definecounter
8094 \def\@definecounter#1{%
8095 \H@definecounter{#1}%
8096 \expandafter\gdef\csname theH#1\endcsname{\arabic{#1}}}%
8097 }
8098 }{}

```

But what if they have used the optional argument to e.g. `\newtheorem` to determine when the numbering is reset? OK, we'll trap that too.

```

8099 \@ifundefined{hyper@nopatch@counter}
8100 {
8101 \let\H@newctr\@newctr
8102 \def\@newctr#1[#2]{%
8103 \H@newctr#1[{#2}]%
8104 \expandafter\gdef\csname theH#1\endcsname{%
8105 \csname the\@ifundefined{theH#2}{H}{H}#2\endcsname.\arabic{#1}%
8106 }%
8107 }
8108 }{}

```

## 41 AMS $\LaTeX$ compatibility

Oh, no, they don't use anything as simple as `\refstepcounter` in the AMS! We need to intercept some low-level operations of theirs. Damned if we are going to try and work out what they get up to. Just stick a label of 'AMS' on the front, and use the label *they* worked out. If that produces something invalid, I give up. They'll change all the code again anyway, I expect (SR).

Version 6.77p uses a patch by Ross Moore.

If `\hyper@nopatch@amsmath@tag` is defined we don't patch but assume that kernel code adds anchors to equations. change 2023-06-14: use a hook to make it independent of loading order.

```

8109 \ifundefined{hyper@nopatch@amsmath@tag}
8110 {%
8111   \AddToHook{package/amsmath/after}{%
8112     \def\Hy@make@anchor{%
8113       \Hy@MakeCurrentHrefAuto{AMS}%
8114       \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
8115     }%
8116     \def\Hy@make@df@tag@@#1{%
8117       \gdef\df@tag{%
8118         \maketag@@@{\Hy@make@anchor#1}%
8119         \def\@currentlabel{#1}%
8120       }%
8121     }%
8122     \def\Hy@make@df@tag@@@#1{%
8123       \gdef\df@tag{%
8124         \tagform@{\Hy@make@anchor#1}%
8125         \toks@{\xp{p@equation{#1}}}%
8126         \edef\@currentlabel{\the\toks@}%
8127       }%
8128     }%
8129     \let\HyOrg@make@df@tag@@\make@df@tag@@
8130     \let\HyOrg@make@df@tag@@@\make@df@tag@@@
8131     \let\make@df@tag@@\Hy@make@df@tag@@
8132     \let\make@df@tag@@@\Hy@make@df@tag@@@
8133   }{}
8134 }{}

```

This code I simply cannot remember what I was trying to achieve. The final result seems to do nothing anyway.

```

\let\H@tagform@\tagform@
\def\tagform@#1{%
  \maketag@@@{\hyper@@anchor{\@currentHref}%
    {\ignorespaces#1\unskip}}}%
}
\def\eqref#1{\textup{\H@tagform@\ref{#1}}}

```

#### 41.1 \@addtoreset and \numberwithin patches

\@addtoreset puts a counter to the reset list of another counter. After a reset the counter starts again with perhaps already used values. Therefore the hyperref version of the counter print command \theHcounter is redefined in order to add the parent counter.

```

8135 \ifundefined{hyper@nopatch@counter}
8136 {
8137   \let\HyOrg@addtoreset\@addtoreset
8138   \def\@addtoreset#1#2{%
8139     \HyOrg@addtoreset{#1}{#2}%
8140     \expandafter\xdef\csname theH#1\endcsname{%
8141       \expandafter\noexpand
8142       \csname the\@ifundefined{theH#2}{H#2\endcsname
8143       .\noexpand\the\noexpand\value{#1}%
8144     }%
8145   }
8146 }{}

```

`\numberwithin` A appropriate definition of `hyperref`'s companion counter (`\theH...`) is added for correct link names.

```

8147 </packageEnd>
8148 <*check>
8149 \checkpackage{amsmath}[1999/12/14 - 2000/06/06]
8150 \checkcommand\newcommand{\numberwithin}[3][\arabic]{%
8151   \@ifundefined{c@#2}{\@nocounterr{#2}}{%
8152     \@ifundefined{c@#3}{\@nocnterr{#3}}{%
8153       \@addtoreset{#2}{#3}%
8154       \@xp\xdef\csname the#2\endcsname{%
8155         \@xp\@nx\csname the#3\endcsname .\@nx#1{#2}%
8156       }%
8157     }%
8158   }%
8159 }%
8160 </check>

```

change 2023-06-14: use hook to make independent of loading order

```

8161 <*packageEnd>
8162 \@ifundefined{hyper@nopatch@counter}
8163 {
8164   \AddToHook{package/amsmath/after}{%
8165     \renewcommand*{\numberwithin}[3][\arabic]{%
8166       \@ifundefined{c@#2}{\@nocounterr{#2}}{%
8167         \@ifundefined{c@#3}{\@nocnterr{#3}}{%
8168           \HyOrg@addtoreset{#2}{#3}%
8169           \@xp\xdef\csname the#2\endcsname{%
8170             \@xp\@nx\csname the#3\endcsname .\@nx#1{#2}%
8171           }%
8172           \@xp\xdef\csname theH#2\endcsname{%
8173             \@xp\@nx
8174             \csname the\@ifundefined{theH#3}{}H#3\endcsname
8175             .\@nx#1{#2}%
8176           }%
8177         }%
8178       }%
8179     }%
8180   }{}
8181 }{}

```

## 42 Included figures

Simply intercept the low level graphics package macro.

```

8182 \ifHy@hyperfigures
8183   \let\Hy@Gin@setfile\Gin@setfile
8184   \def\Gin@setfile#1#2#3{%
8185     \hyperimage{#3}{\Hy@Gin@setfile{#1}{#2}{#3}}%
8186   }%
8187 \fi
8188 \Hy@DisableOption{hyperfigures}

```



## 43 hyperindex entries

Internal command names are prefixed with `\HyInd@`.

Hyper-indexing works crudely, by forcing code onto the end of the index entry with the `|` feature; this puts a hyperlink around the printed page numbers. It will not proceed if the author has already used the `|` specifier for something like boldening entries. That would make `Makeindex` fail (cannot have two `|` specifiers). The solution is for the author to use generic coding, and put in the requisite `\hyperpage` in his/her own macros along with the boldness.

This section is poor stuff; it's open to all sorts of abuse. Sensible large projects will design their own indexing macros any bypass this.

```

8189 \ifHy@hyperindex
8190   \def\HyInd@ParenLeft{({}%
8191   \def\HyInd@ParenRight{)}}%
8192   \def\hyperindexformat#1#2{%
8193     \let\HyOrg@hyperpage\hyperpage
8194     \let\hyperpage\@firstofone
8195     #1{\HyOrg@hyperpage{#2}}%
8196     \let\hyperpage\HyOrg@hyperpage
8197   }%
8198   \Hy@nextfalse
8199   \@ifpackageloaded{multind}{\Hy@nexttrue}{}%
8200   \@ifpackageloaded{index}{\Hy@nexttrue}{}%
8201   \@ifpackageloaded{amsmidx}{\Hy@nexttrue}{}%
8202   \begingroup
8203     \lccode`\|=\expandafter`\HyInd@EncapChar\relax
8204     \lccode`\|/\=\relax
8205   \lowercase{\endgroup
8206     \ifHy@next
8207       \let\HyInd@org@wrindex\@wrindex
8208       \def\@wrindex#1#2{\HyInd@@wrindex{#1}#2|}%
8209       \def\HyInd@@wrindex#1#2|#3|#4\{\%
8210         \ifx\|#3\%
8211           \HyInd@org@wrindex{#1}{#2|hyperpage}%
8212         \else
8213           \HyInd@@@wrindex{#1}{#2}#3\%
8214         \fi
8215       }%
8216       \def\HyInd@@@wrindex#1#2#3#4\{\%
8217       \def\Hy@temp@A{#3}%
8218       \ifcase0\ifx\Hy@temp@A\HyInd@ParenLeft 1\fi
8219         \ifx\Hy@temp@A\HyInd@ParenRight 1\fi
8220       \relax
8221       \HyInd@org@wrindex{#1}{%
8222         #2|hyperindexformat{/#3#4}%
8223       }%
8224     \else
8225       \ifx\|#4\%
8226         \ifx\Hy@temp@A\HyInd@ParenRight
8227           \HyInd@org@wrindex{#1}{#2|#3}%
8228         \else
8229           \HyInd@org@wrindex{#1}{#2|#3hyperpage}%
8230         \fi

```

```

8231     \else
8232     \HyInd@org@wrindex{#1}{%
8233     #2|#3hyperindexformat{/#4}%
8234     }%
8235     \fi
8236     \fi
8237 }%
8238 \else
8239 \def\@wrindex#1{\@wrindex#1||\}%
8240 \def\@wrindex#1|#2|#3\{\%
8241 \if@filesw
8242 \ifx\|#2\%
8243 \protected@write\@indexfile{\%
8244 \string\indexentry{#1|hyperpage}{\thepage}%
8245 }%
8246 \else
8247 \HyInd@@@wrindex{#1}#2\%
8248 \fi
8249 \fi
8250 \endgroup
8251 \@esphack
8252 }%
8253 \def\HyInd@@@wrindex#1#2#3\{\%
8254 \def\Hy@temp@A{#2}%
8255 \ifcase0\ifx\Hy@temp@A\HyInd@ParenLeft 1\fi
8256 \ifx\Hy@temp@A\HyInd@ParenRight 1\fi
8257 \relax
8258 \protected@write\@indexfile{\%
8259 \string\indexentry{%
8260 #1|hyperindexformat{/#2#3}%
8261 }{\thepage}%
8262 }%
8263 \else
8264 \ifx\|#3\%
8265 \ifx\Hy@temp@A\HyInd@ParenRight
8266 \HyInd@DefKey{#1}%
8267 \ltx@ifundefined{HyInd@(\HyInd@key)}{\%
8268 \let\Hy@temp\ltx@empty
8269 }{\%
8270 \expandafter\let\expandafter\Hy@temp
8271 \csname HyInd@(\HyInd@key)\endcsname
8272 }%
8273 \protected@write\@indexfile{\%
8274 \string\indexentry{#1|#2\Hy@temp}{\thepage}%
8275 }%
8276 \else
8277 \protected@write\@indexfile{\%
8278 \string\indexentry{#1|#2hyperpage}{\thepage}%
8279 }%
8280 \HyInd@DefKey{#1}%
8281 \expandafter
8282 \gdef\csname HyInd@(\HyInd@key)\endcsname{%
8283 hyperpage%
8284 }%

```

```

8285     \fi
8286   \else
8287     \protected@write\@indexfile{}\{
8288       \string\indexentry{
8289         #1|#2hyperindexformat{/#3}%
8290       }\thepage}%
8291   }%
8292   \ifx\Hy@temp@A\HyInd@ParenLeft
8293     \HyInd@DefKey{#1}%
8294     \expandafter
8295     \gdef\csname HyInd@(\HyInd@key)\endcsname{
8296       hyperindexformat{/#3}%
8297     }%
8298   \fi
8299 \fi
8300 \fi
8301 }%
8302 \def\HyInd@DefKey#1{%
8303   \begingroup
8304     \let\protect\@unexpandable@protect
8305     \edef\Hy@temp{#1}%
8306     \ltx@onelevel@sanitize\Hy@temp
8307     \global\let\HyInd@key\Hy@temp
8308   \endgroup
8309 }%
8310 \fi
8311 }%
8312 \fi
8313 \Hy@DisableOption{hyperindex}
8314 \Hy@DisableOption{encap}

```

`\nohyperpage` The definition of `\nohyperpage` is just a precaution. It is used to mark code that does not belong to a page number, but `\nohyperpage` is never executed.

```

8315 \def\nohyperpage#1{#1}

```

This again is quite flaky, but allow for the common situation of a page range separated by en-rule. We split this into two different hyperlinked pages.

```

8316 \def\hyperpage#1{%
8317   \HyInd@hyperpage#1\nohyperpage{}\@nil
8318 }
8319 \def\HyInd@hyperpage#1\nohyperpage#2#3\@nil{%
8320   \HyInd@hyperpage{#1}%
8321   #2%
8322   \def\Hy@temp{#3}%
8323   \ifx\Hy@temp\@empty
8324   \else
8325     \ltx@ReturnAfterFi{%
8326       \HyInd@hyperpage#3\@nil
8327     }%
8328   \fi
8329 }
8330 \def\HyInd@hyperpage#1{\@hyperpage#1---\}
8331 \def\HyInd@hyperpage#1--#2--#3\{%
8332   \ifx\#2\%

```

```

8333 \commahyperpage{#1}%
8334 \else
8335 \HyInd@pagelink{#1}--\HyInd@pagelink{#2}%
8336 \fi
8337 }
8338 \def\commahyperpage#1{\commahyperpage#1, ,\}
8339 \def\commahyperpage#1, #2, #3\{\%
8340 \ifx\#2\%
8341 \HyInd@pagelink{#1}%
8342 \else
8343 \HyInd@pagelink{#1}, \HyInd@pagelink{#2}%
8344 \fi
8345 }

```

The argument of `\hyperpage` can be empty. And the line breaking algorithm of `Makeindex` can introduce spaces. So we have to remove them.

```

8346 \def\HyInd@pagelink#1{%
8347 \begingroup
8348 \toks@={}%
8349 \HyInd@removespaces#1 \@nil
8350 \endgroup
8351 }
8352 \def\HyInd@removespaces#1 #2\@nil{%
8353 \toks@=\expandafter{\the\toks@#1}%
8354 \ifx\#2\%
8355 \edef\x{\the\toks@}%
8356 \ifx\x\@empty
8357 \else
8358 \hyperlink{page.\the\toks@}{\the\toks@}%
8359 \fi
8360 \else
8361 \ltx@ReturnAfterFi{%
8362 \HyInd@removespaces#2\@nil
8363 }%
8364 \fi
8365 }

```

This breaks TeX4ht, so leave it to last. Emend `\@setref` to put out a hypertext link as well as its normal text (which is used as an anchor). (`\endinput` have to be on the same line like `\fi`, or you have to use `\expandafter` before.)

change 2022-11-13: added an `\@empty` for issue#261.

```

8366 \ifHy@texht
8367 \expandafter\endinput
8368 \fi
8369 \let\real@setref\@setref
8370 \def\@setref#1#2#3{% csname, extract group, refname
8371 \ifx#1\relax
8372 \protect\G@refundefinedtrue
8373 \nfss@text{\reset@font\bfseries ??}%
8374 \@latex@warning{%
8375 Reference `#3' on page \thepage \space undefined%
8376 }%
8377 \else
8378 \expandafter\Hy@setref@link#1\@empty\@empty\@empty\@nil{#2}%
8379 \fi

```

```

8380 }
\Hy@setref@link extracts the reference information entries, because \hyper@@link
does not expand arguments for the automatic link type detection.
8381 \def\Hy@setref@link#1#2#3#4#5#6\@nil#7{%
8382   \begingroup
8383     \toks0={\hyper@@link{#5}{#4}}%
8384     \toks1=\expandafter{#7{#1}{#2}{#3}{#4}{#5}}%
8385     \edef\x{\endgroup
8386       \the\toks0 {\the\toks1 }%
8387     }%
8388   \x
8389 }
8390 \def\@pagesetref#1#2#3{% csname, extract macro, ref
8391   \ifx#1\relax
8392     \protect\G@refundefinedtrue
8393     \nfss@text{\reset@font\bfseries ??}%
8394     \@latex@warning{%
8395       Reference `#3' on page \thepage \space undefined%
8396     }%
8397   \else
8398     \protect\hyper@@link
8399     {\expandafter\@fifthoffive#1}%
8400     {page.\expandafter\@secondoffive#1}%
8401     {\expandafter\@secondoffive#1}%
8402   \fi
8403 }
8404 \</packageEnd>
8405 \< *check>
8406 \checklatex
8407 \checkcommand\def\@setref#1#2#3{%
8408   \ifx#1\relax
8409     \protect\G@refundefinedtrue
8410     \nfss@text{\reset@font\bfseries ??}%
8411     \@latex@warning{%
8412       Reference `#3' on page \thepage \space undefined%
8413     }%
8414   \else
8415     \expandafter#2#1\null
8416   \fi
8417 }
8418 \< /check>
8419 \< *packageEnd>

```

Now some extended referencing. `\ref*` and `\pageref*` are not linked, and `\autoref` prefixes with a tag based on the type.

```

8420 \def\HyRef@StarSetRef#1{%
8421   \begingroup
8422     \Hy@safe@activestru
8423     \let\protect\@unexpandable@protect
8424     \edef\x{#1}%
8425     \@onelevel@sanitize\x
8426     \edef\x{\endgroup
8427       \noexpand\HyRef@@StarSetRef

```

```

8428 \expandafter\noexpand\csname r@\x\endcsname{\x}%
8429 }%
8430 \x
8431 }
8432 \def\HyRef@@StarSetRef#1#2#3{%
8433 \ifx#1\@undefined
8434 \let#1\relax
8435 \fi
8436 \real@setref#1#3{#2}%
8437 }
8438 \def\@refstar#1{%
8439 \HyRef@StarSetRef{#1}\@firstoffive
8440 }
8441 \def\@pagerefstar#1{%
8442 \HyRef@StarSetRef{#1}\@secondoffive
8443 }
8444 \def\@namerefstar#1{%
8445 \HyRef@StarSetRef{#1}\@thirdoffive
8446 }
8447 \def\@Refstar#1{%
8448 \HyRef@StarSetRef{#1}\HyRef@MakeUppercaseFirstOfFive
8449 }%
8450 \def\HyRef@MakeUppercaseFirstOfFive#1#2#3#4#5{%
8451 \MakeUppercase#1%
8452 }%
8453 \def\HyRef@Ref#1{%
8454 \hyperref[{#1}]{\Ref*{#1}}%
8455 }%
8456 \Hy@AtBeginDocument{%
8457 \@ifpackageloaded{varioref}{%

```

This are the patches for a varioref newer after 2019-09 Older versions are no longer supported. If `\hyper@nopatch@varioref` is defined we don't patch but assume that varioref handles the hyperlinks.

```

8458 \@ifundefined{hyper@nopatch@varioref}
8459 {
8460 \renewcommand\Vref@star[2][]{%
8461 \begingroup
8462 \let\T@pageref\@pagerefstar
8463 \Ref*{#2}
8464 \vpageref[#1]{#2}%
8465 \endgroup
8466 }%
8467 \renewcommand\Vr@f[2][]{%
8468 \begingroup
8469 \let\T@pageref\@pagerefstar
8470 \hyperref[{#2}]{%
8471 \Ref*{#2}
8472 \vpageref[#1]{#2}%
8473 }%
8474 \endgroup
8475 }%
8476 \renewcommand\vr@f[2][]{%
8477 \begingroup

```

```

8478 \let\T@pageref\@pagerefstar
8479 \hyperref[{\#2}]{%
8480 \ref*{\#2}
8481 \vpageref[\#1]{\#2}%
8482 }%
8483 \endgroup
8484 }%
8485 \renewcommand\vref@star[2][]{%
8486 \begingroup
8487 \let\T@pageref\@pagerefstar
8488 \ref*{\#2}
8489 \vpageref[\#1]{\#2}%
8490 \endgroup
8491 }%
8492 }{}%
8493 }{}%
8494 }

8495 \DeclareRobustCommand*\autopageref{%
8496 \ifstar{%
8497 \HyRef@autopagerefname\pageref*%
8498 }\HyRef@autopageref
8499 }
8500 \def\HyRef@autopageref#1{%
8501 \hyperref[{\#1}]{\HyRef@autopagerefname\pageref*{\#1}}%
8502 }
8503 \def\HyRef@autopagerefname{%
8504 \ltx@ifundefined{pageautorefname}{%
8505 \ltx@ifundefined{pagename}{%
8506 \Hy@Warning{No autoref name for `page'}%
8507 }{%
8508 \pagename\nobreakspace
8509 }%
8510 }{}%
8511 \pageautorefname\nobreakspace
8512 }%
8513 }

```

\leavevmode is added to make package wrapfigure happy, if \autoref starts a paragraph.

```

8514 \NewDocumentCommand\autoref{s}
8515 {\leavevmode
8516 \IfBooleanTF{\#1}{\HyRef@autoref\@gobbletwo}{\HyRef@autoref\hyper@@link}}
8517 \def\HyRef@autoref#1#2{%
8518 \begingroup
8519 \Hy@safe@activestrue
8520 \expandafter\HyRef@autosetref\csname r@#2\endcsname{\#2}{\#1}%
8521 \endgroup
8522 }
8523 \def\HyRef@autosetref#1#2#3{% link command, csname, refname
8524 \HyRef@ShowKeysRef{\#2}%
8525 \ifcase 0\ifx#1\relax 1\fi\ifx#1\Hy@varioref@undefined 1\fi\relax
8526 \edef\HyRef@thisref{%
8527 \expandafter\@fourthoffive#1\@empty\@empty\@empty
8528 }%

```

```

8529 \expandafter\HyRef@testreftype\HyRef@thisref.\.%
8530 \Hy@safe@activesfalse
8531 #3{%
8532 \expandafter\@fifthoffive#1\@empty\@empty\@empty
8533 }{%
8534 \expandafter\@fourthoffive#1\@empty\@empty\@empty
8535 }{%
8536 \HyRef@currentHtag
8537 \expandafter\@firstoffive#1\@empty\@empty\@empty
8538 \null
8539 }%
8540 \else
8541 \protect\G@refundefinedtrue
8542 \nfss@text{\reset@font\bfseries ??}%
8543 \@latex@warning{%
8544 Reference `#2' on page \thepage\space undefined%
8545 }%
8546 \fi
8547 }
8548 \def\HyRef@testreftype#1.#2\.{%
8549 \ltx@ifundefined{#1autorefname}{%
8550 \ltx@ifundefined{#1name}{%
8551 \HyRef@StripStar#1\*\@nil{#1}%
8552 \ltx@ifundefined{\HyRef@name autorefname}{%
8553 \ltx@ifundefined{\HyRef@name name}{%
8554 \def\HyRef@currentHtag{%
8555 \Hy@Warning{No autoref name for `#1'}%
8556 }{%
8557 \edef\HyRef@currentHtag{%
8558 \expandafter\noexpand\csname\HyRef@name name\endcsname
8559 \noexpand~%
8560 }%
8561 }%
8562 }{%
8563 \edef\HyRef@currentHtag{%
8564 \expandafter\noexpand
8565 \csname\HyRef@name autorefname\endcsname
8566 \noexpand~%
8567 }%
8568 }%
8569 }{%
8570 \edef\HyRef@currentHtag{%
8571 \expandafter\noexpand\csname#1name\endcsname
8572 \noexpand~%
8573 }%
8574 }%
8575 }{%
8576 \edef\HyRef@currentHtag{%
8577 \expandafter\noexpand\csname#1autorefname\endcsname
8578 \noexpand~%
8579 }%
8580 }%
8581 }
8582 \def\HyRef@StripStar#1*\@nil#3{%

```



```

8583 \def\HyRef@name{#2}%
8584 \ifx\HyRef@name\HyRef@CaseStar
8585   \def\HyRef@name{#1}%
8586 \else
8587   \def\HyRef@name{#3}%
8588 \fi
8589 }
8590 \def\HyRef@CaseStar{*\\}
8591 \def\HyRef@currentHtag{}

```

Support for package `showkeys`.

`\HyRef@ShowKeysRef`

```

8592 \let\HyRef@ShowKeysRef@gobble
8593 \def\HyRef@ShowKeysInit{%
8594   \ifundefined{SK@@label}{-}
8595   {%
8596     \ifx\SK@ref\@empty
8597     \else
8598       \def\HyRef@ShowKeysRef{%
8599         \SK@\SK@@ref
8600       }%
8601     \fi
8602   }%
8603 }
8604 \AddToHook{package/showkeys/after}{\HyRef@ShowKeysInit}

```

Defaults for the names that `\autoref` uses.

```

8605 \providecommand*{\AMSautorefname}{\equationautorefname}
8606 \providecommand*{\Hfootnoteautorefname}{\footnoteautorefname}
8607 \providecommand*{\Itemautorefname}{\itemautorefname}
8608 \providecommand*{\itemautorefname}{item}
8609 \providecommand*{\equationautorefname}{Equation}
8610 \providecommand*{\footnoteautorefname}{footnote}
8611 \providecommand*{\itemautorefname}{item}
8612 \providecommand*{\figureautorefname}{Figure}
8613 \providecommand*{\tableautorefname}{Table}
8614 \providecommand*{\partautorefname}{Part}
8615 \providecommand*{\appendixautorefname}{Appendix}
8616 \providecommand*{\chapterautorefname}{chapter}
8617 \providecommand*{\sectionautorefname}{section}
8618 \providecommand*{\subsectionautorefname}{subsection}
8619 \providecommand*{\subsubsectionautorefname}{subsubsection}
8620 \providecommand*{\paragraphautorefname}{paragraph}
8621 \providecommand*{\subparagraphautorefname}{subparagraph}
8622 \providecommand*{\FancyVerbLineautorefname}{line}
8623 \providecommand*{\theoremautorefname}{Theorem}
8624 \providecommand*{\pageautorefname}{page}
8625 \</packageEnd>

```

## 44 Configuration files

### 44.1 PS/PDF strings

Some drivers write PS or PDF strings. These strings are delimited by parentheses, therefore a lonely unmatched parenthesis must be avoided to avoid PS or PDF syntax errors. Also the backslash character itself has to be protected.

`\Hy@pstringdef` Therefore such strings should be passed through `\Hy@pstringdef`. The first argument holds a macro for the result, the second argument is the string that needs protecting. Since version 1.30.0 pdf<sub>T</sub><sub>E</sub>X offers `\pdfescapestring`.

```
8626 (*pdfTEX | dvipdfm | xetex | vtex | pdfmarkbase | dviwindo)
8627 \begingroup\expandafter\expandafter\expandafter\endgroup
8628 \expandafter\ifx\csname pdf@escapestring\endcsname\relax
8629 \begingroup
8630 \catcode`\|=0 %
8631 \@makeother\|%
8632 |@firstofone{|endgroup
8633 |def|Hy@pstringdef#1#2{%
8634 |begingroup
8635 |edef~{|string~}%
8636 |xdef|Hy@gtemp{#2}%
8637 |endgroup
8638 |let#1|Hy@gtemp
8639 |@onelevel@sanitize#1%
8640 |edef#1{|expandafter|Hy@ExchangeBackslash#1|@nil}%
8641 |edef#1{|expandafter|Hy@ExchangeLeftParenthesis#1(|@nil}%
8642 |edef#1{|expandafter|Hy@ExchangeRightParenthesis#1)|@nil}%
8643 }%
8644 |def|Hy@ExchangeBackslash#1/#2|@nil{%
8645 #1%
8646 |ifx|\#2|\%
8647 |else
8648 \\\%
8649 |ltx@ReturnAfterFi{%
8650 |Hy@ExchangeBackslash#2|@nil
8651 }%
8652 |fi
8653 }%
8654 }%
8655 \def\Hy@ExchangeLeftParenthesis#1(#2\@nil{%
8656 #1%
8657 \ifx\#2\%
8658 \else
8659 \@backslashchar(%
8660 \ltx@ReturnAfterFi{%
8661 \Hy@ExchangeLeftParenthesis#2\@nil
8662 }%
8663 \fi
8664 }%
8665 \def\Hy@ExchangeRightParenthesis#1)#2\@nil{%
8666 #1%
8667 \ifx\#2\%
8668 \else
```

```

8669 \@@backslashchar)%
8670 \ltx@ReturnAfterFi{%
8671 \Hy@ExchangeRightParenthesis#2\@nil
8672 }%
8673 \fi
8674 }%
8675 \else
8676 \def\Hy@pstringdef#1#2{%
8677 \begingroup
8678 \edef~{\string~}%
8679 \xdef\Hy@gtemp{\pdf@escapestring{#2}}%
8680 \endgroup
8681 \let#1\Hy@gtemp
8682 }%
8683 \fi
8684 </pdfTeX | dvipdfm | xetex | vtex | pdfmarkbase | dviwindo>

```

## 44.2 pdfTeX

```

8685 (*pdfTeX)
8686 \providecommand*\XR@ext}{pdf}
8687 \Hy@setbreaklinks{true}
8688 \def\HyPat@ObjRef{%
8689 [0-9]*[1-9][0-9]* 0 R%
8690 }

```

This driver is for Han The Thanh's T<sub>E</sub>X variant which produces PDF directly. This has new primitives to do PDF things, which usually translate almost directly to PDF code, so there is a lot of flexibility which we do not at present harness.

Set PDF version if requested by option pdfversion.

- pdfT<sub>E</sub>X 1.10a, 2003-01-16: \pdfoptionpdfminorversion
- pdfT<sub>E</sub>X 1.30, 2005-08-081: \pdfminorversion

```

8691 \def\Hy@pdfminorversion{\pdfoptionpdfminorversion}%
8692 \def\Hy@pdfminorversion{\pdfminorversion}%
8693 \ifHy@ocgcolorlinks
8694 \ifnum\Hy@pdfmajorminor@version<105 %
8695 \kvsetkeys{Hyp}{pdfversion=1.5}%
8696 \fi
8697 \fi
8698 \ifHy@setpdfversion
8699 \ifnum\Hy@pdf@majorminor@version<105 %
8700 \ltx@ifUndefined{pdfobjcompresslevel}{%
8701 }{%
8702 \ifHy@verbose
8703 \Hy@InfoNoLine{%
8704 PDF object streams are disabled, because they are%
8705 \MessageBreak
8706 not supported in requested PDF version %
8707 \Hy@pdf@majorversion.\Hy@pdf@minorversion
8708 }%
8709 \fi
8710 \pdfobjcompresslevel=\ltx@zero
8711 }%

```

```

8712 \fi
8713 \ifnum\Hy@pdfmajorminor@version=\Hy@pdf@majorminor@version\relax
8714 \else
8715   \let\Hy@temp\ltx@empty
8716   \def\Hy@temp@A#1#2{%
8717     \ifnum#1>\ltx@zero
8718       \edef\Hy@temp{%
8719         \Hy@temp
8720         \space\space
8721         \the#1\space #2%
8722         \ifnum#1=\ltx@one\else s\fi
8723         \MessageBreak
8724       }%
8725     \fi
8726   }%
8727   \Hy@temp@A\pdflastobj{PDF object}%
8728   \Hy@temp@A\pdflastxform{form XObject}%
8729   \Hy@temp@A\pdflastximage{image XObject}%
8730   \Hy@temp@A\pdflastannot{annotation}%
8731   \ltx@ifundefined{pdflastlink}{%
8732   }{%
8733     \Hy@temp@A\pdflastlink{link}%
8734   }%
8735   \ifx\Hy@temp\ltx@empty
8736     \Hy@pdfmajorversion=\Hy@pdf@majorversion\relax
8737     \Hy@pdfminorversion=\Hy@pdf@minorversion\relax
8738   \else
8739     \let\Hy@temp@A\ltx@empty
8740     \ifnum\Hy@pdf@majorminor@version=104 %
8741       \IfFileExists{pdf14.sty}{%
8742         \def\Hy@temp@A{%
8743           \MessageBreak
8744           Or \string\RequirePackage{pdf14} can be used%
8745           \MessageBreak
8746           before \string\documentclass\space as shortcut%
8747         }%
8748       }{}%
8749     \fi
8750     \Hy@WarningNoLine{%
8751       The PDF version number could not be set,\MessageBreak
8752       because some PDF objects are already written:%
8753       \MessageBreak
8754       \Hy@temp
8755       The version should be set as early as possible:%
8756       \MessageBreak
8757       \space\space
8758       \expandafter\string\Hy@pdfmajorversion=\Hy@pdf@majorversion, %
8759       \expandafter\string\Hy@pdfminorversion=\Hy@pdf@minorversion
8760       \string\relax
8761       \ifnum\Hy@pdf@majorminor@version<105 %
8762         \ltx@ifundefined{pdfobjcompresslevel}{%
8763         }{%
8764           \MessageBreak
8765           \space\space

```

```

8766         \string\pdfobjcompresslevel=0\string\relax
8767     }%
8768     \fi
8769     \Hy@temp@A
8770 }%
8771 \fi
8772 \fi
8773 \PackageInfo{hyperref}{%
8774   \expandafter\string\Hy@pdfmajorversion.%
8775   \expandafter\string\Hy@pdfminorversion
8776   :=\number\Hy@pdf@majorversion.\number\Hy@pdf@minorversion\space
8777 }%
8778 \fi
8779 \edef\Hy@pdf@majorversion{\number\Hy@pdfmajorversion}%
8780 \edef\Hy@pdf@minorversion{\number\Hy@pdfminorversion}%
8781 \Hy@DisableOption{pdfversion}%
8782 \ifHy@ocgcolorlinks
8783   \pdf@ifdraftmode{}{%
8784     \immediate\pdfobj{%
8785       <<%
8786       /Type/OCG%
8787       /Name(View)%
8788       /Usage<<%
8789       /Print<<%
8790       /PrintState/OFF%
8791       >>%
8792       /View<<%
8793       /ViewState/ON%
8794       >>%
8795       >>%
8796     }%
8797   \edef\OBJ@OCG@view{\the\pdflastobj\space 0 R}%
8798   \immediate\pdfobj{%
8799     <<%
8800     /Type/OCG%
8801     /Name(Print)%
8802     /Usage<<%
8803     /Print<<%
8804     /PrintState/ON%
8805     >>%
8806     /View<<%
8807     /ViewState/OFF%
8808     >>%
8809     >>%
8810     >>%
8811   }%
8812   \edef\OBJ@OCG@print{\the\pdflastobj\space 0 R}%
8813   \immediate\pdfobj{%
8814     [%
8815     \OBJ@OCG@view\space\OBJ@OCG@print
8816     ]%
8817   }%
8818   \edef\OBJ@OCGs{\the\pdflastobj\space 0 R}%
8819 
```

```

8820 \pdfcatalog{%
8821   /OCProperties<<%
8822     /OCGs \OBJ@OCGs
8823     /D<<%
8824       /OFF[\OBJ@OCG@print]%
8825       /AS[%
8826         <<%
8827           /Event/View%
8828           /OCGs \OBJ@OCGs
8829           /Category[/View]%
8830         >>%
8831         <<%
8832           /Event/Print%
8833           /OCGs \OBJ@OCGs
8834           /Category[/Print]%
8835         >>%
8836         <<%
8837           /Event/Export%
8838           /OCGs \OBJ@OCGs
8839           /Category[/Print]%
8840         >>%
8841       ]%
8842     >>%
8843   >>%
8844 }%
8845 \begingroup
8846 \edef\x{\endgroup
8847   \pdfpageresources{%
8848     \the\pdfpageresources
8849     /Properties<<%
8850       /OCView \OBJ@OCG@view
8851       /OCPrint \OBJ@OCG@print
8852     >>%
8853   }%
8854 }%
8855 \x
8856 }%
8857 \Hy@AtBeginDocument{%
8858   \def\Hy@colorlink#1{%
8859     \begingroup
8860     \ifHy@ocgcolorlinks
8861       \def\Hy@ocgcolor{#1}%
8862       \setbox0=\hbox\bgroup\color@begingroup
8863     \else
8864       \HyColor@UseColor#1%
8865     \fi
8866   }%
8867   \def\Hy@endcolorlink{%
8868     \ifHy@ocgcolorlinks
8869       \color@endgroup\egroup
8870     \mbox{%
8871       \pdfliteral page{/OC/OCPrint BDC}%
8872       \rlap{\copy0}%
8873       \pdfliteral page{EMC/OC/OCView BDC}%

```

```

8874      \begingroup
8875      \expandafter\HyColor@UseColor\Hy@ocgcolor
8876      \box0 %
8877      \endgroup
8878      \pdfliteral page{EMC}%
8879  }%
8880  \fi
8881  \endgroup
8882  }%
8883  }%
8884  \else
8885  \Hy@DisableOption{ocgcolorlinks}%
8886  \fi

```

First, allow for some changes and additions to pdftex syntax:

```

8887 \def\setpdfinkmargin#1{%
8888   \begingroup
8889   \setlength{\dimen@}{#1}%
8890   \expandafter\endgroup
8891   \expandafter\pdfinkmargin\the\dimen@\relax
8892 }
8893 \pdfinkmargin1pt %

```

First set up the default linking

```

8894 \providecommand*\@pdfview{XYZ}

```

First define the anchors:

```

8895 \Hy@WrapperDef\new@pdfink#1{%
8896   \ifhmode
8897     \@savsf\spacefactor
8898   \fi
8899   \Hy@SaveLastskip
8900   \Hy@VerboseAnchor{#1}%
8901   \Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}%
8902   \Hy@DestName\Hy@pstringDest\@pdfview
8903   \Hy@RestoreLastskip
8904   \ifhmode
8905     \spacefactor\@savsf
8906   \fi
8907 }
8908 \let\pdf@endanchor\@empty

```

`\Hy@DestName` Wrap the call of `\pdfdest name` in `\Hy@DestName`. Then it can easier be caught by package `hypdestopt`.

```

8909 \def\Hy@DestName#1#2{%
8910   \pdfdest name{#1}#2\relax
8911 }

```

Now the links; the interesting part here is the set of attributes which define how the link looks. We probably want to add a border and color it, but there are other choices. This directly translates to PDF code, so consult the manual for how to change this. We will add an interface at some point.

```

8912 \providecommand*\@pdfborder{0 0 1}
8913 \providecommand*\@pdfborderstyle{}
8914 \def\Hy@undefinedname{UNDEFINED}

```

```

8915 \def\find@pdfink#1#2{%
8916   \leavevmode
8917   \protected@edef\Hy@testname{#2}%
8918   \ifx\Hy@testname\@empty
8919     \Hy@Warning{%
8920       Empty destination name,\MessageBreak
8921       using ``\Hy@undefinedname'%
8922     }%
8923     \let\Hy@testname\Hy@undefinedname
8924   \else
8925     \Hy@pstringdef\Hy@testname{%
8926       \expandafter\HyperDestNameFilter\expandafter{\Hy@testname}%
8927     }%
8928   \fi
8929   \Hy@StartlinkName{%
8930     \ifHy@pdfa /F 4\fi
8931     \Hy@setpdfborder
8932     \Hy@setpdfhighlight
8933     \ifx\CurrentBorderColor\relax
8934       \else
8935         /C[\CurrentBorderColor]%
8936     \fi
8937   }\Hy@testname
8938   \expandafter\Hy@colorlink\csname @#1color\endcsname
8939 }
8940 \def\Hy@StartlinkName#1#2{%
8941   \pdfstartlink attr{#1}goto name{#2}\relax
8942 }
8943 \def\close@pdfink{%
8944   \Hy@endcolorlink
8945   \Hy@VerboseLinkStop
8946   \pdfendlink
8947 }
8948 \def\hyper@anchor#1{%
8949   \new@pdfink{#1}\anchor@spot\pdf@endanchor
8950 }
8951 \def\hyper@anchorstart#1{%
8952   \new@pdfink{#1}%
8953   \Hy@activeanchortrue
8954 }
8955 \def\hyper@anchorend{%
8956   \pdf@endanchor
8957   \Hy@activeanchorfalse
8958 }
8959 \def\hyper@linkstart#1#2{%
8960   \Hy@VerboseLinkStart{#1}{#2}%
8961   \ltx@ifundefined{@#1bordercolor}{%
8962     \let\CurrentBorderColor\relax
8963   }{%
8964     \edef\CurrentBorderColor{\csname @#1bordercolor\endcsname}%
8965   }%
8966   \find@pdfink{#1}{#2}%
8967 }
8968 \def\hyper@linkend{\close@pdfink}

```



```

8969 \def\hyper@link#1#2#3{%
8970   \Hy@VerboseLinkStart{#1}{#2}%
8971   \ltx@ifundefined{@#1bordercolor}{%
8972     \let\CurrentBorderColor\relax
8973   }{%
8974     \edef\CurrentBorderColor{\csname @#1bordercolor\endcsname}%
8975   }%
8976   \find@pdfink{#1}{#2}#3\Hy@xspace@end
8977   \close@pdfink
8978 }
8979 \let\CurrentBorderColor\@linkbordercolor
8980 \def\hyper@linkurl#1#2{%
8981   \begingroup
8982     \Hy@pstringdef\Hy@pstringURI{#2}%
8983     \hyper@chars
8984     \leavevmode
8985     \pdfstartlink
8986     attr{%
8987       \Hy@setpdfborder
8988       \Hy@setpdfhighlight
8989       \ifx\@urlbordercolor\relax
8990       \else
8991         /C[\@urlbordercolor]%
8992       \fi
8993     }%
8994     user{%
8995       /Subtype/Link%
8996       \ifHy@pdfa /F 4\fi
8997       /A<<%
8998       /Type/Action%
8999       /S/URI%
9000       /URI(\Hy@pstringURI)%
9001       \ifHy@href@cismap
9002         /IsMap true%
9003       \fi
9004       \Hy@href@nextactionraw
9005     >>%
9006   }%
9007   \relax
9008   \Hy@colorlink\@urlcolor#1\Hy@xspace@end
9009   \close@pdfink
9010 \endgroup
9011 }
9012 \def\hyper@linkfile#1#2#3{% anchor text, filename, linkname
9013   \begingroup
9014     \def\Hy@pstringF{#2}%
9015     \Hy@CleanupFile\Hy@pstringF
9016     \Hy@pstringdef\Hy@pstringF\Hy@pstringF
9017     \Hy@pstringdef\Hy@pstringD{#3}%
9018     \Hy@MakeRemoteAction
9019     \leavevmode
9020     \pdfstartlink
9021     attr{%
9022       \Hy@setpdfborder

```

```

9023      \Hy@setpdfhighlight
9024      \ifx\@filebordercolor\relax
9025      \else
9026      /C[\@filebordercolor]%
9027      \fi
9028    }%
9029    user {%
9030      /Subtype/Link%
9031      \ifHy@pdfa /F 4\fi
9032      /A<<%
9033      /F(\Hy@pstringF)%
9034      /S/GoToR%
9035      \Hy@SetNewWindow

```

If #3 is empty, page 0; if its a number, Page number, otherwise a named destination.

```

\afterassignment\xxx\count@=0\foo!%

```

```

\def\xxx#1!{%
  \ifx\xxx#1\xxx
    foo was an integer
  \else
    it wasnt
  \fi}

```

```

9036      \ifx\#3\%
9037      /D[\Hy@href@page\@pdfremotestartview]%
9038      \else
9039      /D(\Hy@pstringD)%
9040      \fi
9041      \Hy@href@nextactionraw
9042      >>%
9043    }%
9044    \relax
9045    \Hy@colorlink\@filecolor#1\Hy@xspace@end
9046    \close@pdflink
9047  \endgroup
9048 }
9049 \def\@hyper@launch run:#1\#2#3{% filename, anchor text linkname
9050   \begingroup
9051   \Hy@pstringdef\Hy@pstringF{#1}%
9052   \Hy@pstringdef\Hy@pstringP{#3}%
9053   \leavevmode
9054   \pdfstartlink
9055   attr{%
9056     \Hy@setpdfborder
9057     \Hy@setpdfhighlight
9058     \ifx\@runbordercolor\relax
9059     \else
9060     /C[\@runbordercolor]%
9061     \fi
9062   }%
9063   user {%
9064     /Subtype/Link%

```

```

9065 \ifHy@pdfa /F 4\fi
9066 /A<<%
9067 /F(\Hy@pstringF)%
9068 /S/Launch%
9069 \Hy@SetNewWindow
9070 \ifx\#3\%
9071 \else
9072 /Win<</P(\Hy@pstringP)/F(\Hy@pstringF)>>%
9073 \fi
9074 \Hy@href@nextactionraw
9075 >>%
9076 }%
9077 \relax
9078 \Hy@colorlink\@runcolor#2\Hy@xspace@end
9079 \close@pdflink
9080 \endgroup
9081 }

```

\PDF@SetupDox

```

9082 \def\PDF@SetupDoc{%
9083 \ifx\@pdfpagescrop\@empty
9084 \else
9085 \edef\process@me{%
9086 \pdfpagesattr=%
9087 /CropBox[\@pdfpagescrop]%
9088 \expandafter\ifx\expandafter\the\pdfpagesattr\%
9089 \else
9090 ^^J\the\pdfpagesattr
9091 \fi
9092 }%
9093 }%
9094 \process@me
9095 \fi
9096 \Hy@pstringdef\Hy@pstringB{\@baseurl}%
9097 \pdfcatalog{%
9098 /PageMode/\@pdfpagemode
9099 \ifx\@baseurl\@empty
9100 \else
9101 /URI<</Base(\Hy@pstringB)>>%
9102 \fi
9103 }%
9104 \ifx\@pdfstartpage\@empty
9105 \else
9106 \ifx\@pdfstartview\@empty
9107 \else
9108 openaction goto page\@pdfstartpage{\@pdfstartview}%
9109 \fi
9110 \fi
9111 \edef\Hy@temp{%
9112 \ifHy@pdftoolbar\else /HideToolbar true\fi
9113 \ifHy@pdfmenubar\else /HideMenubar true\fi
9114 \ifHy@pdfwindowui\else /HideWindowUI true\fi
9115 \ifHy@pdfwindow /FitWindow true\fi
9116 \ifHy@pdfcenterwindow /CenterWindow true\fi

```

```

9117 \ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi
9118 \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
9119 \Hy@UseNameKey{Direction}\@pdfdirection
9120 \Hy@UseNameKey{ViewArea}\@pdfviewarea
9121 \Hy@UseNameKey{ViewClip}\@pdfviewclip
9122 \Hy@UseNameKey{PrintArea}\@pdfprintarea
9123 \Hy@UseNameKey{PrintClip}\@pdfprintclip
9124 \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
9125 \Hy@UseNameKey{Duplex}\@pdfduplex
9126 \ifx\@pdfpicktraybypdfsize\@empty
9127 \else
9128 /PickTrayByPDFSize \@pdfpicktraybypdfsize
9129 \fi
9130 \ifx\@pdfprintpagerange\@empty
9131 \else
9132 /PrintPageRange[\@pdfprintpagerange]%
9133 \fi
9134 \ifx\@pdfnumcopies\@empty
9135 \else
9136 /NumCopies \@pdfnumcopies
9137 \fi
9138 }%
9139 \pdfcatalog{%
9140 \ifx\Hy@temp\@empty
9141 \else
9142 /ViewerPreferences<<\Hy@temp>>%
9143 \fi
9144 \Hy@UseNameKey{PageLayout}\@pdfpagelayout
9145 \ifx\@pdflang\relax
9146 \else
9147 /Lang(\@pdflang)%
9148 \fi
9149 }%
9150 }

```

\PDF@FinishDoc

```

9151 \def\PDF@FinishDoc{%
9152 \pdf@ifdraftmode{}{%
9153 \Hy@UseMaketitleInfos
9154 \HyInfo@GenerateAddons
9155 \pdfinfo{%
9156 /Author(\@pdfauthor)%
9157 /Title(\@pdftitle)%
9158 /Subject(\@pdfsubject)%
9159 /Creator(\@pdfcreator)%
9160 \ifx\@pdfcreationdate\@empty
9161 \else
9162 /CreationDate(\@pdfcreationdate)%
9163 \fi
9164 \ifx\@pdfmoddate\@empty
9165 \else
9166 /ModDate(\@pdfmoddate)%
9167 \fi
9168 \ifx\@pdfproducer\relax

```

```

9169 \else
9170 /Producer(\@pdfproducer)%
9171 \fi
9172 /Keywords(\@pdfkeywords)%
9173 \ifx\@pdftrapped\@empty
9174 \else
9175 /Trapped/\@pdftrapped
9176 \fi
9177 \HyInfo@Addons
9178 }%
9179 }%
9180 \Hy@DisableOption{pdfauthor}%
9181 \Hy@DisableOption{pdftitle}%
9182 \Hy@DisableOption{pdfsubject}%
9183 \Hy@DisableOption{pdfcreator}%
9184 \Hy@DisableOption{addtopdfcreator}%
9185 \Hy@DisableOption{pdfcreationdate}%
9186 \Hy@DisableOption{pdfmoddate}%
9187 \Hy@DisableOption{pdfproducer}%
9188 \Hy@DisableOption{pdfkeywords}%
9189 \Hy@DisableOption{pdftrapped}%
9190 \Hy@DisableOption{pdfinfo}%
9191 }

```

`\hyper@pagetransition` `\@pdfpagetransition` is initialized with `\relax`. So it indicates, if option `pdfpagetransition` is used. First previous `/Trans` entries are removed. If a new `/Trans` key exists, it is appended to `\pdfpageattr`.

```

9192 \def\hyper@pagetransition{%
9193 \ifx\@pdfpagetransition\relax
9194 \else
9195 \expandafter\Hy@RemoveTransPageAttr
9196 \the\pdfpageattr^^J/Trans{}}>>\END
9197 \ifx\@pdfpagetransition\@empty
9198 \else
9199 \edef\@processme{%
9200 \global\pdfpageattr{%
9201 \the\pdfpageattr
9202 ^^J/Trans << /S /\@pdfpagetransition\space >>%
9203 }%
9204 }%
9205 \@processme
9206 \fi
9207 \fi
9208 }

```

`\Hy@RemoveTransPageAttr` Macro `\Hy@RemoveTransPageAttr` removes a `/Trans` entry from `\pdfpageattr`. It is called with the end marker `^^J/Trans{}}>>\END`. The trick is the empty group that does not appear in legal `\pdfpageattr` code. It appears in argument #2 and shows, whether the parameter text catches a really `/Trans` object or the end marker.

```

9209 \gdef\Hy@RemoveTransPageAttr#1^^J/Trans#2#3>>#4\END{%
9210 \ifx\#2\%
9211 \global\pdfpageattr{#1}%

```

```

9212 \else
9213 \Hy@RemoveTransPageAttr#1#4\END
9214 \fi
9215 }

```

`\hyper@pageduration` `\@pdfpageduration` is initialized with `\relax`. So it indicates, if option `pdfpage-` `duration` is used. First previous `/Dur` entries are removed. If a new `/Dur` key exists, it is appended to `\pdfpageattr`.

```

9216 \def\hyper@pageduration{%
9217 \ifx\@pdfpageduration\relax
9218 \else
9219 \expandafter
9220 \Hy@RemoveDurPageAttr\the\pdfpageattr^^J/Dur{} \END
9221 \ifx\@pdfpageduration\@empty
9222 \else
9223 \edef\@processme{%
9224 \global\pdfpageattr{%
9225 \the\pdfpageattr
9226 ^^J/Dur \@pdfpageduration\space
9227 }%
9228 }%
9229 \@processme
9230 \fi
9231 \fi
9232 }

```

`\Hy@RemoveDurPageAttr` Macro `\Hy@RemoveDurPageAttr` removes a `/Dur` entry from `\pdfpageattr`. It is called with the end marker `^^J/Dur{} \END`. The trick is the empty group that does not appear in legal `\pdfpageattr` code. It appears in argument `#2` and shows, whether the parameter text catches a really `/Dur` object or the end marker.

```

9233 \gdef\Hy@RemoveDurPageAttr#1^^J/Dur#2#3 #4\END{%
9234 \ifx\#2\%
9235 \global\pdfpageattr{#1}%
9236 \else
9237 \Hy@RemoveDurPageAttr#1#4\END
9238 \fi
9239 }

```

```

9240 \pdf@ifdraftmode{}{%
9241 \g@addto@macro\Hy@EveryPageHook{%
9242 \hyper@pagetransition
9243 \hyper@pageduration
9244 }%
9245 }

```

Also XeTeX support `\pdfpagewidth` and `\pdfpageheight`, but it does not provide `\pdfhorigin` and `\pdfvorigin`.

```

9246 </pdfTeX>
9247 <*pdfTeX | xetex>
9248 \Hy@AtBeginDocument{%
9249 \ifHy@setpagesize
9250 \expandafter\@firstofone
9251 \else
9252 \expandafter\@gobble

```

```

9253 \fi
9254 {%
9255 \@ifclassloaded{seminar}{%
9256 (*pdfTeX)
9257 \setlength{\pdfhorigin}{1truein}%
9258 \setlength{\pdfvorigin}{1truein}%
9259 /pdfTeX)
9260 \ifportrait
9261 \ifdim\paperwidth=\z@
9262 \else
9263 \setlength{\pdfpagewidth}{\strip@pt\paperwidth truept}%
9264 \fi
9265 \ifdim\paperheight=\z@
9266 \else
9267 \setlength{\pdfpageheight}{\strip@pt\paperheight truept}%
9268 \fi
9269 \else
9270 \ifdim\paperheight=\z@
9271 \else
9272 \setlength{\pdfpagewidth}{\strip@pt\paperheight truept}%
9273 \fi
9274 \ifdim\paperwidth=\z@
9275 \else
9276 \setlength{\pdfpageheight}{\strip@pt\paperwidth truept}%
9277 \fi
9278 \fi
9279 }{%
9280 \ifnum\mag=\@m
9281 \ifdim\stockwidth>\z@
9282 \ifdim\stockheight>\z@
9283 \setlength{\pdfpagewidth}{\stockwidth}%
9284 \setlength{\pdfpageheight}{\stockheight}%
9285 \else
9286 \ifdim\paperwidth>\z@
9287 \ifdim\paperheight>\z@
9288 \setlength{\pdfpagewidth}{\paperwidth}%
9289 \setlength{\pdfpageheight}{\paperheight}%
9290 \fi
9291 \fi
9292 \fi
9293 \else
9294 \ifdim\stockwidth=\z@
9295 \ifdim\paperwidth>\z@
9296 \ifdim\paperheight>\z@
9297 \setlength{\pdfpagewidth}{\paperwidth}%
9298 \setlength{\pdfpageheight}{\paperheight}%
9299 \fi
9300 \fi
9301 \fi
9302 \fi
9303 \fi
9304 }%
9305 }%
9306 \Hy@DisableOption{setpagesize}%

```

```

9307 }
9308 </pdfTeX | xetex>
9309 <*pdfTeX>
9310 \def\Acrobatmenu#1#2{%
9311   \Hy@Acrobatmenu{#1}{#2}{%
9312     \leavevmode
9313     \EdefEscapeName\Hy@temp@menu{#1}%
9314     \pdfstartlink
9315     attr{%
9316       \Hy@setpdfborder
9317       \Hy@setpdfhighlight
9318       \ifx\@menubordercolor\relax
9319         \else
9320         /C[\@menubordercolor]%
9321       \fi
9322     }%
9323     user{%
9324       /Subtype/Link%
9325       \ifHy@pdfa /F 4\fi
9326       /A<<%
9327       /S/Named%
9328       /N/\Hy@temp@menu
9329       \Hy@href@nextactionraw
9330     >>%
9331     }%
9332     \relax
9333     \Hy@colorlink\@menucolor#2%
9334     \close@pdflink
9335   }%
9336 }

```

#### 44.2.1 Fix for problem with different nesting levels

`\AtBeginShipoutFirst` adds an additional box layer around the first output page. This disturbs pdfTeX's low level link commands `\pdfstartlink` and `\pdfendlink`, if a link is broken across the first and second output page.

The problem could be fixed by replacing `\AtBeginShipoutFirst`, because the box layer is not necessary for pdfTeX—no `\specials` need to be inserted. However it's easier to add an additional box level for the pages after the first one. Also `\AtBeginShipoutFirst` could be invoked independently from `hyperref`.

Since version 2011/10/05 v1.16 of package 'atbegshi' `\AtBeginShipoutFirst` does not add a additional box layer.

change 2020-10-01: the code has been removed as outdated.

```

9337 </pdfTeX>

```

### 44.3 hypertex

The HyperTeX specification (this is borrowed from an article by Arthur Smith) says that conformant viewers/translators must recognize the following set of `\special` commands:

**href:** `html:<a href = "href_string">`



**name:** html:<a name = "name\_string">

**end:** html:</a>

**image:** html:<img src = "href\_string">

**base\_name:** html:<base href = "href\_string">

The *href*, *name* and *end* commands are used to do the basic hypertext operations of establishing links between sections of documents. The *image* command is intended (as with current html viewers) to place an image of arbitrary graphical format on the page in the current location. The *base\_name* command is used to communicate to the *dvi* viewer the full (URL) location of the current document so that files specified by relative URL's may be retrieved correctly.

The *href* and *name* commands must be paired with an *end* command later in the T<sub>E</sub>X file — the T<sub>E</sub>X commands between the two ends of a pair form an *anchor* in the document. In the case of an *href* command, the *anchor* is to be highlighted in the *dvi* viewer, and when clicked on will cause the scene to shift to the destination specified by *href\_string*. The *anchor* associated with a name command represents a possible location to which other hypertext links may refer, either as local references (of the form href="#name\_string" with the *name\_string* identical to the one in the name command) or as part of a URL (of the form URL#name\_string). Here *href\_string* is a valid URL or local identifier, while name\_string could be any string at all: the only caveat is that “'” characters should be escaped with a backslash (\), and if it looks like a URL name it may cause problems.

```
9338 (*hypertex)
9339 \providecommand*\XR@ext{\dvi}
9340 \let\PDF@FinishDoc\ltx@empty
9341 \def\PDF@SetupDoc{%
9342   \ifx\@baseurl\@empty
9343   \else
9344     \special{html:<base href="\@baseurl">}}%
9345   \fi
9346 }
9347 \Hy@WrapperDef\hyper@anchor#1{%
9348   \Hy@SaveLastskip
9349   \Hy@VerboseAnchor{#1}%
9350   \begingroup
9351     \let\protect=\string
9352     \hyper@chars
9353     \special{html:<a name=%
9354       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}}%
9355   \endgroup
9356   \Hy@activeanchortrue
9357   \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
9358   \special{html:</a>}}%
9359   \Hy@activeanchorfalse
9360   \Hy@RestoreLastskip
9361 }
9362 \Hy@WrapperDef\hyper@anchorstart#1{%
9363   \Hy@SaveLastskip
9364   \Hy@VerboseAnchor{#1}%
```

```

9365 \begingroup
9366 \hyper@chars
9367 \special{html:<a name=%
9368 \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
9369 \endgroup
9370 \Hy@activeanchortrue
9371 }
9372 \def\hyper@anchorend{%
9373 \special{html:</a>}%
9374 \Hy@activeanchorfalse
9375 \Hy@RestoreLastskip
9376 }
9377 \def\@urltype{url}
9378 \def\hyper@linkstart#1#2{%
9379 \Hy@VerboseLinkStart{#1}{#2}%
9380 \expandafter\Hy@colorlink\csname @#1color\endcsname
9381 \def\Hy@tempa{#1}%
9382 \ifx\Hy@tempa\@urltype
9383 \special{html:<a href=\hyper@quote#2\hyper@quote>}%
9384 \else
9385 \begingroup
9386 \hyper@chars
9387 \special{html:<a href=%
9388 \hyper@quote\#\HyperDestNameFilter{#2}\hyper@quote>}%
9389 \endgroup
9390 \fi
9391 }
9392 \def\hyper@linkend{%
9393 \special{html:</a>}%
9394 \Hy@endcolorlink
9395 }
9396 \def\hyper@linkfile#1#2#3{%
9397 \hyper@linkurl{#1}{\Hy@linkfileprefix#2\ifx\\#3\\\else\##3\fi}%
9398 }
9399 \def\hyper@linkurl#1#2{%

```

If we want to raise up the final link `\special`, we need to get its height; ask me why `LATEX` constructs make this totally foul up, and make us revert to basic `TEX`. I do not know.

```

9400 \leavevmode
9401 \ifHy@raiselinks
9402 \Hy@SaveSpaceFactor
9403 \Hy@SaveSavedSpaceFactor
9404 \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
9405 \Hy@RestoreSavedSpaceFactor
9406 \@linkdim\dp\@tempboxa
9407 \lower\@linkdim\hbox{%
9408 \hyper@chars
9409 \special{html:<a href=\hyper@quote#2\hyper@quote>}%
9410 }%
9411 \Hy@colorlink\@urlcolor
9412 \Hy@RestoreSpaceFactor
9413 #1%
9414 \Hy@SaveSpaceFactor

```

```
9415 \@linkdim\ht\@tempboxa
```

Because of the interaction with the dvihps processor, we have to subtract a little from the height. This is not clean, or checked. Check with Mark Doyle about what gives here. It may not be needed with the new dvips (Jan 1997).

```
9416 \advance\@linkdim by -6.5\p@
9417 \raise\@linkdim\hbox{\special{html:</a>}}%
9418 \Hy@endcolorlink
9419 \Hy@RestoreSpaceFactor
9420 \else
9421 \begingroup
9422 \hyper@chars
9423 \special{html:<a href=\hyper@quote#2\hyper@quote>}%
9424 \Hy@colorlink\@urlcolor#1\Hy@xspace@end
9425 \special{html:</a>}%
9426 \Hy@endcolorlink
9427 \endgroup
9428 \fi
9429 }
```

Very poor implementation of `\hyper@link` without considering `#1`.

```
9430 \def\hyper@link#1#2#3{%
9431 \Hy@VerboseLinkStart{#1}{#2}%
9432 \hyper@linkurl{#3}{\# \Hy@HyperDestNameFilter{#2}}%
9433 }

9434 \def\hyper@image#1#2{%
9435 \begingroup
9436 \hyper@chars
9437 \special{html:<img src=\hyper@quote#1\hyper@quote>}%
9438 \endgroup
9439 }
9440 </hypertex>
9441 <*dviwindo>
```

## 44.4 dviwindo

[This was developed by David Carlisle]. Within a file `dviwindo` hyperlinking is used, for external URL's a call to `\wwwbrowser` is made. (You can define this command before or after loading the `hyperref` package if the default `c:/netscape/netscape` is not suitable) `Dviwindo` could in fact handle external links to dvi files on the same machine without calling a web browser, but that would mean parsing the URL to recognise such, and this is currently not done.

This was more or less blindly copied from the `hypertex` cfg. For `dviwindo`,  $\text{\LaTeX}$  must specify the size of the active area for links. For some hooks this information is available but for some, the start and end of the link are specified separately in which case a fixed size area of 10000000sp wide by `\baselineskip` high is used.

```
9442 \providecommand*\XR@ext}{dvi}
9443 \providecommand*\wwwbrowser{c:\string\netscape\string\netscape}
9444 \Hy@WrapperDef\hyper@anchor#1{%
9445 \Hy@SaveLastskip
9446 \Hy@VerboseAnchor{#1}%
9447 \begingroup
```

```

9448 \let\protect=\string
9449 \special{mark: #1}%
9450 \endgroup
9451 \Hy@activeanchortrue
9452 \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
9453 \Hy@activeanchorfalse
9454 \Hy@RestoreLastskip
9455 }
9456 \Hy@WrapperDef\hyper@anchorstart#1{%
9457 \Hy@SaveLastskip
9458 \Hy@VerboseAnchor{#1}%
9459 \special{mark: #1}%
9460 \Hy@activeanchortrue
9461 }
9462 \def\hyper@anchorend{%
9463 \Hy@activeanchorfalse
9464 \Hy@RestoreLastskip
9465 }
9466 \def\hyper@linkstart#1#2{%
9467 \Hy@VerboseLinkStart{#1}{#2}%
9468 \expandafter\Hy@colorlink\csname @#1color\endcsname
9469 \special{button: %
9470 10000000 %
9471 \number\baselineskip\space
9472 #2%
9473 }%
9474 }
9475 \def\hyper@linkend{%
9476 \Hy@endcolorlink
9477 }
9478 \def\hyper@link#1#2#3{%
9479 \Hy@VerboseLinkStart{#1}{#2}%
9480 \leavevmode
9481 \ifHy@raiselinks
9482 \Hy@SaveSpaceFactor
9483 \Hy@SaveSavedSpaceFactor
9484 \sbox\@tempboxa{\Hy@RestoreSpaceFactor#3}%
9485 \Hy@RestoreSavedSpaceFactor
9486 \@linkdim\dp\@tempboxa
9487 \lower\@linkdim\hbox{%
9488 \special{button: %
9489 \number\wd\@tempboxa\space
9490 \number\ht\@tempboxa\space
9491 #2%
9492 }%
9493 \expandafter\Hy@colorlink\csname @#1color\endcsname
9494 \Hy@RestoreSpaceFactor
9495 #3\Hy@xspace@end
9496 \Hy@SaveSpaceFactor
9497 \Hy@endcolorlink
9498 }%
9499 \@linkdim\ht\@tempboxa
9500 \advance\@linkdim by -6.5\p@
9501 \raise\@linkdim\hbox{}}%

```

```

9502 \Hy@RestoreSpaceFactor
9503 \else
9504 \special{button: %
9505 \number\wd\@tempboxa\space
9506 \number\ht\@tempboxa\space
9507 #2%
9508 }%
9509 \expandafter\Hy@colorlink\csname @#1color\endcsname
9510 #3\Hy@xspace@end
9511 \Hy@endcolorlink
9512 \fi
9513 }
9514 \def\hyper@linkurl#1#2{%
9515 \begingroup
9516 \hyper@chars
9517 \leavevmode
9518 \ifHy@raiselinks
9519 \Hy@SaveSpaceFactor
9520 \Hy@SaveSavedSpaceFactor
9521 \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
9522 \Hy@RestoreSavedSpaceFactor
9523 \@linkdim\dp\@tempboxa
9524 \lower\@linkdim\hbox{%
9525 \special{button: %
9526 \number\wd\@tempboxa\space
9527 \number\ht\@tempboxa\space
9528 launch: \wwwbrowser\space
9529 #2%
9530 }%
9531 \Hy@colorlink\@urlcolor
9532 \Hy@RestoreSpaceFactor
9533 #1\Hy@xspace@end
9534 \Hy@SaveSpaceFactor
9535 \Hy@endcolorlink
9536 }%
9537 \@linkdim\ht\@tempboxa
9538 \advance\@linkdim by -6.5\p@
9539 \raise\@linkdim\hbox{}}%
9540 \Hy@RestoreSpaceFactor
9541 \else
9542 \special{button: %
9543 \number\wd\@tempboxa\space
9544 \number\ht\@tempboxa\space
9545 launch: \wwwbrowser\space
9546 #2%
9547 }%
9548 \Hy@colorlink\@urlcolor
9549 #1\Hy@xspace@end
9550 \Hy@endcolorlink
9551 \fi
9552 \endgroup
9553 }
9554 \def\hyper@linkfile#1#2#3{%
9555 \begingroup

```

```

9556 \hyper@chars
9557 \leavevmode
9558 \ifHy@raiselinks
9559 \Hy@SaveSpaceFactor
9560 \Hy@SaveSavedSpaceFactor
9561 \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
9562 \Hy@RestoreSavedSpaceFactor
9563 \@linkdim\dp\@tempboxa
9564 \lower\@linkdim\hbox{%
9565 \special{button: %
9566 \number\wd\@tempboxa\space
9567 \number\ht\@tempboxa\space
9568 #3,%
9569 file: #2%
9570 }%
9571 \Hy@colorlink\@filecolor
9572 \Hy@RestoreSpaceFactor
9573 #1\Hy@xspace@end
9574 \Hy@SaveSpaceFactor
9575 \Hy@endcolorlink
9576 }%
9577 \@linkdim\ht\@tempboxa
9578 \advance\@linkdim by -6.5\p@
9579 \raise\@linkdim\hbox{}}%
9580 \Hy@RestoreSpaceFactor
9581 \else
9582 \special{button: %
9583 \number\wd\@tempboxa\space
9584 \number\ht\@tempboxa\space
9585 #3,%
9586 file: #2%
9587 }%
9588 \Hy@colorlink\@filecolor
9589 #1\Hy@xspace@end
9590 \Hy@endcolorlink
9591 \fi
9592 \endgroup
9593 }
9594 \HyInfo@AddonUnsupportedtrue
9595 \def\PDF@FinishDoc{%
9596 \Hy@UseMaketitleInfos
9597 \HyInfo@TrappedUnsupported
9598 \special{PDF: Keywords \@pdfkeywords}%
9599 \special{PDF: Title \@pdftitle}%
9600 \special{PDF: Creator \@pdfcreator}%
9601 \ifx\@pdfcreationdate\@empty
9602 \else
9603 \special{PDF: CreationDate \@pdfcreationdate}%
9604 \fi
9605 \ifx\@pdfmoddate\@empty
9606 \else
9607 \special{PDF: ModDate \@pdfmoddate}%
9608 \fi
9609 \special{PDF: Author \@pdfauthor}%

```

```

9610 \ifx\@pdfproducer\relax
9611 \else
9612 \special{PDF: Producer \@pdfproducer}%
9613 \fi
9614 \special{PDF: Subject \@pdfsubject}%
9615 \Hy@DisableOption{pdfauthor}%
9616 \Hy@DisableOption{pdftitle}%
9617 \Hy@DisableOption{pdfsubject}%
9618 \Hy@DisableOption{pdfcreator}%
9619 \Hy@DisableOption{addtopdfcreator}%
9620 \Hy@DisableOption{pdfcreationdate}%
9621 \Hy@DisableOption{pdfcreationdate}%
9622 \Hy@DisableOption{pdfmoddate}%
9623 \Hy@DisableOption{pdfproducer}%
9624 \Hy@DisableOption{pdfkeywords}%
9625 \Hy@DisableOption{pdftrapped}%
9626 \Hy@DisableOption{pdfinfo}%
9627 }
9628 \def\PDF@SetupDoc{%
9629 \ifx\@baseurl\@empty
9630 \else
9631 \special{PDF: Base \@baseurl}%
9632 \fi
9633 \ifx\@pdfpagescrop\@empty\else
9634 \special{PDF: BBox \@pdfpagescrop}%
9635 \fi
9636 \def\Hy@temp{}%
9637 \ifx\@pdfstartpage\@empty
9638 \else
9639 \ifx\@pdfstartview\@empty
9640 \else
9641 \edef\Hy@temp{%
9642 ,Page=\@pdfstartpage
9643 ,View=\@pdfstartview
9644 }%
9645 \fi
9646 \fi
9647 \edef\Hy@temp{%
9648 \noexpand\pdfmark{%
9649 pdfmark=/DOCVIEW,%
9650 PageMode=/\@pdfpagemode
9651 \Hy@temp
9652 }%
9653 }%
9654 \Hy@temp
9655 \ifx\@pdfpagescrop\@empty
9656 \else
9657 \pdfmark{pdfmark=/PAGES,CropBox=\@pdfpagescrop}%
9658 \fi
9659 \edef\Hy@temp{%
9660 \ifHy@pdftoolbar\else /HideToolbar true\fi
9661 \ifHy@pdfmenubar\else /HideMenubar true\fi
9662 \ifHy@pdfwindowui\else /HideWindowUI true\fi
9663 \ifHy@pdfwindow /FitWindow true\fi

```

```

9664 \ifHy@pdfcenterwindow /CenterWindow true\fi
9665 \ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi
9666 \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
9667 \Hy@UseNameKey{Direction}\@pdfdirection
9668 \Hy@UseNameKey{ViewArea}\@pdfviewarea
9669 \Hy@UseNameKey{ViewClip}\@pdfviewclip
9670 \Hy@UseNameKey{PrintArea}\@pdfprintarea
9671 \Hy@UseNameKey{PrintClip}\@pdfprintclip
9672 \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
9673 \Hy@UseNameKey{Duplex}\@pdfduplex
9674 \ifx\@pdfpicktraybypdfsize\@empty
9675 \else
9676 /PickTrayByPDFSize \@pdfpicktraybypdfsize
9677 \fi
9678 \ifx\@pdfprintpagerange\@empty
9679 \else
9680 /PrintPageRange[\@pdfprintpagerange]%
9681 \fi
9682 \ifx\@pdfnumcopies\@empty
9683 \else
9684 /NumCopies \@pdfnumcopies
9685 \fi
9686 }%
9687 \pdfmark{pdfmark=/PUT,%
9688 Raw={%
9689 \string{Catalog}\string}<<%
9690 \ifx\Hy@temp\@empty
9691 \else
9692 /ViewerPreferences<<\Hy@temp>>%
9693 \fi
9694 \Hy@UseNameKey{PageLayout}\@pdfpagelayout
9695 \ifx\@pdflang\relax
9696 \else
9697 /Lang(\@pdflang)%
9698 \fi
9699 >>%
9700 }%
9701 }%
9702 }
9703 </dviwindo>
9704 <*\vipdfm | xetex>

```

## 44.5 dvipdfm/xetex dvi to PDF converter

Provided by Mark Wicks (mwicks@kettering.edu)

(x)dvipdfmx replaces destination names by numbers. This makes it impossible to link from an external document with xr-hyper, so from version 7.00j on this is suppressed with a config special.

```

9705 \special{dvipdfmx:config C 0x0010}
9706 \providecommand*\XR@ext}{pdf}
9707 \Hy@setbreaklinks{true}
9708 \def\HyPat@ObjRef{%
9709 @[\^ ]+ %

```



```

9710 }
9711 \newsavebox{\pdfm@box}
9712 \def\@pdfm@mark#1{\special{pdf:#1}}
9713 \Hy@WrapperDef\@pdfm@dest#1{%
9714   \Hy@SaveLastskip
9715   \Hy@VerboseAnchor{#1}%
9716   \beginngroup
9717     \Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}%
9718     \def\x{XYZ}%
9719     \ifx\x\@pdfview
9720       \def\x{XYZ @xpos @ypos null}%
9721     \else
9722       \def\x{FitH}%
9723       \ifx\x\@pdfview
9724         \def\x{FitH @ypos}%
9725       \else
9726         \def\x{FitBH}%
9727         \ifx\x\@pdfview
9728           \def\x{FitBH @ypos}%
9729         \else
9730           \def\x{FitV}%
9731           \ifx\x\@pdfview
9732             \def\x{FitV @xpos}%
9733           \else
9734             \def\x{FitBV}%
9735             \ifx\x\@pdfview
9736               \def\x{FitBV @xpos}%
9737             \else
9738               \def\x{Fit}%
9739               \ifx\x\@pdfview
9740                 \let\x\@pdfview
9741               \else
9742                 \def\x{FitB}%
9743                 \ifx\x\@pdfview
9744                   \let\x\@pdfview
9745                 \else
9746                   \def\x{FitR}%
9747                   \ifx\x\@pdfview
9748                     \Hy@Warning{'\pdfview=FitR' is not supported}%
9749                     \def\x{XYZ @xpos @ypos null}%
9750                   \else
9751                     \@onelevel@sanitize\@pdfview
9752                     \Hy@Warning{%
9753                       Unknown value '\@pdfview' for pdfview%
9754                     }%
9755                   \def\x{XYZ @xpos @ypos null}%
9756                 \fi
9757             \fi
9758           \fi
9759         \fi
9760       \fi
9761     \fi
9762   \fi
9763 \fi

```

```

9764 \pdfmark{dest (\Hy@pstringDest) [@thispage /\x]}%
9765 \endgroup
9766 \Hy@RestoreLastskip
9767 }
9768 \providecommand*\pdfview{XYZ}
9769 \providecommand*\pdfborder{0 0 1}
9770 \providecommand*\pdfborderstyle{}
9771 \def\hyper@anchor#1{%
9772 \pdfmark@dest{#1}%
9773 }
9774 \def\hyper@anchorstart#1{%
9775 \Hy@activeanchortrue
9776 \pdfmark@dest{#1}%
9777 }
9778 \def\hyper@anchorend{%
9779 \Hy@activeanchorfalse
9780 }
9781 \newcounter{Hy@AnnotLevel}
9782 \ifHy@ocgcolorlinks
9783 \def\OBJ@OCG@view{@OCG@view}%
9784 \pdfmark{%
9785 obj \OBJ@OCG@view <<%
9786 /Type/OCG%
9787 /Name(View)%
9788 /Usage<<%
9789 /Print<<%
9790 /PrintState/OFF%
9791 >>%
9792 /View<<%
9793 /ViewState/ON%
9794 >>%
9795 >>%
9796 >>%
9797 }%
9798 \pdfmark{close \OBJ@OCG@view}%
9799 \def\OBJ@OCG@print{@OCG@print}%
9800 \pdfmark{%
9801 obj \OBJ@OCG@print <<%
9802 /Type/OCG%
9803 /Name(Print)%
9804 /Usage<<%
9805 /Print<<%
9806 /PrintState/ON%
9807 >>%
9808 /View<<%
9809 /ViewState/OFF%
9810 >>%
9811 >>%
9812 >>%
9813 }%
9814 \pdfmark{close \OBJ@OCG@print}%
9815 \def\OBJ@OCGs{@OCGs}%
9816 \pdfmark{%

```

```

9817   obj \OBJ@OCGs [%
9818     \OBJ@OCG@view\space\OBJ@OCG@print
9819   ]%
9820 }%
9821 \@pdfm@mark{close \OBJ@OCGs}%
9822 \@pdfm@mark{%
9823   put @catalog <<%
9824     /OCProperties<<%
9825     /OCGs \OBJ@OCGs
9826     /D<<%
9827     /OFF[\OBJ@OCG@print]%
9828     /AS[%
9829       <<%
9830         /Event/View%
9831         /OCGs \OBJ@OCGs
9832         /Category[/View]%
9833       >>%
9834       <<%
9835         /Event/Print%
9836         /OCGs \OBJ@OCGs
9837         /Category[/Print]%
9838       >>%
9839       <<%
9840         /Event/Export%
9841         /OCGs \OBJ@OCGs
9842         /Category[/Print]%
9843       >>%
9844     ]%
9845   >>%
9846 >>%
9847 >>%
9848 }%
9849 \AtBeginShipout{%
9850   \setbox\AtBeginShipoutBox=\hbox{%
9851     \copy\AtBeginShipoutBox
9852     \@pdfm@mark{%
9853       put @resources <<%
9854         /Properties<<%
9855         /OCView \OBJ@OCG@view
9856         /OCPrint \OBJ@OCG@print
9857       >>%
9858     >>%
9859   }%
9860 }%
9861 }%
9862 \Hy@AtBeginDocument{%
9863   \def\Hy@colorlink#1{%
9864     \begingroup
9865     \ifHy@ocgcolorlinks
9866       \def\Hy@ocgcolor{#1}%
9867       \setbox0=\hbox\bgroup\color@begingroup
9868     \else
9869       \HyColor@UseColor#1%
9870     \fi

```

```

9871 }%
9872 \def\Hy@endcolorlink{%
9873   \ifHy@ocgcolorlinks
9874     \color@endgroup\egroup
9875     \mbox{%
9876       \@pdfm@mark{content /OC/OCPrint BDC}%
9877       \rlap{\copy0}%
9878       \@pdfm@mark{content EMC/OC/OCView BDC}%
9879       \begingroup
9880         \expandafter\HyColor@UseColor\Hy@ocgcolor
9881         \box0 %
9882       \endgroup
9883       \@pdfm@mark{content EMC}%
9884     }%
9885   \fi
9886 \endgroup
9887 }%
9888 }%
9889 \else
9890 \Hy@DisableOption{ocgcolorlinks}%
9891 \fi

```

Use primitive counter arithmetic here to avoid amsmath redefining \stepcounter (github issue/13)

```

9892 \def\Hy@BeginAnnot#1{%
9893   \global\advance\c@Hy@AnnotLevel\@ne
9894   \ifnum\c@Hy@AnnotLevel=\@ne
9895     #1%
9896   \fi
9897 }
9898 \def\Hy@endAnnot{%
9899   \ifnum\value{Hy@AnnotLevel}=\@ne
9900     \Hy@endcolorlink
9901     \@pdfm@mark{eann}%
9902   \fi
9903   \global\advance\c@Hy@AnnotLevel\m@ne
9904 }
9905 \def\Hy@undefinedname{UNDEFINED}
9906 \def\hyper@linkstart#1#2{%
9907   \Hy@VerboseLinkStart{#1}{#2}%
9908   \leavevmode
9909   \Hy@BeginAnnot{%
9910     \protected@edef\Hy@testname{#2}%
9911     \ifx\Hy@testname\@empty
9912       \Hy@Warning{%
9913         Empty destination name,\MessageBreak
9914         using '\Hy@undefinedname'%
9915       }%
9916     \let\Hy@testname\Hy@undefinedname
9917   \else
9918     \Hy@pstringdef\Hy@testname{%
9919       \expandafter\HyperDestNameFilter\expandafter{%
9920         \Hy@testname
9921       }%

```

```

9922 }%
9923 \fi
9924 \@pdfm@mark{%
9925   bann<<%
9926     /Type/Annot%
9927     /Subtype/Link%
9928     \ifHy@pdfa /F 4\fi
9929     \Hy@setpdfborder
9930     \Hy@setpdfhighlight
9931     \expandafter\ifx\csname @#1bordercolor\endcsname\relax
9932     \else
9933       /C[\csname @#1bordercolor\endcsname]%
9934     \fi
9935     /A<<%
9936     /S/GoTo%
9937     /D(\Hy@testname)%
9938     \Hy@href@nextactionraw
9939     >>%
9940   >>%
9941 }%
9942 \expandafter\Hy@colorlink\csname @#1color\endcsname
9943 }%
9944 }
9945 \def\hyper@linkend{\Hy@EndAnnot}%
9946 \def\hyper@link#1#2#3{%
9947   \hyper@linkstart{#1}{#2}#3\Hy@xspace@end\hyper@linkend
9948 }
9949 \def\hyper@linkfile#1#2#3{%
9950   \leavevmode
9951   \Hy@BeginAnnot{%
9952     \def\Hy@pstringF{#2}%
9953     \Hy@CleanupFile\Hy@pstringF
9954     \Hy@pstringdef\Hy@pstringF\Hy@pstringF
9955     \Hy@pstringdef\Hy@pstringD{#3}%
9956     \Hy@MakeRemoteAction
9957     \@pdfm@mark{%
9958       bann<<%
9959         /Type/Annot%
9960         /Subtype/Link%
9961         \ifHy@pdfa /F 4\fi
9962         \Hy@setpdfborder
9963         \Hy@setpdfhighlight
9964         \ifx\@filebordercolor\relax
9965         \else
9966           /C[\@filebordercolor]%
9967         \fi
9968         /A<<%
9969         /S/GoToR%
9970         /F(\Hy@pstringF)%
9971         /D%
9972         \ifx\@#3\%
9973           [\Hy@href@page\@pdfremotestartview]%
9974         \else
9975           (\Hy@pstringD)%

```

```

9976      \fi
9977      \Hy@SetNewWindow
9978      \Hy@href@nextactionraw
9979      >>%
9980      >>%
9981      }%
9982      \Hy@colorlink\@filecolor
9983      }%
9984      #1\Hy@xspace@end
9985      \Hy@EndAnnot
9986  }
9987  \def\@hyper@launch run:#1\|#2#3{% filename, anchor text linkname
9988      \leavevmode
9989      \Hy@BeginAnnot{%
9990          \Hy@pstringdef\Hy@pstringF{#1}%
9991          \Hy@pstringdef\Hy@pstringP{#3}%
9992          \@pdfm@mark{%
9993              bann<<%
9994              /Type/Annot%
9995              /Subtype/Link%
9996              \ifHy@pdfa /F 4\fi
9997              \Hy@setpdfborder
9998              \Hy@setpdfhighlight
9999              \ifx\@runbordercolor\relax
10000              \else
10001              /C[\@runbordercolor]%
10002              \fi
10003              /A<<%
10004              /F(\Hy@pstringF)%
10005              /S/Launch%
10006              \Hy@SetNewWindow
10007              \ifx\|#3\|%
10008              \else
10009              /Win<</P(\Hy@pstringP)/F(\Hy@pstringF)>>%
10010              \fi
10011              \Hy@href@nextactionraw
10012              >>%
10013              >>%
10014              }%
10015              \Hy@colorlink\@runcolor
10016              }%
10017              #2\Hy@xspace@end
10018              \Hy@EndAnnot
10019      }
10020  \def\hyper@linkurl#1#2{%
10021      \leavevmode
10022      \Hy@BeginAnnot{%
10023          \Hy@pstringdef\Hy@pstringURI{#2}%
10024          \@pdfm@mark{%
10025              bann<<%
10026              /Type/Annot%
10027              /Subtype/Link%
10028              \ifHy@pdfa /F 4\fi
10029              \Hy@setpdfborder

```

```

10030 \Hy@setpdfhighlight
10031 \ifx\@urlbordercolor\relax
10032 \else
10033 /C[\@urlbordercolor]%
10034 \fi
10035 /A<<%
10036 /S/URI%
10037 /URI(\Hy@pstringURI)%
10038 \ifHy@href@ismap
10039 /IsMap true%
10040 \fi
10041 \Hy@href@nextactionraw
10042 >>%
10043 >>%
10044 }%
10045 \Hy@colorlink\@urlcolor
10046 }%
10047 #1\Hy@xspace@end
10048 \Hy@EndAnnot
10049 }
10050 \def\Acrobatmenu#1#2{%
10051 \Hy@Acrobatmenu{#1}{#2}{%
10052 \Hy@BeginAnnot{%
10053 \EdefEscapeName\Hy@temp@menu{#1}%
10054 \@pdfm@mark{%
10055 bann<<%
10056 /Type/Annot%
10057 /Subtype/Link%
10058 \ifHy@pdfa /F 4\fi
10059 \Hy@setpdfborder
10060 \Hy@setpdfhighlight
10061 \ifx\@menubordercolor\relax
10062 \else
10063 /C[\@menubordercolor]%
10064 \fi
10065 /A<<%
10066 /S/Named%
10067 /N/\Hy@temp@menu
10068 \Hy@href@nextactionraw
10069 >>%
10070 >>%
10071 }%
10072 \Hy@colorlink\@menucolor
10073 }%
10074 #2\Hy@xspace@end
10075 \Hy@EndAnnot
10076 }%
10077 }
10078
10079 \def\PDF@FinishDoc{%
10080 \Hy@UseMaketitleInfos
10081 \Hy@Info@GenerateAddons
10082 \@pdfm@mark{%
10083 docinfo<<%

```

```

10084 /Title(\@pdftitle)%
10085 /Subject(\@pdfsubject)%
10086 /Creator(\@pdfcreator)%
10087 \ifx\@pdfcreationdate\@empty
10088 \else
10089 /CreationDate(\@pdfcreationdate)%
10090 \fi
10091 \ifx\@pdfmoddate\@empty
10092 \else
10093 /ModDate(\@pdfmoddate)%
10094 \fi
10095 /Author(\@pdfauthor)%
10096 \ifx\@pdfproducer\relax
10097 \else
10098 /Producer(\@pdfproducer)%
10099 \fi
10100 /Keywords(\@pdfkeywords)%
10101 \ifx\@pdftrapped\@empty
10102 \else
10103 /Trapped/\@pdftrapped
10104 \fi
10105 \HyInfo@Addons
10106 >>%
10107 }%
10108 \Hy@DisableOption{pdfauthor}%
10109 \Hy@DisableOption{pdftitle}%
10110 \Hy@DisableOption{pdfsubject}%
10111 \Hy@DisableOption{pdfcreator}%
10112 \Hy@DisableOption{addtopdfcreator}%
10113 \Hy@DisableOption{pdfcreationdate}%
10114 \Hy@DisableOption{pdfcreationdate}%
10115 \Hy@DisableOption{pdfmoddate}%
10116 \Hy@DisableOption{pdfproducer}%
10117 \Hy@DisableOption{pdfkeywords}%
10118 \Hy@DisableOption{pdftrapped}%
10119 \Hy@DisableOption{pdfinfo}%
10120 }
10121 \def\PDF@SetupDoc{%
10122 \edef\Hy@temp{%
10123 \ifHy@pdftoolbar\else /HideToolbar true\fi
10124 \ifHy@pdfmenubar\else /HideMenubar true\fi
10125 \ifHy@pdfwindowui\else /HideWindowUI true\fi
10126 \ifHy@pdfwindow /FitWindow true\fi
10127 \ifHy@pdfcenterwindow /CenterWindow true\fi
10128 \ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi
10129 \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
10130 \Hy@UseNameKey{Direction}\@pdfdirection
10131 \Hy@UseNameKey{ViewArea}\@pdfviewarea
10132 \Hy@UseNameKey{ViewClip}\@pdfviewclip
10133 \Hy@UseNameKey{PrintArea}\@pdfprintarea
10134 \Hy@UseNameKey{PrintClip}\@pdfprintclip
10135 \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
10136 \Hy@UseNameKey{Duplex}\@pdfduplex
10137 \ifx\@pdfpicktraybypdfsize\@empty

```



```

10138 \else
10139 /PickTrayByPDFSize \@pdfpicktraybypdfsize
10140 \fi
10141 \ifx\@pdfprintpagerange\@empty
10142 \else
10143 /PrintPageRange[\@pdfprintpagerange]%
10144 \fi
10145 \ifx\@pdfnumcopies\@empty
10146 \else
10147 /NumCopies \@pdfnumcopies
10148 \fi
10149 }%
10150 \Hy@pstringdef\Hy@pstringB{\@baseurl}%
10151 \@pdfm@mark{%
10152 docview<<%
10153 \ifx\@pdfstartpage\@empty
10154 \else
10155 \ifx\@pdfstartview\@empty
10156 \else
10157 /OpenAction[@page\@pdfstartpage\@pdfstartview]%
10158 \fi
10159 \fi
10160 \ifx\@baseurl\@empty
10161 \else
10162 /URI<</Base(\Hy@pstringB)>>%
10163 \fi
10164 /PageMode/\@pdfpagemode
10165 \ifx\Hy@temp\@empty
10166 \else
10167 /ViewerPreferences<<\Hy@temp>>%
10168 \fi
10169 \Hy@UseNameKey{PageLayout}\@pdfpagelayout
10170 \ifx\@pdflang\relax
10171 \else
10172 /Lang(\@pdflang)%
10173 \fi
10174 >>%
10175 }%
10176 \ifx\@pdfpagescrop\@empty
10177 \else
10178 \@pdfm@mark{put @pages <</CropBox[\@pdfpagescrop]>>}%
10179 \fi
10180 }
10181 </dvipdfm | xetex>
10182 <*dvipdfm | xetex>

```

\hyper@pagetransition

```

10183 \def\hyper@pagetransition{%
10184 \ifx\@pdfpagetransition\relax
10185 \else
10186 \ifx\@pdfpagetransition\@empty
10187 \else
10188 \special{pdf:put @thispage %
10189 <</Trans<</S/\@pdfpagetransition>>>>%

```

```

10190     }%
10191     \fi
10192 \fi
10193 }

```

\hyper@pageduration

```

10194 \def\hyper@pageduration{%
10195   \ifx\@pdfpageduration\relax
10196   \else
10197     \ifx\@pdfpageduration\@empty
10198     \else
10199       \special{pdf:put @thispage %
10200         <</Dur \@pdfpageduration>>%
10201       }%
10202     \fi
10203 \fi
10204 }

10205 \g@addto@macro\Hy@EveryPageBoxHook{%
10206   \hyper@pagetransition
10207   \hyper@pageduration
10208 }

10209 </dvipdfm | xetex>

```

XeTeX uses pdfTeX's method \pdfpagewidth and \pdfpageheight for setting the paper size.

```

10210 <*dvipdfm>
10211 \AtBeginShipoutFirst{%
10212   \ifHy@setpagesize
10213     \begingroup
10214     \ifnum\mag=\@m
10215       \ifdim\stockwidth>\z@
10216       \ifdim\stockheight>\z@
10217         \special{papersize=\the\stockwidth,\the\stockheight}%
10218       \else
10219         \ifdim\paperwidth>\z@
10220         \ifdim\paperheight>\z@
10221           \special{papersize=\the\paperwidth,\the\paperheight}%
10222         \fi
10223       \fi
10224     \fi
10225   \else
10226     \ifdim\stockwidth=\z@
10227     \ifdim\paperwidth>\z@
10228     \ifdim\paperheight>\z@
10229       \special{papersize=\the\paperwidth,\the\paperheight}%
10230     \fi
10231   \fi
10232 \fi
10233 \fi
10234 \fi
10235 \endgroup
10236 \fi
10237 \Hy@DisableOption{setpagesize}%

```

```

10238 }
10239 </dvipdfm>

```

## 44.6 VTeX typesetting system

Provided by MicroPress, May 1998. They require VTeX version 6.02 or newer; see <http://www.micropress-inc.com/> for details.

```

10240 <*vtexhtml>
10241 \providecommand*{\XR@ext}{htm}
10242 \RequirePackage{vtexhtml}
10243 \newif\if@Localurl
10244 \let\PDF@FinishDoc\ltx@empty
10245 \def\PDF@SetupDoc{%
10246   \ifx\@baseurl\@empty
10247   \else
10248     \special{!direct <base href="\@baseurl">}%
10249   \fi
10250 }
10251 \def\@urltype{url}
10252 \def\hyper@link#1#2#3{%
10253   \Hy@VerboseLinkStart{#1}{#2}%
10254   \leavevmode
10255   \special{!direct <a href=%
10256     \hyper@quote\hyper@hash\HyperDestNameFilter{#2}\hyper@quote>}%
10257   #3\Hy@xspace@end
10258   \special{!direct </a>}%
10259 }
10260 \def\hyper@linkurl#1#2{%
10261   \begingroup
10262   \hyper@chars
10263   \leavevmode
10264   \MathBSuppress=1\relax
10265   \special{!direct <a href=%
10266     \hyper@quote\HyperDestNameFilter{#2}\hyper@quote>}%
10267   #1\Hy@xspace@end
10268   \MathBSuppress=0\relax
10269   \special{!direct </a>}%
10270   \endgroup
10271 }
10272 \def\hyper@linkfile#1#2#3{%
10273   \hyper@linkurl{#1}{\Hy@linkfileprefix#2\ifx\\#3\\\else\##3\fi}%
10274 }
10275 \def\hyper@linkstart#1#2{%
10276   \Hy@VerboseLinkStart{#1}{#2}%
10277   \def\Hy@tempa{#1}\ifx\Hy@tempa\@urltype
10278     \@Localurltrue
10279     \special{!direct <a href=\hyper@quote#2\hyper@quote>}%
10280   \else
10281     \@Localurlfalse
10282   \begingroup
10283     \hyper@chars
10284     \special{!aref \HyperDestNameFilter{#2}}%
10285   \endgroup
10286   \fi

```

```

10287 }
10288 \def\hyper@linkend{%
10289   \if@Localurl
10290     \special{!endaref}%
10291   \else
10292     \special{!direct </a>}%
10293   \fi
10294 }
10295 \Hy@WrapperDef\hyper@anchorstart#1{%
10296   \Hy@SaveLastskip
10297   \Hy@VerboseAnchor{#1}%
10298   \begingroup
10299     \hyper@chars
10300     \special{!aname #1}%
10301     \special{!direct <a name=%
10302       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
10303   \endgroup
10304   \Hy@activeanchortrue
10305 }
10306 \def\hyper@anchorend{%
10307   \special{!direct </a>}%
10308   \Hy@activeanchorfalse
10309   \Hy@RestoreLastskip
10310 }
10311 \Hy@WrapperDef\hyper@anchor#1{%
10312   \Hy@SaveLastskip
10313   \Hy@VerboseAnchor{#1}%
10314   \begingroup
10315     \let\protect=\string
10316     \hyper@chars
10317     \leavevmode
10318     \special{!aname #1}%
10319     \special{!direct <a name=%
10320       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
10321   \endgroup
10322   \Hy@activeanchortrue
10323   \bgroup\anchor@spot\egroup
10324   \special{!direct </a>}%
10325   \Hy@activeanchorfalse
10326   \Hy@RestoreLastskip
10327 }
10328 \def\@Form[#1]{%
10329   \Hy@Message{Sorry, TeXpider does not yet support FORMs}%
10330 }
10331 \let\@endForm\ltx@empty
10332 \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
10333   \Hy@Message{Sorry, TeXpider does not yet support FORM gauges}%
10334 }
10335 \def\@TextField[#1]#2{% parameters, label
10336   \Hy@Message{Sorry, TeXpider does not yet support FORM text fields}%
10337 }
10338 \def\@CheckBox[#1]#2{% parameters, label
10339   \Hy@Message{Sorry, TeXpider does not yet support FORM checkboxes}%
10340 }

```

```

10341 \def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
10342 \Hy@Message{Sorry, TeXpider does not yet support FORM choice menus}%
10343 }
10344 \def\@PushButton[#1]#2{% parameters, label
10345 \Hy@Message{Sorry, TeXpider does not yet support FORM pushbuttons}%
10346 }
10347 \def\@Reset[#1]#2{%
10348 \Hy@Message{Sorry, TeXpider does not yet support FORMs}%
10349 }
10350 \def\@Submit[#1]#2{%
10351 \Hy@Message{Sorry, TeXpider does not yet support FORMs}%
10352 }
10353 \</vtexhtml>
10354 \<vtex>

```

VTeX version 6.68 supports `\mediawidth` and `\mediaheight`. The `\ifx` construct is better than a `\csname`, because it avoids the definition and the hash table entry of a previous undefined macro.

```

10355 \ifcsname mediaheight\endcsname
10356 \ifHy@setpagesize
10357 \providecommand*\VTeXInitMediaSize{%
10358 \ifnum\mag=\@m
10359 \ifdim\stockwidth>\z@
10360 \ifdim\stockheight>\z@
10361 \setlength\mediaheight\stockheight
10362 \setlength\mediawidth\stockwidth
10363 \else
10364 \ifdim\paperwidth>\z@
10365 \ifdim\paperheight>\z@
10366 \setlength\mediaheight\paperheight
10367 \setlength\mediawidth\paperwidth
10368 \fi
10369 \fi
10370 \fi
10371 \else
10372 \ifdim\stockwidth=\z@
10373 \ifdim\paperwidth>\z@
10374 \ifdim\paperheight>\z@
10375 \setlength\mediaheight\paperheight
10376 \setlength\mediawidth\paperwidth
10377 \fi
10378 \fi
10379 \fi
10380 \fi
10381 \fi
10382 }%
10383 \Hy@AtBeginDocument{\VTeXInitMediaSize}%
10384 \fi
10385 \Hy@DisableOption{setpagesize}%
10386 \fi

```

Older versions of VTeX require `xyz` in lower case.

```

10387 \providecommand*\@pdfview{xyz}
10388 \providecommand*\@pdfborder{0 0 1}

```

```

10389 \providecommand*\@pdfborderstyle{}
10390 \let\CurrentBorderColor\@linkbordercolor
10391 \Hy@WrapperDef\hyper@anchor#1{%
10392   \Hy@SaveLastskip
10393   \Hy@VerboseAnchor{#1}%
10394   \begingroup
10395     \let\protect=\string
10396     \hyper@chars
10397     \special{!aname \HyperDestNameFilter{#1};\@pdfview}%
10398   \endgroup
10399   \Hy@activeanchortrue
10400   \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
10401   \Hy@activeanchorfalse
10402   \Hy@RestoreLastskip
10403 }
10404 \Hy@WrapperDef\hyper@anchorstart#1{%
10405   \Hy@SaveLastskip
10406   \Hy@VerboseAnchor{#1}%
10407   \begingroup
10408     \hyper@chars
10409     \special{!aname \HyperDestNameFilter{#1};\@pdfview}%
10410   \endgroup
10411   \Hy@activeanchortrue
10412 }
10413 \def\hyper@anchorend{%
10414   \Hy@activeanchorfalse
10415   \Hy@RestoreLastskip
10416 }
10417 \def\@urltype{url}
10418 \def\Hy@undefinedname{UNDEFINED}
10419 \def\hyper@linkstart#1#2{%
10420   \Hy@VerboseLinkStart{#1}{#2}%
10421   \Hy@pstringdef\Hy@pstringURI{#2}%
10422   \expandafter\Hy@colorlink\csname @#1color\endcsname
10423   \ltx@ifundefined{#1bordercolor}{%
10424     \let\CurrentBorderColor\relax
10425   }{%
10426     \edef\CurrentBorderColor{%
10427       \csname @#1bordercolor\endcsname
10428     }%
10429   }%
10430   \def\Hy@tempa{#1}%
10431   \ifx\Hy@tempa\@urltype
10432     \special{!%
10433       aref <u=/Type/Action/S/URI/URI(\Hy@pstringURI)%
10434       \ifHy@href@ismap
10435         /IsMap true%
10436       \fi
10437       \Hy@href@nextactionraw
10438       >;%
10439       a=<%
10440       \ifHy@pdfa /F 4\fi
10441       \Hy@setpdfborder
10442       \ifx\CurrentBorderColor\relax

```

```

10443     \else
10444         /C [\CurrentBorderColor]%
10445     \fi
10446     >%
10447 }%
10448 \else
10449     \protected@edef\Hy@testname{#2}%
10450     \ifx\Hy@testname\@empty
10451         \Hy@Warning{%
10452             Empty destination name,\MessageBreak
10453             using `\'Hy@undefinedname'%
10454         }%
10455     \let\Hy@testname\Hy@undefinedname
10456 \fi
10457 \special{!%
10458     aref \expandafter\HyperDestNameFilter
10459         \expandafter{\Hy@testname};%
10460     a=<%
10461         \ifHy@pdfa /F 4\fi
10462         \Hy@setpdfborder
10463         \ifx\CurrentBorderColor\relax
10464             \else
10465                 /C [\CurrentBorderColor]%
10466             \fi
10467         >%
10468     }%
10469 \fi
10470 }
10471 \def\hyper@linkend{%
10472     \special{!endaref}%
10473     \Hy@endcolorlink
10474 }
10475 \def\hyper@linkfile#1#2#3{%
10476     \leavevmode
10477     \def\Hy@pstringF{#2}%
10478     \Hy@CleanupFile\Hy@pstringF
10479     \special{!%
10480         aref <%
10481             \ifnum\Hy@VTeXversion>753 \ifHy@pdfnewwindow n\fi\fi
10482             f=\Hy@pstringF>#3;%
10483             a=<%
10484                 \ifHy@pdfa /F 4\fi
10485                 \Hy@setpdfborder
10486                 \ifx\@filebordercolor\relax
10487                     \else
10488                         /C [\@filebordercolor]%
10489                     \fi
10490                 >%
10491             }%
10492             \Hy@colorlink\@filecolor
10493             #1\Hy@xspace@end
10494             \Hy@endcolorlink
10495         \special{!endaref}%
10496     }

```

```

10497 \def\hyper@linkurl#1#2{%
10498   \begingroup
10499   \Hy@pstringdef\Hy@pstringURI{#2}%
10500   \hyper@chars
10501   \leavevmode
10502   \special{!%
10503     aref <u=/Type/Action/S/URI/URI(\Hy@pstringURI)%
10504     \ifHy@href@ismap
10505       /IsMap true%
10506     \fi
10507     \Hy@href@nextactionraw
10508     >,%
10509     a=<%
10510     \ifHy@pdfa /F 4\fi
10511     \Hy@setpdfborder
10512     \ifx\@urlbordercolor\relax
10513     \else
10514       /C [\@urlbordercolor]%
10515     \fi
10516     >%
10517   }%
10518   \Hy@colorlink\@urlcolor
10519   #1\Hy@xspace@end
10520   \Hy@endcolorlink
10521   \special{!endaref}%
10522 \endgroup
10523 }
10524 \def\hyper@link#1#2#3{%
10525   \Hy@VerboseLinkStart{#1}{#2}%
10526   \ltx@ifundefined{@#1bordercolor}{%
10527     \let\CurrentBorderColor\relax
10528   }{%
10529     \edef\CurrentBorderColor{\csname @#1bordercolor\endcsname}%
10530   }%
10531   \leavevmode
10532   \protected@edef\Hy@testname{#2}%
10533   \ifx\Hy@testname\@empty
10534     \Hy@Warning{%
10535       Empty destination name,\MessageBreak
10536       using ``\Hy@undefinedname'%
10537     }%
10538     \let\Hy@testname\Hy@undefinedname
10539   \fi
10540   \special{!%
10541     aref \expandafter\HyperDestNameFilter
10542     \expandafter{\Hy@testname};%
10543     a=<%
10544     \ifHy@pdfa /F 4\fi
10545     \Hy@setpdfborder
10546     \ifx\CurrentBorderColor\relax
10547     \else
10548       /C [\CurrentBorderColor]%
10549     \fi
10550     >%

```



```

10551 }%
10552 \expandafter
10553 \Hy@colorlink\csname @#1color\endcsname
10554 #3\Hy@xspace@end
10555 \Hy@endcolorlink
10556 \special{!endaref}%
10557 }
10558 \def\hyper@image#1#2{%
10559 \hyper@linkurl{#2}{#1}%
10560 }
10561 \def\@hyper@launch run:#1\#2#3{%
10562 \Hy@pstringdef\Hy@pstringF{#1}%
10563 \Hy@pstringdef\Hy@pstringP{#3}%
10564 \leavevmode
10565 \special{!aref %
10566 <u=%
10567 /Type/Action%
10568 /S/Launch%
10569 /F(\Hy@pstringF)%
10570 \Hy@SetNewWindow
10571 \ifx\#3\%
10572 \else
10573 /Win<</F(\Hy@pstringF)/P(\Hy@pstringP)>>%
10574 \fi
10575 \Hy@href@nextactionraw
10576 >,%
10577 a=<%
10578 \ifHy@pdfa /F 4\fi
10579 \Hy@setpdfborder
10580 \ifx\@runbordercolor\relax
10581 \else
10582 /C[\@runbordercolor]%
10583 \fi
10584 >%
10585 }%
10586 \Hy@colorlink\@runcolor
10587 #2\Hy@xspace@end
10588 \Hy@endcolorlink
10589 \special{!endaref}%
10590 }
10591 \def\Acrobatmenu#1#2{%
10592 \EdefEscapeName\Hy@temp@menu{#1}%
10593 \Hy@Acrobatmenu{#1}{#2}{%
10594 \special{!%
10595 aref <u=/S /Named /N /\Hy@temp@menu>;%
10596 a=<%
10597 \ifHy@pdfa /F 4\fi
10598 \Hy@setpdfborder
10599 \ifx\@menubordercolor\relax
10600 \else
10601 /C[\@menubordercolor]%
10602 \fi
10603 >%
10604 }%

```

```

10605 \Hy@colorlink\@menucolor
10606 #2\Hy@xspace@end
10607 \Hy@endcolorlink
10608 \special{!endaref}%
10609 }%
10610 }

```

The following code (transition effects) is made by Alex Kostin.

The code below makes sense for  $\text{\TeX}$  7.02 or later.

Please never use  $\text{\@ifundefined{VTeXversion}}{..}{..}$  *globally*.

```

10611 \ifnum\Hy@VTeXversion<702 %
10612 \else
10613 \def\hyper@pagetransition{%
10614 \ifx\@pdfpagetransition\relax
10615 \else
10616 \ifx\@pdfpagetransition\@empty

```

Standard incantation.

1. Does an old entry have to be deleted? 2. If 1=yes, how to delete?

```

10617 \else
10618 \hvtex@parse@trans\@pdfpagetransition
10619 \fi
10620 \fi
10621 }%

```

I have to write an “honest” parser to convert raw PDF code into  $\text{\TeX}$   $\text{\special}$ .  
(AVK)

Syntax of  $\text{\TeX}$   $\text{\special{!trans <transition\_effect>}}$ :

```

<transition\_effect> ::= <transition\_style>[,<transition\_duration>]
<transition\_style> ::= <Blinds\_effect> | <Box\_effect> |
                     <Dissolve\_effect> | <Glitter\_effect> |
                     <Split\_effect> | <Wipe\_effect>
<Blinds\_effect> ::= B[<effect\_dimension>]
<Box\_effect> ::= X[<effect\_motion>]
<Dissolve\_effect> ::= D
<Glitter\_effect> ::= G[<effect\_direction>]
<Split\_effect> ::= S[<effect\_motion>][<effect\_dimension>]
<Wipe\_effect> ::= W[<effect\_direction>]
<Replace\_effect> ::= R
<effect\_direction> ::= <number>
<effect\_dimension> ::= H | V
<effect\_motion> ::= I | O
<transition\_duration> ::= <number>

```

Transition codes:

```

10622 \def\hvtex@trans@effect@Blinds{\def\hvtex@trans@code{B}}%
10623 \def\hvtex@trans@effect@Box{\def\hvtex@trans@code{X}}%
10624 \def\hvtex@trans@effect@Dissolve{\def\hvtex@trans@code{D}}%
10625 \def\hvtex@trans@effect@Glitter{\def\hvtex@trans@code{G}}%
10626 \def\hvtex@trans@effect@Split{\def\hvtex@trans@code{S}}%
10627 \def\hvtex@trans@effect@Wipe{\def\hvtex@trans@code{W}}%
10628 \def\hvtex@trans@effect@R{\def\hvtex@trans@code{R}}%

```

Optional parameters:

```

10629 \def\hvtex@par@dimension{/Dm}%

```

```

10630 \def\hvtex@par@direction{/Di}%
10631 \def\hvtex@par@duration{/D}%
10632 \def\hvtex@par@motion{/M}%

```

Tokenizer:

```

10633 \def\hvtex@gettoken{%
10634   \expandafter\hvtex@gettoken@\hvtex@buffer\@nil
10635 }%

```

Notice that tokens in the input buffer must be space delimited.

```

10636 \def\hvtex@gettoken@#1 #2\@nil{%
10637   \edef\hvtex@token{#1}%
10638   \edef\hvtex@buffer{#2}%
10639 }%
10640 \def\hvtex@parse@trans#1{%

```

Initializing code:

```

10641 \let\hvtex@trans@code\@empty
10642 \let\hvtex@param@dimension\@empty
10643 \let\hvtex@param@direction\@empty
10644 \let\hvtex@param@duration\@empty
10645 \let\hvtex@param@motion\@empty
10646 \edef\hvtex@buffer{#1\space}%

```

First token is the PDF transition name without escape.

```

10647 \hvtex@gettoken
10648 \ifx\hvtex@token\@empty

```

Leading space(s)?

```

10649 \ifx\hvtex@buffer\@empty

```

The buffer is empty, nothing to do.

```

10650 \else
10651   \hvtex@gettoken
10652 \fi
10653 \fi
10654 \csname hvtex@trans@effect@\hvtex@token\endcsname

```

Now is time to parse optional parameters.

```

10655 \hvtex@trans@params
10656 }%

```

Reentrant macro to parse optional parameters.

```

10657 \def\hvtex@trans@params{%
10658   \ifx\hvtex@buffer\@empty
10659   \else
10660     \hvtex@gettoken
10661     \let\hvtex@trans@par\hvtex@token
10662     \ifx\hvtex@buffer\@empty
10663     \else
10664       \hvtex@gettoken
10665       \ifx\hvtex@trans@par\hvtex@par@duration

```

/D is the effect duration in seconds. V<sub>T</sub>E<sub>X</sub> special takes it in milliseconds.

```

10666       \let\hvtex@param@duration\hvtex@token
10667     \else \ifx\hvtex@trans@par\hvtex@par@motion

```

/M can be either /I or /O

```
10668      \expandafter\edef\expandafter\hvtex@param@motion
10669      \expandafter{\expandafter\@gobble\hvtex@token}%
10670      \else \ifx\hvtex@trans@par\hvtex@par@dimension
```

/Dm can be either /H or /V

```
10671      \expandafter\edef\expandafter\hvtex@param@dimension
10672      \expandafter{\expandafter\@gobble\hvtex@token}%
10673      \else \ifx\hvtex@trans@par\hvtex@par@direction
```

Valid values for /Di are 0, 270, 315 (the Glitter effect) or 0, 90, 180, 270 (the Wipe effect).

```
10674      \let\hvtex@param@direction\hvtex@token
10675      \fi\fi\fi\fi
10676      \fi
10677      \fi
10678      \ifx\hvtex@buffer\@empty
10679      \let\next\hvtex@produce@trans
10680      \else
10681      \let\next\hvtex@trans@params
10682      \fi
10683      \next
10684 }%
```

Merge <transition\_effect> and issue the special when possible. Too lazy to validate optional parameters.

```
10685  \def\hvtex@produce@trans{%
10686  \let\vtex@trans@special\@empty
10687  \if S\hvtex@trans@code
10688  \edef\vtex@trans@special{\hvtex@trans@code
10689  \hvtex@param@dimension\hvtex@param@motion}%
10690  \else\if B\hvtex@trans@code
10691  \edef\vtex@trans@special{%
10692  \hvtex@trans@code\hvtex@param@dimension
10693  }%
10694  \else\if X\hvtex@trans@code
10695  \edef\vtex@trans@special{%
10696  \hvtex@trans@code\hvtex@param@motion
10697  }%
10698  \else\if W\hvtex@trans@code
10699  \edef\vtex@trans@special{%
10700  \hvtex@trans@code\hvtex@param@direction
10701  }%
10702  \else\if D\hvtex@trans@code
10703  \let\vtex@trans@special\hvtex@trans@code
10704  \else\if R\hvtex@trans@code
10705  \let\vtex@trans@special\hvtex@trans@code
10706  \else\if G\hvtex@trans@code
10707  \edef\vtex@trans@special{%
10708  \hvtex@trans@code\hvtex@param@direction
10709  }%
10710  \fi\fi\fi\fi\fi\fi
10711  \ifx\vtex@trans@special\@empty
10712  \else
10713  \ifx\hvtex@param@duration\@empty
```

```

10714 \else
10715 \setlength{\dimen@}{\hvtex@param@duration\p@}%

```

I'm not guilty of possible overflow.

```

10716 \multiply\dimen@\@m
10717 \edef\vtex@trans@special{%
10718 \vtex@trans@special,\strip@pt\dimen@
10719 }%
10720 \fi

```

And all the mess is just for this.

```

10721 \special{!trans \vtex@trans@special}%
10722 \fi
10723 }%

10724 \def\hyper@pageduration{%
10725 \ifx\@pdfpageduration\relax
10726 \else
10727 \ifx\@pdfpageduration\@empty
10728 \special{!duration-}%
10729 \else
10730 \special{!duration \@pdfpageduration}%
10731 \fi
10732 \fi
10733 }%
10734 \g@addto@macro\Hy@EveryPageBoxHook{%
10735 \hyper@pagetransition
10736 \hyper@pageduration
10737 }%
10738 \fi

```

Caution: In opposite to the other drivers, the argument of `\special{!onopen #1}` is a reference name. The VTeX's postscript mode will work with a version higher than 7.0x.

The command `\VTeXOS` is defined since version 7.45. Magic values encode the operating system:

- 1: WinTel
- 2: Linux
- 3: OS/2
- 4: MacOS
- 5: MacOS/X

```

10739 \ifx\@pdfproducer\relax
10740 \def\@pdfproducer{VTeX}%
10741 \ifnum\Hy@VTeXversion>\z@
10742 \count@\VTeXversion
10743 \divide\count@ 100 %
10744 \edef\@pdfproducer{\@pdfproducer\space v\the\count@}%
10745 \multiply\count@ -100 %
10746 \advance\count@\VTeXversion
10747 \edef\@pdfproducer{%
10748 \@pdfproducer
10749 .\ifnum\count@<10 0\fi\the\count@
10750 \ifx\VTeXOS\@undefined\else
10751 \ifnum\VTeXOS>0 %
10752 \ifnum\VTeXOS<6 %

```

```

10753      \space(
10754      \ifcase\VTexOS
10755      \or Windows\or Linux\or OS/2\or MacOS\or MacOS/X%
10756      \fi
10757      )%
10758      \fi
10759      \fi
10760      \fi
10761      ,\space
10762      \ifnum\OpMode=\@ne PDF\else PS\fi
10763      \space backend%
10764      \ifx\gexmode\@undefined\else
10765      \ifnum\gexmode>\z@\space with GeX\fi
10766      \fi
10767      }%
10768      \fi
10769      \fi

```

Current `!pdfinfo` key syntax:

Key	Field	Type
<b>a</b>	<b>Author</b>	String
<b>b</b>	<b>CropBox</b>	String
<b>c</b>	<b>Creator</b>	String
<b>k</b>	<b>Keywords</b>	String
<b>l</b>	<b>PageLayout</b>	PS
<b>p</b>	<b>PageMode</b>	PS
<b>r</b>	<b>Producer</b>	String
<b>s</b>	<b>Subject</b>	String
<b>t</b>	<b>Title</b>	String
<b>u</b>	<b>URI</b>	PS
<b>v</b>	<b>ViewPreferences</b>	PS

Note: PS objects that are dicts are in <<<.>>> (yuck; no choice).

```

10770 \def\PDF@SetupDoc{%
10771   \ifx\@pdfpagescrop\@empty
10772   \else
10773     \special{!pdfinfo b=<\@pdfpagescrop>}%
10774   \fi
10775   \ifx\@pdfstartpage\@empty
10776   \else
10777     \ifx\@pdfstartview\@empty
10778     \else
10779       \special{!onopen Page\@pdfstartpage}%
10780     \fi
10781   \fi
10782   \special{!pdfinfo p=</\@pdfpagemode>}%
10783   \ifx\@baseurl\@empty
10784   \else
10785     \special{!pdfinfo u=<<</Base (\@baseurl)>>>}%
10786   \fi
10787   \special{!pdfinfo v=<<<%
10788     \ifHy@pdftoolbar\else /HideToolbar true\fi
10789     \ifHy@pdfmenubar\else /HideMenubar true\fi
10790     \ifHy@pdfwindowui\else /HideWindowUI true\fi

```

```

10791 \ifHy@pdffitwindow /FitWindow true\fi
10792 \ifHy@pdfcenterwindow /CenterWindow true\fi
10793 \ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi
10794 \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
10795 \Hy@UseNameKey{Direction}\@pdfdirection
10796 \Hy@UseNameKey{ViewArea}\@pdfviewarea
10797 \Hy@UseNameKey{ViewClip}\@pdfviewclip
10798 \Hy@UseNameKey{PrintArea}\@pdfprintarea
10799 \Hy@UseNameKey{PrintClip}\@pdfprintclip
10800 \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
10801 \Hy@UseNameKey{Duplex}\@pdfduplex
10802 \ifx\@pdfpicktraybypdfsize\@empty
10803 \else
10804 /PickTrayByPDFSize \@pdfpicktraybypdfsize
10805 \fi
10806 \ifx\@pdfprintpagerange\@empty
10807 \else
10808 /PrintPageRange[\@pdfprintpagerange]%
10809 \fi
10810 \ifx\@pdfnumcopies\@empty
10811 \else
10812 /NumCopies \@pdfnumcopies
10813 \fi
10814 >>>}%
10815 \ifx\@pdfpagelayout\@empty
10816 \else
10817 \special{!pdfinfo l=</\@pdfpagelayout\space>}%
10818 \fi
10819 }%
10820 \HyInfo@AddonUnsupportedtrue
10821 \define@key{Hyp}{pdfcreationdate}{%
10822 \Hy@Warning{%
10823 VTeX does not support pdfcreationdate.\MessageBreak
10824 Therefore its setting is ignored%
10825 }%
10826 }
10827 \define@key{Hyp}{pdfmoddate}{%
10828 \Hy@Warning{%
10829 VTeX does not support pdfmoddate.\MessageBreak
10830 Therefore its setting is ignored%
10831 }%
10832 }
10833 \def\PDF@FinishDoc{%
10834 \Hy@UseMaketitleInfos
10835 \HyInfo@TrappedUnsupported
10836 \special{!pdfinfo a=<\@pdfauthor>}%
10837 \special{!pdfinfo t=<\@pdftitle>}%
10838 \special{!pdfinfo s=<\@pdfsubject>}%
10839 \special{!pdfinfo c=<\@pdfcreator>}%
10840 \ifx\@pdfproducer\relax
10841 \else
10842 \special{!pdfinfo r=<\@pdfproducer>}%
10843 \fi
10844 \special{!pdfinfo k=<\@pdfkeywords>}%

```

```

10845 \Hy@DisableOption{pdfauthor}%
10846 \Hy@DisableOption{pdftitle}%
10847 \Hy@DisableOption{pdfsubject}%
10848 \Hy@DisableOption{pdfcreator}%
10849 \Hy@DisableOption{addtopdfcreator}%
10850 \Hy@DisableOption{pdfcreationdate}%
10851 \Hy@DisableOption{pdfcreationdate}%
10852 \Hy@DisableOption{pdfmoddate}%
10853 \Hy@DisableOption{pdfproducer}%
10854 \Hy@DisableOption{pdfkeywords}%
10855 \Hy@DisableOption{pdftrapped}%
10856 \Hy@DisableOption{pdfinfo}%
10857 }
10858 </vtx>

```

## 44.7 Fix for Adobe bug number 466320

If a destination occurs at the very begin of a page, the destination is moved to the previous page by Adobe Distiller 5. As workaround Adobe suggests:

```

/showpage {
  //showpage
  clippath stroke erasepage
} bind def

```

But unfortunately this fix generates an empty page at the end of the document. Therefore another fix is used by writing some clipped text.

```

10859 <dviwindo>\def\literalps@out#1{\special{ps:#1}}%
10860 <packageEnd>\providecommand*{\Hy@DistillerDestFix}{-}
10861 <*pdfmark | dviwindo>
10862 \def\Hy@DistillerDestFix{%
10863   \begingroup
10864     \let\x\literalps@out

```

The fix has to be passed unchanged through GeX, if VTeX in PostScript mode with GeX is used.

```

10865   \ifnum \@ifundefined{OpMode}{0}{%
10866     \@ifundefined{gexmode}{0}{%
10867       \ifnum\gexmode>0 \OpMode\else 0\fi
10868     }>1 %
10869   \def\x##1{%
10870     \immediate\special{!=##1}%
10871   }%
10872   \fi
10873   \x{%
10874     /product where{%
10875       pop %
10876       product(Distiller)search{%
10877         pop pop pop %
10878         version(.)search{%
10879           exch pop exch pop%
10880           (3011)eq{%
10881             gsave %
10882             newpath 0 0 moveto closepath clip%

```



```

10883         /Courier findfont 10 scalefont setfont %
10884         72 72 moveto(.)show %
10885         grestore%
10886     }if%
10887     }{pop}ifelse%
10888     }{pop}ifelse%
10889     }if%
10890 }%
10891 \endgroup
10892 }
10893 </pdfmark | dviwindo>

```

## 44.8 Direct pdfmark support

Drivers that load `pdfmark.def` have to provide the correct macro definitions of

```

\@pdfproducer   for document information
\literalps@out   PostScript output
\headerps@out   PostScript output that goes in the header area

```

and the correct definitions of the following PostScript procedures:

```

H.S           start of anchor, link or rect
#1 H.A        end of anchor, argument=baselineskip in pt
#1 H.L        end of link, argument=baselineskip in pt
H.R           end of rect
H.B           raw rect code

```

```

10894 <*pdfmark>
10895 \Hy@breaklinks@unsupported
10896 \def\HyPat@ObjRef{%
10897   \[~{}]+\}%
10898 }
10899 \Hy@WrapperDef\hyper@anchor#1{%
10900   \Hy@SaveLastskip
10901   \Hy@VerboseAnchor{#1}%
10902   \begingroup
10903     \pdfmark[\anchor@spot]{%
10904       pdfmark=/DEST,%
10905       linktype=anchor,%
10906       View=/\@pdfview \@pdfviewparams,%
10907       DestAnchor={#1}%
10908     }%
10909   \endgroup
10910   \Hy@RestoreLastskip
10911 }
10912 \ltx@ifundefined{hyper@anchorstart}{\endinput}{}
10913 \Hy@WrapperDef\hyper@anchorstart#1{%
10914   \Hy@SaveLastskip
10915   \Hy@VerboseAnchor{#1}%
10916   \literalps@out{H.S}%
10917   \Hy@AllowHyphens
10918   \xdef\hyper@currentanchor{#1}%
10919   \Hy@activeanchortrue
10920 }

```

```

10921 \def\hyper@anchorend{%
10922 \literalps@out{\strip@pt@and@otherjunk\baselineskip\space H.A}%
10923 \pdfmark{%
10924 pdfmark=/DEST,%
10925 linktype=anchor,%
10926 View=/\@pdfview \@pdfviewparams,%
10927 DestAnchor=\hyper@currentanchor,%
10928 }%
10929 \Hy@activeanchorfalse
10930 \Hy@RestoreLastskip
10931 }
10932 \def\hyper@linkstart#1#2{%
10933 \Hy@VerboseLinkStart{#1}{#2}%
10934 \ifHy@breaklinks
10935 \else
10936 \leavevmode
10937 \ifmmode
10938 \def\Hy@LinkMath{$}%
10939 \else
10940 \let\Hy@LinkMath\ltx@empty
10941 \fi
10942 \Hy@SaveSpaceFactor
10943 \hbox\bgroup
10944 \Hy@RestoreSpaceFactor
10945 \Hy@LinkMath
10946 \fi
10947 \expandafter\Hy@colorlink\csname @#1color\endcsname
10948 \literalps@out{H.S}%
10949 \Hy@AllowHyphens
10950 \xdef\hyper@currentanchor{#2}%
10951 \gdef\hyper@currentlinktype{#1}%
10952 }
10953 \def\hyper@linkend{%
10954 \literalps@out{\strip@pt@and@otherjunk\baselineskip\space H.L}%
10955 \ltx@ifundefined{@\hyper@currentlinktype bordercolor}{%
10956 \let\Hy@tempcolor\relax
10957 }{%
10958 \edef\Hy@tempcolor{%
10959 \csname @\hyper@currentlinktype bordercolor\endcsname
10960 }%
10961 }%
10962 \pdfmark{%
10963 pdfmark=/ANN,%
10964 linktype=link,%
10965 Subtype=/Link,%
10966 PDFAFlags=4,%
10967 Dest=\hyper@currentanchor,%
10968 AcroHighlight=\@pdfhighlight,%
10969 Border=\@pdfborder,%
10970 BorderStyle=\@pdfborderstyle,%
10971 Color=\Hy@tempcolor,%
10972 Raw=H.B%
10973 }%
10974 \Hy@endcolorlink

```

```

10975 \ifHy@breaklinks
10976 \else
10977 \Hy@LinkMath
10978 \Hy@SaveSpaceFactor
10979 \egroup
10980 \Hy@RestoreSpaceFactor
10981 \fi
10982 }

```

We have to allow for `\baselineskip` having an optional stretch and shrink (you meet this in slide packages, for instance), so we need to strip off the junk. David Carlisle, of course, wrote this bit of code.

```

10983 \begingroup
10984 \catcode`P=12 %
10985 \catcode`T=12 %
10986 \lowercase{\endgroup
10987 \gdef\rem@ptetc#1.#2PT#3!{#1\ifnum#2>\z@.#2\fi}%
10988 }
10989 \def\strip@pt@and@otherjunk#1{\expandafter\rem@ptetc\the#1!}

```

`\hyper@pagetransition`

```

10990 \def\hyper@pagetransition{%
10991 \ifx\@pdfpagetransition\relax
10992 \else
10993 \ifx\@pdfpagetransition\@empty
10994 % 1. Does an old entry have to be deleted?
10995 % 2. If 1=yes, how to delete?
10996 \else
10997 \pdfmark{%
10998 pdfmark=/PUT,%
10999 Raw={%
11000 \string{ThisPage\string}%
11001 <</Trans << /S /\@pdfpagetransition\space >> >>%
11002 }%
11003 }%
11004 \fi
11005 \fi
11006 }

```

`\hyper@pageduration`

```

11007 \def\hyper@pageduration{%
11008 \ifx\@pdfpageduration\relax
11009 \else
11010 \ifx\@pdfpageduration\@empty
11011 % 1. Does an old entry have to be deleted?
11012 % 2. If 1=yes, how to delete?
11013 \else
11014 \pdfmark{%
11015 pdfmark=/PUT,%
11016 Raw={%
11017 \string{ThisPage\string}%
11018 <</Dur \@pdfpageduration>>%
11019 }%
11020 }%

```

```

11021 \fi
11022 \fi
11023 }

11024 \g@addto@macro\Hy@EveryPageBoxHook{%
11025 \hyper@pagetransition
11026 \hyper@pageduration
11027 }

11028 \def\hyper@image#1#2{%
11029 \hyper@linkurl{#2}{#1}%
11030 }
11031 \def\Hy@undefinedname{UNDEFINED}
11032 \def\hyper@link#1#2#3{%
11033 \Hy@VerboseLinkStart{#1}{#2}%
11034 \ltx@ifundefined{#1bordercolor}{%
11035 \let\Hy@tempcolor\relax
11036 }{%
11037 \edef\Hy@tempcolor{\csname @#1bordercolor\endcsname}%
11038 }%
11039 \begingroup
11040 \protected@edef\Hy@testname{#2}%
11041 \ifx\Hy@testname\@empty
11042 \Hy@Warning{%
11043 Empty destination name,\MessageBreak
11044 using \Hy@undefinedname'%
11045 }%
11046 \let\Hy@testname\Hy@undefinedname
11047 \fi
11048 \pdfmark[{#3}]{%
11049 Color=\Hy@tempcolor,%
11050 linktype={#1},%
11051 AcroHighlight=\@pdfhighlight,%
11052 Border=\@pdfborder,%
11053 BorderStyle=\@pdfborderstyle,%
11054 pdfmark=/ANN,%
11055 Subtype=/Link,%
11056 PDFAFlags=4,%
11057 Dest=\Hy@testname
11058 }%
11059 \endgroup
11060 }
11061 \newtoks\pdf@docset
11062 \def\PDF@FinishDoc{%
11063 \Hy@UseMaketitleInfos
11064 \Hy@Info@GenerateAddons
11065 \let\Hy@temp\@empty
11066 \ifx\@pdfcreationdate\@empty
11067 \else
11068 \def\Hy@temp{CreationDate=\@pdfcreationdate,}%
11069 \fi
11070 \ifx\@pdfmoddate\@empty
11071 \else
11072 \expandafter\def\expandafter\Hy@temp\expandafter{%
11073 \Hy@temp

```

```

11074     ModDate=\@pdfmoddate,%
11075 }%
11076 \fi
11077 \ifx\@pdfproducer\relax
11078 \else
11079   \expandafter\def\expandafter\Hy@temp\expandafter{%
11080     \Hy@temp
11081     Producer=\@pdfproducer,%
11082   }%
11083 \fi
11084 \expandafter
11085 \pdfmark\expandafter{%
11086   \Hy@temp
11087   pdfmark=/DOCINFO,%
11088   Title=\@pdftitle,%
11089   Subject=\@pdfsubject,%
11090   Creator=\@pdfcreator,%
11091   Author=\@pdfauthor,%
11092   Keywords=\@pdfkeywords,%
11093   Trapped=\@pdftrapped
11094 }%
11095 \ifx\HyInfo@Addons\@empty
11096 \else
11097   \pdfmark{%
11098     pdfmark=/DOCINFO,%
11099     Raw={\HyInfo@Addons}%
11100   }%
11101 \fi
11102 \Hy@DisableOption{pdfauthor}%
11103 \Hy@DisableOption{pdftitle}%
11104 \Hy@DisableOption{pdfsubject}%
11105 \Hy@DisableOption{pdfcreator}%
11106 \Hy@DisableOption{addtopdfcreator}%
11107 \Hy@DisableOption{pdfcreationdate}%
11108 \Hy@DisableOption{pdfcreationdate}%
11109 \Hy@DisableOption{pdfmoddate}%
11110 \Hy@DisableOption{pdfproducer}%
11111 \Hy@DisableOption{pdfkeywords}%
11112 \Hy@DisableOption{pdftrapped}%
11113 \Hy@DisableOption{pdfinfo}%
11114 }
11115 \def\PDF@SetupDoc{%
11116   \def\Hy@temp{}%
11117   \ifx\@pdfstartpage\@empty
11118   \else
11119     \ifx\@pdfstartview\@empty
11120     \else
11121       \edef\Hy@temp{%
11122         ,Page=\@pdfstartpage
11123         ,View=\@pdfstartview
11124       }%
11125     \fi
11126   \fi
11127   \edef\Hy@temp{%

```

```

11128 \noexpand\pdfmark{%
11129 pdfmark=/DOCVIEW,%
11130 PageMode=/\@pdfpagemode
11131 \Hy@temp
11132 }%
11133 }%
11134 \Hy@temp
11135 \ifx\@pdfpagescrop\@empty
11136 \else
11137 \pdfmark{pdfmark=/PAGES,CropBox=\@pdfpagescrop}%
11138 \fi
11139 \edef\Hy@temp{%
11140 \ifHy@pdftoolbar\else /HideToolbar true\fi
11141 \ifHy@pdfmenubar\else /HideMenubar true\fi
11142 \ifHy@pdfwindowui\else /HideWindowUI true\fi
11143 \ifHy@pdffitwindow /FitWindow true\fi
11144 \ifHy@pdfcenterwindow /CenterWindow true\fi
11145 \ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi
11146 \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
11147 \Hy@UseNameKey{Direction}\@pdfdirection
11148 \Hy@UseNameKey{ViewArea}\@pdfviewarea
11149 \Hy@UseNameKey{ViewClip}\@pdfviewclip
11150 \Hy@UseNameKey{PrintArea}\@pdfprintarea
11151 \Hy@UseNameKey{PrintClip}\@pdfprintclip
11152 \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
11153 \Hy@UseNameKey{Duplex}\@pdfduplex
11154 \ifx\@pdfpicktraybypdfsize\@empty
11155 \else
11156 /PickTrayByPDFSize \@pdfpicktraybypdfsize
11157 \fi
11158 \ifx\@pdfprintpagerange\@empty
11159 \else
11160 /PrintPageRange[\@pdfprintpagerange]%
11161 \fi
11162 \ifx\@pdfnumcopies\@empty
11163 \else
11164 /NumCopies \@pdfnumcopies
11165 \fi
11166 }%
11167 \Hy@pstringdef\Hy@pstringB{\@baseurl}%
11168 \pdfmark{%
11169 pdfmark=/PUT,%
11170 Raw={%
11171 \string{Catalog\string}<<%
11172 \ifx\Hy@temp\@empty
11173 \else
11174 /ViewerPreferences<<\Hy@temp>>%
11175 \fi
11176 \Hy@UseNameKey{PageLayout}\@pdfpagelayout
11177 \ifx\@pdflang\relax
11178 \else
11179 /Lang(\@pdflang)%
11180 \fi
11181 \ifx\@baseurl\@empty

```

```

11182     \else
11183     /URI<</Base(\Hy@pstringB)>>%
11184     \fi
11185     >>%
11186     }%
11187 }%
11188 }
11189 </pdfmark>
11190 <*pdfmarkbase>

```

We define a single macro, pdfmark, which uses the ‘keyval’ system to define the various allowable keys; these are *exactly* as listed in the pdfmark reference for Acrobat 3.0. The only addition is pdfmark which specifies the type of pdfmark to create (like ANN, LINK etc). The surrounding round and square brackets in the pdfmark commands are supplied, but you have to put in / characters as needed for the values.

```

11191 \newif\ifHy@pdfmarkerror
11192 \def\pdfmark{\@ifnextchar[{\pdfmark@}{\pdfmark@[]}}
11193 \def\pdfmark@[#1]#2{%
11194   \Hy@pdfmarkerrorfalse
11195   \edef\@processme{\noexpand\pdf@toks={\the\pdf@defaulttoks}}%
11196   \@processme
11197   \let\pdf@type\relax
11198   \let\pdf@objdef\ltx@empty
11199   \kvsetkeys{PDF}{#2}%
11200   \ifHy@pdfmarkerror
11201   \else
11202     \ifx\pdf@type\relax
11203       \Hy@WarningNoLine{no pdfmark type specified in #2!!}%
11204       \ifx\#1\%
11205         \else
11206           \pdf@rect{#1}%
11207         \fi
11208       \else
11209         \ifx\#1\%
11210           \literalps@out{%
11211             [%
11212             \ifx\pdf@objdef\ltx@empty
11213             \else
11214               /_objdef\string{\pdf@objdef\string}%
11215             \fi
11216             \the\pdf@toks\space\pdf@type\space pdfmark%
11217             ]%
11218           \else
11219             \ltx@ifundefined{@\pdf@linktype color}{%
11220               \Hy@colorlink\@linkcolor
11221             }{%
11222               \expandafter\Hy@colorlink
11223               \csname @\pdf@linktype color\endcsname
11224             }%
11225             \pdf@rect{#1}%
11226             \literalps@out{%
11227               [%
11228               \ifx\pdf@objdef\ltx@empty

```

```

11229         \else
11230         /_objdef\string{\pdf@objdef\string}%
11231         \fi
11232         \the\pdf@toks\space\pdf@type\space pdfmark%
11233     }%
11234     \Hy@endcolorlink
11235 \fi
11236 \fi
11237 \fi
11238 }

```

The complicated bit is working out the right enclosing rectangle of some piece of  $\text{\TeX}$  text, needed by the `/Rect` key. This solution originates with Toby Thain ([toby@netspace.net.au](mailto:toby@netspace.net.au)).

For the case `breaklinks` is enabled, I have added two hooks, the first one for package `setouterhbox`, it provides a hopefully better method without setting the text twice.

```
\usepackage[hyperref]{setouterhbox}
```

With the second hook, also you can set the text twice, e.g.:

```

\long\def\Hy@setouterhbox#1#2{\long\def\my@temp{#2}}
\def\Hy@breaklinksunhbox#1{\my@temp}

```

```

11239 \newsavebox{\pdf@box}
11240 \providecommand*{\Hy@setouterhbox}{\sbox}
11241 \providecommand*{\Hy@breaklinksunhbox}{\unhbox}
11242 \def\Hy@DEST{/DEST}
11243 \def\pdf@rect#1{%
11244     \begingroup
11245     \chardef\x=1 %
11246     \def\Hy@temp{#1}%
11247     \ifx\Hy@temp\ltx@empty
11248         \chardef\x=0 %
11249     \else
11250         \def\y{\anchor@spot}%
11251         \ifx\Hy@temp\y
11252             \def\y{\relax}%
11253         \ifx\anchor@spot\y
11254             \chardef\x=0 %
11255         \fi
11256     \fi
11257 \fi
11258 \expandafter\endgroup
11259 \ifcase\x
11260     \literalps@out{H.S}%
11261     \literalps@out{H.R}%
11262 \else
11263     \leavevmode
11264     \Hy@SaveSpaceFactor
11265     \ifmmode
11266         \def\Hy@LinkMath{$}%
11267     \else
11268         \let\Hy@LinkMath\ltx@empty

```



```

11269 \fi
11270 \ifHy@breaklinks
11271 \Hy@setouterhbox\pdf@box{%
11272 \Hy@RestoreSpaceFactor
11273 \Hy@LinkMath
11274 \Hy@AllowHyphens#1\Hy@xspace@end
11275 \Hy@LinkMath
11276 \Hy@SaveSpaceFactor
11277 }%
11278 \else
11279 \sbox\pdf@box{%
11280 \Hy@RestoreSpaceFactor
11281 \Hy@LinkMath
11282 #1\Hy@xspace@end
11283 \Hy@LinkMath
11284 \Hy@SaveSpaceFactor
11285 }%
11286 \fi
11287 \dimen@ht\pdf@box
11288 \ifdim\dp\pdf@box=\z@
11289 \literalps@out{H.S}%
11290 \else
11291 \lower\dp\pdf@box\hbox{\literalps@out{H.S}}%
11292 \fi

```

If the text has to be horizontal mode stuff then just unbox the saved box like this, which saves executing it twice, which can mess up counters etc (thanks DPC...).

```

11293 \ifHy@breaklinks
11294 \ifhmode
11295 \Hy@breaklinkssunhbox\pdf@box
11296 \else
11297 \box\pdf@box
11298 \fi
11299 \else
11300 \expandafter\box\pdf@box
11301 \fi

```

but if it can have multiple paragraphs you'd need one of these, but in that case the measured box size would be wrong anyway.

```

\ifHy@breaklinks#1\else\box\pdf@box\fi
\ifHy@breaklinks{#1}\else\box\pdf@box\fi

11302 \ifdim\dimen@=\z@
11303 \literalps@out{H.R}%
11304 \else
11305 \raise\dimen@\hbox{\literalps@out{H.R}}%
11306 \fi
11307 \Hy@RestoreSpaceFactor
11308 \fi
11309 \ifx\pdf@type\Hy@DEST
11310 \else
11311 \pdf@addtoksx{H.B}%
11312 \fi
11313 }

```

All the supplied material is stored in a token list; since I do not feel sure I quite understand these, things may not work as expected with expansion. We'll have to experiment.

```

11314 \newtoks\pdf@toks
11315 \newtoks\pdf@defaulttoks
11316 \pdf@defaulttoks={}
11317 \def\pdf@addtoks#1#2{%
11318   \edef\@processme{\pdf@toks{\the\pdf@toks/#2 #1}}%
11319   \@processme
11320 }
11321 \def\pdf@addtoksx#1{%
11322   \edef\@processme{\pdf@toks{\the\pdf@toks\space #1}}%
11323   \@processme
11324 }
11325 \def\PDFdefaults#1{%
11326   \pdf@defaulttoks={#1}%
11327 }

```

This is the list of allowed keys. See the Acrobat manual for an explanation.

```

11328 % what is the type of pdfmark?
11329 \define@key{PDF}{pdfmark}{\def\pdf@type{#1}}
11330 % what is the link type?
11331 \define@key{PDF}{linktype}{\def\pdf@linktype{#1}}
11332 \def\pdf@linktype{link}
11333 % named object?
11334 \define@key{PDF}{objdef}{\edef\pdf@objdef{#1}}
11335 \let\pdf@objdef\ltx@empty
11336 % parameter is a stream of PDF
11337 \define@key{PDF}{Raw}{\pdf@addtoksx{#1}}
11338 % parameter is a name
11339 \define@key{PDF}{Action}{\pdf@addtoks{#1}{Action}}
11340 % parameter is a array
11341 \define@key{PDF}{Border}{%
11342   \edef\Hy@temp{#1}%
11343   \ifx\Hy@temp\@empty
11344     \else
11345       \pdf@addtoks{[#1]\Hy@BorderArrayPatch}{Border}% hash-ok
11346     \fi
11347 }
11348 \let\Hy@BorderArrayPatch\@empty
11349 % parameter is a dictionary
11350 \define@key{PDF}{BorderStyle}{%
11351   \edef\Hy@temp{#1}%
11352   \ifx\Hy@temp\@empty
11353     \else
11354       \pdf@addtoks{<<#1>>}{BS}%
11355     \fi
11356 }
11357 % parameter is a array
11358 \define@key{PDF}{Color}{%
11359   \ifx\relax#1\relax
11360     \else
11361       \pdf@addtoks{[#1]}{Color}% hash-ok
11362     \fi

```

```

11363 }
11364 % parameter is a string
11365 \define@key{PDF}{Contents}{\pdf@addtoks{(#1)}{Contents}}
11366 % parameter is a integer
11367 \define@key{PDF}{Count}{\pdf@addtoks{#1}{Count}}
11368 % parameter is a array
11369 \define@key{PDF}{CropBox}{\pdf@addtoks{[#1]}{CropBox}}% hash-ok
11370 % parameter is a string
11371 \define@key{PDF}{DOSFile}{\pdf@addtoks{(#1)}{DOSFile}}
11372 % parameter is a string or file
11373 \define@key{PDF}{DataSource}{\pdf@addtoks{(#1)}{DataSource}}
11374 % parameter is a destination
11375 \define@key{PDF}{Dest}{%
11376   \Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}%
11377   \ifx\Hy@pstringDest\@empty
11378     \Hy@pdfmarkerrortrue
11379     \Hy@Warning{Destination with empty name ignored}%
11380   \else
11381     \pdf@addtoks{(\Hy@pstringDest) cvn}{Dest}%
11382   \fi
11383 }
11384 \define@key{PDF}{DestAnchor}{%
11385   \Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}%
11386   \ifx\Hy@pstringDest\@empty
11387     \Hy@pdfmarkerrortrue
11388     \Hy@Warning{Destination with empty name ignored}%
11389   \else
11390     \pdf@addtoks{(\Hy@pstringDest) cvn}{Dest}%
11391   \fi
11392 }
11393 % parameter is a string
11394 \define@key{PDF}{Dir}{\pdf@addtoks{(#1)}{Dir}}
11395 % parameter is a string
11396 \define@key{PDF}{File}{\pdf@addtoks{(#1)}{File}}
11397 % parameter is a int
11398 \define@key{PDF}{Flags}{\pdf@addtoks{#1}{Flags}}
11399 \define@key{PDF}{PDFAFlags}{%
11400   \ifHy@pdfa
11401     \pdf@addtoks{#1}{F}%
11402   \fi
11403 }
11404 % parameter is a name
11405 \define@key{PDF}{AcroHighlight}{%
11406   \begingroup
11407     \edef\x{#1}%
11408     \expandafter\endgroup\ifx\x\@empty
11409     \else
11410       \pdf@addtoks{#1}{H}%
11411     \fi
11412 }
11413 % parameter is a string
11414 \define@key{PDF}{ID}{\pdf@addtoks{[#1]}{ID}}% hash-ok
11415 % parameter is a string
11416 \define@key{PDF}{MacFile}{\pdf@addtoks{(#1)}{MacFile}}

```

```

11417 % parameter is a string
11418 \define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
11419 % parameter is a string
11420 \define@key{PDF}{Op}{\pdf@addtoks{(#1)}{Op}}
11421 % parameter is a Boolean
11422 \define@key{PDF}{Open}{\pdf@addtoks{#1}{Open}}
11423 % parameter is a integer or name
11424 \define@key{PDF}{Page}{\pdf@addtoks{#1}{Page}}
11425 % parameter is a name
11426 \define@key{PDF}{PageMode}{\pdf@addtoks{#1}{PageMode}}
11427 % parameter is a string
11428 \define@key{PDF}{Params}{\pdf@addtoks{(#1)}{Params}}
11429 % parameter is a array
11430 \define@key{PDF}{Rect}{\pdf@addtoks{[#1]}{Rect}}% hash-ok
11431 % parameter is a integer
11432 \define@key{PDF}{SrcPg}{\pdf@addtoks{#1}{SrcPg}}
11433 % parameter is a name
11434 \define@key{PDF}{Subtype}{\pdf@addtoks{#1}{Subtype}}
11435 % parameter is a string
11436 \define@key{PDF}{Title}{\pdf@addtoks{(#1)}{Title}}
11437 % parameter is a string
11438 \define@key{PDF}{Unix}{\pdf@addtoks{(#1)}{Unix}}
11439 % parameter is a string
11440 \define@key{PDF}{UnixFile}{\pdf@addtoks{(#1)}{UnixFile}}
11441 % parameter is an array
11442 \define@key{PDF}{View}{\pdf@addtoks{[#1]}{View}}% hash-ok
11443 % parameter is a string
11444 \define@key{PDF}{WinFile}{\pdf@addtoks{(#1)}{WinFile}}

```

These are the keys used in the DOCINFO section.

```

11445 \define@key{PDF}{Author}{\pdf@addtoks{(#1)}{Author}}
11446 \define@key{PDF}{Creator}{\pdf@addtoks{(#1)}{Creator}}
11447 \define@key{PDF}{CreationDate}{\pdf@addtoks{(#1)}{CreationDate}}
11448 \define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
11449 \define@key{PDF}{Producer}{\pdf@addtoks{(#1)}{Producer}}
11450 \define@key{PDF}{Subject}{\pdf@addtoks{(#1)}{Subject}}
11451 \define@key{PDF}{Keywords}{\pdf@addtoks{(#1)}{Keywords}}
11452 \define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
11453 \define@key{PDF}{Base}{\pdf@addtoks{(#1)}{Base}}
11454 \define@key{PDF}{URI}{\pdf@addtoks{#1}{URI}}
11455 \define@key{PDF}{Trapped}{%
11456   \edef\Hy@temp{#1}%
11457   \ifx\Hy@temp\@empty
11458     \else
11459       \pdf@addtoks{/#1}{Trapped}%
11460     \fi
11461 }
11462
11463 </pdfmarkbase>
11464 <*pdfmark>
11465 \def\Acrobatmenu#1#2{%
11466   \EdefEscapeName\Hy@temp@menu{#1}%
11467   \Hy@Acrobatmenu{#1}{#2}{%
11468     \pdfmark[{#2}]{%
11469       linktype=menu,%

```

```

11470 pdfmark=/ANN,%
11471 AcroHighlight=\@pdfhighlight,%
11472 Border=\@pdfborder,%
11473 BorderStyle=\@pdfborderstyle,%
11474 Color=\@menubordercolor,%
11475 Action={<</Subtype/Named/N/\Hy@temp@menu>>},%
11476 Subtype=/Link,%
11477 PDFAFlags=4%
11478 }%
11479 }%
11480 }

```

And now for some useful examples:

```

11481 \def\PDFNextPage{\@ifnextchar{\PDFNextPage@}{\PDFNextPage@[]}}
11482 \def\PDFNextPage@[#1]#2{%
11483   \pdfmark[{#2}]{%
11484     #1,%
11485     Border=\@pdfborder,%
11486     BorderStyle=\@pdfborderstyle,%
11487     Color=.2 .1 .5,%
11488     pdfmark=/ANN,%
11489     Subtype=/Link,%
11490     PDFAFlags=4,%
11491     Page=/Next%
11492   }%
11493 }
11494 \def\PDFPreviousPage{%
11495   \@ifnextchar{\PDFPreviousPage@}{\PDFPreviousPage@[]}%
11496 }
11497 \def\PDFPreviousPage@[#1]#2{%
11498   \pdfmark[{#2}]{%
11499     #1,%
11500     Border=\@pdfborder,%
11501     BorderStyle=\@pdfborderstyle,%
11502     Color=.4 .4 .1,%
11503     pdfmark=/ANN,%
11504     Subtype=/Link,%
11505     PDFAFlags=4,%
11506     Page=/Prev%
11507   }%
11508 }
11509 \def\PDFOpen#1{%
11510   \pdfmark{#1,pdfmark=/DOCVIEW}%
11511 }

```

This will only work if you use Distiller 2.1 or higher.

```

11512 \def\hyper@linkurl#1#2{%
11513   \begingroup
11514   \Hy@pstringdef\Hy@pstringURI{#2}%
11515   \hyper@chars
11516   \leavevmode
11517   \pdfmark[{#1}]{%
11518     pdfmark=/ANN,%
11519     linktype=url,%
11520     AcroHighlight=\@pdfhighlight,%

```

```

11521 Border=\@pdfborder,%
11522 BorderStyle=\@pdfborderstyle,%
11523 Color=\@urlbordercolor,%
11524 Action={<<%
11525   /Subtype/URI%
11526   /URI(\Hy@pstringURI)%
11527   \ifHy@href@ismap
11528   /IsMap true%
11529   \fi
11530 >>},%
11531 Subtype=/Link,%
11532 PDFAFlags=4%
11533 }%
11534 \endgroup
11535 }
11536 \def\hyper@linkfile#1#2#3{%
11537 \begingroup
11538 \def\Hy@pstringF{#2}%
11539 \Hy@CleanupFile\Hy@pstringF
11540 \Hy@pstringdef\Hy@pstringF\Hy@pstringF
11541 \Hy@pstringdef\Hy@pstringD{#3}%
11542 \Hy@MakeRemoteAction
11543 \leavevmode
11544 \pdfmark[{#1}]{%
11545   pdfmark=/ANN,%
11546   Subtype=/Link,%
11547   PDFAFlags=4,%
11548   AcroHighlight=\@pdfhighlight,%
11549   Border=\@pdfborder,%
11550   BorderStyle=\@pdfborderstyle,%
11551   linktype=file,%
11552   Color=\@filebordercolor,%
11553   Action={%
11554     <<%
11555     /S/GoToR%
11556     \Hy@SetNewWindow
11557     /F(\Hy@pstringF)%
11558     /D%
11559     \ifx\#3\%
11560       [\Hy@href@page\@pdfremotestartview]%
11561     \else
11562       (\Hy@pstringD)cvn%
11563     \fi
11564     \Hy@href@nextactionraw
11565     >>%
11566   }%
11567 }%
11568 \endgroup
11569 }
11570 \def\@hyper@launch run:#1\#2#3{%
11571 \begingroup
11572 \Hy@pstringdef\Hy@pstringF{#1}%
11573 \Hy@pstringdef\Hy@pstringP{#3}%
11574 \leavevmode

```

```

11575 \pdfmark[{#2}]{%
11576 pdfmark=/ANN,%
11577 Subtype=/Link,%
11578 PDFAMFlags=4,%
11579 AcroHighlight=\@pdfhighlight,%
11580 Border=\@pdfborder,%
11581 BorderStyle=\@pdfborderstyle,%
11582 linktype=run,%
11583 Color=\@runbordercolor,%
11584 Action={%
11585 <<%
11586 /S/Launch%
11587 \Hy@SetNewWindow
11588 /F(\Hy@pstringF)%
11589 \ifx\#3\%
11590 \else
11591 /Win<</P(\Hy@pstringP)/F(\Hy@pstringF)>>%
11592 \fi
11593 \Hy@href@nextactionraw
11594 >>%
11595 }%
11596 }%
11597 \endgroup
11598 }
11599 \pdfmark>

```

Unfortunately, some parts of the `pdfmark` PostScript code depend on vagaries of the dvi driver. We isolate here all the problems.

## 44.9 Rokicki's dvips

dvips thinks in 10ths of a big point, its coordinate space is resolution dependent, and its  $y$  axis starts at the top of the page. Other drivers can and will be different!

The work is done in `SDict`, because we add in some header definitions in a moment.

```

11600 <dvips>
11601 \providecommand*\XR@ext>{pdf}
11602 \let\Hy@raisedlink\ltx@empty
11603 \def\literalps@out#1{\special{ps:SDict begin #1 end}}%
11604 \def\headerps@out#1{\special{! #1}}%
11605 \input{pdfmark.def}%
11606 \ifx\@pdfproducer\relax
11607 \def\@pdfproducer{dvips + Distiller}%
11608 \fi
11609 \providecommand*\@pdfborder{0 0 1}
11610 \providecommand*\@pdfborderstyle{}
11611 \providecommand*\@pdfview{XYZ}
11612 \providecommand*\@pdfviewparams{ H.V}
11613 \def\Hy@BorderArrayPatch{BorderArrayPatch}
11614 \g@addto@macro\Hy@FirstPageHook{%
11615 \headerps@out{%

```

Unless I am going mad, this *appears* to be the relationship between the default

coordinate system (PDF), and dvips;

```
/DvipsToPDF { .01383701 div Resolution div } def
/PDFToDvips { .01383701 mul Resolution mul } def
```

the latter's coordinates are resolution dependent, but what that .01383701 is, who knows? well, almost everyone except me, I expect...And yes, Maarten Gelderman <mgelderman@econ.vu.nl> points out that its 1/72.27 (the number of points to an inch, big points to inch is 1/72). This also suggests that the code would be more understandable (and exact) if 0.013 div would be replaced by 72.27 mul, so here we go. If this isn't right, I'll revert it.

```
11616 /DvipsToPDF{72.27 mul Resolution div} def%
11617 /PDFToDvips{72.27 div Resolution mul} def%
11618 /BPToDvips{72 div Resolution mul}def
```

The values inside the /Border array are not taken literally, but interpreted by ghostscript using the resolution of the dvi driver. I don't know how other distiller programs behaves in this manner.

Note GhostScript changed its behaviour here and later versions do not need this scaling, so test the PostScript interpreter is GhostScript and if so check its version.

If using gs and release > 9.27 no-op, otherwise patch.

```
11619 product (Ghostscript) search {pop pop pop revision 927 gt}%
11620 {pop false} ifelse%
11621 {%
11622 /BorderArrayPatch{} def%
11623 }%
11624 {%
11625 /BorderArrayPatch{%
11626 [exch{%
11627 dup dup type/integertype eq exch type/realtype eq or%
11628 {BPToDvips}if%
11629 }forall]%
11630 }def%
11631 } ifelse
```

The rectangle around the links starts off *exactly* the size of the box; we will to make it slightly bigger, 1 point on all sides.

```
11632 /HyperBorder {1 PDFToDvips} def%
11633 /H.V {pdf@hoff pdf@voff null} def%
11634 /H.B {/Rect[pdf@llx pdf@lly pdf@urx pdf@ury]} def%
```

H.S (start of anchor, link, or rect) stores the *x* and *y* coordinates of the current point, in PDF coordinates

```
11635 /H.S {%
11636 currentpoint %
11637 HyperBorder add /pdf@lly exch def %
11638 dup DvipsToPDF 72 add /pdf@hoff exch def %
11639 HyperBorder sub /pdf@llx exch def%
11640 } def%
```

The calculation of upper left *y* is done without raising the point in  $\text{\TeX}$ , by simply adding on the current  $\backslash\text{baselineskip}$  to the current *y*. This is usually too much, so we remove a notional 2 points.



We have to see what the current baselineskip is, and convert it to the dvips coordinate system.

Argument: baselineskip in pt. The  $x$  and  $y$  coordinates of the current point, minus the baselineskip

```

11641 /H.L {%
11642 2 sub dup%
11643 /HyperBasePt exch def %
11644 PDFToDvips /HyperBaseDvips exch def %
11645 currentpoint %
11646 HyperBaseDvips sub /pdf@ury exch def%
11647 /pdf@urx exch def%
11648 } def%
11649 /H.A {%
11650 H.L %
11651 % |pdf@voff| = the distance from the top of the page to a point
11652 % |baselineskip| above the current point in PDF coordinates
11653 currentpoint exch pop %
11654 vsize 72 sub exch DvipsToPDF %
11655 HyperBasePt sub % baseline skip
11656 sub /pdf@voff exch def%
11657 } def%
11658 /H.R {%
11659 currentpoint %
11660 HyperBorder sub /pdf@ury exch def %
11661 HyperBorder add /pdf@urx exch def %
11662 % |pdf@voff| = the distance from the top of the page to the current point, in
11663 % PDF coordinates
11664 currentpoint exch pop vsize 72 sub %
11665 exch DvipsToPDF sub /pdf@voff exch def%
11666 } def%
11667 }%
11668 }
11669 \AtBeginShipoutFirst{%
11670 \ifHy@setpagesize
11671 \begingroup
11672 \ifnum\mag=\@m
11673 \ifdim\stockwidth>\z@
11674 \ifdim\stockheight>\z@
11675 \special{papersize=\the\stockwidth,\the\stockheight}%
11676 \else
11677 \ifdim\paperwidth>\z@
11678 \ifdim\paperheight>\z@
11679 \special{papersize=\the\paperwidth,\the\paperheight}%
11680 \fi
11681 \fi
11682 \fi
11683 \else
11684 \ifdim\stockwidth=\z@
11685 \ifdim\paperwidth>\z@
11686 \ifdim\paperheight>\z@
11687 \special{papersize=\the\paperwidth,\the\paperheight}%
11688 \fi
11689 \fi
11690 \fi

```

```

11691 \fi
11692 \fi
11693 \endgroup
11694 \fi
11695 \Hy@DisableOption{setpagesize}%
11696 }

11697 \def\setpdfinkmargin#1{%
11698 \begingroup
11699 \setlength{\dimen@}{#1}%
11700 \literalps@out{%
11701 /HyperBorder{\strip@pt\dimen@\space PDFToDvips}def%
11702 }%
11703 \endgroup
11704 }

11705 </dvips>

```

#### 44.10 VTeX's vtexpdfmark driver

This part is derived from the dvips (many names reflect this).

The origin seems to be the same as TeX's origin, 1 in from the left and 1 in downwards from the top. The direction of the  $y$  axis is downwards, the opposite of the dvips case. Units seems to be pt or bp.

```

11706 (*vtexpdfmark)
11707 \providecommand*\XR@ext}{pdf}
11708 \let\Hy@raisedlink\ltx@empty
11709 \def\literalps@out#1{\special{pS:#1}}%
11710 \def\headerps@out#1{\immediate\special{pS:#1}}%
11711 \input{pdfmark.def}%
11712 \ifx\@pdfproducer\relax
11713 \ifnum\OpMode=\@ne
11714 \def\@pdfproducer{VTeX}%
11715 \else
11716 \def\@pdfproducer{VTeX + Distiller}%
11717 \fi
11718 \fi
11719 \providecommand*\@pdfborder{0 0 1}
11720 \providecommand*\@pdfborderstyle{}
11721 \providecommand*\@pdfview{XYZ}
11722 \providecommand*\@pdfviewparams{ H.V}

11723 \g@addto@macro\Hy@FirstPageHook{%
11724 \headerps@out{%
11725 /vsize {\Hy@pageheight} def%

```

The rectangle around the links starts off *exactly* the size of the box; we will to make it slightly bigger, 1 point on all sides.

```

11726 /HyperBorder {1} def%
11727 /H.V {pdf@hoff pdf@voff null} def%
11728 /H.B {/Rect[pdf@llx pdf@lly pdf@urx pdf@ury]} def%

```

H.S (start of anchor, link, or rect) stores the  $x$  and  $y$  coordinates of the current point, in PDF coordinates:  $\text{pdf@lly} = Y_c - \text{HyperBorder}$ ,  $\text{pdf@hoff} = X_c + 72$ ,  $\text{pdf@llx} = X_c - \text{HyperBorder}$

```

11729 /H.S {%
11730   currentpoint %
11731   HyperBorder sub%
11732   /pdf@lly exch def %
11733   dup 72 add /pdf@hoff exch def %
11734   HyperBorder sub%
11735   /pdf@llx exch def%
11736 } def%

```

The  $x$  and  $y$  coordinates of the current point, minus the `\baselineskip`:  $\text{pdf@ury} = Y_c + \text{HyperBasePt} + \text{HyperBorder}$ ,  $\text{pdf@urx} = X_c + \text{HyperBorder}$

```

11737 /H.L {%
11738   2 sub%
11739   /HyperBasePt exch def %
11740   currentpoint %
11741   HyperBasePt add HyperBorder add%
11742   /pdf@ury exch def %
11743   HyperBorder add%
11744   /pdf@urx exch def%
11745 } def%
11746 /H.A {%
11747   H.L %
11748   currentpoint exch pop %
11749   vsize 72 sub exch %
11750   HyperBasePt add add%
11751   /pdf@voff exch def%
11752 } def%

```

$\text{pdf@ury} = Y_c + \text{HyperBorder}$ ,  $\text{pdf@urx} = X_c + \text{HyperBorder}$

```

11753 /H.R {%
11754   currentpoint %
11755   HyperBorder add%
11756   /pdf@ury exch def %
11757   HyperBorder add%
11758   /pdf@urx exch def %
11759   currentpoint exch pop vsize 72 sub add%
11760   /pdf@voff exch def%
11761 } def%
11762 }%
11763 }

```

```

11764 \def\setpdfinkmargin#1{%
11765   \begingroup
11766     \setlength{\dimen@}{#1}%
11767     \literalps@out{%
11768       /HyperBorder{\strip@pt\dimen@}def%
11769     }%
11770   \endgroup
11771 }
11772 \</vtxpdfmark>

```

## 44.11 Textures

```

11773 \<*textures>
11774 \providecommand*\XR@ext\pdf{

```

At the suggestion of Jacques Distler (distler@golem.ph.utexas.edu), try to derive a suitable driver for Textures. This was initially a copy of dvips, with some guesses about Textures behaviour. Ross Moore (ross@maths.mq.edu.au) has added modifications for better compatibility, and to support use of pdfmark.

Start by defining a macro that expands to the end-of-line character. This will be used to format the appearance of PostScript code, to enhance readability, and avoid excessively long lines which might otherwise become broken to bad places.

`\Hy@ps@CR` The macro `\Hy@ps@CR` contains the end-of-line character.

```
11775 \begingroup
11776 \obeylines %
11777 \gdef\Hy@ps@CR{\noexpand
11778 }%
11779 \endgroup %
```

Textures has two types of `\special` command for inserting PostScript code directly into the dvi output. The ‘postscript’ way preserves TeX’s idea of where on the page the `\special` occurred, but it wraps the contents with a **save-restore** pair, and adjusts the user-space coordinate system for local drawing commands. The ‘rawpostscript’ way simply inserts code, without regard for the location on the page.

Thus, to put arbitrary PostScript coding at a fixed location requires using *both* `\special` constructions. It works by pushing the device-space coordinates onto the operand stack, where they can be used to transform back to the correct user-space coordinates for the whole page, within a ‘rawpostscript’ `\special`.

```
11780 \def\literalps@out#1{%
11781 \special{postscript 0 0 transform}%
11782 \special{rawpostscript itransform moveto\Hy@ps@CR #1}%
11783 }%
11784 %
```

The ‘prepostscript’ is a 3rd kind of `\special`, used for inserting definitions into the dictionaries, before page-building begins. These are to be available for use on all pages.

```
11785 \def\headerps@out#1{%
11786 \special{%
11787 prepostscript TeXdict begin\Hy@ps@CR
11788 #1\Hy@ps@CR
11789 end%
11790 }%
11791 }%
11792 %
```

To correctly support the `pdfmark` method, for embedding PDF definitions with .ps files in a non-intrusive way, an appropriate definition needs to be made *before* the file `pdfmark.def` is read. Other parameters are best set afterwards.

```
11793 \g@addto@macro\Hy@FirstPageHook{%
11794 \headerps@out{%
11795 /betterpdfmark {%
11796 systemdict begin %
11797 dup /BP eq%
11798 {cleartomark gsave nulldevice []%
11799 {dup /EP eq%
```

```

11800      {cleartomark cleartomark grestore}%
11801      {cleartomark}%
11802      ifelse%
11803      }ifelse %
11804      end%
11805      }def\Hy@ps@CR
11806      ____pdfmark__ not{/pdfmark /betterpdfmark load def}if%
11807      }% end of \headerps@out
11808      }% end of \AtBeginShipoutFirst
11809      %
11810      \input{pdfmark.def}%
11811      %
11812      \ifx\@pdfproducer\relax
11813      \def\@pdfproducer{Textures + Distiller}%
11814      \fi
11815      \providecommand*\@pdfborder{0 0 1}
11816      \providecommand*\@pdfborderstyle{}
11817      \providecommand*\@pdfview{XYZ}
11818      \providecommand*\@pdfviewparams{ H.V}
11819      %

```

These are called at the start and end of unboxed links; their job is to leave available PS variables called `pdf@llx pdf@lly pdf@urx pdf@ury`, which are the coordinates of the bounding rectangle of the link, and `pdf@hoff pdf@voff` which are the PDF page offsets. The `Rect` pair are called at the LL and UR corners of a box known to  $\text{\TeX}$ .

```

11820 \Hy@AtBeginDocument{%
11821   \headerps@out{%

```

`Textures` lives in normal points, I think. So conversion from one coordinate system to another involves doing nothing.

```

11822   /vsize {\Hy@pageheight} def%
11823   /DvipsToPDF {} def%
11824   /PDFToDvips {} def%
11825   /BPTToDvips {} def%
11826   /HyperBorder { 1 PDFToDvips } def\Hy@ps@CR
11827   /H.V {pdf@hoff pdf@voff null} def\Hy@ps@CR
11828   /H.B {/Rect[pdf@llx pdf@lly pdf@urx pdf@ury]} def\Hy@ps@CR
11829   /H.S {%
11830     currentpoint %
11831     HyperBorder add /pdf@lly exch def %
11832     dup DvipsToPDF 72 add /pdf@hoff exch def %
11833     HyperBorder sub /pdf@llx exch def%
11834   } def\Hy@ps@CR
11835   /H.L {%
11836     2 sub %
11837     PDFToDvips /HyperBase exch def %
11838     currentpoint %
11839     HyperBase sub /pdf@ury exch def%
11840     /pdf@urx exch def%
11841   } def\Hy@ps@CR
11842   /H.A {%
11843     H.L %
11844     currentpoint exch pop %

```

```

11845     vsize 72 sub exch DvipsToPDF %
11846     HyperBase sub % baseline skip
11847     sub /pdf@voff exch def%
11848   } def\Hy@ps@CR
11849   /H.R {%
11850     currentpoint %
11851     HyperBorder sub /pdf@ury exch def %
11852     HyperBorder add /pdf@urx exch def %
11853     currentpoint exch pop vsize 72 sub %
11854     exch DvipsToPDF sub /pdf@voff exch def%
11855   } def\Hy@ps@CR
11856 }%
11857 }

11858 \def\setpdfinkmargin#1{%
11859   \begingroup
11860     \setlength{\dimen@}{#1}%
11861     \literalps@out{%
11862       /HyperBorder{\strip@pt\dimen@\space PDFToDvips}def%
11863     }%
11864   \endgroup
11865 }

11866 \Hy@AtBeginDocument{%
11867   \ifHy@colorlinks
11868     \headerps@out{/PDFBorder{/Border [0 0 0]}def}%
11869   \fi
11870 }

Textures provides built-in support for HyperTeX specials so this part combines
code from hypertex.def with what is established by loading pdfmark.def, or any
other driver.

11871 \expandafter\let\expandafter\keepPDF@SetupDoc
11872   \csname PDF@SetupDoc\endcsname
11873 \def\PDF@SetupDoc{%
11874   \ifx\@baseurl\@empty
11875     \else
11876       \special{html:<base href="\@baseurl">}%
11877     \fi
11878   \keepPDF@SetupDoc
11879 }

11880 \Hy@WrapperDef\hyper@anchor#1{%
11881   \Hy@SaveLastskip
11882   \Hy@VerboseAnchor{#1}%
11883   \begingroup
11884     \let\protect=\string
11885     \special{html:<a name=%
11886       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
11887   \endgroup
11888   \Hy@activeanchortrue
11889   \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
11890   \special{html:</a>}%
11891   \Hy@activeanchorfalse
11892   \Hy@RestoreLastskip
11893 }

```

```

11894 \Hy@WrapperDef\hyper@anchorstart#1{%
11895 \Hy@SaveLastskip
11896 \Hy@VerboseAnchor{#1}%
11897 \begingroup
11898 \hyper@chars
11899 \special{html:<a name=%
11900 \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}}%
11901 \endgroup
11902 \Hy@activeanchortrue
11903 }
11904 \def\hyper@anchorend{%
11905 \special{html:</a>}}%
11906 \Hy@activeanchorfalse
11907 \Hy@RestoreLastskip
11908 }
11909 \def\@urltype{url}
11910 \def\hyper@linkstart#1#2{%
11911 \Hy@VerboseLinkStart{#1}{#2}%
11912 \expandafter\Hy@colorlink\csname @#1color\endcsname
11913 \def\Hy@tempa{#1}%
11914 \ifx\Hy@tempa\@urltype
11915 \special{html:<a href=\hyper@quote#2\hyper@quote>}}%
11916 \else
11917 \begingroup
11918 \hyper@chars
11919 \special{%
11920 html:<a href=%
11921 \hyper@quote\# \HyperDestNameFilter{#2}\hyper@quote>}%
11922 }%
11923 \endgroup
11924 \fi
11925 }
11926 \def\hyper@linkend{%
11927 \special{html:</a>}}%
11928 \Hy@endcolorlink
11929 }
11930 \def\hyper@linkfile#1#2#3{%
11931 \hyper@linkurl{#1}{%
11932 \Hy@linkfileprefix#2\ifx\#3\\\else\##3\fi
11933 }%
11934 }
11935 \def\hyper@linkurl#1#2{%
11936 \leavevmode
11937 \ifHy@raiselinks
11938 \Hy@SaveSpaceFactor
11939 \Hy@SaveSavedSpaceFactor
11940 \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
11941 \Hy@RestoreSavedSpaceFactor
11942 \@linkdim\dp\@tempboxa
11943 \lower\@linkdim\hbox{%
11944 \hyper@chars
11945 \special{html:<a href=\hyper@quote#2\hyper@quote>}}%
11946 }%
11947 \Hy@colorlink\@urlcolor

```

```

11948 \Hy@RestoreSpaceFactor
11949 #1\Hy@xspace@end
11950 \Hy@SaveSpaceFactor
11951 \@linkdim\ht\@tempboxa
11952 \advance\@linkdim by -6.5\p@
11953 \raise\@linkdim\hbox{\special{html:</a>}}%
11954 \Hy@endcolorlink
11955 \Hy@RestoreSpaceFactor
11956 \else
11957 \begingroup
11958 \hyper@chars
11959 \special{html:<a href=\hyper@quote#2\hyper@quote>}%
11960 \Hy@colorlink\@urlcolor#1\Hy@xspace@end
11961 \special{html:</a>}%
11962 \Hy@endcolorlink
11963 \endgroup
11964 \fi
11965 }

```

Very poor implementation of \hyper@link without considering #1.

```

11966 \def\hyper@link#1#2#3{%
11967 \Hy@VerboseLinkStart{#1}{#2}%
11968 \hyper@linkurl{#3}{\#\Hy@HyperDestNameFilter{#2}}%
11969 }
11970 \def\hyper@image#1#2{%
11971 \begingroup
11972 \hyper@chars
11973 \special{html:<img src=\hyper@quote#1\hyper@quote>}%
11974 \endgroup
11975 }
11976 </textures>

```

## 44.12 dvipsone

```

11977 % \subsection{dvipsone driver}
11978 % Over-ride the default setup macro in pdfmark driver to use Y\&Y
11979 % |\special| commands.
11980 <*dvipsone>
11981 \providecommand*\XR@ext}{pdf}
11982 \let\Hy@raisedlink\ltx@empty
11983 \providecommand*\@pdfborder{0 0 1}
11984 \providecommand*\@pdfborderstyle{}
11985 \def\literalps@out#1{\special{ps:#1}}%
11986 \def\headerps@out#1{\special{headertext=#1}}%
11987 \input{pdfmark.def}%
11988 \HyInfo@AddonUnsupportedtrue
11989 \def\PDF@FinishDoc{%
11990 \Hy@UseMaketitleInfos
11991 \HyInfo@TrappedUnsupported
11992 \special{PDF: Keywords \@pdfkeywords}%
11993 \special{PDF: Title \@pdftitle}%
11994 \special{PDF: Creator \@pdfcreator}%
11995 \ifx\@pdfcreationdate\@empty
11996 \else

```



```

11997 \special{PDF: CreationDate \@pdfcreationdate}%
11998 \fi
11999 \ifx\@pdfmoddate\@empty
12000 \else
12001 \special{PDF: ModDate \@pdfmoddate}%
12002 \fi
12003 \special{PDF: Author \@pdfauthor}%
12004 \ifx\@pdfproducer\relax
12005 \else
12006 \special{PDF: Producer \@pdfproducer}%
12007 \fi
12008 \special{PDF: Subject \@pdfsubject}%
12009 \Hy@DisableOption{pdfauthor}%
12010 \Hy@DisableOption{pdftitle}%
12011 \Hy@DisableOption{pdfsubject}%
12012 \Hy@DisableOption{pdfcreator}%
12013 \Hy@DisableOption{addtopdfcreator}%
12014 \Hy@DisableOption{pdfcreationdate}%
12015 \Hy@DisableOption{pdfcreationdate}%
12016 \Hy@DisableOption{pdfmoddate}%
12017 \Hy@DisableOption{pdfproducer}%
12018 \Hy@DisableOption{pdfkeywords}%
12019 \Hy@DisableOption{pdftrapped}%
12020 \Hy@DisableOption{pdfinfo}%
12021 }
12022 \def\PDF@SetupDoc{%
12023 \def\Hy@temp{}%
12024 \ifx\@pdfstartpage\@empty
12025 \else
12026 \ifx\@pdfstartview\@empty
12027 \else
12028 \edef\Hy@temp{%
12029 ,Page=\@pdfstartpage
12030 ,View=\@pdfstartview
12031 }%
12032 \fi
12033 \fi
12034 \edef\Hy@temp{%
12035 \noexpand\pdfmark{%
12036 pdfmark=/DOCVIEW,%
12037 PageMode=/\@pdfpagemode
12038 \Hy@temp
12039 }%
12040 }%
12041 \Hy@temp
12042 \ifx\@pdfpagescrop\@empty
12043 \else
12044 \pdfmark{pdfmark=/PAGES,CropBox=\@pdfpagescrop}%
12045 \fi
12046 \edef\Hy@temp{%
12047 \ifHy@pdftoolbar\else /HideToolbar true\fi
12048 \ifHy@pdfmenubar\else /HideMenubar true\fi
12049 \ifHy@pdfwindowui\else /HideWindowUI true\fi
12050 \ifHy@pdfwindow /FitWindow true\fi

```

```

12051 \ifHy@pdfcenterwindow /CenterWindow true\fi
12052 \ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi
12053 \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
12054 \Hy@UseNameKey{Direction}\@pdfdirection
12055 \Hy@UseNameKey{ViewArea}\@pdfviewarea
12056 \Hy@UseNameKey{ViewClip}\@pdfviewclip
12057 \Hy@UseNameKey{PrintArea}\@pdfprintarea
12058 \Hy@UseNameKey{PrintClip}\@pdfprintclip
12059 \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
12060 \Hy@UseNameKey{Duplex}\@pdfduplex
12061 \ifx\@pdfpicktraybypdfsize\@empty
12062 \else
12063 /PickTrayByPDFSize \@pdfpicktraybypdfsize
12064 \fi
12065 \ifx\@pdfprintpagerange\@empty
12066 \else
12067 /PrintPageRange[\@pdfprintpagerange]%
12068 \fi
12069 \ifx\@pdfnumcopies\@empty
12070 \else
12071 /NumCopies \@pdfnumcopies
12072 \fi
12073 }%
12074 \Hy@pstringdef\Hy@pstringB{\@baseurl}%
12075 \pdfmark{%
12076 pdfmark=/PUT,%
12077 Raw={%
12078 \string{Catalog\string}<<%
12079 \ifx\Hy@temp\@empty
12080 \else
12081 /ViewerPreferences<<\Hy@temp>>%
12082 \fi
12083 \Hy@UseNameKey{PageLayout}\@pdfpagelayout
12084 \ifx\@pdflang\relax
12085 \else
12086 /Lang(\@pdflang)%
12087 \fi
12088 \ifx\@baseurl\@empty
12089 \else
12090 /URI<</Base(\Hy@pstringB)>>%
12091 \fi
12092 >>%
12093 }%
12094 }%
12095 }
12096 \providecommand*\@pdfview{XYZ}
12097 \providecommand*\@pdfviewparams{ %
12098 gsave revscl currentpoint grestore %
12099 72 add exch pop null exch null%
12100 }
12101 \def\Hy@BorderArrayPatch{BorderArrayPatch}

```

These are called at the start and end of unboxed links; their job is to leave available PS variables called pdf@llx pdf@lly pdf@urx pdf@ury, which are the coordinates

of the bounding rectangle of the link, and `pdf@hoff pdf@voff` which are the PDF page offsets. These latter are currently not used in the dvipsone setup. The Rect pair are called at the LL and UR corners of a box known to T<sub>E</sub>X.

```
12102 \g@addto@macro\Hy@FirstPageHook{%
12103   \headerps@out{%
```

dvipsone lives in scaled points; does this mean 65536 or 65781?

```
12104   /DvipsToPDF { 65781 div } def%
12105   /PDFToDvips { 65781 mul } def%
12106   /BPToDvips{65781 mul}def%
12107   /HyperBorder { 1 PDFToDvips } def%
12108   /H.B {/Rect[pdf@llx pdf@lly pdf@urx pdf@ury]} def%
```

The values inside the /Boder array are not taken literally, but interpreted by ghostscript using the resolution of the dvi driver. I don't know how other distiller programs behaves in this manner.

```
12109   /BorderArrayPatch{%
12110     [exch{%
12111       dup dup type/integertype eq exch type/realtype eq or%
12112       {BPToDvips}if%
12113     }forall]%
12114   }def%
12115   /H.S {%
12116     currentpoint %
12117     HyperBorder add /pdf@lly exch def %
12118     dup DvipsToPDF 72 add /pdf@hoff exch def %
12119     HyperBorder sub /pdf@llx exch def%
12120   } def%
12121   /H.L {%
12122     2 sub %
12123     PDFToDvips /HyperBase exch def %
12124     currentpoint %
12125     HyperBase sub /pdf@ury exch def%
12126     /pdf@urx exch def%
12127   } def%
12128   /H.A {%
12129     H.L %
12130     currentpoint exch pop %
12131     HyperBase sub % baseline skip
12132     DvipsToPDF /pdf@voff exch def%
12133   } def%
12134   /H.R {%
12135     currentpoint %
12136     HyperBorder sub /pdf@ury exch def %
12137     HyperBorder add /pdf@urx exch def %
12138     currentpoint exch pop DvipsToPDF /pdf@voff exch def%
12139   } def%
12140 }%
12141 }

12142 \def\setpdfinkmargin#1{%
12143   \begingroup
12144     \setlength{\dimen@}{#1}%
12145     \literalps@out{%
12146       /HyperBorder{\strip@pt\dimen@\space PDFToDvips}def%
```

```

12147 }%
12148 \endgroup
12149 }
12150 </dvipsone>

```

#### 44.13 TeX4ht

```

12151 (*tex4ht)
12152 \providecommand*{\XR@ext}{html}
12153 \let\Hy@raisedlink\ltx@empty
12154 \@ifpackageloaded{tex4ht}{%
12155   \Hy@InfoNoLine{tex4ht is already loaded}%
12156 }{%
12157   \RequirePackage[hTeX4ht]{tex4ht}%
12158 }
12159 \hyperlinkfileprefix{}
12160 \let\PDF@FinishDoc\ltx@empty
12161 \def\PDF@SetupDoc{%
12162   \ifx\@baseurl\@empty
12163     \else
12164       \special{t4ht=<base href="\@baseurl">}%
12165     \fi
12166 }
12167 \Hy@WrapperDef\hyper@anchor#1{%
12168   \Hy@SaveLastskip
12169   \Hy@VerboseAnchor{#1}%
12170   \begingroup
12171     \let\protect=\string
12172     \special{t4ht=<a name=%
12173       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
12174   \endgroup
12175   \Hy@activeanchortrue
12176   \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
12177   \special{t4ht=</a>}%
12178   \Hy@activeanchorfalse
12179   \Hy@RestoreLastskip
12180 }
12181 \Hy@WrapperDef\hyper@anchorstart#1{%
12182   \Hy@SaveLastskip
12183   \Hy@VerboseAnchor{#1}%
12184   \begingroup
12185     \hyper@chars\special{t4ht=<a name=%
12186       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
12187   \endgroup
12188   \Hy@activeanchortrue
12189 }
12190 \def\hyper@anchorend{%
12191   \special{t4ht=</a>}%
12192   \Hy@activeanchorfalse
12193   \Hy@RestoreLastskip
12194 }
12195 \def\@urltype{url}
12196 \def\hyper@linkstart#1#2{%
12197   \Hy@VerboseLinkStart{#1}{#2}%
12198   \expandafter\Hy@colorlink\c@#1color\endcsname

```

```

12199 \def\Hy@tempa{#1}%
12200 \ifx\Hy@tempa\@urltype
12201   \special{t4ht=<a href=\hyper@quote#2\hyper@quote>}%
12202 \else
12203   \begingroup
12204     \hyper@chars
12205     \special{t4ht=<a href=%
12206       \hyper@quote\#\HyperDestNameFilter{#2}\hyper@quote>}%
12207   \endgroup
12208 \fi
12209 }
12210 \def\hyper@linkend{%
12211   \special{t4ht=</a>}%
12212   \Hy@endcolorlink
12213 }
12214 \def\hyper@linkfile#1#2#3{%
12215   \hyper@linkurl{#1}{\Hy@linkfileprefix#2\ifx\\#3\\\else\##3\fi}%
12216 }
12217 \def\hyper@linkurl#1#2{%
12218   \leavevmode
12219   \ifHy@raiselinks
12220     \Hy@SaveSpaceFactor
12221     \Hy@SaveSavedSpaceFactor
12222     \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
12223     \Hy@RestoreSavedSpaceFactor
12224     \@linkdim\dp\@tempboxa
12225     \lower\@linkdim\hbox{%
12226       \begingroup
12227         \hyper@chars
12228         \special{%
12229           t4ht=<a href=\hyper@quote#2\hyper@quote>%
12230         }%
12231       \endgroup
12232     }%
12233     \Hy@colorlink\@urlcolor
12234     \Hy@RestoreSpaceFactor
12235     #1\Hy@xspace@end
12236     \Hy@SaveSpaceFactor
12237     \Hy@endcolorlink
12238     \@linkdim\ht\@tempboxa
12239     \advance\@linkdim by -6.5\p@
12240     \raise\@linkdim\hbox{\special{t4ht=</a>}}%
12241     \Hy@RestoreSpaceFactor
12242   \else
12243     \begingroup
12244       \hyper@chars
12245       \special{t4ht=<a href=\hyper@quote#2\hyper@quote>}%
12246       \Hy@colorlink\@urlcolor
12247       #1\Hy@xspace@end
12248       \Hy@endcolorlink
12249       \special{t4ht=</a>}%
12250     \endgroup
12251   \fi
12252 }

```

Poor implementation of `\hyper@link` without considering #1.

```

12253 \def\hyper@link#1#2#3{%
12254   \Hy@VerboseLinkStart{#1}{#2}%
12255   \hyper@linkurl{#3}{\#\HyperDestNameFilter{#2}}}%
12256 }
12257 \def\hyper@image#1#2{%
12258   \begingroup
12259   \hyper@chars
12260   \special{t4ht=<img src=\hyper@quote#1\hyper@quote>}%
12261   \endgroup
12262 }
12263 \let\autoref\ref
12264 \ifx \rEFLiNK \UnDef
12265   \def\rEFLiNK #1#2{#2}%
12266 \fi
12267 \let\backref\ltx@gobble

```

Fix for tex4ht.

```

12268 \AtBeginDocument{%
12269   \expandafter
12270   \let\expandafter\Hy@OrgMakeLabel\csname Make:Label\endcsname
12271   \expandafter\def\csname Make:Label\endcsname#1#2{%
12272     \ifhmode
12273       \Hy@SaveSpaceFactor
12274     \else
12275       \global\Hy@SavedSpaceFactor=1000 %
12276     \fi
12277     \Hy@OrgMakeLabel{#1}{%
12278       \Hy@RestoreSpaceFactor
12279       #2\Hy@xspace@end%
12280       \Hy@SaveSpaceFactor
12281     }%
12282     \Hy@RestoreSpaceFactor
12283   }%
12284 }
12285 \</tex4ht>
12286 \*tex4htcfg>
12287 \IfFileExists{\jobname.cfg}{\endinput}{}
12288 \Preamble{html}
12289   \begin{document}%
12290 \EndPreamble
12291 \def\TeX{TeX}
12292 \def\OMEGA{\Omega}
12293 \def\LaTeX{\LaTeX}
12294 \def\LaTeXe{\LaTeXe}
12295 \def\eTeX{e-TeX}
12296 \def\MF{Metafont}
12297 \def\MP{MetaPost}
12298 \</tex4htcfg>

```

## 45 Driver-specific form support

### 45.1 pdfmarks

change 2020-06-20: added /Euro to encoding

12299 (\*pdfmark)  
12300 \long\def\@Form[#1]{%  
12301 \g@addto@macro\Hy@FirstPageHook{%  
12302 \headerps@out{%  
12303 [%  
12304 /\_objdef{pdfDocEncoding}%  
12305 /type/dict%  
12306 /OBJ pdfmark%  
12307 [%  
12308 {pdfDocEncoding}%  
12309 <<%  
12310 /Type/Encoding%  
12311 /Differences[%  
12312 24/breve/caron/circumflex/dotaccent/hungarumlaut/ogonek/ring%  
12313 /tilde %  
12314 39/quotesingle %  
12315 96/grave %  
12316 128/bullet/dagger/daggerdbl/ellipsis/emdash/endash/florin%  
12317 /fraction/guilsinglleft/guilsinglright/minus/perthousand%  
12318 /quotedblbase/quotedblleft/quotedblright/quoteleft%  
12319 /quoteright/quotesinglbase/trademark/fi/fl/Lslash/OE/Scaron%  
12320 /Ydieresis/Zcaron/dotlessi/lslash/oe/scaron/zcaron %  
12321 160/Euro %  
12322 164/currency %  
12323 166/brokenbar %  
12324 168/dieresis/copyright/ordfeminine %  
12325 172/logicalnot/.notdef/registered/macron/degree/plusminus%  
12326 /twosuperior/threesuperior/acute/mu %  
12327 183/periodcentered/cedilla/onesuperior/ordmasculine %  
12328 188/onequarter/onehalf/threequarters %  
12329 192/Agrave/Aacute/Acircumflex/Atilde/Adieresis/Aring/AE%  
12330 /Ccedilla/Egrave/Eacute/Ecircumflex/Edieresis/Igrave%  
12331 /Iacute/Icircumflex/Idieresis/Eth/Ntilde/Ograve/Oacute%  
12332 /Ocircumflex/Otilde/Odieresis/multiply/Oslash/Ugrave%  
12333 /Uacute/Ucircumflex/Udieresis/Yacute/Thorn/germandbls%  
12334 /agrave/aacute/acircumflex/atilde/adieresis/aring/ae%  
12335 /ccedilla/egrave/eacute/ecircumflex/edieresis/igrave%  
12336 /iacute/icircumflex/idieresis/eth/ntilde/ograde/oacute%  
12337 /ocircumflex/otilde/odieresis/divide/oslash/ugrave/uacute%  
12338 /ucircumflex/udieresis/yacute/thorn/ydieresis%  
12339 ]%  
12340 >>%  
12341 /PUT pdfmark%  
12342 [%  
12343 /\_objdef{ZaDb}%  
12344 /type/dict%  
12345 /OBJ pdfmark%  
12346 [%  
12347 {ZaDb}%  
12348 <<%  
12349 /Type/Font%  
12350 /Subtype/Type1%  
12351 /Name/ZaDb%  
12352 /BaseFont/ZapfDingbats%

```

12353 >>%
12354 /PUT pdfmark%
12355 [%
12356   /__objdef{Helv}%
12357   /type/dict%
12358 /OBJ pdfmark%
12359 [%
12360   {Helv}%
12361   <<%
12362     /Type/Font%
12363     /Subtype/Type1%
12364     /Name/Helv%
12365     /BaseFont/Helvetica%
12366     /Encoding{pdfDocEncoding}%
12367   >>%
12368 /PUT pdfmark%
12369 [%
12370   /__objdef{aform}%
12371   /type/dict%
12372 /OBJ pdfmark%
12373 [%
12374   /__objdef{afields}%
12375   /type/array%
12376 /OBJ pdfmark%
12377 [%
12378   /__objdef{corder}%
12379   /type/array%
12380 /OBJ pdfmark%
12381 {%
12382   [%
12383     /BBox[0 0 100 100]%
12384     /__objdef{Check}%
12385   /BP pdfmark %
12386   1 0 0 setrgbcolor%
12387   /ZapfDingbats 80 selectfont %
12388   20 20 moveto%
12389   (4)show%
12390 [/EP pdfmark%
12391 [%
12392   /BBox[0 0 100 100]%
12393   /__objdef{Cross}%
12394 /BP pdfmark %
12395   1 0 0 setrgbcolor%
12396   /ZapfDingbats 80 selectfont %
12397   20 20 moveto%
12398   (8)show%
12399 [/EP pdfmark%
12400 [%
12401   /BBox[0 0 250 100]%
12402   /__objdef{Submit}%
12403 /BP pdfmark %
12404   0.6 setgray %
12405   0 0 250 100 rectfill %
12406   1 setgray %

```



```

12407 2 2 moveto %
12408 2 98 lineto %
12409 248 98 lineto %
12410 246 96 lineto %
12411 4 96 lineto %
12412 4 4 lineto %
12413 fill %
12414 0.34 setgray %
12415 248 98 moveto %
12416 248 2 lineto %
12417 2 2 lineto %
12418 4 4 lineto %
12419 246 4 lineto %
12420 246 96 lineto %
12421 fill%
12422 /Helvetica 76 selectfont %
12423 0 setgray %
12424 8 22.5 moveto%
12425 (Submit)show%
12426 [/EP pdfmark%
12427 [%
12428 /BBox[0 0 250 100]%
12429 /_objdef{SubmitP}]%
12430 /BP pdfmark %
12431 0.6 setgray %
12432 0 0 250 100 rectfill %
12433 0.34 setgray %
12434 2 2 moveto %
12435 2 98 lineto %
12436 248 98 lineto %
12437 246 96 lineto %
12438 4 96 lineto %
12439 4 4 lineto %
12440 fill %
12441 1 setgray %
12442 248 98 moveto %
12443 248 2 lineto %
12444 2 2 lineto %
12445 4 4 lineto %
12446 246 4 lineto %
12447 246 96 lineto %
12448 fill%
12449 /Helvetica 76 selectfont %
12450 0 setgray %
12451 10 20.5 moveto%
12452 (Submit)show%
12453 [/EP pdfmark%
12454 } ?pdfmark%
12455 [%
12456 {aform}]%
12457 <<%
12458 /Fields{afields}%
12459 /DR<<%
12460 /Font<<%

```

```

12461      /ZaDb{ZaDb}%
12462      /Helv{Helv}%
12463      >>%
12464  >>%
12465  /DA(/Helv 10 Tf 0 g)%
12466  /CO{corder}%
12467  \ifHy@pdfa
12468  \else
12469      \ifHyField@NeedAppearances
12470          /NeedAppearances true%
12471      \fi
12472  \fi
12473  >>%
12474  /PUT pdfmark%
12475  [%
12476  {Catalog}%
12477  <<%
12478      /AcroForm{aform}%
12479  >>%
12480  /PUT pdfmark%
12481  ]}%
12482  \kvsetkeys{Form}{#1}%
12483  }
12484  \let\@endForm\ltx@empty
12485  \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
12486  \Hy@Message{Sorry, pdfmark drivers do not support FORM gauges}%
12487  }

12488  \newcount\HyField@AnnotCount
12489  \HyField@AnnotCount=\z@
12490  \def\HyField@AdvanceAnnotCount{%
12491  \global\advance\HyField@AnnotCount\@ne
12492  }
12493  \def\HyField@TheAnnotCount{%
12494  \the\HyField@AnnotCount
12495  }

12496  \edef\Fld@pageobjref{/P\string{ThisPage\string}}
12497  \def\HyField@AddToFields#1{%
12498  \pdfmark{%
12499  pdfmark=/APPEND,%
12500  Raw={%
12501  \string{afields\string}%
12502  \string{#1\HyField@TheAnnotCount\string}%
12503  }%
12504  }%
12505  \ifx\Fld@calculate@code\ltx@empty
12506  \else
12507  \pdfmark{%
12508  pdfmark=/APPEND,%
12509  Raw={%
12510  \string{corder\string}%
12511  \string{#1\HyField@TheAnnotCount\string}%
12512  }%
12513  }%

```

```

12514 \fi
12515 }

12516 \def\@TextField[#1]#2{% parameters, label
12517 \def\Fld@name{#2}%
12518 \let\Fld@default\ltx@empty
12519 \let\Fld@value\@empty
12520 \def\Fld@width{\DefaultWidthofText}%
12521 \def\Fld@height{%
12522 \ifFld@multiline
12523 \DefaultHeightofTextMultiline
12524 \else
12525 \DefaultHeightofText
12526 \fi
12527 }%
12528 \begingroup
12529 \expandafter\HyField@SetKeys\expandafter{%
12530 \DefaultOptionsofText,#1%
12531 }%
12532 \HyField@FlagsText
12533 \ifFld@hidden\def\Fld@width{1sp}\fi
12534 \ifx\Fld@value\@empty\def\Fld@value{\Fld@default}\fi
12535 \HyField@AdvanceAnnotCount
12536 \LayoutTextField{#2}{%
12537 \leavevmode
12538 \Hy@escapeform\PDFForm@Text
12539 \pdfmark{\MakeTextField{\Fld@width}{\Fld@height}}{%
12540 pdfmark=/ANN,%
12541 objdef=text\HyField@TheAnnotCount,%
12542 Raw={\PDFForm@Text}%
12543 }%
12544 }%
12545 \HyField@AddToFields{text}%
12546 \endgroup
12547 }

12548 \def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
12549 \def\Fld@name{#2}%
12550 \let\Fld@default\relax
12551 \let\Fld@value\relax
12552 \def\Fld@width{\DefaultWidthofChoiceMenu}%
12553 \def\Fld@height{\DefaultHeightofChoiceMenu}%
12554 \begingroup
12555 \Fld@menulength=0 %
12556 \@tempdima\z@
12557 \@for\@curropt:=#3\do{%
12558 \expandafter\Fld@checkequals\@curropt==\%
12559 \Hy@StepCount\Fld@menulength
12560 \settowidth{\@tempdimb}{\@currDisplay}%
12561 \ifdim\@tempdimb>\@tempdima\@tempdima\@tempdimb\fi
12562 }%
12563 \advance\@tempdima by 15\p@
12564 \begingroup
12565 \HyField@SetKeys{#1}%
12566 \edef\x{\endgroup
12567 \noexpand\expandafter

```

```

12568 \noexpand\HyField@SetKeys
12569 \noexpand\expandafter{%
12570 \expandafter\noexpand\csname DefaultOptionsof%
12571 \ifFld@radio
12572 Radio%
12573 \else
12574 \ifFld@combo
12575 \ifFld@popdown
12576 PopdownBox%
12577 \else
12578 ComboBox%
12579 \fi
12580 \else
12581 ListBox%
12582 \fi
12583 \fi
12584 \endcsname
12585 }%
12586 }\x
12587 \HyField@SetKeys{#1}%
12588 \ifFld@hidden\def\Fld@width{1sp}\fi
12589 \ifx\Fld@value\relax
12590 \let\Fld@value\Fld@default
12591 \fi
12592 \LayoutChoiceField{#2}{%
12593 \ifFld@radio
12594 \HyField@FlagsRadioButton
12595 \@@Radio{#3}%
12596 \else
12597 \begingroup
12598 \HyField@FlagsChoice
12599 \ifdim\Fld@width<\@tempdima
12600 \ifdim\@tempdima<1cm\@tempdima1cm\fi
12601 \edef\Fld@width{\the\@tempdima}%
12602 \fi
12603 \ifFld@combo
12604 \else
12605 \@tempdima=\the\Fld@menulength\Fld@charsize
12606 \advance\@tempdima by \Fld@borderwidth bp %
12607 \advance\@tempdima by \Fld@borderwidth bp %
12608 \edef\Fld@height{\the\@tempdima}%
12609 \fi
12610 \@@ListBox{#3}%
12611 \endgroup
12612 \fi
12613 }%
12614 \endgroup
12615 }
12616 \def\@@Radio#1{%
12617 \Fld@listcount=0 %
12618 \EdefEscapeName\Fld@default{\Fld@default}%
12619 \@for\@curropt:=#1\do{%
12620 \expandafter\Fld@checkequals\@curropt==\%
12621 \EdefEscapeName\@currValue{\@currValue}%

```

```

12622 \Hy@StepCount\Fld@listcount
12623 \@currDisplay\space
12624 \Hy@escapeform\PDFForm@Radio
12625 \ifnum\Fld@listcount=1 %
12626 \HyField@AdvanceAnnotCount
12627 \fi
12628 \pdfmark[\MakeRadioField{\Fld@width}{\Fld@height}]{%
12629 pdfmark=/ANN,%
12630 objdef=\ifnum\Fld@listcount=1 radio\HyField@TheAnnotCount\fi,%
12631 Raw={%
12632 \PDFForm@Radio /AP <</N <</\@currValue\space {Check}>> >>%
12633 }%
12634 } % deliberate space between radio buttons
12635 \ifnum\Fld@listcount=1 %
12636 \HyField@AddToFields{radio}%
12637 \fi
12638 }%
12639 }
12640 \newcount\Fld@listcount
12641 \def\@@ListBox#1{%
12642 \HyField@PDFChoices{#1}%
12643 \Hy@escapeform\PDFForm@List
12644 \HyField@AdvanceAnnotCount
12645 \pdfmark[\MakeChoiceField{\Fld@width}{\Fld@height}]{%
12646 pdfmark=/ANN,%
12647 objdef=list\HyField@TheAnnotCount,%
12648 Raw={\PDFForm@List}%
12649 }%
12650 \HyField@AddToFields{list}%
12651 }
12652 \def\@PushButton[#1]#2{% parameters, label
12653 \def\Fld@name{#2}%
12654 \begingroup
12655 \expandafter\HyField@SetKeys\expandafter{%
12656 \DefaultOptionsofPushButton,#1%
12657 }%
12658 \ifHy@pdfa
12659 \Hy@Error{%
12660 PDF/A: Push button with JavaScript is prohibited%
12661 }\@ehc
12662 \LayoutPushButtonField{%
12663 \leavevmode
12664 \MakeButtonField{#2}%
12665 }%
12666 \else
12667 \HyField@FlagsPushButton
12668 \ifFld@hidden\def\Fld@width{1sp}\fi
12669 \HyField@AdvanceAnnotCount
12670 \LayoutPushButtonField{%
12671 \leavevmode
12672 \Hy@escapeform\PDFForm@Push
12673 \pdfmark[\MakeButtonField{#2}]{%
12674 pdfmark=/ANN,%
12675 objdef=push\HyField@TheAnnotCount,%

```

```

12676         Raw={\PDFForm@Push}%
12677     }%
12678 }%
12679     \HyField@AddToFields{push}%
12680 \fi
12681 \endgroup
12682 }
12683 \def\@Submit[#1]#2{%
12684     \def\Fld@width{\DefaultWidthofSubmit}%
12685     \def\Fld@height{\DefaultHeightofSubmit}%
12686     \begingroup
12687         \expandafter\HyField@SetKeys\expandafter{%
12688             \DefaultOptionsofSubmit,#1%
12689         }%
12690         \HyField@FlagsPushButton
12691         \HyField@FlagsSubmit
12692         \ifFld@hidden\def\Fld@width{1sp}\fi
12693         \Hy@escapeform\PDFForm@Submit
12694         \HyField@AdvanceAnnotCount
12695         \pdfmark[\MakeButtonField{#2}]{%
12696             pdfmark=/ANN,%
12697             objdef=submit\HyField@TheAnnotCount,%
12698             Raw={\PDFForm@Submit /AP<</N{Submit}/D{SubmitP}>>}}%
12699         }%
12700         \HyField@AddToFields{submit}%
12701     \endgroup
12702 }
12703 \def\@Reset[#1]#2{%
12704     \def\Fld@width{\DefaultWidthofReset}%
12705     \def\Fld@height{\DefaultHeightofReset}%
12706     \begingroup
12707         \expandafter\HyField@SetKeys\expandafter{%
12708             \DefaultOptionsofReset,#1%
12709         }%
12710         \leavevmode
12711         \ifHy@pdfa
12712             \Hy@Error{%
12713                 PDF/A: Reset action is prohibited%
12714             }\@ehc
12715             \MakeButtonField{#2}%
12716         \else
12717             \HyField@FlagsPushButton
12718             \ifFld@hidden\def\Fld@width{1sp}\fi
12719             \Hy@escapeform\PDFForm@Reset
12720             \HyField@AdvanceAnnotCount
12721             \pdfmark[\MakeButtonField{#2}]{%
12722                 pdfmark=/ANN,%
12723                 objdef=reset\HyField@TheAnnotCount,%
12724                 Raw={\PDFForm@Reset}%
12725             }%
12726             \HyField@AddToFields{reset}%
12727         \fi
12728     \endgroup
12729 }%

```

```

12730 \def\@CheckBox[#1]#2{% parameters, label
12731   \def\Fld@name{#2}%
12732   \def\Fld@default{0}%
12733   \begingroup
12734     \def\Fld@width{\DefaultWidthofCheckBox}%
12735     \def\Fld@height{\DefaultHeightofCheckBox}%
12736     \expandafter\HyField@SetKeys\expandafter{%
12737       \DefaultOptionsofCheckBox,#1%
12738     }%
12739     \HyField@FlagsCheckBox
12740     \ifFld@hidden\def\Fld@width{1sp}\fi
12741     \HyField@AdvanceAnnotCount
12742     \LayoutCheckField{#2}{%
12743       \leavevmode
12744       \Hy@escapeform\PDFForm@Check
12745       \pdfmark{\MakeCheckField{\Fld@width}{\Fld@height}}{%
12746         pdfmark=/ANN,%
12747         objdef=check\HyField@TheAnnotCount,%
12748         Raw={\PDFForm@Check}%
12749       }%
12750     }%
12751     \HyField@AddToFields{check}%
12752   \endgroup
12753 }
12754 \pdfmark

```

## 45.2 HyperTeX

```

12755 (*hypertex)
12756 \def\@Form[#1]{%
12757   \Hy@Message{Sorry, HyperTeX does not support FORMs}%
12758 }
12759 \let\@endForm\ltx@empty
12760 \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
12761   \Hy@Message{Sorry, HyperTeX does not support FORM gauges}%
12762 }
12763 \def\@TextField[#1]#2{% parameters, label
12764   \Hy@Message{Sorry, HyperTeX does not support FORM text fields}%
12765 }
12766 \def\@CheckBox[#1]#2{% parameters, label
12767   \Hy@Message{Sorry, HyperTeX does not support FORM checkboxes}%
12768 }
12769 \def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
12770   \Hy@Message{Sorry, HyperTeX does not support FORM choice menus}%
12771 }
12772 \def\@PushButton[#1]#2{% parameters, label
12773   \Hy@Message{Sorry, HyperTeX does not support FORM pushbuttons}%
12774 }
12775 \def\@Reset[#1]#2{%
12776   \Hy@Message{Sorry, HyperTeX does not support FORMs}%
12777 }
12778 \def\@Submit[#1]#2{%
12779   \Hy@Message{Sorry, HyperTeX does not support FORMs}%
12780 }

```

12781  $\langle$ /hypertex $\rangle$

### 45.3 TeX4ht

```
12782  $\langle$ *tex4ht $\rangle$ 
12783 \def\@Form[#1]{%
12784   \kvsetkeys{Form}{#1}%
12785   \HCode{<form action="\Form@action" method="\Form@method">}%
12786 }
12787 \def\@endForm{\HCode{</form>}}
12788 \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
12789   \Hy@Message{Sorry, TeX4ht does not support gauges}%
12790 }
12791 \def\@TextField[#1]#2{% parameters, label
12792   \let\Hy@reserved@a\@empty
12793   \def\Fld@name{#2}%
12794   \let\Fld@default\ltx@empty
12795   \bgroup
12796     \Field@toks={}%
12797     \kvsetkeys{Field}{#1}%
12798     \HCode{<label for="\Fld@name">#2</label>}%
12799     \ifFld@password
12800       \@@PasswordField
12801     \else
12802       \@@TextField
12803     \fi
12804   \egroup
12805 }
12806 \def\@@PasswordField{%
12807   \HCode{%
12808     <input type="password" %
12809       id="\Fld@name" %
12810       name="\Fld@name" %
12811       \ifFld@hidden type="hidden" \fi
12812       value="\Fld@default" %
12813       \the\Field@toks
12814     >%
12815   }%
12816 }
12817 \def\@@TextField{%
12818   \ifFld@multiline
12819     \HCode{<textarea %
12820       \ifFld@readonly readonly \fi
12821       id="\Fld@name" %
12822       name="\Fld@name" %
12823       \ifFld@hidden type="hidden" \fi
12824       \the\Field@toks>%
12825     }%
12826     \Fld@default
12827     \HCode{</textarea>}%
12828   \else
12829     \HCode{<input type="text" %
12830       \ifFld@readonly readonly \fi
12831       id="\Fld@name" %
12832       name="\Fld@name" %
```



```

12833     \ifFld@hidden type="hidden" \fi
12834     value="\Fld@default" %
12835     \the\Field@toks>%
12836 }%
12837 \fi
12838 }
12839 \def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
12840 \def\Fld@name{#2}%
12841 \let\Fld@default\ltx@empty
12842 \let\Hy@reserved@a\relax
12843 \begingroup
12844 \expandafter\Fld@findlength#3\\%
12845 \Field@toks={ }%
12846 \kvsetkeys{Field}{#1}%
12847 #2%
12848 \ifFld@radio
12849 \expandafter\@@Radio#3\\%
12850 \else
12851 \expandafter\@@Menu#3\\%
12852 \fi
12853 \endgroup
12854 }
12855 \def\Fld@findlength#1\\{%
12856 \Fld@menulength=0 %
12857 \@for\@curropt:=#1\do{\Hy@StepCount\Fld@menulength}%
12858 }
12859 \def\@@Menu#1\\{%
12860 \HCode{<select size="\the\Fld@menulength" %
12861 name="\Fld@name" %
12862 \the\Field@toks>%
12863 }%
12864 \@for\@curropt:=#1\do{%
12865 \expandafter\Fld@checkequals\@curropt==\\%
12866 \HCode{<option %
12867 \ifx\@curropt\Fld@default selected \fi
12868 value="\@currValue">\@currDisplay</option>%
12869 }%
12870 }%
12871 \HCode{</select>}%
12872 }
12873 \def\@@Radio#1\\{%
12874 \@for\@curropt:=#1\do{%
12875 \expandafter\Fld@checkequals\@curropt==\\%
12876 \HCode{<input type="radio" %
12877 \ifx\@curropt\Fld@default checked \fi
12878 name="\Fld@name" %
12879 value="\@currValue" %
12880 \the\Field@toks>%
12881 }%
12882 \@currDisplay
12883 }%
12884 }
12885 \def\@PushButton[#1]#2{% parameters, label
12886 \def\Fld@name{#2}%

```

```

12887 \bgroup
12888 \Field@toks={ }%
12889 \kvsetkeys{Field}{#1}%
12890 \HCode{<input type="button" %
12891     name="\Fld@name" %
12892     value="#2" %
12893     \the\Field@toks>%
12894 }%
12895 \HCode{</button>}%
12896 \egroup
12897 }
12898 \def\@Submit[#1]#2{%
12899 \HCode{<button type="submit">#2</button>}%
12900 }
12901 \def\@Reset[#1]#2{%
12902 \HCode{<button type="reset">#2</button>}%
12903 }
12904 \def\@CheckBox[#1]#2{% parameters, label
12905 \let\Hy@reserved@a\@empty
12906 \def\Fld@name{#2}%
12907 \def\Fld@default{0}%
12908 \bgroup
12909 \Field@toks={ }%
12910 \kvsetkeys{Field}{#1}%
12911 \HCode{<input type="checkbox" %
12912     \ifFld@checked checked \fi
12913     \ifFld@disabled disabled \fi
12914     \ifFld@readonly readonly \fi
12915     name="\Fld@name" %
12916     \ifFld@hidden type="hidden" \fi
12917     value="\Fld@default" %
12918     \the\Field@toks>%
12919     #2%
12920 }%
12921 \egroup
12922 }
12923 </tex4ht>

```

## 45.4 pdfTeX

```

12924 <*pdfTeX>
12925 \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
12926 \Hy@Message{Sorry, pdftex does not support FORM gauges}%
12927 }
12928 \def\MakeFieldObject#1#2{\sbox0{#1}%
12929 \immediate\pdfxform %
12930 \expandafter\edef\csname #2Object\endcsname{%
12931     \the\pdflastxform\space 0 R%
12932 }%
12933 % \hbox to 0pt{\hskip-\maxdimen{\pdfrefxform \the\pdflastxform}}}%
12934 }%
12935 \let\HyField@afields\ltx@empty
12936 \let\HyField@cofields\ltx@empty
12937 \@ifundefined{pdflastlink}
12938 {%

```

```

12939 \let\HyField@AddToFields\relax
12940 \PackageInfo{hyperref}{%
12941   You need pdfTeX 1.40.0 for setting the /Fields entry.%
12942   \MessageBreak
12943   Adobe Reader/Acrobat accepts an empty /Field array,%
12944   \MessageBreak
12945   but other PDF viewers might complain%
12946 }}%
12947 {%
12948 \let\HyField@AuxAddToFields\ltx@gobble
12949 \let\HyField@AuxAddToCoFields\ltx@gobbletwo
12950 \def\HyField@AfterAuxOpen{\Hy@AtBeginDocument}%

```

Insertion sort for calculation field list. In case of equal sort keys (for example, if ‘calculatesortkey’ is not used at all) the keys keep document calling order.

```

12951 \def\HyField@ABD@AuxAddToCoFields#1#2{%
12952   \begingroup
12953     \Hy@safe@activestrue
12954     \let\ltx@secondoftwo\relax
12955     \ifx\HyField@cofields\ltx@empty
12956       \xdef\HyField@cofields{%
12957         \ltx@secondoftwo{#1}{ #2 0 R}%
12958       }%
12959     \else
12960       \let\ltx@secondoftwo\relax
12961       \def\HyField@AddCoField##1##2##3{%
12962         \ifx##1\ltx@empty
12963           \ltx@secondoftwo{#1}{ #2 0 R}%
12964           \expandafter\ltx@gobble
12965         \else
12966           \ifnum\pdfstrcmp{##2}{#1}>\ltx@zero
12967             \ltx@secondoftwo{#1}{ #2 0 R}%
12968             \ltx@secondoftwo{##2}{##3}%
12969             \expandafter\expandafter\expandafter\ltx@gobble
12970           \else
12971             \ltx@secondoftwo{##2}{##3}%
12972           \fi
12973         \fi
12974         \HyField@AddCoField
12975       }%
12976       \xdef\HyField@cofields{%
12977         \expandafter\HyField@AddCoField
12978         \HyField@cofields\ltx@empty\ltx@empty\ltx@empty
12979       }%
12980     \fi
12981   \endgroup
12982 }%
12983 \Hy@AtBeginDocument{%
12984   \if@filesw
12985     \immediate\write\@mainaux{%
12986       \string\providecommand\string\HyField@AuxAddToFields[1]{}%
12987     }%
12988     \immediate\write\@mainaux{%
12989       \string\providecommand\string\HyField@AuxAddToCoFields[2]{}%
12990     }%

```

```

12991 \fi
12992 \let\HyField@AfterAuxOpen\@firstofone
12993 \def\HyField@AuxAddToFields#1{%
12994 \xdef\HyField@afields{%
12995 \ifx\HyField@afields\@empty
12996 \else
12997 \HyField@afields
12998 \space
12999 \fi
13000 #1 0 R%
13001 }%
13002 }%
13003 \let\HyField@AuxAddToCoFields\HyField@ABD@AuxAddToCoFields
13004 }%
13005 \def\HyField@AddToFields{%
13006 \expandafter\HyField@@AddToFields\expandafter{%
13007 \the\pdfastlink
13008 }%
13009 \ifx\Fld@calculate@code\ltx@empty
13010 \else
13011 \begingroup
13012 \Hy@safe@activetrue
13013 \edef\Hy@temp{%
13014 \endgroup
13015 \if@filesw
13016 \write\@mainaux{%
13017 \string\HyField@AuxAddToCoFields{%
13018 \Fld@calculate@sortkey
13019 }{%
13020 \the\pdfastlink
13021 }%
13022 }%
13023 \fi
13024 }%
13025 \Hy@temp
13026 \fi
13027 }%
13028 \def\HyField@@AddToFields#1{%
13029 \HyField@AfterAuxOpen{%
13030 \if@filesw
13031 \write\@mainaux{%
13032 \string\HyField@AuxAddToFields{#1}%
13033 }%
13034 \fi
13035 }%
13036 }%
13037 }
13038 \def\@Form[#1]{%
13039 \@ifundefined{textcolor}{\let\textcolor\@gobble}{}%
13040 \kvsetkeys{Form}{#1}%
13041 \pdf@ifdraftmode{}{%
13042 \Hy@FormObjects
13043 \ifnum\pdfTeXversion>13 %
13044 \pdfrefobj\OBJ@pdfdocencoding

```

```

13045 \pdfrefobj\OBJ@ZaDb
13046 \pdfrefobj\OBJ@Helv
13047 \fi
13048 \AtVeryEndDocument{%
13049 \immediate\pdfobj{%
13050 <<%
13051 /Fields[\HyField@afields]%
13052 \ifx\HyField@cofields\ltx@empty
13053 \else
13054 /CO[\romannumeral-`Q\HyField@cofields]%
13055 \fi
13056 /DR<<%
13057 /Font<<%
13058 /ZaDb \OBJ@ZaDb\space 0 R%
13059 /Helv \OBJ@Helv\space 0 R%
13060 >>%
13061 >>%
13062 /DA(/Helv 10 Tf 0 g)%
13063 \ifHy@pdfa
13064 \else
13065 \ifHyField@NeedAppearances
13066 /NeedAppearances true%
13067 \fi
13068 \fi
13069 >>%
13070 }%
13071 \edef\OBJ@acroform{\the\pdfflastobj}%
13072 \pdfcatalog{/AcroForm \OBJ@acroform\space 0 R}%
13073 }%
13074 }%
13075 \MakeFieldObject{%
Same as \ding{123} of package pifont.
13076 \begingroup
13077 \fontfamily{pzd}%
13078 \fontencoding{U}%
13079 \fontseries{m}%
13080 \fontshape{n}%
13081 \selectfont
13082 \char123 %
13083 \endgroup
13084 }{Ding}%
13085 \MakeFieldObject{%
13086 \fbox{\textcolor{yellow}{\textsf{Submit}}}%
13087 }{Submit}%
13088 \MakeFieldObject{%
13089 \fbox{\textcolor{yellow}{\textsf{SubmitP}}}%
13090 }{SubmitP}%
13091 }
13092 \let\@endForm\ltx@empty
13093 \let\HyAnn@AbsPageLabel\ltx@empty
13094 \let\Fld@pageobjref\ltx@empty
13095 \ltx@ifundefined{pdfpageref}{%
13096 }{%
13097 \ltx@ifpackageloaded{zref-abspage}{%

```

```

13098 \newcount\HyAnn@Count
13099 \HyAnn@Count=\ltx@zero
13100 \def\HyAnn@AbsPageLabel{%
13101   \global\advance\HyAnn@Count by\ltx@one
13102   \zref@labelbyprops{HyAnn@\the\HyAnn@Count}{abspage}%
13103   \zref@refused{HyAnn@\the\HyAnn@Count}%
13104 }%
13105 \def\Fld@pageobjref{%
13106   \zref@ifrefundefined{HyAnn@\the\HyAnn@Count}{%
13107     }{%
13108       \zref@ifrefcontainsprop{HyAnn@\the\HyAnn@Count}{abspage}{%
13109         /P \pdfpageref
13110         \zref@extractdefault{HyAnn@\the\HyAnn@Count}{abspage}{1} %
13111         \space 0 R%
13112       }{%
13113       }%
13114     }%
13115   }%
13116 }{%
13117 }%
13118 }

13119 \def\@TextField[#1]#2{% parameters, label
13120   \def\Fld@name{#2}%
13121   \let\Fld@default\ltx@empty
13122   \let\Fld@value\@empty
13123   \def\Fld@width{\DefaultWidthofText}%
13124   \def\Fld@height{%
13125     \ifFld@multiline
13126       \DefaultHeightofTextMultiline
13127     \else
13128       \DefaultHeightofText
13129     \fi
13130 }%
13131 \begingroup
13132   \expandafter\HyField@SetKeys\expandafter{%
13133     \DefaultOptionsofText,#1%
13134   }%
13135   \PDFForm@Name
13136   \HyField@FlagsText
13137   \ifFld@hidden\def\Fld@width{1sp}\fi
13138   \ifx\Fld@value\@empty\def\Fld@value{\Fld@default}\fi
13139   \LayoutTextField{#2}{%
13140     \leavevmode
13141     \HyAnn@AbsPageLabel
13142     \Hy@escapeform\PDFForm@Text
13143     \pdfstartlink user {\PDFForm@Text}\relax
13144     \MakeTextField{\Fld@width}{\Fld@height}\pdfendlink
13145     \HyField@AddToFields
13146   }%
13147 \endgroup
13148 }

13149 \def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
13150   \def\Fld@name{#2}%
13151   \let\Fld@default\relax

```

```

13152 \let\Fld@value\relax
13153 \def\Fld@width{\DefaultWidthofChoiceMenu}%
13154 \def\Fld@height{\DefaultHeightofChoiceMenu}%
13155 \begingroup
13156 \Fld@menulength=0 %
13157 \@tempdima\z@
13158 \@for\@curropt:=#3\do{%
13159 \expandafter\Fld@checkequals\@curropt==\\%
13160 \Hy@StepCount\Fld@menulength
13161 \settowidth{\@tempdimb}{\@currDisplay}%
13162 \ifdim\@tempdimb>\@tempdima\@tempdima\@tempdimb\fi
13163 }%
13164 \advance\@tempdima by 15\p@
13165 \begingroup
13166 \HyField@SetKeys{#1}%
13167 \edef\x{\endgroup
13168 \noexpand\expandafter
13169 \noexpand\HyField@SetKeys
13170 \noexpand\expandafter{%
13171 \expandafter\noexpand\curname DefaultOptionsof%
13172 \ifFld@radio
13173 Radio%
13174 \else
13175 \ifFld@combo
13176 \ifFld@popdown
13177 PopdownBox%
13178 \else
13179 ComboBox%
13180 \fi
13181 \else
13182 ListBox%
13183 \fi
13184 \fi
13185 \endcurname
13186 }%
13187 }\x
13188 \HyField@SetKeys{#1}%
13189 \PDFForm@Name
13190 \ifFld@hidden\def\Fld@width{1sp}\fi
13191 \ifx\Fld@value\relax
13192 \let\Fld@value\Fld@default
13193 \fi
13194 \LayoutChoiceField{#2}{%
13195 \ifFld@radio
13196 \HyField@FlagsRadioButton
13197 \@Radio{#3}%
13198 \else
13199 \begingroup
13200 \HyField@FlagsChoice
13201 \ifdim\Fld@width<\@tempdima
13202 \ifdim\@tempdima<1cm\@tempdima1cm\fi
13203 \edef\Fld@width{\the\@tempdima}%
13204 \fi
13205 \ifFld@combo

```

```

13206         \else
13207         \@tempdima=\the\Fld@menulength\Fld@charsize
13208         \advance\@tempdima by \Fld@borderwidth bp %
13209         \advance\@tempdima by \Fld@borderwidth bp %
13210         \edef\Fld@height{\the\@tempdima}%
13211         \fi
13212         \@@ListBox{#3}%
13213     \endgroup
13214 \fi
13215 }%
13216 \endgroup
13217 }
13218 \def\@@Radio#1{%
13219     \Fld@listcount=0 %
13220     \EdefEscapeName\Fld@default{\Fld@default}%
13221     \@for\@curropt:=#1\do{%
13222         \expandafter\Fld@checkequals\@curropt==\%
13223         \EdefEscapeName\@currValue{\@currValue}%
13224         \Hy@StepCount\Fld@listcount
13225         \@currDisplay\space
13226         \leavevmode
13227         \HyAnn@AbsPageLabel
13228         \Hy@escapeform\PDFForm@Radio
13229         \pdfstartlink user {%
13230             \PDFForm@Radio
13231             /AP<<%
13232             /N<<%

```

Laurent.Guillope@math.univ-nantes.fr (Laurent Guillope) persuades me that this was wrong: `/\Fld@name\the\Fld@listcount`. But I leave it here to remind me that it is untested.

```

13233         /\@currValue\space \DingObject
13234         >>%
13235         >>%
13236     }%
13237     \relax
13238     \MakeRadioField{\Fld@width}{\Fld@height}\pdfendlink
13239     \ifnum\Fld@listcount=1 %
13240         \HyField@AddToFields
13241     \fi
13242     \space % deliberate space between radio buttons
13243 }%
13244 }
13245 \newcount\Fld@listcount
13246 \def\@@ListBox#1{%
13247     \HyField@PDFChoices{#1}%
13248     \leavevmode
13249     \HyAnn@AbsPageLabel
13250     \Hy@escapeform\PDFForm@List
13251     \pdfstartlink user {\PDFForm@List}\relax
13252     \MakeChoiceField{\Fld@width}{\Fld@height}%
13253     \pdfendlink
13254     \HyField@AddToFields
13255 }

```



```

13256 \def\@PushButton[#1]#2{% parameters, label
13257 \def\Fld@name{#2}%
13258 \begingroup
13259 \expandafter\HyField@SetKeys\expandafter{%
13260 \DefaultOptionsofPushButton,#1%
13261 }%
13262 \PDFForm@Name
13263 \ifHy@pdfa
13264 \Hy@Error{%
13265 PDF/A: Push button with JavaScript is prohibited%
13266 } \@ehc
13267 \LayoutPushButtonField{%
13268 \leavevmode
13269 \MakeButtonField{#2}%
13270 }%
13271 \else
13272 \HyField@FlagsPushButton
13273 \ifFld@hidden\def\Fld@width{1sp}\fi
13274 \LayoutPushButtonField{%
13275 \leavevmode
13276 \HyAnn@AbsPageLabel
13277 \Hy@escapeform\PDFForm@Push
13278 \pdfstartlink user {\PDFForm@Push}\relax
13279 \MakeButtonField{#2}%
13280 \pdfendlink
13281 \HyField@AddToFields
13282 }%
13283 \fi
13284 \endgroup
13285 }
13286 \def\@Submit[#1]#2{%
13287 \def\Fld@width{\DefaultWidthofSubmit}%
13288 \def\Fld@height{\DefaultHeightofSubmit}%
13289 \begingroup
13290 \expandafter\HyField@SetKeys\expandafter{%
13291 \DefaultOptionsofSubmit,#1%
13292 }%
13293 \HyField@FlagsPushButton
13294 \HyField@FlagsSubmit
13295 \ifFld@hidden\def\Fld@width{1sp}\fi
13296 \leavevmode
13297 \HyAnn@AbsPageLabel
13298 \Hy@escapeform\PDFForm@Submit
13299 \pdfstartlink user {%
13300 \PDFForm@Submit
13301 /AP<</N \SubmitObject/D \SubmitPObj>>%
13302 }%
13303 \relax
13304 \MakeButtonField{#2}%
13305 \pdfendlink
13306 \HyField@AddToFields
13307 \endgroup
13308 }
13309 \def\@Reset[#1]#2{%

```

```

13310 \def\Fld@width{\DefaultWidthofReset}%
13311 \def\Fld@height{\DefaultHeightofReset}%
13312 \begingroup
13313 \expandafter\HyField@SetKeys\expandafter{%
13314 \DefaultOptionsofReset,#1%
13315 }%
13316 \leavevmode
13317 \ifHy@pdfa
13318 \Hy@Error{%
13319 PDF/A: Reset action is prohibited%
13320 } \@ehc
13321 \MakeButtonField{#2}%
13322 \else
13323 \HyField@FlagsPushButton
13324 \ifFld@hidden\def\Fld@width{1sp}\fi
13325 \HyAnn@AbsPageLabel
13326 \Hy@escapeform\PDFForm@Reset
13327 \pdfstartlink user {\PDFForm@Reset}\relax
13328 \MakeButtonField{#2}%
13329 \pdfendlink
13330 \HyField@AddToFields
13331 \fi
13332 \endgroup
13333 }
13334 \def\@CheckBox[#1]#2{% parameters, label
13335 \def\Fld@name{#2}%
13336 \def\Fld@default{0}%
13337 \begingroup
13338 \def\Fld@width{\DefaultWidthofCheckBox}%
13339 \def\Fld@height{\DefaultHeightofCheckBox}%
13340 \expandafter\HyField@SetKeys\expandafter{%
13341 \DefaultOptionsofCheckBox,#1%
13342 }%
13343 \PDFForm@Name
13344 \HyField@FlagsCheckBox
13345 \ifFld@hidden\def\Fld@width{1sp}\fi
13346 \LayoutCheckField{#2}{%
13347 \leavevmode
13348 \HyAnn@AbsPageLabel
13349 \Hy@escapeform\PDFForm@Check
13350 \pdfstartlink user {\PDFForm@Check}\relax
13351 \MakeCheckField{\Fld@width}{\Fld@height}%
13352 \pdfendlink
13353 \HyField@AddToFields
13354 }%
13355 \endgroup
13356 }
13357 \def\Hy@FormObjects{%
13358 \pdfobj {%
13359 <<%
13360 /Type/Encoding%
13361 /Differences[%
13362 24/breve/caron/circumflex/dotaccent/hungarumlaut/ogonek%
13363 /ring/tilde %

```

13364 39/quotesingle %  
13365 96/grave %  
13366 128/bullet/dagger/daggerdbl/ellipsis/emdash/endash/florin%  
13367 /fraction/guilsinglleft/guilsinglright/minus/perthousand%  
13368 /quotedblbase/quotedblleft/quotedblright/quoteleft%  
13369 /quoteright/quotesinglbase/trademark/fi/fl/Lslash/OE%  
13370 /Scaron/Ydieresis/Zcaron/dotlessi/lslash/oe/scaron/zcaron %  
13371 160/Euro %  
13372 164/currency %  
13373 166/brokenbar %  
13374 168/dieresis/copyright/ordfeminine %  
13375 172/logicalnot/.notdef/registered/macron/degree/plusminus%  
13376 /twosuperior/threesuperior/acute/mu %  
13377 183/periodcentered/cedilla/onesuperior/ordmasculine %  
13378 188/onequarter/onehalf/threequarters %  
13379 192/Agrave/Aacute/Acircumflex/Atilde/Adieresis/Aring/AE%  
13380 /Cedilla/Egrave/Eacute/Ecircumflex/Edieresis/Igrave%  
13381 /Iacute/Icircumflex/Idieresis/Eth/Ntilde/Ograve/Oacute%  
13382 /Ocircumflex/Otilde/Odieresis/multiply/Oslash/Ugrave%  
13383 /Uacute/Ucircumflex/Udieresis/Yacute/Thorn/germandbls%  
13384 /agrave/aacute/acircumflex/atilde/adieresis/aring/ae%  
13385 /cedilla/egrave/eacute/ecircumflex/edieresis/igrave%  
13386 /iacute/icircumflex/idieresis/eth/ntilde/ograde/oacute%  
13387 /ocircumflex/otilde/odieresis/divide/oslash/ugrave%  
13388 /uacute/ucircumflex/udieresis/yacute/thorn/ydieresis%  
13389 ]%  
13390 >>%  
13391 }%  
13392 \xdef\OBJ@pdfdocencoding{\the\pdfastobj}%  
13393 \pdfobj{%  
13394 <<%  
13395 /Type/Font%  
13396 /Subtype/Type1%  
13397 /Name/ZaDb%  
13398 /BaseFont/ZapfDingbats%  
13399 >>%  
13400 }%  
13401 \xdef\OBJ@ZaDb{\the\pdfastobj}%  
13402 \pdfobj{%  
13403 <<%  
13404 /Type/Font%  
13405 /Subtype/Type1%  
13406 /Name/Helv%  
13407 /BaseFont/Helvetica%  
13408 /Encoding \OBJ@pdfdocencoding\space 0 R%  
13409 >>%  
13410 }%  
13411 \xdef\OBJ@Helv{\the\pdfastobj}%  
13412 \global\let\Hy@FormObjects\relax  
13413 }  
13414 (/pdftex)

## 45.5 dvipdfm, xetex

D. P. Story adapted the pdfTeX forms part for dvipdfm, of which version 0.12.7b or higher is required because of a bug.

```
13415 <*dvipdfm | xetex>
```

```
\@Gauge
```

```
13416 \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
13417 \Hy@Message{Sorry, dvipdfm/XeTeX does not support FORM gauges}%
13418 }
```

```
\@Form
```

```
13419 \def\@Form[#1]{%
13420 \ifundefined{textcolor}{\let\textcolor\@gobble}{}}%
13421 \kvsetkeys{Form}{#1}%
13422 \Hy@FormObjects
13423 \@pdfm@mark{obj @afields []}%
13424 \@pdfm@mark{obj @corder []}%
13425 \@pdfm@mark{%
13426   obj @aform <<%
13427   /Fields @afields%
13428   /DR<<%
13429   /Font<<%
13430   /ZaDb @OBJZaDb%
13431   /Helv @OBJHelv%
13432   >>%
13433   >>%
13434   /DA(/Helv 10 Tf 0 g)%
13435   /CO @corder%
13436   \ifHy@pdfa
13437   \else
13438   \ifHyField@NeedAppearances
13439   /NeedAppearances true%
13440   \fi
13441   \fi
13442   >>%
13443   }%
13444   \@pdfm@mark{put @catalog <</AcroForm @aform>>}%
13445 }
```

```
\@endForm
```

```
13446 \let\@endForm\ltx@empty
```

```
\dvipdfm@setdim \dvipdfm@setdim sets dimensions for ann using \pdfm@box.
```

```
13447 \def\dvipdfm@setdim{%
13448   height \the\ht\pdfm@box\space
13449   width \the\wd\pdfm@box\space
13450   depth \the\dp\pdfm@box\space
13451 }
```

```
\HyField@AnnotCount
```

```
13452 \newcount\HyField@AnnotCount
13453 \HyField@AnnotCount=\z@
```

\HyField@AdvanceAnnotCount

```
13454 \def\HyField@AdvanceAnnotCount{%
13455   \global\advance\HyField@AnnotCount\@ne
13456 }
```

\HyField@TheAnnotCount

```
13457 \def\HyField@TheAnnotCount{%
13458   \the\HyField@AnnotCount
13459 }
```

\Fld@pageobjref

```
13460 \def\Fld@pageobjref{/P @thispage}%
```

\HyField@AddToFields

```
13461 \def\HyField@AddToFields#1{%
13462   \@pdfm@mark{put @afields @#1\HyField@TheAnnotCount}%
13463   \ifx\Fld@calculate@code\ltx@empty
13464   \else
13465     \@pdfm@mark{put @corder @#1\HyField@TheAnnotCount}%
13466   \fi
13467 }
```

\@TextField

```
13468 \def\@TextField[#1]#2{% parameters, label
13469   \def\Fld@name{#2}%
13470   \let\Fld@default\ltx@empty
13471   \let\Fld@value\@empty
13472   \def\Fld@width{\DefaultWidthofText}%
13473   \def\Fld@height{%
13474     \ifFld@multiline
13475       \DefaultHeightofTextMultiline
13476     \else
13477       \DefaultHeightofText
13478     \fi
13479   }%
13480   \begingroup
13481     \expandafter\HyField@SetKeys\expandafter{%
13482       \DefaultOptionsofText,#1%
13483     }%
13484     \PDFForm@Name
13485     \HyField@FlagsText
13486     \ifFld@hidden\def\Fld@width{1sp}\fi
13487     \ifx\Fld@value\@empty\def\Fld@value{\Fld@default}\fi
13488     \setbox\pdfm@box=\hbox{%
13489       \MakeTextField{\Fld@width}{\Fld@height}%
13490     }%
13491     \HyField@AdvanceAnnotCount
13492     \LayoutTextField{#2}{%
13493       \leavevmode
13494       \Hy@escapeform\PDFForm@Text
13495       \@pdfm@mark{%
13496         ann @text\HyField@TheAnnotCount\space
13497         \dvipdfm@setdim << \PDFForm@Text >>%
```

```

13498 }%
13499 }%
13500 \unhbox\pdfm@box
13501 \HyField@AddToFields{text}%
13502 % record in @afields array
13503 \endgroup
13504 }

```

#### \@ChoiceMenu

```

13505 \def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
13506 \def\Fld@name{#2}%
13507 \let\Fld@default\relax
13508 \let\Fld@value\relax
13509 \def\Fld@width{\DefaultWidthofChoiceMenu}%
13510 \def\Fld@height{\DefaultHeightofChoiceMenu}%
13511 \begingroup
13512 \Fld@menulength=0 %
13513 \@tempdima\z@
13514 \@for\@curropt:=#3\do{%
13515 \expandafter\Fld@checkequals\@curropt==\\%
13516 \Hy@StepCount\Fld@menulength
13517 \settowidth{\@tempdimb}{\@currDisplay}%
13518 \ifdim\@tempdimb>\@tempdima\@tempdima\@tempdimb\fi
13519 }%
13520 \advance\@tempdima by 15\p@
13521 \begingroup
13522 \HyField@SetKeys{#1}%
13523 \edef\x{\endgroup
13524 \noexpand\expandafter
13525 \noexpand\HyField@SetKeys
13526 \noexpand\expandafter{%
13527 \expandafter\noexpand\curname DefaultOptionsof%
13528 \ifFld@radio
13529 Radio%
13530 \else
13531 \ifFld@combo
13532 \ifFld@popdown
13533 PopdownBox%
13534 \else
13535 ComboBox%
13536 \fi
13537 \else
13538 ListBox%
13539 \fi
13540 \fi
13541 \endcurname
13542 }%
13543 }\x
13544 \HyField@SetKeys{#1}%
13545 \PDFForm@Name
13546 \ifFld@hidden\def\Fld@width{1sp}\fi
13547 \ifx\Fld@value\relax
13548 \let\Fld@value\Fld@default
13549 \fi

```

```

13550 \LayoutChoiceField{#2}{%
13551 \ifFld@radio
13552 \HyField@FlagsRadioButton
13553 \@@Radio{#3}%
13554 \else
13555 \begingroup
13556 \HyField@FlagsChoice
13557 \ifdim\Fld@width<\@tempdima
13558 \ifdim\@tempdima<1cm\@tempdima1cm\fi
13559 \edef\Fld@width{\the\@tempdima}%
13560 \fi
13561 \ifFld@combo
13562 \else
13563 \@tempdima=\the\Fld@menulength\Fld@charsize
13564 \advance\@tempdima by \Fld@borderwidth bp %
13565 \advance\@tempdima by \Fld@borderwidth bp %
13566 \edef\Fld@height{\the\@tempdima}%
13567 \fi
13568 \@@ListBox{#3}%
13569 \endgroup
13570 \fi
13571 }%
13572 \endgroup
13573 }

\@@Radio
13574 \def\@@Radio#1{%
13575 \Fld@listcount=0 %
13576 \EdefEscapeName\Fld@default{\Fld@default}%
13577 \setbox\pdfm@box=\hbox{%
13578 \MakeRadioField{\Fld@width}{\Fld@height}%
13579 }%
13580 \@for\@curropt:=#1\do{%
13581 \expandafter\Fld@checkequals\@curropt==\%
13582 \EdefEscapeName\@currValue{\@currValue}%
13583 \Hy@StepCount\Fld@listcount
13584 \@currDisplay\space
13585 \leavevmode
13586 \Hy@escapeform\PDFForm@Radio
13587 \ifnum\Fld@listcount=1 %
13588 \HyField@AdvanceAnnotCount
13589 \fi
13590 \@pdfm@mark{%
13591 ann %
13592 \ifnum\Fld@listcount=1 %
13593 @radio\HyField@TheAnnotCount%
13594 \space
13595 \fi
13596 \dvi pdfm@setdim
13597 <<%
13598 \PDFForm@Radio
13599 /AP<</N<</\@currValue /null>>>>%
13600 >>%
13601 }%

```

```

13602 \unhcopy\pdfm@box\space% deliberate space between radio buttons
13603 \ifnum\Fld@listcount=1 %
13604 \HyField@AddToFields{radio}%
13605 \fi
13606 }%
13607 }

\Fld@listcount
13608 \newcount\Fld@listcount

\@@Listbox
13609 \def\@@Listbox#1{%
13610 \HyField@PDFChoices{#1}%
13611 \setbox\pdfm@box=\hbox{%
13612 \MakeChoiceField{\Fld@width}{\Fld@height}%
13613 }%
13614 \leavevmode
13615 \Hy@escapeform\PDFForm@List
13616 \HyField@AdvanceAnnotCount
13617 \@pdfm@mark{%
13618 ann @list\HyField@TheAnnotCount\space
13619 \dvi pdfm@setdim
13620 <<\PDFForm@List>>%
13621 }%
13622 \unhbox\pdfm@box
13623 \HyField@AddToFields{list}%
13624 }

\@PushButton
13625 \def\@PushButton[#1]#2{% parameters, label
13626 \def\Fld@name{#2}%
13627 \begingroup
13628 \expandafter\HyField@SetKeys\expandafter{%
13629 \DefaultOptionsofPushButton,#1%
13630 }%
13631 \PDFForm@Name
13632 \ifHy@pdfa
13633 \Hy@Error{%
13634 PDF/A: Push button with JavaScript is prohibited%
13635 }\@ehc
13636 \LayoutPushButtonField{%
13637 \leavevmode
13638 \MakeButtonField{#2}%
13639 }%
13640 \else
13641 \setbox\pdfm@box=\hbox{\MakeButtonField{#2}}%
13642 \HyField@FlagsPushButton
13643 \ifFld@hidden\def\Fld@width{1sp}\fi
13644 \HyField@AdvanceAnnotCount
13645 \LayoutPushButtonField{%
13646 \leavevmode
13647 \Hy@escapeform\PDFForm@Push
13648 \@pdfm@mark{%
13649 ann @push\HyField@TheAnnotCount\space

```



```

13650      \dvipdfm@setdim
13651      <<\PDFForm@Push>>%
13652      }%
13653      }%
13654      \unhbox\pdfm@box
13655      \HyField@AddToFields{push}%
13656      \fi
13657 \endgroup
13658 }

\@Submit
13659 \def\@Submit[#1]#2{%
13660   \def\Fld@width{\DefaultWidthofSubmit}%
13661   \def\Fld@height{\DefaultHeightofSubmit}%
13662   \begingroup
13663     \expandafter\HyField@SetKeys\expandafter{%
13664       \DefaultOptionsofSubmit,#1%
13665     }%
13666     \HyField@FlagsPushButton
13667     \HyField@FlagsSubmit
13668     \ifFld@hidden\def\Fld@width{1sp}\fi
13669     \setbox\pdfm@box=\hbox{\MakeButtonField{#2}}%
13670     \leavevmode
13671     \Hy@escapeform\PDFForm@Submit
13672     \HyField@AdvanceAnnotCount
13673     \@pdfm@mark{%
13674       ann @submit\HyField@TheAnnotCount\space
13675       \dvipdfm@setdim
13676       <<\PDFForm@Submit>>%
13677     }%
13678     \unhbox\pdfm@box%
13679     \HyField@AddToFields{submit}%
13680 \endgroup
13681 }

\@Reset
13682 \def\@Reset[#1]#2{%
13683   \def\Fld@width{\DefaultWidthofReset}%
13684   \def\Fld@height{\DefaultHeightofReset}%
13685   \begingroup
13686     \expandafter\HyField@SetKeys\expandafter{%
13687       \DefaultOptionsofReset,#1%
13688     }%
13689     \leavevmode
13690     \ifHy@pdfa
13691       \Hy@Error{%
13692         PDF/A: Reset action is prohibited%
13693       }\@ehc
13694       \MakeButtonField{#2}%
13695     \else
13696       \HyField@FlagsPushButton
13697       \ifFld@hidden\def\Fld@width{1sp}\fi
13698       \setbox\pdfm@box=\hbox{\MakeButtonField{#2}}%
13699       \Hy@escapeform\PDFForm@Reset

```

```

13700 \HyField@AdvanceAnnotCount
13701 \@pdfm@mark{%
13702   ann @reset\HyField@TheAnnotCount\space
13703   \dvipdfm@setdim
13704   <<\PDFForm@Reset>>%
13705 }%
13706 \unhbox\pdfm@box
13707 \HyField@AddToFields{reset}%
13708 \fi
13709 \endgroup
13710 }

```

\@CheckBox

```

13711 \def\@CheckBox[#1]#2{% parameters, label
13712   \def\Fld@name{#2}%
13713   \def\Fld@default{0}%
13714   \begingroup
13715     \def\Fld@width{\DefaultWidthofCheckBox}%
13716     \def\Fld@height{\DefaultHeightofCheckBox}%
13717     \expandafter\HyField@SetKeys\expandafter{%
13718       \DefaultOptionsofCheckBox,#1%
13719     }%
13720     \PDFForm@Name
13721     \HyField@FlagsCheckBox
13722     \ifFld@hidden\def\Fld@width{1sp}\fi
13723     \setbox\pdfm@box=\hbox{%
13724       \MakeCheckField{\Fld@width}{\Fld@height}%
13725     }%
13726     \HyField@AdvanceAnnotCount
13727     \LayoutCheckField{#2}{%
13728       \leavevmode
13729       \Hy@escapeform\PDFForm@Check
13730       \@pdfm@mark{%
13731         ann @check\HyField@TheAnnotCount\space
13732         \dvipdfm@setdim
13733         <<\PDFForm@Check>>%
13734       }%
13735       \unhbox\pdfm@box
13736       \HyField@AddToFields{check}%
13737     }%
13738   \endgroup
13739 }

13740 \def\Hy@FormObjects{%
13741   \@pdfm@mark{obj @OBJpdfdocencoding%
13742     <<%
13743       /Type/Encoding%
13744       /Differences[
13745         24/breve/caron/circumflex/dotaccent/hungarumlaut/ogonek/ring/tilde %
13746         39/quotesingle %
13747         96/grave %
13748         128/bullet/dagger/daggerdbl/ellipsis/emdash/endash/florin%
13749         /fraction/guilsinglleft/guilsinglright/minus/perthousand%
13750         /quotedblbase/quotedblleft/quotedblright/quoteleft/quoteright%

```

13751 /quotesinglbase/trademark/fi/fi/Lslash/OE/Scaron/Ydieresis%  
 13752 /Zcaron/dotlessi/lslash/oe/scaron/zcaron %  
 13753 160/Euro %  
 13754 164/currency %  
 13755 166/brokenbar %  
 13756 168/dieresis/copyright/ordfeminine %  
 13757 172/logicalnot/.notdef/registered/macron/degree/plusminus%  
 13758 /twosuperior/threesuperior/acute/mu %  
 13759 183/periodcentered/cedilla/onesuperior/ordmasculine %  
 13760 188/onequarter/onehalf/threequarters %  
 13761 192/Agrave/Aacute/Acircumflex/Atilde/Adieresis/Aring/AE%  
 13762 /Ccedilla/Egrave/Eacute/Ecircumflex/Edieresis/Igrave/Iacute%  
 13763 /Icircumflex/Idieresis/Eth/Ntilde/Ograve/Oacute/Ocircumflex%  
 13764 /Otilde/Odieresis/multiply/Oslash/Ugrave/Uacute/Ucircumflex%  
 13765 /Udieresis/Yacute/Thorn/germandbls/agrave/aacute/acircumflex%  
 13766 /atilde/adieresis/aring/ae/ccedilla/egrave/eacute%  
 13767 /ecircumflex/edieresis/igrave/iacute/icircumflex/idieresis%  
 13768 /eth/ntilde/ograde/oacute/ocircumflex/otilde/odieresis%  
 13769 /divide/oslash/ugrave/uacute/ucircumflex/udieresis/yacute%  
 13770 /thorn/ydieresis%  
 13771 ]%  
 13772 >>%  
 13773 }%  
 13774 \@pdfm@mark{obj @OBJZaDb%  
 13775 <<%  
 13776 /Type/Font%  
 13777 /Subtype/Type1%  
 13778 /Name/ZaDb%  
 13779 /BaseFont/ZapfDingbats%  
 13780 >>%  
 13781 }%  
 13782 \@pdfm@mark{obj @OBJHelv%  
 13783 <<%  
 13784 /Type/Font%  
 13785 /Subtype/Type1%  
 13786 /Name/Helv%  
 13787 /BaseFont/Helvetica%  
 13788 /Encoding @OBJpdfdocencoding%  
 13789 >>%  
 13790 }%  
 13791 \global\let\Hy@FormObjects\relax  
 13792 }  
 13793 </dvipdfm | xetex>

## 45.6 Common forms part

13794 (\*pdfform)  
 \Fld@pageobjref  
 13795 \providecommand\*{\Fld@pageobjref}{}  
 \Hy@escapestring  
 13796 \@ifundefined{pdf@escapestring}  
 13797 {%

```

13798 \let\Hy@escapestring\@firstofone
13799 \def\Hy@escapeform#1{%
13800   \ifHy@pdfescapeform
13801     \def\Hy@escapestring##1{%
13802       \noexpand\Hy@escapestring{\noexpand##1}%
13803     }%
13804     \edef\Hy@temp{#1}%
13805     \expandafter\Hy@@@escapeform\Hy@temp\Hy@escapestring{}\@nil
13806   \def\Hy@escapestring##1{%
13807     \@ifundefined{Hy@esc@\string##1}{%
13808       ##1%
13809       \ThisShouldNotHappen
13810     }{%
13811       \csname Hy@esc@\string##1\endcsname
13812     }%
13813   }%
13814 \else
13815   \let\Hy@escapestring\@firstofone
13816 \fi
13817 }%
13818 \def\Hy@@@escapeform#1\Hy@escapestring#2#3\@nil{%
13819   \ifx\#3\%
13820   \else
13821     \expandafter
13822     \Hy@pstringdef\csname Hy@esc@\string#2\endcsname{#2}%
13823     \ltx@ReturnAfterFi{%
13824       \Hy@@@escapeform#3\@nil
13825     }%
13826   \fi
13827 }%
13828 }{%
13829 \def\Hy@escapeform#1{%
13830   \ifHy@pdfescapeform
13831     \let\Hy@escapestring\pdfescapestring
13832   \else
13833     \let\Hy@escapestring\@firstofone
13834   \fi
13835 }%
13836 \Hy@escapeform{%
13837 }

```

\PDFForm@Name

```

13838 \def\PDFForm@Name{%
13839   \PDFForm@@Name\Fld@name
13840   \ifx\Fld@altname\relax
13841   \else
13842     \PDFForm@@Name\Fld@altname
13843   \fi
13844   \ifx\Fld@mappingname\relax
13845   \else
13846     \PDFForm@@Name\Fld@mappingname
13847   \fi
13848 }

```

\PDFForm@@Name

```
13849 \def\PDFForm@@Name#1{%
13850 \begingroup
13851 \ifnum\Hy@pdf@major@minor<105 % implementation note 117, PDF spec 1.7
13852 \ifHy@unicode
13853 \Hy@unicodedefalse
13854 \fi
13855 \fi
13856 \pdfstringdef\Hy@gtemp#1%
13857 \endgroup
13858 \let#1\Hy@gtemp
13859 }
```

\Fld@additionalactions

```
13860 \def\Fld@@additionalactions{%
K input (keystroke) format
13861 \ifx\Fld@keystroke@code\@empty
13862 \else
13863 /K<</S/JavaScript/JS(\Hy@escapestring{\Fld@keystroke@code})>>%
13864 \fi
F display format
13865 \ifx\Fld@format@code\@empty
13866 \else
13867 /F<</S/JavaScript/JS(\Hy@escapestring{\Fld@format@code})>>%
13868 \fi
V validation
13869 \ifx\Fld@validate@code\@empty
13870 \else
13871 /V<</S/JavaScript/JS(\Hy@escapestring{\Fld@validate@code})>>%
13872 \fi
C calculation
13873 \ifx\Fld@calculate@code\@empty
13874 \else
13875 /C<</S/JavaScript/JS(\Hy@escapestring{\Fld@calculate@code})>>%
13876 \fi
Fo receiving the input focus
13877 \ifx\Fld@onfocus@code\@empty
13878 \else
13879 /Fo<</S/JavaScript/JS(\Hy@escapestring{\Fld@onfocus@code})>>%
13880 \fi
Bl losing the input focus (blurred)
13881 \ifx\Fld@onblur@code\@empty
13882 \else
13883 /Bl<</S/JavaScript/JS(\Hy@escapestring{\Fld@onblur@code})>>%
13884 \fi
D pressing the mouse button (down)
13885 \ifx\Fld@onmousedown@code\@empty
13886 \else
13887 /D<</S/JavaScript/JS(\Hy@escapestring{\Fld@onmousedown@code})>>%
13888 \fi
```

U releasing the mouse button (up)

```
13889 \ifx\Fld@onmouseup@code\@empty
13890 \else
13891 /U<</S/JavaScript/JS(\Hy@escapestring{\Fld@onmouseup@code})>>%
13892 \fi
```

E cursor enters the annotation's active area.

```
13893 \ifx\Fld@onenter@code\@empty
13894 \else
13895 /E<</S/JavaScript/JS(\Hy@escapestring{\Fld@onenter@code})>>%
13896 \fi
```

X cursor exits the annotation's active area.

```
13897 \ifx\Fld@onexit@code\@empty
13898 \else
13899 /X<</S/JavaScript/JS(\Hy@escapestring{\Fld@onexit@code})>>%
13900 \fi
13901 }
13902 \def\Fld@additionalactions{%
13903 \if-\Fld@@additionalactions-%
13904 \else
13905 \ifHy@pdfa
13906 \else
13907 /AA<<\Fld@@additionalactions>>%
13908 \fi
13909 \fi
13910 }
```

\Fld@annotnames

```
13911 \def\Fld@annotnames{%
13912 /T(\Fld@name)%
13913 \ifx\Fld@altname\relax
13914 \else
13915 /TU(\Fld@altname)%
13916 \fi
13917 \ifx\Fld@mappingname\relax
13918 \else
13919 /TM(\Fld@mappingname)%
13920 \fi
13921 }
```

\PDFForm@Check

```
13922 \def\PDFForm@Check{%
13923 /Subtype/Widget%
13924 \Fld@annotflags
13925 \Fld@pageobjref
13926 \Fld@annotnames
13927 /FT/Btn%
13928 \Fld@flags
13929 /Q \Fld@align
13930 /BS<</W \Fld@borderwidth /S/\Fld@borderstyle>>%
13931 /AP<< /N <</Yes<<>>>> >> %new string /Yes is from below
13932 /MK<<%
13933 \ifnum\Fld@rotation=z@
```

```

13934 \else
13935 /R \Fld@rotation
13936 \fi
13937 \ifx\Fld@bordercolor\relax
13938 \else
13939 /BC[\Fld@bordercolor]%
13940 \fi
13941 \ifx\Fld@bcolor\relax
13942 \else
13943 /BG[\Fld@bcolor]%
13944 \fi
13945 /CA(\Hy@escapestring{\Fld@cbsymbol})%
13946 >>%
13947 /DA(/ZaDb \strip@pt\Fld@charsize\space Tf%
13948 \ifx\Fld@color\@empty\else\space\Fld@color\fi)%
13949 /H/P%
13950 \ifFld@checked /V/Yes/AS/Yes\else /V/Off/AS/Off\fi
13951 \Fld@additionalactions
13952 }

```

\PDFForm@Push

```

13953 \ifHy@pdfa
13954 \else
13955 \def\PDFForm@Push{%
13956 /Subtype/Widget%
13957 \Fld@annotflags
13958 \Fld@pageobjref
13959 \Fld@annotnames
13960 /FT/Btn%
13961 \Fld@flags
13962 /H/P%
13963 /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
13964 \ifcase0\ifnum\Fld@rotation=\z@ \else 1\fi
13965 \ifx\Fld@bordercolor\relax\else 1\fi
13966 \space
13967 \else
13968 /MK<<%
13969 \ifnum\Fld@rotation=\z@
13970 \else
13971 /R \Fld@rotation
13972 \fi
13973 \ifx\Fld@bordercolor\relax
13974 \else
13975 /BC[\Fld@bordercolor]%
13976 \fi
13977 >>%
13978 \fi
13979 /A<</S/JavaScript/JS(\Hy@escapestring{\Fld@onclick@code})>>%
13980 \Fld@additionalactions
13981 }%
13982 \fi

```

\PDFForm@List

```

13983 \def\PDFForm@List{%

```

```

13984 /Subtype/Widget%
13985 \Fld@annotflags
13986 \Fld@pageobjref
13987 \Fld@annotnames
13988 /FT/Ch%
13989 \Fld@flags
13990 /Q \Fld@align
13991 /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
13992 \ifcase0\ifnum\Fld@rotation=\z@ \else 1\fi
13993     \ifx\Fld@bordercolor\relax\else 1\fi
13994     \ifx\Fld@bcolor\relax \else 1\fi
13995     \space
13996 \else
13997 /MK<<%
13998     \ifnum\Fld@rotation=\z@
13999     \else
14000     /R \Fld@rotation
14001     \fi
14002     \ifx\Fld@bordercolor\relax
14003     \else
14004     /BC[\Fld@bordercolor]%
14005     \fi
14006     \ifx\Fld@bcolor\relax
14007     \else
14008     /BG[\Fld@bcolor]%
14009     \fi
14010 >>%
14011 \fi
14012 /DA(/Helv \strip@pt\Fld@charsize\space Tf%
14013     \ifx\Fld@color\@empty\else\space\Fld@color\fi)%
14014 \Fld@choices
14015 \Fld@additionalactions
14016 }

```

#### \PDFForm@Radio

```

14017 \def\PDFForm@Radio{%
14018 /Subtype/Widget%
14019 \Fld@annotflags
14020 \Fld@pageobjref
14021 \Fld@annotnames
14022 /FT/Btn%
14023 \Fld@flags
14024 /H/P%
14025 /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
14026 /MK<<%
14027     \ifnum\Fld@rotation=\z@
14028     \else
14029     /R \Fld@rotation
14030     \fi
14031     \ifx\Fld@bordercolor\relax
14032     \else
14033     /BC[\Fld@bordercolor]%
14034     \fi
14035     \ifx\Fld@bcolor\relax

```



```

14036 \else
14037 /BG[\Fld@bcolor]%
14038 \fi
14039 /CA(\Hy@escapestring{\Fld@radiosymbol})%
14040 >>%
14041 /DA(/ZaDb \strip@pt\Fld@charsize\space Tf%
14042 \ifx\Fld@color\@empty\else\space\Fld@color\fi)%

```

New code, the default value is used for all buttons

```

14043 \ifx\Fld@default\@empty
14044 /V/Off%
14045 /DV/Off%
14046 \else
14047 /V/\Fld@default
14048 /DV/\Fld@default
14049 \fi
14050 \Fld@additionalactions
14051 }

```

\PDFForm@Text

```

14052 \def\PDFForm@Text{%
14053 /Subtype/Widget%
14054 \Fld@annotflags
14055 \Fld@pageobjref
14056 \Fld@annotnames
14057 /FT/Tx%
14058 \Fld@flags
14059 /Q \Fld@align
14060 /BS<</W \Fld@borderwidth\space /S /\Fld@borderstyle>>%
14061 \ifcase0\ifnum\Fld@rotation=\z@ \else 1\fi
14062 \ifx\Fld@bordercolor\relax\else 1\fi
14063 \ifx\Fld@bcolor\relax \else 1\fi
14064 \space
14065 \else
14066 /MK<<%
14067 \ifnum\Fld@rotation=\z@
14068 \else
14069 /R \Fld@rotation
14070 \fi
14071 \ifx\Fld@bordercolor\relax
14072 \else
14073 /BC[\Fld@bordercolor]%
14074 \fi
14075 \ifx\Fld@bcolor\relax
14076 \else
14077 /BG[\Fld@bcolor]%
14078 \fi
14079 >>%
14080 \fi
14081 /DA(/Helv \strip@pt\Fld@charsize\space Tf%
14082 \ifx\Fld@color\@empty\else\space\Fld@color\fi)%
14083 /DV(\Hy@escapestring{\Fld@default})%
14084 /V(\Hy@escapestring{\Fld@value})%
14085 \Fld@additionalactions

```

```

14086 \ifnum\Fld@maxlen>\z@/MaxLen \Fld@maxlen \fi
14087 }

```

\PDFForm@Submit

```

14088 \def\PDFForm@Submit{%
14089 /Subtype/Widget%
14090 \Fld@annotflags
14091 \Fld@pageobjref
14092 \Fld@annotnames
14093 /FT/Btn%
14094 \Fld@flags
14095 /H/P%
14096 /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
14097 \ifcase0\ifnum\Fld@rotation=\z@ \else 1\fi
14098     \ifx\Fld@bordercolor\relax\else 1\fi
14099     \space
14100 \else
14101 /MK<<%
14102     \ifnum\Fld@rotation=\z@
14103     \else
14104     /R \Fld@rotation
14105     \fi
14106     \ifx\Fld@bordercolor\relax
14107     \else
14108     /BC[\Fld@bordercolor]%
14109     \fi
14110 >>%
14111 \fi
14112 /A<<%
14113 /S/SubmitForm%
14114 /F<<%
14115 /FS/URL%
14116 /F(\Hy@escapestring{\Form@action})%
14117 >>%
14118 \Fld@submitflags
14119 >>%
14120 \Fld@additionalactions
14121 }

```

\PDFForm@Reset

```

14122 \ifHy@pdfa
14123 \else
14124 \def\PDFForm@Reset{%
14125 /Subtype/Widget%
14126 \Fld@annotflags
14127 \Fld@pageobjref
14128 \Fld@annotnames
14129 /FT/Btn%
14130 \Fld@flags
14131 /H/P%
14132 /DA(/Helv \strip@pt\Fld@charsize\space Tf 0 0 1 rg)%
14133 \ifcase0\ifnum\Fld@rotation=\z@ \else 1\fi
14134     \ifx\Fld@bordercolor\relax\else 1\fi
14135     \space

```

```

14136 \else
14137 /MK<<%
14138 \ifnum\Fld@rotation=\z@
14139 \else
14140 /R \Fld@rotation
14141 \fi
14142 \ifx\Fld@bordercolor\relax
14143 \else
14144 /BC[\Fld@bordercolor]%
14145 \fi
14146 % /CA (Clear)
14147 % /AC (Done)
14148 >>%
14149 \fi
14150 /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
14151 /A<</S/ResetForm>>%
14152 \Fld@additionalactions
14153 }%
14154 \fi

14155 </pdfform>
14156 <*packageEnd>

```

## 46 Bookmarks in the PDF file

This was originally developed by Yannis Haralambous (it was the separate `repere.sty`); it needed the `repere` or `makebook.pl` post-processor to work properly. Now redundant, as it is done entirely in  $\text{\LaTeX}$  macros.

To write out the current section title, and its rationalized number, we have to intercept the `\@sect` command, which is rather dangerous. But how else to see the information we need? We do the *same* for `\@ssect`, giving anchors to unnumbered sections. This allows things like bibliographies to get bookmarks when used with a manual `\addcontentsline`

```

14157 \def\phantomsection{%
14158 \Hy@MakeCurrentHrefAuto{section*}%
14159 \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
14160 }
14161 </packageEnd>

```

### 46.1 Bookmarks

```
14162 <*outlines>
```

This section was written by Heiko Oberdiek; the code replaces an earlier version by David Carlisle.

The first part of bookmark code is in section 6. Further documentation is available as paper and slides of the talk, that Heiko Oberdiek has given at the EuroTeX'99 meeting in Heidelberg. See `paper.pdf` and `slides.pdf` in the `doc` directory of `hyperref`.

When using the right-to-left typesetting based on  $\varepsilon\text{-TeX}$ , the order of the `\BOOKMARK` commands written to the `\@outlinefile` could appear wrong, because of mis-feature of  $\varepsilon\text{-TeX}$ 's implementation (that it processes the shipped out

lines left-to-right, instead of the order in which they appear in the document). The wrong order will appear when the file contains two bookmarks on the same line typeset right-to-left.

To work around this problem, the `bookmark@seq@number` counter is used to write the bookmark's sequential number into a comment in the `\@outlinefile`, which could be used to post-process it to achieve the proper ordering of `\BOOKMARK` commands in that file.

```

14163 \def\Hy@writebookmark#1#2#3#4#5{%
14164   % section number, text, label, level, file
14165   \ifx\WriteBookmarks\relax%
14166   \else
14167     \ifnum#4>\Hy@bookmarksdepth\relax
14168     \else
14169       \@@writetorep{#1}{#2}{#3}{#4}{#5}%
14170     \fi
14171   \fi
14172 }
14173 \def\Hy@currentbookmarklevel{0}
14174 \def\Hy@numberline#1{#1 }
14175 \def\@@writetorep#1#2#3#4#5{%
14176   \begingroup
14177     \edef\Hy@tempa{#5}%
14178     \ifx\Hy@tempa\Hy@bookmarkstype
14179       \edef\Hy@level{#4}%
14180       \ifx\Hy@levelcheck Y%
14181         \@tempcnta\Hy@level\relax
14182         \advance\@tempcnta by -1 %
14183         \ifnum\Hy@currentbookmarklevel<\@tempcnta
14184           \advance\@tempcnta by -\Hy@currentbookmarklevel\relax
14185           \advance\@tempcnta by 1 %
14186           \Hy@Warning{%
14187             Difference (\the\@tempcnta) between bookmark levels is %
14188             greater \MessageBreak than one, level fixed%
14189           }%
14190           \@tempcnta\Hy@currentbookmarklevel
14191           \advance\@tempcnta by 1 %
14192           \edef\Hy@level{\the\@tempcnta}%
14193         \fi
14194       \else
14195         \global\let\Hy@levelcheck Y%
14196       \fi
14197       \global\let\Hy@currentbookmarklevel\Hy@level
14198       \@tempcnta\Hy@level\relax
14199       \expandafter\xdef\csname Parent\Hy@level\endcsname{#3}%
14200       \advance\@tempcnta by -1 %
14201       \edef\Hy@tempa{#3}%
14202       \edef\Hy@tempb{\csname Parent\the\@tempcnta\endcsname}%
14203       \ifx\Hy@tempa\Hy@tempb
14204         \Hy@Warning{%
14205           The anchor of a bookmark and its parent's must not%
14206           \MessageBreak be the same. Added a new anchor%
14207         }%
14208       \phantomsection

```

```

14209 \fi
14210 \ifHy@bookmarksnumbered
14211 \let\numberline\Hy@numberline
14212 \let\booknumberline\Hy@numberline
14213 \let\partnumberline\Hy@numberline
14214 \let\chapternumberline\Hy@numberline
14215 \else
14216 \let\numberline\@gobble
14217 \let\booknumberline\@gobble
14218 \let\partnumberline\@gobble
14219 \let\chapternumberline\@gobble
14220 \fi
14221 \pdfstringdef\Hy@tempa{#2}%
14222 \HyPsd@SanitizeForOutFile\Hy@tempa
14223 \if@filesw
14224 \stepcounter{bookmark@seq@number}%
14225 \@ifundefined{@outlinefile}{%
14226 }{%
14227 \protected@write\@outlinefile{ }{%
14228 \protect\BOOKMARK
14229 [\Hy@level][\@bookmarkopenstatus{\Hy@level}]{#3}%
14230 {\Hy@tempa}{\Hy@tempb}%
14231 \@percentchar\space\thebookmark@seq@number
14232 }%
14233 }%
14234 \fi
14235 \fi
14236 \endgroup
14237 }
14238 \newcounter{bookmark@seq@number}

14239 \begingroup
14240 \lccode`=(`{%
14241 \lccode`)=`}%
14242 \lccode`1=\z@
14243 \lccode`2=\z@
14244 \lccode`3=\z@
14245 \lccode`5=\z@
14246 \lccode`7=\z@
14247 \lccode`#= \z@
14248 \lccode```= \z@
14249 \lccode`\{= \z@
14250 \lccode`\}= \z@
14251 \lowercase{%
14252 \endgroup
14253 \def\HyPsd@SanitizeForOutFile#1{%
14254 \@onelevel@sanitize\Hy@tempa
14255 \escapechar`\\%
14256 \edef\Hy@tempa{%
14257 \expandafter\HyPsd@SanitizeOut@BraceLeft\Hy@tempa(\@nil
14258 }%
14259 \edef\Hy@tempa{%
14260 \expandafter\HyPsd@SanitizeOut@BraceRight\Hy@tempa)\@nil
14261 }%
14262 }%

```

```

14263 \def\HyPsd@SanitizeOut@BraceLeft#1(#2\@nil{%
14264   #1%
14265   \ifx\|#2\|%
14266     \expandafter\ltx@gobble
14267   \else
14268     \expandafter\ltx@firstofone
14269   \fi
14270   {%
14271     \string\173%
14272     \HyPsd@SanitizeOut@BraceLeft#2\@nil
14273   }%
14274 }%
14275 \def\HyPsd@SanitizeOut@BraceRight#1)#2\@nil{%
14276   #1%
14277   \ifx\|#2\|%
14278     \expandafter\ltx@gobble
14279   \else
14280     \expandafter\ltx@firstofone
14281   \fi
14282   {%
14283     \string\175%
14284     \HyPsd@SanitizeOut@BraceRight#2\@nil
14285   }%
14286 }%
14287 }

```

In the call of `\BOOKMARK` the braces around `#4` are omitted, because it is not likely, that the level number contains `]`.

```

14288 \newcommand{\currentpdfbookmark}{%
14289   \pdfbookmark[\Hy@currentbookmarklevel]%
14290 }
14291 \newcommand{\subpdfbookmark}{%
14292   \@tempcnta\Hy@currentbookmarklevel
14293   \Hy@StepCount\@tempcnta
14294   \expandafter\pdfbookmark\expandafter[\the\@tempcnta]%
14295 }
14296 \newcommand{\belowpdfbookmark}[2]{%
14297   \@tempcnta\Hy@currentbookmarklevel
14298   \Hy@StepCount\@tempcnta
14299   \expandafter\pdfbookmark\expandafter[\the\@tempcnta]{#1}{#2}%
14300   \advance\@tempcnta by -1 %
14301   \xdef\Hy@currentbookmarklevel{\the\@tempcnta}%
14302 }

```

Tobias Oetiker rightly points out that we need a way to force a bookmark entry. So we introduce `\pdfbookmark`, with two parameters, the title, and a symbolic name. By default this is at level 1, but we can reset that with the optional first argument.

```

14303 \renewcommand\pdfbookmark[3][0]{%
14304   \Hy@writebookmark{#2}{#3.#1}{#1}{toc}%
14305   \hyper@anchorstart{#3.#1}\hyper@anchorend
14306 }
14307 \def\BOOKMARK{%
14308   \@ifnextchar{\@BOOKMARK}{\@BOOKMARK[1][-]}%
14309 }

```

```

14310 \def\@BOOKMARK[#1]{%
14311   \@ifnextchar[{\@@BOOKMARK[#1]}{\@@BOOKMARK[#1][-]}%
14312 }

```

The macros for calculating structure of outlines are derived from those by Petr Olsak used in the texinfo<sub>pdf</sub> macros.

#### 46.1.1 Rerun warning

`\Hy@OutlineRerunCheck`

```

14313 \RequirePackage{rerunfilecheck}[2009/12/10]
14314 \def\Hy@OutlineRerunCheck{%
14315   \RerunFileCheck{jobname.out}{%
14316     \immediate\closeout\@outlinefile
14317   }{%
14318     Rerun to get outlines right\MessageBreak
14319     or use package `bookmark'%
14320   }%
14321 }

```

#### 46.1.2 Driver stuff

The VTEX section was written originally by VTEX, but then amended by Denis Girou ([denis.girou@idris.fr](mailto:denis.girou@idris.fr)), then by Taco Hoekwater ([taco.hoekwater@wkap.nl](mailto:taco.hoekwater@wkap.nl)). The problem is that VTEX, with its close integration of the PDF backend, does look at the contents of bookmarks, escaping `\` and the like.

```

14322 (*vtex)
14323 \newcount\@serial@counter\@serial@counter=1\relax

```

`\hv@pdf@char` Plain octal codes doesn't work with versions below 6.50. So for early versions hex numbers have to be used. It would be possible to program this instead of the large `\ifcase`, but I'm too lazy to sort that out now.

```

14324 \begingroup
14325   \catcode`\'=12 %
14326   \ifnum\Hy@VTeXversion<650 %
14327     \catcode`\ "=12 %
14328     \gdef\hv@pdf@char#1#2#3{%
14329       \char
14330       \ifcase'#1#2#3 %
14331         "00\or"01\or"02\or"03\or"04\or"05\or"06\or"07%
14332         \or"08\or"09\or"0A\or"0B\or"0C\or"0D\or"0E\or"0F%
14333         \or"10\or"11\or"12\or"13\or"14\or"15\or"16\or"17%
14334         \or"18\or"19\or"1A\or"1B\or"1C\or"1D\or"1E\or"1F%
14335         \or"20\or"21\or"22\or"23\or"24\or"25\or"26\or"27%
14336         \or"28\or"29\or"2A\or"2B\or"2C\or"2D\or"2E\or"2F%
14337         \or"30\or"31\or"32\or"33\or"34\or"35\or"36\or"37%
14338         \or"38\or"39\or"3A\or"3B\or"3C\or"3D\or"3E\or"3F%
14339         \or"40\or"41\or"42\or"43\or"44\or"45\or"46\or"47%
14340         \or"48\or"49\or"4A\or"4B\or"4C\or"4D\or"4E\or"4F%
14341         \or"50\or"51\or"52\or"53\or"54\or"55\or"56\or"57%
14342         \or"58\or"59\or"5A\or"5B\or"5C\or"5D\or"5E\or"5F%
14343         \or"60\or"61\or"62\or"63\or"64\or"65\or"66\or"67%
14344         \or"68\or"69\or"6A\or"6B\or"6C\or"6D\or"6E\or"6F%
14345         \or"70\or"71\or"72\or"73\or"74\or"75\or"76\or"77%

```

```

14346 \or"78\or"79\or"7A\or"7B\or"7C\or"7D\or"7E\or"7F%
14347 \or"80\or"81\or"82\or"83\or"84\or"85\or"86\or"87%
14348 \or"88\or"89\or"8A\or"8B\or"8C\or"8D\or"8E\or"8F%
14349 \or"90\or"91\or"92\or"93\or"94\or"95\or"96\or"97%
14350 \or"98\or"99\or"9A\or"9B\or"9C\or"9D\or"9E\or"9F%
14351 \or"A0\or"A1\or"A2\or"A3\or"A4\or"A5\or"A6\or"A7%
14352 \or"A8\or"A9\or"AA\or"AB\or"AC\or"AD\or"AE\or"AF%
14353 \or"B0\or"B1\or"B2\or"B3\or"B4\or"B5\or"B6\or"B7%
14354 \or"B8\or"B9\or"BA\or"BB\or"BC\or"BD\or"BE\or"BF%
14355 \or"C0\or"C1\or"C2\or"C3\or"C4\or"C5\or"C6\or"C7%
14356 \or"C8\or"C9\or"CA\or"CB\or"CC\or"CD\or"CE\or"CF%
14357 \or"D0\or"D1\or"D2\or"D3\or"D4\or"D5\or"D6\or"D7%
14358 \or"D8\or"D9\or"DA\or"DB\or"DC\or"DD\or"DE\or"DF%
14359 \or"E0\or"E1\or"E2\or"E3\or"E4\or"E5\or"E6\or"E7%
14360 \or"E8\or"E9\or"EA\or"EB\or"EC\or"ED\or"EE\or"EF%
14361 \or"F0\or"F1\or"F2\or"F3\or"F4\or"F5\or"F6\or"F7%
14362 \or"F8\or"F9\or"FA\or"FB\or"FC\or"FD\or"FE\or"FF%
14363 \fi
14364 }%
14365 \else
14366 \gdef\hv@pdf@char{\char'}%
14367 \fi
14368 \endgroup

```

\@@BOOKMARK

```

14369 \def\@@BOOKMARK[#1][#2]#3#4#5{%
14370 \expandafter\edef\csname @count@#3\endcsname{%
14371 \the\@serial@counter
14372 }%
14373 \edef\@mycount{\the\@serial@counter}%
14374 \Hy@StepCount\@serial@counter
14375 \edef\@parcount{%
14376 \expandafter\ifx\csname @count@#5\endcsname\relax
14377 0%
14378 \else
14379 \csname @count@#5\endcsname
14380 \fi
14381 }%
14382 \immediate\special{%
14383 !outline \HyperDestNameFilter{#3};p=\@parcount,i=\@mycount,%
14384 s=\ifx#2-c\else o\fi,t=#4%
14385 }%
14386 }%

```

\ReadBookmarks

```

14387 \def\ReadBookmarks{%
14388 \begingroup
14389 \def\0{\hv@pdf@char 0}%
14390 \def\1{\hv@pdf@char 1}%
14391 \def\2{\hv@pdf@char 2}%
14392 \def\3{\hv@pdf@char 3}%
14393 \def\{({}%
14394 \def\}){)%
14395 \def\do##1{%

```



```

14396 \ifnum\catcode`###1=\active
14397 \@makeother###1%
14398 \else
14399 \ifnum\catcode`###1=6 %
14400 \@makeother###1%
14401 \fi
14402 \fi
14403 }%
14404 \dospecials
14405 \Hy@safe@activetrue
14406 \InputIfFileExists{\jobname.out}{\{}}%
14407 \endgroup
14408 \ifx\WriteBookmarks\relax
14409 \else
14410 \if@filesw
14411 \newwrite\@outlinefile
14412 \Hy@OutlineRerunCheck
14413 \immediate\openout\@outlinefile=\jobname.out\relax
14414 \fi
14415 \fi
14416 }

14417 </vtex>
14418 <*\vtex>
14419 \def\ReadBookmarks{%
14420 \pdf@ifdraftmode{\}%
14421 \begingroup
14422 \def\do##1{%
14423 \ifnum\catcode`###1=\active
14424 \@makeother###1%
14425 \else
14426 \ifnum\catcode`###1=6 %
14427 \@makeother###1%
14428 \fi
14429 \fi
14430 }%
14431 \dospecials
14432 \Hy@safe@activetrue
14433 \escapechar=`\%
14434 \def\@@BOOKMARK[##1][##2]##3##4##5{%
14435 \calc@bm@number{##5}%
14436 }%
14437 \InputIfFileExists{\jobname.out}{\{}}%
14438 \ifx\WriteBookmarks\relax
14439 \global\let\WriteBookmarks\relax
14440 \fi
14441 \def\@@BOOKMARK[##1][##2]##3##4##5{%
14442 \def\Hy@temp{##4}%
14443 <*\pdfTeX>
14444 \Hy@pstringdef\Hy@pstringName{\HyperDestNameFilter{##3}}%
14445 \Hy@OutlineName{\}\Hy@pstringName{%
14446 ##2\check@bm@number{##3}%
14447 }{%
14448 \expandafter\strip@prefix\meaning\Hy@temp

```

```

14449     }%
14450 </pdfTex>
14451 <*pdfmark>
14452     \pdfmark{%
14453         pdfmark=/OUT,%
14454         Count={##2\check@bm@number{##3}},%
14455         Dest={##3},%
14456         Title=\expandafter\strip@prefix\meaning\Hy@temp
14457     }%
14458 </pdfmark>
14459 <*dvipdfm | xetex>
14460     \Hy@pstringdef\Hy@pstringName{\HyperDestNameFilter{##3}}%
14461     \@pdfm@mark{%
14462         outline \ifHy@DvipdfmxOutlineOpen
14463             [%
14464                 \ifnum##21>\z@
14465                 \else
14466                 -%
14467                 \fi
14468             ] %
14469             \fi
14470             ##1<<%
14471             /Title(\expandafter\strip@prefix\meaning\Hy@temp)%
14472             /A<<%
14473             /S/GoTo%
14474             /D(\Hy@pstringName)%
14475             >>%
14476             >>%
14477         }%
14478 </dvipdfm | xetex>
14479     }%
14480     \begingroup
14481     \def\WriteBookmarks{0}%
14482     \InputIfFileExists{\jobname.out}{-}{-}%
14483     \endgroup
14484     %{\escapechar\m@ne\InputIfFileExists{\jobname.out}{-}{-}}%
14485     \endgroup
14486 }%
14487 \ifx\WriteBookmarks\relax
14488 \else
14489     \if@files
14490         \newwrite\@outlinefile
14491         \Hy@OutlineRerunCheck
14492         \immediate\openout\@outlinefile=\jobname.out\relax
14493     \fi
14494 \fi
14495 }
14496 <*pdfTex>
14497 \def\Hy@OutlineName#1#2#3#4{%
14498     \pdfoutline goto name{#2}count#3{#4}%
14499 }
14500 </pdfTex>
14501 \def\check@bm@number#1{%
14502     \expandafter\ifx\csname B_#1\endcsname\relax

```

```

14503 0%
14504 \else
14505 \csname B_#1\endcsname
14506 \fi
14507 }
14508 \def\calc@bm@number#1{%
14509 \@tempcnta=\check@bm@number{#1}\relax
14510 \advance\@tempcnta by 1 %
14511 \expandafter\xdef\csname B_#1\endcsname{\the\@tempcnta}%
14512 }
14513 \</!vtex>

14514 \ifHy@implicit
14515 \else
14516 \expandafter\endinput
14517 \fi

14518 \</outlines>
14519 \<*outlines | hypertex>

14520 \newlength\Hy@SectionHShift
14521 \def\Hy@SectionAnchorHref#1{%
14522 \ifx\protect\@typeset@protect
14523 \Hy@@SectionAnchor{#1}%
14524 \fi
14525 }
14526 \DeclareRobustCommand*\Hy@@SectionAnchor[1]{%
14527 \leavevmode
14528 \hbox to 0pt{%
14529 \kern-\Hy@SectionHShift
14530 \Hy@raisedlink{%
14531 \hyper@anchorstart{#1}\hyper@anchorend
14532 }%
14533 \hss
14534 }%
14535 }
14536 \AddToNoCaseChangeList{\Hy@@SectionAnchor}
14537 \@ifundefined{hyper@nopatch@sectioning}
14538 {
14539 \let\H@old@ssect\@ssect
14540 \def\@ssect#1#2#3#4#5{%
14541 \Hy@MakeCurrentHrefAuto{section*}%
14542 \setlength{\Hy@SectionHShift}{#1}%
14543 \begingroup
14544 \toks@{\H@old@ssect{#1}{#2}{#3}{#4}}%
14545 \toks\tw@\expandafter{%
14546 \expandafter\Hy@SectionAnchorHref\expandafter{\@currentHref}%
14547 #5%
14548 }%
14549 \edef\x{\endgroup
14550 \the\toks@\the\toks\tw@}%
14551 }\x
14552 }
14553 \let\H@old@schapter\@schapter
14554 \def\@schapter#1{%
14555 \begingroup

```

```

14556 \let\@mkboth\@gobbletwo
14557 \Hy@MakeCurrentHrefAuto{\Hy@chapapp*}%
14558 \Hy@raisedlink{%
14559   \hyper@anchorstart{\@currentHref}\hyper@anchorend
14560 }%
14561 \endgroup
14562 \H@old@chapter{#1}%
14563 }

```

If there is no chapter number (`\frontmatter` or `\backmatter`) then the counting by `\refstepcounter{chapter}` is not executed, so there will be no destination for `\ddcontentsline`. So `\@chapter` is overloaded to avoid this:

```

14564 \ltx@ifundefined{@chapter}{%}{%
14565   \let\Hy@org@chapter\@chapter
14566   \def\@chapter{%
14567     \def\Hy@next{%
14568       \Hy@MakeCurrentHrefAuto{\Hy@chapapp*}%
14569       \Hy@raisedlink{%
14570         \hyper@anchorstart{\@currentHref}\hyper@anchorend
14571       }%
14572     }%
14573     \ifnum\c@secnumdepth>\m@ne
14574       \ltx@ifundefined{if@mainmatter}%
14575       \iftrue{\csname if@mainmatter\endcsname}%
14576       \let\Hy@next\relax
14577     \fi
14578   \fi
14579   \Hy@next
14580   \Hy@org@chapter
14581 }%
14582 }

14583 \let\H@old@part\@part
14584 \@ifundefined{chapter}
14585   {\let\Hy@secnum@part\z@}
14586   {\let\Hy@secnum@part\m@ne}
14587 \def\@part{%
14588   \ifnum\Hy@secnum@part>\c@secnumdepth
14589     \phantomsection
14590   \fi
14591   \H@old@part
14592 }

14593 \let\H@old@spart\@spart
14594 \def\@spart#1{%
14595   \Hy@MakeCurrentHrefAuto{part*}%
14596   \Hy@raisedlink{%
14597     \hyper@anchorstart{\@currentHref}\hyper@anchorend
14598   }%
14599   \H@old@spart{#1}%
14600 }

14601 \let\H@old@sect\@sect
14602 \def\@sect#1#2#3#4#5#6[#7]#8{%
14603   \ifnum #2>\c@secnumdepth
14604     \expandafter\@firstoftwo

```

```

14605 \else
14606 \expandafter\@secondoftwo
14607 \fi
14608 {%
14609 \Hy@MakeCurrentHrefAuto{section*}%
14610 \setlength{\Hy@SectionHShift}{#3}%
14611 \begingroup
14612 \toks@{\H@old@sect{#1}{#2}{#3}{#4}{#5}{#6}{#7}}%
14613 \toks\tw@\expandafter{%
14614 \expandafter\Hy@SectionAnchorHref\expandafter{\@currentHref}%
14615 #8%
14616 }%
14617 \edef\x{\endgroup
14618 \the\toks@{\the\toks\tw@}%
14619 }\x
14620 }{%
14621 \H@old@sect{#1}{#2}{#3}{#4}{#5}{#6}{#7}{#8}%
14622 }%
14623 }
14624 }{}
14625 </outlines | hypertex>
14626 <*outlines>

14627 \expandafter\def\csname Parent-4\endcsname{}
14628 \expandafter\def\csname Parent-3\endcsname{}
14629 \expandafter\def\csname Parent-2\endcsname{}
14630 \expandafter\def\csname Parent-1\endcsname{}
14631 \expandafter\def\csname Parent0\endcsname{}
14632 \expandafter\def\csname Parent1\endcsname{}
14633 \expandafter\def\csname Parent2\endcsname{}
14634 \expandafter\def\csname Parent3\endcsname{}
14635 \expandafter\def\csname Parent4\endcsname{}
14636 </outlines>

```

## 47 Encoding definition files for encodings of PDF strings

This was contributed by Heiko Oberdiek.

### 47.1 PD1 encoding

```

14637 <*pd1enc>
14638 \DeclareFontEncoding{PD1}{}{}

Accents
14639 \DeclareTextAccent{\`}{PD1}{\textasciigrave}
14640 \DeclareTextAccent{\'}{PD1}{\textacute}
14641 \DeclareTextAccent{\^}{PD1}{\textasciicircum}
14642 \DeclareTextAccent{\~}{PD1}{\texttilde}
14643 \DeclareTextAccent{\"}{PD1}{\textasciidieresis}
14644 \DeclareTextAccent{\r}{PD1}{\textring}
14645 \DeclareTextAccent{\v}{PD1}{\textasciicaron}
14646 \DeclareTextAccent{\.}{PD1}{\textdotaccent}

```

```

14647 \DeclareTextAccent{\c}{PD1}{\textcedilla}
14648 \DeclareTextAccent{\=}{PD1}{\textasciimacron}
14649 \DeclareTextAccent{\b}{PD1}{\textmacronbelow}
14650 \DeclareTextAccent{\d}{PD1}{\textdotbelow}
14651 \DeclareTextCompositeCommand{\`}{PD1}{\@empty}{\textasciigrave}
14652 \DeclareTextCompositeCommand{\'}{PD1}{\@empty}{\textacute}
14653 \DeclareTextCompositeCommand{\^}{PD1}{\@empty}{\textasciicircum}
14654 \DeclareTextCompositeCommand{\~}{PD1}{\@empty}{\texttilde}
14655 \DeclareTextCompositeCommand{\"}{PD1}{\@empty}{\textasciidieresis}
14656 \DeclareTextCompositeCommand{\r}{PD1}{\@empty}{\textstring}
14657 \DeclareTextCompositeCommand{\v}{PD1}{\@empty}{\textasciicaron}
14658 \DeclareTextCompositeCommand{\.}{PD1}{\@empty}{\textdotaccent}
14659 \DeclareTextCompositeCommand{\c}{PD1}{\@empty}{\textcedilla}
14660 \DeclareTextCompositeCommand{\=}{PD1}{\@empty}{\textasciimacron}
14661 \DeclareTextCompositeCommand{\b}{PD1}{\@empty}{\textmacronbelow}
14662 \DeclareTextCompositeCommand{\d}{PD1}{\@empty}{\textdotbelow}
14663 \DeclareTextCompositeCommand{\`}{PD1}{\ }{\textasciigrave}
14664 \DeclareTextCompositeCommand{\'}{PD1}{\ }{\textacute}
14665 \DeclareTextCompositeCommand{\^}{PD1}{\ }{\textasciicircum}
14666 \DeclareTextCompositeCommand{\~}{PD1}{\ }{\texttilde}
14667 \DeclareTextCompositeCommand{\"}{PD1}{\ }{\textasciidieresis}
14668 \DeclareTextCompositeCommand{\r}{PD1}{\ }{\textstring}
14669 \DeclareTextCompositeCommand{\v}{PD1}{\ }{\textasciicaron}
14670 \DeclareTextCompositeCommand{\.}{PD1}{\ }{\textdotaccent}
14671 \DeclareTextCompositeCommand{\c}{PD1}{\ }{\textcedilla}
14672 \DeclareTextCompositeCommand{\=}{PD1}{\ }{\textasciimacron}
14673 \DeclareTextCompositeCommand{\b}{PD1}{\ }{\textmacronbelow}
14674 \DeclareTextCompositeCommand{\d}{PD1}{\ }{\textdotbelow}
14675 \DeclareTextCommand{\k}{PD1}[1]{\TextSymbolUnavailable{\k{#1}}#1}
14676 \DeclareTextCommand{\t}{PD1}[1]{\TextSymbolUnavailable{\t{#1}}#1}
14677 \DeclareTextCommand{\newtie}{PD1}[1]{%
14678   \TextSymbolUnavailable{\newtie{#1}}#1%
14679 }

```

Special white space escape characters not for use in bookmarks but for other PDF strings.

```

14680 % U+0009 (CHARACTER TABULATION)
14681 \DeclareTextCommand{\textHT}{PD1}{\011}% U+0009
14682 % U+000A (LINE FEED)
14683 \DeclareTextCommand{\textLF}{PD1}{\012}% U+000A
14684 % U+000D (CARRIAGE RETURN)
14685 \DeclareTextCommand{\textCR}{PD1}{\015}% U+000D

```

Accent glyph names

```

14686 % U+02D8 BREVE; breve
14687 \DeclareTextCommand{\textasciibreve}{PD1}{\030}% U+02D8
14688 % U+02C7 CARON; caron
14689 \DeclareTextCommand{\textasciicaron}{PD1}{\031}% U+02C7
14690 % U+02C6 MODIFIER LETTER CIRCUMFLEX ACCENT; circumflex
14691 \DeclareTextCommand{\textcircumflex}{PD1}{\032}% U+02C6
14692 % U+02D9 DOT ABOVE; dotaccent
14693 \DeclareTextCommand{\textdotaccent}{PD1}{\033}% U+02D9
14694 % U+02DD DOUBLE ACUTE ACCENT; hungarumlaut
14695 \DeclareTextCommand{\texthungarumlaut}{PD1}{\034}% U+02DD
14696 % U+02DB OGONEK; ogonek

```

14697 \DeclareTextCommand{\textogonek}{PD1}{\035}% U+02DB  
14698 % U+02DA RING ABOVE; ring  
14699 \DeclareTextCommand{\textring}{PD1}{\036}% U+02DA  
14700 % U+02DC SMALL TILDE; ilde, \*tilde  
14701 \DeclareTextCommand{\texttilde}{PD1}{\037}% U+02DC  
\040: U+0020 SPACE; \*space, spacehackarabic  
\041: U+0021 EXCLAMATION MARK; exclam  
14702 % U+0022 QUOTATION MARK; quotedbl  
14703 \DeclareTextCommand{\textquotedbl}{PD1}{"}% \042 U+0022  
14704 % U+0023 NUMBER SIGN; numbersign  
14705 \DeclareTextCommand{\textnumbersign}{PD1}{\043}% U+0023  
14706 % U+0024 DOLLAR SIGN; dollar  
14707 \DeclareTextCommand{\textdollar}{PD1}{\044}% U+0024  
14708 % U+0025 PERCENT SIGN; percent  
14709 \DeclareTextCommand{\textpercent}{PD1}{\045}% U+0025  
14710 % U+0026 AMPERSAND; ampersand  
14711 \DeclareTextCommand{\textampersand}{PD1}{\046}% U+0026  
\047: U+0027 APOSTROPHE; quotesingle  
  
14712 % U+0028 LEFT PARENTHESIS; parenleft  
14713 \DeclareTextCommand{\textparenleft}{PD1}{\string\(% \050 U+0028  
14714 % U+0029 RIGHT PARENTHESIS; parenright  
14715 \DeclareTextCommand{\textparenright}{PD1}{\string\)%} \051 U+0029  
\052: U+002A ASTERISK; asterisk  
\053: U+002B PLUS SIGN; plus  
\054: U+002C COMMA; comma  
\055: U+002D HYPHEN-MINUS; hyphen  
\056: U+002E FULL STOP; period  
14716 % U+002E FULL STOP; period  
14717 \DeclareTextCommand{\textdotbelow}{PD1}{.}% \056 U+002E  
\057: U+002F SOLIDUS; slash  
\060: U+0030 DIGIT ZERO; zero  
  
...  
\071: U+0039 DIGIT NINE; nine  
\072: U+003A COLON; colon  
\073: U+003B SEMICOLON; semicolon  
14718 % U+003C LESS-THAN SIGN; less  
14719 \DeclareTextCommand{\textless}{PD1}{<}% \074 U+003C  
\075: U+003D EQUALS SIGN; equal  
14720 % U+003E GREATER-THAN SIGN; greater  
14721 \DeclareTextCommand{\textgreater}{PD1}{>}% \076 U+003E  
\077: U+003F QUESTION MARK; question  
\100: U+0040 COMMERCIAL AT; at  
\101: U+0041 LATIN CAPITAL LETTER A; A  
  
...  
\132: U+005A LATIN CAPITAL LETTER Z; Z  
\133: U+005B LEFT SQUARE BRACKET; bracketleft  
14722 % U+005C REVERSE SOLIDUS; backslash  
14723 \DeclareTextCommand{\textbackslash}{PD1}{\134}% U+005C  
14724 % "U+2216 SET MINUS" simulated by "U+005C REVERSE SOLIDUS"  
14725 \DeclareTextCommand{\textsetminus}{PD1}{\textbackslash}

$\backslash 135$ : U+005D RIGHT SQUARE BRACKET; bracketright  
14726 % U+005E CIRCUMFLEX ACCENT; asciicircum  
14727 \DeclareTextCommand{\textasciicircum}{PD1}{\136}% U+005E  
14728 % U+005F LOW LINE; underscore  
14729 \DeclareTextCommand{\textunderscore}{PD1}{\137}% U+005F  
14730 \DeclareTextCommand{\textmacronbelow}{PD1}{\137}% U+005F  
14731 % U+0060 GRAVE ACCENT; grave  
14732 \DeclareTextCommand{\textasciigrave}{PD1}{\140}% U+0060  
 $\backslash 141$ : U+0061 LATIN SMALL LETTER A; a  
...  
 $\backslash 150$ : U+0068 LATIN SMALL LETTER H; h  
14733 % U+0069 LATIN SMALL LETTER I; i  
14734 \DeclareTextCompositeCommand{\.}{PD1}{i}{i}% \151 U+0069  
 $\backslash 152$ : U+006A LATIN SMALL LETTER J; j  
...  
 $\backslash 172$ : U+007A LATIN SMALL LETTER Z; z  
14735 % U+007B LEFT CURLY BRACKET; braceleft  
14736 \DeclareTextCommand{\textbraceleft}{PD1}{\173}% U+007B  
14737 % U+007C VERTICAL LINE; \*bar, verticalbar  
14738 \DeclareTextCommand{\textbar}{PD1}{|}% U+007C  
14739 % U+007D RIGHT CURLY BRACKET; braceright  
14740 \DeclareTextCommand{\textbraceright}{PD1}{\175}% U+007D  
14741 % U+007E TILDE; asciitilde  
14742 \DeclareTextCommand{\textasciitilde}{PD1}{\176}% U+007E  
Slot  $\backslash 177$  (0x7F) is undefined in PDFDocEncoding.  
14743 % U+2022 BULLET; bullet  
14744 \DeclareTextCommand{\textbullet}{PD1}{\200}% U+2022  
14745 % U+2020 DAGGER; dagger  
14746 \DeclareTextCommand{\textdagger}{PD1}{\201}% U+2020  
14747 % U+2021 DOUBLE DAGGER; daggerdbl; \ddagger (LaTeX)  
14748 \DeclareTextCommand{\textdaggerdbl}{PD1}{\202}% U+2021  
14749 \DeclareTextCommand{\textddagger}{PD1}{\textddagger}  
14750 % U+2026 HORIZONTAL ELLIPSIS; ellipsis  
14751 \DeclareTextCommand{\textellipsis}{PD1}{\203}% U+2026  
14752 % U+2014 EM DASH; emdash  
14753 \DeclareTextCommand{\textemdash}{PD1}{\204}% U+2014  
14754 % U+2013 EN DASH; endash  
14755 \DeclareTextCommand{\textendash}{PD1}{\205}% U+2013  
14756 % U+0192 LATIN SMALL LETTER F WITH HOOK; florin  
14757 \DeclareTextCommand{\textflorin}{PD1}{\206}% U+0192  
14758 % U+2044 FRACTION SLASH; fraction  
14759 \DeclareTextCommand{\textfractionsolidus}{PD1}{\207}% U+2044  
14760 % U+2039 SINGLE LEFT-POINTING ANGLE QUOTATION MARK; guil-  
inglleft  
14761 \DeclareTextCommand{\guilsinglleft}{PD1}{\210}% U+2039  
14762 % U+203A SINGLE RIGHT-POINTING ANGLE QUOTATION MARK; guil-  
inglright  
14763 \DeclareTextCommand{\guilsinglright}{PD1}{\211}% U+203A  
14764 % U+2212 MINUS SIGN; minus  
14765 \DeclareTextCommand{\textminus}{PD1}{\212}% U+2212  
14766 % U+2030 PER MILLE SIGN; perthousand  
14767 \DeclareTextCommand{\textperthousand}{PD1}{\213}% U+2030  
14768 % U+201E DOUBLE LOW-9 QUOTATION MARK; quotedblbase



14769 \DeclareTextCommand{\quotedblbase}{PD1}{\214}% U+201E  
 14770 % U+201C LEFT DOUBLE QUOTATION MARK; quotedblleft  
 14771 \DeclareTextCommand{\textquotedblleft}{PD1}{\215}% U+201C  
 14772 % U+201D RIGHT DOUBLE QUOTATION MARK; quotedblright  
 14773 \DeclareTextCommand{\textquotedblright}{PD1}{\216}% U+201D  
 14774 % U+2018 LEFT SINGLE QUOTATION MARK; quoteleft  
 14775 \DeclareTextCommand{\textquoteleft}{PD1}{\217}% U+2018  
 14776 % U+2019 RIGHT SINGLE QUOTATION MARK; quoteright  
 14777 \DeclareTextCommand{\textquoteright}{PD1}{\220}% U+2019  
 14778 % U+201A SINGLE LOW-9 QUOTATION MARK; quotesinglbase  
 14779 \DeclareTextCommand{\quotesinglbase}{PD1}{\221}% U+201A  
 14780 % U+2122 TRADE MARK SIGN; trademark  
 14781 \DeclareTextCommand{\texttrademark}{PD1}{\222}% U+2122  
 14782 % U+FB01 LATIN SMALL LIGATURE FI; fi  
 14783 \DeclareTextCommand{\textfi}{PD1}{\223}% U+FB01  
 14784 % U+FB02 LATIN SMALL LIGATURE FL; fl  
 14785 \DeclareTextCommand{\textfl}{PD1}{\224}% U+FB02  
 14786 % U+0141 LATIN CAPITAL LETTER L WITH STROKE; Lslash  
 14787 \DeclareTextCommand{\L}{PD1}{\225}% U+0141  
 14788 % U+0152 LATIN CAPITAL LIGATURE OE; OE  
 14789 \DeclareTextCommand{\OE}{PD1}{\226}% U+0152  
 14790 % U+0160 LATIN CAPITAL LETTER S WITH CARON; Scaron  
 14791 \DeclareTextCompositeCommand{\v}{PD1}{S}{\227}% U+0160  
 14792 % U+0178 LATIN CAPITAL LETTER Y WITH DIAERESIS; Ydieresis  
 14793 \DeclareTextCompositeCommand{\Y}{PD1}{Y}{\230}% U+0178  
 14794 \DeclareTextCommand{\IJ}{PD1}{IJ}% ligature U+0049 U+004A  
 14795 % U+017D LATIN CAPITAL LETTER Z WITH CARON; Zcaron  
 14796 \DeclareTextCompositeCommand{\v}{PD1}{Z}{\231}% U+017D  
 14797 % U+0131 LATIN SMALL LETTER DOTLESS I; dotlessi  
 14798 \DeclareTextCommand{\i}{PD1}{\232}% U+0131  
 14799 % U+0142 LATIN SMALL LETTER L WITH STROKE; lslash  
 14800 \DeclareTextCommand{\l}{PD1}{\233}% U+0142  
 14801 % U+0153 LATIN SMALL LIGATURE OE; oe  
 14802 \DeclareTextCommand{\oe}{PD1}{\234}% U+0153  
 14803 % U+0161 LATIN SMALL LETTER S WITH CARON; scaron  
 14804 \DeclareTextCompositeCommand{\v}{PD1}{s}{\235}% U+0161  
 14805 % U+017E LATIN SMALL LETTER Z WITH CARON; zcaron  
 14806 \DeclareTextCompositeCommand{\v}{PD1}{z}{\236}% U+017E

Slot \237 (0x9F) is not defined in PDFDocEncoding.

The euro \240 is inserted in version 1.3 of the pdf specification.

14807 % U+20AC EURO SIGN; \*Euro, euro  
 14808 \DeclareTextCommand{\texteuro}{PD1}{\240}% U+20AC  
 14809 % U+00A1 INVERTED EXCLAMATION MARK; exclamdown  
 14810 \DeclareTextCommand{\textexclamdown}{PD1}{\241}% U+00A1  
 14811 % U+00A2 CENT SIGN; cent  
 14812 \DeclareTextCommand{\textcent}{PD1}{\242}% U+00A2  
 14813 % U+00A3 POUND SIGN; sterling  
 14814 \DeclareTextCommand{\textsterling}{PD1}{\243}% U+00A3  
 14815 % U+00A4 CURRENCY SIGN; currency  
 14816 \DeclareTextCommand{\textcurrency}{PD1}{\244}% U+00A4  
 14817 % U+00A5 YEN SIGN; yen  
 14818 \DeclareTextCommand{\textyen}{PD1}{\245}% U+00A5  
 14819 % U+00A6 BROKEN BAR; brokenbar  
 14820 \DeclareTextCommand{\textbrokenbar}{PD1}{\246}% U+00A6

14821 % U+00A7 SECTION SIGN; section  
14822 \DeclareTextCommand{\textsection}{PD1}{\247}% U+00A7  
14823 % U+00A8 DIAERESIS; dieresis  
14824 \DeclareTextCommand{\textasciidieresis}{PD1}{\250}% U+00A8  
14825 % U+00A9 COPYRIGHT SIGN; copyright  
14826 \DeclareTextCommand{\textcopyright}{PD1}{\251}% U+00A9  
14827 % U+00AA FEMININE ORDINAL INDICATOR; ordfeminine  
14828 \DeclareTextCommand{\textordfeminine}{PD1}{\252}% U+00AA  
14829 % U+00AB LEFT-POINTING DOUBLE ANGLE QUOTATION MARK; guillemetleft  
14830 \DeclareTextCommand{\guillemotleft}{PD1}{\253}% U+00AB  
14831 \DeclareTextCommand{\guillemetleft}{PD1}{\253}% U+00AB  
14832 % U+00AC NOT SIGN; logicalnot  
14833 \DeclareTextCommand{\textlogicalnot}{PD1}{\254}% U+00AC  
14834 \DeclareTextCommand{\textlnot}{PD1}{\254}% logical not  
  
No glyph \255 in PDFDocEncoding.  
14835 % U+00AE REGISTERED SIGN; registered  
14836 \DeclareTextCommand{\textregistered}{PD1}{\256}% U+00AE  
14837 % U+00AF MACRON; \*macron, overscore  
14838 \DeclareTextCommand{\textasciimacron}{PD1}{\257}% U+00AF  
14839 % U+00B0 DEGREE SIGN; degree  
14840 \DeclareTextCommand{\textdegree}{PD1}{\260}% U+00B0  
14841 % U+00B1 PLUS-MINUS SIGN; plusminus  
14842 \DeclareTextCommand{\textplusminus}{PD1}{\261}% U+00B1  
14843 % U+00B2 SUPERSCRIPT TWO; twosuperior  
14844 \DeclareTextCommand{\texttwosuperior}{PD1}{\262}%\* U+00B2  
14845 % U+00B3 SUPERSCRIPT THREE; threesuperior  
14846 \DeclareTextCommand{\textthreesuperior}{PD1}{\263}%\* U+00B3  
14847 % U+00B4 ACUTE ACCENT; acute  
14848 \DeclareTextCommand{\textacute}{PD1}{\264}% U+00B4  
14849 % U+00B5 MICRO SIGN; mu, mul  
14850 \DeclareTextCommand{\textmu}{PD1}{\265}% U+00B5  
14851 % U+00B6 PILCROW SIGN; paragraph  
14852 \DeclareTextCommand{\textparagraph}{PD1}{\266}% U+00B6  
14853 % U+00B7 MIDDLE DOT; middot, \*periodcentered  
14854 \DeclareTextCommand{\textperiodcentered}{PD1}{\267}% U+00B7  
14855 % U+00B8 CEDILLA; cedilla  
14856 \DeclareTextCommand{\textcedilla}{PD1}{\270}% U+00B8  
14857 % U+00B9 SUPERSCRIPT ONE; onesuperior  
14858 \DeclareTextCommand{\textonesuperior}{PD1}{\271}%\* U+00B9  
14859 % U+00BA MASCULINE ORDINAL INDICATOR; ordmasculine  
14860 \DeclareTextCommand{\textordmasculine}{PD1}{\272}% U+00BA  
14861 % U+00BB RIGHT-POINTING DOUBLE ANGLE QUOTATION MARK; guillemetright  
14862 \DeclareTextCommand{\guillemotright}{PD1}{\273}% U+00BB  
14863 \DeclareTextCommand{\guillemetright}{PD1}{\273}% U+00BB  
14864 % U+00BC VULGAR FRACTION ONE QUARTER; onequarter  
14865 \DeclareTextCommand{\textonequarter}{PD1}{\274}% U+00BC  
14866 % U+00BD VULGAR FRACTION ONE HALF; onehalf  
14867 \DeclareTextCommand{\textonehalf}{PD1}{\275}% U+00BD  
14868 % U+00BE VULGAR FRACTION THREE QUARTERS; threequarters  
14869 \DeclareTextCommand{\textthreequarters}{PD1}{\276}% U+00BE  
14870 % U+00BF INVERTED QUESTION MARK; questiondown  
14871 \DeclareTextCommand{\textquestiondown}{PD1}{\277}% U+00BF  
14872 % U+00C0 LATIN CAPITAL LETTER A WITH GRAVE; Agrave  
14873 \DeclareTextCompositeCommand{\`}{PD1}{A}{\300}% U+00C0

14874 % U+00C1 LATIN CAPITAL LETTER A WITH ACUTE; Aacute  
14875 \DeclareTextCompositeCommand{\'}{PD1}{A}{\301}% U+00C1  
14876 % U+00C2 LATIN CAPITAL LETTER A WITH CIRCUMFLEX; Acircumflex  
14877 \DeclareTextCompositeCommand{\^}{PD1}{A}{\302}% U+00C2  
14878 % U+00C3 LATIN CAPITAL LETTER A WITH TILDE; Atilde  
14879 \DeclareTextCompositeCommand{\~}{PD1}{A}{\303}% U+00C3  
14880 % U+00C4 LATIN CAPITAL LETTER A WITH DIAERESIS; Adieresis  
14881 \DeclareTextCompositeCommand{\"}{PD1}{A}{\304}% U+00C4  
14882 % U+00C5 LATIN CAPITAL LETTER A WITH RING ABOVE; Aring  
14883 \DeclareTextCompositeCommand{\r}{PD1}{A}{\305}% U+00C5  
14884 % U+00C6 LATIN CAPITAL LETTER AE; AE  
14885 \DeclareTextCommand{\AE}{PD1}{\306}% U+00C6  
14886 % U+00C7 LATIN CAPITAL LETTER C WITH CEDILLA; Ccedilla  
14887 \DeclareTextCompositeCommand{\c}{PD1}{C}{\307}% U+00C7  
14888 % U+00C8 LATIN CAPITAL LETTER E WITH GRAVE; Egrave  
14889 \DeclareTextCompositeCommand{\`}{PD1}{E}{\310}% U+00C8  
14890 % U+00C9 LATIN CAPITAL LETTER E WITH ACUTE; Eacute  
14891 \DeclareTextCompositeCommand{\'}{PD1}{E}{\311}% U+00C9  
14892 % U+00CA LATIN CAPITAL LETTER E WITH CIRCUMFLEX; Ecircumflex  
14893 \DeclareTextCompositeCommand{\^}{PD1}{E}{\312}% U+00CA  
14894 % U+00CB LATIN CAPITAL LETTER E WITH DIAERESIS; Edieresis  
14895 \DeclareTextCompositeCommand{\"}{PD1}{E}{\313}% U+00CB  
14896 % U+00CC LATIN CAPITAL LETTER I WITH GRAVE; Igrave  
14897 \DeclareTextCompositeCommand{\`}{PD1}{I}{\314}% U+00CC  
14898 % U+00CD LATIN CAPITAL LETTER I WITH ACUTE; Iacute  
14899 \DeclareTextCompositeCommand{\'}{PD1}{I}{\315}% U+00CD  
14900 % U+00CE LATIN CAPITAL LETTER I WITH CIRCUMFLEX; Icircumflex  
14901 \DeclareTextCompositeCommand{\^}{PD1}{I}{\316}% U+00CE  
14902 % U+00CF LATIN CAPITAL LETTER I WITH DIAERESIS; Idieresis  
14903 \DeclareTextCompositeCommand{\"}{PD1}{I}{\317}% U+00CF  
14904 % U+00D0 LATIN CAPITAL LETTER ETH; Eth  
14905 \DeclareTextCommand{\DH}{PD1}{\320}% U+00D0  
14906 \DeclareTextCommand{\DJ}{PD1}{\320}% U+00D0  
14907 % U+00D1 LATIN CAPITAL LETTER N WITH TILDE; Ntilde  
14908 \DeclareTextCompositeCommand{\~}{PD1}{N}{\321}% U+00D1  
14909 % U+00D2 LATIN CAPITAL LETTER O WITH GRAVE; Ograve  
14910 \DeclareTextCompositeCommand{\`}{PD1}{O}{\322}% U+00D2  
14911 % U+00D3 LATIN CAPITAL LETTER O WITH ACUTE; Oacute  
14912 \DeclareTextCompositeCommand{\'}{PD1}{O}{\323}% U+00D3  
14913 % U+00D4 LATIN CAPITAL LETTER O WITH CIRCUMFLEX; Ocircumflex  
14914 \DeclareTextCompositeCommand{\^}{PD1}{O}{\324}% U+00D4  
14915 % U+00D5 LATIN CAPITAL LETTER O WITH TILDE; Otilde  
14916 \DeclareTextCompositeCommand{\~}{PD1}{O}{\325}% U+00D5  
14917 % U+00D6 LATIN CAPITAL LETTER O WITH DIAERESIS; Odieresis  
14918 \DeclareTextCompositeCommand{\"}{PD1}{O}{\326}% U+00D6  
14919 % U+00D7 MULTIPLICATION SIGN; multiply  
14920 \DeclareTextCommand{\textmultiply}{PD1}{\327}% U+00D7  
14921 % U+00D8 LATIN CAPITAL LETTER O WITH STROKE; Oslash  
14922 \DeclareTextCommand{\O}{PD1}{\330}% U+00D8  
14923 % U+00D9 LATIN CAPITAL LETTER U WITH GRAVE; Ugrave  
14924 \DeclareTextCompositeCommand{\`}{PD1}{U}{\331}% U+00D9  
14925 % U+00DA LATIN CAPITAL LETTER U WITH ACUTE; Uacute  
14926 \DeclareTextCompositeCommand{\'}{PD1}{U}{\332}% U+00DA  
14927 % U+00DB LATIN CAPITAL LETTER U WITH CIRCUMFLEX; Ucircumflex

14928 \DeclareTextCompositeCommand{\~}{PD1}{U}{\333}% U+00DB  
14929 % U+00DC LATIN CAPITAL LETTER U WITH DIAERESIS; Udieresis  
14930 \DeclareTextCompositeCommand{\"}{PD1}{U}{\334}% U+00DC  
14931 % U+00DD LATIN CAPITAL LETTER Y WITH ACUTE; Yacute  
14932 \DeclareTextCompositeCommand{\'}{PD1}{Y}{\335}% U+00DD  
14933 % U+00DE LATIN CAPITAL LETTER THORN; Thorn; \TH, \Thorn (wasysym)  
14934 \DeclareTextCommand{\TH}{PD1}{\336}% U+00DE  
14935 \DeclareTextCommand{\textThorn}{PD1}{\336}%\* U+00DE  
14936 % U+00DF LATIN SMALL LETTER SHARP S; germandbls  
14937 \DeclareTextCommand{\ss}{PD1}{\337}% U+00DF  
14938 % U+00E0 LATIN SMALL LETTER A WITH GRAVE; agrave  
14939 \DeclareTextCompositeCommand{\`}{PD1}{a}{\340}% U+00E0  
14940 % U+00E1 LATIN SMALL LETTER A WITH ACUTE; aacute  
14941 \DeclareTextCompositeCommand{\'}{PD1}{a}{\341}% U+00E1  
14942 % U+00E2 LATIN SMALL LETTER A WITH CIRCUMFLEX; acircumflex  
14943 \DeclareTextCompositeCommand{\^}{PD1}{a}{\342}% U+00E2  
14944 % U+00E3 LATIN SMALL LETTER A WITH TILDE; atilde  
14945 \DeclareTextCompositeCommand{\~}{PD1}{a}{\343}% U+00E3  
14946 % U+00E4 LATIN SMALL LETTER A WITH DIAERESIS; adieresis  
14947 \DeclareTextCompositeCommand{\"}{PD1}{a}{\344}% U+00E4  
14948 % U+00E5 LATIN SMALL LETTER A WITH RING ABOVE; aring  
14949 \DeclareTextCompositeCommand{\r}{PD1}{a}{\345}% U+00E5  
14950 % U+00E6 LATIN SMALL LETTER AE; ae  
14951 \DeclareTextCommand{\ae}{PD1}{\346}% U+00E6  
14952 % U+00E7 LATIN SMALL LETTER C WITH CEDILLA; ccedilla  
14953 \DeclareTextCompositeCommand{\c}{PD1}{c}{\347}% U+00E7  
14954 % U+00E8 LATIN SMALL LETTER E WITH GRAVE; egrave  
14955 \DeclareTextCompositeCommand{\`}{PD1}{e}{\350}% U+00E8  
14956 % U+00E9 LATIN SMALL LETTER E WITH ACUTE; eacute  
14957 \DeclareTextCompositeCommand{\'}{PD1}{e}{\351}% U+00E9  
14958 % U+00EA LATIN SMALL LETTER E WITH CIRCUMFLEX; ecircumflex  
14959 \DeclareTextCompositeCommand{\^}{PD1}{e}{\352}% U+00EA  
14960 % U+00EB LATIN SMALL LETTER E WITH DIAERESIS; edieresis  
14961 \DeclareTextCompositeCommand{\"}{PD1}{e}{\353}% U+00EB  
14962 % U+00EC LATIN SMALL LETTER I WITH GRAVE; igrave  
14963 \DeclareTextCompositeCommand{\`}{PD1}{i}{\354}% U+00EC  
14964 \DeclareTextCompositeCommand{\'}{PD1}{i}{\354}% U+00EC  
14965 % U+00ED LATIN SMALL LETTER I WITH ACUTE; iacute  
14966 \DeclareTextCompositeCommand{\'}{PD1}{i}{\355}% U+00ED  
14967 \DeclareTextCompositeCommand{\'}{PD1}{i}{\355}% U+00ED  
14968 % U+00EE LATIN SMALL LETTER I WITH CIRCUMFLEX; icircumflex  
14969 \DeclareTextCompositeCommand{\^}{PD1}{i}{\356}% U+00EE  
14970 \DeclareTextCompositeCommand{\^}{PD1}{i}{\356}% U+00EE  
14971 % U+00EF LATIN SMALL LETTER I WITH DIAERESIS; idieresis  
14972 \DeclareTextCompositeCommand{\"}{PD1}{i}{\357}% U+00EF  
14973 \DeclareTextCompositeCommand{\"}{PD1}{i}{\357}% U+00EF  
14974 % U+00F0 LATIN SMALL LETTER ETH; eth  
14975 \DeclareTextCommand{\dh}{PD1}{\360}% U+00F0  
14976 % U+00F1 LATIN SMALL LETTER N WITH TILDE; ntilde  
14977 \DeclareTextCompositeCommand{\~}{PD1}{n}{\361}% U+00F1  
14978 % U+00F2 LATIN SMALL LETTER O WITH GRAVE; ograve  
14979 \DeclareTextCompositeCommand{\`}{PD1}{o}{\362}% U+00F2  
14980 % U+00F3 LATIN SMALL LETTER O WITH ACUTE; oacute  
14981 \DeclareTextCompositeCommand{\'}{PD1}{o}{\363}% U+00F3

14982 % U+00F4 LATIN SMALL LETTER O WITH CIRCUMFLEX; ocircumflex  
 14983 \DeclareTextCompositeCommand{\~}{PD1}{o}{\364}% U+00F4  
 14984 % U+00F5 LATIN SMALL LETTER O WITH TILDE; otilde  
 14985 \DeclareTextCompositeCommand{\~}{PD1}{o}{\365}% U+00F5  
 14986 % U+00F6 LATIN SMALL LETTER O WITH DIAERESIS; odieresis  
 14987 \DeclareTextCompositeCommand{\"}{PD1}{o}{\366}% U+00F6  
 14988 % U+00F7 DIVISION SIGN; divide  
 14989 \DeclareTextCommand{\textdivide}{PD1}{\367}% U+00F7  
 14990 % U+00F8 LATIN SMALL LETTER O WITH STROKE; oslash  
 14991 \DeclareTextCommand{\o}{PD1}{\370}% U+00F8  
 14992 % U+00F9 LATIN SMALL LETTER U WITH GRAVE; ugrave  
 14993 \DeclareTextCompositeCommand{\`}{PD1}{u}{\371}% U+00F9  
 14994 % U+00FA LATIN SMALL LETTER U WITH ACUTE; uacute  
 14995 \DeclareTextCompositeCommand{\'}{PD1}{u}{\372}% U+00FA  
 14996 % U+00FB LATIN SMALL LETTER U WITH CIRCUMFLEX; ucircumflex  
 14997 \DeclareTextCompositeCommand{\^}{PD1}{u}{\373}% U+00FB  
 14998 % U+00FC LATIN SMALL LETTER U WITH DIAERESIS; udieresis  
 14999 \DeclareTextCompositeCommand{\"}{PD1}{u}{\374}% U+00FC  
 15000 % U+00FD LATIN SMALL LETTER Y WITH ACUTE; yacute  
 15001 \DeclareTextCompositeCommand{\'}{PD1}{y}{\375}% U+00FD  
 15002 % U+00FE LATIN SMALL LETTER THORN; thorn; \th, \thorn (wasysym)  
 15003 \DeclareTextCommand{\th}{PD1}{\376}% U+00FE  
 15004 \DeclareTextCommand{\textthorn}{PD1}{\376}%\* U+00FE  
 15005 % U+00FF LATIN SMALL LETTER Y WITH DIAERESIS; ydieresis  
 15006 \DeclareTextCompositeCommand{\"}{PD1}{y}{\377}% U+00FF  
 15007 \DeclareTextCommand{\ij}{PD1}{ij}% ligature U+0069 U+006A

Glyphs that consist of several characters.

15008 \DeclareTextCommand{\SS}{PD1}{SS}%  
 15009 \DeclareTextCommand{\textcelsius}{PD1}{\textdegree C}%

Aliases (german.sty)

15010 \DeclareTextCommand{\textglqq}{PD1}{\quotedblbase}%  
 15011 \DeclareTextCommand{\textgrqq}{PD1}{\textquotedblleft}%  
 15012 \DeclareTextCommand{\textglq}{PD1}{\quotesinglbase}%  
 15013 \DeclareTextCommand{\textgrq}{PD1}{\textquoteleft}%  
 15014 \DeclareTextCommand{\textflqq}{PD1}{\guillemetleft}%  
 15015 \DeclareTextCommand{\textfrqq}{PD1}{\guillemetright}%  
 15016 \DeclareTextCommand{\textflq}{PD1}{\guilsinglleft}%  
 15017 \DeclareTextCommand{\textfrq}{PD1}{\guilsinglright}%

Aliases (math names)

15018 \DeclareTextCommand{\textneg}{PD1}{\textlogicalnot}%  
 15019 \DeclareTextCommand{\texttimes}{PD1}{\textmultiply}%  
 15020 \DeclareTextCommand{\textdiv}{PD1}{\textdivide}%  
 15021 \DeclareTextCommand{\textpm}{PD1}{\textplusminus}%  
 15022 \DeclareTextCommand{\textcdot}{PD1}{\textperiodcentered}%  
 15023 \DeclareTextCommand{\textbeta}{PD1}{\ss}%

Polish aliases. PDF encoding does not have the characters, but it is useful to Poles to have the plain letters regardless. Requested by Wojciech Myszka (W.Myszka@immt.pwr.wroc.pl).

15024 \DeclareTextCompositeCommand{\k}{PD1}{a}{a}% aogonek  
 15025 \DeclareTextCompositeCommand{\'}{PD1}{c}{c}% cacute  
 15026 \DeclareTextCompositeCommand{\k}{PD1}{e}{e}% eogonek  
 15027 \DeclareTextCompositeCommand{\'}{PD1}{n}{n}% nacute  
 15028 \DeclareTextCompositeCommand{\'}{PD1}{s}{s}% sacute

```

15029 \DeclareTextCompositeCommand{\'}{PD1}{z}{z}% zacute
15030 \DeclareTextCompositeCommand{\.}{PD1}{z}{z}% zdot
15031 \DeclareTextCompositeCommand{\k}{PD1}{A}{A}% Aogonek
15032 \DeclareTextCompositeCommand{\'}{PD1}{C}{C}% Cacute
15033 \DeclareTextCompositeCommand{\k}{PD1}{E}{E}% Eogonek
15034 \DeclareTextCompositeCommand{\'}{PD1}{N}{N}% Nacute
15035 \DeclareTextCompositeCommand{\'}{PD1}{S}{S}% Sacute
15036 \DeclareTextCompositeCommand{\'}{PD1}{Z}{Z}% Zacute
15037 \DeclareTextCompositeCommand{\.}{PD1}{Z}{Z}% Zdot
15038 </pd1enc>

```

## 47.2 PU encoding

```

15039 <*puenc>
15040 \DeclareFontEncoding{PU}{-}{-}

```

### 47.2.1 NFSS2 accents

```

15041 % U+0300 COMBINING GRAVE ACCENT; gravecmb, *gravecmb
15042 \DeclareTextCommand{\`}{PU}[1]{#1\83\000}% U+0300
15043 % U+0301 COMBINING ACUTE ACCENT; acutecmb, *acutecmb
15044 \DeclareTextCommand{\'}{PU}[1]{#1\83\001}% U+0301
15045 % U+0302 COMBINING CIRCUMFLEX ACCENT; circumflexcmb
15046 \DeclareTextCommand{\^}{PU}[1]{#1\83\002}% U+0302
15047 % U+0303 COMBINING TILDE; tildecmb, *tildecmb
15048 \DeclareTextCommand{\~}{PU}[1]{#1\83\003}% U+0303
15049 % U+0304 COMBINING MACRON; macroncmb
15050 \DeclareTextCommand{\=}{PU}[1]{#1\83\004}% U+0304
15051 % U+0306 COMBINING BREVE; brevecmb
15052 \DeclareTextCommand{\u}{PU}[1]{#1\83\006}% U+0306
15053 \ifx\CYRDZE\@undefined \else
15054 \DeclareTextCommand{\U}{PU}[1]{#1\83\006}% U+0306
15055 \fi
15056 % U+0307 COMBINING DOT ABOVE; dotaccentcmb
15057 \DeclareTextCommand{\.}{PU}[1]{#1\83\007}% U+0307
15058 % U+0308 COMBINING DIAERESIS; dieresiscmb
15059 \DeclareTextCommand{\"}{PU}[1]{#1\83\010}% U+0308
15060 % U+030A COMBINING RING ABOVE; ringcmb
15061 \DeclareTextCommand{\r}{PU}[1]{#1\83\012}% U+030A
15062 % U+030B COMBINING DOUBLE ACUTE ACCENT; hungarumlautcmb
15063 \DeclareTextCommand{\H}{PU}[1]{#1\83\013}% U+030B
15064 % U+030C COMBINING CARON; caroncmb
15065 \DeclareTextCommand{\v}{PU}[1]{#1\83\014}% U+030C
15066 </puenc>
15067 % U+030F COMBINING DOUBLE GRAVE ACCENT; dblgravecmb
15068 <puextra>\DeclareTextCommand{\G}{PU}[1]{#1\83\017}% U+030F
15069 <*puenc>
15070 \ifx\CYRDZE\@undefined \else
15071 \DeclareTextCommand{\C}{PU}[1]{#1\83\017}% U+030F
15072 \fi
15073 % U+0311 COMBINING INVERTED BREVE; breveinvertedcmb
15074 \DeclareTextCommand{\textinvbreve}{PU}[1]{#1\83\021}% U+0311
15075 \DeclareTextCommand{\newtie}{PU}[1]{#1\83\021}% U+0311
15076 % U+0323 COMBINING DOT BELOW; dotbelowcmb, *dotbelowcmb
15077 \DeclareTextCommand{\d}{PU}[1]{#1\83\043}% U+0323

```

15078 % U+0324 COMBINING DIAERESIS BELOW; dieresisbelowcmb; \textsubumlaut (tipa)  
15079 \DeclareTextCommand{\textsubumlaut}{PU}[1]{#1\83\044}% U+0324  
15080 % U+0325 COMBINING RING BELOW; ringbelowcmb; \textsubring (tipa)  
15081 \DeclareTextCommand{\textsubring}{PU}[1]{#1\83\045}% U+0325  
15082 % U+0327 COMBINING CEDILLA; cedillacmb  
15083 \DeclareTextCommand{\c}{PU}[1]{#1\83\047}% U+0327  
15084 % U+0328 COMBINING OGONEK; ogonekcmb  
15085 \DeclareTextCommand{\k}{PU}[1]{#1\83\050}% U+0328  
15086 % U+032D COMBINING CIRCUMFLEX ACCENT BELOW;  
15087 % \textsubcircum (tipa)  
15088 \DeclareTextCommand{\textsubcircum}{PU}[1]{#1\83\055}% U+032D  
15089 % U+032E COMBINING BREVE BELOW; brevebelowcmb  
15090 \DeclareTextCommand{\textsubbreve}{PU}[1]{#1\83\056}% U+032E  
15091 % U+0330 COMBINING TILDE BELOW; tildebelowcmb; \textsubtilde (tipa)  
15092 \DeclareTextCommand{\textsubtilde}{PU}[1]{#1\83\060}% U+0330  
15093 % U+0331 COMBINING MACRON BELOW; macronbelowcmb  
15094 \DeclareTextCommand{\b}{PU}[1]{#1\83\061}% U+0331  
15095 % U+0361 COMBINING DOUBLE INVERTED BREVE; breveinverteddoublecmb  
15096 \DeclareTextCommand{\t}{PU}[1]{#1\83\141}% U+0361  
15097 % U+20DD COMBINING ENCLOSING CIRCLE  
15098 \DeclareTextCommand{\textcircled}{PU}[1]{#1\9040\335}% U+20DD

Double accents.

15099 \DeclareTextCommand{\textacutemacron}{PU}[1]{#1\83\001\83\004}% U+0301 U+0304  
15100 \DeclareTextCommand{\textgravemacron}{PU}[1]{#1\83\000\83\004}% U+0300 U+0304

\@empty is an artefact of the NFSS2 machinery, it gets inserted for empty arguments and spaces.

15101 \DeclareTextCompositeCommand{\`}{PU}{\@empty}{\textasciigrave}%  
15102 \DeclareTextCompositeCommand{\'}{PU}{\@empty}{\textacute}%  
15103 \DeclareTextCompositeCommand{\^}{PU}{\@empty}{\textasciicircum}%  
15104 \DeclareTextCompositeCommand{\~}{PU}{\@empty}{\texttilde}%  
15105 \DeclareTextCompositeCommand{\"}{PU}{\@empty}{\textasciidiereis}%  
15106 \DeclareTextCompositeCommand{\r}{PU}{\@empty}{\textring}%  
15107 \DeclareTextCompositeCommand{\v}{PU}{\@empty}{\textasciicaron}%  
15108 \DeclareTextCompositeCommand{\.}{PU}{\@empty}{\textdotaccent}%  
15109 \DeclareTextCompositeCommand{\c}{PU}{\@empty}{\textcedilla}%  
15110 \DeclareTextCompositeCommand{\u}{PU}{\@empty}{\textasciibreve}%  
15111 (/puenc)  
15112 (puextra)\DeclareTextCompositeCommand{\G}{PU}{\@empty}{\textdoublegrave}%  
15113 (\*puenc)  
15114 \DeclareTextCompositeCommand{\=}{PU}{\@empty}{\textasciimacron}%  
15115 \DeclareTextCompositeCommand{\H}{PU}{\@empty}{\texthungarumlaut}%  
15116 \DeclareTextCompositeCommand{\k}{PU}{\@empty}{\textogonek}%  
15117 \DeclareTextCompositeCommand{\textinvbreve}{PU}{\@empty}{\83\021}% U+0311  
15118 \DeclareTextCompositeCommand{\textsubumlaut}{PU}{\@empty}{\83\044}% U+0324  
15119 \DeclareTextCompositeCommand{\textsubring}{PU}{\@empty}{\texttriglow}%  
15120 \DeclareTextCompositeCommand{\textsubcircum}{PU}{\@empty}{\textcircumlow}%  
15121 \DeclareTextCompositeCommand{\textsubbreve}{PU}{\@empty}{\83\056}% U+032E  
15122 \DeclareTextCompositeCommand{\textsubtilde}{PU}{\@empty}{\texttildelow}%  
15123 \DeclareTextCompositeCommand{\b}{PU}{\@empty}{\textmacronbelow}%  
15124 \DeclareTextCompositeCommand{\d}{PU}{\@empty}{\textdotbelow}%

```

15125 \DeclareTextCompositeCommand{\t}{PU}{\@empty}{\texttie}%
15126 \DeclareTextCompositeCommand{\newtie}{PU}{\@empty}{\textnewtie}%
15127 \DeclareTextCompositeCommand{\textcircled}{PU}{\@empty}{\textbigcircle}%
15128 \DeclareTextCompositeCommand{\textacutemacron}{PU}{\@empty}{\{\ \83\001\83\004\}}% U+0301 U
15129 \DeclareTextCompositeCommand{\textgravemacron}{PU}{\@empty}{\{\ \83\000\83\004\}}% U+0300 U
15130 \DeclareTextCompositeCommand{\`}{PU}{\ }{\textasciigrave}%
15131 \DeclareTextCompositeCommand{\'}{PU}{\ }{\textacute}%
15132 \DeclareTextCompositeCommand{\~}{PU}{\ }{\textasciicircum}%
15133 \DeclareTextCompositeCommand{\~}{PU}{\ }{\texttilde}%
15134 \DeclareTextCompositeCommand{\"}{PU}{\ }{\textasciidieresis}%
15135 \DeclareTextCompositeCommand{\r}{PU}{\ }{\textring}%
15136 \DeclareTextCompositeCommand{\v}{PU}{\ }{\textasciicaron}%
15137 \DeclareTextCompositeCommand{\.}{PU}{\ }{\textdotaccent}%
15138 \DeclareTextCompositeCommand{\c}{PU}{\ }{\textcedilla}%
15139 \DeclareTextCompositeCommand{\u}{PU}{\ }{\textasciibreve}%
15140 (/puenc)
15141 (puextra)\DeclareTextCompositeCommand{\G}{PU}{\ }{\textdoublegrave}%
15142 (*puenc)
15143 \DeclareTextCompositeCommand{\=}{PU}{\ }{\textasciimacron}%
15144 \DeclareTextCompositeCommand{\H}{PU}{\ }{\texthungarumlaut}%
15145 \DeclareTextCompositeCommand{\k}{PU}{\ }{\textogonek}%
15146 \DeclareTextCompositeCommand{\textinvbreve}{PU}{\ }{\{\ \83\021\}}% U+0311
15147 \DeclareTextCompositeCommand{\textsubumlaut}{PU}{\ }{\{\ \83\044\}}% U+0324
15148 \DeclareTextCompositeCommand{\textsubring}{PU}{\ }{\textringlow}%
15149 \DeclareTextCompositeCommand{\textsubcircum}{PU}{\ }{\textcircumlow}%
15150 \DeclareTextCompositeCommand{\textsubbreve}{PU}{\ }{\{\ \83\056\}}% U+032E
15151 \DeclareTextCompositeCommand{\textsubtilde}{PU}{\ }{\texttildebelow}%
15152 \DeclareTextCompositeCommand{\b}{PU}{\ }{\textmacronbelow}%
15153 \DeclareTextCompositeCommand{\d}{PU}{\ }{\textdotbelow}%
15154 \DeclareTextCompositeCommand{\t}{PU}{\ }{\texttie}%
15155 \DeclareTextCompositeCommand{\newtie}{PU}{\ }{\textnewtie}%
15156 \DeclareTextCompositeCommand{\textcircled}{PU}{\ }{\textbigcircle}%
15157 \DeclareTextCompositeCommand{\textacutemacron}{PU}{\ }{\{\ \83\001\83\004\}}% U+0301 U+0304
15158 \DeclareTextCompositeCommand{\textgravemacron}{PU}{\ }{\{\ \83\000\83\004\}}% U+0300 U+0304

```

Accents for capitals (see encoding TS1)

```

15159 \DeclareTextCommand{\capitalcedilla}{PU}[1]{\c{#1}}%
15160 \DeclareTextCommand{\capitalogonek}{PU}[1]{\k{#1}}%
15161 \DeclareTextCommand{\capitalgrave}{PU}[1]{\`{#1}}%
15162 \DeclareTextCommand{\capitalacute}{PU}[1]{\'{#1}}%
15163 \DeclareTextCommand{\capitalcircumflex}{PU}[1]{\^{#1}}%
15164 \DeclareTextCommand{\capitaltilde}{PU}[1]{\~{#1}}%
15165 \DeclareTextCommand{\capitaldieresis}{PU}[1]{\"{#1}}%
15166 \DeclareTextCommand{\capitalhungarumlaut}{PU}[1]{\H{#1}}%
15167 \DeclareTextCommand{\capitalring}{PU}[1]{\r{#1}}%
15168 \DeclareTextCommand{\capitalcaron}{PU}[1]{\v{#1}}%
15169 \DeclareTextCommand{\capitalbreve}{PU}[1]{\u{#1}}%
15170 \DeclareTextCommand{\capitalmacron}{PU}[1]{\={#1}}%
15171 \DeclareTextCommand{\capitaldotaccent}{PU}[1]{\.{#1}}%
15172 \DeclareTextCommand{\capitaltie}{PU}[1]{\t{#1}}%
15173 \DeclareTextCommand{\capitalnewtie}{PU}[1]{\newtie{#1}}%

```

#### 47.2.2 Basic Latin: U+0000 to U+007F

Special white space escape characters.



15174 % U+0009 (CHARACTER TABULATION)  
 15175 \DeclareTextCommand{\textHT}{PU}{\80\011}% U+0009  
 15176 % U+000A (LINE FEED)  
 15177 \DeclareTextCommand{\textLF}{PU}{\80\012}% U+000A  
 15178 % U+000D (CARRIAGE RETURN)  
 15179 \DeclareTextCommand{\textCR}{PU}{\80\015}% U+000D  
 \80\040: U+0020 SPACE; space, spacehackarabic  
 \80\041: U+0021 EXCLAMATION MARK; exclam  
 15180 % U+0022 QUOTATION MARK; quotedbl  
 15181 \DeclareTextCommand{\textquotedbl}{PU}{"}% \80\042 U+0022  
 15182 % U+0023 NUMBER SIGN; numbersign  
 15183 \DeclareTextCommand{\textnumbersign}{PU}{\80\043}% U+0023  
 15184 % U+0024 DOLLAR SIGN; dollar  
 15185 \DeclareTextCommand{\textdollar}{PU}{\80\044}% U+0024  
 15186 %\* \textdollar -> \mathdollar  
 15187 %\* \textdollar -> \EyesDollar (marvosym)  
 15188 % U+0025 PERCENT SIGN; percent  
 15189 \DeclareTextCommand{\textpercent}{PU}{\80\045}% U+0025  
 15190 % U+0026 AMPERSAND; ampersand  
 15191 \DeclareTextCommand{\textampersand}{PU}{\80\046}% U+0026  
 15192 %\* \textampersand -> \binampersand (stmaryrd)  
 15193 %\* \textampersand -> \with (cml)  
 15194 % U+0027 APOSTROPHE; quotesingle  
 15195 \DeclareTextCommand{\textquotesingle}{PU}{\80\047}% U+0027  
 15196 % U+0028 LEFT PARENTHESIS; parenleft  
 15197 \DeclareTextCommand{\textparenleft}{PU}{\80\050}% U+0028  
 15198 % U+0029 RIGHT PARENTHESIS; parenright  
 15199 \DeclareTextCommand{\textparenright}{PU}{\80\051}% U+0029  
 15200 % U+002A ASTERISK; asterisk; (?)  
 15201 \DeclareTextCommand{\textasteriskcentered}{PU}{\80\052}% U+002A  
 15202 % U+002B PLUS SIGN; plus; \MVPlus (marvosym)  
 15203 \DeclareTextCommand{\textMVPlus}{PU}{\80\053}%\* U+002B  
 15204 % U+002C COMMA; comma; \MVComma (marvosym)  
 15205 \DeclareTextCommand{\textMVComma}{PU}{\80\054}%\* U+002C  
 15206 % U+002D HYPHEN-MINUS; hyphen; \MVMinus (marvosym)  
 15207 \DeclareTextCommand{\textMVMinus}{PU}{\80\055}%\* U+002D  
 15208 % U+002E FULL STOP; period; \MVPeriod (marvosym)  
 15209 \DeclareTextCommand{\textMVPeriod}{PU}{\80\056}%\* U+002E  
 15210 % U+002F SOLIDUS; slash; \MVDivision (marvosym)  
 15211 \DeclareTextCommand{\textMVDivision}{PU}{\80\057}%\* U+002F  
 15212 % U+0030 DIGIT ZERO; zero; \MVZero (marvosym)  
 15213 \DeclareTextCommand{\textMVZero}{PU}{\80\060}%\* U+0030  
 15214 % U+0031 DIGIT ONE; one; \MVOne (marvosym)  
 15215 \DeclareTextCommand{\textMVOne}{PU}{\80\061}%\* U+0031  
 15216 % U+0032 DIGIT TWO; two; \MVTwo (marvosym)  
 15217 \DeclareTextCommand{\textMVTwo}{PU}{\80\062}%\* U+0032  
 15218 % U+0033 DIGIT THREE; three; \MVThree (marvosym)  
 15219 \DeclareTextCommand{\textMVThree}{PU}{\80\063}%\* U+0033  
 15220 % U+0034 DIGIT FOUR; four; \MVFour (marvosym)  
 15221 \DeclareTextCommand{\textMVFour}{PU}{\80\064}%\* U+0034  
 15222 % U+0035 DIGIT FIVE; five; \MVFive (marvosym)  
 15223 \DeclareTextCommand{\textMVFive}{PU}{\80\065}%\* U+0035  
 15224 % U+0036 DIGIT SIX; six; \MVSix (marvosym)

15225 \DeclareTextCommand{\textMVSix}{PU}{\80\066}%\* U+0036  
15226 % U+0037 DIGIT SEVEN; seven; \MVSeven (marvosym)  
15227 \DeclareTextCommand{\textMVSeven}{PU}{\80\067}%\* U+0037  
15228 % U+0038 DIGIT EIGHT; eight; \MVEight (marvosym)  
15229 \DeclareTextCommand{\textMVEight}{PU}{\80\070}%\* U+0038  
15230 % U+0039 DIGIT NINE; nine; \MVNine (marvosym)  
15231 \DeclareTextCommand{\textMVNine}{PU}{\80\071}%\* U+0039  
\80\072: U+003A COLON; colon  
\80\073: U+003B SEMICOLON; semicolon  
15232 % U+003C LESS-THAN SIGN; less  
15233 \DeclareTextCommand{\textless}{PU}{<}% \80\074 U+003C  
\80\075: U+003D EQUALS SIGN; equal  
15234 % U+003E GREATER-THAN SIGN; greater  
15235 \DeclareTextCommand{\textgreater}{PU}{>}% \80\076 U+003E  
\80\077: U+003F QUESTION MARK; question  
15236 % U+0040 COMMERCIAL AT; at; \MVAt (marvosym)  
15237 \DeclareTextCommand{\textMVAt}{PU}{\80\100}%\* U+0040  
\80\101: U+0041 LATIN CAPITAL LETTER A; A  
...  
\80\132: U+005A LATIN CAPITAL LETTER Z; Z  
\80\133: U+005B LEFT SQUARE BRACKET; bracketleft  
15238 % U+005C REVERSE SOLIDUS; backslash  
15239 \DeclareTextCommand{\textbackslash}{PU}{\80\134}% U+005C  
\80\135: U+005D RIGHT SQUARE BRACKET; bracketright  
15240 % U+005E CIRCUMFLEX ACCENT; asciicircum  
15241 \DeclareTextCommand{\textasciicircum}{PU}{\80\136}% U+005E  
15242 % U+005F LOW LINE; underscore  
15243 \DeclareTextCommand{\textunderscore}{PU}{\80\137}% U+005F  
15244 %\* \textunderscore -> \mathunderscore (LaTeX)  
15245 % U+0060 GRAVE ACCENT; grave  
15246 \DeclareTextCommand{\textasciigrave}{PU}{\80\140}% U+0060  
\80\141: U+0061 LATIN SMALL LETTER A; a  
...  
\80\150: U+0068 LATIN SMALL LETTER H; h  
15247 % U+0069 LATIN SMALL LETTER I; i  
15248 \DeclareTextCompositeCommand{\.}{PU}{\i}{i}% \80\151 U+0069  
15249 \DeclareTextCompositeCommand{\.}{PU}{\i}{i}% \80\151 U+0069  
\80\152: U+006A LATIN SMALL LETTER J; j  
...  
\80\172: U+007A LATIN SMALL LETTER Z; z  
15250 % U+007B LEFT CURLY BRACKET; braceleft  
15251 \DeclareTextCommand{\textbraceleft}{PU}{\80\173}% U+007B  
15252 % U+007C VERTICAL LINE; \*bar, verticalbar  
15253 \DeclareTextCommand{\textbar}{PU}{|}% \80\174 U+007C  
15254 %\* \textbar -> \textvertline (tipa)  
15255 % U+007D RIGHT CURLY BRACKET; braceright  
15256 \DeclareTextCommand{\textbraceright}{PU}{\80\175}% U+007D  
15257 % U+007E TILDE; asciitilde  
15258 \DeclareTextCommand{\textasciitilde}{PU}{\80\176}% U+007E

### 47.2.3 Latin-1 Supplement: U+0080 to U+00FF

\80\240: U+00A0 NO-BREAK SPACE; nbspace, nonbreakingspace  
15259 % U+00A1 INVERTED EXCLAMATION MARK; exclamdown  
15260 \DeclareTextCommand{\textexclamdown}{PU}{\80\241}% U+00A1  
15261 % U+00A2 CENT SIGN; cent  
15262 \DeclareTextCommand{\textcent}{PU}{\80\242}% U+00A2  
15263 % U+00A3 POUND SIGN; sterling  
15264 \DeclareTextCommand{\textsterling}{PU}{\80\243}% U+00A3  
15265 %\* \textsterling -> \mathsterling (LaTeX)  
15266 %\* \textsterling -> \pounds (LaTeX)  
15267 % U+00A4 CURRENCY SIGN; currency  
15268 \DeclareTextCommand{\textcurrency}{PU}{\80\244}% U+00A4  
15269 % U+00A5 YEN SIGN; yen  
15270 \DeclareTextCommand{\textyen}{PU}{\80\245}% U+00A5  
15271 % U+00A6 BROKEN BAR; brokenbar  
15272 \DeclareTextCommand{\textbrokenbar}{PU}{\80\246}% U+00A6  
15273 %\* \textbrokenbar -> \brokenvert (wasysym)  
15274 % U+00A7 SECTION SIGN; section  
15275 \DeclareTextCommand{\textsection}{PU}{\80\247}% U+00A7  
15276 %\* \textsection -> \mathsection (LaTeX)  
15277 %\* \textsection -> \S (LaTeX)  
15278 % U+00A8 DIAERESIS; dieresis  
15279 \DeclareTextCommand{\textasciidieresis}{PU}{\80\250}% U+00A8  
15280 % U+00A9 COPYRIGHT SIGN; copyright  
15281 \DeclareTextCommand{\textcopyright}{PU}{\80\251}%\* U+00A9  
15282 % U+00AA FEMININE ORDINAL INDICATOR; ordfeminine  
15283 \DeclareTextCommand{\textordfeminine}{PU}{\80\252}% U+00AA  
15284 % U+00AB LEFT-POINTING DOUBLE ANGLE QUOTATION MARK; guillemetleft  
15285 \DeclareTextCommand{\guillemotleft}{PU}{\80\253}% U+00AB  
15286 \DeclareTextCommand{\guillemetleft}{PU}{\80\253}% U+00AB  
15287 % U+00AC NOT SIGN; logicalnot  
15288 \DeclareTextCommand{\textlogicalnot}{PU}{\80\254}% U+00AC  
15289 \DeclareTextCommand{\textlnot}{PU}{\80\254}% U+00AC  
\\80\255: U+00AD SOFT HYPHEN; sfthyphen, softthyphen  
15290 % U+00AE REGISTERED SIGN; registered  
15291 \DeclareTextCommand{\textregistered}{PU}{\80\256}% U+00AE  
15292 % U+00AF MACRON; \*macron, overscore  
15293 \DeclareTextCommand{\textasciimacron}{PU}{\80\257}% U+00AF  
15294 % U+00B0 DEGREE SIGN; degree  
15295 \DeclareTextCommand{\textdegree}{PU}{\80\260}% U+00B0  
15296 % U+00B1 PLUS-MINUS SIGN; plusminus  
15297 \DeclareTextCommand{\textplusminus}{PU}{\80\261}% U+00B1  
15298 % U+00B2 SUPERScript TWO; twosuperior  
15299 \DeclareTextCommand{\texttwosuperior}{PU}{\80\262}%\* U+00B2  
15300 % U+00B3 SUPERScript THREE; threesuperior  
15301 \DeclareTextCommand{\textthreesuperior}{PU}{\80\263}%\* U+00B3  
15302 % U+00B4 ACUTE ACCENT; acute  
15303 \DeclareTextCommand{\textacute}{PU}{\80\264}% U+00B4  
15304 \DeclareTextCommand{\textasciiacute}{PU}{\80\264}% U+00B4  
15305 % U+00B5 MICRO SIGN; mu, mu1  
15306 \DeclareTextCommand{\textmu}{PU}{\80\265}% U+00B5  
15307 % U+00B6 PILCROW SIGN; paragraph  
15308 \DeclareTextCommand{\textparagraph}{PU}{\80\266}% U+00B6

15309 %\* \textparagraph -> \mathparagraph (LaTeX)  
15310 % U+00B7 MIDDLE DOT; middot, \*periodcentered  
15311 \DeclareTextCommand{\textperiodcentered}{PU}{\80\267}% U+00B7  
15312 %\* \textperiodcentered -> \MultiplicationDot (marvosym)  
15313 %\* \textperiodcentered -> \Squaredot (marvosym)  
15314 % U+00B8 CEDILLA; cedilla  
15315 \DeclareTextCommand{\textcedilla}{PU}{\80\270}% U+00B8  
15316 % U+00B9 SUPERSCRIPT ONE; onesuperior  
15317 \DeclareTextCommand{\textonesuperior}{PU}{\80\271}%\* U+00B9  
15318 % U+00BA MASCULINE ORDINAL INDICATOR; ordmasculine  
15319 \DeclareTextCommand{\textordmasculine}{PU}{\80\272}% U+00BA  
15320 % U+00BB RIGHT-POINTING DOUBLE ANGLE QUOTATION MARK; guillemetright  
15321 \DeclareTextCommand{\guillemotright}{PU}{\80\273}% U+00BB  
15322 \DeclareTextCommand{\guillemetright}{PU}{\80\273}% U+00BB  
15323 % U+00BC VULGAR FRACTION ONE QUARTER; onequarter  
15324 \DeclareTextCommand{\textonequarter}{PU}{\80\274}% U+00BC  
15325 % U+00BD VULGAR FRACTION ONE HALF; onehalf  
15326 \DeclareTextCommand{\textonehalf}{PU}{\80\275}% U+00BD  
15327 % U+00BE VULGAR FRACTION THREE QUARTERS; threequarters  
15328 \DeclareTextCommand{\textthreequarters}{PU}{\80\276}% U+00BE  
15329 % U+00BF INVERTED QUESTION MARK; questiondown  
15330 \DeclareTextCommand{\textquestiondown}{PU}{\80\277}% U+00BF  
15331 % U+00C0 LATIN CAPITAL LETTER A WITH GRAVE; Agrave  
15332 \DeclareTextCompositeCommand{\`}{PU}{A}{\80\300}% U+00C0  
15333 % U+00C1 LATIN CAPITAL LETTER A WITH ACUTE; Aacute  
15334 \DeclareTextCompositeCommand{\'}{PU}{A}{\80\301}% U+00C1  
15335 % U+00C2 LATIN CAPITAL LETTER A WITH CIRCUMFLEX; Acircumflex  
15336 \DeclareTextCompositeCommand{\^}{PU}{A}{\80\302}% U+00C2  
15337 % U+00C3 LATIN CAPITAL LETTER A WITH TILDE; Atilde  
15338 \DeclareTextCompositeCommand{\~}{PU}{A}{\80\303}% U+00C3  
15339 % U+00C4 LATIN CAPITAL LETTER A WITH DIAERESIS; Adieresis  
15340 \DeclareTextCompositeCommand{\"}{PU}{A}{\80\304}% U+00C4  
15341 % U+00C5 LATIN CAPITAL LETTER A WITH RING ABOVE; Aring  
15342 \DeclareTextCompositeCommand{\r}{PU}{A}{\80\305}% U+00C5  
15343 % U+00C6 LATIN CAPITAL LETTER AE; AE  
15344 \DeclareTextCommand{\AE}{PU}{\80\306}% U+00C6  
15345 % U+00C7 LATIN CAPITAL LETTER C WITH CEDILLA; Ccedilla  
15346 \DeclareTextCompositeCommand{\c}{PU}{C}{\80\307}% U+00C7  
15347 % U+00C8 LATIN CAPITAL LETTER E WITH GRAVE; Egrave  
15348 \DeclareTextCompositeCommand{\`}{PU}{E}{\80\310}% U+00C8  
15349 % U+00C9 LATIN CAPITAL LETTER E WITH ACUTE; Eacute  
15350 \DeclareTextCompositeCommand{\'}{PU}{E}{\80\311}% U+00C9  
15351 % U+00CA LATIN CAPITAL LETTER E WITH CIRCUMFLEX; Ecircumflex  
15352 \DeclareTextCompositeCommand{\^}{PU}{E}{\80\312}% U+00CA  
15353 % U+00CB LATIN CAPITAL LETTER E WITH DIAERESIS; Edieresis  
15354 \DeclareTextCompositeCommand{\"}{PU}{E}{\80\313}% U+00CB  
15355 % U+00CC LATIN CAPITAL LETTER I WITH GRAVE; Igrave  
15356 \DeclareTextCompositeCommand{\`}{PU}{I}{\80\314}% U+00CC  
15357 % U+00CD LATIN CAPITAL LETTER I WITH ACUTE; Iacute  
15358 \DeclareTextCompositeCommand{\'}{PU}{I}{\80\315}% U+00CD  
15359 % U+00CE LATIN CAPITAL LETTER I WITH CIRCUMFLEX; Icircumflex  
15360 \DeclareTextCompositeCommand{\^}{PU}{I}{\80\316}% U+00CE  
15361 % U+00CF LATIN CAPITAL LETTER I WITH DIAERESIS; Idieresis  
15362 \DeclareTextCompositeCommand{\"}{PU}{I}{\80\317}% U+00CF

15363 % U+00D0 LATIN CAPITAL LETTER ETH; Eth  
15364 \DeclareTextCommand{\DH}{PU}{\80\320}% U+00D0  
15365 % U+00D1 LATIN CAPITAL LETTER N WITH TILDE; Ntilde  
15366 \DeclareTextCompositeCommand{\~}{PU}{N}{\80\321}% U+00D1  
15367 % U+00D2 LATIN CAPITAL LETTER O WITH GRAVE; Ograve  
15368 \DeclareTextCompositeCommand{\`}{PU}{O}{\80\322}% U+00D2  
15369 % U+00D3 LATIN CAPITAL LETTER O WITH ACUTE; Oacute  
15370 \DeclareTextCompositeCommand{\'}{PU}{O}{\80\323}% U+00D3  
15371 % U+00D4 LATIN CAPITAL LETTER O WITH CIRCUMFLEX; Ocircumflex  
15372 \DeclareTextCompositeCommand{\^}{PU}{O}{\80\324}% U+00D4  
15373 % U+00D5 LATIN CAPITAL LETTER O WITH TILDE; Otilde  
15374 \DeclareTextCompositeCommand{\~}{PU}{O}{\80\325}% U+00D5  
15375 % U+00D6 LATIN CAPITAL LETTER O WITH DIAERESIS; Odieresis  
15376 \DeclareTextCompositeCommand{\"}{PU}{O}{\80\326}% U+00D6  
15377 % U+00D7 MULTIPLICATION SIGN; multiply  
15378 \DeclareTextCommand{\textmultiply}{PU}{\80\327}% U+00D7  
15379 %\* \textmultiply -> \vartimes (stmaryrd)  
15380 %\* \textmultiply -> \MVMultiplication (marvosym)  
15381 % U+00D8 LATIN CAPITAL LETTER O WITH STROKE; Oslash  
15382 \DeclareTextCommand{\O}{PU}{\80\330}% U+00D8  
15383 % U+00D9 LATIN CAPITAL LETTER U WITH GRAVE; Ugrave  
15384 \DeclareTextCompositeCommand{\`}{PU}{U}{\80\331}% U+00D9  
15385 % U+00DA LATIN CAPITAL LETTER U WITH ACUTE; Uacute  
15386 \DeclareTextCompositeCommand{\'}{PU}{U}{\80\332}% U+00DA  
15387 % U+00DB LATIN CAPITAL LETTER U WITH CIRCUMFLEX; Ucircumflex  
15388 \DeclareTextCompositeCommand{\^}{PU}{U}{\80\333}% U+00DB  
15389 % U+00DC LATIN CAPITAL LETTER U WITH DIAERESIS; Udieresis  
15390 \DeclareTextCompositeCommand{\"}{PU}{U}{\80\334}% U+00DC  
15391 % U+00DD LATIN CAPITAL LETTER Y WITH ACUTE; Yacute  
15392 \DeclareTextCompositeCommand{\'}{PU}{Y}{\80\335}% U+00DD  
15393 % U+00DE LATIN CAPITAL LETTER THORN; Thorn; \TH, \Thorn (wasysym)  
15394 \DeclareTextCommand{\TH}{PU}{\80\336}% U+00DE  
15395 \DeclareTextCommand{\textThorn}{PU}{\80\336}%\* U+00DE  
15396 % U+00DF LATIN SMALL LETTER SHARP S; germandbls  
15397 \DeclareTextCommand{\ss}{PU}{\80\337}% U+00DF  
15398 % U+00E0 LATIN SMALL LETTER A WITH GRAVE; agrave  
15399 \DeclareTextCompositeCommand{\`}{PU}{a}{\80\340}% U+00E0  
15400 % U+00E1 LATIN SMALL LETTER A WITH ACUTE; aacute  
15401 \DeclareTextCompositeCommand{\'}{PU}{a}{\80\341}% U+00E1  
15402 % U+00E2 LATIN SMALL LETTER A WITH CIRCUMFLEX; acircumflex  
15403 \DeclareTextCompositeCommand{\^}{PU}{a}{\80\342}% U+00E2  
15404 % U+00E3 LATIN SMALL LETTER A WITH TILDE; atilde  
15405 \DeclareTextCompositeCommand{\~}{PU}{a}{\80\343}% U+00E3  
15406 % U+00E4 LATIN SMALL LETTER A WITH DIAERESIS; adieresis  
15407 \DeclareTextCompositeCommand{\"}{PU}{a}{\80\344}% U+00E4  
15408 % U+00E5 LATIN SMALL LETTER A WITH RING ABOVE; aring  
15409 \DeclareTextCompositeCommand{\r}{PU}{a}{\80\345}% U+00E5  
15410 % U+00E6 LATIN SMALL LETTER AE; ae  
15411 \DeclareTextCommand{\ae}{PU}{\80\346}% U+00E6  
15412 % U+00E7 LATIN SMALL LETTER C WITH CEDILLA; ccedilla  
15413 \DeclareTextCompositeCommand{\c}{PU}{c}{\80\347}% U+00E7  
15414 % U+00E8 LATIN SMALL LETTER E WITH GRAVE; egrave  
15415 \DeclareTextCompositeCommand{\`}{PU}{e}{\80\350}% U+00E8  
15416 % U+00E9 LATIN SMALL LETTER E WITH ACUTE; eacute

15417 \DeclareTextCompositeCommand{\'}{PU}{e}{\80\351}% U+00E9  
15418 % U+00EA LATIN SMALL LETTER E WITH CIRCUMFLEX; ecircumflex  
15419 \DeclareTextCompositeCommand{\^}{PU}{e}{\80\352}% U+00EA  
15420 % U+00EB LATIN SMALL LETTER E WITH DIAERESIS; edieresis  
15421 \DeclareTextCompositeCommand{\"}{PU}{e}{\80\353}% U+00EB  
15422 % U+00EC LATIN SMALL LETTER I WITH GRAVE; igrave  
15423 \DeclareTextCompositeCommand{\`}{PU}{i}{\80\354}% U+00EC  
15424 \DeclareTextCompositeCommand{\^}{PU}{i}{\80\354}% U+00EC  
15425 % U+00ED LATIN SMALL LETTER I WITH ACUTE; iacute  
15426 \DeclareTextCompositeCommand{\'}{PU}{i}{\80\355}% U+00ED  
15427 \DeclareTextCompositeCommand{\^}{PU}{i}{\80\355}% U+00ED  
15428 % U+00EE LATIN SMALL LETTER I WITH CIRCUMFLEX; icircumflex  
15429 \DeclareTextCompositeCommand{\^}{PU}{i}{\80\356}% U+00EE  
15430 \DeclareTextCompositeCommand{\^}{PU}{i}{\80\356}% U+00EE  
15431 % U+00EF LATIN SMALL LETTER I WITH DIAERESIS; idieresis  
15432 \DeclareTextCompositeCommand{\"}{PU}{i}{\80\357}% U+00EF  
15433 \DeclareTextCompositeCommand{\"}{PU}{i}{\80\357}% U+00EF  
15434 % U+00F0 LATIN SMALL LETTER ETH; eth  
15435 \DeclareTextCommand{\dh}{PU}{\80\360}% U+00F0  
15436 %\* \dh -> \eth (wsuipa, phonetic)  
15437 % U+00F1 LATIN SMALL LETTER N WITH TILDE; ntilde  
15438 \DeclareTextCompositeCommand{\~}{PU}{n}{\80\361}% U+00F1  
15439 % U+00F2 LATIN SMALL LETTER O WITH GRAVE; ograve  
15440 \DeclareTextCompositeCommand{\`}{PU}{o}{\80\362}% U+00F2  
15441 % U+00F3 LATIN SMALL LETTER O WITH ACUTE; oacute  
15442 \DeclareTextCompositeCommand{\'}{PU}{o}{\80\363}% U+00F3  
15443 % U+00F4 LATIN SMALL LETTER O WITH CIRCUMFLEX; ocircumflex  
15444 \DeclareTextCompositeCommand{\^}{PU}{o}{\80\364}% U+00F4  
15445 % U+00F5 LATIN SMALL LETTER O WITH TILDE; otilde  
15446 \DeclareTextCompositeCommand{\~}{PU}{o}{\80\365}% U+00F5  
15447 % U+00F6 LATIN SMALL LETTER O WITH DIAERESIS; odieresis  
15448 \DeclareTextCompositeCommand{\"}{PU}{o}{\80\366}% U+00F6  
15449 % U+00F7 DIVISION SIGN; divide  
15450 \DeclareTextCommand{\textdivide}{PU}{\80\367}% U+00F7  
15451 % U+00F8 LATIN SMALL LETTER O WITH STROKE; oslash  
15452 \DeclareTextCommand{\o}{PU}{\80\370}% U+00F8  
15453 % U+00F9 LATIN SMALL LETTER U WITH GRAVE; ugrave  
15454 \DeclareTextCompositeCommand{\`}{PU}{u}{\80\371}% U+00F9  
15455 % U+00FA LATIN SMALL LETTER U WITH ACUTE; uacute  
15456 \DeclareTextCompositeCommand{\'}{PU}{u}{\80\372}% U+00FA  
15457 % U+00FB LATIN SMALL LETTER U WITH CIRCUMFLEX; ucircumflex  
15458 \DeclareTextCompositeCommand{\^}{PU}{u}{\80\373}% U+00FB  
15459 % U+00FC LATIN SMALL LETTER U WITH DIAERESIS; udieresis  
15460 \DeclareTextCompositeCommand{\"}{PU}{u}{\80\374}% U+00FC  
15461 % U+00FD LATIN SMALL LETTER Y WITH ACUTE; yacute  
15462 \DeclareTextCompositeCommand{\'}{PU}{y}{\80\375}% U+00FD  
15463 % U+00FE LATIN SMALL LETTER THORN; thorn;  
15464 % \th, \thorn (wasysym), \textthorn (tipa)  
15465 \DeclareTextCommand{\th}{PU}{\80\376}% U+00FE  
15466 \DeclareTextCommand{\textthorn}{PU}{\80\376}%\* U+00FE  
15467 % U+00FF LATIN SMALL LETTER Y WITH DIAERESIS; ydieresis  
15468 \DeclareTextCompositeCommand{\"}{PU}{y}{\80\377}% U+00FF

#### 47.2.4 Latin Extended-A: U+0080 to U+017F

```

15469 % U+0100 LATIN CAPITAL LETTER A WITH MACRON; Amacron
15470 \DeclareTextCompositeCommand{\=}{PU}{A}{\81\000}% U+0100
15471 % U+0101 LATIN SMALL LETTER A WITH MACRON; amacron
15472 \DeclareTextCompositeCommand{\=}{PU}{a}{\81\001}% U+0101
15473 % U+0102 LATIN CAPITAL LETTER A WITH BREVE; Abreve
15474 \DeclareTextCompositeCommand{\u}{PU}{A}{\81\002}% U+0102
15475 % U+0103 LATIN SMALL LETTER A WITH BREVE; abreve
15476 \DeclareTextCompositeCommand{\u}{PU}{a}{\81\003}% U+0103
15477 % U+0104 LATIN CAPITAL LETTER A WITH OGONEK; Aogonek
15478 \DeclareTextCompositeCommand{\k}{PU}{A}{\81\004}% U+0104
15479 % U+0105 LATIN SMALL LETTER A WITH OGONEK; aogonek
15480 \DeclareTextCompositeCommand{\k}{PU}{a}{\81\005}% U+0105
15481 % U+0106 LATIN CAPITAL LETTER C WITH ACUTE; Cacute
15482 \DeclareTextCompositeCommand{\'}{PU}{C}{\81\006}% U+0106
15483 % U+0107 LATIN SMALL LETTER C WITH ACUTE; cacute
15484 \DeclareTextCompositeCommand{\'}{PU}{c}{\81\007}% U+0107
15485 % U+0108 LATIN CAPITAL LETTER C WITH CIRCUMFLEX; Ccircumflex
15486 \DeclareTextCompositeCommand{\^}{PU}{C}{\81\010}% U+0108
15487 % U+0109 LATIN SMALL LETTER C WITH CIRCUMFLEX; ccircumflex
15488 \DeclareTextCompositeCommand{\^}{PU}{c}{\81\011}% U+0109
15489 % U+010A LATIN CAPITAL LETTER C WITH DOT ABOVE; Cdot, Cdotac-
cent
15490 \DeclareTextCompositeCommand{\.}{PU}{C}{\81\012}% U+010A
15491 % U+010B LATIN SMALL LETTER C WITH DOT ABOVE; cdot, cdotaccent
15492 \DeclareTextCompositeCommand{\.}{PU}{c}{\81\013}% U+010B
15493 % U+010C LATIN CAPITAL LETTER C WITH CARON; Ccaron
15494 \DeclareTextCompositeCommand{\v}{PU}{C}{\81\014}% U+010C
15495 % U+010D LATIN SMALL LETTER C WITH CARON; ccaron
15496 \DeclareTextCompositeCommand{\v}{PU}{c}{\81\015}% U+010D
15497 % U+010E LATIN CAPITAL LETTER D WITH CARON; Dcaron
15498 \DeclareTextCompositeCommand{\v}{PU}{D}{\81\016}% U+010E
15499 % U+010F LATIN SMALL LETTER D WITH CARON; dcaron
15500 \DeclareTextCompositeCommand{\v}{PU}{d}{\81\017}% U+010F
15501 % U+0110 LATIN CAPITAL LETTER D WITH STROKE; Dcroat, Dslash
15502 \DeclareTextCommand{\DJ}{PU}{\81\020}% U+0110
15503 % U+0111 LATIN SMALL LETTER D WITH STROKE; dcroat, dmacron;
15504 % \textcrd (tipa)
15505 \DeclareTextCommand{\dj}{PU}{\81\021}% U+0111
15506 \DeclareTextCommand{\textcrd}{PU}{\81\021}% U+0111
15507 %* \textcrd -> \crossd (wsuipa)
15508 % An alternate glyph with the stroke through the bowl:
15509 %* \textcrd -> \textbard (tipa)
15510 %* \textcrd -> \bard (wsuipa)
15511 % U+0112 LATIN CAPITAL LETTER E WITH MACRON; Emacron
15512 \DeclareTextCompositeCommand{\=}{PU}{E}{\81\022}% U+0112
15513 % U+0113 LATIN SMALL LETTER E WITH MACRON; emacron
15514 \DeclareTextCompositeCommand{\=}{PU}{e}{\81\023}% U+0113
15515 % U+0114 LATIN CAPITAL LETTER E WITH BREVE; Ebreve
15516 \DeclareTextCompositeCommand{\u}{PU}{E}{\81\024}% U+0114
15517 % U+0115 LATIN SMALL LETTER E WITH BREVE; ebreve
15518 \DeclareTextCompositeCommand{\u}{PU}{e}{\81\025}% U+0115
15519 % U+0116 LATIN CAPITAL LETTER E WITH DOT ABOVE; Edot, Edotaccent

```

15520 \DeclareTextCompositeCommand{\.}{PU}{E}{\81\026}% U+0116  
15521 % U+0117 LATIN SMALL LETTER E WITH DOT ABOVE; edot, edotaccent  
15522 \DeclareTextCompositeCommand{\.}{PU}{e}{\81\027}% U+0117  
15523 % U+0118 LATIN CAPITAL LETTER E WITH OGONEK; Eogonek  
15524 \DeclareTextCompositeCommand{\k}{PU}{E}{\81\030}% U+0118  
15525 % U+0119 LATIN SMALL LETTER E WITH OGONEK; eogonek  
15526 \DeclareTextCompositeCommand{\k}{PU}{e}{\81\031}% U+0119  
15527 % U+011A LATIN CAPITAL LETTER E WITH CARON; Ecaron  
15528 \DeclareTextCompositeCommand{\v}{PU}{E}{\81\032}% U+011A  
15529 % U+011B LATIN SMALL LETTER E WITH CARON; ecaron  
15530 \DeclareTextCompositeCommand{\v}{PU}{e}{\81\033}% U+011B  
15531 % U+011C LATIN CAPITAL LETTER G WITH CIRCUMFLEX; Gcircumflex  
15532 \DeclareTextCompositeCommand{\^}{PU}{G}{\81\034}% U+011C  
15533 % U+011D LATIN SMALL LETTER G WITH CIRCUMFLEX; gcircumflex  
15534 \DeclareTextCompositeCommand{\^}{PU}{g}{\81\035}% U+011D  
15535 % U+011E LATIN CAPITAL LETTER G WITH BREVE; Gbreve  
15536 \DeclareTextCompositeCommand{\u}{PU}{G}{\81\036}% U+011E  
15537 % U+011F LATIN SMALL LETTER G WITH BREVE; gbreve  
15538 \DeclareTextCompositeCommand{\u}{PU}{g}{\81\037}% U+011F  
15539 % U+0120 LATIN CAPITAL LETTER G WITH DOT ABOVE; Gdot, Gdotac-  
cent  
15540 \DeclareTextCompositeCommand{\.}{PU}{G}{\81\040}% U+0120  
15541 % U+0121 LATIN SMALL LETTER G WITH DOT ABOVE; gdot, gdotaccent  
15542 \DeclareTextCompositeCommand{\.}{PU}{g}{\81\041}% U+0121  
15543 % U+0122 LATIN CAPITAL LETTER G WITH CEDILLA; Gcedilla, Gcom-  
maaccent  
15544 \DeclareTextCompositeCommand{\c}{PU}{G}{\81\042}% U+0122  
15545 % U+0123 LATIN SMALL LETTER G WITH CEDILLA; gcedilla, gcommaaccent  
15546 \DeclareTextCompositeCommand{\c}{PU}{g}{\81\043}% U+0123  
15547 % U+0124 LATIN CAPITAL LETTER H WITH CIRCUMFLEX; Hcircumflex  
15548 \DeclareTextCompositeCommand{\^}{PU}{H}{\81\044}% U+0124  
15549 % U+0125 LATIN SMALL LETTER H WITH CIRCUMFLEX; hcircumflex  
15550 \DeclareTextCompositeCommand{\^}{PU}{h}{\81\045}% U+0125  
15551 % U+0126 LATIN CAPITAL LETTER H WITH STROKE; Hbar  
15552 \DeclareTextCommand{\textHslash}{PU}{\81\046}% U+0126  
15553 % U+0127 LATIN SMALL LETTER H WITH STROKE; hbar; \hbar (AmS)  
15554 \DeclareTextCommand{\textthbar}{PU}{\81\047}%\* U+0127  
15555 %\* \textthbar -> \textcrh (tipa)  
15556 %\* \textthbar -> \crossh (wsuipa)  
15557 %\* \textthbar -> \planck (phonetic)  
15558 % U+0128 LATIN CAPITAL LETTER I WITH TILDE; Itilde  
15559 \DeclareTextCompositeCommand{\~}{PU}{I}{\81\050}% U+0128  
15560 % U+0129 LATIN SMALL LETTER I WITH TILDE; itilde  
15561 \DeclareTextCompositeCommand{\~}{PU}{i}{\81\051}% U+0129  
15562 \DeclareTextCompositeCommand{\~}{PU}{i}{\81\051}% U+0129  
15563 % U+012A LATIN CAPITAL LETTER I WITH MACRON; Imacron  
15564 \DeclareTextCompositeCommand{\=}{PU}{I}{\81\052}% U+012A  
15565 % U+012B LATIN SMALL LETTER I WITH MACRON; imacron  
15566 \DeclareTextCompositeCommand{\=}{PU}{i}{\81\053}% U+012B  
15567 \DeclareTextCompositeCommand{\=}{PU}{i}{\81\053}% U+012B  
15568 % U+012C LATIN CAPITAL LETTER I WITH BREVE; Ibreve  
15569 \DeclareTextCompositeCommand{\u}{PU}{I}{\81\054}% U+012C  
15570 % U+012D LATIN SMALL LETTER I WITH BREVE; ibreve  
15571 \DeclareTextCompositeCommand{\u}{PU}{i}{\81\055}% U+012D



```

15572 \DeclareTextCompositeCommand{\u}{PU}{i}{\81\055}% U+012D
15573 % U+012E LATIN CAPITAL LETTER I WITH OGONEK; Iogonek
15574 \DeclareTextCompositeCommand{\k}{PU}{I}{\81\056}% U+012E
15575 % U+012F LATIN SMALL LETTER I WITH OGONEK; iogonek
15576 \DeclareTextCompositeCommand{\k}{PU}{i}{\81\057}% U+012F
15577 \DeclareTextCompositeCommand{\k}{PU}{i}{\81\057}% U+012F
15578 % U+0130 LATIN CAPITAL LETTER I WITH DOT ABOVE; Idot, Idotaccent
15579 \DeclareTextCompositeCommand{\.}{PU}{I}{\81\060}% U+0130
15580 % U+0131 LATIN SMALL LETTER DOTLESS I; dotlessi
15581 \DeclareTextCommand{\i}{PU}{\81\061}% U+0131
15582 % U+0132 LATIN CAPITAL LIGATURE IJ; IJ
15583 \DeclareTextCommand{\IJ}{PU}{\81\062}% U+0132
15584 % U+0133 LATIN SMALL LIGATURE IJ; ij
15585 \DeclareTextCommand{\ij}{PU}{\81\063}% U+0133
15586 % U+0134 LATIN CAPITAL LETTER J WITH CIRCUMFLEX; Jcircumflex
15587 \DeclareTextCompositeCommand{\^}{PU}{J}{\81\064}% U+0134
15588 % U+0135 LATIN SMALL LETTER J WITH CIRCUMFLEX; jcircumflex
15589 \DeclareTextCompositeCommand{\^}{PU}{j}{\81\065}% U+0135
15590 \DeclareTextCompositeCommand{\^}{PU}{j}{\81\065}% U+0135
15591 % U+0136 LATIN CAPITAL LETTER K WITH CEDILLA; Kcedilla, Kcommaac-
cent
15592 \DeclareTextCompositeCommand{\c}{PU}{K}{\81\066}% U+0136
15593 % U+0137 LATIN SMALL LETTER K WITH CEDILLA; kcedilla, kcommaaccent
15594 \DeclareTextCompositeCommand{\c}{PU}{k}{\81\067}% U+0137

```

The canonical name of U+0138, small letter kra, would be `\textkgreenlandic`, following the glyph naming convention. However `latex/base/inputenc.dtx` has choosen `\textkra`.

```

15595 % U+0138 LATIN SMALL LETTER KRA; kgreenlandic
15596 \DeclareTextCommand{\textkra}{PU}{\81\070}% U+0138
15597 % U+0139 LATIN CAPITAL LETTER L WITH ACUTE; Lacute
15598 \DeclareTextCompositeCommand{\'}{PU}{L}{\81\071}% U+0139
15599 % U+013A LATIN SMALL LETTER L WITH ACUTE; lacute
15600 \DeclareTextCompositeCommand{\'}{PU}{l}{\81\072}% U+013A
15601 % U+013B LATIN CAPITAL LETTER L WITH CEDILLA; Lcedilla, Lcommaac-
cent
15602 \DeclareTextCompositeCommand{\c}{PU}{L}{\81\073}% U+013B
15603 % U+013C LATIN SMALL LETTER L WITH CEDILLA; lcedilla, lcommaaccent
15604 \DeclareTextCompositeCommand{\c}{PU}{l}{\81\074}% U+013C
15605 % U+013D LATIN CAPITAL LETTER L WITH CARON; Lcaron
15606 \DeclareTextCompositeCommand{\v}{PU}{L}{\81\075}% U+013D
15607 % U+013E LATIN SMALL LETTER L WITH CARON; lcaron
15608 \DeclareTextCompositeCommand{\v}{PU}{l}{\81\076}% U+013E

```

There seems to be no variants of letters ‘L’ and ‘l’ with a dot above (reasonable). Therefore the `\.` accent is reused instead of making a separate accent macro `\textmiddledot`.

```

15609 % U+013F LATIN CAPITAL LETTER L WITH MIDDLE DOT; Ldot, Ldotac-
cent
15610 \DeclareTextCompositeCommand{\.}{PU}{L}{\81\077}% U+013F
15611 % U+0140 LATIN SMALL LETTER L WITH MIDDLE DOT; ldot, ldotaccent
15612 \DeclareTextCompositeCommand{\.}{PU}{l}{\81\100}% U+0140
15613 % U+0141 LATIN CAPITAL LETTER L WITH STROKE; Lslash
15614 \DeclareTextCommand{\L}{PU}{\81\101}% U+0141
15615 % U+0142 LATIN SMALL LETTER L WITH STROKE; lslash

```

15616 \DeclareTextCommand{\l}{PU}{\81\102}% U+0142  
15617 % U+0143 LATIN CAPITAL LETTER N WITH ACUTE; Nacute  
15618 \DeclareTextCompositeCommand{\'}{PU}{N}{\81\103}% U+0143  
15619 % U+0144 LATIN SMALL LETTER N WITH ACUTE; nacute  
15620 \DeclareTextCompositeCommand{\n}{PU}{n}{\81\104}% U+0144  
15621 % U+0145 LATIN CAPITAL LETTER N WITH CEDILLA; Ncedilla, Ncommaac-  
cent  
15622 \DeclareTextCompositeCommand{\c}{PU}{N}{\81\105}% U+0145  
15623 % U+0146 LATIN SMALL LETTER N WITH CEDILLA; ncedilla, ncommaaccent  
15624 \DeclareTextCompositeCommand{\cn}{PU}{n}{\81\106}% U+0146  
15625 % U+0147 LATIN CAPITAL LETTER N WITH CARON; Ncaron  
15626 \DeclareTextCompositeCommand{\v}{PU}{N}{\81\107}% U+0147  
15627 % U+0148 LATIN SMALL LETTER N WITH CARON; ncaron  
15628 \DeclareTextCompositeCommand{\vn}{PU}{n}{\81\110}% U+0148  
15629 % U+0149 LATIN SMALL LETTER N PRECEDED BY APOSTROPHE; napos-  
trophe, quoterightn  
15630 \DeclareTextCommand{\textnapostrophe}{PU}{\81\111}% U+0149  
15631 % U+014A LATIN CAPITAL LETTER ENG; Eng  
15632 \DeclareTextCommand{\NG}{PU}{\81\112}% U+014A  
15633 % U+014B LATIN SMALL LETTER ENG; eng  
15634 \DeclareTextCommand{\ng}{PU}{\81\113}% U+014B  
15635 %\* \ng -> \eng (wsuipa)  
15636 %\* \ng -> \engma (phonetic)  
15637 % U+014C LATIN CAPITAL LETTER O WITH MACRON; Omacron  
15638 \DeclareTextCompositeCommand{\=}{PU}{O}{\81\114}% U+014C  
15639 % U+014D LATIN SMALL LETTER O WITH MACRON; omacron  
15640 \DeclareTextCompositeCommand{\=o}{PU}{o}{\81\115}% U+014D  
15641 % U+014E LATIN CAPITAL LETTER O WITH BREVE; Obreve  
15642 \DeclareTextCompositeCommand{\u}{PU}{O}{\81\116}% U+014E  
15643 % U+014F LATIN SMALL LETTER O WITH BREVE; obreve  
15644 \DeclareTextCompositeCommand{\uo}{PU}{o}{\81\117}% U+014F  
15645 % U+0150 LATIN CAPITAL LETTER O WITH DOUBLE ACUTE; Odbla-  
cute, Ohungarumlaut  
15646 \DeclareTextCompositeCommand{\H}{PU}{O}{\81\120}% U+0150  
15647 % U+0151 LATIN SMALL LETTER O WITH DOUBLE ACUTE; odbla-  
cute, ohungarumlaut  
15648 \DeclareTextCompositeCommand{\H}{PU}{o}{\81\121}% U+0151  
15649 % U+0152 LATIN CAPITAL LIGATURE OE; OE  
15650 \DeclareTextCommand{\OE}{PU}{\81\122}% U+0152  
15651 % U+0153 LATIN SMALL LIGATURE OE; oe  
15652 \DeclareTextCommand{\oe}{PU}{\81\123}% U+0153  
15653 % U+0154 LATIN CAPITAL LETTER R WITH ACUTE; Racute  
15654 \DeclareTextCompositeCommand{\'}{PU}{R}{\81\124}% U+0154  
15655 % U+0155 LATIN SMALL LETTER R WITH ACUTE; racute  
15656 \DeclareTextCompositeCommand{\r}{PU}{r}{\81\125}% U+0155  
15657 % U+0156 LATIN CAPITAL LETTER R WITH CEDILLA; Rcedilla, Rcommaac-  
cent  
15658 \DeclareTextCompositeCommand{\c}{PU}{R}{\81\126}% U+0156  
15659 % U+0157 LATIN SMALL LETTER R WITH CEDILLA; rcedilla, rcommaaccent  
15660 \DeclareTextCompositeCommand{\cr}{PU}{r}{\81\127}% U+0157  
15661 % U+0158 LATIN CAPITAL LETTER R WITH CARON; Rcaron  
15662 \DeclareTextCompositeCommand{\v}{PU}{R}{\81\130}% U+0158  
15663 % U+0159 LATIN SMALL LETTER R WITH CARON; rcaron  
15664 \DeclareTextCompositeCommand{\vr}{PU}{r}{\81\131}% U+0159

15665 % U+015A LATIN CAPITAL LETTER S WITH ACUTE; Sacute  
15666 \DeclareTextCompositeCommand{\'}{PU}{S}{\81\132}% U+015A  
15667 % U+015B LATIN SMALL LETTER S WITH ACUTE; sacute  
15668 \DeclareTextCompositeCommand{\'}{PU}{s}{\81\133}% U+015B  
15669 % U+015C LATIN CAPITAL LETTER S WITH CIRCUMFLEX; Scircumflex  
15670 \DeclareTextCompositeCommand{\^}{PU}{S}{\81\134}% U+015C  
15671 % U+015D LATIN SMALL LETTER S WITH CIRCUMFLEX; scircumflex  
15672 \DeclareTextCompositeCommand{\^}{PU}{s}{\81\135}% U+015D  
15673 % U+015E LATIN CAPITAL LETTER S WITH CEDILLA; Scedilla  
15674 \DeclareTextCompositeCommand{\c}{PU}{S}{\81\136}% U+015E  
15675 % U+015F LATIN SMALL LETTER S WITH CEDILLA; scedilla  
15676 \DeclareTextCompositeCommand{\c}{PU}{s}{\81\137}% U+015F  
15677 % U+0160 LATIN CAPITAL LETTER S WITH CARON; Scaron  
15678 \DeclareTextCompositeCommand{\v}{PU}{S}{\81\140}% U+0160  
15679 % U+0161 LATIN SMALL LETTER S WITH CARON; scaron  
15680 \DeclareTextCompositeCommand{\v}{PU}{s}{\81\141}% U+0161  
15681 % U+0162 LATIN CAPITAL LETTER T WITH CEDILLA; Tcedilla, Tcommaac-  
cent  
15682 \DeclareTextCompositeCommand{\c}{PU}{T}{\81\142}% U+0162  
15683 % U+0163 LATIN SMALL LETTER T WITH CEDILLA; tcedilla, tcommaaccent  
15684 \DeclareTextCompositeCommand{\c}{PU}{t}{\81\143}% U+0163  
15685 % U+0164 LATIN CAPITAL LETTER T WITH CARON; Tcaron  
15686 \DeclareTextCompositeCommand{\v}{PU}{T}{\81\144}% U+0164  
15687 % U+0165 LATIN SMALL LETTER T WITH CARON; tcaron  
15688 \DeclareTextCompositeCommand{\v}{PU}{t}{\81\145}% U+0165  
15689 % U+0166 LATIN CAPITAL LETTER T WITH STROKE; Tbar  
15690 \DeclareTextCommand{\textTslash}{PU}{\81\146}% U+0166  
15691 % U+0167 LATIN SMALL LETTER T WITH STROKE; tbar  
15692 \DeclareTextCommand{\texttslash}{PU}{\81\147}% U+0167  
15693 % U+0168 LATIN CAPITAL LETTER U WITH TILDE; Utilde  
15694 \DeclareTextCompositeCommand{\~}{PU}{U}{\81\150}% U+0168  
15695 % U+0169 LATIN SMALL LETTER U WITH TILDE; utilde  
15696 \DeclareTextCompositeCommand{\~}{PU}{u}{\81\151}% U+0169  
15697 % U+016A LATIN CAPITAL LETTER U WITH MACRON; Umacron  
15698 \DeclareTextCompositeCommand{\=}{PU}{U}{\81\152}% U+016A  
15699 % U+016B LATIN SMALL LETTER U WITH MACRON; umacron  
15700 \DeclareTextCompositeCommand{\=}{PU}{u}{\81\153}% U+016B  
15701 % U+016C LATIN CAPITAL LETTER U WITH BREVE; Ubreve  
15702 \DeclareTextCompositeCommand{\u}{PU}{U}{\81\154}% U+016C  
15703 % U+016D LATIN SMALL LETTER U WITH BREVE; ubreve  
15704 \DeclareTextCompositeCommand{\u}{PU}{u}{\81\155}% U+016D  
15705 % U+016E LATIN CAPITAL LETTER U WITH RING ABOVE; Uring  
15706 \DeclareTextCompositeCommand{\r}{PU}{U}{\81\156}% U+016E  
15707 % U+016F LATIN SMALL LETTER U WITH RING ABOVE; uring  
15708 \DeclareTextCompositeCommand{\r}{PU}{u}{\81\157}% U+016F  
15709 % U+0170 LATIN CAPITAL LETTER U WITH DOUBLE ACUTE; Udbla-  
cute, Uhungarumlaut  
15710 \DeclareTextCompositeCommand{\H}{PU}{U}{\81\160}% U+0170  
15711 % U+0171 LATIN SMALL LETTER U WITH DOUBLE ACUTE; udbla-  
cute, uhungarumlaut  
15712 \DeclareTextCompositeCommand{\H}{PU}{u}{\81\161}% U+0171  
15713 % U+0172 LATIN CAPITAL LETTER U WITH OGONEK; Uogonek  
15714 \DeclareTextCompositeCommand{\k}{PU}{U}{\81\162}% U+0172  
15715 % U+0173 LATIN SMALL LETTER U WITH OGONEK; uogonek

15716 \DeclareTextCompositeCommand{\k}{PU}{u}{\81\163}% U+0173  
 15717 % U+0174 LATIN CAPITAL LETTER W WITH CIRCUMFLEX; Wcircumflex  
 15718 \DeclareTextCompositeCommand{\^}{PU}{W}{\81\164}% U+0174  
 15719 % U+0175 LATIN SMALL LETTER W WITH CIRCUMFLEX; wcircumflex  
 15720 \DeclareTextCompositeCommand{\^}{PU}{w}{\81\165}% U+0175  
 15721 % U+0176 LATIN CAPITAL LETTER Y WITH CIRCUMFLEX; Ycircumflex  
 15722 \DeclareTextCompositeCommand{\^}{PU}{Y}{\81\166}% U+0176  
 15723 % U+0177 LATIN SMALL LETTER Y WITH CIRCUMFLEX; ycircumflex  
 15724 \DeclareTextCompositeCommand{\^}{PU}{y}{\81\167}% U+0177  
 15725 % U+0178 LATIN CAPITAL LETTER Y WITH DIAERESIS; Ydieresis  
 15726 \DeclareTextCompositeCommand{\"}{PU}{Y}{\81\170}% U+0178  
 15727 % U+0179 LATIN CAPITAL LETTER Z WITH ACUTE; Zacute  
 15728 \DeclareTextCompositeCommand{'}{PU}{Z}{\81\171}% U+0179  
 15729 % U+017A LATIN SMALL LETTER Z WITH ACUTE; zacute  
 15730 \DeclareTextCompositeCommand{'}{PU}{z}{\81\172}% U+017A  
 15731 % U+017B LATIN CAPITAL LETTER Z WITH DOT ABOVE; Zdot, Zdotaccent  
 15732 \DeclareTextCompositeCommand{.}{PU}{Z}{\81\173}% U+017B  
 15733 % U+017C LATIN SMALL LETTER Z WITH DOT ABOVE; zdot, zdotaccent  
 15734 \DeclareTextCompositeCommand{.}{PU}{z}{\81\174}% U+017C  
 15735 % U+017D LATIN CAPITAL LETTER Z WITH CARON; Zcaron  
 15736 \DeclareTextCompositeCommand{\v}{PU}{Z}{\81\175}% U+017D  
 15737 % U+017E LATIN SMALL LETTER Z WITH CARON; zcaron  
 15738 \DeclareTextCompositeCommand{\v}{PU}{z}{\81\176}% U+017E  
 15739 % U+017F LATIN SMALL LETTER LONG S; longs, slong  
 15740 \DeclareTextCommand{\textlongS}{PU}{\81\177}% U+017F

#### 47.2.5 Latin Extended-B: U+0180 to U+024F

15741 % U+0180 LATIN SMALL LETTER B WITH STROKE; bstroke; \textcrb (tipa)  
 15742 \DeclareTextCommand{\textcrb}{PU}{\81\200}% U+0180  
 15743 %\* \textcrb -> \crossb (wsuipa)  
 15744 % An alternate glyph with the stroke through the bowl:  
 15745 %\* \textcrb -> \textbarb (tipa)  
 15746 %\* \textcrb -> \barb (wsuipa)  
 15747 % U+0181 LATIN CAPITAL LETTER B WITH HOOK; Bhook; \hausaB (pho-  
 netic)  
 15748 \DeclareTextCommand{\texthausaB}{PU}{\81\201}%\* U+0181  
 15749 % U+0188 LATIN SMALL LETTER C WITH HOOK; chook; \texthtc (tipa)  
 15750 \DeclareTextCommand{\texthtc}{PU}{\81\210}% U+0188  
 15751 % U+018A LATIN CAPITAL LETTER D WITH HOOK; Dhook; \hausaD (pho-  
 netic)  
 15752 \DeclareTextCommand{\texthausaD}{PU}{\81\212}%\* U+018A  
 15753 % U+018E LATIN CAPITAL LETTER REVERSED E; Eversed  
 15754 \DeclareTextCommand{\textEversed}{PU}{\81\216}% U+018E  
 15755 \DeclareTextCommand{\textrevE}{PU}{\81\216}% U+018E  
 15756 % U+0192 LATIN SMALL LETTER F WITH HOOK; florin  
 15757 \DeclareTextCommand{\textflorin}{PU}{\81\222}% U+0192  
 15758 %\* \textflorin -> \Florin (marvosym)  
 15759 % U+0195 LATIN SMALL LETTER HV; hv; \texthvlig (tipa)  
 15760 \DeclareTextCommand{\texthvlig}{PU}{\81\225}% U+0195  
 15761 %\* \texthvlig -> \hv (wsuipa)  
 15762 % U+0198 LATIN CAPITAL LETTER K WITH HOOK; Khook; \hausaK (pho-  
 netic)  
 15763 \DeclareTextCommand{\texthausaK}{PU}{\81\230}%\* U+0198  
 15764 % U+0199 LATIN SMALL LETTER K WITH HOOK; khook; \texthtk (tipa)

15765 \DeclareTextCommand{\texthtk}{PU}{\81\231}% U+0199  
15766 %\* \texthtk -> \hausak (phonetic)  
15767 % U+019A LATIN SMALL LETTER L WITH BAR; lbar;  
15768 % \textbarl (tipa), \barl (wsuipa)  
15769 \DeclareTextCommand{\textbarl}{PU}{\81\232}%\* U+019A  
15770 % U+019B LATIN SMALL LETTER LAMBDA WITH STROKE/  
15771 % LATIN SMALL LETTER BARRED LAMBDA; lambdastroke;  
15772 % \textcrlambda (tipa)  
15773 \DeclareTextCommand{\textcrlambda}{PU}{\81\233}% U+019B  
15774 %\* \textcrlambda -> \crossnilambda (wsuipa)  
15775 %\* \textcrlambda -> \barlambda (phonetic)  
15776 %\* \textcrlambda -> \lambdabar (txfonts/pxfonts)  
15777 %\* \textcrlambda -> \lambdaslash (txfonts/pxfonts)  
15778 % U+019E LATIN SMALL LETTER N WITH LONG RIGHT LEG; nlegright-  
long;  
15779 % \textnrleg (tipx)  
15780 \DeclareTextCommand{\textPUnrleg}{PU}{\81\236}% U+019E  
15781 %\* \textPUnrleg -> \textnrleg (tipx)  
15782 % U+01A5 LATIN SMALL LETTER P WITH HOOK; phook; \texthtp (tipa)  
15783 \DeclareTextCommand{\texthtp}{PU}{\81\245}% U+01A5  
15784 % U+01AB LATIN SMALL LETTER T WITH PALATAL HOOK; tpalatalhook;  
15785 % \textlhookt (tipa)  
15786 \DeclareTextCommand{\textlhookt}{PU}{\81\253}% U+01AB  
15787 % U+01AD LATIN SMALL LETTER T WITH HOOK; thook; \texthtt (tipa)  
15788 \DeclareTextCommand{\texthtt}{PU}{\81\255}% U+01AD  
15789 % U+01B9 LATIN SMALL LETTER EZH REVERSED/  
15790 % LATIN SMALL LETTER REVERSED YOGH; \textrevyogh (tipa)  
15791 \DeclareTextCommand{\textrevyogh}{PU}{\81\271}% U+01B9  
15792 % U+01BB LATIN LETTER TWO WITH STROKE; twostroke; \textcrtwo (tipa)  
15793 \DeclareTextCommand{\textcrtwo}{PU}{\81\273}% U+01BB  
15794 % U+01BE LATIN LETTER INVERTED GLOTTAL STOP WITH STROKE;  
15795 % glottalinvertedstroke; \textcrinvglotstop (tipa)  
15796 \DeclareTextCommand{\textcrinvglotstop}{PU}{\81\276}% U+01BE  
15797 % U+01BF LATIN LETTER WYNN; wynn; \textwynn (tipa)  
15798 \DeclareTextCommand{\textwynn}{PU}{\81\277}% U+01BF  
15799 % U+01C0 LATIN LETTER DENTAL CLICK/LATIN LETTER PIPE; clickden-  
tal;  
15800 % \textpipe (tipa)  
15801 \DeclareTextCommand{\textpipe}{PU}{\81\300}% U+01C0  
15802 %\* \textpipe -> \textpipevar (tipx)  
15803 % U+01C1 LATIN LETTER LATERAL CLICK/LATIN LETTER  
15804 % DOUBLE PIPE; clicklateral; \textdoublepipe (tipa)  
15805 \DeclareTextCommand{\textdoublepipe}{PU}{\81\301}% U+01C1  
15806 %\* \textdoublepipe -> \textdoublepipevar (tipx)  
15807 % U+01C2 LATIN LETTER ALVEOLAR CLICK/LATIN LETTER PIPE DOU-  
BLE BAR;  
15808 % clickalveolar; \textdoublebarpipe (tipa)  
15809 \DeclareTextCommand{\textdoublebarpipe}{PU}{\81\302}% U+01C2  
15810 %\* \textdoublebarpipe -> \textdoublebarpipevar (tipx)  
15811 % U+01CD LATIN CAPITAL LETTER A WITH CARON; Acaron  
15812 \DeclareTextCompositeCommand{\v}{PU}{A}{\81\315}% U+01CD  
15813 % U+01CE LATIN SMALL LETTER A WITH CARON; acaron  
15814 \DeclareTextCompositeCommand{\v}{PU}{a}{\81\316}% U+01CE  
15815 % U+01CF LATIN CAPITAL LETTER I WITH CARON; Icaron

15816 \DeclareTextCompositeCommand{\v}{PU}{I}{\81\317}% U+01CF  
15817 % U+01D0 LATIN SMALL LETTER I WITH CARON; icaron  
15818 \DeclareTextCompositeCommand{\v}{PU}{i}{\81\320}% U+01D0  
15819 \DeclareTextCompositeCommand{\v}{PU}{i}{\81\320}% U+01D0  
15820 % U+01D1 LATIN CAPITAL LETTER O WITH CARON; Ocaron  
15821 \DeclareTextCompositeCommand{\v}{PU}{O}{\81\321}% U+01D1  
15822 % U+01D2 LATIN SMALL LETTER O WITH CARON; ocaron  
15823 \DeclareTextCompositeCommand{\v}{PU}{o}{\81\322}% U+01D2  
15824 % U+01D3 LATIN CAPITAL LETTER U WITH CARON; Ucaron  
15825 \DeclareTextCompositeCommand{\v}{PU}{U}{\81\323}% U+01D3  
15826 % U+01D4 LATIN SMALL LETTER U WITH CARON; ucaron  
15827 \DeclareTextCompositeCommand{\v}{PU}{u}{\81\324}% U+01D4  
15828 % U+01DD LATIN SMALL LETTER TURNED E; eturned; \inve (wasysym)  
15829 \DeclareTextCommand{\textinve}{PU}{\81\335}%\* U+01DD  
15830 % U+01E4 LATIN CAPITAL LETTER G WITH STROKE; Gstroke  
15831 \DeclareTextCommand{\textGslash}{PU}{\81\344}% U+01E4  
15832 % U+01E5 LATIN SMALL LETTER G WITH STROKE; gstroke  
15833 \DeclareTextCommand{\textgslash}{PU}{\81\345}% U+01E5  
15834 %\* \textgslash -> \textcrg (tipa)  
15835 % U+01E6 LATIN CAPITAL LETTER G WITH CARON; Gcaron  
15836 \DeclareTextCompositeCommand{\v}{PU}{G}{\81\346}% U+01E6  
15837 % U+01E7 LATIN SMALL LETTER G WITH CARON; gcaron  
15838 \DeclareTextCompositeCommand{\v}{PU}{g}{\81\347}% U+01E7  
15839 % U+01E8 LATIN CAPITAL LETTER K WITH CARON; Kcaron  
15840 \DeclareTextCompositeCommand{\v}{PU}{K}{\81\350}% U+01E8  
15841 % U+01E9 LATIN SMALL LETTER K WITH CARON; kcaron  
15842 \DeclareTextCompositeCommand{\v}{PU}{k}{\81\351}% U+01E9  
15843 % U+01EA LATIN CAPITAL LETTER O WITH OGONEK; Oogonek  
15844 \DeclareTextCompositeCommand{\k}{PU}{O}{\81\352}% U+01EA  
15845 % U+01EB LATIN SMALL LETTER O WITH OGONEK; oogonek  
15846 \DeclareTextCompositeCommand{\k}{PU}{o}{\81\353}% U+01EB  
15847 % U+01F0 LATIN SMALL LETTER J WITH CARON; jcaron  
15848 \DeclareTextCompositeCommand{\v}{PU}{\j}{\81\360}% U+01F0  
15849 \DeclareTextCompositeCommand{\v}{PU}{j}{\81\360}% U+01F0  
15850 % U+01F4 LATIN CAPITAL LETTER G WITH ACUTE; Gacute  
15851 \DeclareTextCompositeCommand{\'}{PU}{G}{\81\364}% U+01F4  
15852 % U+01F5 LATIN SMALL LETTER G WITH ACUTE; gacute  
15853 \DeclareTextCompositeCommand{\'}{PU}{g}{\81\365}% U+01F5  
15854 % U+01F8 LATIN CAPITAL LETTER N WITH GRAVE  
15855 \DeclareTextCompositeCommand{\`}{PU}{N}{\81\370}% U+01F8  
15856 % U+01F9 LATIN SMALL LETTER N WITH GRAVE  
15857 \DeclareTextCompositeCommand{\`}{PU}{n}{\81\371}% U+01F9  
15858 % U+01FC LATIN CAPITAL LETTER AE WITH ACUTE; AEacute  
15859 \DeclareTextCompositeCommand{\'}{PU}{\AE}{\81\374}% U+01FC  
15860 % U+01FD LATIN SMALL LETTER AE WITH ACUTE; aeacute  
15861 \DeclareTextCompositeCommand{\'}{PU}{\ae}{\81\375}% U+01FD  
15862 % U+01FE LATIN CAPITAL LETTER O WITH STROKE AND ACUTE;  
15863 % \*Oslashacute, Ostrokeacut  
15864 \DeclareTextCompositeCommand{\'}{PU}{\O}{\81\376}% U+01FE  
15865 % U+01FF LATIN SMALL LETTER O WITH STROKE AND ACUTE;  
15866 % \*oslashacute, ostrokeacute  
15867 \DeclareTextCompositeCommand{\'}{PU}{\o}{\81\377}% U+01FF  
15868 (/puenc)  
15869 (\*puextra)

15870 % U+0200 LATIN CAPITAL LETTER A WITH DOUBLE GRAVE; Adblgrave  
 15871 \DeclareTextCompositeCommand{\G}{PU}{A}{\82\000}% U+0200  
 15872 % U+0201 LATIN SMALL LETTER A WITH DOUBLE GRAVE; adblgrave  
 15873 \DeclareTextCompositeCommand{\G}{PU}{a}{\82\001}% U+0201  
 15874 % U+0204 LATIN CAPITAL LETTER E WITH DOUBLE GRAVE; Edblgrave  
 15875 \DeclareTextCompositeCommand{\G}{PU}{E}{\82\004}% U+0204  
 15876 % U+0205 LATIN SMALL LETTER E WITH DOUBLE GRAVE; edblgrave  
 15877 \DeclareTextCompositeCommand{\G}{PU}{e}{\82\005}% U+0205  
 15878 \puextra  
 15879 \puenc  
 15880 % U+0206 LATIN CAPITAL LETTER E WITH INVERTED BREVE; Einvert-  
 edbreve  
 15881 \DeclareTextCompositeCommand{\textinvbreve}{PU}{E}{\82\006}% U+0206  
 15882 % U+0207 LATIN SMALL LETTER E WITH INVERTED BREVE; einvert-  
 breve  
 15883 \DeclareTextCompositeCommand{\textinvbreve}{PU}{e}{\82\007}% U+0207  
 15884 \puenc  
 15885 \puextra  
 15886 % U+0208 LATIN CAPITAL LETTER I WITH DOUBLE GRAVE; Idblgrave  
 15887 \DeclareTextCompositeCommand{\G}{PU}{I}{\82\010}% U+0208  
 15888 % U+0209 LATIN SMALL LETTER I WITH DOUBLE GRAVE; idblgrave  
 15889 \DeclareTextCompositeCommand{\G}{PU}{i}{\82\011}% U+0209  
 15890 \DeclareTextCompositeCommand{\G}{PU}{i}{\82\011}% U+0209  
 15891 \puextra  
 15892 \puenc  
 15893 % U+020A LATIN CAPITAL LETTER I WITH INVERTED BREVE; Iinvert-  
 breve  
 15894 \DeclareTextCompositeCommand{\textinvbreve}{PU}{I}{\82\012}% U+020A  
 15895 % U+020B LATIN SMALL LETTER I WITH INVERTED BREVE; iinvert-  
 breve  
 15896 \DeclareTextCompositeCommand{\textinvbreve}{PU}{i}{\82\013}% U+020B  
 15897 \DeclareTextCompositeCommand{\textinvbreve}{PU}{i}{\82\013}% U+020B  
 15898 \puenc  
 15899 \puextra  
 15900 % U+020C LATIN CAPITAL LETTER O WITH DOUBLE GRAVE; Odblgrave  
 15901 \DeclareTextCompositeCommand{\G}{PU}{O}{\82\014}% U+020C  
 15902 % U+020D LATIN SMALL LETTER O WITH DOUBLE GRAVE; odblgrave  
 15903 \DeclareTextCompositeCommand{\G}{PU}{o}{\82\015}% U+020D  
 15904 \puextra  
 15905 \puenc  
 15906 % U+020E LATIN CAPITAL LETTER O WITH INVERTED BREVE; Oinvert-  
 edbreve  
 15907 \DeclareTextCompositeCommand{\textinvbreve}{PU}{O}{\82\016}% U+020E  
 15908 % U+020F LATIN SMALL LETTER O WITH INVERTED BREVE; oinvert-  
 breve  
 15909 \DeclareTextCompositeCommand{\textinvbreve}{PU}{o}{\82\017}% U+020F  
 15910 \puenc  
 15911 \puextra  
 15912 % U+0210 LATIN CAPITAL LETTER R WITH DOUBLE GRAVE; Rdblgrave  
 15913 \DeclareTextCompositeCommand{\G}{PU}{R}{\82\020}% U+0210  
 15914 % U+0211 LATIN SMALL LETTER R WITH DOUBLE GRAVE; rdblgrave  
 15915 \DeclareTextCompositeCommand{\G}{PU}{r}{\82\021}% U+0211  
 15916 % U+0214 LATIN CAPITAL LETTER U WITH DOUBLE GRAVE; Udblgrave  
 15917 \DeclareTextCompositeCommand{\G}{PU}{U}{\82\024}% U+0214

15918 % U+0215 LATIN SMALL LETTER U WITH DOUBLE GRAVE; udblgrave  
 15919 \DeclareTextCompositeCommand{\G}{PU}{u}{\82\025}% U+0215  
 15920 </puextra>  
 15921 <\*puenc>  
 15922 % U+0216 LATIN CAPITAL LETTER U WITH INVERTED BREVE; Uinvert-  
       edbreve  
 15923 \DeclareTextCompositeCommand{\textinvbreve}{PU}{U}{\82\026}% U+0216  
 15924 % U+0217 LATIN SMALL LETTER U WITH INVERTED BREVE; uinverted-  
       breve  
 15925 \DeclareTextCompositeCommand{\textinvbreve}{PU}{u}{\82\027}% U+0217  
 15926 % U+021E LATIN CAPITAL LETTER H WITH CARON  
 15927 \DeclareTextCompositeCommand{\v}{PU}{H}{\82\036}% U+021E  
 15928 % U+021F LATIN SMALL LETTER H WITH CARON  
 15929 \DeclareTextCompositeCommand{\v}{PU}{h}{\82\037}% U+021F  
 15930 % U+0221 LATIN SMALL LETTER D WITH CURL; \textctd (tipa)  
 15931 \DeclareTextCommand{\textctd}{PU}{\82\041}% U+0221  
 15932 % U+0225 LATIN SMALL LETTER Z WITH HOOK; \textcommatailz (tipa)  
 15933 \DeclareTextCommand{\textcommatailz}{PU}{\82\045}% U+0225  
 15934 % U+0226 LATIN CAPITAL LETTER A WITH DOT ABOVE  
 15935 \DeclareTextCompositeCommand{\.}{PU}{A}{\82\046}% U+0226  
 15936 % U+0227 LATIN SMALL LETTER A WITH DOT ABOVE  
 15937 \DeclareTextCompositeCommand{\.}{PU}{a}{\82\047}% U+0227  
 15938 % U+0228 LATIN CAPITAL LETTER E WITH CEDILLA  
 15939 \DeclareTextCompositeCommand{\c}{PU}{E}{\82\050}% U+0228  
 15940 % U+0229 LATIN SMALL LETTER E WITH CEDILLA  
 15941 \DeclareTextCompositeCommand{\c}{PU}{e}{\82\051}% U+0229  
 15942 % U+022E LATIN CAPITAL LETTER O WITH DOT ABOVE  
 15943 \DeclareTextCompositeCommand{\.}{PU}{O}{\82\056}% U+022E  
 15944 % U+022F LATIN SMALL LETTER O WITH DOT ABOVE  
 15945 \DeclareTextCompositeCommand{\.}{PU}{o}{\82\057}% U+022F  
 15946 % U+0232 LATIN CAPITAL LETTER Y WITH MACRON  
 15947 \DeclareTextCompositeCommand{\=}{PU}{Y}{\82\062}% U+0232  
 15948 % U+0233 LATIN SMALL LETTER Y WITH MACRON  
 15949 \DeclareTextCompositeCommand{\=}{PU}{y}{\82\063}% U+0233  
 15950 % U+0235 LATIN SMALL LETTER N WITH CURL; \textctn (tipa)  
 15951 \DeclareTextCommand{\textctn}{PU}{\82\065}% U+0235  
 15952 % U+0236 LATIN SMALL LETTER T WITH CURL; \textctt (tipa)  
 15953 \DeclareTextCommand{\textctt}{PU}{\82\066}% U+0236  
 15954 % U+0237 LATIN SMALL LETTER DOTLESS J  
 15955 \DeclareTextCommand{\j}{PU}{\82\067}% U+0237  
 15956 % U+0238 LATIN SMALL LETTER DB DIGRAPH; \textdblig (tipx)  
 15957 \DeclareTextCommand{\textPUdblig}{PU}{\82\070}% U+0238  
 15958 %\* \textPUdblig -> \textdblig (tipx)  
 15959 % U+0239 LATIN SMALL LETTER QP DIGRAPH; \textqplig (tipx)  
 15960 \DeclareTextCommand{\textPUqplig}{PU}{\82\071}% U+0239  
 15961 %\* \textPUqplig -> \textqplig (tipx)  
 15962 % U+023C LATIN SMALL LETTER C WITH STROKE; \slashc (wsuipa)  
 15963 \DeclareTextCommand{\textslashc}{PU}{\82\074}%\* U+023C  
 15964 %\* \textslashc -> \textcentoldstyle (textcomp)  
 15965 % With bar instead of stroke:  
 15966 %\* \textslashc -> \textbarc (tipa)

#### 47.2.6 IPA Extensions: U+0250 to U+02AF

15967 % U+0250 LATIN SMALL LETTER TURNED A; aturned; \textturna (tipa)



```

15968 \DeclareTextCommand{\textturna}{PU}{\82\120}% U+0250
15969 %* \textturna -> \inva (wasysym)
15970 % U+0251 LATIN SMALL LETTER ALPHA/LATIN SMALL LETTER
15971 % SCRIPT A; ascript; \textscripta (tipa), \scripta (wsuipa)
15972 \DeclareTextCommand{\textscripta}{PU}{\82\121}%* U+0251
15973 %* \textscripta -> \vara (phonetic)
15974 % U+0252 LATIN SMALL LETTER TURNED ALPHA; ascriptturned;
15975 % \textturnscripta (tipa)
15976 \DeclareTextCommand{\textturnscripta}{PU}{\82\122}% U+0252
15977 %* \textturnscripta -> \invscripta (wsuipa)
15978 %* \textturnscripta -> \rotvara (phonetic)
15979 % U+0253 LATIN CAPITAL LETTER B WITH HOOK; bhook; \texthtb (tipa)
15980 \DeclareTextCommand{\texthtb}{PU}{\82\123}% U+0253
15981 %* \texthtb -> \hookb (wsuipa)
15982 %* \texthtb -> \hausab (phonetic)
15983 % U+0254 LATIN SMALL LETTER OPEN O; oopen;
15984 % \textopeno (tipa), \openo (wasysym)
15985 \DeclareTextCommand{\textopeno}{PU}{\82\124}%* U+0254
15986 %* \textopeno -> \varopeno (phonetic)
15987 % U+0255 LATIN SMALL LETTER C WITH CURL; ccurl; \textctc (tipa)
15988 \DeclareTextCommand{\textctc}{PU}{\82\125}% U+0255
15989 %* \textctc -> \curlyc (wsuipa)
15990 % U+0256 LATIN SMALL LETTER D WITH TAIL; dtail; \textrtaild (tipa)
15991 \DeclareTextCommand{\textrtaild}{PU}{\82\126}%* U+0256
15992 %* \textrtaild -> \taild (wsuipa)
15993 % U+0257 LATIN SMALL LETTER D WITH HOOK; dhook; \texthtd (tipa)
15994 \DeclareTextCommand{\texthtd}{PU}{\82\127}% U+0257
15995 %* \texthtd -> \hookd (wsuipa)
15996 %* \texthtd -> \hausad (phonetic)
15997 % U+0258 LATIN SMALL LETTER REVERSED E; ereversed;
15998 % \textreve (tipa), \reve (wsuipa)
15999 \DeclareTextCommand{\textreve}{PU}{\82\130}%* U+0258
16000 % U+0259 LATIN SMALL LETTER SCHWA; schwa;
16001 % \textschwa (tipa), \schwa (wsuipa, phonetic)
16002 \DeclareTextCommand{\textschwa}{PU}{\82\131}%* U+0259
16003 % U+025A LATIN SMALL LETTER SCHWA WITH HOOK; schwahook;
16004 % \textrhookschwa (tipa)
16005 \DeclareTextCommand{\textrhookschwa}{PU}{\82\132}% U+025A
16006 %* \textrhookschwa -> \er (wsuipa)
16007 % U+025B LATIN SMALL LETTER OPEN E/LATIN SMALL LETTER EP-
        SILON; eopen;
16008 % \niepsilon (wsuipa)
16009 \DeclareTextCommand{\textniepsilon}{PU}{\82\133}%* U+025B
16010 %* \textniepsilon -> \epsi (phonetic)
16011 % U+025C LATIN SMALL LETTER REVERSED OPEN E; eopenreversed;
16012 % \textrevepsilon (tipa), \revepsilon (wsuipa)
16013 \DeclareTextCommand{\textrevepsilon}{PU}{\82\134}%* U+025C
16014 % U+025D LATIN SMALL LETTER REVERSED OPEN E WITH HOOK; eopen-
        reversedhook;
16015 % \textrhookrevepsilon (tipa)
16016 \DeclareTextCommand{\textrhookrevepsilon}{PU}{\82\135}%* U+025D
16017 %* \textrhookrevepsilon -> \hookrevepsilon (wsuipa)
16018 % U+025E LATIN SMALL LETTER CLOSED REVERSED OPEN E; eopenre-
        versedclosed;

```

16019 % \textcloserevepsilon (tipa)  
16020 \DeclareTextCommand{\textcloserevepsilon}{PU}{\82\136}% U+025E  
16021 %\* \textcloserevepsilon -> \closedrevepsilon (wsuipa)  
16022 % U+025F LATIN SMALL LETTER DOTLESS J WITH STROKE; jdot-  
lessstroke;  
16023 % \textbardotlessj (tipa)  
16024 \DeclareTextCommand{\textbardotlessj}{PU}{\82\137}% U+025F  
16025 %\* \textbardotlessj -> \barj (phonetic)  
16026 % U+0260 LATIN SMALL LETTER G WITH HOOK; ghook; \texthtg (tipa)  
16027 \DeclareTextCommand{\texthtg}{PU}{\82\140}% U+0260  
16028 %\* \texthtg -> \hookg (wsuipa)  
16029 % U+0261 LATIN SMALL LETTER SCRIPT G; gscript;  
16030 % \textscriptg (tipa), \scriptg (wsuipa)  
16031 \DeclareTextCommand{\textscriptg}{PU}{\82\141}%\* U+0261  
16032 %\* \textscriptg -> \varg (phonetic)  
16033 % U+0262 LATIN LETTER SMALL CAPITAL G; \textscg (tipa), \scg (wsuipa)  
16034 \DeclareTextCommand{\textscg}{PU}{\82\142}%\* U+0262  
16035 % U+0263 LATIN SMALL LETTER GAMMA; gammalatinsmall;  
16036 % \ipagamma (wsuipa), \vod (phonetic)  
16037 \DeclareTextCommand{\textipagamma}{PU}{\82\143}%\* U+0263  
16038 %\* \textipagamma -> \vod (pnonetic)  
16039 % U+0264 LATIN SMALL LETTER RAMS HORN; ramshorn;  
16040 % \babygamma (wsuipa)  
16041 \DeclareTextCommand{\textbabygamma}{PU}{\82\144}%\* U+0264  
16042 % U+0265 LATIN SMALL LETTER TURNED H; hturned; \textturnh (tipa)  
16043 \DeclareTextCommand{\textturnh}{PU}{\82\145}% U+0265  
16044 %\* \textturnh -> \invh (wsuipa)  
16045 %\* \textturnh -> \udesc (phonetic)  
16046 % U+0266 LATIN SMALL LETTER H WITH HOOK; hhook; \texthth (tipa)  
16047 \DeclareTextCommand{\texthth}{PU}{\82\146}% U+0266  
16048 %\* \texthth -> \hookh (wsuipa)  
16049 %\* \texthth -> \voicedh (phonetic)  
16050 % U+0267 LATIN SMALL LETTER HENG WITH HOOK; henghook; \tex-  
ththeng (tipa)  
16051 \DeclareTextCommand{\texththeng}{PU}{\82\147}% U+0267  
16052 %\* \texththeng -> \hookheng (wsuipa)  
16053 % U+0268 LATIN SMALL LETTER I WITH STROKE;  
16054 % \textbari (tipa), \bari (wsuipa)  
16055 \DeclareTextCommand{\textbari}{PU}{\82\150}%\* U+0268  
16056 %\* \textbari -> \ibar (phonetic)  
16057 % U+0269 LATIN SMALL LETTER IOTA; iotalatin; \niiota (wsuipa)  
16058 \DeclareTextCommand{\textniiota}{PU}{\82\151}%\* U+0269  
16059 %\* \textniiota -> \vari (phonetic)  
16060 % U+026A LATIN LETTER SMALL CAPITAL I; \textsci (tipa), \sci (wsuipa)  
16061 \DeclareTextCommand{\textsci}{PU}{\82\152}%\* U+026A  
16062 % U+026B LATIN SMALL LETTER L WITH MIDDLE TILDE; lmiddletilde;  
16063 % \textltilde (tipa)  
16064 \DeclareTextCommand{\textltilde}{PU}{\82\153}% U+026B  
16065 %\* \textltilde -> \tildel (wsuipa)  
16066 % U+026C LATIN SMALL LETTER L WITH BELT; lbelt; \textbeltl (tipa)  
16067 \DeclareTextCommand{\textbeltl}{PU}{\82\154}% U+026C  
16068 %\* \textbeltl -> \latfric (wsuipa)  
16069 % U+026D LATIN SMALL LETTER L WITH RETROFLEX HOOK;  
16070 % \hookretroflex; \textrtaill (tipa)

16071 \DeclareTextCommand{\texttrtail}{PU}{\82\155}% U+026D  
16072 %\* \texttrtail -> \tail (wsuipa)  
16073 % U+026E LATIN SMALL LETTER LEZH; lezh; \textlyoghlig (tipa)  
16074 \DeclareTextCommand{\textlyoghlig}{PU}{\82\156}% U+026E  
16075 %\* \textlyoghlig -> \lz (wsuipa)  
16076 % U+026F LATIN SMALL LETTER TURNED M; mturned; \textturnm (tipa)  
16077 \DeclareTextCommand{\textturnm}{PU}{\82\157}% U+026F  
16078 %\* \textturnm -> \invm (wsuipa)  
16079 %\* \textturnm -> \rotm (phonetic)  
16080 % U+0270 LATIN SMALL LETTER TURNED M WITH LONG LEG; mlongleg-  
turned;  
16081 % \textturnmrleg (tipa)  
16082 \DeclareTextCommand{\textturnmrleg}{PU}{\82\160}% U+0270  
16083 %\* \textturnmrleg -> \legm (wsuipa)  
16084 % U+0271 LATIN SMALL LETTER M WITH HOOK; mhook; \textltailm (tipa)  
16085 \DeclareTextCommand{\textltailm}{PU}{\82\161}% U+0271  
16086 %\* \textltailm -> \labdentalnas (wsuipa)  
16087 %\* \textltailm -> \emgma (phonetic)  
16088 % U+0272 LATIN SMALL LETTER N WITH LEFT HOOK; nhookleft; \textl-  
tailn (tipa)  
16089 \DeclareTextCommand{\textltailn}{PU}{\82\162}% U+0272  
16090 %\* \textltailn -> \nj (wsuipa)  
16091 %\* \textltailn -> \nya (phonetic)  
16092 % U+0273 LATIN SMALL LETTER N WITH RETROFLEX HOOK;  
16093 % nhookretroflex; \textrtailn (tipa)  
16094 \DeclareTextCommand{\textrtailn}{PU}{\82\163}% U+0273  
16095 %\* \textrtailn -> \tailn (wsuipa)  
16096 % U+0274 LATIN LETTER SMALL CAPITAL N; \textscn (tipa), \scn (wsuipa)  
16097 \DeclareTextCommand{\textscn}{PU}{\82\164}%\* U+0274  
16098 % U+0275 LATIN CAPITAL LETTER O WITH MIDDLE TILDE/  
16099 % LATIN CAPITAL LETTER BARRED O; obarred;  
16100 % \textbaro (tipa), \baro (wsuipa)  
16101 % But \baro from stmaryrd is different!  
16102 \DeclareTextCommand{\textbaro}{PU}{\82\165}% U+0275  
16103 % U+0276 LATIN LETTER SMALL CAPITAL OE; \textscelig (tipa)  
16104 \DeclareTextCommand{\textscelig}{PU}{\82\166}% U+0276  
16105 % U+0277 LATIN SMALL LETTER CLOSED OMEGA; omegalatincloded;  
16106 % \textcloseomega (tipa)  
16107 \DeclareTextCommand{\textcloseomega}{PU}{\82\167}% U+0277  
16108 %\* \textcloseomega -> \closedniomega (wsuipa)  
16109 %\* \textcloseomega -> \varomega (phonetic)  
16110 % U+0278 LATIN SMALL LETTER PHI; philatin; \niphy (wsuipa)  
16111 \DeclareTextCommand{\textniphy}{PU}{\82\170}%\* U+0278  
16112 % U+0279 LATIN SMALL LETTER TURNED R; rturned; \textturnr (tipa)  
16113 \DeclareTextCommand{\textturnr}{PU}{\82\171}% U+0279  
16114 %\* \textturnr -> \invr (wsuipa)  
16115 %\* \textturnr -> \rotr (phonetic)  
16116 % U+027A LATIN SMALL LETTER TURNED R WITH LONG LEG;  
16117 % rlonglegturned; \textturnlongleg (tipa)  
16118 \DeclareTextCommand{\textturnlongleg}{PU}{\82\172}% U+027A  
16119 %\* \textturnlongleg -> \invleg (wsuipa)  
16120 % U+027B LATIN SMALL LETTER TURNED R WITH HOOK; rhohturned;  
16121 % \textturnrrtail (tipa)  
16122 \DeclareTextCommand{\textturnrrtail}{PU}{\82\173}% U+027B

16123 %\* \textturnrrtail -> \tailinvr (wsuipa)  
16124 % U+027C LATIN SMALL LETTER R WITH LONG LEG; rlongleg; \textlonglegr (tipa)  
16125 \DeclareTextCommand{\textlonglegr}{PU}{\82\174}%\* U+027C  
16126 %\* \textlonglegr -> \legr (wsuipa)  
16127 % U+027D LATIN SMALL LETTER R WITH TAIL; rhoor; \textrtailr (tipa)  
16128 \DeclareTextCommand{\textrtailr}{PU}{\82\175}% U+027D  
16129 %\* \textrtailr -> \tailr (wsuipa)  
16130 % U+027E LATIN SMALL LETTER R WITH FISHHOOK; rfishhook;  
16131 % \textfishhookr (tipa)  
16132 \DeclareTextCommand{\textfishhookr}{PU}{\82\176}% U+027E  
16133 %\* \textfishhookr -> \flapr (wsuipa)  
16134 %\* \textfishhookr -> \flap (phonetic)  
16135 % U+027F LATIN SMALL LETTER REVERSED R WITH FISHHOOK; rfishhookreversed;  
16136 % \textlhtlongi (tipa)  
16137 \DeclareTextCommand{\textlhtlongi}{PU}{\82\177}% U+027F  
16138 % U+0280 LATIN LETTER SMALL CAPITAL R; \textscr (tipa), \scr (wsuipa)  
16139 \DeclareTextCommand{\textscr}{PU}{\82\200}%\* U+0280  
16140 % U+0281 LATIN LETTER SMALL CAPITAL INVERTED R; Rsmallinverted;  
16141 % \textinvscr (tipa), \invscr (wsuipa)  
16142 \DeclareTextCommand{\textinvscr}{PU}{\82\201}%\* U+0281  
16143 % U+0282 LATIN SMALL LETTER S WITH HOOK; shook; \textrtails (tipa)  
16144 \DeclareTextCommand{\textrtails}{PU}{\82\202}% U+0282  
16145 %\* \textrtails -> \tails (wsuipa)  
16146 % U+0283 LATIN SMALL LETTER ESH; esh; \textesh (tipa), \esh (wsuipa)  
16147 \DeclareTextCommand{\textesh}{PU}{\82\203}%\* U+0283  
16148 % U+0284 LATIN SMALL LETTER DOTLESS J WITH STROKE AND HOOK;  
16149 % dotlessjstrokehook; \texthtbardotlessj (tipa)  
16150 \DeclareTextCommand{\texthtbardotlessj}{PU}{\82\204}% U+0284  
16151 % U+0285 LATIN SMALL LETTER SQUAT REVERSED ESH; eshsquatreversed;  
16152 % \textvibyi (tipa)  
16153 \DeclareTextCommand{\textvibyi}{PU}{\82\205}% U+0285  
16154 % U+0286 LATIN SMALL LETTER ESH WITH CURL; eshcurl; \textctesh (tipa)  
16155 \DeclareTextCommand{\textctesh}{PU}{\82\206}% U+0286  
16156 %\* \textctesh -> \curlyesh (wsuipa)  
16157 % U+0287 LATIN SMALL LETTER TURNED T; tturned; \textturnt (tipa)  
16158 \DeclareTextCommand{\textturnt}{PU}{\82\207}% U+0287  
16159 %\* \textturnt -> \clickt (wsuipa)  
16160 % U+0288 LATIN SMALL LETTER T WITH RETROFLEX HOOK; tretroflexhook;  
16161 % \textrtailt (tipa)  
16162 \DeclareTextCommand{\textrtailt}{PU}{\82\210}% U+0288  
16163 %\* \textrtailt -> \tailt (wsuipa)  
16164 % U+0289 LATIN SMALL LETTER U BAR; ubar;  
16165 % \textbaru (tipa), \baru (wsuipa)  
16166 \DeclareTextCommand{\textbaru}{PU}{\82\211}%\* U+0289  
16167 %\* \textbaru -> \ubar (phonetic)  
16168 % U+028A LATIN SMALL LETTER UPSILON; \niupsilon (wsuipa)  
16169 \DeclareTextCommand{\textniupsilon}{PU}{\82\212}%\* U+028A  
16170 %\* \textniupsilon -> \rotOmega (phonetic)  
16171 % U+028B LATIN SMALL LETTER V WITH HOOK/LATIN SMALL LETTER SCRIPT V;

16172 % vhook; \textscriptv (tipa), \scriptv (wsuipa)  
16173 \DeclareTextCommand{\textscriptv}{PU}{\82\213}%\* U+028B  
16174 % U+028C LATIN SMALL LETTER TURNED V; vturned; \textturnv (tipa)  
16175 \DeclareTextCommand{\textturnv}{PU}{\82\214}%\* U+028C  
16176 %\* \textturnv -> \invv (wsuipa)  
16177 %\* \textturnv -> \pwedge (phonetic)  
16178 % U+028D LATIN SMALL LETTER TURNED W; wturned; \textturnw (tipa)  
16179 \DeclareTextCommand{\textturnw}{PU}{\82\215}%\* U+028D  
16180 %\* \textturnw -> \invw (wsuipa)  
16181 %\* \textturnw -> \rotw (phonetic)  
16182 % U+028E LATIN SMALL LETTER TURNED Y; yturned; \textturny (tipa)  
16183 \DeclareTextCommand{\textturny}{PU}{\82\216}%\* U+028E  
16184 %\* \textturny -> \invy (wsuipa)  
16185 %\* \textturny -> \roty (phonetic)  
16186 % U+028F LATIN LETTER SMALL CAPITAL Y; \textscy (tipa), \scy (wsuipa)  
16187 \DeclareTextCommand{\textscy}{PU}{\82\217}%\* U+028F  
16188 % U+0290 LATIN SMALL LETTER Z WITH RETROFLEX HOOK; zretroflex-hook;  
16189 % \textrtailz (tipa)  
16190 \DeclareTextCommand{\textrtailz}{PU}{\82\220}% U+0290  
16191 %\* \textrtailz -> \tailz (wsuipa)  
16192 % U+0291 LATIN SMALL LETTER Z WITH CURL; zcurl; \textctz (tipa)  
16193 \DeclareTextCommand{\textctz}{PU}{\82\221}% U+0291  
16194 %\* \textctz -> \curlyz (wsuipa)  
16195 % U+0292 LATIN SMALL LETTER EZH/LATIN SMALL LETTER YOGH; ezh;  
16196 % \textyogh (tipa), \yogh (wsuipa)  
16197 \DeclareTextCommand{\textyogh}{PU}{\82\222}%\* U+0292  
16198 % U+0293 LATIN SMALL LETTER EZH WITH CURL/LATIN SMALL LETTER YOGH CURL;  
16199 % ezhcurl; \textctyogh (tipa)  
16200 \DeclareTextCommand{\textctyogh}{PU}{\82\223}% U+0293  
16201 %\* \textctyogh -> \curlyyogh (wsuipa)  
16202 % U+0294 LATIN LETTER GLOTTAL STOP; glottalstop;  
16203 % \textglotstop (tipa), \glotstop (wsuipa)  
16204 \DeclareTextCommand{\textglotstop}{PU}{\82\224}%\* U+0294  
16205 %\* \textglotstop -> \ejective (wsuipa)  
16206 %\* \textglotstop -> \glottal (phonetic)  
16207 % U+0295 LATIN LETTER PHARYNGEAL VOICED FRICATIVE/  
16208 % LATIN LETTER REVERSED GLOTTAL STOP; glottalstopreversed;  
16209 % \textrevglotstop (tipa), \revglotstop (wsuipa)  
16210 \DeclareTextCommand{\textrevglotstop}{PU}{\82\225}%\* U+0295  
16211 %\* \textrevglotstop -> \reveject (wsuipa)  
16212 % U+0296 LATIN LETTER INVERTED GLOTTAL STOP; glottalstopinverted;  
16213 % \textinvglotstop (tipa), \invglotstop (wsuipa)  
16214 \DeclareTextCommand{\textinvglotstop}{PU}{\82\226}%\* U+0296  
16215 % U+0297 LATIN LETTER STRETCHED C; cstretched; \textstretchc (tipa)  
16216 \DeclareTextCommand{\textstretchc}{PU}{\82\227}% U+0297  
16217 %\* \textstretchc -> \clickc (wsuipa)  
16218 %\* \textstretchc -> \textstretchcvar (tipx)  
16219 % U+0298 LATIN LETTER BILABIAL CLICK; bilabialclick;  
16220 % \textbullseye (tipa)  
16221 \DeclareTextCommand{\textbullseye}{PU}{\82\230}% U+0298  
16222 %\* \textbullseye -> \clickb (wsuipa)  
16223 %\* \textbullseye -> \textObullseye (tipx)

16224 % U+0299 LATIN LETTER SMALL CAPITAL B; \textscb (tipa)  
16225 \DeclareTextCommand{\textscb}{PU}{\82\231}% U+0299  
16226 % U+029A LATIN SMALL LETTER CLOSED OPEN E; eopenclosed;  
16227 % \textclosepsilon (tipa)  
16228 \DeclareTextCommand{\textclosepsilon}{PU}{\82\232}% U+029A  
16229 % U+029B LATIN LETTER SMALL CAPITAL G WITH HOOK; Gsmallhook;  
16230 % \texthtscg (tipa)  
16231 \DeclareTextCommand{\texthtscg}{PU}{\82\233}% U+029B  
16232 % U+029C LATIN LETTER SMALL CAPITAL H; \textsch (tipa)  
16233 \DeclareTextCommand{\textsch}{PU}{\82\234}% U+029C  
16234 % U+029D LATIN SMALL LETTER J WITH CROSSED-TAIL; jcrossed-  
tail; \textcdj (tipa)  
16235 \DeclareTextCommand{\textctj}{PU}{\82\235}% U+029D  
16236 %\* \textctj -> \textctjvar (tipx)  
16237 % U+029E LATIN SMALL LETTER TURNED K; kturned; \textturnk (tipa)  
16238 \DeclareTextCommand{\textturnk}{PU}{\82\236}% U+029E  
16239 %\* \textturnk -> \textturnsck (tipx)  
16240 % U+029F LATIN LETTER SMALL CAPITAL L; \textscL (tipa)  
16241 \DeclareTextCommand{\textscL}{PU}{\82\237}% U+029F  
16242 % U+02A0 LATIN SMALL LETTER Q WITH HOOK; qhook; \texthtq (tipa)  
16243 \DeclareTextCommand{\texthtq}{PU}{\82\240}% U+02A0  
16244 % U+02A1 LATIN LETTER GLOTTAL STOP WITH STROKE; glottalstop-  
stroke;  
16245 % \textbarglotstop (tipa)  
16246 \DeclareTextCommand{\textbarglotstop}{PU}{\82\241}% U+02A1  
16247 % U+02A2 LATIN LETTER REVERSED GLOTTAL STOP WITH STROKE/  
16248 % LATIN LETTER REVERSED GLOTTAL STOP BAR; glottalstopstrokere-  
versed;  
16249 % \textbarrevglotstop (tipa)  
16250 \DeclareTextCommand{\textbarrevglotstop}{PU}{\82\242}% U+02A2  
16251 % U+02A3 LATIN SMALL LETTER DZ DIGRAPH; dzaltone; \textdzlig (tipa)  
16252 \DeclareTextCommand{\textdzlig}{PU}{\82\243}% U+02A3  
16253 %\* \textdzlig -> \dz (wsupipa)  
16254 % U+02A4 LATIN SMALL LETTER DEZH DIGRAPH; dezh; \textdyogh-  
lig (tipa)  
16255 \DeclareTextCommand{\textdyoghlig}{PU}{\82\244}% U+02A4  
16256 % U+02A5 LATIN SMALL LETTER DZ DIGRAPH WITH CURL; dzcurl;  
16257 % \textdctzlig (tipa)  
16258 \DeclareTextCommand{\textdctzlig}{PU}{\82\245}% U+02A5  
16259 % U+02A6 LATIN SMALL LETTER TS DIGRAPH; ts; \texttslig (tipa)  
16260 \DeclareTextCommand{\texttslig}{PU}{\82\246}% U+02A6  
16261 % U+02A7 LATIN SMALL LETTER TESH DIGRAPH; tesh; \texttshlig (tipa)  
16262 \DeclareTextCommand{\texttshlig}{PU}{\82\247}% U+02A7  
16263 %\* \texttshlig -> \tesh (wsuipa)  
16264 % U+02A8 LATIN SMALL LETTER TC DIGRAPH WITH CURL; tccurl;  
16265 % \texttctclig (tipa)  
16266 \DeclareTextCommand{\texttctclig}{PU}{\82\250}% U+02A8  
16267 % U+02AE LATIN SMALL LETTER TURNED H WITH FISHHOOK;  
16268 % \textlhtlongy (tipa)  
16269 \DeclareTextCommand{\textlhtlongy}{PU}{\82\256}% U+02AE  
16270 % U+02AF LATIN SMALL LETTER TURNED H WITH FISHHOOK AND TAIL;  
16271 % \textvibyy (tipa)  
16272 \DeclareTextCommand{\textvibyy}{PU}{\82\257}% U+02AF

## 47.2.7 Spacing Modifier Letters: U+02B0 to U+02FF

```

16273 % U+02BD MODIFIER LETTER REVERSED COMMA;
16274 %   commareversedmod, afi64937; \textrevapostrophe (tipa)
16275 \DeclareTextCommand{\textrevapostrophe}{PU}{\82\275}% U+02BD
16276 % U+02C0 MODIFIER LETTER GLOTTAL STOP; glottalstopmod;
16277 %   \textraiseglotstop (tipa)
16278 \DeclareTextCommand{\textraiseglotstop}{PU}{\82\300}% U+02C0
16279 % U+02C2 MODIFIER LETTER LEFT ARROWHEAD; arrowheadleftmod;
16280 %   \textlptr (tipa)
16281 \DeclareTextCommand{\textlptr}{PU}{\82\302}% U+02C2
16282 % U+02C3 MODIFIER LETTER RIGHT ARROWHEAD; arrowheadrightmod;
16283 %   \textrptr (tipa)
16284 \DeclareTextCommand{\textrptr}{PU}{\82\303}% U+02C3
16285 % U+02C7 CARON; caron
16286 \DeclareTextCommand{\textasciicaron}{PU}{\82\307}% U+02C7
16287 % U+02C8 MODIFIER LETTER VERTICAL LINE; verticallinemod;
16288 %   \textprimstress (tipa)
16289 \DeclareTextCommand{\textprimstress}{PU}{\82\310}% U+02C8
16290 % U+02CC MODIFIER LETTER LOW VERTICAL LINE; verticallinelowmod;
16291 %   \textsecstress (tipa)
16292 \DeclareTextCommand{\textsecstress}{PU}{\82\314}% U+02CC
16293 % U+02D0 MODIFIER LETTER TRIANGULAR COLON; colontriangularmod;
16294 %   \textlengthmark (tipa)
16295 \DeclareTextCommand{\textlengthmark}{PU}{\82\320}% U+02D0
16296 % U+02D1 MODIFIER LETTER HALF TRIANGULAR COLON; colontriangu-
    larhalfmod;
16297 %   \texthalflength (tipa)
16298 \DeclareTextCommand{\texthalflength}{PU}{\82\321}% U+02D1
16299 % U+02D8 BREVE; breve
16300 \DeclareTextCommand{\textasciibreve}{PU}{\82\330}% U+02D8
16301 % U+02D9 DOT ABOVE; dotaccent
16302 \DeclareTextCommand{\textdotaccent}{PU}{\82\331}% U+02D9
16303 % U+02DA RING ABOVE; ring
16304 \DeclareTextCommand{\textring}{PU}{\82\332}% U+02DA
16305 % U+02DB OGONEK; ogonek
16306 \DeclareTextCommand{\textogonek}{PU}{\82\333}% U+02DB
16307 % U+02DC SMALL TILDE; ilde, *tilde
16308 \DeclareTextCommand{\texttilde}{PU}{\82\334}% U+02DC
16309 % U+02DD DOUBLE ACUTE ACCENT; hungarumlaut
16310 \DeclareTextCommand{\texthungarumlaut}{PU}{\82\335}% U+02DD
16311 \DeclareTextCommand{\textacutedbl}{PU}{\82\335}% U+02DD
16312 % U+02F3 MODIFIER LETTER LOW RING
16313 \DeclareTextCommand{\textringlow}{PU}{\82\363}% U+02F3
16314 % U+02F5 MODIFIER LETTER MIDDLE DOUBLE GRAVE ACCENT
16315 \DeclareTextCommand{\textgravedbl}{PU}{\82\365}% U+02F5
16316 % U+02F7 MODIFIER LETTER LOW TILDE
16317 \DeclareTextCommand{\texttildelow}{PU}{\82\367}% U+02F7
16318 % U+02F9 MODIFIER LETTER BEGIN HIGH TONE; \textopencorner (tipa)
16319 \DeclareTextCommand{\textopencorner}{PU}{\82\371}% U+02F9
16320 % U+02FA MODIFIER LETTER END HIGH TONE; \textcorner (tipa)
16321 \DeclareTextCommand{\textcorner}{PU}{\82\372}% U+02FA

```

## 47.2.8 Combining Diacritical Marks: U+0300 to U+036F

```

16322 % U+030F COMBINING DOUBLE GRAVE ACCENT; dblgravecmb
16323 \DeclareTextCommand{\textdoublegrave}{PU}{\83\017}% U+030F
16324 % U+0311 COMBINING INVERTED BREVE; breveinvertedcmb
16325 \DeclareTextCommand{\textnewtie}{PU}{\83\021}% U+0311
16326 % U+0323 COMBINING DOT BELOW; dotbelowcmb, *dotbelowcomb
16327 \DeclareTextCommand{\textdotbelow}{PU}{\83\043}% U+0323
16328 % U+0331 COMBINING MACRON BELOW; macronbelowcmb
16329 \DeclareTextCommand{\textmacronbelow}{PU}{\83\061}% U+0331
16330 % U+0361 COMBINING DOUBLE INVERTED BREVE; breveinverteddou-
      blecmb
16331 \DeclareTextCommand{\texttie}{PU}{\83\141}% U+0361

```

## 47.2.9 Greek and Coptic: U+0370 to U+03FF

Greek is only loaded if `\textBeta` is defined.

```

16332 \ifx\textBeta\@undefined \else
16333 \input{puenc-greek.def}
16334 \fi
16335 \end{puenc}

```

### 47.2.10 Cyrillic: U+0400 to U+04FF

Thanks to Vladimir Volovich (vvv@vvv.vsu.ru) for the help with the Cyrillic glyph names. Cyrillic only loaded if `\CYRDZE` is defined.

```

16336 \begin{puenc}
16337 \ifx\CYRDZE\@undefined \else
16338 % U+0400 CYRILLIC CAPITAL LETTER IE WITH GRAVE
16339 \DeclareTextCompositeCommand{\`}{PU}{\CYRE}{\84\000}% U+0400
16340 % U+0401 CYRILLIC CAPITAL LETTER IO; Iocyrillic, *afii10023
16341 \DeclareTextCommand{\CYRYO}{PU}{\84\001}% U+0401
16342 \DeclareTextCompositeCommand{\"}{PU}{\CYRE}{\84\001}% U+0401
16343 % U+0402 CYRILLIC CAPITAL LETTER DJE; Djecyrillic, *afii10051
16344 \DeclareTextCommand{\CYRDJE}{PU}{\84\002}% U+0402
16345 % U+0403 CYRILLIC CAPITAL LETTER GJE; Gjecyrillic, *afii10052
16346 \DeclareTextCompositeCommand{\'}{PU}{\CYRG}{\84\003}% U+0403
16347 % U+0404 CYRILLIC CAPITAL LETTER UKRAINIAN IE; Ecyrillic, *afii10053
16348 \DeclareTextCommand{\CYRIE}{PU}{\84\004}% U+0404
16349 % U+0405 CYRILLIC CAPITAL LETTER DZE; Dzecyrillic, *afii10054
16350 \DeclareTextCommand{\CYRDZE}{PU}{\84\005}% U+0405
16351 % U+0406 CYRILLIC CAPITAL LETTER BYELORUSSIAN-UKRAINIAN I;
16352 % Icyrillic, *afii10055
16353 \DeclareTextCommand{\CYRII}{PU}{\84\006}% U+0406
16354 % U+0407 CYRILLIC CAPITAL LETTER YI; Yicyrillic, *afii10056
16355 \DeclareTextCommand{\CYRYI}{PU}{\84\007}% U+0407
16356 \DeclareTextCompositeCommand{\"}{PU}{\CYRII}{\84\007}% U+0407
16357 % U+0408 CYRILLIC CAPITAL LETTER JE; Jecyrillic, *afii10057
16358 \DeclareTextCommand{\CYRJE}{PU}{\84\010}% U+0408
16359 % U+0409 CYRILLIC CAPITAL LETTER LJE; Ljecyrillic, *afii10058
16360 \DeclareTextCommand{\CYRLJE}{PU}{\84\011}% U+0409
16361 % U+040A CYRILLIC CAPITAL LETTER NJE; Njecyrillic, *afii10059
16362 \DeclareTextCommand{\CYRNJE}{PU}{\84\012}% U+040A
16363 % U+040B CYRILLIC CAPITAL LETTER TSHE; Tshecyrillic, *afii10060
16364 \DeclareTextCommand{\CYRTSHE}{PU}{\84\013}% U+040B
16365 % U+040C CYRILLIC CAPITAL LETTER KJE; Kjecyrillic, *afii10061

```



16366 \DeclareTextCompositeCommand{\'}{PU}{\CYRK}{\84\014}% U+040C  
16367 % U+040D CYRILLIC CAPITAL LETTER I WITH GRAVE  
16368 \DeclareTextCompositeCommand{\`}{PU}{\CYRI}{\84\015}% U+040D  
16369 % U+040E CYRILLIC CAPITAL LETTER SHORT U; Ushortcyrillic, \*afii10062  
16370 \DeclareTextCommand{\CYRUSHRT}{PU}{\84\016}% U+040E  
16371 \DeclareTextCompositeCommand{\U}{PU}{\CYRU}{\84\016}% U+040E  
16372 % U+040F CYRILLIC CAPITAL LETTER DZHE; Dzhecyrillic, \*afii10145  
16373 \DeclareTextCommand{\CYRDZHE}{PU}{\84\017}% U+040F  
16374 % U+0410 CYRILLIC CAPITAL LETTER A; Acyrillic, \*afii10017  
16375 \DeclareTextCommand{\CYRA}{PU}{\84\020}% U+0410  
16376 % U+0411 CYRILLIC CAPITAL LETTER BE; Becyrillic, \*afii10018  
16377 \DeclareTextCommand{\CYRB}{PU}{\84\021}% U+0411  
16378 % U+0412 CYRILLIC CAPITAL LETTER VE; Vecyrillic, \*afii10019  
16379 \DeclareTextCommand{\CYRV}{PU}{\84\022}% U+0412  
16380 % U+0413 CYRILLIC CAPITAL LETTER GHE; Gecyrillic, \*afii10020  
16381 \DeclareTextCommand{\CYRG}{PU}{\84\023}% U+0413  
16382 % U+0414 CYRILLIC CAPITAL LETTER DE; Decyrillic, \*afii10021  
16383 \DeclareTextCommand{\CYRD}{PU}{\84\024}% U+0414  
16384 % U+0415 CYRILLIC CAPITAL LETTER IE; Iecyrillic, \*afii10022  
16385 \DeclareTextCommand{\CYRE}{PU}{\84\025}% U+0415  
16386 % U+0416 CYRILLIC CAPITAL LETTER ZHE; Zhecyrillic, \*afii10024  
16387 \DeclareTextCommand{\CYRZH}{PU}{\84\026}% U+0416  
16388 % U+0417 CYRILLIC CAPITAL LETTER ZE; Zecyrillic, \*afii10025  
16389 \DeclareTextCommand{\CYRZ}{PU}{\84\027}% U+0417  
16390 % U+0418 CYRILLIC CAPITAL LETTER I; Iicyrillic, \*afii10026  
16391 \DeclareTextCommand{\CYRI}{PU}{\84\030}% U+0418  
16392 % U+0419 CYRILLIC CAPITAL LETTER SHORT I; lishortcyrillic, \*afii10027  
16393 \DeclareTextCommand{\CYRISHRT}{PU}{\84\031}% U+0419  
16394 \DeclareTextCompositeCommand{\U}{PU}{\CYRI}{\84\031}% U+0419  
16395 % U+041A CYRILLIC CAPITAL LETTER KA; Kacyrillic, \*afii10028  
16396 \DeclareTextCommand{\CYRK}{PU}{\84\032}% U+041A  
16397 % U+041B CYRILLIC CAPITAL LETTER EL; Elcyrillic, \*afii10029  
16398 \DeclareTextCommand{\CYRL}{PU}{\84\033}% U+041B  
16399 % U+041C CYRILLIC CAPITAL LETTER EM; Emcyrillic, \*afii10030  
16400 \DeclareTextCommand{\CYRM}{PU}{\84\034}% U+041C  
16401 % U+041D CYRILLIC CAPITAL LETTER EN; Encyrillic, \*afii10031  
16402 \DeclareTextCommand{\CYRN}{PU}{\84\035}% U+041D  
16403 % U+041E CYRILLIC CAPITAL LETTER O; Ocyrillic, \*afii10032  
16404 \DeclareTextCommand{\CYRO}{PU}{\84\036}% U+041E  
16405 % U+041F CYRILLIC CAPITAL LETTER PE; Pecyrillic, \*afii10033  
16406 \DeclareTextCommand{\CYRP}{PU}{\84\037}% U+041F  
16407 % U+0420 CYRILLIC CAPITAL LETTER ER; Ercyrillic, \*afii10034  
16408 \DeclareTextCommand{\CYRR}{PU}{\84\040}% U+0420  
16409 % U+0421 CYRILLIC CAPITAL LETTER ES; Escyrillic, \*afii10035  
16410 \DeclareTextCommand{\CYRS}{PU}{\84\041}% U+0421  
16411 % U+0422 CYRILLIC CAPITAL LETTER TE; Tecyrillic, \*afii10036  
16412 \DeclareTextCommand{\CYRT}{PU}{\84\042}% U+0422  
16413 % U+0423 CYRILLIC CAPITAL LETTER U; Ucyrillic, \*afii10037  
16414 \DeclareTextCommand{\CYRU}{PU}{\84\043}% U+0423  
16415 % U+0424 CYRILLIC CAPITAL LETTER EF; Efcyrillic, \*afii10038  
16416 \DeclareTextCommand{\CYRF}{PU}{\84\044}% U+0424  
16417 % U+0425 CYRILLIC CAPITAL LETTER HA; Khacyrillic, \*afii10039  
16418 \DeclareTextCommand{\CYRH}{PU}{\84\045}% U+0425  
16419 % U+0426 CYRILLIC CAPITAL LETTER TSE; Tsecyrillic, \*afii10040

16420 \DeclareTextCommand{\CYRC}{PU}{\84\046}% U+0426  
16421 % U+0427 CYRILLIC CAPITAL LETTER CHE; Checyrillic, \*afii10041  
16422 \DeclareTextCommand{\CYRCH}{PU}{\84\047}% U+0427  
16423 % U+0428 CYRILLIC CAPITAL LETTER SHA; Shacyrillic, \*afii10042  
16424 \DeclareTextCommand{\CYRSH}{PU}{\84\050}% U+0428  
16425 % U+0429 CYRILLIC CAPITAL LETTER SHCHA; Shchacyrillic, \*afii10043  
16426 \DeclareTextCommand{\CYRSHCH}{PU}{\84\051}% U+0429  
16427 % U+042A CYRILLIC CAPITAL LETTER HARD SIGN;  
16428 % Hardsigncyrillic, \*afii10044  
16429 \DeclareTextCommand{\CYRHRDSN}{PU}{\84\052}% U+042A  
16430 % U+042B CYRILLIC CAPITAL LETTER YERU; Yericyrillic, \*afii10045  
16431 \DeclareTextCommand{\CYRERY}{PU}{\84\053}% U+042B  
16432 % U+042C CYRILLIC CAPITAL LETTER SOFT SIGN;  
16433 % Softsigncyrillic, \*afii10046  
16434 \DeclareTextCommand{\CYRSFTSN}{PU}{\84\054}% U+042C  
16435 % U+042D CYRILLIC CAPITAL LETTER E; Eversedcyrillic, \*afii10047  
16436 \DeclareTextCommand{\CYREREV}{PU}{\84\055}% U+042D  
16437 % U+042E CYRILLIC CAPITAL LETTER YU; IUCyrillic, \*afii10048  
16438 \DeclareTextCommand{\CYRYU}{PU}{\84\056}% U+042E  
16439 % U+042F CYRILLIC CAPITAL LETTER YA; IACyrillic, \*afii10049  
16440 \DeclareTextCommand{\CYRYA}{PU}{\84\057}% U+042F  
16441 % U+0430 CYRILLIC SMALL LETTER A; acyrillic, \*afii10065  
16442 \DeclareTextCommand{\cyra}{PU}{\84\060}% U+0430  
16443 % U+0431 CYRILLIC SMALL LETTER BE; \*afii10066, becyrillic  
16444 \DeclareTextCommand{\cyrb}{PU}{\84\061}% U+0431  
16445 % U+0432 CYRILLIC SMALL LETTER VE; \*afii10067, vecyrillic  
16446 \DeclareTextCommand{\cyrv}{PU}{\84\062}% U+0432  
16447 % U+0433 CYRILLIC SMALL LETTER GHE; \*afii10068, gecyrillic  
16448 \DeclareTextCommand{\cyrg}{PU}{\84\063}% U+0433  
16449 % U+0434 CYRILLIC SMALL LETTER DE; \*afii10069, decyrillic  
16450 \DeclareTextCommand{\cyrd}{PU}{\84\064}% U+0434  
16451 % U+0435 CYRILLIC SMALL LETTER IE; \*afii10070, iecyrillic  
16452 \DeclareTextCommand{\cyre}{PU}{\84\065}% U+0435  
16453 % U+0436 CYRILLIC SMALL LETTER ZHE; \*afii10072, zhacyrillic  
16454 \DeclareTextCommand{\cyrz}{PU}{\84\066}% U+0436  
16455 % U+0437 CYRILLIC SMALL LETTER ZE; \*afii10073, zecyrillic  
16456 \DeclareTextCommand{\cyrz}{PU}{\84\067}% U+0437  
16457 % U+0438 CYRILLIC SMALL LETTER I; \*afii10074, iicyrillic  
16458 \DeclareTextCommand{\cyri}{PU}{\84\070}% U+0438  
16459 % U+0439 CYRILLIC SMALL LETTER SHORT I; \*afii10075, iishortcyrillic  
16460 \DeclareTextCommand{\cyrishrt}{PU}{\84\071}% U+0439  
16461 \DeclareTextCompositeCommand{\U}{PU}{\cyri}{\84\071}% U+0439  
16462 % U+043A CYRILLIC SMALL LETTER KA; \*afii10076, kacyrillic  
16463 \DeclareTextCommand{\cyrk}{PU}{\84\072}% U+043A  
16464 % U+043B CYRILLIC SMALL LETTER EL; \*afii10077, elcyrillic  
16465 \DeclareTextCommand{\cyrl}{PU}{\84\073}% U+043B  
16466 % U+043C CYRILLIC SMALL LETTER EM; \*afii10078, emcyrillic  
16467 \DeclareTextCommand{\cyrm}{PU}{\84\074}% U+043C  
16468 % U+043D CYRILLIC SMALL LETTER EN; \*afii10079, encyrillic  
16469 \DeclareTextCommand{\cyrn}{PU}{\84\075}% U+043D  
16470 % U+043E CYRILLIC SMALL LETTER O; \*afii10080, ocyrillic  
16471 \DeclareTextCommand{\cyro}{PU}{\84\076}% U+043E  
16472 % U+043F CYRILLIC SMALL LETTER PE; \*afii10081, pecyrillic  
16473 \DeclareTextCommand{\cyrp}{PU}{\84\077}% U+043F

16474 % U+0440 CYRILLIC SMALL LETTER ER; \*afii10082, ercyrillic  
 16475 \DeclareTextCommand{\cyrr}{PU}{\84\100}% U+0440  
 16476 % U+0441 CYRILLIC SMALL LETTER ES; \*afii10083, escyrillic  
 16477 \DeclareTextCommand{\cyr{s}}{PU}{\84\101}% U+0441  
 16478 % U+0442 CYRILLIC SMALL LETTER TE; \*afii10084, tecyrillic  
 16479 \DeclareTextCommand{\cyrt}{PU}{\84\102}% U+0442  
 16480 % U+0443 CYRILLIC SMALL LETTER U; \*afii10085, ucyrillic  
 16481 \DeclareTextCommand{\cyr{u}}{PU}{\84\103}% U+0443  
 16482 % U+0444 CYRILLIC SMALL LETTER EF; \*afii10086, efcyrillic  
 16483 \DeclareTextCommand{\cyr{f}}{PU}{\84\104}% U+0444  
 16484 % U+0445 CYRILLIC SMALL LETTER HA; \*afii10087, khacyrillic  
 16485 \DeclareTextCommand{\cyr{h}}{PU}{\84\105}% U+0445  
 16486 % U+0446 CYRILLIC SMALL LETTER TSE; \*afii10088, tsecyrillic  
 16487 \DeclareTextCommand{\cyr{c}}{PU}{\84\106}% U+0446  
 16488 % U+0447 CYRILLIC SMALL LETTER CHE; \*afii10089, checyrillic  
 16489 \DeclareTextCommand{\cyr{ch}}{PU}{\84\107}% U+0447  
 16490 % U+0448 CYRILLIC SMALL LETTER SHA; \*afii10090, shacyrillic  
 16491 \DeclareTextCommand{\cyr{sh}}{PU}{\84\110}% U+0448  
 16492 % U+0449 CYRILLIC SMALL LETTER SHCHA; \*afii10091, shchacyrillic  
 16493 \DeclareTextCommand{\cyr{shch}}{PU}{\84\111}% U+0449  
 16494 % U+044A CYRILLIC SMALL LETTER HARD SIGN; \*afii10092, hardsigncyrillic  
 16495 \DeclareTextCommand{\cyr{hrdsn}}{PU}{\84\112}% U+044A  
 16496 %\* \cyr{hrdsn} -> \hardsign (tipa)  
 16497 % U+044B CYRILLIC SMALL LETTER YERU; \*afii10093, yericyrillic  
 16498 \DeclareTextCommand{\cyr{ery}}{PU}{\84\113}% U+044B  
 16499 % U+044C CYRILLIC SMALL LETTER SOFT SIGN; \*afii10094, softsigncyrillic  
 16500 \DeclareTextCommand{\cyr{sftsn}}{PU}{\84\114}% U+044C  
 16501 %\* \cyr{sftsn} -> \softsign (tipa)  
 16502 % U+044D CYRILLIC SMALL LETTER E; \*afii10095, ereversedcyrillic  
 16503 \DeclareTextCommand{\cyr{erev}}{PU}{\84\115}% U+044D  
 16504 % U+044E CYRILLIC SMALL LETTER YU; \*afii10096, iucyrillic  
 16505 \DeclareTextCommand{\cyr{yu}}{PU}{\84\116}% U+044E  
 16506 % U+044F CYRILLIC SMALL LETTER YA; \*afii10097, iacyrillic  
 16507 \DeclareTextCommand{\cyr{ya}}{PU}{\84\117}% U+044F  
 16508 % U+0450 CYRILLIC SMALL LETTER IE WITH GRAVE  
 16509 \DeclareTextCompositeCommand{\`}{PU}{\cyre}{\84\120}% U+0450  
 16510 % U+0451 CYRILLIC SMALL LETTER IO; \*afii10071, iocyrillic  
 16511 \DeclareTextCommand{\cyr{yo}}{PU}{\84\121}% U+0451  
 16512 \DeclareTextCompositeCommand{\"}{PU}{\cyre}{\84\121}% U+0451  
 16513 % U+0452 CYRILLIC SMALL LETTER DJE; \*afii10099, djecyrillic  
 16514 \DeclareTextCommand{\cyr{dje}}{PU}{\84\122}% U+0452  
 16515 % U+0453 CYRILLIC SMALL LETTER GJE; \*afii10100, gjecyrillic  
 16516 \DeclareTextCompositeCommand{\'}{PU}{\cyrg}{\84\123}% U+0453  
 16517 % U+0454 CYRILLIC SMALL LETTER UKRAINIAN IE; \*afii10101, ecyrillic  
 16518 \DeclareTextCommand{\cyr{ie}}{PU}{\84\124}% U+0454  
 16519 % U+0455 CYRILLIC SMALL LETTER DZE; \*afii10102, dzecyrillic  
 16520 \DeclareTextCommand{\cyr{dze}}{PU}{\84\125}% U+0455  
 16521 % U+0456 CYRILLIC SMALL LETTER BYELORUSSIAN-UKRAINIAN I;  
 16522 % \*afii10103, icyrillic  
 16523 \DeclareTextCommand{\cyr{i}}{PU}{\84\126}% U+0456  
 16524 % U+0457 CYRILLIC SMALL LETTER YI; \*afii10104, yicyrillic  
 16525 \DeclareTextCommand{\cyr{yi}}{PU}{\84\127}% U+0457  
 16526 \DeclareTextCompositeCommand{\"}{PU}{\cyr{i}}{\84\127}% U+0457

16527 % U+0458 CYRILLIC SMALL LETTER JE; \*afii10105, jecyrillic  
 16528 \DeclareTextCommand{\cyrje}{PU}{\84\130}% U+0458  
 16529 % U+0459 CYRILLIC SMALL LETTER LJE; \*afii10106, ljecyrillic  
 16530 \DeclareTextCommand{\cyrkje}{PU}{\84\131}% U+0459  
 16531 % U+045A CYRILLIC SMALL LETTER NJE; \*afii10107, njecyrillic  
 16532 \DeclareTextCommand{\cyrnje}{PU}{\84\132}% U+045A  
 16533 % U+045B CYRILLIC SMALL LETTER TSHE; \*afii10108, tshecyrillic  
 16534 \DeclareTextCommand{\cyrtshe}{PU}{\84\133}% U+045B  
 16535 % U+045C CYRILLIC SMALL LETTER KJE; \*afii10109, kjecyrillic  
 16536 \DeclareTextCompositeCommand{\'}{PU}{\cyrk}{\84\134}% U+045C  
 16537 % U+045D CYRILLIC SMALL LETTER I WITH GRAVE  
 16538 \DeclareTextCompositeCommand{\`}{PU}{\cyri}{\84\135}% U+045D  
 16539 % U+045E CYRILLIC SMALL LETTER SHORT U; \*afii10110, ushortcyrillic  
 16540 \DeclareTextCommand{\cyrushrt}{PU}{\84\136}% U+045E  
 16541 \DeclareTextCompositeCommand{\U}{PU}{\curu}{\84\136}% U+045E  
 16542 % U+045F CYRILLIC SMALL LETTER DZHE; \*afii10193, dzhecyrillic  
 16543 \DeclareTextCommand{\cyrdzhe}{PU}{\84\137}% U+045F  
 16544 % U+0460 CYRILLIC CAPITAL LETTER OMEGA; Omegacyrillic  
 16545 \DeclareTextCommand{\CYROMEGA}{PU}{\84\140}% U+0460  
 16546 % U+0461 CYRILLIC SMALL LETTER OMEGA; omegacyrillic  
 16547 \DeclareTextCommand{\cyromega}{PU}{\84\141}% U+0461  
 16548 % U+0462 CYRILLIC CAPITAL LETTER YAT; Yatcyrillic, \*afii10146  
 16549 \DeclareTextCommand{\CYRYAT}{PU}{\84\142}% U+0462  
 16550 % U+0463 CYRILLIC SMALL LETTER YAT; \*afii10194, yatcyrillic  
 16551 \DeclareTextCommand{\cyryat}{PU}{\84\143}% U+0463  
 16552 % U+0464 CYRILLIC CAPITAL LETTER IOTIFIED E; Eiotifiedcyrillic  
 16553 \DeclareTextCommand{\CYRIOTE}{PU}{\84\144}% U+0464  
 16554 % U+0465 CYRILLIC SMALL LETTER IOTIFIED E; eiotifiedcyrillic  
 16555 \DeclareTextCommand{\cyriote}{PU}{\84\145}% U+0465  
 16556 % U+0466 CYRILLIC CAPITAL LETTER LITTLE YUS; Yuslittlecyrillic  
 16557 \DeclareTextCommand{\CYRLYUS}{PU}{\84\146}% U+0466  
 16558 % U+0467 CYRILLIC SMALL LETTER LITTLE YUS; yuslittlecyrillic  
 16559 \DeclareTextCommand{\cyrlyus}{PU}{\84\147}% U+0467  
 16560 % U+0468 CYRILLIC CAPITAL LETTER IOTIFIED LITTLE YUS; Yuslitlei-  
 otifiedcyrillic  
 16561 \DeclareTextCommand{\CYRIOTLYUS}{PU}{\84\150}% U+0468  
 16562 % U+0469 CYRILLIC SMALL LETTER IOTIFIED LITTLE YUS; yuslitleioti-  
 fiedcyrillic  
 16563 \DeclareTextCommand{\cyriotlyus}{PU}{\84\151}% U+0469  
 16564 % U+046A CYRILLIC CAPITAL LETTER BIG YUS; Yusbigcyrillic  
 16565 \DeclareTextCommand{\CYRBYUS}{PU}{\84\152}% U+046A  
 16566 % U+046B CYRILLIC SMALL LETTER BIG YUS; yusbigcyrillic  
 16567 \DeclareTextCommand{\cyrbyus}{PU}{\84\153}% U+046B  
 16568 % U+046C CYRILLIC CAPITAL LETTER IOTIFIED BIG YUS; Yusbigiotified-  
 cyrillic  
 16569 \DeclareTextCommand{\CYRIOTBYUS}{PU}{\84\154}% U+046C  
 16570 % U+046D CYRILLIC SMALL LETTER IOTIFIED BIG YUS; yusbigiotified-  
 cyrillic  
 16571 \DeclareTextCommand{\cyriotbyus}{PU}{\84\155}% U+046D  
 16572 % U+046E CYRILLIC CAPITAL LETTER KSI; Ksicyrillic  
 16573 \DeclareTextCommand{\CYRKSI}{PU}{\84\156}% U+046E  
 16574 % U+046F CYRILLIC SMALL LETTER KSI; ksicyrillic  
 16575 \DeclareTextCommand{\cyrksi}{PU}{\84\157}% U+046F  
 16576 % U+0470 CYRILLIC CAPITAL LETTER PSI; Psicyrillic

16577 \DeclareTextCommand{\CYRPSI}{PU}{\84\160}% U+0470  
 16578 % U+0471 CYRILLIC SMALL LETTER PSI; psicyrillic  
 16579 \DeclareTextCommand{\cyrpsi}{PU}{\84\161}% U+0471  
 16580 % U+0472 CYRILLIC CAPITAL LETTER FITA; Fitacyrillic, \*afii10147  
 16581 \DeclareTextCommand{\CYRFITA}{PU}{\84\162}% U+0472  
 16582 % U+0473 CYRILLIC SMALL LETTER FITA; \*afii10195, fitacyrillic  
 16583 \DeclareTextCommand{\cyrfita}{PU}{\84\163}% U+0473  
 16584 % U+0474 CYRILLIC CAPITAL LETTER IZHITSA; Izhitsacyrillic, \*afii10148  
 16585 \DeclareTextCommand{\CYRIZH}{PU}{\84\164}% U+0474  
 16586 % U+0475 CYRILLIC SMALL LETTER IZHITSA; \*afii10196, izhitsacyrillic  
 16587 \DeclareTextCommand{\cyrizh}{PU}{\84\165}% U+0475  
 16588 % U+0476 CYRILLIC CAPITAL LETTER IZHITSA WITH DOUBLE  
 16589 % GRAVE ACCENT; Izhitsadblgravecyrillic  
 16590 \DeclareTextCompositeCommand{\C}{PU}{\CYRIZH}{\84\166}% U+0476  
 16591 % U+0477 CYRILLIC SMALL LETTER IZHITSA WITH DOUBLE  
 16592 % GRAVE ACCENT; izhitsadblgravecyrillic  
 16593 \DeclareTextCompositeCommand{\C}{PU}{\cyrizh}{\84\167}% U+0477  
 16594 % U+0478 CYRILLIC CAPITAL LETTER UK; Ukcyrillic  
 16595 \DeclareTextCommand{\CYRUK}{PU}{\84\170}% U+0478  
 16596 % U+0479 CYRILLIC SMALL LETTER UK; ukcyrillic  
 16597 \DeclareTextCommand{\cyruk}{PU}{\84\171}% U+0479  
 16598 % U+047A CYRILLIC CAPITAL LETTER ROUND OMEGA; Omegaroundcyril-  
 lic  
 16599 \DeclareTextCommand{\CYROMEGARND}{PU}{\84\172}% U+047A  
 16600 % U+047B CYRILLIC SMALL LETTER ROUND OMEGA; omegaroundcyrillic  
 16601 \DeclareTextCommand{\cyromegarnd}{PU}{\84\173}% U+047B  
 16602 % U+047C CYRILLIC CAPITAL LETTER OMEGA WITH TITLO; Omegatit-  
 locyrillic  
 16603 \DeclareTextCommand{\CYROMEGATITLO}{PU}{\84\174}% U+047C  
 16604 % U+047D CYRILLIC SMALL LETTER OMEGA WITH TITLO; omegatitlo-  
 cyrillic  
 16605 \DeclareTextCommand{\cyromegatitlo}{PU}{\84\175}% U+047D  
 16606 % U+047E CYRILLIC CAPITAL LETTER OT; Otcyrillic  
 16607 \DeclareTextCommand{\CYROT}{PU}{\84\176}% U+047E  
 16608 % U+047F CYRILLIC SMALL LETTER OT; otcyrillic  
 16609 \DeclareTextCommand{\cyrot}{PU}{\84\177}% U+047F  
 16610 % U+0480 CYRILLIC CAPITAL LETTER KOPPA; Koppacyrillic  
 16611 \DeclareTextCommand{\CYRKOPPA}{PU}{\84\200}% U+0480  
 16612 % U+0481 CYRILLIC SMALL LETTER KOPPA; koppacyrillic  
 16613 \DeclareTextCommand{\cyrkoppa}{PU}{\84\201}% U+0481  
 16614 % U+0482 CYRILLIC THOUSANDS SIGN; thousandcyrillic  
 16615 \DeclareTextCommand{\cyrthousands}{PU}{\84\202}% U+0482  
 \84\203: U+0483 COMBINING CYRILLIC TITLO; titlocyrilliccmb  
 \84\204: U+0484 COMBINING CYRILLIC PALATALIZATION; palatalization-  
 cyrilliccmb  
 \84\205: U+0485 COMBINING CYRILLIC DASIA PNEUMATA; dasiapneu-  
 matacyrilliccmb  
 \84\206: U+0486 COMBINING CYRILLIC PSILI PNEUMATA; psilipneumat-  
 acyrilliccmb  
 \84\207: U+0487 COMBINING CYRILLIC POKRYTIE  
 \84\210: U+0488 COMBINING CYRILLIC HUNDRED THOUSANDS SIGN  
 \84\211: U+0489 COMBINING CYRILLIC MILLIONS SIGN  
 16616 % U+048A CYRILLIC CAPITAL LETTER SHORT I WITH TAIL

16617 \DeclareTextCommand{\CYRISHRTDSC}{PU}{\84\212}% U+048A  
16618 % U+048B CYRILLIC SMALL LETTER SHORT I WITH TAIL  
16619 \DeclareTextCommand{\cyrishrtdsc}{PU}{\84\213}% U+048B  
16620 % U+048C CYRILLIC CAPITAL LETTER SEMISOFT SIGN  
16621 \DeclareTextCommand{\CYRSEMISFTSN}{PU}{\84\214}% U+048C  
16622 % U+048D CYRILLIC SMALL LETTER SEMISOFT SIGN  
16623 \DeclareTextCommand{\cyrsemisftsn}{PU}{\84\215}% U+048D  
16624 % U+048E CYRILLIC CAPITAL LETTER ER WITH TICK  
16625 \DeclareTextCommand{\CYRRTICK}{PU}{\84\216}% U+048E  
16626 % U+048F CYRILLIC SMALL LETTER ER WITH TICK  
16627 \DeclareTextCommand{\cyrrtick}{PU}{\84\217}% U+048F  
16628 % U+0490 CYRILLIC CAPITAL LETTER GHE WITH UPTURN; Gheupturn-  
cyrillic, \*afii10050  
16629 \DeclareTextCommand{\CYRGUP}{PU}{\84\220}% U+0490  
16630 % U+0491 CYRILLIC SMALL LETTER GHE WITH UPTURN; \*afii10098, ghe-  
upturncyrillic  
16631 \DeclareTextCommand{\cyrgup}{PU}{\84\221}% U+0491  
16632 % U+0492 CYRILLIC CAPITAL LETTER GHE WITH STROKE; Ghestroke-  
cyrillic  
16633 \DeclareTextCommand{\CYRGHCRS}{PU}{\84\222}% U+0492  
16634 % U+0493 CYRILLIC SMALL LETTER GHE WITH STROKE; ghestrokecyrillic  
16635 \DeclareTextCommand{\cyrghcrs}{PU}{\84\223}% U+0493  
16636 % U+0494 CYRILLIC CAPITAL LETTER GHE WITH MIDDLE HOOK;  
16637 % Ghemiddlehookcyrillic  
16638 \DeclareTextCommand{\CYRGHK}{PU}{\84\224}% U+0494  
16639 % U+0495 CYRILLIC SMALL LETTER GHE WITH MIDDLE HOOK;  
16640 % ghemiddlehookcyrillic  
16641 \DeclareTextCommand{\cyrghk}{PU}{\84\225}% U+0495  
16642 % U+0496 CYRILLIC CAPITAL LETTER ZHE WITH DESCENDER;  
16643 % Zhedescendercyrillic  
16644 \DeclareTextCommand{\CYRZHDSC}{PU}{\84\226}% U+0496  
16645 % U+0497 CYRILLIC SMALL LETTER ZHE WITH DESCENDER;  
16646 % zhedescendercyrillic  
16647 \DeclareTextCommand{\cyrzhdsc}{PU}{\84\227}% U+0497  
16648 % U+0498 CYRILLIC CAPITAL LETTER ZE WITH DESCENDER; Zedescen-  
dercyrillic  
16649 \DeclareTextCommand{\CYRZDSC}{PU}{\84\230}% U+0498  
16650 \DeclareTextCompositeCommand{\c}{PU}{\CYRZ}{\84\230}% U+0498  
16651 % U+0499 CYRILLIC SMALL LETTER ZE WITH DESCENDER; zedescender-  
cyrillic  
16652 \DeclareTextCommand{\cyrzdsc}{PU}{\84\231}% U+0499  
16653 \DeclareTextCompositeCommand{\c}{PU}{\cyrz}{\84\231}% U+0499  
16654 % U+049A CYRILLIC CAPITAL LETTER KA WITH DESCENDER; Kadescen-  
dercyrillic  
16655 \DeclareTextCommand{\CYRKDSC}{PU}{\84\232}% U+049A  
16656 % U+049B CYRILLIC SMALL LETTER KA WITH DESCENDER; kadescen-  
dercyrillic  
16657 \DeclareTextCommand{\cyrkdsc}{PU}{\84\233}% U+049B  
16658 % U+049C CYRILLIC CAPITAL LETTER KA WITH VERTICAL STROKE;  
16659 % Kavertikalstrokecyrillic  
16660 \DeclareTextCommand{\CYRKVCRS}{PU}{\84\234}% U+049C  
16661 % U+049D CYRILLIC SMALL LETTER KA WITH VERTICAL STROKE;  
16662 % kavertikalstrokecyrillic  
16663 \DeclareTextCommand{\cyrkvcrs}{PU}{\84\235}% U+049D

16664 % U+049E CYRILLIC CAPITAL LETTER KA WITH STROKE; Kastrokecyrillic  
 16665 \DeclareTextCommand{\CYRKHCRS}{PU}{\84\236}% U+049E  
 16666 % U+049F CYRILLIC SMALL LETTER KA WITH STROKE; kastrokecyrillic  
 16667 \DeclareTextCommand{\cyrkhrs}{PU}{\84\237}% U+049F  
 16668 % U+04A0 CYRILLIC CAPITAL LETTER BASHKIR KA; Kabashkircyrillic  
 16669 \DeclareTextCommand{\CYRKBEAK}{PU}{\84\240}% U+04A0  
 16670 % U+04A1 CYRILLIC SMALL LETTER BASHKIR KA; kabashkircyrillic  
 16671 \DeclareTextCommand{\cyrkbeak}{PU}{\84\241}% U+04A1  
 16672 % U+04A2 CYRILLIC CAPITAL LETTER EN WITH DESCENDER; Endescen-  
 dercyrillic  
 16673 \DeclareTextCommand{\CYRNDSC}{PU}{\84\242}% U+04A2  
 16674 % U+04A3 CYRILLIC SMALL LETTER EN WITH DESCENDER; endescender-  
 cyrillic  
 16675 \DeclareTextCommand{\cyrndsc}{PU}{\84\243}% U+04A3  
 16676 % U+04A4 CYRILLIC CAPITAL LIGATURE EN GHE; Enghecyrillic  
 16677 \DeclareTextCommand{\CYRNG}{PU}{\84\244}% U+04A4  
 16678 % U+04A5 CYRILLIC SMALL LIGATURE EN GHE; enghecyrillic  
 16679 \DeclareTextCommand{\cyrng}{PU}{\84\245}% U+04A5  
 16680 % U+04A6 CYRILLIC CAPITAL LETTER PE WITH MIDDLE HOOK; Pemid-  
 dlehookcyrillic  
 16681 \DeclareTextCommand{\CYRPHK}{PU}{\84\246}% U+04A6  
 16682 % U+04A7 CYRILLIC SMALL LETTER PE WITH MIDDLE HOOK; pemiddle-  
 hookcyrillic  
 16683 \DeclareTextCommand{\cyrphk}{PU}{\84\247}% U+04A7  
 16684 % U+04A8 CYRILLIC CAPITAL LETTER ABKHASIAN HA; Haabkhasiancyril-  
 lic  
 16685 \DeclareTextCommand{\CYRABHHA}{PU}{\84\250}% U+04A8  
 16686 % U+04A9 CYRILLIC SMALL LETTER ABKHASIAN HA; haabkhasiancyrillic  
 16687 \DeclareTextCommand{\cyrabhha}{PU}{\84\251}% U+04A9  
 16688 % U+04AA CYRILLIC CAPITAL LETTER ES WITH DESCENDER; Esdescen-  
 dercyrillic  
 16689 \DeclareTextCommand{\CYRSDSC}{PU}{\84\252}% U+04AA  
 16690 \DeclareTextCompositeCommand{\CYRSDSC}{PU}{\CYRS}{\84\252}% U+04AA  
 16691 % U+04AB CYRILLIC SMALL LETTER ES WITH DESCENDER; esdescender-  
 cyrillic  
 16692 \DeclareTextCommand{\cyrsdsc}{PU}{\84\253}% U+04AB  
 16693 \DeclareTextCompositeCommand{\k}{PU}{\cyr}{\84\253}% U+04AB  
 16694 % U+04AC CYRILLIC CAPITAL LETTER TE WITH DESCENDER; Tedescen-  
 dercyrillic  
 16695 \DeclareTextCommand{\CYRTDSC}{PU}{\84\254}% U+04AC  
 16696 % U+04AD CYRILLIC SMALL LETTER TE WITH DESCENDER; tedescen-  
 dercyrillic  
 16697 \DeclareTextCommand{\cyrtddsc}{PU}{\84\255}% U+04AD  
 16698 % U+04AE CYRILLIC CAPITAL LETTER STRAIGHT U; Ustraightcyrillic  
 16699 \DeclareTextCommand{\CYRY}{PU}{\84\256}% U+04AE  
 16700 % U+04AF CYRILLIC SMALL LETTER STRAIGHT U; ustraightcyrillic  
 16701 \DeclareTextCommand{\cyry}{PU}{\84\257}% U+04AF  
 16702 % U+04B0 CYRILLIC CAPITAL LETTER STRAIGHT U WITH STROKE; Us-  
 traightstrokecyrillic  
 16703 \DeclareTextCommand{\CYRYHCRS}{PU}{\84\260}% U+04B0  
 16704 % U+04B1 CYRILLIC SMALL LETTER STRAIGHT U WITH STROKE; us-  
 traightstrokecyrillic  
 16705 \DeclareTextCommand{\cyryhcrs}{PU}{\84\261}% U+04B1  
 16706 % U+04B2 CYRILLIC CAPITAL LETTER HA WITH DESCENDER; Hadescen-

dercyrillic  
 16707 \DeclareTextCommand{\CYRHDSC}{PU}{\84\262}% U+04B2  
 16708 % U+04B3 CYRILLIC SMALL LETTER HA WITH DESCENDER; hadescen-  
 dercyrillic  
 16709 \DeclareTextCommand{\cyrhdsc}{PU}{\84\263}% U+04B3  
 16710 % U+04B4 CYRILLIC CAPITAL LIGATURE TE TSE; Tetsecyrillic  
 16711 \DeclareTextCommand{\CYRTETSE}{PU}{\84\264}% U+04B4  
 16712 % U+04B5 CYRILLIC SMALL LIGATURE TE TSE; tetsecyrillic  
 16713 \DeclareTextCommand{\cyrtetse}{PU}{\84\265}% U+04B5  
 16714 % U+04B6 CYRILLIC CAPITAL LETTER CHE WITH DESCENDER;  
 16715 % Chedescendercyrillic  
 16716 \DeclareTextCommand{\CYRCHRDSC}{PU}{\84\266}% U+04B6  
 16717 % U+04B7 CYRILLIC SMALL LETTER CHE WITH DESCENDER; chedescen-  
 dercyrillic  
 16718 \DeclareTextCommand{\cyrchrdsc}{PU}{\84\267}% U+04B7  
 16719 % U+04B8 CYRILLIC CAPITAL LETTER CHE WITH VERTICAL STROKE;  
 16720 % Cheverticalstrokecyrillic  
 16721 \DeclareTextCommand{\CYRCHVCRS}{PU}{\84\270}% U+04B8  
 16722 % U+04B9 CYRILLIC SMALL LETTER CHE WITH VERTICAL STROKE;  
 16723 % cheverticalstrokecyrillic  
 16724 \DeclareTextCommand{\cyrchvcrs}{PU}{\84\271}% U+04B9  
 16725 % U+04BA CYRILLIC CAPITAL LETTER SHHA; Shhacyrillic  
 16726 \DeclareTextCommand{\CYRSHHA}{PU}{\84\272}% U+04BA  
 16727 % U+04BB CYRILLIC SMALL LETTER SHHA; shhacyrillic  
 16728 \DeclareTextCommand{\cyrshha}{PU}{\84\273}% U+04BB  
 16729 % U+04BC CYRILLIC CAPITAL LETTER ABKHASIAN CHE; Cheabkhasian-  
 cyrillic  
 16730 \DeclareTextCommand{\CYRABHCH}{PU}{\84\274}% U+04BC  
 16731 % U+04BD CYRILLIC SMALL LETTER ABKHASIAN CHE; cheabkhasiancyril-  
 lic  
 16732 \DeclareTextCommand{\cyrabhch}{PU}{\84\275}% U+04BD  
 16733 % U+04BE CYRILLIC CAPITAL LETTER ABKHASIAN CHE WITH DESCEN-  
 DER; Chedescenderabkhasiancyrillic  
 16734 \DeclareTextCommand{\CYRABHCHDSC}{PU}{\84\276}% U+04BE  
 16735 \DeclareTextCompositeCommand{\k}{PU}{\CYRABHCH}{\84\276}% U+04BE  
 16736 % U+04BF CYRILLIC SMALL LETTER ABKHASIAN CHE WITH DESCEN-  
 DER; chedescenderabkhasiancyrillic  
 16737 \DeclareTextCommand{\cyrabhchdsc}{PU}{\84\277}% U+04BF  
 16738 \DeclareTextCompositeCommand{\k}{PU}{\cyrabhch}{\84\277}% U+04BF  
 16739 % U+04C0 CYRILLIC LETTER PALOCHKA; palochkacyrillic  
 16740 \DeclareTextCommand{\CYRpalochka}{PU}{\84\300}% U+04C0  
 16741 % U+04C1 CYRILLIC CAPITAL LETTER ZHE WITH BREVE; Zhebrevecyrillic  
 16742 \DeclareTextCompositeCommand{\U}{PU}{\CYRZH}{\84\301}% U+04C1  
 16743 % U+04C2 CYRILLIC SMALL LETTER ZHE WITH BREVE; zhebrevecyrillic  
 16744 \DeclareTextCompositeCommand{\U}{PU}{\cyrzh}{\84\302}% U+04C2  
 16745 % U+04C3 CYRILLIC CAPITAL LETTER KA WITH HOOK; Kahookcyrillic  
 16746 \DeclareTextCommand{\CYRKHK}{PU}{\84\303}% U+04C3  
 16747 % U+04C4 CYRILLIC SMALL LETTER KA WITH HOOK; kahookcyrillic  
 16748 \DeclareTextCommand{\cyrkhk}{PU}{\84\304}% U+04C4  
 16749 % U+04C5 CYRILLIC CAPITAL LETTER EL WITH TAIL  
 16750 \DeclareTextCommand{\CYRLDSC}{PU}{\84\305}% U+04C5  
 16751 % U+04C6 CYRILLIC SMALL LETTER EL WITH TAIL  
 16752 \DeclareTextCommand{\cyrldsc}{PU}{\84\306}% U+04C6  
 16753 % U+04C7 CYRILLIC CAPITAL LETTER EN WITH HOOK; Enhookcyrillic



16754 \DeclareTextCommand{\CYRNHK}{PU}{\84\307}% U+04C7  
 16755 % U+04C8 CYRILLIC SMALL LETTER EN WITH HOOK; enhookcyrillic  
 16756 \DeclareTextCommand{\cyrnhk}{PU}{\84\310}% U+04C8  
 16757 % U+04CB CYRILLIC CAPITAL LETTER KHAKASSIAN CHE; Chekhakas-  
 siancyrillic  
 16758 \DeclareTextCommand{\CYRCHLDSC}{PU}{\84\313}% U+04CB  
 16759 % U+04CC CYRILLIC SMALL LETTER KHAKASSIAN CHE; chekhakassian-  
 cyrillic  
 16760 \DeclareTextCommand{\cyrchldsc}{PU}{\84\314}% U+04CC  
 16761 % U+04CD CYRILLIC CAPITAL LETTER EM WITH TAIL  
 16762 \DeclareTextCommand{\CYRMDSC}{PU}{\84\315}% U+04CD  
 16763 % U+04CE CYRILLIC SMALL LETTER EM WITH TAIL  
 16764 \DeclareTextCommand{\cyrmdsc}{PU}{\84\316}% U+04CE  
 \84\317: U+04CF CYRILLIC SMALL LETTER PALOCHKA  
 16765 % U+04D0 CYRILLIC CAPITAL LETTER A WITH BREVE; Abrevcyrillic  
 16766 \DeclareTextCompositeCommand{\U}{PU}{\CYRA}{\84\320}% U+04D0  
 16767 % U+04D1 CYRILLIC SMALL LETTER A WITH BREVE; abrevcyrillic  
 16768 \DeclareTextCompositeCommand{\U}{PU}{\cyra}{\84\321}% U+04D1  
 16769 % U+04D2 CYRILLIC CAPITAL LETTER A WITH DIAERESIS; Adieresiscyri-  
 lic  
 16770 \DeclareTextCompositeCommand{\U}{PU}{\CYRA}{\84\322}% U+04D2  
 16771 % U+04D3 CYRILLIC SMALL LETTER A WITH DIAERESIS; adieresiscyrillic  
 16772 \DeclareTextCompositeCommand{\U}{PU}{\cyra}{\84\323}% U+04D3  
 16773 % U+04D4 CYRILLIC CAPITAL LIGATURE A IE; Aiecyrillic  
 16774 \DeclareTextCommand{\CYRAE}{PU}{\84\324}% U+04D4  
 16775 % U+04D5 CYRILLIC SMALL LIGATURE A IE; aiecyrillic  
 16776 \DeclareTextCommand{\cyrae}{PU}{\84\325}% U+04D5  
 16777 % U+04D6 CYRILLIC CAPITAL LETTER IE WITH BREVE; Iebrevcyrillic  
 16778 \DeclareTextCompositeCommand{\U}{PU}{\CYRE}{\84\326}% U+04D6  
 16779 % U+04D7 CYRILLIC SMALL LETTER IE WITH BREVE; iebrevcyrillic  
 16780 \DeclareTextCompositeCommand{\U}{PU}{\cyre}{\84\327}% U+04D7  
 16781 % U+04D8 CYRILLIC CAPITAL LETTER SCHWA; Schwacyrillic  
 16782 \DeclareTextCommand{\CYRSCHWA}{PU}{\84\330}% U+04D8  
 16783 % U+04D9 CYRILLIC SMALL LETTER SCHWA; \*afii10846, schwacyrillic  
 16784 \DeclareTextCommand{\cyrschwa}{PU}{\84\331}% U+04D9  
 16785 % U+04DA CYRILLIC CAPITAL LETTER SCHWA WITH DIAERESIS;  
 16786 % Schwadiescyrillic  
 16787 \DeclareTextCompositeCommand{\U}{PU}{\CYRSCHWA}{\84\332}% U+04DA  
 16788 % U+04DB CYRILLIC SMALL LETTER SCHWA WITH DIAERESIS;  
 16789 % schwadiescyrillic  
 16790 \DeclareTextCompositeCommand{\U}{PU}{\cyrschwa}{\84\333}% U+04DB  
 16791 % U+04DC CYRILLIC CAPITAL LETTER ZHE WITH DIAERESIS; Zhediere-  
 siscyrillic  
 16792 \DeclareTextCompositeCommand{\U}{PU}{\CYRZH}{\84\334}% U+04DC  
 16793 % U+04DD CYRILLIC SMALL LETTER ZHE WITH DIAERESIS; zhedieres-  
 cyrillic  
 16794 \DeclareTextCompositeCommand{\U}{PU}{\cyrzh}{\84\335}% U+04DD  
 16795 % U+04DE CYRILLIC CAPITAL LETTER ZE WITH DIAERESIS; Zedieres-  
 cyrillic  
 16796 \DeclareTextCompositeCommand{\U}{PU}{\CYRZ}{\84\336}% U+04DE  
 16797 % U+04DF CYRILLIC SMALL LETTER ZE WITH DIAERESIS; zedieresicyril-  
 lic  
 16798 \DeclareTextCompositeCommand{\U}{PU}{\cyrz}{\84\337}% U+04DF  
 16799 % U+04E0 CYRILLIC CAPITAL LETTER ABKHASIAN DZE; Dzeabkhasian-

cyrillic

16800 \DeclareTextCommand{\CYRABHDZE}{PU}{\84\340}% U+04E0

16801 % U+04E1 CYRILLIC SMALL LETTER ABKHASIAN DZE; dzeabkhasiancyrillic

16802 \DeclareTextCommand{\cyrabhdze}{PU}{\84\341}% U+04E1

16803 % U+04E2 CYRILLIC CAPITAL LETTER I WITH MACRON; Imacroncyrillic

16804 \DeclareTextCompositeCommand{\=}{PU}{\CYRI}{\84\342}% U+04E2

16805 % U+04E3 CYRILLIC SMALL LETTER I WITH MACRON; imacroncyrillic

16806 \DeclareTextCompositeCommand{\=}{PU}{\cyri}{\84\343}% U+04E3

16807 % U+04E4 CYRILLIC CAPITAL LETTER I WITH DIAERESIS; Idieresiscyrillic

16808 \DeclareTextCompositeCommand{\"}{PU}{\CYRI}{\84\344}% U+04E4

16809 % U+04E5 CYRILLIC SMALL LETTER I WITH DIAERESIS; idieresiscyrillic

16810 \DeclareTextCompositeCommand{\"}{PU}{\cyri}{\84\345}% U+04E5

16811 % U+04E6 CYRILLIC CAPITAL LETTER O WITH DIAERESIS; Odieresiscyrillic

16812 \DeclareTextCompositeCommand{\"}{PU}{\CYRO}{\84\346}% U+04E6

16813 % U+04E7 CYRILLIC SMALL LETTER O WITH DIAERESIS; odieresiscyrillic

16814 \DeclareTextCompositeCommand{\"}{PU}{\cyro}{\84\347}% U+04E7

16815 % U+04E8 CYRILLIC CAPITAL LETTER BARRED O; Obarredcyrillic

16816 \DeclareTextCommand{\CYROTLD}{PU}{\84\350}% U+04E8

16817 % U+04E9 CYRILLIC SMALL LETTER BARRED O; obarredcyrillic

16818 \DeclareTextCommand{\cyrotld}{PU}{\84\351}% U+04E9

16819 % U+04EA CYRILLIC CAPITAL LETTER BARRED O WITH DIAERESIS;

16820 % Obarreddieresiscyrillic

16821 \DeclareTextCompositeCommand{\"}{PU}{\CYROTLD}{\84\352}% U+04EA

16822 % U+04EB CYRILLIC SMALL LETTER BARRED O WITH DIAERESIS;

16823 % obarreddieresiscyrillic

16824 \DeclareTextCompositeCommand{\"}{PU}{\cyrotld}{\84\353}% U+04EB

16825 % U+04EC CYRILLIC CAPITAL LETTER E WITH DIAERESIS

16826 \DeclareTextCompositeCommand{\"}{PU}{\CYREREV}{\84\354}% U+04EC

16827 % U+04ED CYRILLIC SMALL LETTER E WITH DIAERESIS

16828 \DeclareTextCompositeCommand{\"}{PU}{\cyreref}{\84\355}% U+04ED

16829 % U+04EE CYRILLIC CAPITAL LETTER U WITH MACRON; Umacroncyrillic

16830 \DeclareTextCompositeCommand{\=}{PU}{\CYRU}{\84\356}% U+04EE

16831 % U+04EF CYRILLIC SMALL LETTER U WITH MACRON; umacroncyrillic

16832 \DeclareTextCompositeCommand{\=}{PU}{\cyru}{\84\357}% U+04EF

16833 % U+04F0 CYRILLIC CAPITAL LETTER U WITH DIAERESIS; Udieresiscyrillic

16834 \DeclareTextCompositeCommand{\"}{PU}{\CYRU}{\84\360}% U+04F0

16835 % U+04F1 CYRILLIC SMALL LETTER U WITH DIAERESIS; udieresiscyrillic

16836 \DeclareTextCompositeCommand{\"}{PU}{\cyru}{\84\361}% U+04F1

16837 % U+04F2 CYRILLIC CAPITAL LETTER U WITH DOUBLE ACUTE; Uhungarumlautcyrillic

16838 \DeclareTextCompositeCommand{\H}{PU}{\CYRU}{\84\362}% U+04F2

16839 % U+04F3 CYRILLIC SMALL LETTER U WITH DOUBLE ACUTE; uhungarumlautcyrillic

16840 \DeclareTextCompositeCommand{\H}{PU}{\cyru}{\84\363}% U+04F3

16841 % U+04F4 CYRILLIC CAPITAL LETTER CHE WITH DIAERESIS; Chedieresiscyrillic

16842 \DeclareTextCompositeCommand{\"}{PU}{\CYRCH}{\84\364}% U+04F4

16843 % U+04F5 CYRILLIC SMALL LETTER CHE WITH DIAERESIS; chedieresiscyrillic

16844 \DeclareTextCompositeCommand{\"}{PU}{\cyrch}{\84\365}% U+04F5

16845 % U+04F6 CYRILLIC CAPITAL LETTER GHE WITH DESCENDER

```

16846 \DeclareTextCommand{\CYRGDSC}{PU}{\84\366}% U+04F6
16847 % U+04F7 CYRILLIC SMALL LETTER GHE WITH DESCENDER
16848 \DeclareTextCommand{\cyrgdsc}{PU}{\84\367}% U+04F7
16849 % U+04F8 CYRILLIC CAPITAL LETTER YERU WITH DIAERESIS; Yerudiere-
      siscyrillic
16850 \DeclareTextCompositeCommand{"}{PU}{\CYRERY}{\84\370}% U+04F8
16851 % U+04F9 CYRILLIC SMALL LETTER YERU WITH DIAERESIS; yerudiere-
      siscyrillic
16852 \DeclareTextCompositeCommand{"}{PU}{\cyrery}{\84\371}% U+04F9
\84\372: U+04FA CYRILLIC CAPITAL LETTER GHE WITH STROKE AND
HOOK
\84\373: U+04FB CYRILLIC SMALL LETTER GHE WITH STROKE AND
HOOK
16853 % U+04FC CYRILLIC CAPITAL LETTER HA WITH HOOK
16854 \DeclareTextCommand{\CYRHHK}{PU}{\84\374}% U+04FC
16855 % U+04FD CYRILLIC SMALL LETTER HA WITH HOOK
16856 \DeclareTextCommand{\cyrrhk}{PU}{\84\375}% U+04FD
16857 \fi
\84\376: U+04FE CYRILLIC CAPITAL LETTER HA WITH STROKE
\84\377: U+04FF CYRILLIC SMALL LETTER HA WITH STROKE

```

#### 47.2.11 Hebrew: U+0590 to U+05FF

Macro names are taken from `he8enc.def`. `hebrew` is only loaded if `\hebdalet` is defined

```

16858 \ifx\hebdalet\@undefined\else
16859 % U+05C3 HEBREW PUNCTUATION SOF PASUQ
16860 \DeclareTextCommand{\sofpasuq}{PU}{\85\303}% U+05C3
16861 % U+05D0 HEBREW LETTER ALEF
16862 \DeclareTextCommand{\hebalef}{PU}{\85\320}% U+05D0
16863 % U+05D1 HEBREW LETTER BET
16864 \DeclareTextCommand{\hebbet}{PU}{\85\321}% U+05D1
16865 % U+05D2 HEBREW LETTER GIMEL
16866 \DeclareTextCommand{\hebgimel}{PU}{\85\322}% U+05D2
16867 % U+05D3 HEBREW LETTER DALET
16868 \DeclareTextCommand{\hebdalet}{PU}{\85\323}% U+05D3
16869 % U+05D4 HEBREW LETTER HE
16870 \DeclareTextCommand{\hebhe}{PU}{\85\324}% U+05D4
16871 % U+05D5 HEBREW LETTER VAV
16872 \DeclareTextCommand{\hebvav}{PU}{\85\325}% U+05D5
16873 % U+05D6 HEBREW LETTER ZAYIN
16874 \DeclareTextCommand{\hebzayin}{PU}{\85\326}% U+05D6
16875 % U+05D7 HEBREW LETTER HET
16876 \DeclareTextCommand{\hebbhet}{PU}{\85\327}% U+05D7
16877 % U+05D8 HEBREW LETTER TET
16878 \DeclareTextCommand{\hebtet}{PU}{\85\330}% U+05D8
16879 % U+05D9 HEBREW LETTER YOD
16880 \DeclareTextCommand{\hebyod}{PU}{\85\331}% U+05D9
16881 % U+05DA HEBREW LETTER FINAL KAF
16882 \DeclareTextCommand{\hebfinalkaf}{PU}{\85\332}% U+05DA
16883 % U+05DB HEBREW LETTER KAF
16884 \DeclareTextCommand{\hebkaf}{PU}{\85\333}% U+05DB

```

16885 % U+05DC HEBREW LETTER LAMED  
 16886 \DeclareTextCommand{\heblamed}{PU}{\85\334}% U+05DC  
 16887 % U+05DD HEBREW LETTER FINAL MEM  
 16888 \DeclareTextCommand{\hebfinalmem}{PU}{\85\335}% U+05DD  
 16889 % U+05DE HEBREW LETTER MEM  
 16890 \DeclareTextCommand{\hebmem}{PU}{\85\336}% U+05DE  
 16891 % U+05DF HEBREW LETTER FINAL NUN  
 16892 \DeclareTextCommand{\hebfinalnun}{PU}{\85\337}% U+05DF  
 16893 % U+05E0 HEBREW LETTER NUN  
 16894 \DeclareTextCommand{\hebnun}{PU}{\85\340}% U+05E0  
 16895 % U+05E1 HEBREW LETTER SAMEKH  
 16896 \DeclareTextCommand{\hebsamekh}{PU}{\85\341}% U+05E1  
 16897 % U+05E2 HEBREW LETTER AYIN  
 16898 \DeclareTextCommand{\hebayin}{PU}{\85\342}% U+05E2  
 16899 % U+05E3 HEBREW LETTER FINAL PE  
 16900 \DeclareTextCommand{\hebfinalpe}{PU}{\85\343}% U+05E3  
 16901 % U+05E4 HEBREW LETTER PE  
 16902 \DeclareTextCommand{\hebpe}{PU}{\85\344}% U+05E4  
 16903 % U+05E5 HEBREW LETTER FINAL TSADI  
 16904 \DeclareTextCommand{\hebfinaltsadi}{PU}{\85\345}% U+05E5  
 16905 % U+05E6 HEBREW LETTER TSADI  
 16906 \DeclareTextCommand{\hebtsadi}{PU}{\85\346}% U+05E6  
 16907 % U+05E7 HEBREW LETTER QOF  
 16908 \DeclareTextCommand{\hebqof}{PU}{\85\347}% U+05E7  
 16909 % U+05E8 HEBREW LETTER RESH  
 16910 \DeclareTextCommand{\hebresh}{PU}{\85\350}% U+05E8  
 16911 % U+05E9 HEBREW LETTER SHIN  
 16912 \DeclareTextCommand{\hebshin}{PU}{\85\351}% U+05E9  
 16913 %\* \hebshin -> \hebsin (he8)  
 16914 % U+05EA HEBREW LETTER TAV  
 16915 \DeclareTextCommand{\hebtav}{PU}{\85\352}% U+05EA  
 16916 % U+05F0 HEBREW LIGATURE YIDDISH DOUBLE VAV  
 16917 \DeclareTextCommand{\doublevav}{PU}{\85\360}% U+05F0  
 16918 % U+05F1 HEBREW LIGATURE YIDDISH VAV YOD  
 16919 \DeclareTextCommand{\vavyod}{PU}{\85\361}% U+05F1  
 16920 % U+05F2 HEBREW LIGATURE YIDDISH DOUBLE YOD  
 16921 \DeclareTextCommand{\doubleyod}{PU}{\85\362}% U+05F2  
 16922 \fi

#### 47.2.12 Thai: U+0E00 to U+0E7F

16923 % U+0E3F THAI CURRENCY SYMBOL BAHT; bahtthai  
 16924 \DeclareTextCommand{\textbaht}{PU}{\9016\077}% U+0E3F

#### 47.2.13 Phonetic Extensions: U+1D00 to U+1D7F

16925 % U+1D00 LATIN LETTER SMALL CAPITAL A; \textsca (tipa)  
 16926 \DeclareTextCommand{\textsca}{PU}{\9035\000}% U+1D00  
 16927 % U+1D05 LATIN LETTER SMALL CAPITAL D; \scd (wsuipa)  
 16928 \DeclareTextCommand{\textscd}{PU}{\9035\005}%\* U+1D05  
 16929 % U+1D07 LATIN LETTER SMALL CAPITAL E; \textsce (tipa)  
 16930 \DeclareTextCommand{\textsce}{PU}{\9035\007}% U+1D07  
 16931 % U+1D0A LATIN LETTER SMALL CAPITAL J; \textscj (tipa)  
 16932 \DeclareTextCommand{\textscj}{PU}{\9035\012}% U+1D0A  
 16933 % U+1D0B LATIN LETTER SMALL CAPITAL K; \textscck (tipx)

16934 \DeclareTextCommand{\textPUscck}{PU}{\9035\013}% U+1D0B  
 16935 %\* \textPUscck -> \textscck (tipx)  
 16936 % U+1D0D LATIN LETTER SMALL CAPITAL M; \textscm (tipx)  
 16937 \DeclareTextCommand{\textPUscm}{PU}{\9035\015}% U+1D0D  
 16938 %\* \textPUscm -> \textscm (tipx)  
 16939 % U+1D18 LATIN LETTER SMALL CAPITAL P; \textscp (tipx)  
 16940 \DeclareTextCommand{\textPUscp}{PU}{\9035\030}% U+1D18  
 16941 %\* \textPUscp -> \textscp (tipx)  
 16942 % U+1D19 LATIN LETTER SMALL CAPITAL REVERSED R; \textrevscr (tipx)  
 16943 \DeclareTextCommand{\textPUrevscr}{PU}{\9035\031}% U+1D19  
 16944 %\* \textPUrevscr -> \textrevscr (tipx)  
 16945 % U+1D1C LATIN LETTER SMALL CAPITAL U; \textscu (tipa), \scu (wsuipa)  
 16946 \DeclareTextCommand{\textscu}{PU}{\9035\034}%\* U+1D1C  
 16947 % U+1D62 LATIN SUBSCRIPT SMALL LETTER I  
 16948 \DeclareTextCommand{\textiinferior}{PU}{\9035\142}%\* U+1D62  
 16949 % U+1D63 LATIN SUBSCRIPT SMALL LETTER R  
 16950 \DeclareTextCommand{\textrinferior}{PU}{\9035\143}%\* U+1D63  
 16951 % U+1D64 LATIN SUBSCRIPT SMALL LETTER U  
 16952 \DeclareTextCommand{\textuinferior}{PU}{\9035\144}%\* U+1D64  
 16953 % U+1D65 LATIN SUBSCRIPT SMALL LETTER V  
 16954 \DeclareTextCommand{\textvinferior}{PU}{\9035\145}%\* U+1D65  
 16955 % U+1D66 GREEK SUBSCRIPT SMALL LETTER BETA  
 16956 \DeclareTextCommand{\textbetainferior}{PU}{\9035\146}%\* U+1D66  
 16957 % U+1D67 GREEK SUBSCRIPT SMALL LETTER GAMMA  
 16958 \DeclareTextCommand{\textgammainferior}{PU}{\9035\147}%\* U+1D67  
 16959 % U+1D68 GREEK SUBSCRIPT SMALL LETTER RHO  
 16960 \DeclareTextCommand{\textrhoinferior}{PU}{\9035\150}%\* U+1D68  
 16961 % U+1D69 GREEK SUBSCRIPT SMALL LETTER PHI  
 16962 \DeclareTextCommand{\textphiinferior}{PU}{\9035\151}%\* U+1D69  
 16963 % U+1D6A GREEK SUBSCRIPT SMALL LETTER CHI  
 16964 \DeclareTextCommand{\textchiinferior}{PU}{\9035\152}%\* U+1D6A  
 16965 % U+1D7B LATIN SMALL CAPITAL LETTER I WITH STROKE;  
 16966 % \barsci (wsuipa)  
 16967 \DeclareTextCommand{\textbarsci}{PU}{\9035\173}%\* U+1D7B  
 16968 % U+1D7D LATIN SMALL LETTER P WITH STROKE; \barp (wsuipa)  
 16969 \DeclareTextCommand{\textbarp}{PU}{\9035\175}%\* U+1D7D  
 16970 % U+1D7E LATIN SMALL CAPITAL LETTER U WITH STROKE;  
 16971 % \barscu (wsuipa)  
 16972 \DeclareTextCommand{\textbarscu}{PU}{\9035\176}%\* U+1D7E

#### 47.2.14 Phonetic Extensions Supplement: U+1D80 to U+1DBF

16973 % U+1D8F LATIN SMALL LETTER A WITH RETROFLEX HOOK; \tex-  
 trhooka (tipx)  
 16974 \DeclareTextCommand{\textPUrhooka}{PU}{\9035\217}% U+1D8F  
 16975 %\* \textPUrhooka -> \textrhooka (tipx)  
 16976 % U+1D91 LATIN SMALL LETTER D WITH HOOK AND TAIL; \texthtr-  
 taild (tipa)  
 16977 \DeclareTextCommand{\texthtrtaild}{PU}{\9035\221}%\* U+1D91  
 16978 % U+1D92 LATIN SMALL LETTER E WITH RETROFLEX HOOK; \tex-  
 trhooke (tipx)  
 16979 \DeclareTextCommand{\textPUrhooke}{PU}{\9035\222}% U+1D92  
 16980 %\* \textPUrhooke -> \textrhooke (tipx)  
 16981 % U+1D93 LATIN SMALL LETTER OPEN E WITH RETROFLEX HOOK;  
 16982 % \textrhookepsilon (tipx)

16983 \DeclareTextCommand{\textPUrhookepsilon}{PU}{\9035\223}% U+1D93  
 16984 %\* \textPUrhookepsilon -> \textrhookepsilon (tipx)  
 16985 % U+1D97 LATIN SMALL LETTER OPEN O WITH RETROFLEX HOOK;  
 16986 % \textrhookopeno (tipx)  
 16987 \DeclareTextCommand{\textPUrhookopeno}{PU}{\9035\227}% U+1D97  
 16988 %\* \textPUrhookopeno -> \textrhookopeno (tipx)

#### 47.2.15 Latin Extended Additional: U+1E00 to U+1EFF

16989 % U+1E00 LATIN CAPITAL LETTER A WITH RING BELOW; Aringbelow  
 16990 \DeclareTextCompositeCommand{\textsubring}{PU}{A}{\9036\000}% U+1E00  
 16991 % U+1E01 LATIN SMALL LETTER A WITH RING BELOW; aringbelow  
 16992 \DeclareTextCompositeCommand{\textsubring}{PU}{a}{\9036\001}% U+1E01  
 16993 % U+1E02 LATIN CAPITAL LETTER B WITH DOT ABOVE; Bdotaccent  
 16994 \DeclareTextCompositeCommand{\.}{PU}{B}{\9036\002}% U+1E02  
 16995 % U+1E03 LATIN SMALL LETTER B WITH DOT ABOVE; bdotaccent  
 16996 \DeclareTextCompositeCommand{\.}{PU}{b}{\9036\003}% U+1E03  
 16997 % U+1E04 LATIN CAPITAL LETTER B WITH DOT BELOW; Bdotbelow  
 16998 \DeclareTextCompositeCommand{\d}{PU}{B}{\9036\004}% U+1E04  
 16999 % U+1E05 LATIN SMALL LETTER B WITH DOT BELOW; bdotbelow  
 17000 \DeclareTextCompositeCommand{\d}{PU}{b}{\9036\005}% U+1E05  
 17001 % U+1E06 LATIN CAPITAL LETTER B WITH LINE BELOW; Blinebelow  
 17002 \DeclareTextCompositeCommand{\b}{PU}{B}{\9036\006}% U+1E06  
 17003 % U+1E07 LATIN SMALL LETTER B WITH LINE BELOW; blinebelow  
 17004 \DeclareTextCompositeCommand{\b}{PU}{b}{\9036\007}% U+1E07  
 17005 % U+1E0A LATIN CAPITAL LETTER D WITH DOT ABOVE; Ddotaccent  
 17006 \DeclareTextCompositeCommand{\.}{PU}{D}{\9036\012}% U+1E0A  
 17007 % U+1E0B LATIN SMALL LETTER D WITH DOT ABOVE; ddotaccent  
 17008 \DeclareTextCompositeCommand{\.}{PU}{d}{\9036\013}% U+1E0B  
 17009 % U+1E0C LATIN CAPITAL LETTER D WITH DOT BELOW; Ddotbelow  
 17010 \DeclareTextCompositeCommand{\d}{PU}{D}{\9036\014}% U+1E0C  
 17011 % U+1E0D LATIN SMALL LETTER D WITH DOT BELOW; ddotbelow  
 17012 \DeclareTextCompositeCommand{\d}{PU}{d}{\9036\015}% U+1E0D  
 17013 % U+1E0E LATIN CAPITAL LETTER D WITH LINE BELOW; Dlinebelow  
 17014 \DeclareTextCompositeCommand{\b}{PU}{D}{\9036\016}% U+1E0E  
 17015 % U+1E0F LATIN SMALL LETTER D WITH LINE BELOW; dlinebelow  
 17016 \DeclareTextCompositeCommand{\b}{PU}{d}{\9036\017}% U+1E0F  
 17017 % U+1E10 LATIN CAPITAL LETTER D WITH CEDILLA; Dcedilla  
 17018 \DeclareTextCompositeCommand{\c}{PU}{D}{\9036\020}% U+1E10  
 17019 % U+1E11 LATIN SMALL LETTER D WITH CEDILLA; dcedilla  
 17020 \DeclareTextCompositeCommand{\c}{PU}{d}{\9036\021}% U+1E11  
 17021 % U+1E12 LATIN CAPITAL LETTER D WITH CIRCUMFLEX BELOW; Dcir-  
     cumflexbelow  
 17022 \DeclareTextCompositeCommand{\textsubcircum}{PU}{D}{\9036\022}% U+1E12  
 17023 % U+1E13 LATIN SMALL LETTER D WITH CIRCUMFLEX BELOW; dcir-  
     cumflexbelow  
 17024 \DeclareTextCompositeCommand{\textsubcircum}{PU}{d}{\9036\023}% U+1E13  
 17025 % U+1E14 LATIN CAPITAL LETTER E WITH MACRON AND GRAVE;  
 17026 % Emacrongrave  
 17027 \DeclareTextCompositeCommand{\textgravemacron}{PU}{E}{\9036\024}% U+1E14  
 17028 % U+1E15 LATIN SMALL LETTER E WITH MACRON AND GRAVE;  
 17029 % emacrongrave  
 17030 \DeclareTextCompositeCommand{\textgravemacron}{PU}{e}{\9036\025}% U+1E15  
 17031 % U+1E16 LATIN CAPITAL LETTER E WITH MACRON AND ACUTE;  
 17032 % Emacronacute

17033 \DeclareTextCompositeCommand{\textacutemacron}{PU}{E}{\9036\026}% U+1E16  
17034 % U+1E17 LATIN SMALL LETTER E WITH MACRON AND ACUTE;  
17035 %   emacronacute  
17036 \DeclareTextCompositeCommand{\textacutemacron}{PU}{e}{\9036\027}% U+1E17  
17037 % U+1E18 LATIN CAPITAL LETTER E WITH CIRCUMFLEX BELOW; Ecir-  
cumflexbelow  
17038 \DeclareTextCompositeCommand{\textsubcircum}{PU}{E}{\9036\030}% U+1E18  
17039 % U+1E19 LATIN SMALL LETTER E WITH CIRCUMFLEX BELOW; ecir-  
cumflexbelow  
17040 \DeclareTextCompositeCommand{\textsubcircum}{PU}{e}{\9036\031}% U+1E19  
17041 % U+1E1A LATIN CAPITAL LETTER E WITH TILDE BELOW; Etildebelow  
17042 \DeclareTextCompositeCommand{\textsubtilde}{PU}{E}{\9036\032}% U+1E1A  
17043 % U+1E1B LATIN SMALL LETTER E WITH TILDE BELOW; etildebelow  
17044 \DeclareTextCompositeCommand{\textsubtilde}{PU}{e}{\9036\033}% U+1E1B  
17045 % U+1E1E LATIN CAPITAL LETTER F WITH DOT ABOVE; Fdotaccent  
17046 \DeclareTextCompositeCommand{.}{PU}{F}{\9036\036}% U+1E1E  
17047 % U+1E1F LATIN SMALL LETTER F WITH DOT ABOVE; fdotaccent  
17048 \DeclareTextCompositeCommand{.}{PU}{f}{\9036\037}% U+1E1F  
17049 % U+1E20 LATIN CAPITAL LETTER G WITH MACRON; Gmacron  
17050 \DeclareTextCompositeCommand{=}{PU}{G}{\9036\040}% U+1E20  
17051 % U+1E21 LATIN SMALL LETTER G WITH MACRON; gmacron  
17052 \DeclareTextCompositeCommand{=}{PU}{g}{\9036\041}% U+1E21  
17053 % U+1E22 LATIN CAPITAL LETTER H WITH DOT ABOVE; Hdotaccent  
17054 \DeclareTextCompositeCommand{.}{PU}{H}{\9036\042}% U+1E22  
17055 % U+1E23 LATIN SMALL LETTER H WITH DOT ABOVE; hdotaccent  
17056 \DeclareTextCompositeCommand{.}{PU}{h}{\9036\043}% U+1E23  
17057 % U+1E24 LATIN CAPITAL LETTER H WITH DOT BELOW; Hdotbelow  
17058 \DeclareTextCompositeCommand{d}{PU}{H}{\9036\044}% U+1E24  
17059 % U+1E25 LATIN SMALL LETTER H WITH DOT BELOW; hdotbelow  
17060 \DeclareTextCompositeCommand{d}{PU}{h}{\9036\045}% U+1E25  
17061 % U+1E26 LATIN CAPITAL LETTER H WITH DIAERESIS; Hdieresis  
17062 \DeclareTextCompositeCommand{"}{PU}{H}{\9036\046}% U+1E26  
17063 % U+1E27 LATIN SMALL LETTER H WITH DIAERESIS; hdieresis  
17064 \DeclareTextCompositeCommand{"}{PU}{h}{\9036\047}% U+1E27  
17065 % U+1E28 LATIN CAPITAL LETTER H WITH CEDILLA; Hcedilla  
17066 \DeclareTextCompositeCommand{c}{PU}{H}{\9036\050}% U+1E28  
17067 % U+1E29 LATIN SMALL LETTER H WITH CEDILLA; hcedilla  
17068 \DeclareTextCompositeCommand{c}{PU}{h}{\9036\051}% U+1E29  
17069 % U+1E2A LATIN CAPITAL LETTER H WITH BREVE BELOW; Hbrevebelow  
17070 \DeclareTextCompositeCommand{\textsubbreve}{PU}{H}{\9036\052}% U+1E2A  
17071 % U+1E2B LATIN SMALL LETTER H WITH BREVE BELOW; hbrevebelow  
17072 \DeclareTextCompositeCommand{\textsubbreve}{PU}{h}{\9036\053}% U+1E2B  
17073 % U+1E2C LATIN CAPITAL LETTER I WITH TILDE BELOW; Itildebelow  
17074 \DeclareTextCompositeCommand{\textsubtilde}{PU}{I}{\9036\054}% U+1E2C  
17075 % U+1E2D LATIN SMALL LETTER I WITH TILDE BELOW; itildebelow  
17076 \DeclareTextCompositeCommand{\textsubtilde}{PU}{i}{\9036\055}% U+1E2D  
17077 % U+1E30 LATIN CAPITAL LETTER K WITH ACUTE; Kacute  
17078 \DeclareTextCompositeCommand{'}{PU}{K}{\9036\060}% U+1E30  
17079 % U+1E31 LATIN SMALL LETTER K WITH ACUTE; kacute  
17080 \DeclareTextCompositeCommand{'}{PU}{k}{\9036\061}% U+1E31  
17081 % U+1E32 LATIN CAPITAL LETTER K WITH DOT BELOW; Kdotbelow  
17082 \DeclareTextCompositeCommand{d}{PU}{K}{\9036\062}% U+1E32  
17083 % U+1E33 LATIN SMALL LETTER K WITH DOT BELOW; kdotbelow  
17084 \DeclareTextCompositeCommand{d}{PU}{k}{\9036\063}% U+1E33

17085 % U+1E34 LATIN CAPITAL LETTER K WITH LINE BELOW; Klinebelow  
17086 \DeclareTextCompositeCommand{\b}{PU}{K}{\9036\064}% U+1E34  
17087 % U+1E35 LATIN SMALL LETTER K WITH LINE BELOW; klinebelow  
17088 \DeclareTextCompositeCommand{\b}{PU}{k}{\9036\065}% U+1E35  
17089 % U+1E36 LATIN CAPITAL LETTER L WITH DOT BELOW; Ldotbelow  
17090 \DeclareTextCompositeCommand{\d}{PU}{L}{\9036\066}% U+1E36  
17091 % U+1E37 LATIN SMALL LETTER L WITH DOT BELOW; ldotbelow  
17092 \DeclareTextCompositeCommand{\d}{PU}{l}{\9036\067}% U+1E37  
17093 % U+1E3A LATIN CAPITAL LETTER L WITH LINE BELOW; Llinebelow  
17094 \DeclareTextCompositeCommand{\b}{PU}{L}{\9036\072}% U+1E3A  
17095 % U+1E3B LATIN SMALL LETTER L WITH LINE BELOW; llinebelow  
17096 \DeclareTextCompositeCommand{\b}{PU}{l}{\9036\073}% U+1E3B  
17097 % U+1E3C LATIN CAPITAL LETTER L WITH CIRCUMFLEX BELOW; Lcir-  
cumflexbelow  
17098 \DeclareTextCompositeCommand{\textsubcircum}{PU}{L}{\9036\074}% U+1E3C  
17099 % U+1E3D LATIN SMALL LETTER L WITH CIRCUMFLEX BELOW; lcir-  
cumflexbelow  
17100 \DeclareTextCompositeCommand{\textsubcircum}{PU}{l}{\9036\075}% U+1E3D  
17101 % U+1E3E LATIN CAPITAL LETTER M WITH ACUTE; Macute  
17102 \DeclareTextCompositeCommand{\'}{PU}{M}{\9036\076}% U+1E3E  
17103 % U+1E3F LATIN SMALL LETTER M WITH ACUTE; macute  
17104 \DeclareTextCompositeCommand{\'}{PU}{m}{\9036\077}% U+1E3F  
17105 % U+1E40 LATIN CAPITAL LETTER M WITH DOT ABOVE; Mdotaccent  
17106 \DeclareTextCompositeCommand{\.}{PU}{M}{\9036\100}% U+1E40  
17107 % U+1E41 LATIN SMALL LETTER M WITH DOT ABOVE; mdotaccent  
17108 \DeclareTextCompositeCommand{\.}{PU}{m}{\9036\101}% U+1E41  
17109 % U+1E42 LATIN CAPITAL LETTER M WITH DOT BELOW; Mdotbelow  
17110 \DeclareTextCompositeCommand{\d}{PU}{M}{\9036\102}% U+1E42  
17111 % U+1E43 LATIN SMALL LETTER M WITH DOT BELOW; mdotbelow  
17112 \DeclareTextCompositeCommand{\d}{PU}{m}{\9036\103}% U+1E43  
17113 % U+1E44 LATIN CAPITAL LETTER N WITH DOT ABOVE; Ndotaccent  
17114 \DeclareTextCompositeCommand{\.}{PU}{N}{\9036\104}% U+1E44  
17115 % U+1E45 LATIN SMALL LETTER N WITH DOT ABOVE; ndotaccent  
17116 \DeclareTextCompositeCommand{\.}{PU}{n}{\9036\105}% U+1E45  
17117 % U+1E46 LATIN CAPITAL LETTER N WITH DOT BELOW; Ndotbelow  
17118 \DeclareTextCompositeCommand{\d}{PU}{N}{\9036\106}% U+1E46  
17119 % U+1E47 LATIN SMALL LETTER N WITH DOT BELOW; ndotbelow  
17120 \DeclareTextCompositeCommand{\d}{PU}{n}{\9036\107}% U+1E47  
17121 % U+1E48 LATIN CAPITAL LETTER N WITH LINE BELOW; Nlinebelow  
17122 \DeclareTextCompositeCommand{\b}{PU}{N}{\9036\110}% U+1E48  
17123 % U+1E49 LATIN SMALL LETTER N WITH LINE BELOW; nlinebelow  
17124 \DeclareTextCompositeCommand{\b}{PU}{n}{\9036\111}% U+1E49  
17125 % U+1E4A LATIN CAPITAL LETTER N WITH CIRCUMFLEX BELOW; Ncir-  
cumflexbelow  
17126 \DeclareTextCompositeCommand{\textsubcircum}{PU}{N}{\9036\112}% U+1E4A  
17127 % U+1E4B LATIN SMALL LETTER N WITH CIRCUMFLEX BELOW; ncir-  
cumflexbelow  
17128 \DeclareTextCompositeCommand{\textsubcircum}{PU}{n}{\9036\113}% U+1E4B  
17129 % U+1E50 LATIN CAPITAL LETTER O WITH MACRON AND GRAVE;  
17130 % Omacrongrave  
17131 \DeclareTextCompositeCommand{\textgravemacron}{PU}{O}{\9036\120}% U+1E50  
17132 % U+1E51 LATIN SMALL LETTER O WITH MACRON AND GRAVE;  
17133 % omacrongrave  
17134 \DeclareTextCompositeCommand{\textgravemacron}{PU}{o}{\9036\121}% U+1E51



17135 % U+1E52 LATIN CAPITAL LETTER O WITH MACRON AND ACUTE;  
17136 % Omacronacute  
17137 \DeclareTextCompositeCommand{\textacutemacron}{PU}{O}{\9036\122}% U+1E52  
17138 % U+1E53 LATIN SMALL LETTER O WITH MACRON AND ACUTE;  
17139 % omacronacute  
17140 \DeclareTextCompositeCommand{\textacutemacron}{PU}{o}{\9036\123}% U+1E53  
17141 % U+1E54 LATIN CAPITAL LETTER P WITH ACUTE; Pacute  
17142 \DeclareTextCompositeCommand{\'}{PU}{P}{\9036\124}% U+1E54  
17143 % U+1E55 LATIN SMALL LETTER P WITH ACUTE; pacute  
17144 \DeclareTextCompositeCommand{\'}{PU}{p}{\9036\125}% U+1E55  
17145 % U+1E56 LATIN CAPITAL LETTER P WITH DOT ABOVE; Pdotaccent  
17146 \DeclareTextCompositeCommand{\.}{PU}{P}{\9036\126}% U+1E56  
17147 % U+1E57 LATIN SMALL LETTER P WITH DOT ABOVE; pdotaccent  
17148 \DeclareTextCompositeCommand{\.}{PU}{p}{\9036\127}% U+1E57  
17149 % U+1E58 LATIN CAPITAL LETTER R WITH DOT ABOVE; Rdotaccent  
17150 \DeclareTextCompositeCommand{\.}{PU}{R}{\9036\130}% U+1E58  
17151 % U+1E59 LATIN SMALL LETTER R WITH DOT ABOVE; rdotaccent  
17152 \DeclareTextCompositeCommand{\.}{PU}{r}{\9036\131}% U+1E59  
17153 % U+1E5A LATIN CAPITAL LETTER R WITH DOT BELOW; Rdotbelow  
17154 \DeclareTextCompositeCommand{\d}{PU}{R}{\9036\132}% U+1E5A  
17155 % U+1E5B LATIN SMALL LETTER R WITH DOT BELOW; rdotbelow  
17156 \DeclareTextCompositeCommand{\d}{PU}{r}{\9036\133}% U+1E5B  
17157 % U+1E5E LATIN CAPITAL LETTER R WITH LINE BELOW; Rlinebelow  
17158 \DeclareTextCompositeCommand{\b}{PU}{R}{\9036\136}% U+1E5E  
17159 % U+1E5F LATIN SMALL LETTER R WITH LINE BELOW; rlinebelow  
17160 \DeclareTextCompositeCommand{\b}{PU}{r}{\9036\137}% U+1E5F  
17161 % U+1E60 LATIN CAPITAL LETTER S WITH DOT ABOVE; Sdotaccent  
17162 \DeclareTextCompositeCommand{\.}{PU}{S}{\9036\140}% U+1E60  
17163 % U+1E61 LATIN SMALL LETTER S WITH DOT ABOVE; sdotaccent  
17164 \DeclareTextCompositeCommand{\.}{PU}{s}{\9036\141}% U+1E61  
17165 % U+1E62 LATIN CAPITAL LETTER S WITH DOT BELOW; Sdotbelow  
17166 \DeclareTextCompositeCommand{\d}{PU}{S}{\9036\142}% U+1E62  
17167 % U+1E63 LATIN SMALL LETTER S WITH DOT BELOW; sdotbelow  
17168 \DeclareTextCompositeCommand{\d}{PU}{s}{\9036\143}% U+1E63  
17169 % U+1E6A LATIN CAPITAL LETTER T WITH DOT ABOVE; Tdotaccent  
17170 \DeclareTextCompositeCommand{\.}{PU}{T}{\9036\152}% U+1E6A  
17171 % U+1E6B LATIN SMALL LETTER T WITH DOT ABOVE; tdotaccent  
17172 \DeclareTextCompositeCommand{\.}{PU}{t}{\9036\153}% U+1E6B  
17173 % U+1E6C LATIN CAPITAL LETTER T WITH DOT BELOW; Tdotbelow  
17174 \DeclareTextCompositeCommand{\d}{PU}{T}{\9036\154}% U+1E6C  
17175 % U+1E6D LATIN SMALL LETTER T WITH DOT BELOW; tdotbelow  
17176 \DeclareTextCompositeCommand{\d}{PU}{t}{\9036\155}% U+1E6D  
17177 % U+1E6E LATIN CAPITAL LETTER T WITH LINE BELOW; Tlinebelow  
17178 \DeclareTextCompositeCommand{\b}{PU}{T}{\9036\156}% U+1E6E  
17179 % U+1E6F LATIN SMALL LETTER T WITH LINE BELOW; tlinebelow  
17180 \DeclareTextCompositeCommand{\b}{PU}{t}{\9036\157}% U+1E6F  
17181 % U+1E70 LATIN CAPITAL LETTER T WITH CIRCUMFLEX BELOW; Tcir-  
cumflexbelow  
17182 \DeclareTextCompositeCommand{\textsubcircum}{PU}{T}{\9036\160}% U+1E70  
17183 % U+1E71 LATIN SMALL LETTER T WITH CIRCUMFLEX BELOW; tcir-  
cumflexbelow  
17184 \DeclareTextCompositeCommand{\textsubcircum}{PU}{t}{\9036\161}% U+1E71  
17185 % U+1E72 LATIN CAPITAL LETTER U WITH DIAERESIS BELOW; Udiere-  
sisbelow

17186 \DeclareTextCompositeCommand{\textsubumlaut}{PU}{U}{\9036\162}% U+1E72  
17187 % U+1E73 LATIN SMALL LETTER U WITH DIAERESIS BELOW; udieresis-  
below  
17188 \DeclareTextCompositeCommand{\textsubumlaut}{PU}{u}{\9036\163}% U+1E73  
17189 % U+1E74 LATIN CAPITAL LETTER U WITH TILDE BELOW; Utildebelow  
17190 \DeclareTextCompositeCommand{\textsubtilde}{PU}{U}{\9036\164}% U+1E74  
17191 % U+1E75 LATIN SMALL LETTER U WITH TILDE BELOW; utildebelow  
17192 \DeclareTextCompositeCommand{\textsubtilde}{PU}{u}{\9036\165}% U+1E75  
17193 % U+1E76 LATIN CAPITAL LETTER U WITH CIRCUMFLEX BELOW; Ucir-  
cumflexbelow  
17194 \DeclareTextCompositeCommand{\textsubcircum}{PU}{U}{\9036\166}% U+1E76  
17195 % U+1E77 LATIN SMALL LETTER U WITH CIRCUMFLEX BELOW; ucir-  
cumflexbelow  
17196 \DeclareTextCompositeCommand{\textsubcircum}{PU}{u}{\9036\167}% U+1E77  
17197 % U+1E7C LATIN CAPITAL LETTER V WITH TILDE; Vtilde  
17198 \DeclareTextCompositeCommand{\~}{PU}{V}{\9036\174}% U+1E7C  
17199 % U+1E7D LATIN SMALL LETTER V WITH TILDE; vtilde  
17200 \DeclareTextCompositeCommand{\~}{PU}{v}{\9036\175}% U+1E7D  
17201 % U+1E7E LATIN CAPITAL LETTER V WITH DOT BELOW; Vdotbelow  
17202 \DeclareTextCompositeCommand{\d}{PU}{V}{\9036\176}% U+1E7E  
17203 % U+1E7F LATIN SMALL LETTER V WITH DOT BELOW; vdotbelow  
17204 \DeclareTextCompositeCommand{\d}{PU}{v}{\9036\177}% U+1E7F  
17205 % U+1E80 LATIN CAPITAL LETTER W WITH GRAVE; Wgrave  
17206 \DeclareTextCompositeCommand{\`}{PU}{W}{\9036\200}% U+1E80  
17207 % U+1E81 LATIN SMALL LETTER W WITH GRAVE; wgrave  
17208 \DeclareTextCompositeCommand{\`}{PU}{w}{\9036\201}% U+1E81  
17209 % U+1E82 LATIN CAPITAL LETTER W WITH ACUTE; Wacute  
17210 \DeclareTextCompositeCommand{\'}{PU}{W}{\9036\202}% U+1E82  
17211 % U+1E83 LATIN SMALL LETTER W WITH ACUTE; wacute  
17212 \DeclareTextCompositeCommand{\'}{PU}{w}{\9036\203}% U+1E83  
17213 % U+1E84 LATIN CAPITAL LETTER W WITH DIAERESIS; Wdieresis  
17214 \DeclareTextCompositeCommand{\"}{PU}{W}{\9036\204}% U+1E84  
17215 % U+1E85 LATIN SMALL LETTER W WITH DIAERESIS; wdieresis  
17216 \DeclareTextCompositeCommand{\"}{PU}{w}{\9036\205}% U+1E85  
17217 % U+1E86 LATIN CAPITAL LETTER W WITH DOT ABOVE; Wdotaccent  
17218 \DeclareTextCompositeCommand{\.}{PU}{W}{\9036\206}% U+1E86  
17219 % U+1E87 LATIN SMALL LETTER W WITH DOT ABOVE; wdotaccent  
17220 \DeclareTextCompositeCommand{\.}{PU}{w}{\9036\207}% U+1E87  
17221 % U+1E88 LATIN CAPITAL LETTER W WITH DOT BELOW; wdotbelow  
17222 \DeclareTextCompositeCommand{\d}{PU}{W}{\9036\210}% U+1E88  
17223 % U+1E89 LATIN SMALL LETTER W WITH DOT BELOW; wdotbelow  
17224 \DeclareTextCompositeCommand{\d}{PU}{w}{\9036\211}% U+1E89  
17225 % U+1E8A LATIN CAPITAL LETTER X WITH DOT ABOVE; Xdotaccent  
17226 \DeclareTextCompositeCommand{\.}{PU}{X}{\9036\212}% U+1E8A  
17227 % U+1E8B LATIN SMALL LETTER X WITH DOT ABOVE; xdotaccent  
17228 \DeclareTextCompositeCommand{\.}{PU}{x}{\9036\213}% U+1E8B  
17229 % U+1E8C LATIN CAPITAL LETTER X WITH DIAERESIS; Xdieresis  
17230 \DeclareTextCompositeCommand{\"}{PU}{X}{\9036\214}% U+1E8C  
17231 % U+1E8D LATIN SMALL LETTER X WITH DIAERESIS; xdieresis  
17232 \DeclareTextCompositeCommand{\"}{PU}{x}{\9036\215}% U+1E8D  
17233 % U+1E8E LATIN CAPITAL LETTER Y WITH DOT ABOVE; Ydotaccent  
17234 \DeclareTextCompositeCommand{\.}{PU}{Y}{\9036\216}% U+1E8E  
17235 % U+1E8F LATIN SMALL LETTER Y WITH DOT ABOVE; ydotaccent  
17236 \DeclareTextCompositeCommand{\.}{PU}{y}{\9036\217}% U+1E8F

17237 % U+1E90 LATIN CAPITAL LETTER Z WITH CIRCUMFLEX; Zcircumflex  
17238 \DeclareTextCompositeCommand{\~}{PU}{Z}{\9036\220}% U+1E90  
17239 % U+1E91 LATIN SMALL LETTER Z WITH CIRCUMFLEX; zcircumflex  
17240 \DeclareTextCompositeCommand{\~}{PU}{z}{\9036\221}% U+1E91  
17241 % U+1E92 LATIN CAPITAL LETTER Z WITH DOT BELOW; Zdotbelow  
17242 \DeclareTextCompositeCommand{\d}{PU}{Z}{\9036\222}% U+1E92  
17243 % U+1E93 LATIN SMALL LETTER Z WITH DOT BELOW; zdotbelow  
17244 \DeclareTextCompositeCommand{\d}{PU}{z}{\9036\223}% U+1E93  
17245 % U+1E94 LATIN CAPITAL LETTER Z WITH LINE BELOW; Zlinebelow  
17246 \DeclareTextCompositeCommand{\b}{PU}{Z}{\9036\224}% U+1E94  
17247 % U+1E95 LATIN SMALL LETTER Z WITH LINE BELOW; zlinebelow  
17248 \DeclareTextCompositeCommand{\b}{PU}{z}{\9036\225}% U+1E95  
17249 % U+1E96 LATIN SMALL LETTER H WITH LINE BELOW; hlinebelow  
17250 \DeclareTextCompositeCommand{\b}{PU}{h}{\9036\226}% U+1E96  
17251 % U+1E97 LATIN SMALL LETTER T WITH DIAERESIS; tdieresis  
17252 \DeclareTextCompositeCommand{"}{PU}{t}{\9036\227}% U+1E97  
17253 % U+1E98 LATIN SMALL LETTER W WITH RING ABOVE; wring  
17254 \DeclareTextCompositeCommand{\r}{PU}{w}{\9036\230}% U+1E98  
17255 % U+1E99 LATIN SMALL LETTER Y WITH RING ABOVE; yring  
17256 \DeclareTextCompositeCommand{\r}{PU}{y}{\9036\231}% U+1E99  
17257 % U+1E9B LATIN SMALL LETTER LONG S WITH DOT ABOVE; slongdo-  
taccent  
17258 \DeclareTextCompositeCommand{\.}{PU}{\textlongs}{\9036\233}% U+1E9B  
17259 % U+1EA0 LATIN CAPITAL LETTER A WITH DOT BELOW; Adotbelow  
17260 \DeclareTextCompositeCommand{\d}{PU}{A}{\9036\240}% U+1EA0  
17261 % U+1EA1 LATIN SMALL LETTER A WITH DOT BELOW; adotbelow  
17262 \DeclareTextCompositeCommand{\d}{PU}{a}{\9036\241}% U+1EA1  
17263 % U+1EB8 LATIN CAPITAL LETTER E WITH DOT BELOW; Edotbelow  
17264 \DeclareTextCompositeCommand{\d}{PU}{E}{\9036\270}% U+1EB8  
17265 % U+1EB9 LATIN SMALL LETTER E WITH DOT BELOW; edotbelow  
17266 \DeclareTextCompositeCommand{\d}{PU}{e}{\9036\271}% U+1EB9  
17267 % U+1EBC LATIN CAPITAL LETTER E WITH TILDE; Etilde  
17268 \DeclareTextCompositeCommand{\~}{PU}{E}{\9036\274}% U+1EBC  
17269 % U+1EBD LATIN SMALL LETTER E WITH TILDE; etilde  
17270 \DeclareTextCompositeCommand{\~}{PU}{e}{\9036\275}% U+1EBD  
17271 % U+1ECA LATIN CAPITAL LETTER I WITH DOT BELOW; Idotbelow  
17272 \DeclareTextCompositeCommand{\d}{PU}{I}{\9036\312}% U+1ECA  
17273 % U+1ECB LATIN SMALL LETTER I WITH DOT BELOW; idotbelow  
17274 \DeclareTextCompositeCommand{\d}{PU}{i}{\9036\313}% U+1ECB  
17275 % U+1ECC LATIN CAPITAL LETTER O WITH DOT BELOW; Odotbelow  
17276 \DeclareTextCompositeCommand{\d}{PU}{O}{\9036\314}% U+1ECC  
17277 % U+1ECD LATIN SMALL LETTER O WITH DOT BELOW; odotbelow  
17278 \DeclareTextCompositeCommand{\d}{PU}{o}{\9036\315}% U+1ECD  
17279 % U+1EE4 LATIN CAPITAL LETTER U WITH DOT BELOW; Udotbelow  
17280 \DeclareTextCompositeCommand{\d}{PU}{U}{\9036\344}% U+1EE4  
17281 % U+1EE5 LATIN SMALL LETTER U WITH DOT BELOW; udotbelow  
17282 \DeclareTextCompositeCommand{\d}{PU}{u}{\9036\345}% U+1EE5  
17283 % U+1EF2 LATIN CAPITAL LETTER Y WITH GRAVE; Ygrave  
17284 \DeclareTextCompositeCommand{\`}{PU}{Y}{\9036\362}% U+1EF2  
17285 % U+1EF3 LATIN SMALL LETTER Y WITH GRAVE; ygrave  
17286 \DeclareTextCompositeCommand{\`}{PU}{y}{\9036\363}% U+1EF3  
17287 % U+1EF4 LATIN CAPITAL LETTER Y WITH DOT BELOW; Ydotbelow  
17288 \DeclareTextCompositeCommand{\d}{PU}{Y}{\9036\364}% U+1EF4  
17289 % U+1EF5 LATIN SMALL LETTER Y WITH DOT BELOW; ydotbelow

17290 \DeclareTextCompositeCommand{\d}{PU}{y}{\9036\365}% U+1EF5  
 17291 % U+1EF8 LATIN CAPITAL LETTER Y WITH TILDE; Ytilde  
 17292 \DeclareTextCompositeCommand{\~}{PU}{Y}{\9036\370}% U+1EF8  
 17293 % U+1EF9 LATIN SMALL LETTER Y WITH TILDE; ytilde  
 17294 \DeclareTextCompositeCommand{\~}{PU}{y}{\9036\371}% U+1EF9

#### 47.2.16 General Punctuation: U+2000 to U+206F

17295 % U+200C ZERO WIDTH NON-JOINER; \*afi61664, zerowidthnonjoiner  
 17296 \DeclareTextCommand{\textcompwordmark}{PU}{\9040\014}% U+200C  
 17297 % U+2013 EN DASH; endash  
 17298 \DeclareTextCommand{\textendash}{PU}{\9040\023}% U+2013  
 17299 % U+2014 EM DASH; emdash  
 17300 \DeclareTextCommand{\textemdash}{PU}{\9040\024}% U+2014  
 17301 % U+2016 DOUBLE VERTICAL LINE; dblverticalbar  
 17302 \DeclareTextCommand{\textbardbl}{PU}{\9040\026}% U+2016  
 17303 %\* \textbardbl -> \textdoublevertline (tipa)  
 17304 % U+2018 LEFT SINGLE QUOTATION MARK; quoteleft  
 17305 \DeclareTextCommand{\textquoteleft}{PU}{\9040\030}% U+2018  
 17306 % U+2019 RIGHT SINGLE QUOTATION MARK; quoteright  
 17307 \DeclareTextCommand{\textquoteright}{PU}{\9040\031}% U+2019  
 17308 % U+201A SINGLE LOW-9 QUOTATION MARK; quotesinglbase  
 17309 \DeclareTextCommand{\quotesinglbase}{PU}{\9040\032}% U+201A  
 17310 % U+201C LEFT DOUBLE QUOTATION MARK; quotedblleft  
 17311 \DeclareTextCommand{\textquotedblleft}{PU}{\9040\034}% U+201C  
 17312 % U+201D RIGHT DOUBLE QUOTATION MARK; quotedblright  
 17313 \DeclareTextCommand{\textquotedblright}{PU}{\9040\035}% U+201D  
 17314 % U+201E DOUBLE LOW-9 QUOTATION MARK; quotedblbase  
 17315 \DeclareTextCommand{\quotedblbase}{PU}{\9040\036}% U+201E  
 17316 % U+2020 DAGGER; dagger  
 17317 \DeclareTextCommand{\textdagger}{PU}{\9040\040}%\* U+2020  
 17318 %\* \textdagger -> \dag (LaTeX)  
 17319 % U+2021 DOUBLE DAGGER; daggerdbl; \ddagger (LaTeX)  
 17320 \DeclareTextCommand{\textdaggerdbl}{PU}{\9040\041}% U+2021  
 17321 %\* \textdaggerdbl -> \ddagger (LaTeX)  
 17322 %\* \textdaggerdbl -> \ddag (LaTeX)  
 17323 % U+2022 BULLET; bullet  
 17324 \DeclareTextCommand{\textbullet}{PU}{\9040\042}%\* U+2022  
 17325 % U+2025 TWO DOT LEADER; \hdotfor (MnSymbol)  
 17326 \DeclareTextCommand{\texthdotfor}{PU}{\9040\045}%\* U+2025  
 17327 % U+2026 HORIZONTAL ELLIPSIS; ellipsis  
 17328 \DeclareTextCommand{\textellipsis}{PU}{\9040\046}% U+2026  
 17329 %\* \textellipsis -> \mathellipsis  
 17330 % U+2030 PER MILLE SIGN; perthousand  
 17331 \DeclareTextCommand{\textperthousand}{PU}{\9040\060}% U+2030  
 17332 % U+2031 PER TEN THOUSAND SIGN  
 17333 \DeclareTextCommand{\textpertenthousand}{PU}{\9040\061}% U+2031  
 17334 % U+2032 PRIME; minute; \prime (MnSymbol)  
 17335 \DeclareTextCommand{\textprime}{PU}{\9040\062}%\* U+2032  
 17336 % U+2033 DOUBLE PRIME; \second (mathabx)  
 17337 \DeclareTextCommand{\textsecond}{PU}{\9040\063}%\* U+2033  
 17338 % U+2034 TRIPLE PRIME; \third (mathabx)  
 17339 \DeclareTextCommand{\textthird}{PU}{\9040\064}%\* U+2034  
 17340 % U+2035 REVERSED PRIME; \backprime (AmS)  
 17341 \DeclareTextCommand{\textbackprime}{PU}{\9040\065}%\* U+2035

17342 % U+2039 SINGLE LEFT-POINTING ANGLE QUOTATION MARK; guil-  
 ingleft  
 17343 \DeclareTextCommand{\guilingleft}{PU}{\9040\071}% U+2039  
 17344 % U+203A SINGLE RIGHT-POINTING ANGLE QUOTATION MARK; guil-  
 ingright  
 17345 \DeclareTextCommand{\guilsingright}{PU}{\9040\072}% U+203A  
 17346 % U+203B REFERENCE MARK; referencemark  
 17347 \DeclareTextCommand{\textreferencemark}{PU}{\9040\073}% U+203B  
 17348 % U+203D INTERROBANG  
 17349 \DeclareTextCommand{\textinterrobang}{PU}{\9040\075}% U+203D  
 17350 % U+2044 FRACTION SLASH; fraction  
 17351 \DeclareTextCommand{\textfractionsolidus}{PU}{\9040\104}% U+2044  
 17352 % U+2045 LEFT SQUARE BRACKET WITH QUILL  
 17353 \DeclareTextCommand{\textlquill}{PU}{\9040\105}% U+2045  
 17354 % U+2046 RIGHT SQUARE BRACKET WITH QUILL  
 17355 \DeclareTextCommand{\textrquill}{PU}{\9040\106}% U+2046  
 17356 % U+2052 COMMERCIAL MINUS SIGN  
 17357 \DeclareTextCommand{\textdiscount}{PU}{\9040\122}% U+2052  
 17358 % U+2056 THREE DOT PUNCTUATION; \lefttherefore (MnSymbol)  
 17359 \DeclareTextCommand{\textlefttherefore}{PU}{\9040\126}%\* U+2056  
 17360 % U+2057 QUADRUPLE PRIME; \fourth (mathabx)  
 17361 \DeclareTextCommand{\textfourth}{PU}{\9040\127}%\* U+2057  
 17362 % U+2058 FOUR DOT PUNCTUATION; \diamonddots (MnSymbol)  
 17363 \DeclareTextCommand{\textdiamonddots}{PU}{\9040\130}%\* U+2058

#### 47.2.17 Superscripts and Subscripts: U+2070 to U+209F

17364 % U+2070 SUPERSCRIPT ZERO; zerosuperior  
 17365 \DeclareTextCommand{\textzerosuperior}{PU}{\9040\160}%\* U+2070  
 17366 % U+2071 SUPERSCRIPT LATIN SMALL LETTER I  
 17367 \DeclareTextCommand{\textisuperior}{PU}{\9040\161}%\* U+2071  
 17368 % U+2074 SUPERSCRIPT FOUR; foursuperior  
 17369 \DeclareTextCommand{\textfoursuperior}{PU}{\9040\164}%\* U+2074  
 17370 % U+2075 SUPERSCRIPT FIVE; fivesuperior  
 17371 \DeclareTextCommand{\textfivesuperior}{PU}{\9040\165}%\* U+2075  
 17372 % U+2076 SUPERSCRIPT SIX; sixsuperior  
 17373 \DeclareTextCommand{\textsixsuperior}{PU}{\9040\166}%\* U+2076  
 17374 % U+2077 SUPERSCRIPT SEVEN; sevensuperior  
 17375 \DeclareTextCommand{\textsevensuperior}{PU}{\9040\167}%\* U+2077  
 17376 % U+2078 SUPERSCRIPT EIGHT; eightsuperior  
 17377 \DeclareTextCommand{\texteightsuperior}{PU}{\9040\170}%\* U+2078  
 17378 % U+2079 SUPERSCRIPT NINE; ninesuperior  
 17379 \DeclareTextCommand{\textninesuperior}{PU}{\9040\171}%\* U+2079  
 17380 % U+207A SUPERSCRIPT PLUS SIGN; plussuperior  
 17381 \DeclareTextCommand{\textplussuperior}{PU}{\9040\172}%\* U+207A  
 17382 % U+207B SUPERSCRIPT MINUS  
 17383 \DeclareTextCommand{\textminussuperior}{PU}{\9040\173}%\* U+207B  
 17384 % U+207C SUPERSCRIPT EQUALS SIGN; equalsuperior  
 17385 \DeclareTextCommand{\textequalsuperior}{PU}{\9040\174}%\* U+207C  
 17386 % U+207D SUPERSCRIPT LEFT PARENTHESIS; parenleftsuperior  
 17387 \DeclareTextCommand{\textparenleftsuperior}{PU}{\9040\175}%\* U+207D  
 17388 % U+207E SUPERSCRIPT RIGHT PARENTHESIS; parenrightsuperior  
 17389 \DeclareTextCommand{\textparenrightsuperior}{PU}{\9040\176}%\* U+207E  
 17390 % U+207F SUPERSCRIPT LATIN SMALL LETTER N; nsuperior  
 17391 \DeclareTextCommand{\textnsuperior}{PU}{\9040\177}%\* U+207F

17392 % U+2080 SUBSCRIPT ZERO; zeroinferior  
17393 \DeclareTextCommand{\textzeroinferior}{PU}{\9040\200}%\* U+2080  
17394 % U+2081 SUBSCRIPT ONE; oneinferior  
17395 \DeclareTextCommand{\textoneinferior}{PU}{\9040\201}%\* U+2081  
17396 % U+2082 SUBSCRIPT TWO; twoinferior  
17397 \DeclareTextCommand{\texttwoinferior}{PU}{\9040\202}%\* U+2082  
17398 % U+2083 SUBSCRIPT THREE; threeinferior  
17399 \DeclareTextCommand{\textthreeinferior}{PU}{\9040\203}%\* U+2083  
17400 % U+2084 SUBSCRIPT FOUR; fourinferior  
17401 \DeclareTextCommand{\textfourinferior}{PU}{\9040\204}%\* U+2084  
17402 % U+2085 SUBSCRIPT FIVE; fiveinferior  
17403 \DeclareTextCommand{\textfiveinferior}{PU}{\9040\205}%\* U+2085  
17404 % U+2086 SUBSCRIPT SIX; sixinferior  
17405 \DeclareTextCommand{\textsixinferior}{PU}{\9040\206}%\* U+2086  
17406 % U+2087 SUBSCRIPT SEVEN; seveninferior  
17407 \DeclareTextCommand{\textseveninferior}{PU}{\9040\207}%\* U+2087  
17408 % U+2088 SUBSCRIPT EIGHT; eightinferior  
17409 \DeclareTextCommand{\texteightinferior}{PU}{\9040\210}%\* U+2088  
17410 % U+2089 SUBSCRIPT NINE; nineinferior  
17411 \DeclareTextCommand{\textnineinferior}{PU}{\9040\211}%\* U+2089  
17412 % U+208A SUBSCRIPT PLUS SIGN  
17413 \DeclareTextCommand{\textplusinferior}{PU}{\9040\212}%\* U+208A  
17414 % U+208B SUBSCRIPT MINUS  
17415 \DeclareTextCommand{\textminusinferior}{PU}{\9040\213}%\* U+208B  
17416 % U+208C SUBSCRIPT EQUALS SIGN  
17417 \DeclareTextCommand{\textequalsinferior}{PU}{\9040\214}%\* U+208C  
17418 % U+208D SUBSCRIPT LEFT PARENTHESIS; parenleftinferior  
17419 \DeclareTextCommand{\textparenleftinferior}{PU}{\9040\215}%\* U+208D  
17420 % U+208E SUBSCRIPT RIGHT PARENTHESIS; parenrightinferior  
17421 \DeclareTextCommand{\textparenrightinferior}{PU}{\9040\216}%\* U+208E  
17422 % U+2090 LATIN SUBSCRIPT SMALL LETTER A  
17423 \DeclareTextCommand{\textainferior}{PU}{\9040\220}%\* U+2090  
17424 % U+2091 LATIN SUBSCRIPT SMALL LETTER E  
17425 \DeclareTextCommand{\texteinferior}{PU}{\9040\221}%\* U+2091  
17426 % U+2092 LATIN SUBSCRIPT SMALL LETTER O  
17427 \DeclareTextCommand{\textoinferior}{PU}{\9040\222}%\* U+2092  
17428 % U+2093 LATIN SUBSCRIPT SMALL LETTER X  
17429 \DeclareTextCommand{\textxinferior}{PU}{\9040\223}%\* U+2093  
17430 % U+2094 LATIN SUBSCRIPT SMALL LETTER SCHWA  
17431 \DeclareTextCommand{\textschwainferior}{PU}{\9040\224}%\* U+2094  
17432 % U+2095 LATIN SUBSCRIPT SMALL LETTER H  
17433 \DeclareTextCommand{\texthinferior}{PU}{\9040\225}%\* U+2095  
17434 % U+2096 LATIN SUBSCRIPT SMALL LETTER K  
17435 \DeclareTextCommand{\textkinferior}{PU}{\9040\226}%\* U+2096  
17436 % U+2097 LATIN SUBSCRIPT SMALL LETTER L  
17437 \DeclareTextCommand{\textlinferior}{PU}{\9040\227}%\* U+2097  
17438 % U+2098 LATIN SUBSCRIPT SMALL LETTER M  
17439 \DeclareTextCommand{\textminferior}{PU}{\9040\230}%\* U+2098  
17440 % U+2099 LATIN SUBSCRIPT SMALL LETTER N  
17441 \DeclareTextCommand{\textninferior}{PU}{\9040\231}%\* U+2099  
17442 % U+209A LATIN SUBSCRIPT SMALL LETTER P  
17443 \DeclareTextCommand{\textpinferior}{PU}{\9040\232}%\* U+209A  
17444 % U+209B LATIN SUBSCRIPT SMALL LETTER S  
17445 \DeclareTextCommand{\textsinferior}{PU}{\9040\233}%\* U+209B

17446 % U+209C LATIN SUBSCRIPT SMALL LETTER T  
 17447 \DeclareTextCommand{\textttinferior}{PU}{\9040\234}%\* U+209C

#### 47.2.18 Currency Symbols: U+20A0 to U+20CF

17448 % U+20A1 COLON SIGN; \*colonmonetary, colonsign  
 17449 \DeclareTextCommand{\textcolonmonetary}{PU}{\9040\241}% U+20A1  
 17450 % U+20A4 LIRA SIGN; afii08941, \*lira  
 17451 \DeclareTextCommand{\textlira}{PU}{\9040\244}% U+20A4  
 17452 % U+20A6 NAIRA SIGN  
 17453 \DeclareTextCommand{\textnaira}{PU}{\9040\246}% U+20A6  
 17454 % U+20A7 PESETA SIGN; peseta  
 17455 \DeclareTextCommand{\textpeseta}{PU}{\9040\247}% U+20A7  
 17456 % U+20A9 WON SIGN; won  
 17457 \DeclareTextCommand{\textwon}{PU}{\9040\251}% U+20A9  
 17458 % U+20AB DONG SIGN; dong  
 17459 \DeclareTextCommand{\textdong}{PU}{\9040\253}% U+20AB  
 17460 % U+20AC EURO SIGN; \*Euro, euro  
 17461 \DeclareTextCommand{\texteuro}{PU}{\9040\254}% U+20AC  
 17462 %\* \texteuro -> \EurDig (marvosym)  
 17463 %\* \texteuro -> \EURdig (marvosym)  
 17464 %\* \texteuro -> \EurHv (marvosym)  
 17465 %\* \texteuro -> \EURhv (marvosym)  
 17466 %\* \texteuro -> \EurCr (marvosym)  
 17467 %\* \texteuro -> \EURcr (marvosym)  
 17468 %\* \texteuro -> \EurTm (marvosym)  
 17469 %\* \texteuro -> \EURtm (marvosym)  
 17470 %\* \texteuro -> \Eur (marvosym)  
 17471 % U+20B0 GERMAN PENNY SIGN; \Deleatur (marvosym)  
 17472 \DeclareTextCommand{\textDeleatur}{PU}{\9040\260}%\* U+20B0  
 17473 %\* \textDeleatur -> \Denarius (marvosym)  
 17474 % U+20B1 PESO SIGN  
 17475 \DeclareTextCommand{\textpeso}{PU}{\9040\261}% U+20B1  
 17476 % U+20B2 GUARANI SIGN  
 17477 \DeclareTextCommand{\textguarani}{PU}{\9040\262}% U+20B2

#### 47.2.19 Letterlike Symbols: U+2100 to U+214F

17478 % U+2103 DEGREE CELSIUS; centigrade  
 17479 \DeclareTextCommand{\textcelsius}{PU}{\9041\003}% U+2103  
 17480 % U+210F PLANCK CONSTANT OVER TWO PI; \hslash (AmS)  
 17481 \DeclareTextCommand{\texthslash}{PU}{\9041\017}%\* U+210F  
 17482 % U+2111 BLACK-LETTER CAPITAL I (=imaginary part); Ifraktur; \Im (LaTeX)  
 17483 \DeclareTextCommand{\textIm}{PU}{\9041\021}%\* U+2111  
 17484 % U+2113 SCRIPT SMALL L (=ell, liter); afii61289, lsquare; \ell (LaTeX)  
 17485 \DeclareTextCommand{\textell}{PU}{\9041\023}%\* U+2113  
 17486 % U+2116 NUMERO SIGN; \*afii61352, numero  
 17487 \DeclareTextCommand{\textnumero}{PU}{\9041\026}% U+2116  
 17488 % U+2117 SOUND RECORDING COPYRIGHT  
 17489 \DeclareTextCommand{\textcircledP}{PU}{\9041\027}% U+2117  
 17490 % U+2118 SCRIPT CAPITAL P (=Weierstrass elliptic function);  
 17491 % weierstrass; \wp (LaTeX)  
 17492 \DeclareTextCommand{\textwp}{PU}{\9041\030}%\* U+2118  
 17493 % U+211C BLACK-LETTER CAPITAL R (=real part); Rfraktur; \Re (LaTeX)  
 17494 \DeclareTextCommand{\textRe}{PU}{\9041\034}%\* U+211C

17495 % U+211E PRESCRIPTION TAKE; prescription  
 17496 \DeclareTextCommand{\textrecipe}{PU}{\9041\036}% U+211E  
 17497 % U+2120 SERVICE MARK  
 17498 \DeclareTextCommand{\textservicemark}{PU}{\9041\040}% U+2120  
 17499 % U+2122 TRADE MARK SIGN; trademark  
 17500 \DeclareTextCommand{\texttrademark}{PU}{\9041\042}% U+2122  
 17501 % U+2126 OHM SIGN; Ohm, Omega  
 17502 \DeclareTextCommand{\textohm}{PU}{\9041\046}% U+2126  
 17503 % U+2127 INVERTED OHM SIGN  
 17504 \DeclareTextCommand{\textmho}{PU}{\9041\047}%\* U+2127  
 17505 %\* \textmho -> \agemO (wasysym)  
 17506 % U+2129 TURNED GREEK SMALL LETTER IOTA; \riota (phonetic)  
 17507 \DeclareTextCommand{\textriota}{PU}{\9041\051}%\* U+2129  
 17508 % U+212B ANGSTROM SIGN; angstrom  
 17509 \DeclareTextCommand{\textangstrom}{PU}{\9041\053}% U+212B  
 17510 % U+212E ESTIMATED SYMBOL; estimated  
 17511 \DeclareTextCommand{\textestimated}{PU}{\9041\056}% U+212E  
 17512 %\* \textestimated -> \EstimatedSign (marvosym)  
 17513 %\* \textestimated -> \Ecommerce (marvosym)  
 17514 % U+2132 TURNED CAPITAL F; \Finv (AmS)  
 17515 \DeclareTextCommand{\textFinv}{PU}{\9041\062}%\* U+2132  
 17516 % U+2135 ALEF SYMBOL; aleph; \aleph (LaTeX)  
 17517 \DeclareTextCommand{\textaleph}{PU}{\9041\065}%\* U+2135  
 17518 % U+2136 BET SYMBOL; \beth (AmS, MnSymbol)  
 17519 \DeclareTextCommand{\textbeth}{PU}{\9041\066}%\* U+2136  
 17520 % U+2137 GIMEL SYMBOL; \gimel (AmS, MnSymbol)  
 17521 \DeclareTextCommand{\textgimel}{PU}{\9041\067}%\* U+2137  
 17522 % U+2138 DALET SYMBOL; \daleth (AmS, MnSymbol)  
 17523 \DeclareTextCommand{\textdaleth}{PU}{\9041\070}%\* U+2138  
 17524 % U+213B FACSIMILE SIGN; \fax (marvosym)  
 17525 \DeclareTextCommand{\textfax}{PU}{\9041\073}%\* U+213B  
 17526 % U+2141 TURNED SANS-SERIF CAPITAL G (=game); \Game  
 17527 \DeclareTextCommand{\textGame}{PU}{\9041\101}%\* U+2141  
 17528 % U+214B TURNED AMPERSAND; \invamp (txfonts/pxfonts)  
 17529 \DeclareTextCommand{\textinvamp}{PU}{\9041\113}% U+214B  
 17530 %\* \textinvamp -> \bindnasrepma (stmaryrd)  
 17531 %\* \textinvamp -> \parr (cml)

#### 47.2.20 Number Forms: U+2150 to U+218F

17532 % U+2150 VULGAR FRACTION ONE SEVENTH  
 17533 \DeclareTextCommand{\textoneseventh}{PU}{\9041\120}% U+2150  
 17534 % U+2151 VULGAR FRACTION ONE NINTH  
 17535 \DeclareTextCommand{\textoneninth}{PU}{\9041\121}% U+2151  
 17536 % U+2152 VULGAR FRACTION ONE TENTH  
 17537 \DeclareTextCommand{\textonetenth}{PU}{\9041\122}% U+2152  
 17538 % U+2153 VULGAR FRACTION ONE THIRD; onethird  
 17539 \DeclareTextCommand{\textonethird}{PU}{\9041\123}% U+2153  
 17540 % U+2154 VULGAR FRACTION TWO THIRDS; twothirds  
 17541 \DeclareTextCommand{\texttwothirds}{PU}{\9041\124}% U+2154  
 17542 % U+2155 VULGAR FRACTION ONE FIFTH  
 17543 \DeclareTextCommand{\textonefifth}{PU}{\9041\125}% U+2155  
 17544 % U+2156 VULGAR FRACTION TWO FIFTHS  
 17545 \DeclareTextCommand{\texttwofifths}{PU}{\9041\126}% U+2156  
 17546 % U+2157 VULGAR FRACTION THREE FIFTHS



17547 \DeclareTextCommand{\textthreefifths}{PU}{\9041\127}% U+2157  
 17548 % U+2158 VULGAR FRACTION FOUR FIFTHS  
 17549 \DeclareTextCommand{\textfourfifths}{PU}{\9041\130}% U+2158  
 17550 % U+2159 VULGAR FRACTION ONE SIXTH  
 17551 \DeclareTextCommand{\textonesixth}{PU}{\9041\131}% U+2159  
 17552 % U+215A VULGAR FRACTION FIVE SIXTHS  
 17553 \DeclareTextCommand{\textfivesixths}{PU}{\9041\132}% U+215A  
 17554 % U+215B VULGAR FRACTION ONE EIGHTH; oneeighth  
 17555 \DeclareTextCommand{\textoneeighth}{PU}{\9041\133}% U+215B  
 17556 % U+215C VULGAR FRACTION THREE EIGHTHS; threeeighths  
 17557 \DeclareTextCommand{\textthreeeighths}{PU}{\9041\134}% U+215C  
 17558 % U+215D VULGAR FRACTION FIVE EIGHTHS; fiveeighths  
 17559 \DeclareTextCommand{\textfiveeighths}{PU}{\9041\135}% U+215D  
 17560 % U+215E VULGAR FRACTION SEVEN EIGHTHS; seveneighths  
 17561 \DeclareTextCommand{\textseveneighths}{PU}{\9041\136}% U+215E  
 17562 % U+2184 LATIN SMALL LETTER REVERSED C  
 17563 \DeclareTextCommand{\textrevc}{PU}{\9041\204}% U+2184  
 17564 % U+2189 VULGAR FRACTION ZERO THIRDS  
 17565 \DeclareTextCommand{\textzer thirds}{PU}{\9041\211}% U+2189

#### 47.2.21 Arrows: U+2190 to U+21FF

17566 % U+2190 LEFTWARDS ARROW; arrowleft  
 17567 \DeclareTextCommand{\textleftarrow}{PU}{\9041\220}%\* U+2190  
 17568 % U+2191 UPWARDS ARROW; arrowup  
 17569 \DeclareTextCommand{\textuparrow}{PU}{\9041\221}%\* U+2191  
 17570 % U+2192 RIGHTWARDS ARROW; arrowright  
 17571 \DeclareTextCommand{\textrightarrow}{PU}{\9041\222}%\* U+2192  
 17572 %\* \textrightarrow -> \MVRightArrow (marvosym)  
 17573 %\* \textrightarrow -> \MVRightarrow (marvosym)  
 17574 % U+2193 DOWNWARDS ARROW; arrowdown  
 17575 \DeclareTextCommand{\textdownarrow}{PU}{\9041\223}%\* U+2193  
 17576 %\* \textdownarrow -> \MVArrowDown (marvosym)  
 17577 %\* \textdownarrow -> \Force (marvosym)  
 17578 % U+2194 LEFT RIGHT ARROW; arrowboth; \leftrightarrow (LaTeX)  
 17579 \DeclareTextCommand{\textleftrightarrow}{PU}{\9041\224}%\* U+2194  
 17580 % U+2195 UP DOWN ARROW; arrowupdn; \updownarrow (LaTeX)  
 17581 \DeclareTextCommand{\textupdownarrow}{PU}{\9041\225}%\* U+2195  
 17582 % U+2196 NORTH WEST ARROW; arrowupleft; \nwarrow (LaTeX)  
 17583 \DeclareTextCommand{\textnwarrow}{PU}{\9041\226}%\* U+2196  
 17584 % U+2197 NORTH EAST ARROW; arrowupright; \nearrow (LaTeX)  
 17585 \DeclareTextCommand{\textnearrow}{PU}{\9041\227}%\* U+2197  
 17586 %\* \textnearrow -> \textglobrise (tipa)  
 17587 % U+2198 SOUTH EAST ARROW; arrowdownright; \searrow (LaTeX)  
 17588 \DeclareTextCommand{\textsearrow}{PU}{\9041\230}%\* U+2198  
 17589 %\* \textsearrow -> \textglobfall (tipa)  
 17590 % U+2199 SOUTH WEST ARROW; arrowdownleft; \swarrow (LaTeX)  
 17591 \DeclareTextCommand{\textswarrow}{PU}{\9041\231}%\* U+2199  
 17592 % U+219A LEFTWARDS ARROW WITH STROKE; \nleftarrow (AmS)  
 17593 \DeclareTextCommand{\textnleftarrow}{PU}{\9041\232}%\* U+219A  
 17594 % U+219B RIGHTWARDS ARROW WITH STROKE; \nrightarrow (AmS)  
 17595 \DeclareTextCommand{\textnrightarrow}{PU}{\9041\233}%\* U+219B  
 17596 % U+219E LEFTWARDS TWO HEADED ARROW; \twoheadleftarrow (AmS)  
 17597 \DeclareTextCommand{\texttwoheadleftarrow}{PU}{\9041\236}%\* U+219E  
 17598 % \ntwoheadleftarrow (txfonts/pxfonts)

17599 \DeclareTextCommand{\textntwoheadleftarrow}{PU}{\9041\236\83\070}%\* U+219E U+0338  
17600 % U+219F UPWARDS TWO HEADED ARROW; \twoheaduparrow (MnSymbol)  
17601 \DeclareTextCommand{\texttwoheaduparrow}{PU}{\9041\237}%\* U+219F  
17602 % U+21A0 RIGHTWARDS TWO HEADED ARROW;  
17603 % \twoheadrightarrow (AmS)  
17604 \DeclareTextCommand{\texttwoheadrightarrow}{PU}{\9041\240}%\* U+21A0  
17605 % \ntwoheadrightarrow (txfonts/pxfonts)  
17606 \DeclareTextCommand{\textntwoheadrightarrow}{PU}{\9041\240\83\070}%\* U+21A0 U+0338  
17607 % U+21A1 DOWNWARDS TWO HEADED ARROW; \twoheaddownarrow (Mn-  
Symbol)  
17608 \DeclareTextCommand{\texttwoheaddownarrow}{PU}{\9041\241}%\* U+21A1  
17609 % U+21A2 LEFTWARDS ARROW WITH TAIL; \leftarrowtail (AmS)  
17610 \DeclareTextCommand{\textleftarrowtail}{PU}{\9041\242}%\* U+21A2  
17611 % U+21A3 RIGHTWARDS ARROW WITH TAIL; \rightarrowtail (AmS)  
17612 \DeclareTextCommand{\textrightarrowtail}{PU}{\9041\243}%\* U+21A3  
17613 % U+21A6 RIGHTWARDS ARROW FROM BAR; \mapsto (LaTeX)  
17614 \DeclareTextCommand{\textmapsto}{PU}{\9041\246}%\* U+21A6  
17615 % U+21A9 LEFTWARDS ARROW WITH HOOK; \hookleftarrow (LaTeX)  
17616 \DeclareTextCommand{\texthookleftarrow}{PU}{\9041\251}%\* U+21A9  
17617 % U+21AA RIGHTWARDS ARROW WITH HOOK; \hookrightarrow (LaTeX)  
17618 \DeclareTextCommand{\texthookrightarrow}{PU}{\9041\252}%\* U+21AA  
17619 % U+21AB LEFTWARDS ARROW WITH LOOP; \looparrowleft (AmS)  
17620 \DeclareTextCommand{\textlooparrowleft}{PU}{\9041\253}%\* U+21AB  
17621 % U+21AC RIGHTWARDS ARROW WITH LOOP; \looparrowright (AmS)  
17622 \DeclareTextCommand{\textlooparrowright}{PU}{\9041\254}%\* U+21AC  
17623 % U+21AE LEFT RIGHT ARROW WITH STROKE; \leftrightarrow (AmS)  
17624 \DeclareTextCommand{\textnleftrightarrow}{PU}{\9041\256}%\* U+21AE  
17625 % U+21AF DOWNWARDS ZIGZAG ARROW; \lightning (stmaryrd)  
17626 \DeclareTextCommand{\textlightning}{PU}{\9041\257}%\* U+21AF  
17627 %\* \textlightning -> \Lightning (marvosym)  
17628 % U+21B5 DOWNWARDS ARROW WITH CORNER LEFTWARDS;  
17629 % \dsh (mathabx)  
17630 \DeclareTextCommand{\textdsh}{PU}{\9041\265}%\* U+21B5  
17631 % U+21B6 ANTICLOCKWISE TOP SEMICIRCLE ARROW;  
17632 % \curvearrowleft (AmS)  
17633 \DeclareTextCommand{\textcurvearrowleft}{PU}{\9041\266}%\* U+21B6  
17634 % U+21B7 CLOCKWISE TOP SEMICIRCLE ARROW; \curvearrowright (AmS)  
17635 \DeclareTextCommand{\textcurvearrowright}{PU}{\9041\267}%\* U+21B7  
17636 % U+21BC LEFTWARDS HARPOON WITH BARB UPWARDS; harpoonleft-  
barbup;  
17637 % \leftharpoonup (LaTeX)  
17638 \DeclareTextCommand{\textleftharpoonup}{PU}{\9041\274}%\* U+21BC  
17639 % U+21BD LEFTWARDS HARPOON WITH BARB DOWNWARDS;  
17640 % \leftharpoondown (LaTeX)  
17641 \DeclareTextCommand{\textleftharpoondown}{PU}{\9041\275}%\* U+21BD  
17642 % U+21BE UPWARDS HARPOON WITH BARB RIGHTWARDS;  
17643 % \upharpoonright (AmS)  
17644 \DeclareTextCommand{\textupharpoonright}{PU}{\9041\276}%\* U+21BE  
17645 % U+21BF UPWARDS HARPOON WITH BARB LEFTWARDS;  
17646 % \upharpoonleft (AmS)  
17647 \DeclareTextCommand{\textupharpoonleft}{PU}{\9041\277}%\* U+21BF  
17648 % U+21C0 RIGHTWARDS HARPOON WITH BARB UPWARDS; harpoonright-  
barbup  
17649 % \rightharpoonup (LaTeX)

```

17650 \DeclareTextCommand{\textrightharpoonup}{PU}{\9041\300}%* U+21C0
17651 % U+21C1 RIGHTWARDS HARPOON WITH BARB DOWNWARDS;
17652 % \rightharpoondown (LaTeX)
17653 \DeclareTextCommand{\textrightharpoondown}{PU}{\9041\301}%* U+21C1
17654 % U+21C2 DOWNWARDS HARPOON WITH BARB RIGHTWARDS;
17655 % \downharpoonright (AmS)
17656 \DeclareTextCommand{\textdownharpoonright}{PU}{\9041\302}%* U+21C2
17657 % U+21C3 DOWNWARDS HARPOON WITH BARB LEFTWARDS;
17658 % \downharpoonleft (AmS)
17659 \DeclareTextCommand{\textdownharpoonleft}{PU}{\9041\303}%* U+21C3
17660 % U+21C4 RIGHTWARDS ARROW OVER LEFTWARDS ARROW;
17661 % arrowrightoverleft; \rightleftarrows (MnSymbol)
17662 \DeclareTextCommand{\textrightleftarrows}{PU}{\9041\304}%* U+21C4
17663 % U+21C5 UPWARDS ARROW LEFTWARDS OF DOWNWARDS ARROW; ar-
rowupleftofdown;
17664 % \updownarrows (MnSymbol)
17665 \DeclareTextCommand{\textupdownarrows}{PU}{\9041\305}%* U+21C5
17666 % U+21C6 LEFTWARDS ARROW OVER RIGHTWARDS ARROW; arrowleft-
overright;
17667 % \leftrightarrows (AmS)
17668 \DeclareTextCommand{\textleftrightarrows}{PU}{\9041\306}%* U+21C6
17669 % U+21C7 LEFTWARDS PAIRED ARROWS; \leftleftarrows (AmS)
17670 \DeclareTextCommand{\textleftleftarrows}{PU}{\9041\307}%* U+21C7
17671 % U+21C8 UPWARDS PAIRED ARROWS; \upuparrows (AmS)
17672 \DeclareTextCommand{\textupuparrows}{PU}{\9041\310}%* U+21C8
17673 % U+21C9 RIGHTWARDS PAIRED ARROWS; \rightrightarrows (AmS)
17674 \DeclareTextCommand{\textrightarrows}{PU}{\9041\311}%* U+21C9
17675 % U+21CA DOWNWARDS PAIRED ARROWS; \downdownarrows (AmS)
17676 \DeclareTextCommand{\textdowndownarrows}{PU}{\9041\312}%* U+21CA
17677 % U+21CB LEFTWARDS HARPOON OVER RIGHTWARDS HARPOON;
17678 % \leftrightharpoons (AmS);
17679 \DeclareTextCommand{\textleftrightharpoons}{PU}{\9041\313}%* U+21CB
17680 % U+21CC RIGHTWARDS HARPOON OVER LEFTWARDS HARPOON;
17681 % \rightleftharpoons (LaTeX, AmS)
17682 \DeclareTextCommand{\textrightleftharpoons}{PU}{\9041\314}%* U+21CC
17683 % U+21CD LEFTWARDS DOUBLE ARROW WITH STROKE; arrowleftd-
blstroke;
17684 % \nLeftarrow (AmS)
17685 \DeclareTextCommand{\textnLeftarrow}{PU}{\9041\315}%* U+21CD
17686 % U+21CE LEFT RIGHT DOUBLE ARROW WITH STROKE; \nLeftrightar-
row (AmS)
17687 \DeclareTextCommand{\textnLeftrightarrow}{PU}{\9041\316}%* U+21CE
17688 % U+21CF RIGHTWARDS DOUBLE ARROW WITH STROKE; arrowrightd-
blstroke;
17689 % \nRightarrow (AmS)
17690 \DeclareTextCommand{\textnRightarrow}{PU}{\9041\317}%* U+21CF
17691 % U+21D0 LEFTWARDS DOUBLE ARROW; arrowdblleft, arrowleftdbl;
17692 % \Leftarrow (LaTeX)
17693 \DeclareTextCommand{\textLeftarrow}{PU}{\9041\320}%* U+21D0
17694 % U+21D1 UPWARDS DOUBLE ARROW; arrowdblup; \Uparrow (LaTeX)
17695 \DeclareTextCommand{\textUparrow}{PU}{\9041\321}%* U+21D1
17696 % U+21D2 RIGHTWARDS DOUBLE ARROW; arrowdblright, dblarrowright;
17697 % \Rightarrow (LaTeX)
17698 \DeclareTextCommand{\textRightarrow}{PU}{\9041\322}%* U+21D2

```

```

17699 %* \textRrightarrow -> \Conclusion (marvosym)
17700 % U+21D3 DOWNWARDS DOUBLE ARROW; arrowdblDOWN; \Downarrow (La-
TeX)
17701 \DeclareTextCommand{\textDownarrow}{PU}{\9041\323}%* U+21D3
17702 % U+21D4 LEFT RIGHT DOUBLE ARROW; arrowdblboth;
17703 % \Leftrightarrow (LaTeX)
17704 \DeclareTextCommand{\textLeftrightarrow}{PU}{\9041\324}%* U+21D4
17705 %* \textLeftrightarrow -> \Equivalence (marvosym)
17706 % U+21D5 UP DOWN DOUBLE ARROW; \Updownarrow (LaTeX)
17707 \DeclareTextCommand{\textUpdownarrow}{PU}{\9041\325}%* U+21D5
17708 % U+21D6 NORTH WEST DOUBLE ARROW; \Nwarrow (MnSymbol)
17709 \DeclareTextCommand{\textNwarrow}{PU}{\9041\326}%* U+21D6
17710 % U+21D7 NORTH EAST DOUBLE ARROW; \Nearrow (MnSymbol)
17711 \DeclareTextCommand{\textNearrow}{PU}{\9041\327}%* U+21D7
17712 % U+21D8 SOUTH EAST DOUBLE ARROW; \Searrow (MnSymbol)
17713 \DeclareTextCommand{\textSearrow}{PU}{\9041\330}%* U+21D8
17714 % U+21D9 SOUTH WEST DOUBLE ARROW; \Swarrow (MnSymbol)
17715 \DeclareTextCommand{\textSwarrow}{PU}{\9041\331}%* U+21D9
17716 % U+21DA LEFTWARDS TRIPLE ARROW; \Lleftarrow (AmS)
17717 \DeclareTextCommand{\textLleftarrow}{PU}{\9041\332}%* U+21DA
17718 % U+21DB RIGHTWARDS TRIPLE ARROW; \Rrightarrow (MnSymbol)
17719 \DeclareTextCommand{\textRrightarrow}{PU}{\9041\333}%* U+21DB
17720 % U+21DC LEFTWARDS SQUIGGLE ARROW; \leftsquigarrow (mathabx)
17721 \DeclareTextCommand{\textleftsquigarrow}{PU}{\9041\334}%* U+21DC
17722 % U+21DD RIGHTWARDS SQUIGGLE ARROW; \rightsquigarrow (mathabx)
17723 \DeclareTextCommand{\textright squigarrow}{PU}{\9041\335}%* U+21DD
17724 % U+21E0 LEFTWARDS DASHED ARROW; arrowdashleft;
17725 % \dashleftarrow (AmS)
17726 \DeclareTextCommand{\textdashleftarrow}{PU}{\9041\340}%* U+21E0
17727 %* \textdashleftarrow -> \dashedleftarrow (MnSymbol)
17728 % U+21E1 UPWARDS DASHED ARROW; arrowdashup; \dasheduparrow (Mn-
Symbol)
17729 \DeclareTextCommand{\textdasheduparrow}{PU}{\9041\341}%* U+21E1
17730 % U+21E2 RIGHTWARDS DASHED ARROW; arrowdashright; \dashrightarrow
(AmS)
17731 \DeclareTextCommand{\textdashrightarrow}{PU}{\9041\342}%* U+21E2
17732 %* \textdashrightarrow -> \dashedrightarrow (MnSymbol)
17733 % U+21E3 DOWNWARDS DASHED ARROW; arrowdashdown; \dasheddownar-
row (MnSymbol)
17734 \DeclareTextCommand{\textdasheddownarrow}{PU}{\9041\343}%* U+21E3
17735 % U+21E8 RIGHTWARDS WHITE ARROW; \pointer (wasysym)
17736 \DeclareTextCommand{\textpointer}{PU}{\9041\350}%* U+21E8
17737 % U+21F5 DOWNWARDS ARROW LEFTWARDS OF UPWARDS ARROW;
17738 % \downuparrows (MnSymbol)
17739 \DeclareTextCommand{\textdownuparrows}{PU}{\9041\365}%* U+21F5
17740 % U+21FD LEFTWARDS OPEN-HEADED ARROW; \leftarrowtriangle (stmaryrd)
17741 \DeclareTextCommand{\textleftarrowtriangle}{PU}{\9041\375}%* U+21FD
17742 % U+21FE RIGHTWARDS OPEN-HEADED ARROW; \rightarrowtriangle (stmaryrd)
17743 \DeclareTextCommand{\textrightarrowtriangle}{PU}{\9041\376}%* U+21FE
17744 % U+21FF LEFT RIGHT OPEN-HEADED ARROW; \leftrightarrowtri-
angle (stmaryrd)
17745 \DeclareTextCommand{\textleftrightarrowtriangle}{PU}{\9041\377}%* U+21FF

```

#### 47.2.22 Mathematical Operators: U+2200 to U+22FF

```

17746 % U+2200 FOR ALL; forall; \forall (LaTeX)
17747 \DeclareTextCommand{\textforall}{PU}{\9042\000}%* U+2200
17748 % U+2201 COMPLEMENT; \complement (AmS)
17749 \DeclareTextCommand{\textcomplement}{PU}{\9042\001}%* U+2201
17750 % U+2202 PARTIAL DIFFERENTIAL; partialdiff; \partial (LaTeX)
17751 \DeclareTextCommand{\textpartial}{PU}{\9042\002}%* U+2202
17752 % U+2203 THERE EXISTS; existential; \exists (LaTeX)
17753 \DeclareTextCommand{\textexists}{PU}{\9042\003}%* U+2203
17754 % U+2204 THERE DOES NOT EXIST; \nexists (AmS)
17755 \DeclareTextCommand{\textnexists}{PU}{\9042\004}%* U+2204
17756 % U+2205 EMPTY SET; emptyset; \emptyset (LaTeX), \varnothing (AmS)
17757 \DeclareTextCommand{\textemptyset}{PU}{\9042\005}%* U+2205
17758 %* \textemptyset -> \varnothing (AmS)
17759 % U+2206 INCREMENT; increment, Delta; \triangle (LaTeX)
17760 \DeclareTextCommand{\texttriangle}{PU}{\9042\006}%* U+2206
17761 % U+2207 NABLA; nabla, gradient; \nabla (LaTeX)
17762 \DeclareTextCommand{\textnabla}{PU}{\9042\007}%* U+2207
17763 % U+2208 ELEMENT OF; element; \in (LaTeX)
17764 \DeclareTextCommand{\textin}{PU}{\9042\010}%* U+2208
17765 % U+2209 NOT AN ELEMENT OF; notelement, notelementof; \notin (LaTeX)
17766 \DeclareTextCommand{\textnotin}{PU}{\9042\011}%* U+2209
17767 % U+220A SMALL ELEMENT OF; \smallin (mathdesign)
17768 \DeclareTextCommand{\textsmallin}{PU}{\9042\012}%* U+220A
17769 % U+220B CONTAINS AS MEMBER; suchthat; \ni (LaTeX)
17770 \DeclareTextCommand{\textni}{PU}{\9042\013}%* U+220B
17771 %* \textni -> \owns (mathabx)
17772 % U+220C DOES NOT CONTAIN AS MEMBER; \notowner (mathabx)
17773 \DeclareTextCommand{\textnotowner}{PU}{\9042\014}%* U+220C
17774 %* \textnotowner -> \notni (txfonts/pxfonts)
17775 % U+220D SMALL CONTAINS AS MEMBER; \smallowns (mathdesign)
17776 \DeclareTextCommand{\textsmallowns}{PU}{\9042\015}%* U+220D
17777 % U+220F N-ARY PRODUCT; \prod (LaTeX)
17778 \DeclareTextCommand{\textprod}{PU}{\9042\017}%* U+220F
17779 % U+2210 N-ARY COPRODUCT; \amalg (LaTeX)
17780 \DeclareTextCommand{\textamalg}{PU}{\9042\020}%* U+2210
17781 % U+2211 N-ARY SUMMATION; summation; \sum (LaTeX)
17782 \DeclareTextCommand{\textsum}{PU}{\9042\021}%* U+2211
17783 % U+2212 MINUS SIGN; minus
17784 \DeclareTextCommand{\textminus}{PU}{\9042\022}% U+2212
17785 % U+2213 MINUS-OR-PLUS SIGN; minusplus; \mp (LaTeX)
17786 \DeclareTextCommand{\textmp}{PU}{\9042\023}%* U+2213
17787 % U+2214 DOT PLUS; \dotplus (AmS)
17788 \DeclareTextCommand{\textdotplus}{PU}{\9042\024}%* U+2214
17789 % U+2215 DIVISION SLASH; divisionslash; \Divides (marvosym)
17790 \DeclareTextCommand{\textDivides}{PU}{\9042\025}%* U+2215
17791 % \DividesNot (marvosym)
17792 \DeclareTextCommand{\textDividesNot}{PU}{\9042\025\9040\322}%* U+2215 U+20D2
17793 % U+2216 SET MINUS; \setminus (LaTeX)
17794 \DeclareTextCommand{\textsetminus}{PU}{\9042\026}%* U+2216
17795 % U+2217 ASTERISK OPERATOR; asteriskmath; \ast (LaTeX)
17796 \DeclareTextCommand{\textast}{PU}{\9042\027}%* U+2217
17797 % U+2218 RING OPERATOR; \circ (LaTeX)
17798 \DeclareTextCommand{\textcirc}{PU}{\9042\030}%* U+2218
17799 % U+2219 BULLET OPERATOR; bulletoperator; \bullet (LaTeX)

```

```

17800 \DeclareTextCommand{\textbulletoperator}{PU}{\9042\031}% U+2219
17801 % U+221A SQUARE ROOT; radical
17802 \DeclareTextCommand{\textsurd}{PU}{\9042\032}%* U+221A
17803 % U+221D PROPORTIONAL TO; proportional; \propto (LaTeX)
17804 \DeclareTextCommand{\textpropto}{PU}{\9042\035}%* U+221D
17805 %* \textpropto -> \varprop (wasysym)
17806 % U+221E INFINITY; infinity; \infty (LaTeX)
17807 \DeclareTextCommand{\textinfty}{PU}{\9042\036}%* U+221E
17808 % U+2220 ANGLE; angle; \angle (LaTeX)
17809 \DeclareTextCommand{\textangle}{PU}{\9042\040}%* U+2220
17810 % U+2221 MEASURED ANGLE; \measuredangle (mathabx, MnSymbol)
17811 \DeclareTextCommand{\textmeasuredangle}{PU}{\9042\041}%* U+2221
17812 % U+2222 SPHERICAL ANGLE; \sphericalangle (AmS)
17813 \DeclareTextCommand{\textsphericalangle}{PU}{\9042\042}%* U+2222
17814 %* \textsphericalangle -> \varangle (wasysym)
17815 %* \textsphericalangle -> \Anglesign (marvosym)
17816 %* \textsphericalangle -> \AngleSign (marvosym)
17817 % U+2223 DIVIDES; divides; \mid (LaTeX)
17818 \DeclareTextCommand{\textmid}{PU}{\9042\043}%* U+2223
17819 % U+2224 DOES NOT DIVIDE; \nmid (AmS)
17820 \DeclareTextCommand{\textnmid}{PU}{\9042\044}%* U+2224
17821 %* \textnmid -> \notdivides (mathabx)
17822 % U+2225 PARALLEL TO; parallel; \parallel (LaTeX)
17823 \DeclareTextCommand{\textparallel}{PU}{\9042\045}%* U+2225
17824 % U+2226 NOT PARALLEL TO; notparallel; \nparallel (AmS)
17825 \DeclareTextCommand{\textnparallel}{PU}{\9042\046}%* U+2226
17826 %* \textnparallel -> nUpdownline (MnSymbol)
17827 % U+2227 LOGICAL AND; logicaland; \wedge (LaTeX)
17828 \DeclareTextCommand{\textwedge}{PU}{\9042\047}%* U+2227
17829 % \owedge (stmaryrd)
17830 \DeclareTextCommand{\textowedge}{PU}{\9042\047\9040\335}%* U+2227 U+20DD
17831 %* \textowedge -> \varowedge (stmaryrd)
17832 % U+2228 LOGICAL OR; logicalor; \vee (LaTeX)
17833 \DeclareTextCommand{\textvee}{PU}{\9042\050}%* U+2228
17834 % \ovee (stmaryrd)
17835 \DeclareTextCommand{\textovee}{PU}{\9042\050\9040\335}%* U+2228 U+20DD
17836 %* \textovee -> \varovee (stmaryrd)
17837 % U+2229 INTERSECTION; intersection; \cap (LaTeX)
17838 \DeclareTextCommand{\textcap}{PU}{\9042\051}%* U+2229
17839 % U+222A UNION; union; \cup (LaTeX)
17840 \DeclareTextCommand{\textcup}{PU}{\9042\052}%* U+222A
17841 % U+222B INTEGRAL; integral; \int (LaTeX)
17842 \DeclareTextCommand{\textint}{PU}{\9042\053}%* U+222B
17843 %* \textint -> \varint (wasysym)
17844 % U+222C DOUBLE INTEGRAL; dblintegral; \iint (AmS)
17845 \DeclareTextCommand{\textiint}{PU}{\9042\054}%* U+222C
17846 % U+222D TRIPLE INTEGRAL; \iiint (AmS)
17847 \DeclareTextCommand{\textiiint}{PU}{\9042\055}%* U+222D
17848 % U+222E CONTOUR INTEGRAL; contourintegral; \oint (LaTeX)
17849 \DeclareTextCommand{\textoint}{PU}{\9042\056}%* U+222E
17850 %* \textoint -> \varoint (wasysym)
17851 % U+222F SURFACE INTEGRAL; \oiint (wasysym)
17852 \DeclareTextCommand{\textoiint}{PU}{\9042\057}%* U+222F
17853 % U+2232 CLOCKWISE CONTOUR INTEGRAL;

```

17854 % \ointclockwise (txfonts/pxfonts)  
17855 \DeclareTextCommand{\textointclockwise}{PU}{\9042\062}%\* U+2232  
17856 % U+2233 ANTICLOCKWISE CONTOUR INTEGRAL; \ointctrclockwise (tx-  
fonts/pxfonts)  
17857 \DeclareTextCommand{\textointctrclockwise}{PU}{\9042\063}%\* U+2233  
17858 % U+2234 THEREFORE; therefore; \therefore (AmS)  
17859 \DeclareTextCommand{\texttherefore}{PU}{\9042\064}%\* U+2234  
17860 %\* \texttherefore -> uptherefore (MnSymbol)  
17861 % U+2235 BECAUSE; because; \because (AmS)  
17862 \DeclareTextCommand{\textbecause}{PU}{\9042\065}%\* U+2235  
17863 %\* \textbecause -> \downtherefore (MnSymbol)  
17864 % U+2236 RATIO; \vdotdot (MnSymbol)  
17865 \DeclareTextCommand{\textvdotdot}{PU}{\9042\066}%\* U+2236  
17866 % U+2237 PROPORTION; \squaredots (MnSymbol)  
17867 \DeclareTextCommand{\textsquaredots}{PU}{\9042\067}%\* U+2237  
17868 % U+2238 DOT MINUS; \dotminus (MnSymbol)  
17869 \DeclareTextCommand{\textdotminus}{PU}{\9042\070}%\* U+2238  
17870 %\* \textdotminus -> \textdotdiv (mathabx)  
17871 % U+2239 EXCESS; \eqcolon (txfonts/pxfonts)  
17872 \DeclareTextCommand{\texteqcolon}{PU}{\9042\071}%\* U+2239  
17873 % U+223C TILDE OPERATOR; similar; \sim (LaTeX)  
17874 \DeclareTextCommand{\textsim}{PU}{\9042\074}%\* U+223C  
17875 %\* \textsim -> \AC (wasysym)  
17876 % U+223D REVERSED TILDE; reversedtilde; \backsim (AmS)  
17877 \DeclareTextCommand{\textbacksim}{PU}{\9042\075}%\* U+223D  
17878 % \nbacksim (txfonts/pxfonts)  
17879 \DeclareTextCommand{\textnbacksim}{PU}{\9042\075\83\070}%\* U+223D U+0338  
17880 % U+2240 WREATH PRODUCT; \wr (LaTeX)  
17881 \DeclareTextCommand{\textwr}{PU}{\9042\100}%\* U+2240  
17882 %\* \textwr -> \wreath (MnSymbol)  
17883 % U+2241 NOT TILDE; \nsim (AmS)  
17884 \DeclareTextCommand{\textnsim}{PU}{\9042\101}%\* U+2241  
17885 % U+2242 MINUS TILDE; \eqsim (MnSymbol)  
17886 \DeclareTextCommand{\texteqsim}{PU}{\9042\102}%\* U+2242  
17887 % \neqsim (MnSymbol)  
17888 \DeclareTextCommand{\textneqsim}{PU}{\9042\102\83\070}%\* U+2242 U+0338  
17889 % U+2243 ASYMPTOTICALLY EQUAL TO; asymptoticallyequal; \simeq (La-  
TeX)  
17890 \DeclareTextCommand{\textsimeq}{PU}{\9042\103}%\* U+2243  
17891 % U+2244 NOT ASYMPTOTICALLY EQUAL TO; \nsimeq (txfonts/pxfonts)  
17892 \DeclareTextCommand{\textnsimeq}{PU}{\9042\104}%\* U+2244  
17893 % U+2245 APPROXIMATELY EQUAL TO; approximatelyequal; \cong (LaTeX)  
17894 \DeclareTextCommand{\textcong}{PU}{\9042\105}%\* U+2245  
17895 % U+2247 NEITHER APPROXIMATELY NOR ACTUALLY EQUAL TO;  
17896 % \ncong (AmS)  
17897 \DeclareTextCommand{\textncong}{PU}{\9042\107}%\* U+2247  
17898 % U+2248 ALMOST EQUAL TO; approxequal; \approx (LaTeX)  
17899 \DeclareTextCommand{\textapprox}{PU}{\9042\110}%\* U+2248  
17900 % U+2249 NOT ALMOST EQUAL TO; \napprox (txfonts/pxfonts)  
17901 \DeclareTextCommand{\textnapprox}{PU}{\9042\111}%\* U+2249  
17902 %\* \textnapprox -> \nthickapprox (txfonts/pxfonts)  
17903 % U+224A ALMOST EQUAL OR EQUAL TO; \approxeq (AmS)  
17904 \DeclareTextCommand{\textapproxeq}{PU}{\9042\112}%\* U+224A  
17905 % \napproxeq (txfonts/pxfonts)

17906 \DeclareTextCommand{\textnapproxeq}{PU}{\9042\112\83\070}%\* U+224A U+0338  
17907 % U+224B TRIPLE TILDE; \triplesim (MnSymbol)  
17908 \DeclareTextCommand{\texttriplesim}{PU}{\9042\113}%\* U+224B  
17909 %\* \texttriplesim -> \VHF (wasysym)  
17910 % \ntriplesim (MnSymbol)  
17911 \DeclareTextCommand{\textntriplesim}{PU}{\9042\113\83\070}%\* U+224B U+0338  
17912 % U+224C ALL EQUAL TO; allequal; \backcong (MnSymbol)  
17913 \DeclareTextCommand{\textbackcong}{PU}{\9042\114}%\* U+224C  
17914 % \nbackcong (MnSymbol)  
17915 \DeclareTextCommand{\textnbackcong}{PU}{\9042\114\83\070}%\* U+224C U+0338  
17916 % U+224D EQUIVALENT TO; \asymp (LaTeX)  
17917 \DeclareTextCommand{\textasymp}{PU}{\9042\115}%\* U+224D  
17918 % \nasymp (txfonts/pxfonts)  
17919 \DeclareTextCommand{\textnasymp}{PU}{\9042\115\83\070}%\* U+224D U+0338  
17920 %\* \textnasymp -> \notasymp (mathabx)  
17921 % U+224E GEOMETRICALLY EQUIVALENT TO; \Bumpeq (AmS)  
17922 \DeclareTextCommand{\textBumpeq}{PU}{\9042\116}%\* U+224E  
17923 % \nBumpeq (txfonts/pxfonts)  
17924 \DeclareTextCommand{\textnBumpeq}{PU}{\9042\116\83\070}%\* U+224E U+0338  
17925 % U+224F DIFFERENCE BETWEEN; \bumpeq (AmS)  
17926 \DeclareTextCommand{\textbumpeq}{PU}{\9042\117}%\* U+224F  
17927 % \nbumpeq (txfonts/pxfonts)  
17928 \DeclareTextCommand{\textnbumpeq}{PU}{\9042\117\83\070}%\* U+224F U+0338  
17929 % U+2250 APPROACHES THE LIMIT; approaches; \doteq (LaTeX)  
17930 \DeclareTextCommand{\textdoteq}{PU}{\9042\120}%\* U+2250  
17931 % \ndoteq (MnSymbol)  
17932 \DeclareTextCommand{\textndoteq}{PU}{\9042\120\83\070}%\* U+2250 U+0338  
17933 % U+2251 GEOMETRICALLY EQUAL TO; geometricallyequal;  
17934 % \doteqdot (AmS)  
17935 \DeclareTextCommand{\textdoteqdot}{PU}{\9042\121}%\* U+2251  
17936 %\* \textdoteqdot -> \Doteq (MnSymbol)  
17937 % \nDoteq (MnSymbol)  
17938 \DeclareTextCommand{\textnDoteq}{PU}{\9042\121\83\070}%\* U+2251 U+0338  
17939 % U+2252 APPROXIMATELY EQUAL TO OR THE IMAGE OF; approx-  
qualorimage;  
17940 % \fallingdotseq (AmS)  
17941 \DeclareTextCommand{\textfallingdotseq}{PU}{\9042\122}%\* U+2252  
17942 % \nfallingdotseq (MnSymbol)  
17943 \DeclareTextCommand{\textnfallingdotseq}{PU}{\9042\122\83\070}%\* U+2252 U+0338  
17944 % U+2253 IMAGE OF OR APPROXIMATELY EQUAL TO; imageorapproxi-  
matelyequal;  
17945 % \risingdotseq (AmS)  
17946 \DeclareTextCommand{\textrisingdotseq}{PU}{\9042\123}%\* U+2253  
17947 % \nrisingdotseq (MnSymbol)  
17948 \DeclareTextCommand{\textnrisingdotseq}{PU}{\9042\123\83\070}%\* U+2253 U+0338  
17949 % U+2254 COLON EQUALS; \colonequals (colonequals)  
17950 \DeclareTextCommand{\textcolonequals}{PU}{\9042\124}%\* U+2254  
17951 % U+2255 EQUALS COLON; \equalscolon (colonequals)  
17952 \DeclareTextCommand{\textequalscolon}{PU}{\9042\125}%\* U+2255  
17953 % U+2256 RING IN EQUAL TO; \eqcirc (AmS)  
17954 \DeclareTextCommand{\texteqcirc}{PU}{\9042\126}%\* U+2256  
17955 % \neqcirc (MnSymbol)  
17956 \DeclareTextCommand{\textneqcirc}{PU}{\9042\126\83\070}%\* U+2256 U+0338  
17957 % U+2257 RING EQUAL TO; \circeq (AmS)



```

17958 \DeclareTextCommand{\textcirceq}{PU}{\9042\127}%* U+2257
17959 % \ncirceq (MnSymbol)
17960 \DeclareTextCommand{\textncirceq}{PU}{\9042\127\83\070}%* U+2257 U+0338
17961 % U+2259 ESTIMATES; \hateq (MnSymbol)
17962 \DeclareTextCommand{\textthateq}{PU}{\9042\131}%* U+2259
17963 %* \textthateq -> \corresponds (mathabx)
17964 %* \textthateq -> \Corresponds (marvosym)
17965 % \nhateq (MnSymbol)
17966 \DeclareTextCommand{\textnhateq}{PU}{\9042\131\83\070}%* U+2259 U+0338
17967 % U+225C DELTA EQUAL TO; \triangleeq (AmS)
17968 \DeclareTextCommand{\texttriangleeq}{PU}{\9042\134}%* U+225C
17969 % U+2260 NOT EQUAL TO; notequal; \ne (LaTeX), \neq (LaTeX)
17970 \DeclareTextCommand{\textneq}{PU}{\9042\140}%* U+2260
17971 \DeclareTextCommand{\textne}{PU}{\9042\140}%* U+2260
17972 %* \textneq -> \nequal (MnSymbol)
17973 % U+2261 IDENTICAL TO; equivalence; \equiv (LaTeX)
17974 \DeclareTextCommand{\textequiv}{PU}{\9042\141}%* U+2261
17975 %* \textequiv -> \Congruent (marvosym)
17976 % U+2262 NOT IDENTICAL TO; notidentical; \nequiv (txfonts/pxfonts)
17977 \DeclareTextCommand{\textnequiv}{PU}{\9042\142}%* U+2262
17978 %* \textnequiv -> \NotCongruent (marvosym)
17979 %* \textnequiv -> \notequiv (mathabx)
17980 % U+2264 LESS-THAN OR EQUAL TO; lessequal; \le (LaTeX), \leq (LaTeX)
17981 \DeclareTextCommand{\textleq}{PU}{\9042\144}%* U+2264
17982 \DeclareTextCommand{\textle}{PU}{\9042\144}%* U+2264
17983 %* \textleq -> \LessOrEqual (marvosym)
17984 % U+2265 GREATER-THAN OR EQUAL TO; greaterequal;
17985 % \ge (LaTeX), \geq (LaTeX)
17986 \DeclareTextCommand{\textgeq}{PU}{\9042\145}%* U+2265
17987 \DeclareTextCommand{\textge}{PU}{\9042\145}%* U+2265
17988 %* \textgeq -> \LargerOrEqual (marvosym)
17989 % U+2266 LESS-THAN OVER EQUAL TO; lessoverequal; \leqq (AmS)
17990 \DeclareTextCommand{\textleqq}{PU}{\9042\146}%* U+2266
17991 % \nleqq (txfonts/pxfonts)
17992 \DeclareTextCommand{\textnleqq}{PU}{\9042\146\83\070}%* U+2266 U+0338
17993 % U+2267 GREATER-THAN OVER EQUAL TO; greateroverequal; \geqq (AmS)
17994 \DeclareTextCommand{\textgeqq}{PU}{\9042\147}%* U+2267
17995 % \ngeqq (txfonts/pxfonts)
17996 \DeclareTextCommand{\textngeqq}{PU}{\9042\147\83\070}%* U+2267 U+0338
17997 % U+2268 LESS-THAN BUT NOT EQUAL TO; \lneqq (AmS)
17998 \DeclareTextCommand{\textlneqq}{PU}{\9042\150}%* U+2268
17999 % U+2269 GREATER-THAN BUT NOT EQUAL TO; \gneqq (AmS)
18000 \DeclareTextCommand{\textgneqq}{PU}{\9042\151}%* U+2269
18001 % U+226A MUCH LESS-THAN; muchless; \ll (LaTeX)
18002 \DeclareTextCommand{\textll}{PU}{\9042\152}%* U+226A
18003 % \nll (txfonts/pxfonts)
18004 \DeclareTextCommand{\textnll}{PU}{\9042\152\83\070}%* U+226A U+0338
18005 % U+226B MUCH GREATER-THAN; muchgreater; \gg (LaTeX)
18006 \DeclareTextCommand{\textgg}{PU}{\9042\153}%* U+226B
18007 % \ngg (txfonts/pxfonts)
18008 \DeclareTextCommand{\textngg}{PU}{\9042\153\83\070}%* U+226B U+0338
18009 % U+226C BETWEEN; \between (AmS)
18010 \DeclareTextCommand{\textbetween}{PU}{\9042\154}%* U+226C
18011 % U+226E NOT LESS-THAN; notless; \nless (AmS)

```

18012 \DeclareTextCommand{\textnless}{PU}{\9042\156}%\* U+226E  
18013 % U+226F NOT GREATER-THAN; notgreater; \ngtr (AmS)  
18014 \DeclareTextCommand{\textngtr}{PU}{\9042\157}%\* U+226F  
18015 % U+2270 NEITHER LESS-THAN NOR EQUAL TO; notlessnorequal;  
18016 % \nleq (AmS)  
18017 \DeclareTextCommand{\textnleq}{PU}{\9042\160}%\* U+2270  
18018 % U+2271 NEITHER GREATER-THAN NOR EQUAL TO; notgreaternorequal;  
18019 \DeclareTextCommand{\textngeq}{PU}{\9042\161}%\* U+2271  
18020 % U+2272 LESS-THAN OR EQUIVALENT TO; lessorequivalent; \lessim (AmS)  
18021 \DeclareTextCommand{\textlessim}{PU}{\9042\162}%\* U+2272  
18022 %\* \textlessim -> \apprle (wasysym)  
18023 % U+2273 GREATER-THAN OR EQUIVALENT TO; greaterorequivalent; \gtrsim (AmS)  
18024 \DeclareTextCommand{\textgtrsim}{PU}{\9042\163}%\* U+2273  
18025 %\* \textgtrsim -> \apprge (wasysym)  
18026 % U+2274 NEITHER LESS-THAN NOR EQUIVALENT TO; \nlessim (tx-fonts/pxfonts)  
18027 \DeclareTextCommand{\textnlessim}{PU}{\9042\164}%\* U+2274  
18028 % U+2275 NEITHER GREATER-THAN NOR EQUIVALENT TO; \ngtrsim (tx-fonts/pxfonts)  
18029 \DeclareTextCommand{\textngtrsim}{PU}{\9042\165}%\* U+2275  
18030 % U+2276 LESS-THAN OR GREATER-THAN; lessorgreater; \lessgtr (AmS)  
18031 \DeclareTextCommand{\textlessgtr}{PU}{\9042\166}%\* U+2276  
18032 % U+2277 GREATER-THAN OR LESS-THAN; greaterorless; \gtrless (AmS)  
18033 \DeclareTextCommand{\textgtrless}{PU}{\9042\167}%\* U+2277  
18034 % U+2278 NEITHER LESS-THAN NOR GREATER-THAN; \ngtrless (tx-fonts/pxfonts)  
18035 \DeclareTextCommand{\textngtrless}{PU}{\9042\170}%\* U+2278  
18036 % U+2279 NEITHER GREATER-THAN NOR LESS-THAN; \nlessgtr (tx-fonts/pxfonts)  
18037 \DeclareTextCommand{\textnlessgtr}{PU}{\9042\171}%\* U+2279  
18038 % U+227A PRECEDES; precedes; \prec (LaTeX)  
18039 \DeclareTextCommand{\textprec}{PU}{\9042\172}%\* U+227A  
18040 % U+227B SUCCEEDS; succeeds; \succ (LaTeX)  
18041 \DeclareTextCommand{\textsucc}{PU}{\9042\173}%\* U+227B  
18042 % U+227C PRECEDES OR EQUAL TO; \preccurlyeq (AmS)  
18043 \DeclareTextCommand{\textpreccurlyeq}{PU}{\9042\174}%\* U+227C  
18044 % U+227D SUCCEEDS OR EQUAL TO; \succcurlyeq (AmS)  
18045 \DeclareTextCommand{\textsucccurlyeq}{PU}{\9042\175}%\* U+227D  
18046 % U+227E PRECEDES OR EQUIVALENT TO; \precsim (AmS)  
18047 \DeclareTextCommand{\textprecsim}{PU}{\9042\176}%\* U+227E  
18048 % \nprecsim (txfonts/pxfonts)  
18049 \DeclareTextCommand{\textnprecsim}{PU}{\9042\176\83\070}%\* U+227E U+0338  
18050 % U+227F SUCCEEDS OR EQUIVALENT TO; \succsim (AmS)  
18051 \DeclareTextCommand{\textsuccsim}{PU}{\9042\177}%\* U+227F  
18052 % \nsuccsim (txfonts/pxfonts)  
18053 \DeclareTextCommand{\textnsuccsim}{PU}{\9042\177\83\070}%\* U+227F U+0338  
18054 % U+2280 DOES NOT PRECEDE; notprecedes; \nprec (AmS)  
18055 \DeclareTextCommand{\textnprec}{PU}{\9042\200}%\* U+2280  
18056 % U+2281 DOES NOT SUCCEED; notsucceds; \nsucc (AmS)  
18057 \DeclareTextCommand{\textnsucc}{PU}{\9042\201}%\* U+2281  
18058 % U+2282 SUBSET OF; propersubset; \subset (LaTeX)  
18059 \DeclareTextCommand{\textsubset}{PU}{\9042\202}%\* U+2282

```

18060 % U+2283 SUPERSET OF; propersuperset; \supset (LaTeX)
18061 \DeclareTextCommand{\textsupset}{PU}{\9042\203}%* U+2283
18062 % U+2284 NOT A SUBSET OF; notsubset; \nsubset (mathabx)
18063 \DeclareTextCommand{\textnsubset}{PU}{\9042\204}%* U+2284
18064 % U+2285 NOT A SUPERSET OF; notsuperset; \nsupset (mathabx)
18065 \DeclareTextCommand{\textnsupset}{PU}{\9042\205}%* U+2285
18066 % U+2286 SUBSET OF OR EQUAL TO; reflexsubset; \subseteq (LaTeX)
18067 \DeclareTextCommand{\textsubseteq}{PU}{\9042\206}%* U+2286
18068 % U+2287 SUPERSET OF OR EQUAL TO; reflexsuperset; \supseteq (LaTeX)
18069 \DeclareTextCommand{\textsupseteq}{PU}{\9042\207}%* U+2287
18070 % U+2288 NEITHER A SUBSET OF NOR EQUAL TO; \nsubseteq (AmS)
18071 \DeclareTextCommand{\textnsubseteq}{PU}{\9042\210}%* U+2288
18072 % U+2289 NEITHER A SUPERSET OF NOR EQUAL TO; \nsupseteq (AmS)
18073 \DeclareTextCommand{\textnsupseteq}{PU}{\9042\211}%* U+2289
18074 % U+228A SUBSET OF WITH NOT EQUAL TO; subsetnotequal; \subset-
      neq (AmS)
18075 \DeclareTextCommand{\textsubsetneq}{PU}{\9042\212}%* U+228A
18076 % U+228B SUPERSET OF WITH NOT EQUAL TO; supersetnotequal; \supset-
      neq (AmS)
18077 \DeclareTextCommand{\textsupsetneq}{PU}{\9042\213}%* U+228B
18078 % U+228D MULTISET MULTIPLICATION; \cupdot (MnSymbol)
18079 \DeclareTextCommand{\textcupdot}{PU}{\9042\215}%* U+228D
18080 % U+228E MULTISET UNION; \cupplus (MnSymbol)
18081 \DeclareTextCommand{\textcupplus}{PU}{\9042\216}%* U+228E
18082 % U+228F SQUARE IMAGE OF; \sqsubset (latexsym, ...)
18083 \DeclareTextCommand{\textsqsubset}{PU}{\9042\217}%* U+228F
18084 % \nsqsubset (txfonts/pxfonts)
18085 \DeclareTextCommand{\textnqssubset}{PU}{\9042\217\83\070}%* U+228F U+0338
18086 % U+2290 SQUARE ORIGINAL OF; \sqsupset (latexsym, ...)
18087 \DeclareTextCommand{\textsqsupset}{PU}{\9042\220}%* U+2290
18088 % \nsqsupset (txfonts/pxfonts)
18089 \DeclareTextCommand{\textnqsqsupset}{PU}{\9042\220\83\070}%* U+2290 U+0338
18090 % U+2291 SQUARE IMAGE OF OR EQUAL TO; \sqsubseql (LaTeX)
18091 \DeclareTextCommand{\textsqsubseql}{PU}{\9042\221}%* U+2291
18092 % \nsqsubseql (txfonts/pxfonts)
18093 \DeclareTextCommand{\textnqsqsubseql}{PU}{\9042\221\83\070}%* U+2291 U+0338
18094 % U+2292 SQUARE ORIGINAL OF OR EQUAL TO; \sqsupseql (LaTeX)
18095 \DeclareTextCommand{\textsqsupseql}{PU}{\9042\222}%* U+2292
18096 % \nsqsupseql (txfonts/pxfonts)
18097 \DeclareTextCommand{\textnqsqsupseql}{PU}{\9042\222\83\070}%* U+2292 U+0338
18098 % U+2293 SQUARE CAP; \sqcap (LaTeX)
18099 \DeclareTextCommand{\textsqcap}{PU}{\9042\223}%* U+2293
18100 % U+2294 SQUARE CUP; \sqcup (LaTeX)
18101 \DeclareTextCommand{\textsqcup}{PU}{\9042\224}%* U+2294
18102 % U+2295 CIRCLED PLUS; circleplus; \oplus (LaTeX)
18103 \DeclareTextCommand{\textoplus}{PU}{\9042\225}%* U+2295
18104 %* \textoplus -> \varoplus (stmaryrd)
18105 % U+2296 CIRCLED MINUS; minuscircle; \ominus (LaTeX)
18106 \DeclareTextCommand{\textominus}{PU}{\9042\226}%* U+2296
18107 %* \textominus -> \varominus (stmaryrd)
18108 % U+2297 CIRCLED TIMES; circlemultiply; \otimes (LaTeX)
18109 \DeclareTextCommand{\textotimes}{PU}{\9042\227}%* U+2297
18110 %* \textotimes -> \varotimes (stmaryrd)
18111 % U+2298 CIRCLED DIVISION SLASH; \oslash (LaTeX)

```

```

18112 \DeclareTextCommand{\textoslash}{PU}{\9042\230}%* U+2298
18113 %* \textoslash -> \varoslash (stmaryrd)
18114 % U+2299 CIRCLED DOT OPERATOR; circle(d?)ot; \odot (LaTeX)
18115 \DeclareTextCommand{\textodot}{PU}{\9042\231}%* U+2299
18116 %* \textodot -> \varodot (stmaryrd)
18117 % U+229A CIRCLED RING OPERATOR; \circledcirc (AmS)
18118 \DeclareTextCommand{\textcircledcirc}{PU}{\9042\232}%* U+229A
18119 %* \textcircledcirc -> \ocirc (mathabx)
18120 %* \textcircledcirc -> \varocircle (stmaryrd)
18121 % U+229B CIRCLED ASTERISK OPERATOR; \circledast (AmS)
18122 \DeclareTextCommand{\textcircledast}{PU}{\9042\233}%* U+229B
18123 %* \textcircledast -> \varoast (stmaryrd)
18124 %* \textcircledast -> \oasterisk (mathabx)
18125 % U+229D CIRCLED DASH; \circleddash (AmS)
18126 \DeclareTextCommand{\textcircleddash}{PU}{\9042\235}%* U+229D
18127 % U+229E SQUARED PLUS; \boxplus (AmS)
18128 \DeclareTextCommand{\textboxplus}{PU}{\9042\236}%* U+229E
18129 % U+229F SQUARED MINUS; \boxminus (AmS)
18130 \DeclareTextCommand{\textboxminus}{PU}{\9042\237}%* U+229F
18131 % U+22A0 SQUARED TIMES; \boxtimes (AmS)
18132 \DeclareTextCommand{\textboxtimes}{PU}{\9042\240}%* U+22A0
18133 % U+22A1 SQUARED DOT OPERATOR; \boxdot (AmS)
18134 \DeclareTextCommand{\textboxdot}{PU}{\9042\241}%* U+22A1
18135 % U+22A2 RIGHT TACK; \vdash (LaTeX)
18136 \DeclareTextCommand{\textvdash}{PU}{\9042\242}%* U+22A2
18137 %* \textvdash -> \rightvdash (MnSymbol)
18138 % U+22A3 LEFT TACK; \lhd; \dashv (LaTeX)
18139 \DeclareTextCommand{\textdashv}{PU}{\9042\243}%* U+22A3
18140 %* \textdashv -> \leftvdash (MnSymbol)
18141 % \ndashv (mathabx)
18142 \DeclareTextCommand{\textndashv}{PU}{\9042\243\83\070}%* U+22A3 U+0338
18143 %* \textndashv -> \nleftvdash (MnSymbol)
18144 % U+22A4 DOWN TACK (=top); \tackdown; \top (LaTeX)
18145 \DeclareTextCommand{\texttop}{PU}{\9042\244}%* U+22A4
18146 %* \texttop -> \downvdash (MnSymbol)
18147 % \ndownvdash (MnSymbol)
18148 \DeclareTextCommand{\textndownvdash}{PU}{\9042\244\83\070}%* U+22A4 U+0338
18149 % U+22A5 UP TACK (=base, bottom); \bot (LaTeX)
18150 \DeclareTextCommand{\textbot}{PU}{\9042\245}%* U+22A5
18151 %* \textbot -> \upvdash (MnSymbol)
18152 % \nupvdash (MnSymbol)
18153 \DeclareTextCommand{\textnupvdash}{PU}{\9042\245\83\070}%* U+22A5 U+0338
18154 %* \textnupvdash -> \nperp (MnSymbol)
18155 % U+22A8 TRUE; \vDash (AmS)
18156 \DeclareTextCommand{\textvDash}{PU}{\9042\250}%* U+22A8
18157 %* \textvDash -> \models (LaTeX)
18158 %* \textvDash -> \rightmodels (MnSymbol)
18159 % U+22A9 FORCES; \Vdash (AmS)
18160 \DeclareTextCommand{\textVdash}{PU}{\9042\251}%* U+22A9
18161 %* \textVdash -> \rightVdash (MnSymbol)
18162 % U+22AA TRIPLE VERTICAL BAR RIGHT TURNSTILE; \Vvdash (AmS)
18163 \DeclareTextCommand{\textVvdash}{PU}{\9042\252}%* U+22AA
18164 % \nVvdash (mathabx)
18165 \DeclareTextCommand{\textnVvdash}{PU}{\9042\252\83\070}%* U+22AA U+0338

```

```

18166 % U+22AB DOUBLE VERTICAL BAR DOUBLE RIGHT TURNSTILE;
18167 % \VDash (mathabx)
18168 \DeclareTextCommand{\textVDash}{PU}{\9042\253}%* U+22AB
18169 %* \textVDash -> \rightModels (MnSymbol)
18170 % U+22AC DOES NOT PROVE; \nvDash (AmS)
18171 \DeclareTextCommand{\textnvDash}{PU}{\9042\254}%* U+22AC
18172 %* \textnvDash -> \rightvDash (MnSymbol)
18173 % U+22AD NOT TRUE; \nVDash (AmS)
18174 \DeclareTextCommand{\textnVDash}{PU}{\9042\255}%* U+22AD
18175 %* \textnVDash -> \rightmodels (MnSymbol)
18176 %* \textnVDash -> \nmodels (MnSymbol)
18177 % U+22AE DOES NOT FORCE; \Vdash (txfonts/pxfonts)
18178 \DeclareTextCommand{\textnVdash}{PU}{\9042\256}%* U+22AE
18179 %* \textnVdash -> \rightVdash (MnSymbol)
18180 % U+22AF NEGATED DOUBLE VERTICAL BAR DOUBLE RIGHT TURN-
      STILE; \nVDash (AmS)
18181 \DeclareTextCommand{\textnVDash}{PU}{\9042\257}%* U+22AF
18182 %* \textnVDash -> \rightModels (MnSymbol)
18183 % U+22B2 NORMAL SUBGROUP OF; \lhd (latexsym, ...)
18184 \DeclareTextCommand{\textlhd}{PU}{\9042\262}%* U+22B2
18185 %* \textlhd -> \lessclosed (MnSymbol)
18186 % U+22B3 CONTAINS AS NORMAL SUBGROUP; \rhd (latexsym, ...)
18187 \DeclareTextCommand{\textrhd}{PU}{\9042\263}%* U+22B3
18188 %* \textrhd -> \gtrclosed (MnSymbol)
18189 % U+22B4 NORMAL SUBGROUP OF OR EQUAL TO; \unlhd (latexsym, ...)
18190 \DeclareTextCommand{\textunlhd}{PU}{\9042\264}%* U+22B4
18191 %* \textunlhd -> \leqclosed (MnSymbol)
18192 %* \textunlhd -> \trianglelefteq (MnSymbol)
18193 % U+22B5 CONTAINS AS NORMAL SUBGROUP OR EQUAL TO; \unrhd (la-
      texsym, ...)
18194 \DeclareTextCommand{\textunrhd}{PU}{\9042\265}%* U+22B5
18195 %* \textunrhd -> \geqclosed (MnSymbol)
18196 %* \textunrhd -> \trianglerighteq (MnSymbol)
18197 % U+22B6 ORIGINAL OF; \multimapdotbothA (txfonts/pxfonts)
18198 \DeclareTextCommand{\textmultimapdotbothA}{PU}{\9042\266}%* U+22B6
18199 % U+22B7 IMAGE OF; \multimapdotbothB (txfonts/pxfonts)
18200 \DeclareTextCommand{\textmultimapdotbothB}{PU}{\9042\267}%* U+22B7
18201 % U+22B8 MULTIMAP; \multimap (AmS, txfonts/pxfonts)
18202 \DeclareTextCommand{\textmultimap}{PU}{\9042\270}%* U+22B8
18203 % U+22BB XOR; \veebar (AmS)
18204 \DeclareTextCommand{\textveebar}{PU}{\9042\273}%* U+22BB
18205 % U+22BC NAND; \barwedge (mathabx)
18206 \DeclareTextCommand{\textbarwedge}{PU}{\9042\274}%* U+22BC
18207 % U+22C6 STAR OPERATOR; \star (LaTeX)
18208 \DeclareTextCommand{\textstar}{PU}{\9042\306}%* U+22C6
18209 % U+22C7 DIVISION TIMES; \divideontimes (AmS)
18210 \DeclareTextCommand{\textdivideontimes}{PU}{\9042\307}%* U+22C7
18211 % U+22C8 BOWTIE; \bowtie (LaTeX)
18212 \DeclareTextCommand{\textbowtie}{PU}{\9042\310}%* U+22C8
18213 %* \textbowtie -> \Bowtie (wasysym)
18214 % U+22C9 LEFT NORMAL FACTOR SEMIDIRECT PRODUCT; \ltimes (AmS)
18215 \DeclareTextCommand{\textltimes}{PU}{\9042\311}%* U+22C9
18216 % U+22CA RIGHT NORMAL FACTOR SEMIDIRECT PRODUCT;
18217 % \rtimes (AmS)

```

18218 \DeclareTextCommand{\textrtimes}{PU}{\9042\312}%\* U+22CA  
18219 % U+22CB LEFT SEMIDIRECT PRODUCT; \leftthreetimes (AmS)  
18220 \DeclareTextCommand{\textleftthreetimes}{PU}{\9042\313}%\* U+22CB  
18221 % U+22CC RIGHT SEMIDIRECT PRODUCT; \rightthreetimes (AmS)  
18222 \DeclareTextCommand{\textrightthreetimes}{PU}{\9042\314}%\* U+22CC  
18223 % U+22CD REVERSED TILDE EQUALS; \backsimeq (AmS)  
18224 \DeclareTextCommand{\textbacksimeq}{PU}{\9042\315}%\* U+22CD  
18225 % \nbacksimeq (txfonts/pxfonts)  
18226 \DeclareTextCommand{\textnbacksimeq}{PU}{\9042\315\83\070}%\* U+22CD U+0338  
18227 % U+22CE CURLY LOGICAL OR; curlyor; \curlyvee (AmS)  
18228 \DeclareTextCommand{\textcurlyvee}{PU}{\9042\316}%\* U+22CE  
18229 %\* \textcurlyvee -> \varcurlyvee (stmaryrd)  
18230 % U+22CF CURLY LOGICAL AND; curlyand; \curlywedge (AmS)  
18231 \DeclareTextCommand{\textcurlywedge}{PU}{\9042\317}%\* U+22CF  
18232 %\* \textcurlywedge -> \varcurlywedge (stmaryrd)  
18233 % U+22D0 DOUBLE SUBSET; \Subset (AmS)  
18234 \DeclareTextCommand{\textSubset}{PU}{\9042\320}%\* U+22D0  
18235 % \nSubset (txfonts/pxfonts)  
18236 \DeclareTextCommand{\textnSubset}{PU}{\9042\320\83\070}%\* U+22D0 U+0338  
18237 % U+22D1 DOUBLE SUPERSET; \Supset (AmS)  
18238 \DeclareTextCommand{\textSupset}{PU}{\9042\321}%\* U+22D1  
18239 % \nSupset (txfonts/pxfonts)  
18240 \DeclareTextCommand{\textnSupset}{PU}{\9042\321\83\070}%\* U+22D1 U+0338  
18241 % U+22D2 DOUBLE INTERSECTION; \Cap (AmS)  
18242 \DeclareTextCommand{\textCap}{PU}{\9042\322}%\* U+22D2  
18243 %\* \textCap -> \doublecap (mathabx)  
18244 % U+22D3 DOUBLE UNION; \Cup (AmS)  
18245 \DeclareTextCommand{\textCup}{PU}{\9042\323}%\* U+22D3  
18246 %\* \textCup -> \doublecup (mathabx)  
18247 % U+22D4 PITCHFORK; \pitchfork (mathabx)  
18248 \DeclareTextCommand{\textpitchfork}{PU}{\9042\324}%\* U+22D4  
18249 % U+22D6 LESS-THAN WITH DOT; \lessdot (AmS)  
18250 \DeclareTextCommand{\textlessdot}{PU}{\9042\326}%\* U+22D6  
18251 % U+22D7 GREATER-THAN WITH DOT; \gtrdot (AmS)  
18252 \DeclareTextCommand{\textgtrdot}{PU}{\9042\327}%\* U+22D7  
18253 % U+22D8 VERY MUCH LESS-THAN; \lll (AmS)  
18254 \DeclareTextCommand{\textlll}{PU}{\9042\330}%\* U+22D8  
18255 % U+22D9 VERY MUCH GREATER-THAN; \ggg (AmS)  
18256 \DeclareTextCommand{\textggg}{PU}{\9042\331}%\* U+22D9  
18257 % U+22DA LESS-THAN EQUAL TO OR GREATER-THAN; lessequalorgreater;  
18258 % \lesseqgtr (AmS)  
18259 \DeclareTextCommand{\textlesseqgtr}{PU}{\9042\332}%\* U+22DA  
18260 % U+22DB GREATER-THAN EQUAL TO OR LESS-THAN; greaterqualorless;  
18261 % \gtreqless (AmS)  
18262 \DeclareTextCommand{\textgtreqless}{PU}{\9042\333}%\* U+22DB  
18263 % U+22DE EQUAL TO OR PRECEDES; \curlyeqprec (MnSymbol)  
18264 \DeclareTextCommand{\textcurlyeqprec}{PU}{\9042\336}%\* U+22DE  
18265 % \ncurlyeqprec (mathabx)  
18266 \DeclareTextCommand{\textncurlyeqprec}{PU}{\9042\336\83\070}%\* U+22DE U+0338  
18267 % U+22DF EQUAL TO OR SUCCEEDS; \curlyeqsucc (MnSymbol)  
18268 \DeclareTextCommand{\textcurlyeqsucc}{PU}{\9042\337}%\* U+22DF  
18269 % \ncurlyeqsucc (mathabx)  
18270 \DeclareTextCommand{\textncurlyeqsucc}{PU}{\9042\337\83\070}%\* U+22DF U+0338  
18271 % U+22E0 DOES NOT PRECEDE OR EQUAL; \npreccurlyeq (txfonts/pxfonts)

```

18272 \DeclareTextCommand{\textnpreccurlyeq}{PU}{\9042\340}%* U+22E0
18273 % U+22E1 DOES NOT SUCCEED OR EQUAL; \nsucccurlyeq (txfonts/pxfonts)
18274 \DeclareTextCommand{\textnsucccurlyeq}{PU}{\9042\341}%* U+22E1
18275 % U+22E2 NOT SQUARE IMAGE OF OR EQUAL TO; \nsqsubseteq (tx-
      fonts/pxfonts)
18276 \DeclareTextCommand{\textnqsubseteq}{PU}{\9042\342}%* U+22E2
18277 % U+22E3 NOT SQUARE ORIGINAL OF OR EQUAL TO; \nsqsupseteq (tx-
      fonts/pxfonts)
18278 \DeclareTextCommand{\textnqsupseteq}{PU}{\9042\343}%* U+22E3
18279 % U+22E4 SQUARE IMAGE OF OR NOT EQUAL TO; \sqsubsetneq (mathabx)
18280 \DeclareTextCommand{\textsqsubsetneq}{PU}{\9042\344}%* U+22E4
18281 %* \textsqsubsetneq -> \varsqsubsetneq (mathabx)
18282 % U+22E5 SQUARE ORIGINAL OF OR NOT EQUAL TO; \sqsupsetneq (math-
      abx)
18283 \DeclareTextCommand{\textsqsupsetneq}{PU}{\9042\345}%* U+22E5
18284 %* \textsqsupsetneq -> \varsqsupsetneq (mathabx)
18285 % U+22E6 LESS-THAN BUT NOT EQUIVALENT TO; \lnsim (AmS)
18286 \DeclareTextCommand{\textlnsim}{PU}{\9042\346}%* U+22E6
18287 % U+22E7 GREATER-THAN BUT NOT EQUIVALENT TO; \gnsim (AmS)
18288 \DeclareTextCommand{\textgnsim}{PU}{\9042\347}%* U+22E7
18289 % U+22E8 PRECEDES BUT NOT EQUIVALENT TO; \precnsim (AmS)
18290 \DeclareTextCommand{\textprecnsim}{PU}{\9042\350}%* U+22E8
18291 % U+22E9 SUCCEEDS BUT NOT EQUIVALENT TO; \succnsim (AmS)
18292 \DeclareTextCommand{\textsuccnsim}{PU}{\9042\351}%* U+22E9
18293 % U+22EA NOT NORMAL SUBGROUP OF; \ntriangleleft (AmS)
18294 \DeclareTextCommand{\textntriangleleft}{PU}{\9042\352}%* U+22EA
18295 %* \textntriangleleft -> \nlessclosed (MnSymbol)
18296 % U+22EB DOES NOT CONTAIN AS NORMAL SUBGROUP; \ntriangleright
      left (AmS)
18297 \DeclareTextCommand{\textntriangleright}{PU}{\9042\353}%* U+22EB
18298 %* \textntriangleright -> \ngtrclosed (MnSymbol)
18299 % U+22EC NOT NORMAL SUBGROUP OF OR EQUAL TO;
18300 % \ntrianglelefteq (AmS)
18301 \DeclareTextCommand{\textntrianglelefteq}{PU}{\9042\354}%* U+22EC
18302 % U+22ED DOES NOT CONTAIN AS NORMAL SUBGROUP OR EQUAL;
18303 % \ntrianglerighteq (AmS)
18304 \DeclareTextCommand{\textntrianglerighteq}{PU}{\9042\355}%* U+22ED
18305 %* \textntrianglerighteq -> \textngeqclosed
18306 % U+22EE VERTICAL ELLIPSIS; ellipsisvertical; \vdots (LaTeX)
18307 \DeclareTextCommand{\textvdots}{PU}{\9042\356}%* U+22EE
18308 % U+22EF MIDLINE HORIZONTAL ELLIPSIS; \cdots (LaTeX)
18309 \DeclareTextCommand{\textcdots}{PU}{\9042\357}%* U+22EF
18310 % U+22F0 UP RIGHT DIAGONAL ELLIPSIS; \udots (MnSymbol)
18311 \DeclareTextCommand{\textudots}{PU}{\9042\360}%* U+22F0
18312 % U+22F1 DOWN RIGHT DIAGONAL ELLIPSIS; \ddots (LaTeX)
18313 \DeclareTextCommand{\textddots}{PU}{\9042\361}%* U+22F1
18314 % U+22F6 ELEMENT OF WITH OVERBAR; \barin (mathabx)
18315 \DeclareTextCommand{\textbarin}{PU}{\9042\366}%* U+22F6

```

#### 47.2.23 Miscellaneous Technical: U+2300 to U+23FF

```

18316 % U+2300 DIAMETER SIGN; \diameter (mathabx,wasysym)
18317 \DeclareTextCommand{\textdiameter}{PU}{\9043\000}%* U+2300
18318 % U+2310 REVERSED NOT SIGN; \backneg (MnSymbol)
18319 \DeclareTextCommand{\textbackneg}{PU}{\9043\020}%* U+2310

```

```

18320 % U+2311 SQUARE LOZENGE; \wasylozenge (wasysym)
18321 \DeclareTextCommand{\textwasylozenge}{PU}{\9043\021}%* U+2311
18322 % U+2319 TURNED NOT SIGN; \invbackneg (MnSymbol)
18323 \DeclareTextCommand{\textinvbackneg}{PU}{\9043\031}%* U+2319
18324 % U+231A WATCH; \clock (wasysym)
18325 \DeclareTextCommand{\textclock}{PU}{\9043\032}%* U+231A
18326 %* \textclock -> \Clocklogo (marvosym)
18327 %* \textclock -> \ClockLogo (marvosym)
18328 % U+231C TOP LEFT CORNER; \ulcorner (AmS)
18329 \DeclareTextCommand{\textulcorner}{PU}{\9043\034}%* U+231C
18330 % U+231D TOP RIGHT CORNER; \urcorner (AmS)
18331 \DeclareTextCommand{\texturcorner}{PU}{\9043\035}%* U+231D
18332 % U+231E BOTTOM LEFT CORNER; \llcorner (AmS)
18333 \DeclareTextCommand{\textllcorner}{PU}{\9043\036}%* U+231E
18334 % U+231F BOTTOM RIGHT CORNER; \lrcorner (AmS)
18335 \DeclareTextCommand{\textlrcorner}{PU}{\9043\037}%* U+231F
18336 % U+2322 FROWN; \frown (LaTeX)
18337 \DeclareTextCommand{\textfrown}{PU}{\9043\042}%* U+2322
18338 % U+2323 SMILE; \smile (LaTeX)
18339 \DeclareTextCommand{\textsmile}{PU}{\9043\043}%* U+2323
18340 % U+2328 KEYBOARD; \Keyboard (marvosym)
18341 \DeclareTextCommand{\textKeyboard}{PU}{\9043\050}%* U+2328
18342 % U+2329 LEFT-POINTING ANGLE BRACKET; \angleleft; \angle (LaTeX)
18343 \DeclareTextCommand{\textlangle}{PU}{\9043\051}%* U+2329
18344 % U+232A RIGHT-POINTING ANGLE BRACKET; \angleright; \rangle (LaTeX)
18345 \DeclareTextCommand{\textrangle}{PU}{\9043\052}%* U+232A
18346 % U+2339 APL FUNCTIONAL SYMBOL QUAD DIVIDE; \APLinv (wasysym)
18347 \DeclareTextCommand{\textAPLinv}{PU}{\9043\071}%* U+2339
18348 % U+233C APL FUNCTIONAL SYMBOL QUAD CIRCLE; \Tumbler (marvosym)
18349 \DeclareTextCommand{\textTumbler}{PU}{\9043\074}%* U+233C
18350 % U+233D APL FUNCTIONAL SYMBOL CIRCLE STILE; \baro (stmaryrd)
18351 \DeclareTextCommand{\textstmaryrdbaro}{PU}{\9043\075}%* U+233D
18352 %* \textstmaryrdbaro -> \baro (stmaryrd)
18353 % U+233F APL FUNCTIONAL SYMBOL SLASH BAR; \notslash (wasysym)
18354 \DeclareTextCommand{\textnotslash}{PU}{\9043\077}%* U+233F
18355 % U+2340 APL FUNCTIONAL SYMBOL BACKSLASH BAR;
18356 % \notbackslash (wasysym)
18357 \DeclareTextCommand{\textnotbackslash}{PU}{\9043\100}%* U+2340
18358 % U+2342 APL FUNCTIONAL SYMBOL QUAD BACKSLASH; \boxbackslash (mathabx)
18359 \DeclareTextCommand{\textboxbackslash}{PU}{\9043\102}%* U+2342
18360 % U+2347 APL FUNCTIONAL SYMBOL QUAD LEFTWARDS ARROW;
18361 % \APLleftarrowbox (wasysym)
18362 \DeclareTextCommand{\textAPLleftarrowbox}{PU}{\9043\107}%* U+2347
18363 % U+2348 APL FUNCTIONAL SYMBOL QUAD RIGHTWARDS ARROW;
18364 % \APLrightarrowbox (wasysym)
18365 \DeclareTextCommand{\textAPLrightarrowbox}{PU}{\9043\110}%* U+2348
18366 % U+2350 APL FUNCTIONAL SYMBOL QUAD UPWARDS ARROW; \APLuparrowbox (wasysym)
18367 \DeclareTextCommand{\textAPLuparrowbox}{PU}{\9043\120}%* U+2350
18368 % U+2357 APL FUNCTIONAL SYMBOL QUAD DOWNWARDS ARROW;
18369 % \APLdownarrowbox (wasysym)
18370 \DeclareTextCommand{\textAPLdownarrowbox}{PU}{\9043\127}%* U+2357

```



18371 % U+235E APL FUNCTIONAL SYMBOL QUOTE QUAD;  
 18372 % \APLinput (wasysym)  
 18373 \DeclareTextCommand{\textAPLinput}{PU}{\9043\136}%\* U+235E  
 18374 % U+2370 APL FUNCTIONAL SYMBOL QUAD QUESTION; \Request (china2e)  
 18375 \DeclareTextCommand{\textRequest}{PU}{\9043\160}%\* U+2370  
 18376 % U+2393 DIRECT CURRENT SYMBOL FORM TWO; \Beam (marvosym)  
 18377 \DeclareTextCommand{\textBeam}{PU}{\9043\223}%\* U+2393  
 18378 % U+2394 SOFTWARE-FUNCTION SYMBOL; \hexagon (wasysym)  
 18379 \DeclareTextCommand{\texthexagon}{PU}{\9043\224}%\* U+2394  
 18380 % U+2395 APL FUNCTIONAL SYMBOL QUAD; \APLbox (wasysym)  
 18381 \DeclareTextCommand{\textAPLbox}{PU}{\9043\225}%\* U+2395  
 18382 % U+23ED BLACK RIGHT-POINTING DOUBLE TRIANGLE WITH VERTI-  
 CAL BAR;  
 18383 % \ForwardToIndex (marvosym)  
 18384 \DeclareTextCommand{\textForwardToIndex}{PU}{\9043\355}%\* U+23ED  
 18385 % U+23EE BLACK LEFT-POINTING DOUBLE TRIANGLE WITH VERTI-  
 CAL BAR;  
 18386 % \RewindToIndex (marvosym)  
 18387 \DeclareTextCommand{\textRewindToIndex}{PU}{\9043\356}%\* U+23EE

#### 47.2.24 Control Pictures: U+2400 to U+243F

18388 % U+2422 BLANK SYMBOL  
 18389 \DeclareTextCommand{\textblank}{PU}{\9044\042}% U+2422  
 18390 % U+2423 OPEN BOX; blank  
 18391 \DeclareTextCommand{\textvisiblespace}{PU}{\9044\043}% U+2423

#### 47.2.25 Optical Character Recognition: U+2440 to U+245F

18392 % U+244A OCR DOUBLE BACKSLASH; \bbslash (stmaryrd)  
 18393 \DeclareTextCommand{\textbbslash}{PU}{\9044\112}%\* U+244A  
 18394 %\* \textbbslash -> \varparallelinv (txfonts/pxfonts)

#### 47.2.26 Enclosed Alphanumerics: U+2460 to U+24FF

18395 % U+2460 CIRCLED DIGIT ONE; onecircle  
 18396 \DeclareTextCompositeCommand{\textcircled}{PU}{1}{\9044\140}% U+2460  
 18397 % U+2461 CIRCLED DIGIT TWO; twocircle  
 18398 \DeclareTextCompositeCommand{\textcircled}{PU}{2}{\9044\141}% U+2461  
 18399 % U+2462 CIRCLED DIGIT THREE; threecircle  
 18400 \DeclareTextCompositeCommand{\textcircled}{PU}{3}{\9044\142}% U+2462  
 18401 % U+2463 CIRCLED DIGIT FOUR; fourcircle  
 18402 \DeclareTextCompositeCommand{\textcircled}{PU}{4}{\9044\143}% U+2463  
 18403 % U+2464 CIRCLED DIGIT FIVE; fivecircle  
 18404 \DeclareTextCompositeCommand{\textcircled}{PU}{5}{\9044\144}% U+2464  
 18405 % U+2465 CIRCLED DIGIT SIX; sixcircle  
 18406 \DeclareTextCompositeCommand{\textcircled}{PU}{6}{\9044\145}% U+2465  
 18407 % U+2466 CIRCLED DIGIT SEVEN; sevencircle  
 18408 \DeclareTextCompositeCommand{\textcircled}{PU}{7}{\9044\146}% U+2466  
 18409 % U+2467 CIRCLED DIGIT EIGHT; eightcircle  
 18410 \DeclareTextCompositeCommand{\textcircled}{PU}{8}{\9044\147}% U+2467  
 18411 % U+2468 CIRCLED DIGIT NINE; ninecircle  
 18412 \DeclareTextCompositeCommand{\textcircled}{PU}{9}{\9044\150}% U+2468  
 18413 % U+2469 CIRCLED NUMBER TEN; tencircle  
 18414 \DeclareTextCompositeCommand{\textcircled}{PU}{10}{\9044\151}% U+2469  
 18415 % U+246A CIRCLED NUMBER ELEVEN; elevencircle  
 18416 \DeclareTextCompositeCommand{\textcircled}{PU}{11}{\9044\152}% U+246A

18417 % U+246B CIRCLED NUMBER TWELVE; twelvencircle  
18418 \DeclareTextCompositeCommand{\textcircled}{PU}{12}{\9044\153}% U+246B  
18419 % U+246C CIRCLED NUMBER THIRTEEN; thirteencircle  
18420 \DeclareTextCompositeCommand{\textcircled}{PU}{13}{\9044\154}% U+246C  
18421 % U+246D CIRCLED NUMBER FOURTEEN; fourteencircle  
18422 \DeclareTextCompositeCommand{\textcircled}{PU}{14}{\9044\155}% U+246D  
18423 % U+246E CIRCLED NUMBER FIFTEEN; fifteencircle  
18424 \DeclareTextCompositeCommand{\textcircled}{PU}{15}{\9044\156}% U+246E  
18425 % U+246F CIRCLED NUMBER SIXTEEN; sixteencircle  
18426 \DeclareTextCompositeCommand{\textcircled}{PU}{16}{\9044\157}% U+246F  
18427 % U+2470 CIRCLED NUMBER SEVENTEEN; seventeencircle  
18428 \DeclareTextCompositeCommand{\textcircled}{PU}{17}{\9044\160}% U+2470  
18429 % U+2471 CIRCLED NUMBER EIGHTEEN; eighteencircle  
18430 \DeclareTextCompositeCommand{\textcircled}{PU}{18}{\9044\161}% U+2471  
18431 % U+2472 CIRCLED NUMBER NINETEEN; nineteencircle  
18432 \DeclareTextCompositeCommand{\textcircled}{PU}{19}{\9044\162}% U+2472  
18433 % U+2473 CIRCLED NUMBER TWENTY; twentycircle  
18434 \DeclareTextCompositeCommand{\textcircled}{PU}{20}{\9044\163}% U+2473  
18435 % U+24B6 CIRCLED LATIN CAPITAL LETTER A; Acircle  
18436 \DeclareTextCompositeCommand{\textcircled}{PU}{A}{\9044\266}% U+24B6  
18437 % \CircledA (marvosym)  
18438 \DeclareTextCommand{\textCircledA}{PU}{\9044\266}%\* U+24B6  
18439 %\* \textCircledA -> \CleaningA  
18440 % U+24B7 CIRCLED LATIN CAPITAL LETTER B; Bcircle  
18441 \DeclareTextCompositeCommand{\textcircled}{PU}{B}{\9044\267}% U+24B7  
18442 % U+24B8 CIRCLED LATIN CAPITAL LETTER C; Ccircle  
18443 \DeclareTextCompositeCommand{\textcircled}{PU}{C}{\9044\270}% U+24B8  
18444 % U+24B9 CIRCLED LATIN CAPITAL LETTER D; Dcircle  
18445 \DeclareTextCompositeCommand{\textcircled}{PU}{D}{\9044\271}% U+24B9  
18446 % U+24BA CIRCLED LATIN CAPITAL LETTER E; Ecircle  
18447 \DeclareTextCompositeCommand{\textcircled}{PU}{E}{\9044\272}% U+24BA  
18448 % U+24BB CIRCLED LATIN CAPITAL LETTER F; Fcircle  
18449 \DeclareTextCompositeCommand{\textcircled}{PU}{F}{\9044\273}% U+24BB  
18450 % \CleaningF (marvosym)  
18451 \DeclareTextCommand{\textCleaningF}{PU}{\9044\273}%\* U+24BB  
18452 % \CleaningFF (marvosym)  
18453 \DeclareTextCommand{\textCleaningFF}{PU}{\9044\273\83\062}%\* U+24BB U+0332  
18454 % U+24BC CIRCLED LATIN CAPITAL LETTER G; Gcircle  
18455 \DeclareTextCompositeCommand{\textcircled}{PU}{G}{\9044\274}% U+24BC  
18456 % U+24BD CIRCLED LATIN CAPITAL LETTER H; Hcircle  
18457 \DeclareTextCompositeCommand{\textcircled}{PU}{H}{\9044\275}% U+24BD  
18458 % U+24BE CIRCLED LATIN CAPITAL LETTER I; Icircle  
18459 \DeclareTextCompositeCommand{\textcircled}{PU}{I}{\9044\276}% U+24BE  
18460 % U+24BF CIRCLED LATIN CAPITAL LETTER J; Jcircle  
18461 \DeclareTextCompositeCommand{\textcircled}{PU}{J}{\9044\277}% U+24BF  
18462 % U+24C0 CIRCLED LATIN CAPITAL LETTER K; Kcircle  
18463 \DeclareTextCompositeCommand{\textcircled}{PU}{K}{\9044\300}% U+24C0  
18464 % U+24C1 CIRCLED LATIN CAPITAL LETTER L; Lcircle  
18465 \DeclareTextCompositeCommand{\textcircled}{PU}{L}{\9044\301}% U+24C1  
18466 % U+24C2 CIRCLED LATIN CAPITAL LETTER M; Mcircle  
18467 \DeclareTextCompositeCommand{\textcircled}{PU}{M}{\9044\302}% U+24C2  
18468 % U+24C3 CIRCLED LATIN CAPITAL LETTER N; Ncircle  
18469 \DeclareTextCompositeCommand{\textcircled}{PU}{N}{\9044\303}% U+24C3  
18470 % U+24C4 CIRCLED LATIN CAPITAL LETTER O; Ocircle

18471 \DeclareTextCompositeCommand{\textcircled}{PU}{O}{\9044\304}% U+24C4  
 18472 % U+24C5 CIRCLED LATIN CAPITAL LETTER P; Pcircle  
 18473 \DeclareTextCompositeCommand{\textcircled}{PU}{P}{\9044\305}% U+24C5  
 18474 % \CleaningP (marvosym)  
 18475 \DeclareTextCommand{\textCleaningP}{PU}{\9044\305}%\* U+24C5  
 18476 % \CleaningPP (marvosym)  
 18477 \DeclareTextCommand{\textCleaningPP}{PU}{\9044\305\83\062}%\* U+24C5 U+0332  
 18478 % U+24C6 CIRCLED LATIN CAPITAL LETTER Q; Qcircle  
 18479 \DeclareTextCompositeCommand{\textcircled}{PU}{Q}{\9044\306}% U+24C6  
 18480 % U+24C7 CIRCLED LATIN CAPITAL LETTER R; Rcircle  
 18481 \DeclareTextCompositeCommand{\textcircled}{PU}{R}{\9044\307}% U+24C7  
 18482 % U+24C8 CIRCLED LATIN CAPITAL LETTER S; Scircle  
 18483 \DeclareTextCompositeCommand{\textcircled}{PU}{S}{\9044\310}% U+24C8  
 18484 % U+24C9 CIRCLED LATIN CAPITAL LETTER T; Tcircle  
 18485 \DeclareTextCompositeCommand{\textcircled}{PU}{T}{\9044\311}% U+24C9  
 18486 % U+24CA CIRCLED LATIN CAPITAL LETTER U; Ucircle  
 18487 \DeclareTextCompositeCommand{\textcircled}{PU}{U}{\9044\312}% U+24CA  
 18488 % U+24CB CIRCLED LATIN CAPITAL LETTER V; Vcircle  
 18489 \DeclareTextCompositeCommand{\textcircled}{PU}{V}{\9044\313}% U+24CB  
 18490 % U+24CC CIRCLED LATIN CAPITAL LETTER W; Wcircle  
 18491 \DeclareTextCompositeCommand{\textcircled}{PU}{W}{\9044\314}% U+24CC  
 18492 % U+24CD CIRCLED LATIN CAPITAL LETTER X; Xcircle  
 18493 \DeclareTextCompositeCommand{\textcircled}{PU}{X}{\9044\315}% U+24CD  
 18494 % U+24CE CIRCLED LATIN CAPITAL LETTER Y; Ycircle  
 18495 \DeclareTextCompositeCommand{\textcircled}{PU}{Y}{\9044\316}% U+24CE  
 18496 % U+24CF CIRCLED LATIN CAPITAL LETTER Z; Zcircle  
 18497 \DeclareTextCompositeCommand{\textcircled}{PU}{Z}{\9044\317}% U+24CF  
 18498 % U+24D0 CIRCLED LATIN SMALL LETTER A; acircle  
 18499 \DeclareTextCompositeCommand{\textcircled}{PU}{a}{\9044\320}% U+24D0  
 18500 % U+24D1 CIRCLED LATIN SMALL LETTER B; bcircle  
 18501 \DeclareTextCompositeCommand{\textcircled}{PU}{b}{\9044\321}% U+24D1  
 18502 % U+24D2 CIRCLED LATIN SMALL LETTER C; ccircle  
 18503 \DeclareTextCompositeCommand{\textcircled}{PU}{c}{\9044\322}% U+24D2  
 18504 % U+24D3 CIRCLED LATIN SMALL LETTER D; dcircle  
 18505 \DeclareTextCompositeCommand{\textcircled}{PU}{d}{\9044\323}% U+24D3  
 18506 % U+24D4 CIRCLED LATIN SMALL LETTER E; ecircle  
 18507 \DeclareTextCompositeCommand{\textcircled}{PU}{e}{\9044\324}% U+24D4  
 18508 % U+24D5 CIRCLED LATIN SMALL LETTER F; fcircle  
 18509 \DeclareTextCompositeCommand{\textcircled}{PU}{f}{\9044\325}% U+24D5  
 18510 % U+24D6 CIRCLED LATIN SMALL LETTER G; gcircle  
 18511 \DeclareTextCompositeCommand{\textcircled}{PU}{g}{\9044\326}% U+24D6  
 18512 % U+24D7 CIRCLED LATIN SMALL LETTER H; hcircle  
 18513 \DeclareTextCompositeCommand{\textcircled}{PU}{h}{\9044\327}% U+24D7  
 18514 % U+24D8 CIRCLED LATIN SMALL LETTER I; icircle  
 18515 \DeclareTextCompositeCommand{\textcircled}{PU}{i}{\9044\330}% U+24D8  
 18516 % U+24D9 CIRCLED LATIN SMALL LETTER J; jcircle  
 18517 \DeclareTextCompositeCommand{\textcircled}{PU}{j}{\9044\331}% U+24D9  
 18518 % U+24DA CIRCLED LATIN SMALL LETTER K; kcircle  
 18519 \DeclareTextCompositeCommand{\textcircled}{PU}{k}{\9044\332}% U+24DA  
 18520 % U+24DB CIRCLED LATIN SMALL LETTER L; lcircle  
 18521 \DeclareTextCompositeCommand{\textcircled}{PU}{l}{\9044\333}% U+24DB  
 18522 % U+24DC CIRCLED LATIN SMALL LETTER M; mcircle  
 18523 \DeclareTextCompositeCommand{\textcircled}{PU}{m}{\9044\334}% U+24DC  
 18524 % U+24DD CIRCLED LATIN SMALL LETTER N; ncircle

18525 \DeclareTextCompositeCommand{\textcircled}{PU}{n}{\9044\335}% U+24DD  
 18526 % U+24DE CIRCLED LATIN SMALL LETTER O; ocircle  
 18527 \DeclareTextCompositeCommand{\textcircled}{PU}{o}{\9044\336}% U+24DE  
 18528 % U+24DF CIRCLED LATIN SMALL LETTER P; pcircle  
 18529 \DeclareTextCompositeCommand{\textcircled}{PU}{p}{\9044\337}% U+24DF  
 18530 % U+24E0 CIRCLED LATIN SMALL LETTER Q; qcircle  
 18531 \DeclareTextCompositeCommand{\textcircled}{PU}{q}{\9044\340}% U+24E0  
 18532 % U+24E1 CIRCLED LATIN SMALL LETTER R; rcircle  
 18533 \DeclareTextCompositeCommand{\textcircled}{PU}{r}{\9044\341}% U+24E1  
 18534 % U+24E2 CIRCLED LATIN SMALL LETTER S; scircle  
 18535 \DeclareTextCompositeCommand{\textcircled}{PU}{s}{\9044\342}% U+24E2  
 18536 % U+24E3 CIRCLED LATIN SMALL LETTER T; tcircle  
 18537 \DeclareTextCompositeCommand{\textcircled}{PU}{t}{\9044\343}% U+24E3  
 18538 % U+24E4 CIRCLED LATIN SMALL LETTER U; ucircle  
 18539 \DeclareTextCompositeCommand{\textcircled}{PU}{u}{\9044\344}% U+24E4  
 18540 % U+24E5 CIRCLED LATIN SMALL LETTER V; vcircle  
 18541 \DeclareTextCompositeCommand{\textcircled}{PU}{v}{\9044\345}% U+24E5  
 18542 % U+24E6 CIRCLED LATIN SMALL LETTER W; wcircle  
 18543 \DeclareTextCompositeCommand{\textcircled}{PU}{w}{\9044\346}% U+24E6  
 18544 % U+24E7 CIRCLED LATIN SMALL LETTER X; xcircle  
 18545 \DeclareTextCompositeCommand{\textcircled}{PU}{x}{\9044\347}% U+24E7  
 18546 % U+24E8 CIRCLED LATIN SMALL LETTER Y; ycircle  
 18547 \DeclareTextCompositeCommand{\textcircled}{PU}{y}{\9044\350}% U+24E8  
 18548 % U+24E9 CIRCLED LATIN SMALL LETTER Z; zcircle  
 18549 \DeclareTextCompositeCommand{\textcircled}{PU}{z}{\9044\351}% U+24E9  
 18550 % U+24EA CIRCLED DIGIT ZERO  
 18551 \DeclareTextCompositeCommand{\textcircled}{PU}{0}{\9044\352}% U+24EA

#### 47.2.27 Box Drawing: U+2500 to 257F

18552 % U+2504 BOX DRAWINGS LIGHT TRIPLE DASH HORIZONTAL; \Cutting-  
 Line (marvosym)  
 18553 \DeclareTextCommand{\textCuttingLine}{PU}{\9045\004}%\* U+2504  
 18554 %\* \textCuttingLine -> \Kutline (marvosym)  
 18555 %\* \textCuttingLine -> \CutLine (marvosym)  
 18556 %\* \textCuttingLine -> \Cutline (marvosym)

#### 47.2.28 Geometric Shapes: U+25A0 to U+25FF

18557 % U+25B2 BLACK UP-POINTING TRIANGLE; \UParrow (wasysym)  
 18558 \DeclareTextCommand{\textUParrow}{PU}{\9045\262}%\* U+25B2  
 18559 %\* \textUParrow -> \MoveUp (marvosym)  
 18560 % U+25B3 WHITE UP-POINTING TRIANGLE; whiteuppointingtriangle;  
 18561 % \bigtriangleup (LaTeX)  
 18562 \DeclareTextCommand{\textbigtriangleup}{PU}{\9045\263}%\* U+25B3  
 18563 %\* \textbigtriangleup -> \APLup (wasysym)  
 18564 %\* \textbigtriangleup -> \Bleech (marvosym)  
 18565 % U+25B6 BLACK RIGHT-POINTING TRIANGLE; \Forward (marvosym)  
 18566 \DeclareTextCommand{\textForward}{PU}{\9045\266}%\* U+25B6  
 18567 % U+25B7 WHITE RIGHT-POINTING TRIANGLE (= z notation range restric-  
 tion);  
 18568 % whiterightpointingtriangle; \triangleright (LaTeX)  
 18569 \DeclareTextCommand{\texttriangleright}{PU}{\9045\267}%\* U+25B7  
 18570 % U+25BA BLACK RIGHT-POINTING POINTER; \RHD (wasysym)  
 18571 \DeclareTextCommand{\textRHD}{PU}{\9045\272}%\* U+25BA  
 18572 % U+25BC BLACK DOWN-POINTING TRIANGLE; \DOWNarrow (wasysym)

```

18573 \DeclareTextCommand{\textDOWNarrow}{PU}{\9045\274}%* U+25BC
18574 %* \textDOWNarrow -> \MoveDown (marvosym)
18575 % U+25BD WHITE DOWN-POINTING TRIANGLE; whitedownpointingtri-
      gle;
18576 % \bigtriangledown (LaTeX)
18577 \DeclareTextCommand{\textbigtriangledown}{PU}{\9045\275}%* U+25BD
18578 %* \textbigtriangledown -> \APLdown (wasysym)
18579 % U+25C0 BLACK LEFT-POINTING TRIANGLE; \Rewind (marvosym)
18580 \DeclareTextCommand{\textRewind}{PU}{\9045\300}%* U+25C0
18581 % U+25C1 WHITE RIGHT-POINTING TRIANGLE (= z notation domain re-
      striction);
18582 % whiteleftpointingtriangle; \triangleleft (LaTeX)
18583 \DeclareTextCommand{\texttriangleleft}{PU}{\9045\301}%* U+25C1
18584 % U+25C4 BLACK LEFT-POINTING POINTER; \LHD (wasysym)
18585 \DeclareTextCommand{\textLHD}{PU}{\9045\304}%* U+25C4
18586 % U+25C7 WHITE DIAMOND; whitediamond; \diamond (LaTeX)
18587 \DeclareTextCommand{\textdiamond}{PU}{\9045\307}%* U+25C7
18588 %* \textdiamond -> \Diamond (wasysym)
18589 % U+25CA LOZENGE; lozenge; \lozenge (AmS)
18590 \DeclareTextCommand{\textlozenge}{PU}{\9045\312}%* U+25CA
18591 % U+25D6 LEFT HALF BLACK CIRCLE; \LEFTCIRCLE (wasysym)
18592 \DeclareTextCommand{\textLEFTCIRCLE}{PU}{\9045\326}%* U+25D6
18593 % U+25D7 RIGHT HALF BLACK CIRCLE; \RIGHTCIRCLE (wasysym)
18594 \DeclareTextCommand{\textRIGHTCIRCLE}{PU}{\9045\327}%* U+25D7
18595 % U+25E6 WHITE BULLET; *openbullet, whitebullet
18596 \DeclareTextCommand{\textopenbullet}{PU}{\9045\346}%* U+25E6
18597 % U+25EB WHITE SQUARE WITH VERTICAL BISECTING LINE;
18598 % \boxbar (stmaryrd)
18599 \DeclareTextCommand{\textboxbar}{PU}{\9045\353}%* U+25EB
18600 % U+25EF LARGE CIRCLE; largecircle
18601 \DeclareTextCommand{\textbigcircle}{PU}{\9045\357}%* U+25EF
18602 %* \textbigcircle -> \varbigcirc (stmaryrd)
18603 %

```

#### 47.2.29 Miscellaneous Symbols: U+2600 to U+26FF

```

18604 % U+2601 CLOUD; \Cloud (ifsym)
18605 \DeclareTextCommand{\textCloud}{PU}{\9046\001}%* U+2601
18606 % U+2605 BLACK STAR; \FiveStar (bding)
18607 \DeclareTextCommand{\textFiveStar}{PU}{\9046\005}%* U+2605
18608 % U+2606 WHITE STAR; \FiveStarOpen (bding)
18609 \DeclareTextCommand{\textFiveStarOpen}{PU}{\9046\006}%* U+2606
18610 % U+260E BLACK TELEPHONE; telephoneblack; \Phone (bding)
18611 \DeclareTextCommand{\textPhone}{PU}{\9046\016}%* U+260E
18612 %* \textPhone -> \Telefon (marvosym)
18613 % U+2610 BALLOT BOX; \boxempty (stmaryrd)
18614 \DeclareTextCommand{\textboxempty}{PU}{\9046\020}%* U+2610
18615 %* \textboxempty -> \Box (wasysym)
18616 % U+2611 BALLOT BOX WITH CHECK; \Checkedbox (marvosym)
18617 \DeclareTextCommand{\textCheckedbox}{PU}{\9046\021}%* U+2611
18618 %* \textCheckedbox -> \CheckedBox (marvosym)
18619 % U+2612 BALLOT BOX WITH X; \Crossedbox (marvosym)
18620 \DeclareTextCommand{\textCrossedbox}{PU}{\9046\022}%* U+2612
18621 %* \textCrossedbox -> \XBox (wasysym)
18622 %* \textCrossedbox -> \CrossedBox (marvosym)

```

18623 % U+2615 HOT BEVERAGE; \Coffeecup (marvosym)  
18624 \DeclareTextCommand{\textCoffeecup}{PU}{\9046\025}%\* U+2615  
18625 % U+261A BLACK LEFT POINTING INDEX; \HandCuffLeft (bbding)  
18626 \DeclareTextCommand{\textHandCuffLeft}{PU}{\9046\032}%\* U+261A  
18627 % U+261B BLACK RIGHT POINTING INDEX; \HandCuffRight (bbding)  
18628 \DeclareTextCommand{\textHandCuffRight}{PU}{\9046\033}%\* U+261B  
18629 % U+261C WHITE LEFT POINTING INDEX; \HandLeft (bbding)  
18630 \DeclareTextCommand{\textHandLeft}{PU}{\9046\034}%\* U+261C  
18631 %\* \textHandLeft -> \rightpointleft (fourier)  
18632 % U+261E WHITE RIGHT POINTING INDEX; \HandRight (bbding)  
18633 \DeclareTextCommand{\textHandRight}{PU}{\9046\036}%\* U+261E  
18634 %\* \textHandRight -> \leftpointright (fourier)  
18635 %\* \textHandRight -> \PointingHand (marvosym)  
18636 %\* \textHandRight -> \Pointinghand (marvosym)  
18637 % U+2622 RADIOACTIVE SIGN; \Radioactivity (marvosym)  
18638 \DeclareTextCommand{\textRadioactivity}{PU}{\9046\042}%\* U+2622  
18639 %\* \textRadioactivity -> \Radiation (ifsym)  
18640 % U+2623 BIOHAZARD SIGN; \Biohazard (marvosym)  
18641 \DeclareTextCommand{\textBiohazard}{PU}{\9046\043}%\* U+2623  
18642 % U+2625 ANKH; \Ankh (marvosym)  
18643 \DeclareTextCommand{\textAnkh}{PU}{\9046\045}%\* U+2625  
18644 % U+262F YIN YANG; \YinYang (marvosym)  
18645 \DeclareTextCommand{\textYinYang}{PU}{\9046\057}%\* U+262F  
18646 %\* \textYinYang -> \Yinyang (marvosym)  
18647 %\* \textYinYang -> \YingYang (marvosym)  
18648 %\* \textYinYang -> \Yingyang (marvosym)  
18649 % U+2639 WHITE FROWNING FACE; \frownie (wasysym)  
18650 \DeclareTextCommand{\textfrownie}{PU}{\9046\071}%\* U+2639  
18651 %\* \textfrownie -> \Frowny (marvosym)  
18652 % U+263A WHITE SMILING FACE; \smiley (wasysym)  
18653 \DeclareTextCommand{\textsmiley}{PU}{\9046\072}%\* U+263A  
18654 %\* \textsmiley -> \Smiley (marvosym)  
18655 % U+263B BLACK SMILING FACE; \blacksmiley (wasysym)  
18656 \DeclareTextCommand{\textblacksmiley}{PU}{\9046\073}%\* U+263B  
18657 % U+263C WHITE SUN WITH RAYS; \sun (wasysym)  
18658 \DeclareTextCommand{\textsun}{PU}{\9046\074}%\* U+263C  
18659 %\* \textsun -> \Sun (marvosym)  
18660 % U+263D FIRST QUARTER MOON; \leftmoon (wasysym, mathabx)  
18661 \DeclareTextCommand{\textleftmoon}{PU}{\9046\075}%\* U+263D  
18662 % U+263E LAST QUARTER MOON; \rightmoon (wasysym, mathabx)  
18663 \DeclareTextCommand{\textrightmoon}{PU}{\9046\076}%\* U+263E  
18664 % U+263F MERCURY; \mercury (wasysym)  
18665 \DeclareTextCommand{\textmercury}{PU}{\9046\077}%\* U+263F  
18666 %\* \textmercury -> \Mercury (marvosym)  
18667 % U+2640 FEMALE SIGN; female; \female (wasysym)  
18668 \DeclareTextCommand{\textPUfemale}{PU}{\9046\100}% U+2640  
18669 %\* \textPUfemale -> \textfemale (tipx)  
18670 %\* \textPUfemale -> \female (wasysym)  
18671 %\* \textPUfemale -> \venus (wasysym)  
18672 %\* \textPUfemale -> \Venus (marvosym)  
18673 %\* \textPUfemale -> \Female (marvosym)  
18674 % U+2641 EARTH; \earth (wasysym)  
18675 \DeclareTextCommand{\textearth}{PU}{\9046\101}%\* U+2641  
18676 %\* \textearth -> \Earth (marvosym)

```

18677 % U+2642 MALE SIGN; male, mars; \male (wasysym)
18678 \DeclareTextCommand{\textmale}{PU}{\9046\102}%* U+2642
18679 %* \textmale -> \mars (wasysym)
18680 %* \textmale -> \Mars (marvosym)
18681 %* \textmale -> \Male (marvosym)
18682 % U+2643 JUPITER; \jupiter (wasysym)
18683 \DeclareTextCommand{\textjupiter}{PU}{\9046\103}%* U+2643
18684 %* \textjupiter -> \Jupiter (marvosym)
18685 % U+2644 SATURN; \saturn (wasysym)
18686 \DeclareTextCommand{\textsaturn}{PU}{\9046\104}%* U+2644
18687 %* \textsaturn -> \Saturn (marvosym)
18688 % U+2645 URANUS; \uranus (wasysym)
18689 \DeclareTextCommand{\texturanus}{PU}{\9046\105}%* U+2645
18690 %* \texturanus -> \Uranus (marvosym)
18691 % U+2646 NEPTUNE; \neptune (wasysym)
18692 \DeclareTextCommand{\textneptune}{PU}{\9046\106}%* U+2646
18693 %* \textneptune -> \Neptune (marvosym)
18694 % U+2647 PLUTO; \pluto (wasysym)
18695 \DeclareTextCommand{\textpluto}{PU}{\9046\107}%* U+2647
18696 %* \textpluto -> \Pluto (marvosym)
18697 % U+2648 ARIES; \aries (wasysym)
18698 \DeclareTextCommand{\textaries}{PU}{\9046\110}%* U+2648
18699 %* \textaries -> \Aries (marvosym)
18700 % U+2649 TAURUS; \taurus (wasysym)
18701 \DeclareTextCommand{\texttaurus}{PU}{\9046\111}%* U+2649
18702 %* \texttaurus -> \Taurus (marvosym)
18703 % U+264A GEMINI; \gemini (wasysym)
18704 \DeclareTextCommand{\textgemini}{PU}{\9046\112}%* U+264A
18705 %* \textgemini -> \Gemini (marvosym)
18706 % U+264B CANCER; \cancer (wasysym)
18707 \DeclareTextCommand{\textcancer}{PU}{\9046\113}%* U+264B
18708 %* \textcancer -> \Cancer (marvosym)
18709 % U+264C LEO; \leo (wasysym)
18710 \DeclareTextCommand{\textleo}{PU}{\9046\114}%* U+264C
18711 %* \textleo -> \Leo (marvosym)
18712 % U+264D VIRGO; \virgo (wasysym)
18713 \DeclareTextCommand{\textvirgo}{PU}{\9046\115}%* U+264D
18714 %* \textvirgo -> \Virgo (marvosym)
18715 % U+264E LIBRA; \libra (wasysym)
18716 \DeclareTextCommand{\textlibra}{PU}{\9046\116}%* U+264E
18717 %* \textlibra -> \Libra (marvosym)
18718 % U+264F SCORPIO; \scorpio (wasysym)
18719 \DeclareTextCommand{\textscorpio}{PU}{\9046\117}%* U+264F
18720 %* \textscorpio -> \Scorpio (marvosym)
18721 % U+2650 SAGITTARIUS; \sagittarius (wasysym)
18722 \DeclareTextCommand{\textsagittarius}{PU}{\9046\120}%* U+2650
18723 %* \textsagittarius -> \Sagittarius (marvosym)
18724 % U+2651 CAPRICORN; \capricornus (wasysym)
18725 \DeclareTextCommand{\textcapricornus}{PU}{\9046\121}%* U+2651
18726 %* \textcapricornus -> \Capricorn (marvosym)
18727 % U+2652 AQUARIUS; \aquarius (wasysym)
18728 \DeclareTextCommand{\textaquarius}{PU}{\9046\122}%* U+2652
18729 %* \textaquarius -> \Aquarius (marvosym)
18730 % U+2653 PISCES; \pisces (wasysym)

```

```

18731 \DeclareTextCommand{\textpisces}{PU}{\9046\123}%* U+2653
18732 %* \textpisces -> \Pisces (marvosym)
18733 % U+2660 BLACK SPADE SUIT; spade, spadesuitblack; \spadesuit (LaTeX)
18734 \DeclareTextCommand{\textspadesuitblack}{PU}{\9046\140}% U+2660
18735 %* \textspadesuitblack -> \spadesuit (MnSymbol)
18736 % U+2661 WHITE HEART SUIT; heartsuitwhite; \heartsuit (LaTeX)
18737 \DeclareTextCommand{\textheartsuitwhite}{PU}{\9046\141}% U+2661
18738 %* \textheartsuitwhite -> \Heart (marvosym)
18739 %* \textheartsuitwhite -> \heartsuit (MnSymbol)
18740 % U+2662 WHITE DIAMOND SUIT; diamondsuitwhite; \diamondsuit (LaTeX)
18741 \DeclareTextCommand{\textdiamondsuitwhite}{PU}{\9046\142}% U+2662
18742 %* \textdiamondsuitwhite -> \diamondsuit (MnSymbol)
18743 % U+2663 BLACK CLUB SUIT; club, clubsuitblack; \clubsuit (LaTeX)
18744 \DeclareTextCommand{\textclubsuitblack}{PU}{\9046\143}% U+2663
18745 %* \textclubsuitblack -> \clubsuit (MnSymbol)
18746 % U+2664 WHITE SPADE SUIT; spadesuitwhite
18747 \DeclareTextCommand{\textspadesuitwhite}{PU}{\9046\144}% U+2664
18748 % U+2665 BLACK HEART SUIT; heartsuitblack, heart
18749 \DeclareTextCommand{\textheartsuitblack}{PU}{\9046\145}% U+2665
18750 % U+2666 BLACK DIAMOND SUIT; diamond
18751 \DeclareTextCommand{\textdiamondsuitblack}{PU}{\9046\146}% U+2666
18752 % U+2667 WHITE CLUB SUIT; clubsuitwhite
18753 \DeclareTextCommand{\textclubsuitwhite}{PU}{\9046\147}% U+2667
18754 % U+2669 QUARTER NOTE; quarternote; \quarternote (wasysym, arev)
18755 \DeclareTextCommand{\textquarternote}{PU}{\9046\151}%* U+2669
18756 % U+266A EIGHTH NOTE; musicalnote; \textmusicalnote (textcomp)
18757 \DeclareTextCommand{\textmusicalnote}{PU}{\9046\152}% U+266A
18758 %* \textmusicalnote -> \eighthnote (wasysym, arev)
18759 % U+266B BEAMED EIGHTH NOTES; eighthnotebeamed; \twonotes (wasysym)
18760 \DeclareTextCommand{\texttwonotes}{PU}{\9046\153}%* U+266B
18761 % U+266C BEAMED SIXTEENTH NOTES; beamedsixteenthnotes; \sixteenth-
      note (arev)
18762 \DeclareTextCommand{\textsixteenthnote}{PU}{\9046\154}%* U+266C
18763 % U+266D MUSIC FLAT SIGN; musicflatsign; \flat (LaTeX)
18764 \DeclareTextCommand{\textflat}{PU}{\9046\155}%* U+266D
18765 % U+266E MUSIC NATURAL SIGN; \natural (LaTeX)
18766 \DeclareTextCommand{\textnatural}{PU}{\9046\156}%* U+266E
18767 % U+266F MUSIC SHARP SIGN; musicsharpsign; \sharp (LaTeX)
18768 \DeclareTextCommand{\textsharp}{PU}{\9046\157}%* U+266F
18769 % U+2672 UNIVERSAL RECYCLING SYMBOL; \recycle (recycle)
18770 \DeclareTextCommand{\textrecycle}{PU}{\9046\162}%* U+2672
18771 %* \textrecycle -> \Recycling (marvosym)
18772 % U+267F WHEELCHAIR SYMBOL; \Wheelchair (marvosym)
18773 \DeclareTextCommand{\textWheelchair}{PU}{\9046\177}%* U+267F
18774 % U+2691 BLACK FLAG; \Flag (ifsym)
18775 \DeclareTextCommand{\textFlag}{PU}{\9046\221}%* U+2691
18776 %* \textFlag -> \VarFlag (ifsym)
18777 % U+2692 HAMMER AND PICK; \MineSign (marvosym)
18778 \DeclareTextCommand{\textMineSign}{PU}{\9046\222}%* U+2692
18779 % U+2694 CROSSED SWORDS; \dsmilitary (dictsym)
18780 \DeclareTextCommand{\textdsmilitary}{PU}{\9046\224}%* U+2694
18781 %* \textdsmilitary -> \textxswup (fourier)
18782 % U+2695 STAFF OF AESCULAPIUS; \dsmedical (dictsym)
18783 \DeclareTextCommand{\textdsmedical}{PU}{\9046\225}%* U+2695

```



18784 % U+2696 SCALES; \dsjuridical (dictsym)  
 18785 \DeclareTextCommand{\textdsjuridical}{PU}{\9046\226}%\* U+2696  
 18786 % U+2697 ALEMBIC; \dschemical (dictsym)  
 18787 \DeclareTextCommand{\textdschemical}{PU}{\9046\227}%\* U+2697  
 18788 % U+2698 FLOWER; \dsbiological (dictsym)  
 18789 \DeclareTextCommand{\textdsbiological}{PU}{\9046\230}%\* U+2698  
 18790 % U+269A STAFF OF HERMES; \dscommercial (dictsym)  
 18791 \DeclareTextCommand{\textdscommercial}{PU}{\9046\232}%\* U+269A  
 18792 % U+269D OUTLINED WHITE STAR; \manstar (manfnt)  
 18793 \DeclareTextCommand{\textmanstar}{PU}{\9046\235}%\* U+269D  
 18794 % U+26A0 WARNING SIGN; \danger (fourier)  
 18795 \DeclareTextCommand{\textdanger}{PU}{\9046\240}%\* U+26A0  
 18796 % U+26A2 DOUBLED FEMALE SIGN; \FemaleFemale (marvosym)  
 18797 \DeclareTextCommand{\textFemaleFemale}{PU}{\9046\242}%\* U+26A2  
 18798 % U+26A3 DOUBLED MALE SIGN; \MaleMale (marvosym)  
 18799 \DeclareTextCommand{\textMaleMale}{PU}{\9046\243}%\* U+26A3  
 18800 % U+26A4 INTERLOCKED FEMALE AND MALE SIGN; \FemaleMale (marvosym)  
 18801 \DeclareTextCommand{\textFemaleMale}{PU}{\9046\244}%\* U+26A4  
 18802 % U+26A5 MALE AND FEMALE SIGN; \Hermaphrodite (marvosym)  
 18803 \DeclareTextCommand{\textHermaphrodite}{PU}{\9046\245}%\* U+26A5  
 18804 % U+26AA MEDIUM WHITE CIRCLE; \Neural (marvosym)  
 18805 \DeclareTextCommand{\textNeutral}{PU}{\9046\252}%\* U+26AA  
 18806 % U+26AD MARRIAGE SYMBOL  
 18807 \DeclareTextCommand{\textmarried}{PU}{\9046\255}% U+26AD  
 18808 % U+26AE DIVORCE SYMBOL  
 18809 \DeclareTextCommand{\textdivorced}{PU}{\9046\256}% U+26AE  
 18810 % U+26B2 NEUTER; \textuncrfemale (tipx)  
 18811 \DeclareTextCommand{\textPUuncrfemale}{PU}{\9046\262}% U+26B2  
 18812 %\* \textPUuncrfemale -> \textuncrfemale (tipx)  
 18813 % U+26B9 SEXTILE; \hexstar (wasysym)  
 18814 \DeclareTextCommand{\texthexstar}{PU}{\9046\271}%\* U+26B9  
 18815 % U+26BD SOCCER BALL; \Football (marvosym)  
 18816 \DeclareTextCommand{\textSoccerBall}{PU}{\9046\275}% U+26BD  
 18817 %\* \textSoccerBall -> \Football (marvosym)  
 18818 % U+26C5 SUN BEHIND CLOUD; \SunCloud (ifsym)  
 18819 \DeclareTextCommand{\textSunCloud}{PU}{\9046\305}%\* U+26C5  
 18820 % U+26C6 RAIN; \Rain (ifsym)  
 18821 \DeclareTextCommand{\textRain}{PU}{\9046\306}%\* U+26C6  
 18822 % U+26D4 NO ENTRY; \noway (fourier)  
 18823 \DeclareTextCommand{\textnoway}{PU}{\9046\324}%\* U+26D4  
 18824 % U+26F0 MOUNTAIN; \Mountain (ifsym)  
 18825 \DeclareTextCommand{\textMountain}{PU}{\9046\360}%\* U+26F0  
 18826 % U+26FA TENT; \Tent (ifsym)  
 18827 \DeclareTextCommand{\textTent}{PU}{\9046\372}%\* U+26FA

#### 47.2.30 Dingbats: U+2700 to U+27BF

18828 % U+2701 UPPER BLADE SCISSORS; \ScissorRightBrokenBottom (bbding)  
 18829 \DeclareTextCommand{\textScissorRightBrokenBottom}{PU}{\9047\001}% U+2701  
 18830 %\* \textScissorRightBrokenBottom -> \CutLeft (marvosym)  
 18831 %\* \textScissorRightBrokenBottom -> \Cutright (marvosym)  
 18832 % U+2702 BLACK SCISSORS; \ScissorRight (bbding)  
 18833 \DeclareTextCommand{\textScissorRight}{PU}{\9047\002}%\* U+2702  
 18834 %\* \textScissorRight -> \RightScissors (marvosym)

18835 %\* \textScissorRight -> \Leftscissors (marvosym)  
18836 % U+2703 LOWER BLADE SCISSORS; \ScissorRightBrokenTop (bding)  
18837 \DeclareTextCommand{\textScissorRightBrokenTop}{PU}{\9047\003}%\* U+2703  
18838 % U+2704 WHITE SCISSORS; \ScissorHollowRight (bding)  
18839 \DeclareTextCommand{\textScissorHollowRight}{PU}{\9047\004}%\* U+2704  
18840 % U+2706 TELEPHONE LOCATION SIGN; \PhoneHandset (bding)  
18841 \DeclareTextCommand{\textPhoneHandset}{PU}{\9047\006}%\* U+2706  
18842 % U+2707 TAPE DRIVE; \Tape (bding)  
18843 \DeclareTextCommand{\textTape}{PU}{\9047\007}%\* U+2707  
18844 % U+2708 AIRPLANE; \Plane (bding)  
18845 \DeclareTextCommand{\textPlane}{PU}{\9047\010}%\* U+2708  
18846 % U+2709 ENVELOPE; \Envelope (bding),  
18847 \DeclareTextCommand{\textEnvelope}{PU}{\9047\011}%\* U+2709  
18848 %\* \textEnvelope -> \Letter (marvosym)  
18849 % U+270C VICTORY HAND; \Peace (bding)  
18850 \DeclareTextCommand{\textPeace}{PU}{\9047\014}%\* U+270C  
18851 % U+270D WRITING HAND; \WritingHand (marvosym)  
18852 \DeclareTextCommand{\textWritingHand}{PU}{\9047\015}%\* U+270D  
18853 %\* \textWritingHand -> \Writinghand (marvosym)  
18854 % U+270E LOWER RIGHT PENCIL; \PencilRightDown (bding)  
18855 \DeclareTextCommand{\textPencilRightDown}{PU}{\9047\016}%\* U+270E  
18856 % U+270F PENCIL; \PencilRight (bding)  
18857 \DeclareTextCommand{\textPencilRight}{PU}{\9047\017}%\* U+270F  
18858 % U+2710 UPPER RIGHT PENCIL; \PencilRightUp (bding)  
18859 \DeclareTextCommand{\textPencilRightUp}{PU}{\9047\020}%\* U+2710  
18860 % U+2711 WHITE NIB; \NibRight (bding)  
18861 \DeclareTextCommand{\textNibRight}{PU}{\9047\021}%\* U+2711  
18862 % U+2712 BLACK NIB; \NibSolidRight (bding)  
18863 \DeclareTextCommand{\textNibSolidRight}{PU}{\9047\022}%\* U+2712  
18864 % U+2713 CHECK MARK; checkmark; \Checkmark (bding)  
18865 \DeclareTextCommand{\textCheckmark}{PU}{\9047\023}%\* U+2713  
18866 %\* \textCheckmark -> \checkmark (MnSymbol)  
18867 % U+2714 HEAVY CHECK MARK; \CheckmarkBold (bding)  
18868 \DeclareTextCommand{\textCheckmarkBold}{PU}{\9047\024}%\* U+2714  
18869 % U+2715 MULTIPLICATION X; \XSolid (bding)  
18870 \DeclareTextCommand{\textXSolid}{PU}{\9047\025}%\* U+2715  
18871 % U+2716 HEAVY MULTIPLICATION X; \XSolidBold (bding)  
18872 \DeclareTextCommand{\textXSolidBold}{PU}{\9047\026}%\* U+2716  
18873 % U+2717 BALLOT X; \XSolidBrush (bding)  
18874 \DeclareTextCommand{\textXSolidBrush}{PU}{\9047\027}%\* U+2717  
18875 % U+2719 OUTLINED GREEK CROSS; \PlusOutline (bding)  
18876 \DeclareTextCommand{\textPlusOutline}{PU}{\9047\031}%\* U+2719  
18877 % U+271A HEAVY GREEK CROSS; \Plus (bding)  
18878 \DeclareTextCommand{\textPlus}{PU}{\9047\032}%\* U+271A  
18879 % U+271B OPEN CENTRE CROSS; \PlusThinCenterOpen (bding)  
18880 \DeclareTextCommand{\textPlusThinCenterOpen}{PU}{\9047\033}%\* U+271B  
18881 % U+271C HEAVY OPEN CENTRE CROSS; \PlusCenterOpen (bding)  
18882 \DeclareTextCommand{\textPlusCenterOpen}{PU}{\9047\034}%\* U+271C  
18883 % U+271D LATIN CROSS; \Cross (bding)  
18884 \DeclareTextCommand{\textCross}{PU}{\9047\035}%\* U+271D  
18885 % U+271E SHADOWED WHITE LATIN CROSS; \CrossOpenShadow (bding)  
18886 \DeclareTextCommand{\textCrossOpenShadow}{PU}{\9047\036}%\* U+271E  
18887 % U+271F OUTLINED LATIN CROSS; \CrossOutline (bding)  
18888 \DeclareTextCommand{\textCrossOutline}{PU}{\9047\037}%\* U+271F

18889 % U+2720 MALTESE CROSS; \CrossMaltese (bding)  
 18890 \DeclareTextCommand{\textCrossMaltese}{PU}{\9047\040}%\* U+2720  
 18891 % U+2721 STAR OF DAVID; \DavidStar (bding)  
 18892 \DeclareTextCommand{\textDavidStar}{PU}{\9047\041}%\* U+2721  
 18893 %\* \textDavidStar -> \davidstar (wasysym)  
 18894 % U+2722 FOUR TEARDROP-SPOKED ASTERISK; \FourAsterisk (bding)  
 18895 \DeclareTextCommand{\textFourAsterisk}{PU}{\9047\042}%\* U+2722  
 18896 % U+2723 FOUR BALLOON-SPOKED ASTERISK; \JackStar (bding)  
 18897 \DeclareTextCommand{\textJackStar}{PU}{\9047\043}%\* U+2723  
 18898 % U+2724 HEAVY FOUR BALLOON-SPOKED ASTERISK; \JackStarBold (bding)  
 18899 \DeclareTextCommand{\textJackStarBold}{PU}{\9047\044}%\* U+2724  
 18900 % U+2725 FOUR CLUB-SPOKED ASTERISK; \CrossClowerTips (bding)  
 18901 \DeclareTextCommand{\textClowerTips}{PU}{\9047\045}%\* U+2725  
 18902 % U+2726 BLACK FOUR POINTED STAR; \FourStar (bding)  
 18903 \DeclareTextCommand{\textFourStar}{PU}{\9047\046}%\* U+2726  
 18904 % U+2727 WHITE FOUR POINTED STAR; \FourStarOpen (bding)  
 18905 \DeclareTextCommand{\textFourStarOpen}{PU}{\9047\047}%\* U+2727  
 18906 % U+272A CIRCLED WHITE STAR; \FiveStarOpenCircled (bding)  
 18907 \DeclareTextCommand{\textFiveStarOpenCircled}{PU}{\9047\052}%\* U+272A  
 18908 % U+272B OPEN CENTRE BLACK STAR; \FiveStarCenterOpen (bding)  
 18909 \DeclareTextCommand{\textFiveStarCenterOpen}{PU}{\9047\053}%\* U+272B  
 18910 % U+272C BLACK CENTRE WHITE STAR; \FiveStarOpenDotted (bding)  
 18911 \DeclareTextCommand{\textFiveStarOpenDotted}{PU}{\9047\054}%\* U+272C  
 18912 % U+272D OUTLINED BLACK STAR; \FiveStarOutline (bding)  
 18913 \DeclareTextCommand{\textFiveStarOutline}{PU}{\9047\055}%\* U+272D  
 18914 % U+272E HEAVY OUTLINED BLACK STAR; \FiveStarOutlineHeavy (bding)  
 18915 \DeclareTextCommand{\textFiveStarOutlineHeavy}{PU}{\9047\056}%\* U+272E  
 18916 % U+272F PINWHEEL STAR; \FiveStarConvex (bding)  
 18917 \DeclareTextCommand{\textFiveStarConvex}{PU}{\9047\057}%\* U+272F  
 18918 % U+2730 SHADOWED WHITE STAR; \FiveStarShadow (bding)  
 18919 \DeclareTextCommand{\textFiveStarShadow}{PU}{\9047\060}%\* U+2730  
 18920 % U+2731 HEAVY ASTERISK; \AsteriskBold (bding)  
 18921 \DeclareTextCommand{\textAsteriskBold}{PU}{\9047\061}%\* U+2731  
 18922 % U+2732 OPEN CENTRE ASTERISK; \AsteriskCenterOpen (bding)  
 18923 \DeclareTextCommand{\textAsteriskCenterOpen}{PU}{\9047\062}%\* U+2732  
 18924 % U+2734 EIGHT POINTED BLACK STAR; \EightStarTaper (bding)  
 18925 \DeclareTextCommand{\textEightStarTaper}{PU}{\9047\064}%\* U+2734  
 18926 % U+2735 EIGHT POINTED PINWHEEL STAR; \EightStarConvex (bding)  
 18927 \DeclareTextCommand{\textEightStarConvex}{PU}{\9047\065}%\* U+2735  
 18928 % U+2736 SIX POINTED BLACK STAR; \SixStar (bding)  
 18929 \DeclareTextCommand{\textSixStar}{PU}{\9047\066}%\* U+2736  
 18930 % U+2737 EIGHT POINTED RECTILINEAR BLACK STAR; \EightStar (bding)  
 18931 \DeclareTextCommand{\textEightStar}{PU}{\9047\067}%\* U+2737  
 18932 % U+2738 HEAVY EIGHT POINTED RECTILINEAR BLACK STAR; \EightStarBold (bding)  
 18933 \DeclareTextCommand{\textEightStarBold}{PU}{\9047\070}%\* U+2738  
 18934 % U+2739 TWELVE POINTED BLACK STAR; \TwelveStar (bding)  
 18935 \DeclareTextCommand{\textTwelveStar}{PU}{\9047\071}%\* U+2739  
 18936 % U+273A SIXTEEN POINTED ASTERISK; \SixteenStarLight (bding)  
 18937 \DeclareTextCommand{\textSixteenStarLight}{PU}{\9047\072}%\* U+273A  
 18938 % U+273B TEARDROP-SPOKED ASTERISK; \SixFlowerPetalRemoved (bding)

18939 \DeclareTextCommand{\textSixFlowerPetalRemoved}{PU}{\9047\073}%\* U+273B  
18940 % U+273C OPEN CENTRE TEARDROP-SPOKED ASTERISK;  
18941 % \SixFlowerOpenCenter (bding)  
18942 \DeclareTextCommand{\textSixFlowerOpenCenter}{PU}{\9047\074}%\* U+273C  
18943 % U+273D HEAVY TEARDROP-SPOKED ASTERISK; \Asterisk (bding)  
18944 \DeclareTextCommand{\textAsterisk}{PU}{\9047\075}%\* U+273D  
18945 % U+273E SIX PETALLED BLACK AND WHITE FLORETTE; \SixFlowerAl-  
ternate (bding)  
18946 \DeclareTextCommand{\textSixFlowerAlternate}{PU}{\9047\076}%\* U+273E  
18947 % U+273F BLACK FLORETTE; \FiveFlowerPetal (bding)  
18948 \DeclareTextCommand{\textFiveFlowerPetal}{PU}{\9047\077}%\* U+273F  
18949 % U+2740 WHITE FLORETTE; \FiveFlowerOpen (bding)  
18950 \DeclareTextCommand{\textFiveFlowerOpen}{PU}{\9047\100}%\* U+2740  
18951 % U+2741 EIGHT PETALLED OUTLINED BLACK FLORETTE; \EightFlow-  
erPetal (bding)  
18952 \DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\101}%\* U+2741  
18953 % U+2742 CIRCLED OPEN CENTRE EIGHT POINTED STAR; \Sunshi-  
neOpenCircled (bding)  
18954 \DeclareTextCommand{\textSunshineOpenCircled}{PU}{\9047\102}%\* U+2742  
18955 % U+2743 HEAVY TEARDROP-SPOKED PINWHEEL ASTERISK; \SixFlow-  
erAltPetal (bding)  
18956 \DeclareTextCommand{\textSixFlowerAltPetal}{PU}{\9047\103}%\* U+2743  
18957 % U+2744 SNOWFLAKE; \SnowflakeChevron (bding)  
18958 \DeclareTextCommand{\textSnowflakeChevron}{PU}{\9047\104}%\* U+2744  
18959 % U+2745 TIGHT TRIFOLIATE SNOWFLAKE; \Snowflake (bding)  
18960 \DeclareTextCommand{\textSnowflake}{PU}{\9047\105}%\* U+2745  
18961 % U+2746 HEAVY CHEVRON SNOWFLAKE; \SnowflakeChevronBold (bding)  
18962 \DeclareTextCommand{\textSnowflakeChevronBold}{PU}{\9047\106}%\* U+2746  
18963 % U+2747 SPARKLE; \Sparkle (bding)  
18964 \DeclareTextCommand{\textSparkle}{PU}{\9047\107}%\* U+2747  
18965 % U+2748 HEAVY SPARKLE; \SparkleBold (bding)  
18966 \DeclareTextCommand{\textSparkleBold}{PU}{\9047\110}%\* U+2748  
18967 % U+2749 BALLOON-SPOKED ASTERISK; \AsteriskRoundedEnds (bding)  
18968 \DeclareTextCommand{\textAsteriskRoundedEnds}{PU}{\9047\111}%\* U+2749  
18969 % U+274A EIGHT TEARDROP-SPOKED PROPELLER ASTERISK;  
18970 % \EightFlowerPetalRemoved (bding)  
18971 \DeclareTextCommand{\textEightFlowerPetalRemoved}{PU}{\9047\112}%\* U+274A  
18972 % U+274B HEAVY EIGHT TEARDROP-SPOKED PROPELLER ASTERISK;  
18973 % \EightAsterisk (bding)  
18974 \DeclareTextCommand{\textEightAsterisk}{PU}{\9047\113}%\* U+274B  
18975 % U+274D SHADOWED WHITE CIRCLE; \CircleShadow (bding)  
18976 \DeclareTextCommand{\textCircleShadow}{PU}{\9047\115}%\* U+274D  
18977 % U+274F LOWER RIGHT DROP-SHADOWED WHITE SQUARE;  
18978 % \SquareShadowBottomRight (bding)  
18979 \DeclareTextCommand{\textSquareShadowBottomRight}{PU}{\9047\117}%\* U+274F  
18980 % U+2750 UPPER RIGHT DROP-SHADOWED WHITE SQUARE;  
18981 % \SquareShadowTopRight (bding)  
18982 \DeclareTextCommand{\textSquareTopRight}{PU}{\9047\120}%\* U+2750  
18983 % U+2751 LOWER RIGHT SHADOWED WHITE SQUARE;  
18984 % \SquareCastShadowBottomRight (bding)  
18985 \DeclareTextCommand{\textSquareCastShadowBottomRight}{PU}{\9047\121}%\* U+2751  
18986 % U+2752 UPPER RIGHT SHADOWED WHITE SQUARE;  
18987 % \SquareCastShadowTopRight (bding)  
18988 \DeclareTextCommand{\textSquareCastShadowTopRight}{PU}{\9047\122}%\* U+2752

18989 % U+2756 BLACK DIAMOND MINUS WHITE X; \OrnamentDiamandSolid (b-bding)  
18990 \DeclareTextCommand{\textDiamandSolid}{PU}{\9047\126}%\* U+2756  
18991 % U+2758 LIGHT VERTICAL BAR; \RectangleThin (b-bding)  
18992 \DeclareTextCommand{\textRectangleThin}{PU}{\9047\130}%\* U+2758  
18993 % U+2759 MEDIUM VERTICAL BAR; \Rectangle (b-bding)  
18994 \DeclareTextCommand{\textRectangle}{PU}{\9047\131}%\* U+2759  
18995 % U+275A HEAVY VERTICAL BAR; \RectangleBold (b-bding)  
18996 \DeclareTextCommand{\textRectangleBold}{PU}{\9047\132}%\* U+275A

#### 47.2.31 Miscellaneous Mathematical Symbols-A: U+27C0 to U+27EF

18997 % U+27C2 PERPENDICULAR; perpendicular; \perp (LaTeX)  
18998 \DeclareTextCommand{\textperp}{PU}{\9047\302}%\* U+27C2  
18999 % \notperp (mathabx)  
19000 \DeclareTextCommand{\textnotperp}{PU}{\9047\302\83\070}%\* U+27C2 U+0338  
19001 % U+27C7 OR WITH DOT INSIDE; \veedot (MnSymbol)  
19002 \DeclareTextCommand{\textveedot}{PU}{\9047\307}%\* U+27C7  
19003 % U+27D1 AND WITH DOT; \wedgedot (MnSymbol)  
19004 \DeclareTextCommand{\textwedgedot}{PU}{\9047\321}%\* U+27D1  
19005 % U+27DC LEFT MULTIMAP; \leftspoon (MnSymbol)  
19006 \DeclareTextCommand{\textleftspoon}{PU}{\9047\334}%\* U+27DC  
19007 % U+27E6 MATHEMATICAL LEFT WHITE SQUARE BRACKET  
19008 \DeclareTextCommand{\textlbrackdbl}{PU}{\9047\346}%\* U+27E6  
19009 %\* \textlbrackdbl -> \llbracket (stmaryrd)  
19010 % U+27E7 MATHEMATICAL RIGHT WHITE SQUARE BRACKET  
19011 \DeclareTextCommand{\textrbrackdbl}{PU}{\9047\347}%\* U+27E7  
19012 %\* \textrbrackdbl -> \rrbracket (stmaryrd)

#### 47.2.32 Supplemental Arrows-A: U+27F0 to U+27FF

19013 % U+27F2 ANTICLOCKWISE GAPPED CIRCLE ARROW;  
19014 % \circlearrowleft (AmS)  
19015 \DeclareTextCommand{\textcirclearrowleft}{PU}{\9047\362}%\* U+27F2  
19016 % U+27F3 CLOCKWISE GAPPED CIRCLE ARROW; \circlearrowright (AmS)  
19017 \DeclareTextCommand{\textcirclearrowright}{PU}{\9047\363}%\* U+27F3  
19018 % U+27F5 LONG LEFTWARDS ARROW; \longleftarrow (AmS)  
19019 \DeclareTextCommand{\textlongleftarrow}{PU}{\9047\365}%\* U+27F5  
19020 % U+27F6 LONG RIGHTWARDS ARROW; \longrightarrow (AmS)  
19021 \DeclareTextCommand{\textlongrightarrow}{PU}{\9047\366}%\* U+27F6  
19022 % U+27F7 LONG LEFT RIGHT ARROW; \longlefttrightarrow (AmS)  
19023 \DeclareTextCommand{\textlonglefttrightarrow}{PU}{\9047\367}%\* U+27F7  
19024 % U+27F8 LONG LEFTWARDS DOUBLE ARROW; \Longleftarrow (AmS)  
19025 \DeclareTextCommand{\textLongleftarrow}{PU}{\9047\370}%\* U+27F8  
19026 % U+27F9 LONG RIGHTWARDS DOUBLE ARROW; \Longrightarrow (AmS)  
19027 \DeclareTextCommand{\textLongrightarrow}{PU}{\9047\371}%\* U+27F9  
19028 % U+27FA LONG LEFT RIGHT DOUBLE ARROW; \Longlefttrightarrow (AmS)  
19029 \DeclareTextCommand{\textLonglefttrightarrow}{PU}{\9047\372}%\* U+27FA  
19030 % U+27FC LONG RIGHTWARDS ARROW FROM BAR; \longmapsto (AmS)  
19031 \DeclareTextCommand{\textlongmapsto}{PU}{\9047\374}%\* U+27FC  
19032 % U+27FD LONG LEFTWARDS DOUBLE ARROW FROM BAR; \Longmapsfrom (stmaryrd)  
19033 \DeclareTextCommand{\textLongmapsfrom}{PU}{\9047\375}%\* U+27FD  
19034 % U+27FE LONG RIGHTWARDS DOUBLE ARROW FROM BAR; \Longmapsto (stmaryrd)  
19035 \DeclareTextCommand{\textLongmapsto}{PU}{\9047\376}%\* U+27FE

### 47.2.33 Supplemental Arrows-B: U+2900 to U+297F

```

19036 % U+2921 NORTH WEST AND SOUTH EAST ARROW; \nwsearrow (MnSymbol)
19037 \DeclareTextCommand{\textnwsearrow}{PU}{\9051\041}%* U+2921
19038 % U+2922 NORTH EAST AND SOUTH WEST ARROW; \neswarrow (MnSymbol)
19039 \DeclareTextCommand{\textneswarrow}{PU}{\9051\042}%* U+2922
19040 % U+2923 NORTH WEST ARROW WITH HOOK; \lhooknwarrow (MnSymbol)
19041 \DeclareTextCommand{\textlhooknwarrow}{PU}{\9051\043}%* U+2923
19042 % U+2924 NORTH EAST ARROW WITH HOOK; \rhooknearrow (MnSymbol)
19043 \DeclareTextCommand{\textrhooknearrow}{PU}{\9051\044}%* U+2924
19044 % U+2925 SOUTH EAST ARROW WITH HOOK; \lhooksearrow (MnSymbol)
19045 \DeclareTextCommand{\textlhooksearrow}{PU}{\9051\045}%* U+2925
19046 % U+2926 SOUTH WEST ARROW WITH HOOK; \rhookswarrow (MnSymbol)
19047 \DeclareTextCommand{\textrhookswarrow}{PU}{\9051\046}%* U+2926
19048 % U+2933 WAVE ARROW POINTING DIRECTLY RIGHT; \leadsto (wasysym)
19049 \DeclareTextCommand{\textleadsto}{PU}{\9051\063}%* U+2933
19050 % U+2934 ARROW POINTING RIGHTWARDS THEN CURVING UPWARDS;
19051 % \rcurvearrowne (MnSymbol)
19052 \DeclareTextCommand{\textrcurvearrowne}{PU}{\9051\064}%* U+2934
19053 % U+2935 ARROW POINTING RIGHTWARDS THEN CURVING DOWN-
19054 % \lcurvearrowse (MnSymbol)
19055 \DeclareTextCommand{\textlcurvearrowse}{PU}{\9051\065}%* U+2935
19056 % U+2936 ARROW POINTING DOWNWARDS THEN CURVING LEFT-
19057 % \lcurvearrowsw (MnSymbol)
19058 \DeclareTextCommand{\textlcurvearrowsw}{PU}{\9051\066}%* U+2936
19059 % U+2937 ARROW POINTING DOWNWARDS THEN CURVING RIGHT-
19060 % \rcurvearrowse (MnSymbol)
19061 \DeclareTextCommand{\textrcurvearrowse}{PU}{\9051\067}%* U+2937
19062 % U+2938 RIGHT-SIDE ARC CLOCKWISE ARROW; \lcurvearrowdown (Mn-
19063 % \textlcurvearrowdown}{PU}{\9051\070}%* U+2938
19064 %* \textlcurvearrowdown -> \RightTorque (marvosym)
19065 %* \textlcurvearrowdown -> \Righttorque (marvosym)
19066 % U+2939 LEFT-SIDE ARC ANTICLOCKWISE ARROW;
19067 % \rcurvearrowdown (MnSymbol)
19068 \DeclareTextCommand{\textrcurvearrowdown}{PU}{\9051\071}%* U+2939
19069 %* \textrcurvearrowdown -> \LeftTorque (marvosym)
19070 %* \textrcurvearrowdown -> \Lefttorque (marvosym)
19071 % U+293A TOP ARC ANTICLOCKWISE ARROW; \rcurvearrowleft (MnSym-
19072 % \textrcurvearrowleft}{PU}{\9051\072}%* U+293A
19073 % U+293B BOTTOM ARC ANTICLOCKWISE ARROW;
19074 % \rcurvearrowright (MnSymbol)
19075 \DeclareTextCommand{\textrcurvearrowright}{PU}{\9051\073}%* U+293B
19076 % U+294A LEFT BARB UP RIGHT BARB DOWN HARPOON; \leftrighthar-
19077 % \textleftrightharpoon}{PU}{\9051\112}%* U+294A
19078 % U+294B LEFT BARB DOWN RIGHT BARB UP HARPOON; \rightlefthar-
19079 % \textrightleftharpoon}{PU}{\9051\113}%* U+294B

```

19079 \DeclareTextCommand{\textrightleftharpoon}{PU}{\9051\113}%\* U+294B  
 19080 % U+294C UP BARB RIGHT DOWN BARB LEFT HARPOON;  
 19081 % \updownharpoonrightleft (MnSymbol)  
 19082 \DeclareTextCommand{\textupdownharpoonrightleft}{PU}{\9051\114}%\* U+294C  
 19083 % U+294D UP BARB LEFT DOWN BARB RIGHT HARPOON;  
 19084 % \updownharpoonleftright (MnSymbol)  
 19085 \DeclareTextCommand{\textupdownharpoonleftright}{PU}{\9051\115}%\* U+294D  
 19086 % U+2962 LEFTWARDS HARPOON WITH BARB UP ABOVE LEFTWARDS  
 19087 % HARPOON WITH BARB DOWN; \leftleftharpoons (mathabx)  
 19088 \DeclareTextCommand{\textleftleftharpoons}{PU}{\9051\142}%\* U+2962  
 19089 % U+2963 UPWARDS HARPOON WITH BARB LEFT BESIDE UPWARDS  
 19090 % HARPOON WITH BARB RIGHT; \upupharpoons (mathabx)  
 19091 \DeclareTextCommand{\textupupharpoons}{PU}{\9051\143}%\* U+2963  
 19092 % U+2964 RIGHTWARDS HARPOON WITH BARB UP ABOVE RIGHT-  
 WARDS HARPOON  
 19093 % WITH BARB DOWN; \rightrightarpoons (mathabx)  
 19094 \DeclareTextCommand{\textrightarpoons}{PU}{\9051\144}%\* U+2964  
 19095 % U+2965 DOWNWARDS HARPOON WITH BARB LEFT BESIDE DOWN-  
 WARDS HARPOON  
 19096 % WITH BARB RIGHT; \downdownharpoons (mathabx)  
 19097 \DeclareTextCommand{\textdowndownharpoons}{PU}{\9051\145}%\* U+2965  
 19098 % U+296A LEFTWARDS HARPOON WITH BARB UP ABOVE LONG DASH;  
 19099 % \leftbarharpoon (mathabx)  
 19100 \DeclareTextCommand{\textleftbarharpoon}{PU}{\9051\152}%\* U+296A  
 19101 % U+296B LEFTWARDS HARPOON WITH BARB DOWN BELOW  
 19102 % LONG DASH; \barleftharpoon (mathabx)  
 19103 \DeclareTextCommand{\textbarleftharpoon}{PU}{\9051\153}%\* U+296B  
 19104 % U+296C RIGHTWARDS HARPOON WITH BARB UP ABOVE  
 19105 % LONG DASH; \rightbarharpoon (mathabx)  
 19106 \DeclareTextCommand{\textrightbarharpoon}{PU}{\9051\154}%\* U+296C  
 19107 % U+296D RIGHTWARDS HARPOON WITH BARB DOWN BELOW  
 19108 % LONG DASH; \barrightharpoon (mathabx)  
 19109 \DeclareTextCommand{\textbarrightharpoon}{PU}{\9051\155}%\* U+296D  
 19110 % U+296E UPWARDS HARPOON WITH BARB LEFT BESIDE DOWN-  
 WARDS HARPOON  
 19111 % WITH BARB RIGHT; \updownharpoons (mathabx)  
 19112 \DeclareTextCommand{\textupdownharpoons}{PU}{\9051\156}%\* U+296E  
 19113 % U+296F DOWNWARDS HARPOON WITH BARB LEFT BESIDE UP-  
 WARDS HARPOON  
 19114 % WITH BARB RIGHT; \downupharpoons (mathabx)  
 19115 \DeclareTextCommand{\textdownupharpoons}{PU}{\9051\157}%\* U+296F  
 19116 % U+297F DOWN FISH TAIL  
 19117 \DeclareTextCommand{\textmoo}{PU}{\9051\177\83\066}%\* U+297F U+0336

#### 47.2.34 Miscellaneous Mathematical Symbols-B: U+2980 to U+29FF

19118 % U+2987 Z NOTATION LEFT IMAGE BRACKET; \lparenthesis (stmaryrd)  
 19119 \DeclareTextCommand{\textlparenthesis}{PU}{\9051\207}%\* U+2987  
 19120 % U+2988 Z NOTATION RIGHT IMAGE BRACKET; \rrparenthesis (stmaryrd)  
 19121 \DeclareTextCommand{\textrrparenthesis}{PU}{\9051\210}%\* U+2988  
 19122 % U+29B0 REVERSED EMPTY SET; \invdiameter (wasysym)  
 19123 \DeclareTextCommand{\textinvdiameter}{PU}{\9051\260}%\* U+29B0  
 19124 % U+29B6 CIRCLED VERTICAL BAR; \obar (stmaryrd)  
 19125 \DeclareTextCommand{\textobar}{PU}{\9051\266}%\* U+29B6  
 19126 %\* \textobar -> \textvarobar (stmaryrd)

```

19127 % U+29B8 CIRCLED REVERSE SOLIDUS; \obslash (stmaryrd)
19128 \DeclareTextCommand{\textobslash}{PU}{\9051\270}%* U+29B8
19129 %* \textobslash -> \circledbslash (txfonts/pxfonts)
19130 %* \textobslash -> \obackslash (mathabx)
19131 %* \textobslash -> \varobslash (stmaryrd)
19132 % U+29BA CIRCLE DIVIDED BY HORIZONTAL BAR AND TOP HALF
19133 % DIVIDED BY VERTICAL BAR; \obot (mathabx)
19134 \DeclareTextCommand{\textobot}{PU}{\9051\272}%* U+29BA
19135 %* \textobot -> \odplus (ulsy)
19136 % U+29BB CIRCLE WITH SUPERIMPOSED X; \NoChemicalCleaning (mar-
      vosym)
19137 \DeclareTextCommand{\textNoChemicalCleaning}{PU}{\9051\273}%* U+29BB
19138 % U+29C0 CIRCLED LESS-THAN; \olessthan (stmaryrd)
19139 \DeclareTextCommand{\textolessthan}{PU}{\9051\300}%* U+29C0
19140 %* \textolessthan -> \varolessthan (stmaryrd)
19141 % U+29C1 CIRCLED GREATER-THAN; \ogreaterthan (stmaryrd)
19142 \DeclareTextCommand{\textogreaterthan}{PU}{\9051\301}%* U+29C1
19143 %* \textogreaterthan -> \varogreaterthan (stmaryrd)
19144 % U+29C4 SQUARED RISING DIAGONAL SLASH; \boxslash (mathabx, stmaryrd)
19145 \DeclareTextCommand{\textboxslash}{PU}{\9051\304}%* U+29C4
19146 % U+29C5 SQUARED FALLING DIAGONAL SLASH; \boxbslash (stmaryrd)
19147 \DeclareTextCommand{\textboxbslash}{PU}{\9051\305}%* U+29C5
19148 % U+29C6 SQUARED ASTERISK; \boxast (stmaryrd)
19149 \DeclareTextCommand{\textboxast}{PU}{\9051\306}%* U+29C6
19150 % U+29C7 SQUARED SMALL CIRCLE; \boxcircle (stmaryrd)
19151 \DeclareTextCommand{\textboxcircle}{PU}{\9051\307}%* U+29C7
19152 % U+29C8 SQUARED SQUARE; \boxbox (stmaryrd)
19153 \DeclareTextCommand{\textboxbox}{PU}{\9051\310}%* U+29C8
19154 % U+29D3 BLACK BOWTIE; \Valve (marvosym)
19155 \DeclareTextCommand{\textValve}{PU}{\9051\323}%* U+29D3
19156 % U+29DF DOUBLE-ENDED MULTIMAP; \multimapboth (txfonts/pxfonts)
19157 \DeclareTextCommand{\textmultimapboth}{PU}{\9051\337}%* U+29DF
19158 % U+29E2 SHUFFLE PRODUCT; \shuffle (shuffle)
19159 \DeclareTextCommand{\textshuffle}{PU}{\9051\342}%* U+29E2

```

#### 47.2.35 Supplemental Mathematical Operators: U+2A00 to U+2AFF

```

19160 % U+2A04 N-ARY UNION OPERATOR WITH PLUS; \uplus (LaTeX)
19161 \DeclareTextCommand{\textuplus}{PU}{\9052\004}%* U+2A04
19162 % U+2A07 TWO LOGICAL AND OPERATOR; \bigdoublewedge (MnSymbol)
19163 \DeclareTextCommand{\textbigdoublewedge}{PU}{\9052\007}%* U+2A07
19164 % U+2A08 TWO LOGICAL OR OPERATOR; \bigdoublevee (MnSymbol)
19165 \DeclareTextCommand{\textbigdoublevee}{PU}{\9052\010}%* U+2A08
19166 % U+2A1D JOIN; \Join (latexsym, amsfonts, amssymb, mathabx, txfonts,
19167 % pxfonts, wasysym)
19168 \DeclareTextCommand{\textJoin}{PU}{\9052\035}%* U+2A1D
19169 % U+2A1F Z NOTATION SCHEMA COMPOSITION; \fatsemi (stmaryrd)
19170 \DeclareTextCommand{\textfatsemi}{PU}{\9052\037}%* U+2A1F
19171 % U+2A22 PLUS SIGN WITH SMALL CIRCLE ABOVE; \circplus (mathabx)
19172 \DeclareTextCommand{\textcircplus}{PU}{\9052\042}%* U+2A22
19173 % U+2A2A MINUS SIGN WITH DOT BELOW; \minusdot (MnSymbol)
19174 \DeclareTextCommand{\textminusdot}{PU}{\9052\052}%* U+2A2A
19175 %* \textminusdot -> \divdot (mathabx)
19176 % U+2A30 MULTIPLICATION SIGN WITH DOT ABOVE; \dottimes (mathabx)
19177 \DeclareTextCommand{\textdottimes}{PU}{\9052\060}%* U+2A30

```



```

19178 % U+2A32 SEMIDIRECT PRODUCT WITH BOTTOM CLOSED;
19179 % \dtimes (mathdesign)
19180 \DeclareTextCommand{\textdtimes}{PU}{\9052\062}%* U+2A32
19181 % U+2A38 CIRCLED DIVISION SIGN; \odiv (mathabx)
19182 \DeclareTextCommand{\textodiv}{PU}{\9052\070}%* U+2A38
19183 % U+2A3C INTERIOR PRODUCT; \invneg (MnSymbol)
19184 \DeclareTextCommand{\textinvneg}{PU}{\9052\074}%* U+2A3C
19185 % U+2A4E DOUBLE SQUARE INTERSECTION; \sqdoublecap (mathabx)
19186 \DeclareTextCommand{\textsqdoublecap}{PU}{\9052\116}%* U+2A4E
19187 %* \textsqdoublecap -> \doublesqcap (MnSymbol)
19188 % U+2A40 INTERSECTION WITH DOT; \capdot (MnSymbol)
19189 \DeclareTextCommand{\textcapdot}{PU}{\9052\100}%* U+2A40
19190 % U+2A4F DOUBLE SQUARE UNION; \sqdoublecup (mathabx)
19191 \DeclareTextCommand{\textsqdoublecup}{PU}{\9052\117}%* U+2A4F
19192 %* \textsqdoublecup -> \doublesqcup (MnSymbol)
19193 % U+2A55 TWO INTERSECTING LOGICAL AND; \doublewedge (MnSymbol)
19194 \DeclareTextCommand{\textdoublewedge}{PU}{\9052\125}%* U+2A55
19195 % U+2A56 TWO INTERSECTING LOGICAL OR; \doublevee (MnSymbol)
19196 \DeclareTextCommand{\textdoublevee}{PU}{\9052\126}%* U+2A56
19197 %* \textdoublevee -> \merge (stmaryrd)
19198 % U+2A5E LOGICAL AND WITH DOUBLE OVERBAR;
19199 % \doublebarwedge (AmS)
19200 \DeclareTextCommand{\textdoublebarwedge}{PU}{\9052\136}%* U+2A5E
19201 % U+2A63 LOGICAL OR WITH DOUBLE UNDERBAR;
19202 % \veedoublebar (mahtabx)
19203 \DeclareTextCommand{\textveedoublebar}{PU}{\9052\143}%* U+2A63
19204 % U+2A66 EQUALS SIGN WITH DOT BELOW; \eqdot (MnSymbol)
19205 \DeclareTextCommand{\texteqdot}{PU}{\9052\146}%* U+2A66
19206 % \neqdot (MnSymbol)
19207 \DeclareTextCommand{\textneqdot}{PU}{\9052\146\83\070}%* U+2A66 U+0338
19208 % U+2A74 DOUBLE COLON EQUAL; \coloncolonequals (colonequals)
19209 \DeclareTextCommand{\textcoloncolonequals}{PU}{\9052\164}%* U+2A74
19210 % U+2A7D LESS-THAN OR SLANTED EQUAL TO; \leqslant (AmS)
19211 \DeclareTextCommand{\textleqslant}{PU}{\9052\175}%* U+2A7D
19212 % \nleqslant (txfonts/pxfonts)
19213 \DeclareTextCommand{\textnleqslant}{PU}{\9052\175\83\070}%* U+2A7D U+0338
19214 % U+2A7E GREATER-THAN OR SLANTED EQUAL TO; \geqslant (AmS)
19215 \DeclareTextCommand{\textgeqslant}{PU}{\9052\176}%* U+2A7E
19216 % \ngeqslant (txfonts/pxfonts)
19217 \DeclareTextCommand{\textngeqslant}{PU}{\9052\176\83\070}%* U+2A7E U+0338
19218 % U+2A85 LESS-THAN OR APPROXIMATE; \lessapprox (AmS)
19219 \DeclareTextCommand{\textlessapprox}{PU}{\9052\205}%* U+2A85
19220 % \nlessapprox (txfonts/pxfonts)
19221 \DeclareTextCommand{\textnlessapprox}{PU}{\9052\205\83\070}%* U+2A85 U+0338
19222 % U+2A86 GREATER-THAN OR APPROXIMATE; \gtrapprox (AmS)
19223 \DeclareTextCommand{\textgtrapprox}{PU}{\9052\206}%* U+2A86
19224 % \ngtrapprox (txfonts/pxfonts)
19225 \DeclareTextCommand{\textngtrapprox}{PU}{\9052\206\83\070}%* U+2A86 U+0338
19226 % U+2A87 LESS-THAN AND SINGLE-LINE NOT EQUAL TO; \lneq (AmS)
19227 \DeclareTextCommand{\textlneq}{PU}{\9052\207}%* U+2A87
19228 % U+2A88 GREATER-THAN AND SINGLE-LINE NOT EQUAL TO;
19229 % \gneq (AmS)
19230 \DeclareTextCommand{\textgneq}{PU}{\9052\210}%* U+2A88
19231 % U+2A89 LESS-THAN AND NOT APPROXIMATE; \lnapprox (AmS)

```

19232 \DeclareTextCommand{\textlnapprox}{PU}{\9052\211}%\* U+2A89  
 19233 % U+2A8A GREATER-THAN AND NOT APPROXIMATE; \gnapprox (AmS)  
 19234 \DeclareTextCommand{\textgnapprox}{PU}{\9052\212}%\* U+2A8A  
 19235 % U+2A8B LESS-THAN ABOVE DOUBLE-LINE EQUAL ABOVE GREATER-  
 THAN;  
 19236 % \lesseqqgtr (AmS)  
 19237 \DeclareTextCommand{\textlesseqqgtr}{PU}{\9052\213}%\* U+2A8B  
 19238 % U+2A8C GREATER-THAN ABOVE DOUBLE-LINE EQUAL ABOVE LESS-  
 THAN;  
 19239 % \gtreqqless (AmS)  
 19240 \DeclareTextCommand{\textgtreqqless}{PU}{\9052\214}%\* U+2A8C  
 19241 % U+2A95 SLANTED EQUAL TO OR LESS-THAN; \eqslantless (AmS)  
 19242 \DeclareTextCommand{\texteqslantless}{PU}{\9052\225}%\* U+2A95  
 19243 % U+2A96 SLANTED EQUAL TO OR GREATER-THAN; \eqslantgtr (AmS)  
 19244 \DeclareTextCommand{\texteqslantgtr}{PU}{\9052\226}%\* U+2A96  
 19245 % U+2AA6 LESS-THAN CLOSED BY CURVE; \leftslice (stmaryrd)  
 19246 \DeclareTextCommand{\textleftslice}{PU}{\9052\246}%\* U+2AA6  
 19247 % U+2AA7 GREATER-THAN CLOSED BY CURVE; \rightslice (stmaryrd)  
 19248 \DeclareTextCommand{\textright slice}{PU}{\9052\247}%\* U+2AA7  
 19249 % U+2AAF PRECEDES ABOVE SINGLE-LINE EQUALS SIGN; \preceq (Mn-  
 Symbol)  
 19250 \DeclareTextCommand{\textpreceq}{PU}{\9052\257}%\* U+2AAF  
 19251 % \npreceq (txfonts/pxfonts)  
 19252 \DeclareTextCommand{\textnpreceq}{PU}{\9052\257\83\070}%\* U+2AAF U+0338  
 19253 % U+2AB0 SUCCEEDS ABOVE SINGLE-LINE EQUALS SIGN; \succeq (Mn-  
 Symbol)  
 19254 \DeclareTextCommand{\textsucceq}{PU}{\9052\260}%\* U+2AB0  
 19255 % \nsucceq (txfonts/pxfonts)  
 19256 \DeclareTextCommand{\textnsucceq}{PU}{\9052\260\83\070}%\* U+2AB0 U+0338  
 19257 % U+2AB1 PRECEDES ABOVE SINGLE-LINE NOT EQUAL TO; \prec-  
 neq (mathabx)  
 19258 \DeclareTextCommand{\textprecneq}{PU}{\9052\261}%\* U+2AB1  
 19259 % U+2AB2 SUCCEEDS ABOVE SINGLE-LINE NOT EQUAL TO; \succ-  
 neq (mathabx)  
 19260 \DeclareTextCommand{\textsuccneq}{PU}{\9052\262}%\* U+2AB2  
 19261 % U+2AB3 PRECEDES ABOVE EQUALS SIGN; \preceqq (txfonts/pxfonts)  
 19262 \DeclareTextCommand{\textpreceqq}{PU}{\9052\263}%\* U+2AB3  
 19263 % \npreceqq (txfonts/pxfonts)  
 19264 \DeclareTextCommand{\textnpreceqq}{PU}{\9052\263\83\070}%\* U+2AB3 U+0338  
 19265 % U+2AB4 SUCCEEDS ABOVE EQUALS SIGN; \succeqq (txfonts/pxfonts)  
 19266 \DeclareTextCommand{\textsucceqq}{PU}{\9052\264}%\* U+2AB4  
 19267 % \nsucceqq (txfonts/pxfonts)  
 19268 \DeclareTextCommand{\textnsucceqq}{PU}{\9052\264\83\070}%\* U+2AB4 U+0338  
 19269 % U+2AB5 PRECEDES ABOVE NOT EQUAL TO; \precneqq (txfonts/pxfonts)  
 19270 \DeclareTextCommand{\textprecneqq}{PU}{\9052\265}%\* U+2AB5  
 19271 % U+2AB6 SUCCEEDS ABOVE NOT EQUAL TO; \succneqq (txfonts/pxfonts)  
 19272 \DeclareTextCommand{\textsuccneqq}{PU}{\9052\266}%\* U+2AB6  
 19273 % U+2AB7 PRECEDES ABOVE ALMOST EQUAL TO; \precapprox (AmS)  
 19274 \DeclareTextCommand{\textprecapprox}{PU}{\9052\267}%\* U+2AB7  
 19275 % \nprecapprox (txfonts/pxfonts)  
 19276 \DeclareTextCommand{\textnprecapprox}{PU}{\9052\267\83\070}%\* U+2AB7 U+0338  
 19277 % U+2AB8 SUCCEEDS ABOVE ALMOST EQUAL TO; \succapprox (AmS)  
 19278 \DeclareTextCommand{\textsuccapprox}{PU}{\9052\270}%\* U+2AB8  
 19279 % \nsuccapprox (txfonts/pxfonts)

```

19280 \DeclareTextCommand{\textnsuccapprox}{PU}{\9052\270\83\070}%* U+2AB8 U+0338
19281 % U+2AB9 PRECEDES ABOVE NOT ALMOST EQUAL TO; \precnap-
      prox (AmS)
19282 \DeclareTextCommand{\textprecnapprox}{PU}{\9052\271}%* U+2AB9
19283 % U+2ABA SUCCEEDS ABOVE NOT ALMOST EQUAL TO; \succnap-
      prox (AmS)
19284 \DeclareTextCommand{\textsuccapprox}{PU}{\9052\272}%* U+2ABA
19285 % U+2AC5 SUBSET OF ABOVE EQUALS SIGN; \subseteqq (AmS)
19286 \DeclareTextCommand{\textsubseteqq}{PU}{\9052\305}%* U+2AC5
19287 % \nsubseteqq (txfonts/pxfonts, mathabx)
19288 \DeclareTextCommand{\textnsubseteqq}{PU}{\9052\305\83\070}%* U+2AC5 U+0338
19289 % U+2AC6 SUPERSET OF ABOVE EQUALS SIGN; \supseteqq (AmS)
19290 \DeclareTextCommand{\textsupseteqq}{PU}{\9052\306}%* U+2AC6
19291 % \nsupseteqq (mathabx)
19292 \DeclareTextCommand{\textnsupseteqq}{PU}{\9052\306\83\070}%* U+2AC6 U+0338
19293 % U+2AE3 DOUBLE VERTICAL BAR LEFT TURNSTILE
19294 \DeclareTextCommand{\textdashV}{PU}{\9052\343}%* U+2AE3
19295 %* \textdashV -> \leftVdash (MnSymbol)
19296 % \ndashV (mathabx)
19297 \DeclareTextCommand{\textndashV}{PU}{\9052\343\83\070}%* U+2AE3 U+0338
19298 %* \textndashV -> \nleftVdash (MnSymbol)
19299 % U+2AE4 VERTICAL BAR DOUBLE LEFT TURNSTILE; \Dashv (mathabx)
19300 \DeclareTextCommand{\textDashv}{PU}{\9052\344}%* U+2AE4
19301 %* \textDashv -> \leftmodels (MnSymbol)
19302 % \nDashv (mathabx)
19303 \DeclareTextCommand{\textnDashv}{PU}{\9052\344\83\070}%* U+2AE4 U+0338
19304 %* \textnDashv -> \nleftmodels (MnSymbol)
19305 % U+2AE5 DOUBLE VERTICAL BAR DOUBLE LEFT TURNSTILE;
19306 % \DashV (mathabx)
19307 \DeclareTextCommand{\textDashV}{PU}{\9052\345}%* U+2AE5
19308 %* \textDashV -> \leftModels (MnSymbol)
19309 % \nDashV (mathabx)
19310 \DeclareTextCommand{\textnDashV}{PU}{\9052\345\83\070}%* U+2AE5 U+0338
19311 %* \textnDashV -> \nleftModels (MnSymbol)
19312 % U+2AEA DOUBLE DOWN TACK; \downmodels (MnSymbol)
19313 \DeclareTextCommand{\textdownmodels}{PU}{\9052\352}%* U+2AEA
19314 % \ndownmodels (MnSymbol)
19315 \DeclareTextCommand{\textndownmodels}{PU}{\9052\352\83\070}%* U+2AEA U+0338
19316 % U+2AEB DOUBLE UP TACK; \upmodels (MnSymbol)
19317 \DeclareTextCommand{\textupmodels}{PU}{\9052\353}%* U+2AEB
19318 % \nupmodels (MnSymbol)
19319 \DeclareTextCommand{\textnupmodels}{PU}{\9052\353\83\070}%* U+2AEB U+0338
19320 % U+2AEF VERTICAL LINE WITH CIRCLE ABOVE; \upspoon (MnSymbol)
19321 \DeclareTextCommand{\textupspoon}{PU}{\9052\357}%* U+2AEF
19322 % U+2AF4 TRIPLE VERTICAL BAR BINARY RELATION;
19323 % \interleave (stmaryrd)
19324 \DeclareTextCommand{\textinterleave}{PU}{\9052\364}%* U+2AF4
19325 % U+2AFD DOUBLE SOLIDUS OPERATOR; \slash (stmaryrd)
19326 \DeclareTextCommand{\textslash}{PU}{\9052\375}%* U+2AFD
19327 %* \textslash -> \varparallel (txfonts/pxfonts)

```

#### 47.2.36 Miscellaneous Symbols and Arrows: U+2B00 to U+2BFF

```

19328 % U+2B20 WHITE PENTAGON; \pentagon (wasysym)
19329 \DeclareTextCommand{\textpentagon}{PU}{\9053\040}%* U+2B20

```

19330 % U+2B21 WHITE HEXAGON; \varhexagon (wasysym)  
 19331 \DeclareTextCommand{\textvarhexagon}{PU}{\9053\041}%\* U+2B21

#### 47.2.37 Latin Extended-C: U+2C60 to U+2C7F

19332 % U+2C7C LATIN SUBSCRIPT SMALL LETTER J  
 19333 \DeclareTextCommand{\textjinferior}{PU}{\9054\174}%\* U+2C7C

#### 47.2.38 Supplemental Punctuation: U+2E00 to U+2E7F

19334 % U+2E13 DOTTED OBELOS; \slashdiv (MnSymbol)  
 19335 \DeclareTextCommand{\textslashdiv}{PU}{\9056\023}%\* U+2E13  
 19336 % U+2E18 INVERTED INTERROBANG; \textinterrobangdown (textcomp)  
 19337 \DeclareTextCommand{\textinterrobangdown}{PU}{\9056\030}% U+2E18  
 19338 % U+2E2D FIVE DOT MARK; \fivedots (MnSymbol)  
 19339 \DeclareTextCommand{\textfivedots}{PU}{\9056\055}%\* U+2E2D

#### 47.2.39 Modifier Tone Letters: U+A700 to U+A71F

19340 % U+A71B MODIFIER LETTER RAISED UP ARROW; \textupstep (tipa)  
 19341 \DeclareTextCommand{\textupstep}{PU}{\9247\033}% U+A71B  
 19342 % U+A71C MODIFIER LETTER RAISED DOWN ARROW;  
 19343 % \textdownstep (tipa)  
 19344 \DeclareTextCommand{\textdownstep}{PU}{\9247\034}% U+A71C

#### 47.2.40 Latin Extended-D: U+A720 to U+A7FF

19345 % U+A727 LATIN SMALL LETTER HENG; \textheng (tipx)  
 19346 \DeclareTextCommand{\textPUheng}{PU}{\9247\047}% U+A727  
 19347 %\* \textPUheng -> \textheng (tipx)  
 19348 % U+A72C LATIN CAPITAL LETTER CUATRILLO; \textlhookfour (tipx)  
 19349 \DeclareTextCommand{\textPUIhookfour}{PU}{\9247\054}% U+A72C  
 19350 %\* \textPUIhookfour -> \textlhookfour (tipx)  
 19351 % U+A730 LATIN LETTER SMALL CAPITAL F; \textscf (tipx)  
 19352 \DeclareTextCommand{\textPUscf}{PU}{\9247\060}% U+A730  
 19353 %\* \textPUscf -> \textscf (tipx)  
 19354 % U+A735 LATIN SMALL LETTER AO; \textao lig (tipx)  
 19355 \DeclareTextCommand{\textPUaolig}{PU}{\9247\065}% U+A735  
 19356 %\* \textPUaolig -> \textao lig (tipx)  
 19357 % U+A74F LATIN SMALL LETTER OO; \oo (wsuipa)  
 19358 \DeclareTextCommand{\textoo}{PU}{\9247\117}%\* U+A74F  
 19359 % U+A788 MODIFIER LETTER LOW CIRCUMFLEX ACCENT  
 19360 \DeclareTextCommand{\textcircumlow}{PU}{\9247\210}% U+A788

#### 47.2.41 Alphabetic Presentation Forms: U+FB00 to U+FB4F

19361 % U+FB01 LATIN SMALL LIGATURE FI; fi  
 19362 \DeclareTextCommand{\textfi}{PU}{\9373\001}% U+FB01  
 19363 % U+FB02 LATIN SMALL LIGATURE FL; fl  
 19364 \DeclareTextCommand{\textfl}{PU}{\9373\002}% U+FB02

#### 47.2.42 Musical Symbols: U+1D100 to U+1D1FF

19365 % U+1D13B MUSICAL SYMBOL WHOLE REST; \GaPa (harmony)  
 19366 \DeclareTextCommand{\textGaPa}{PU}{\9330\064\9335\073}%\* U+1D13B  
 19367 % U+1D13C MUSICAL SYMBOL HALF REST; \HaPa (harmony)  
 19368 \DeclareTextCommand{\textHaPa}{PU}{\9330\064\9335\074}%\* U+1D13C  
 19369 % U+1D13D MUSICAL SYMBOL QUARTER REST; \ViPa (harmony)  
 19370 \DeclareTextCommand{\textViPa}{PU}{\9330\064\9335\075}%\* U+1D13D  
 19371 % U+1D13E MUSICAL SYMBOL EIGHTH REST; \AcPa (harmony)

19372 \DeclareTextCommand{\textAcPa}{PU}{\9330\064\9335\076}%\* U+1D13E  
 19373 % U+1D13F MUSICAL SYMBOL SIXTEENTH REST; \SePa (harmony)  
 19374 \DeclareTextCommand{\textSePa}{PU}{\9330\064\9335\077}%\* U+1D13F  
 19375 % U+1D140 MUSICAL SYMBOL THIRTY-SECOND REST; \ZwPa (harmony)  
 19376 \DeclareTextCommand{\textZwPa}{PU}{\9330\064\9335\100}%\* U+1D140  
 19377 % U+1D15D MUSICAL SYMBOL WHOLE NOTE; \fullnote (wasysym)  
 19378 \DeclareTextCommand{\textfullnote}{PU}{\9330\064\9335\135}%\* U+1D15D  
 19379 %\* \textfullnote -> \Ganz (harmony)  
 19380 % U+1D15E MUSICAL SYMBOL HALF NOTE; \halfnote (wasysym)  
 19381 \DeclareTextCommand{\texthalfnote}{PU}{\9330\064\9335\136}%\* U+1D15E  
 19382 %\* \texthalfnote -> \Halb (harmony)  
 19383 % U+1D15F MUSICAL SYMBOL QUARTER NOTE; \Vier (harmony)  
 19384 \DeclareTextCommand{\textVier}{PU}{\9330\064\9335\137}%\* U+1D15F  
 19385 % U+1D160 MUSICAL SYMBOL EIGHTH NOTE; \Acht (harmony)  
 19386 \DeclareTextCommand{\textAcht}{PU}{\9330\064\9335\140}%\* U+1D160  
 19387 % U+1D161 MUSICAL SYMBOL SIXTEENTH NOTE; \Sech (harmony)  
 19388 \DeclareTextCommand{\textSech}{PU}{\9330\064\9335\141}%\* U+1D161  
 19389 % U+1D162 MUSICAL SYMBOL THIRTY-SECOND NOTE; \Zwdr (harmony)  
 19390 \DeclareTextCommand{\textZwdr}{PU}{\9330\064\9335\142}%\* U+1D162

#### 47.2.43 Miscellaneous Symbols and Pictographs: U+1F300 to U+1F5FF

19391 % U+1F30D EARTH GLOBE EUROPE-AFRICA; \Mundus (marvosym)  
 19392 \DeclareTextCommand{\textMundus}{PU}{\9330\074\9337\015}%\* U+1F30D  
 19393 % U+1F319 CRESCENT MOON; \Moon (marvosym)  
 19394 \DeclareTextCommand{\textMoon}{PU}{\9330\074\9337\031}%\* U+1F319  
 19395 % U+1F468 MAN; \ManFace (marvosym)  
 19396 \DeclareTextCommand{\textManFace}{PU}{\9330\075\9334\150}%\* U+1F468  
 19397 % U+1F469 WOMAN; \WomanFace (marvosym)  
 19398 \DeclareTextCommand{\textWomanFace}{PU}{\9330\075\9334\151}%\* U+1F469  
 19399 %\* \textWomanFace -> \Womanface (marvosym)  
 19400 % U+1F4E0 FAX MACHINE; \Fax (marvosym)  
 19401 \DeclareTextCommand{\textFax}{PU}{\9330\075\9334\340}%\* U+1F4E0  
 19402 %\* \textFax -> \Faxmachine (marvosym)  
 19403 % U+1F525 FIRE; \Fire (ifsym)  
 19404 \DeclareTextCommand{\textFire}{PU}{\9330\075\9335\045}%\* U+1F525

#### 47.2.44 Transport and Map Symbols: U+1F680 to U+1F6FF

19405 % U+1F6B2 BICYCLE; \Bicycle (marvosym)  
 19406 \DeclareTextCommand{\textBicycle}{PU}{\9330\075\9336\262}%\* U+1F6B2  
 19407 % U+1F6B9 MENS SYMBOL; \Gentsroom (marvosym)  
 19408 \DeclareTextCommand{\textGentsroom}{PU}{\9330\075\9336\271}%\* U+1F6B9  
 19409 % U+1F6BA WOMENS SYMBOL; \Ladiesroom (marvosym)  
 19410 \DeclareTextCommand{\textLadiesroom}{PU}{\9330\075\9336\272}%\* U+1F6BA

#### 47.2.45 Miscellaneous

19411 \DeclareTextCommand{\SS}{PU}{SS}%  
 19412 % \textcopyleft (textcomp)  
 19413 \DeclareTextCommand{\textcopyleft}{PU}{\9041\204\9040\335}% U+2184 U+20DD  
 19414 % \ccnc (ccllicenses)  
 19415 \DeclareTextCommand{\textccnc}{PU}{\80\044\9040\340}%\* U+0024 U+20E0  
 19416 % \ccnd (ccllicenses)  
 19417 \DeclareTextCommand{\textccnd}{PU}{=\9040\335}%\* U+003D U+20DD  
 19418 % \ccsa (ccllicenses)  
 19419 \DeclareTextCommand{\textccsa}{PU}{\9047\362\9040\335}%\* U+27F2 U+20DD

```

19420 % \Info (marvosym, china2e)
19421 \DeclareTextCommand{\textInfo}{PU}{\9330\065\9334\042\9040\336}%* U+1D422 U+20DE
19422 % \CESign (marvosym)
19423 \DeclareTextCommand{\textCESign}{PU}{\80\103\80\105}%* U+0043 U+0045
19424 %* \textCESign -> \CESign (marvosym)

```

#### 47.2.46 Aliases

Aliases (german.sty)

```

19425 \DeclareTextCommand{\textglqq}{PU}{\quotedblbase}%
19426 \DeclareTextCommand{\textgrqq}{PU}{\textquotedblleft}%
19427 \DeclareTextCommand{\textglq}{PU}{\quotesinglbase}%
19428 \DeclareTextCommand{\textgrq}{PU}{\textquoteleft}%
19429 \DeclareTextCommand{\textflqq}{PU}{\guillemetleft}%
19430 \DeclareTextCommand{\textfrqq}{PU}{\guillemetright}%
19431 \DeclareTextCommand{\textflq}{PU}{\guilsinglleft}%
19432 \DeclareTextCommand{\textfrq}{PU}{\guilsinglright}%

```

Aliases (math names)

```

19433 \DeclareTextCommand{\textneg}{PU}{\textlogicalnot}%*
19434 \DeclareTextCommand{\texttimes}{PU}{\textmultiply}%*
19435 \DeclareTextCommand{\textdiv}{PU}{\textdivide}%*
19436 \DeclareTextCommand{\textpm}{PU}{\textplusminus}%*
19437 \DeclareTextCommand{\textcdot}{PU}{\textperiodcentered}%*
19438 </puenc>

```

### 47.3 PU encoding, additions for VnTeX

This file is provided by Han The Thanh.

```

19439 <*puvnenc>
19440 \DeclareTextCommand{\abreve}{PU}{\81\003}% U+0103
19441 \DeclareTextCommand{\acircumflex}{PU}{\80\342}% U+00E2
19442 \DeclareTextCommand{\ecircumflex}{PU}{\80\352}% U+00EA
19443 \DeclareTextCommand{\ocircumflex}{PU}{\80\364}% U+00F4
19444 \DeclareTextCommand{\ohorn}{PU}{\81\241}% U+01A1
19445 \DeclareTextCommand{\uhorn}{PU}{\81\260}% U+01B0
19446 \DeclareTextCommand{\ABREVE}{PU}{\81\002}% U+0102
19447 \DeclareTextCommand{\ACIRCUMFLEX}{PU}{\80\302}% U+00C2
19448 \DeclareTextCommand{\ECIRCUMFLEX}{PU}{\80\312}% U+00CA
19449 \DeclareTextCommand{\OCIRCUMFLEX}{PU}{\80\324}% U+00D4
19450 \DeclareTextCommand{\OHORN}{PU}{\81\240}% U+01A0
19451 \DeclareTextCommand{\UHORN}{PU}{\81\257}% U+01AF
19452 \DeclareTextCompositeCommand{\'}{PU}{a}{\80\341}% U+00E1
19453 \DeclareTextCompositeCommand{\d}{PU}{a}{\9036\241}% U+1EA1
19454 \DeclareTextCompositeCommand{\`}{PU}{a}{\80\340}% U+00E0
19455 \DeclareTextCompositeCommand{\h}{PU}{a}{\9036\243}% U+1EA3
19456 \DeclareTextCompositeCommand{\~}{PU}{a}{\80\343}% U+00E3
19457 \DeclareTextCompositeCommand{\'}{PU}{\abreve}{\9036\257}% U+1EAF
19458 \DeclareTextCompositeCommand{\d}{PU}{\abreve}{\9036\267}% U+1EB7
19459 \DeclareTextCompositeCommand{\`}{PU}{\abreve}{\9036\261}% U+1EB1
19460 \DeclareTextCompositeCommand{\h}{PU}{\abreve}{\9036\263}% U+1EB3
19461 \DeclareTextCompositeCommand{\~}{PU}{\abreve}{\9036\265}% U+1EB5
19462 \DeclareTextCompositeCommand{\'}{PU}{\acircumflex}{\9036\245}% U+1EA5

```

19463 \DeclareTextCompositeCommand{\d}{PU}{\acircumflex}{\9036\255}% U+1EAD  
 19464 \DeclareTextCompositeCommand{\`}{PU}{\acircumflex}{\9036\247}% U+1EA7  
 19465 \DeclareTextCompositeCommand{\h}{PU}{\acircumflex}{\9036\251}% U+1EA9  
 19466 \DeclareTextCompositeCommand{\~}{PU}{\acircumflex}{\9036\253}% U+1EAB  
 19467 \DeclareTextCompositeCommand{\'}{PU}{e}{\80\351}% U+00E9  
 19468 \DeclareTextCompositeCommand{\d}{PU}{e}{\9036\271}% U+1EB9  
 19469 \DeclareTextCompositeCommand{\`}{PU}{e}{\80\350}% U+00E8  
 19470 \DeclareTextCompositeCommand{\h}{PU}{e}{\9036\273}% U+1EBB  
 19471 \DeclareTextCompositeCommand{\~}{PU}{e}{\9036\275}% U+1EBD  
 19472 \DeclareTextCompositeCommand{\'}{PU}{\ecircumflex}{\9036\277}% U+1EBF  
 19473 \DeclareTextCompositeCommand{\d}{PU}{\ecircumflex}{\9036\307}% U+1EC7  
 19474 \DeclareTextCompositeCommand{\`}{PU}{\ecircumflex}{\9036\301}% U+1EC1  
 19475 \DeclareTextCompositeCommand{\h}{PU}{\ecircumflex}{\9036\303}% U+1EC3  
 19476 \DeclareTextCompositeCommand{\~}{PU}{\ecircumflex}{\9036\305}% U+1EC5  
 19477 \DeclareTextCompositeCommand{\'}{PU}{i}{\80\355}% U+00ED  
 19478 \DeclareTextCompositeCommand{\d}{PU}{i}{\9036\313}% U+1ECB  
 19479 \DeclareTextCompositeCommand{\`}{PU}{i}{\80\354}% U+00EC  
 19480 \DeclareTextCompositeCommand{\h}{PU}{i}{\9036\311}% U+1EC9  
 19481 \DeclareTextCompositeCommand{\~}{PU}{i}{\81\051}% U+0129  
 19482 \DeclareTextCompositeCommand{\'}{PU}{o}{\80\363}% U+00F3  
 19483 \DeclareTextCompositeCommand{\d}{PU}{o}{\9036\315}% U+1ECD  
 19484 \DeclareTextCompositeCommand{\`}{PU}{o}{\80\362}% U+00F2  
 19485 \DeclareTextCompositeCommand{\h}{PU}{o}{\9036\317}% U+1ECF  
 19486 \DeclareTextCompositeCommand{\~}{PU}{o}{\80\365}% U+00F5  
 19487 \DeclareTextCompositeCommand{\'}{PU}{\ocircumflex}{\9036\321}% U+1ED1  
 19488 \DeclareTextCompositeCommand{\d}{PU}{\ocircumflex}{\9036\331}% U+1ED9  
 19489 \DeclareTextCompositeCommand{\`}{PU}{\ocircumflex}{\9036\323}% U+1ED3  
 19490 \DeclareTextCompositeCommand{\h}{PU}{\ocircumflex}{\9036\325}% U+1ED5  
 19491 \DeclareTextCompositeCommand{\~}{PU}{\ocircumflex}{\9036\327}% U+1ED7  
 19492 \DeclareTextCompositeCommand{\'}{PU}{\ohorn}{\9036\333}% U+1EDB  
 19493 \DeclareTextCompositeCommand{\d}{PU}{\ohorn}{\9036\343}% U+1EE3  
 19494 \DeclareTextCompositeCommand{\`}{PU}{\ohorn}{\9036\335}% U+1EDD  
 19495 \DeclareTextCompositeCommand{\h}{PU}{\ohorn}{\9036\337}% U+1EDF  
 19496 \DeclareTextCompositeCommand{\~}{PU}{\ohorn}{\9036\341}% U+1EE1  
 19497 \DeclareTextCompositeCommand{\'}{PU}{u}{\80\372}% U+00FA  
 19498 \DeclareTextCompositeCommand{\d}{PU}{u}{\9036\345}% U+1EE5  
 19499 \DeclareTextCompositeCommand{\`}{PU}{u}{\80\371}% U+00F9  
 19500 \DeclareTextCompositeCommand{\h}{PU}{u}{\9036\347}% U+1EE7  
 19501 \DeclareTextCompositeCommand{\~}{PU}{u}{\81\151}% U+0169  
 19502 \DeclareTextCompositeCommand{\'}{PU}{\uhorn}{\9036\351}% U+1EE9  
 19503 \DeclareTextCompositeCommand{\d}{PU}{\uhorn}{\9036\361}% U+1EF1  
 19504 \DeclareTextCompositeCommand{\`}{PU}{\uhorn}{\9036\353}% U+1EEB  
 19505 \DeclareTextCompositeCommand{\h}{PU}{\uhorn}{\9036\355}% U+1EED  
 19506 \DeclareTextCompositeCommand{\~}{PU}{\uhorn}{\9036\357}% U+1EEF  
 19507 \DeclareTextCompositeCommand{\'}{PU}{y}{\80\375}% U+00FD  
 19508 \DeclareTextCompositeCommand{\d}{PU}{y}{\9036\365}% U+1EF5  
 19509 \DeclareTextCompositeCommand{\`}{PU}{y}{\9036\363}% U+1EF3  
 19510 \DeclareTextCompositeCommand{\h}{PU}{y}{\9036\367}% U+1EF7  
 19511 \DeclareTextCompositeCommand{\~}{PU}{y}{\9036\371}% U+1EF9  
 19512 \DeclareTextCompositeCommand{\'}{PU}{A}{\80\301}% U+00C1  
 19513 \DeclareTextCompositeCommand{\d}{PU}{A}{\9036\240}% U+1EA0  
 19514 \DeclareTextCompositeCommand{\`}{PU}{A}{\80\300}% U+00C0  
 19515 \DeclareTextCompositeCommand{\h}{PU}{A}{\9036\242}% U+1EA2  
 19516 \DeclareTextCompositeCommand{\~}{PU}{A}{\80\303}% U+00C3

19517 \DeclareTextCompositeCommand{\'}{PU}{\ABREVE}{\9036\256}% U+1EAE  
19518 \DeclareTextCompositeCommand{\d}{PU}{\ABREVE}{\9036\266}% U+1EB6  
19519 \DeclareTextCompositeCommand{\`}{PU}{\ABREVE}{\9036\260}% U+1EB0  
19520 \DeclareTextCompositeCommand{\h}{PU}{\ABREVE}{\9036\262}% U+1EB2  
19521 \DeclareTextCompositeCommand{\~}{PU}{\ABREVE}{\9036\264}% U+1EB4  
19522 \DeclareTextCompositeCommand{\'}{PU}{\ACIRCUMFLEX}{\9036\244}% U+1EA4  
19523 \DeclareTextCompositeCommand{\d}{PU}{\ACIRCUMFLEX}{\9036\254}% U+1EAC  
19524 \DeclareTextCompositeCommand{\`}{PU}{\ACIRCUMFLEX}{\9036\246}% U+1EA6  
19525 \DeclareTextCompositeCommand{\h}{PU}{\ACIRCUMFLEX}{\9036\250}% U+1EA8  
19526 \DeclareTextCompositeCommand{\~}{PU}{\ACIRCUMFLEX}{\9036\252}% U+1EAA  
19527 \DeclareTextCompositeCommand{\'}{PU}{E}{\80\311}% U+00C9  
19528 \DeclareTextCompositeCommand{\d}{PU}{E}{\9036\270}% U+1EB8  
19529 \DeclareTextCompositeCommand{\`}{PU}{E}{\80\310}% U+00C8  
19530 \DeclareTextCompositeCommand{\h}{PU}{E}{\9036\272}% U+1EBA  
19531 \DeclareTextCompositeCommand{\~}{PU}{E}{\9036\274}% U+1EBC  
19532 \DeclareTextCompositeCommand{\'}{PU}{\ECIRCUMFLEX}{\9036\276}% U+1EBE  
19533 \DeclareTextCompositeCommand{\d}{PU}{\ECIRCUMFLEX}{\9036\306}% U+1EC6  
19534 \DeclareTextCompositeCommand{\`}{PU}{\ECIRCUMFLEX}{\9036\300}% U+1EC0  
19535 \DeclareTextCompositeCommand{\h}{PU}{\ECIRCUMFLEX}{\9036\302}% U+1EC2  
19536 \DeclareTextCompositeCommand{\~}{PU}{\ECIRCUMFLEX}{\9036\304}% U+1EC4  
19537 \DeclareTextCompositeCommand{\'}{PU}{I}{\80\315}% U+00CD  
19538 \DeclareTextCompositeCommand{\d}{PU}{I}{\9036\312}% U+1ECA  
19539 \DeclareTextCompositeCommand{\`}{PU}{I}{\80\314}% U+00CC  
19540 \DeclareTextCompositeCommand{\h}{PU}{I}{\9036\310}% U+1EC8  
19541 \DeclareTextCompositeCommand{\~}{PU}{I}{\81\050}% U+0128  
19542 \DeclareTextCompositeCommand{\'}{PU}{O}{\80\323}% U+00D3  
19543 \DeclareTextCompositeCommand{\d}{PU}{O}{\9036\314}% U+1ECC  
19544 \DeclareTextCompositeCommand{\`}{PU}{O}{\80\322}% U+00D2  
19545 \DeclareTextCompositeCommand{\h}{PU}{O}{\9036\316}% U+1ECE  
19546 \DeclareTextCompositeCommand{\~}{PU}{O}{\80\325}% U+00D5  
19547 \DeclareTextCompositeCommand{\'}{PU}{\OCIRCUMFLEX}{\9036\320}% U+1ED0  
19548 \DeclareTextCompositeCommand{\d}{PU}{\OCIRCUMFLEX}{\9036\330}% U+1ED8  
19549 \DeclareTextCompositeCommand{\`}{PU}{\OCIRCUMFLEX}{\9036\322}% U+1ED2  
19550 \DeclareTextCompositeCommand{\h}{PU}{\OCIRCUMFLEX}{\9036\324}% U+1ED4  
19551 \DeclareTextCompositeCommand{\~}{PU}{\OCIRCUMFLEX}{\9036\326}% U+1ED6  
19552 \DeclareTextCompositeCommand{\'}{PU}{\OHORN}{\9036\332}% U+1EDA  
19553 \DeclareTextCompositeCommand{\d}{PU}{\OHORN}{\9036\342}% U+1EE2  
19554 \DeclareTextCompositeCommand{\`}{PU}{\OHORN}{\9036\334}% U+1EDC  
19555 \DeclareTextCompositeCommand{\h}{PU}{\OHORN}{\9036\336}% U+1EDE  
19556 \DeclareTextCompositeCommand{\~}{PU}{\OHORN}{\9036\340}% U+1EE0  
19557 \DeclareTextCompositeCommand{\'}{PU}{U}{\80\332}% U+00DA  
19558 \DeclareTextCompositeCommand{\d}{PU}{U}{\9036\344}% U+1EE4  
19559 \DeclareTextCompositeCommand{\`}{PU}{U}{\80\331}% U+00D9  
19560 \DeclareTextCompositeCommand{\h}{PU}{U}{\9036\346}% U+1EE6  
19561 \DeclareTextCompositeCommand{\~}{PU}{U}{\81\150}% U+0168  
19562 \DeclareTextCompositeCommand{\'}{PU}{\UHORN}{\9036\350}% U+1EE8  
19563 \DeclareTextCompositeCommand{\d}{PU}{\UHORN}{\9036\360}% U+1EF0  
19564 \DeclareTextCompositeCommand{\`}{PU}{\UHORN}{\9036\352}% U+1EEA  
19565 \DeclareTextCompositeCommand{\h}{PU}{\UHORN}{\9036\354}% U+1EEC  
19566 \DeclareTextCompositeCommand{\~}{PU}{\UHORN}{\9036\356}% U+1EEE  
19567 \DeclareTextCompositeCommand{\'}{PU}{Y}{\80\335}% U+00DD  
19568 \DeclareTextCompositeCommand{\d}{PU}{Y}{\9036\364}% U+1EF4  
19569 \DeclareTextCompositeCommand{\`}{PU}{Y}{\9036\362}% U+1EF2  
19570 \DeclareTextCompositeCommand{\h}{PU}{Y}{\9036\366}% U+1EF6



```

19571 \DeclareTextCompositeCommand{\~}{PU}{Y}{\9036\370}% U+1EF8
19572 </puvnenc>

```

## 47.4 PU encoding, additions for Arabi

This file is provided and maintained by Youssef Jabri.

```

19573 <*puarenc>

19574 % U+0621;afii57409;ARABIC LETTER HAMZA
19575 \DeclareTextCommand{\hamza}{PU}{\86\041}% U+0621
19576 % U+0622;afii57410;ARABIC LETTER ALEF WITH MADDA ABOVE
19577 \DeclareTextCommand{\alefmadda}{PU}{\86\042}% U+0622
19578 % U+0623;afii57411;ARABIC LETTER ALEF WITH HAMZA ABOVE
19579 \DeclareTextCommand{\alefhamza}{PU}{\86\043}% U+0623
19580 % U+0624;afii57412;ARABIC LETTER WAW WITH HAMZA ABOVE
19581 \DeclareTextCommand{\wawhamza}{PU}{\86\044}% U+0624
19582 % U+0625;afii57413;ARABIC LETTER ALEF WITH HAMZA BELOW
19583 \DeclareTextCommand{\aleflowerhamza}{PU}{\86\045}% U+0625
19584 % U+0626;afii57414;ARABIC LETTER YEH WITH HAMZA ABOVE
19585 \DeclareTextCommand{\yahamza}{PU}{\86\046}% U+0626
19586 % U+0627;afii57415;ARABIC LETTER ALEF
19587 \DeclareTextCommand{\alef}{PU}{\86\047}% U+0627
19588 % U+0628;afii57416;ARABIC LETTER BEH
19589 \DeclareTextCommand{\baa}{PU}{\86\050}% U+0628
19590 % U+0629;afii57417;ARABIC LETTER TEH MARBUTA
19591 \DeclareTextCommand{\T}{PU}{\86\051}% U+0629
19592 % U+062A;afii57418;ARABIC LETTER TEH
19593 \DeclareTextCommand{\taa}{PU}{\86\052}% U+062A
19594 % U+062B;afii57419;ARABIC LETTER THEH
19595 \DeclareTextCommand{\thaa}{PU}{\86\053}% U+062B
19596 % U+062C;afii57420;ARABIC LETTER JEEM
19597 \DeclareTextCommand{\jeem}{PU}{\86\054}% U+062C
19598 % U+062D;afii57421;ARABIC LETTER HAH
19599 \DeclareTextCommand{\Haa}{PU}{\86\055}% U+062D
19600 % U+062E;afii57422;ARABIC LETTER KHAH
19601 \DeclareTextCommand{\kha}{PU}{\86\056}% U+062E
19602 % U+062F;afii57423;ARABIC LETTER DAL
19603 \DeclareTextCommand{\dal}{PU}{\86\057}% U+062F
19604 % U+0630;afii57424;ARABIC LETTER THAL
19605 \DeclareTextCommand{\dhal}{PU}{\86\060}% U+0630
19606 % U+0631;afii57425;ARABIC LETTER REH
19607 \DeclareTextCommand{\ra}{PU}{\86\061}% U+0631
19608 % U+0632;afii57426;ARABIC LETTER ZAIN
19609 \DeclareTextCommand{\zay}{PU}{\86\062}% U+0632
19610 % U+0633;afii57427;ARABIC LETTER SEEN
19611 \DeclareTextCommand{\seen}{PU}{\86\063}% U+0633
19612 % U+0634;afii57428;ARABIC LETTER SHEEN
19613 \DeclareTextCommand{\sheen}{PU}{\86\064}% U+0634
19614 % U+0635;afii57429;ARABIC LETTER SAD
19615 \DeclareTextCommand{\sad}{PU}{\86\065}% U+0635
19616 % U+0636;afii57430;ARABIC LETTER DAD
19617 \DeclareTextCommand{\dad}{PU}{\86\066}% U+0636
19618 % U+0637;afii57431;ARABIC LETTER TAH
19619 \DeclareTextCommand{\Ta}{PU}{\86\067}% U+0637

```

19620 % U+0638;afii57432;ARABIC LETTER ZAH  
 19621 \DeclareTextCommand{\za}{PU}{\86\070}% U+0638  
 19622 % U+0639;afii57433;ARABIC LETTER AIN  
 19623 \DeclareTextCommand{\ayn}{PU}{\86\071}% U+0639  
 19624 % U+063A;afii57434;ARABIC LETTER GHAIN  
 19625 \DeclareTextCommand{\ghayn}{PU}{\86\072}% U+063A  
 19626 % U+0640;afii57440;ARABIC TATWEEL  
 19627 \DeclareTextCommand{\tatweel}{PU}{\86\100}% U+0640  
 19628 % U+0641;afii57441;ARABIC LETTER FEH  
 19629 \DeclareTextCommand{\fa}{PU}{\86\101}% U+0641  
 19630 % U+0642;afii57442;ARABIC LETTER QAF  
 19631 \DeclareTextCommand{\qaf}{PU}{\86\102}% U+0642  
 19632 % U+0643;afii57443;ARABIC LETTER KAF  
 19633 \DeclareTextCommand{\kaf}{PU}{\86\103}% U+0643  
 19634 % U+0644;afii57444;ARABIC LETTER LAM  
 19635 \DeclareTextCommand{\lam}{PU}{\86\104}% U+0644  
 19636 % U+0645;afii57445;ARABIC LETTER MEEM  
 19637 \DeclareTextCommand{\meem}{PU}{\86\105}% U+0645  
 19638 % U+0646;afii57446;ARABIC LETTER NOON  
 19639 \DeclareTextCommand{\nun}{PU}{\86\106}% U+0646  
 19640 % U+0647;afii57470;ARABIC LETTER HEH  
 19641 \DeclareTextCommand{\ha}{PU}{\86\107}% U+0647  
 19642 % U+0648;afii57448;ARABIC LETTER WAW  
 19643 \DeclareTextCommand{\waw}{PU}{\86\110}% U+0648  
 19644 % U+0649;afii57449;ARABIC LETTER ALEF MAKSURA  
 19645 \DeclareTextCommand{\alefmaqsura}{PU}{\86\111}% U+0649  
 19646 % U+064A;afii57450;ARABIC LETTER YEH  
 19647 \DeclareTextCommand{\ya}{PU}{\86\112}% U+064A  
  
 19648 % U+064B;afii57451;ARABIC FATHATAN  
 19649 \DeclareTextCommand{\nasb}{PU}{\86\113}% U+064B  
 19650 % U+064C;afii57452;ARABIC DAMMATAN  
 19651 \DeclareTextCommand{\raff}{PU}{\86\114}% U+064C  
 19652 % U+064D;afii57453;ARABIC KASRATAN  
 19653 \DeclareTextCommand{\jarr}{PU}{\86\115}% U+064D  
 19654 % U+064E;afii57454;ARABIC FATHA  
 19655 \DeclareTextCommand{\fatha}{PU}{\86\116}% U+064E  
 19656 % U+064F;afii57455;ARABIC DAMMA  
 19657 \DeclareTextCommand{\damma}{PU}{\86\117}% U+064F  
 19658 % U+0650;afii57456;ARABIC KASRA  
 19659 \DeclareTextCommand{\kasra}{PU}{\86\120}% U+0650  
 19660 % U+0651;afii57457;ARABIC SHADDA  
 19661 \DeclareTextCommand{\shadda}{PU}{\86\121}% U+0651  
 19662 % U+0652;afii57458;ARABIC SUKUN  
 19663 \DeclareTextCommand{\sukun}{PU}{\86\122}% U+0652  
  
 Farsi  
 19664 % U+067E ARABIC LETTER PEH; afii57506  
 19665 \DeclareTextCommand{\peh}{PU}{\86\176}% U+067E  
 19666 % U+0686 ARABIC LETTER TCHEH; afii57507  
 19667 \DeclareTextCommand{\tcheh}{PU}{\86\206}% U+0686  
 19668 % U+0698 ARABIC LETTER JEH; afii57508  
 19669 \DeclareTextCommand{\jeh}{PU}{\86\230}% U+0698  
 19670 % U+06A9 ARABIC LETTER KEHEH  
 19671 \DeclareTextCommand{\farsikaf}{PU}{\86\251}% U+06A9

19672 % U+06AF ARABIC LETTER GAF; afi57509  
 19673 \DeclareTextCommand{\gaf}{PU}{\86\257}% U+06AF  
 19674 % U+06CC ARABIC LETTER FARSI YEH  
 19675 \DeclareTextCommand{\farsiya}{PU}{\86\314}% U+06CC  
  
 19676 % U+200C ZERO WIDTH NON-JOINER; afi61664  
 19677 \DeclareTextCommand{\ZWNJ}{PU}{\9040\014}% U+200C  
 19678 % U+200D ZERO WIDTH JOINER; afi301  
 19679 \DeclareTextCommand{\textEncodingNoboundary}{PU}{\9040\015}% U+200D  
  
 19680 </puarenc>  
  
 19681 (\*psdextra)  
 19682 \Hy@VersionCheck{psdextra.def}  
 19683 \DeclareTextCommand{\textGamma}{PU}{\83\223}%\* U+0393  
 19684 \DeclareTextCommand{\textDelta}{PU}{\83\224}%\* U+0394  
 19685 \DeclareTextCommand{\textTheta}{PU}{\83\230}%\* U+0398  
 19686 \DeclareTextCommand{\textLambda}{PU}{\83\233}%\* U+039B  
 19687 \DeclareTextCommand{\textXi}{PU}{\83\236}%\* U+039E  
 19688 \DeclareTextCommand{\textPi}{PU}{\83\240}%\* U+03A0  
 19689 \DeclareTextCommand{\textSigma}{PU}{\83\243}%\* U+03A3  
 19690 \DeclareTextCommand{\textUpsilon}{PU}{\83\245}%\* U+03A5  
 19691 \DeclareTextCommand{\textPhi}{PU}{\83\246}%\* U+03A6  
 19692 \DeclareTextCommand{\textChi}{PU}{\83\247}% U+03A7  
 19693 \DeclareTextCommand{\textPsi}{PU}{\83\250}%\* U+03A8  
 19694 \DeclareTextCommand{\textOmega}{PU}{\83\251}%\* U+03A9  
 19695 \DeclareTextCommand{\textalpha}{PU}{\83\261}%\* U+03B1  
 19696 \DeclareTextCommand{\textbeta}{PU}{\83\262}%\* U+03B2  
 19697 \DeclareTextCommand{\textgamma}{PU}{\83\263}%\* U+03B3  
 19698 \DeclareTextCommand{\textdelta}{PU}{\83\264}%\* U+03B4  
 19699 \DeclareTextCommand{\textepsilon}{PU}{\83\265}%\* U+03B5  
 19700 \DeclareTextCommand{\textzeta}{PU}{\83\266}%\* U+03B6  
 19701 \DeclareTextCommand{\texteta}{PU}{\83\267}%\* U+03B7  
 19702 \DeclareTextCommand{\texttheta}{PU}{\83\270}%\* U+03B8  
 19703 \DeclareTextCommand{\textiota}{PU}{\83\271}%\* U+03B9  
 19704 \DeclareTextCommand{\textkappa}{PU}{\83\272}%\* U+03BA  
 19705 \DeclareTextCommand{\textlambda}{PU}{\83\273}%\* U+03BB  
 19706 \DeclareTextCommand{\textmugreek}{PU}{\83\274}%\* U+03BC  
 19707 \DeclareTextCommand{\textnu}{PU}{\83\275}%\* U+03BD  
 19708 \DeclareTextCommand{\textxi}{PU}{\83\276}%\* U+03BE  
 19709 \DeclareTextCommand{\textpi}{PU}{\83\300}%\* U+03C0  
 19710 \DeclareTextCommand{\textrho}{PU}{\83\301}%\* U+03C1  
 19711 \DeclareTextCommand{\textvarsigma}{PU}{\83\302}%\* U+03C2  
 19712 \DeclareTextCommand{\textsigma}{PU}{\83\303}%\* U+03C3  
 19713 \DeclareTextCommand{\texttau}{PU}{\83\304}%\* U+03C4  
 19714 \DeclareTextCommand{\textupsilon}{PU}{\83\305}%\* U+03C5  
 19715 \DeclareTextCommand{\textphi}{PU}{\83\306}%\* U+03C6  
 19716 \DeclareTextCommand{\textchi}{PU}{\83\307}%\* U+03C7  
 19717 \DeclareTextCommand{\textpsi}{PU}{\83\310}%\* U+03C8  
 19718 \DeclareTextCommand{\textomega}{PU}{\83\311}%\* U+03C9  
 19719 \newcommand\*{\psdmapshortnames}{%  
 19720 \let\MVPlus\textMVPlus  
 19721 \let\MVComma\textMVComma  
 19722 \let\MVMinus\textMVMinus  
 19723 \let\MVPeriod\textMVPeriod  
 19724 \let\MVDivision\textMVDivision

19725 \let\MVZero\textMVZero  
 19726 \let\MVOne\textMVOne  
 19727 \let\MVTwo\textMVTwo  
 19728 \let\MVThree\textMVThree  
 19729 \let\MVFour\textMVFour  
 19730 \let\MVFive\textMVFive  
 19731 \let\MVSix\textMVSix  
 19732 \let\MVSeven\textMVSeven  
 19733 \let\MVEight\textMVEight  
 19734 \let\MVNine\textMVNine  
 19735 \let\MVAt\textMVAt  
 19736 \let\copyright\textcopyright  
 19737 \let\twosuperior\texttwosuperior  
 19738 \let\threesuperior\textthreesuperior  
 19739 \let\onesuperior\textonesuperior  
 19740 \let\Thorn\textThorn  
 19741 \let\thorn\textthorn  
 19742 \let\hbar\texthbar  
 19743 \let\hausA\texthausA  
 19744 \let\hausD\texthausD  
 19745 \let\hausK\texthausK  
 19746 \let\barl\textbarl  
 19747 \let\inve\textinve  
 19748 \let\slashc\textslashc  
 19749 \let\scripta\textscripta  
 19750 \let\openo\textopeno  
 19751 \let\rtaild\textrtaild  
 19752 \let\reve\textreve  
 19753 \let\schwa\textschwa  
 19754 \let\niepsilon\textniepsilon  
 19755 \let\repsilon\textrepsilon  
 19756 \let\rhookrepsilon\texthookrepsilon  
 19757 \let\scriptg\textscriptg  
 19758 \let\scg\textscg  
 19759 \let\ipagamma\textipagamma  
 19760 \let\babygamma\textbabygamma  
 19761 \let\bari\textbari  
 19762 \let\niiota\textniiota  
 19763 \let\sci\textsci  
 19764 \let\scn\textscn  
 19765 \let\niphi\textniphi  
 19766 \let\longleg\textlongleg  
 19767 \let\scr\textscr  
 19768 \let\invscr\textinvscr  
 19769 \let\esh\textesh  
 19770 \let\baru\textbaru  
 19771 \let\niupsilon\textniupsilon  
 19772 \let\scriptv\textscriptv  
 19773 \let\turnv\textturnv  
 19774 \let\turnw\textturnw  
 19775 \let\turny\textturny  
 19776 \let\scy\textscy  
 19777 \let\yogh\textyogh  
 19778 \let\glotstop\textglotstop

19779 \let\revglotstop\textrevglotstop  
 19780 \let\invglotstop\textinvglotstop  
 19781 \let\Gamma\textGamma  
 19782 \let\Delta\textDelta  
 19783 \let\Theta\textTheta  
 19784 \let\Lambda\textLambda  
 19785 \let\Xi\textXi  
 19786 \let\Pi\textPi  
 19787 \let\Sigma\textSigma  
 19788 \let\Upsilon\textUpsilon  
 19789 \let\Phi\textPhi  
 19790 \let\Psi\textPsi  
 19791 \let\Omega\textOmega  
 19792 \let\alpha\textalpha  
 19793 \let\beta\textbeta  
 19794 \let\gamma\textgamma  
 19795 \let\delta\textdelta  
 19796 \let\epsilon\textepsilon  
 19797 \let\zeta\textzeta  
 19798 \let\eta\texteta  
 19799 \let\theta\texttheta  
 19800 \let\iota\textiota  
 19801 \let\kappa\textkappa  
 19802 \let\lambda\textlambda  
 19803 \let\mu\textmu  
 19804 \let\mugreek\textmugreek  
 19805 \let\nu\textnu  
 19806 \let\xi\textxi  
 19807 \let\pi\textpi  
 19808 \let\rho\textrho  
 19809 \let\varsigma\textvarsigma  
 19810 \let\sigma\textsigma  
 19811 \let\tau\texttau  
 19812 \let\upsilon\textupsilon  
 19813 \let\phi\textphi  
 19814 \let\chi\textchi  
 19815 \let\psi\textpsi  
 19816 \let\omega\textomega  
 19817 \let\scd\textscd  
 19818 \let\scu\textscu  
 19819 \let\iinferior\textiinferior  
 19820 \let\rinferior\extrinferior  
 19821 \let\uinferior\textuinferior  
 19822 \let\vinferior\textvinferior  
 19823 \let\betainferior\textbetainferior  
 19824 \let\gammainferior\textgammainferior  
 19825 \let\rhoinferior\extrhoinferior  
 19826 \let\phiinferior\textphiinferior  
 19827 \let\chiinferior\textchiinferior  
 19828 \let\barsci\textbarsci  
 19829 \let\barp\textbarp  
 19830 \let\barscu\textbarscu  
 19831 \let\htrtaild\texthtrtaild  
 19832 \let\dagger\textdagger

19833 \let\bullet\textbullet  
 19834 \let\hdotfor\texthdotfor  
 19835 \let\prime\textprime  
 19836 \let\second\textsecond  
 19837 \let\third\textthird  
 19838 \let\backprime\textbackprime  
 19839 \let\lefttherefore\textlefttherefore  
 19840 \let\fourth\textfourth  
 19841 \let\diamonddots\textdiamonddots  
 19842 \let\zerosuperior\textzerosuperior  
 19843 \let\isuperior\textisuperior  
 19844 \let\foursuperior\textfoursuperior  
 19845 \let\fivesuperior\textfivesuperior  
 19846 \let\sixsuperior\textsixsuperior  
 19847 \let\sevensuperior\textsevensuperior  
 19848 \let\eightsuperior\texteightsuperior  
 19849 \let\ninesuperior\textninesuperior  
 19850 \let\plussuperior\textplussuperior  
 19851 \let\minussuperior\textminussuperior  
 19852 \let>equalsuperior\textequalsuperior  
 19853 \let\parenleftsuperior\textparenleftsuperior  
 19854 \let\parenrightsuperior\textparenrightsuperior  
 19855 \let\nsuperior\textnsuperior  
 19856 \let\zeroinferior\textzeroinferior  
 19857 \let\oneinferior\textoneinferior  
 19858 \let\twoinferior\texttwoinferior  
 19859 \let\threeinferior\textthreeinferior  
 19860 \let\fourinferior\textfourinferior  
 19861 \let\fiveinferior\textfiveinferior  
 19862 \let\sixinferior\textsixinferior  
 19863 \let\seveninferior\textseveninferior  
 19864 \let\eightinferior\texteightinferior  
 19865 \let\nineinferior\textnineinferior  
 19866 \let\plusinferior\textplusinferior  
 19867 \let\minusinferior\textminusinferior  
 19868 \let>equalsinferior\textequalsinferior  
 19869 \let\parenleftinferior\textparenleftinferior  
 19870 \let\parenrightinferior\textparenrightinferior  
 19871 \let\ainferior\textainferior  
 19872 \let\einferior\texteinferior  
 19873 \let\oinferior\textoinferior  
 19874 \let\xinferior\textxinferior  
 19875 \let\schwainferior\textschwainferior  
 19876 \let\hinferior\texthinferior  
 19877 \let\kinferior\textkinferior  
 19878 \let\linferior\textlinferior  
 19879 \let\minferior\textminferior  
 19880 \let\ninferior\textninferior  
 19881 \let\pinferior\textpinferior  
 19882 \let\sinferior\textsinferior  
 19883 \let\tinferior\texttinferior  
 19884 \let\Deleatur\textDeleatur  
 19885 \let\hslash\texthslash  
 19886 \let\Im\textIm

19887 \let\ell\textell  
 19888 \let\wp\textwp  
 19889 \let\Re\textRe  
 19890 \let\mho\textmho  
 19891 \let\riota\textriota  
 19892 \let\Finv\textFinv  
 19893 \let\aleph\textaleph  
 19894 \let\beth\textbeth  
 19895 \let\gimel\textgimel  
 19896 \let\daleth\textdaleth  
 19897 \let\xfax\textfax  
 19898 \let\Game\textGame  
 19899 \let\leftarrow\textleftarrow  
 19900 \let\uparrow\textuparrow  
 19901 \let\rightarrow\textrightarrow  
 19902 \let\downarrow\textdownarrow  
 19903 \let\leftrightarrow\textleftrightarrow  
 19904 \let\updownarrow\textupdownarrow  
 19905 \let\rightarrowtail\textrightarrowtail  
 19906 \let\nearrow\textnearrow  
 19907 \let\searrow\textsearrow  
 19908 \let\swarrow\textswarrow  
 19909 \let\rightarrowtail\textrightarrowtail  
 19910 \let\rightarrowtail\textrightarrowtail  
 19911 \let\twoheadleftarrow\texttwoheadleftarrow  
 19912 \let\rightarrowtail\textrightarrowtail  
 19913 \let\twoheaduparrow\texttwoheaduparrow  
 19914 \let\twoheadrightarrow\texttwoheadrightarrow  
 19915 \let\rightarrowtail\textrightarrowtail  
 19916 \let\twoheadrightarrow\texttwoheadrightarrow  
 19917 \let\twoheadrightarrow\texttwoheadrightarrow  
 19918 \let\twoheadrightarrow\texttwoheadrightarrow  
 19919 \let\twoheadrightarrow\texttwoheadrightarrow  
 19920 \let\twoheadrightarrow\texttwoheadrightarrow  
 19921 \let\twoheadrightarrow\texttwoheadrightarrow  
 19922 \let\twoheadrightarrow\texttwoheadrightarrow  
 19923 \let\twoheadrightarrow\texttwoheadrightarrow  
 19924 \let\twoheadrightarrow\texttwoheadrightarrow  
 19925 \let\twoheadrightarrow\texttwoheadrightarrow  
 19926 \let\twoheadrightarrow\texttwoheadrightarrow  
 19927 \let\twoheadrightarrow\texttwoheadrightarrow  
 19928 \let\twoheadrightarrow\texttwoheadrightarrow  
 19929 \let\twoheadrightarrow\texttwoheadrightarrow  
 19930 \let\twoheadrightarrow\texttwoheadrightarrow  
 19931 \let\twoheadrightarrow\texttwoheadrightarrow  
 19932 \let\twoheadrightarrow\texttwoheadrightarrow  
 19933 \let\twoheadrightarrow\texttwoheadrightarrow  
 19934 \let\twoheadrightarrow\texttwoheadrightarrow  
 19935 \let\twoheadrightarrow\texttwoheadrightarrow  
 19936 \let\twoheadrightarrow\texttwoheadrightarrow  
 19937 \let\twoheadrightarrow\texttwoheadrightarrow  
 19938 \let\twoheadrightarrow\texttwoheadrightarrow  
 19939 \let\twoheadrightarrow\texttwoheadrightarrow  
 19940 \let\twoheadrightarrow\texttwoheadrightarrow

19941  $\backslash\text{let}\backslash\text{upuparrows}\backslash\text{textupuparrows}$   
 19942  $\backslash\text{let}\backslash\text{rightrightarrows}\backslash\text{textrightrightarrows}$   
 19943  $\backslash\text{let}\backslash\text{downdownarrows}\backslash\text{textdowndownarrows}$   
 19944  $\backslash\text{let}\backslash\text{leftrightharpoons}\backslash\text{textleftrightharpoons}$   
 19945  $\backslash\text{let}\backslash\text{rightleftharpoons}\backslash\text{textrightleftharpoons}$   
 19946  $\backslash\text{let}\backslash\text{nLeftarrow}\backslash\text{textnLeftarrow}$   
 19947  $\backslash\text{let}\backslash\text{nLeftrightarrow}\backslash\text{textnLeftrightarrow}$   
 19948  $\backslash\text{let}\backslash\text{nRrightarrow}\backslash\text{textnRrightarrow}$   
 19949  $\backslash\text{let}\backslash\text{Leftarrow}\backslash\text{textLeftarrow}$   
 19950  $\backslash\text{let}\backslash\text{Uparrow}\backslash\text{textUparrow}$   
 19951  $\backslash\text{let}\backslash\text{Rrightarrow}\backslash\text{textRrightarrow}$   
 19952  $\backslash\text{let}\backslash\text{Downarrow}\backslash\text{textDownarrow}$   
 19953  $\backslash\text{let}\backslash\text{Leftrightarrow}\backslash\text{textLeftrightarrow}$   
 19954  $\backslash\text{let}\backslash\text{Updownarrow}\backslash\text{textUpdownarrow}$   
 19955  $\backslash\text{let}\backslash\text{Nrightarrow}\backslash\text{textNrightarrow}$   
 19956  $\backslash\text{let}\backslash\text{Nearrow}\backslash\text{textNearrow}$   
 19957  $\backslash\text{let}\backslash\text{Searrow}\backslash\text{textSearrow}$   
 19958  $\backslash\text{let}\backslash\text{Swarrow}\backslash\text{textSwarrow}$   
 19959  $\backslash\text{let}\backslash\text{Lleftarrow}\backslash\text{textLleftarrow}$   
 19960  $\backslash\text{let}\backslash\text{Rrightarrow}\backslash\text{textRrightarrow}$   
 19961  $\backslash\text{let}\backslash\text{leftsquigarrow}\backslash\text{textleftsquigarrow}$   
 19962  $\backslash\text{let}\backslash\text{rightsquigarrow}\backslash\text{textrightsquigarrow}$   
 19963  $\backslash\text{let}\backslash\text{dashleftarrow}\backslash\text{texdashleftarrow}$   
 19964  $\backslash\text{let}\backslash\text{dasheduparrow}\backslash\text{texdasheduparrow}$   
 19965  $\backslash\text{let}\backslash\text{dashrightarrow}\backslash\text{texdashrightarrow}$   
 19966  $\backslash\text{let}\backslash\text{dasheddownarrow}\backslash\text{texdasheddownarrow}$   
 19967  $\backslash\text{let}\backslash\text{pointer}\backslash\text{textpointer}$   
 19968  $\backslash\text{let}\backslash\text{downuparrows}\backslash\text{textdownuparrows}$   
 19969  $\backslash\text{let}\backslash\text{leftarrowtriangle}\backslash\text{textleftarrowtriangle}$   
 19970  $\backslash\text{let}\backslash\text{rightarrowtriangle}\backslash\text{textrightarrowtriangle}$   
 19971  $\backslash\text{let}\backslash\text{leftrightarrowtriangle}\backslash\text{textleftrightarrowtriangle}$   
 19972  $\backslash\text{let}\backslash\text{forall}\backslash\text{textforall}$   
 19973  $\backslash\text{let}\backslash\text{complement}\backslash\text{textcomplement}$   
 19974  $\backslash\text{let}\backslash\text{partial}\backslash\text{textpartial}$   
 19975  $\backslash\text{let}\backslash\text{exists}\backslash\text{textexists}$   
 19976  $\backslash\text{let}\backslash\text{nexists}\backslash\text{textnexists}$   
 19977  $\backslash\text{let}\backslash\text{emptyset}\backslash\text{textemptyset}$   
 19978  $\backslash\text{let}\backslash\text{triangle}\backslash\text{texttriangle}$   
 19979  $\backslash\text{let}\backslash\text{nabla}\backslash\text{textnabla}$   
 19980  $\backslash\text{let}\backslash\text{in}\backslash\text{textin}$   
 19981  $\backslash\text{let}\backslash\text{notin}\backslash\text{textnotin}$   
 19982  $\backslash\text{let}\backslash\text{smallin}\backslash\text{textsmallin}$   
 19983  $\backslash\text{let}\backslash\text{ni}\backslash\text{textni}$   
 19984  $\backslash\text{let}\backslash\text{notowner}\backslash\text{textnotowner}$   
 19985  $\backslash\text{let}\backslash\text{smallowns}\backslash\text{textsmallowns}$   
 19986  $\backslash\text{let}\backslash\text{prod}\backslash\text{textprod}$   
 19987  $\backslash\text{let}\backslash\text{amalg}\backslash\text{textamalg}$   
 19988  $\backslash\text{let}\backslash\text{sum}\backslash\text{textsum}$   
 19989  $\backslash\text{let}\backslash\text{mp}\backslash\text{textmp}$   
 19990  $\backslash\text{let}\backslash\text{dotplus}\backslash\text{textdotplus}$   
 19991  $\backslash\text{let}\backslash\text{Divides}\backslash\text{textDivides}$   
 19992  $\backslash\text{let}\backslash\text{DividesNot}\backslash\text{textDividesNot}$   
 19993  $\backslash\text{let}\backslash\text{setminus}\backslash\text{textsetminus}$   
 19994  $\backslash\text{let}\backslash\text{ast}\backslash\text{textast}$



19995 \let\circ\textcirc  
 19996 \let\surd\textsurd  
 19997 \let\propto\textpropto  
 19998 \let\infty\textinfty  
 19999 \let\angle\textangle  
 20000 \let\measuredangle\textmeasuredangle  
 20001 \let\sphericalangle\textsphericalangle  
 20002 \let\mid\textmid  
 20003 \let\nmid\textnmid  
 20004 \let\parallel\textparallel  
 20005 \let\nparallel\textnparallel  
 20006 \let\wedge\textwedge  
 20007 \let\owedge\textowedge  
 20008 \let\vee\textvee  
 20009 \let\ovee\textovee  
 20010 \let\cap\textcap  
 20011 \let\cup\textcup  
 20012 \let\int\textint  
 20013 \let\iint\textiint  
 20014 \let\iiint\textiiint  
 20015 \let\oint\textoint  
 20016 \let\oiint\textoiint  
 20017 \let\ointclockwise\textointclockwise  
 20018 \let\ointctrlockwise\textointctrlockwise  
 20019 \let\therefore\texttherefore  
 20020 \let\because\textbecause  
 20021 \let\vdots\textvdots  
 20022 \let\squaredots\textsquaredots  
 20023 \let\dotminus\textdotminus  
 20024 \let\eqcolon\texteqcolon  
 20025 \let\sim\textsim  
 20026 \let\backsim\textbacksim  
 20027 \let\nbacksim\textnbacksim  
 20028 \let\wr\textwr  
 20029 \let\nsim\textnsim  
 20030 \let\eqsim\texteqsim  
 20031 \let\neqsim\textneqsim  
 20032 \let\simeq\textsimeq  
 20033 \let\nsimeq\textnsimeq  
 20034 \let\cong\textcong  
 20035 \let\ncong\textncong  
 20036 \let\approx\textapprox  
 20037 \let\napprox\textnapprox  
 20038 \let\approxeq\textapproxeq  
 20039 \let\napproxeq\textnapproxeq  
 20040 \let\triplesim\texttriplesim  
 20041 \let\ntriplesim\textntriplesim  
 20042 \let\backcong\textbackcong  
 20043 \let\nbackcong\textnbackcong  
 20044 \let\asymp\textasymp  
 20045 \let\nasymp\textnasymp  
 20046 \let\Bumpeq\textBumpeq  
 20047 \let\NBumpeq\textNBumpeq  
 20048 \let\bumpeq\textbumpeq

20049  $\backslash\mathrm{nbump}\mathrm{eq}\backslash\mathrm{textnbump}\mathrm{eq}$   
 20050  $\backslash\mathrm{doteq}\backslash\mathrm{texdoteq}$   
 20051  $\backslash\mathrm{ndoteq}\backslash\mathrm{texndoteq}$   
 20052  $\backslash\mathrm{doteqdot}\backslash\mathrm{texdoteqdot}$   
 20053  $\backslash\mathrm{nDoteq}\backslash\mathrm{texnDoteq}$   
 20054  $\backslash\mathrm{fallingdoteq}\backslash\mathrm{textfallingdoteq}$   
 20055  $\backslash\mathrm{nfallingdoteq}\backslash\mathrm{texnfallingdoteq}$   
 20056  $\backslash\mathrm{risingdoteq}\backslash\mathrm{textrisingdoteq}$   
 20057  $\backslash\mathrm{nrisingdoteq}\backslash\mathrm{texnrisingdoteq}$   
 20058  $\backslash\mathrm{colonequals}\backslash\mathrm{textcolonequals}$   
 20059  $\backslash\mathrm{equalscolon}\backslash\mathrm{texequalscolon}$   
 20060  $\backslash\mathrm{eqcirc}\backslash\mathrm{texteqcirc}$   
 20061  $\backslash\mathrm{neqcirc}\backslash\mathrm{textneqcirc}$   
 20062  $\backslash\mathrm{circeq}\backslash\mathrm{textcirceq}$   
 20063  $\backslash\mathrm{ncirceq}\backslash\mathrm{texncirceq}$   
 20064  $\backslash\mathrm{hateq}\backslash\mathrm{texthateq}$   
 20065  $\backslash\mathrm{nhateq}\backslash\mathrm{texnhateq}$   
 20066  $\backslash\mathrm{triangleeq}\backslash\mathrm{texttriangleeq}$   
 20067  $\backslash\mathrm{neq}\backslash\mathrm{textneq}$   
 20068  $\backslash\mathrm{ne}\backslash\mathrm{textne}$   
 20069  $\backslash\mathrm{equiv}\backslash\mathrm{texequiv}$   
 20070  $\backslash\mathrm{nequiv}\backslash\mathrm{textnequiv}$   
 20071  $\backslash\mathrm{leq}\backslash\mathrm{textleq}$   
 20072  $\backslash\mathrm{le}\backslash\mathrm{textle}$   
 20073  $\backslash\mathrm{geq}\backslash\mathrm{textgeq}$   
 20074  $\backslash\mathrm{ge}\backslash\mathrm{textge}$   
 20075  $\backslash\mathrm{leqq}\backslash\mathrm{textleqq}$   
 20076  $\backslash\mathrm{nleqq}\backslash\mathrm{texnleqq}$   
 20077  $\backslash\mathrm{geqq}\backslash\mathrm{textgeqq}$   
 20078  $\backslash\mathrm{ngeqq}\backslash\mathrm{texngeqq}$   
 20079  $\backslash\mathrm{lneqq}\backslash\mathrm{textlneqq}$   
 20080  $\backslash\mathrm{gneqq}\backslash\mathrm{textgneqq}$   
 20081  $\backslash\mathrm{ll}\backslash\mathrm{textll}$   
 20082  $\backslash\mathrm{nll}\backslash\mathrm{texnll}$   
 20083  $\backslash\mathrm{gg}\backslash\mathrm{textgg}$   
 20084  $\backslash\mathrm{ngg}\backslash\mathrm{textngg}$   
 20085  $\backslash\mathrm{between}\backslash\mathrm{textbetween}$   
 20086  $\backslash\mathrm{nless}\backslash\mathrm{texnless}$   
 20087  $\backslash\mathrm{ngtr}\backslash\mathrm{textngtr}$   
 20088  $\backslash\mathrm{nleq}\backslash\mathrm{texnleq}$   
 20089  $\backslash\mathrm{ngeq}\backslash\mathrm{texngeq}$   
 20090  $\backslash\mathrm{lesssim}\backslash\mathrm{textlessim}$   
 20091  $\backslash\mathrm{gtrsim}\backslash\mathrm{textgtrsim}$   
 20092  $\backslash\mathrm{nlessim}\backslash\mathrm{texnlessim}$   
 20093  $\backslash\mathrm{ngtrsim}\backslash\mathrm{textngtrsim}$   
 20094  $\backslash\mathrm{lessgtr}\backslash\mathrm{textlessgtr}$   
 20095  $\backslash\mathrm{gtrless}\backslash\mathrm{textgtrless}$   
 20096  $\backslash\mathrm{ngtrless}\backslash\mathrm{textngtrless}$   
 20097  $\backslash\mathrm{nlessgtr}\backslash\mathrm{texnlessgtr}$   
 20098  $\backslash\mathrm{prec}\backslash\mathrm{textprec}$   
 20099  $\backslash\mathrm{succ}\backslash\mathrm{textsucc}$   
 20100  $\backslash\mathrm{preccurlyeq}\backslash\mathrm{textpreccurlyeq}$   
 20101  $\backslash\mathrm{succcurlyeq}\backslash\mathrm{textsucccurlyeq}$   
 20102  $\backslash\mathrm{precsim}\backslash\mathrm{textprecsim}$

20103 \let\nprecsim\textnprecsim  
 20104 \let\succsim\textsuccsim  
 20105 \let\nsuccsim\textnsuccsim  
 20106 \let\nprec\textnprec  
 20107 \let\nsucc\textnsucc  
 20108 \let\subset\textsubset  
 20109 \let\supset\textsupset  
 20110 \let\nsubset\textnsubset  
 20111 \let\nsupset\textnsupset  
 20112 \let\subsetq\textsubsetq  
 20113 \let\supsetq\textsupsetq  
 20114 \let\nsubsetq\textnsubsetq  
 20115 \let\nsupsetq\textnsupsetq  
 20116 \let\subsetneq\textsubsetneq  
 20117 \let\supsetneq\textsupsetneq  
 20118 \let\cupdot\textcupdot  
 20119 \let\cupplus\textcupplus  
 20120 \let\sqsubset\textsqsubset  
 20121 \let\nsqsubset\textnsqsubset  
 20122 \let\sqsupset\textsqsupset  
 20123 \let\nsqsupset\textnsqsupset  
 20124 \let\sqsubsetq\textsqsubsetq  
 20125 \let\nsqsubsetq\textnsqsubsetq  
 20126 \let\sqsupsetq\textsqsupsetq  
 20127 \let\nsqsupsetq\textnsqsupsetq  
 20128 \let\sqcap\textsqcap  
 20129 \let\sqcup\textsqcup  
 20130 \let\oplus\textoplus  
 20131 \let\ominus\textominus  
 20132 \let\otimes\textotimes  
 20133 \let\oslash\textoslash  
 20134 \let\odot\textodot  
 20135 \let\circledcirc\textcircledcirc  
 20136 \let\circledast\textcircledast  
 20137 \let\circledash\textcircledash  
 20138 \let\boxplus\textboxplus  
 20139 \let\boxminus\textboxminus  
 20140 \let\boxtimes\textboxtimes  
 20141 \let\boxdot\textboxdot  
 20142 \let\vdash\textvdash  
 20143 \let\dashv\textdashv  
 20144 \let\ndashv\textndashv  
 20145 \let\top\texttop  
 20146 \let\ndownvdash\textndownvdash  
 20147 \let\bot\textbot  
 20148 \let\nupvdash\textnupvdash  
 20149 \let\vDash\textvDash  
 20150 \let\Vdash\textVdash  
 20151 \let\Vvdash\textVvdash  
 20152 \let\NVdash\textNVdash  
 20153 \let\VDash\textVDash  
 20154 \let\Nvdash\textNvdash  
 20155 \let\NVDash\textNVDash  
 20156 \let\NVdash\textNVdash

20157 \let\nVDash\textnVDash  
 20158 \let\lhd\textlhd  
 20159 \let\rhd\textrhd  
 20160 \let\unlhd\textunlhd  
 20161 \let\unrhd\textunrhd  
 20162 \let\multimapdotbothA\textmultimapdotbothA  
 20163 \let\multimapdotbothB\textmultimapdotbothB  
 20164 \let\multimap\textmultimap  
 20165 \let\veebar\textveebar  
 20166 \let\barwedge\textbarwedge  
 20167 \let\star\textstar  
 20168 \let\divideontimes\textdivideontimes  
 20169 \let\bowtie\textbowtie  
 20170 \let\ltimes\textltimes  
 20171 \let\rtimes\textrtimes  
 20172 \let\leftthreetimes\textleftthreetimes  
 20173 \let\rightthreetimes\textrightthreetimes  
 20174 \let\backsimeq\textbacksimeq  
 20175 \let\nbacksimeq\textnbacksimeq  
 20176 \let\curlyvee\textcurlyvee  
 20177 \let\curlywedge\textcurlywedge  
 20178 \let\Subset\textSubset  
 20179 \let\NSubset\textNSubset  
 20180 \let\Supset\textSupset  
 20181 \let\NSupset\textNSupset  
 20182 \let\Cap\textCap  
 20183 \let\Cup\textCup  
 20184 \let\pitchfork\textpitchfork  
 20185 \let\lessdot\textlessdot  
 20186 \let\gtrdot\textgtrdot  
 20187 \let\lll\textlll  
 20188 \let\ggg\textggg  
 20189 \let\lesseqgtr\textlesseqgtr  
 20190 \let\gtreqless\textgtreqless  
 20191 \let\curlyeqprec\textcurlyeqprec  
 20192 \let\ncurlyeqprec\textncurlyeqprec  
 20193 \let\curlyeqsucc\textcurlyeqsucc  
 20194 \let\ncurlyeqsucc\textncurlyeqsucc  
 20195 \let\preccurlyeq\textnpreccurlyeq  
 20196 \let\nsucccurlyeq\textnsucccurlyeq  
 20197 \let\nqsubseteq\textnqsubseteq  
 20198 \let\nqsupseteq\textnqsupseteq  
 20199 \let\sqsubsetneq\textsqsubsetneq  
 20200 \let\sqsupsetneq\textsqsupsetneq  
 20201 \let\lnsim\textlnsim  
 20202 \let\gnsim\textgnsim  
 20203 \let\precnsim\textprecnsim  
 20204 \let\succnsim\textsuccnsim  
 20205 \let\ntriangleleft\textntriangleleft  
 20206 \let\ntriangleright\textntriangleright  
 20207 \let\ntrianglelefteq\textntrianglelefteq  
 20208 \let\ntrianglerighteq\textntrianglerighteq  
 20209 \let\vdots\textvdots  
 20210 \let\cdots\textcdots

20211 \let\udots\textudots  
 20212 \let\ddots\textddots  
 20213 \let\barin\textbarin  
 20214 \let\diameter\textdiameter  
 20215 \let\backneg\textbackneg  
 20216 \let\wasylozenge\textwasylozenge  
 20217 \let\invbackneg\textinvbackneg  
 20218 \let\clock\textclock  
 20219 \let\ulcorner\textulcorner  
 20220 \let\urcorner\texturcorner  
 20221 \let\llcorner\textllcorner  
 20222 \let\lrcorner\textlrcorner  
 20223 \let\frown\textfrown  
 20224 \let\smile\textsmile  
 20225 \let\Keyboard\textKeyboard  
 20226 \let\langle\textlangle  
 20227 \let\rangle\textrangle  
 20228 \let\APLinv\textAPLinv  
 20229 \let\Tumbler\textTumbler  
 20230 \let\notslash\textnotslash  
 20231 \let\notbackslash\textnotbackslash  
 20232 \let\boxbackslash\textboxbackslash  
 20233 \let\APLleftarrowbox\textAPLleftarrowbox  
 20234 \let\APLrightarrowbox\textAPLrightarrowbox  
 20235 \let\APLuparrowbox\textAPLuparrowbox  
 20236 \let\APLdownarrowbox\textAPLdownarrowbox  
 20237 \let\APLinput\textAPLinput  
 20238 \let\Request\textRequest  
 20239 \let\Beam\textBeam  
 20240 \let\hexagon\texthexagon  
 20241 \let\APLbox\textAPLbox  
 20242 \let\ForwardToIndex\textForwardToIndex  
 20243 \let\RewindToIndex\textRewindToIndex  
 20244 \let\bbslash\textbbslash  
 20245 \let\CircledA\textCircledA  
 20246 \let\CleaningF\textCleaningF  
 20247 \let\CleaningFF\textCleaningFF  
 20248 \let\CleaningP\textCleaningP  
 20249 \let\CleaningPP\textCleaningPP  
 20250 \let\CuttingLine\textCuttingLine  
 20251 \let\UParrow\textUParrow  
 20252 \let\bigtriangleup\textbigtriangleup  
 20253 \let\Forward\textForward  
 20254 \let\triangleright\texttriangleright  
 20255 \let\RHD\textRHD  
 20256 \let\DOWNarrow\textDOWNarrow  
 20257 \let\bigtriangledown\textbigtriangledown  
 20258 \let\Rewind\textRewind  
 20259 \let\triangleleft\texttriangleleft  
 20260 \let\LHD\textLHD  
 20261 \let\diamond\textdiamond  
 20262 \let\lozenge\textlozenge  
 20263 \let\LEFTCIRCLE\textLEFTCIRCLE  
 20264 \let\RIGHTCIRCLE\textRIGHTCIRCLE

20265 \let\openbullet\textopenbullet  
 20266 \let\boxbar\textboxbar  
 20267 \let\bigcircle\textbigcircle  
 20268 \let\Cloud\textCloud  
 20269 \let\FiveStar\textFiveStar  
 20270 \let\FiveStarOpen\textFiveStarOpen  
 20271 \let\Phone\textPhone  
 20272 \let\boxempty\textboxempty  
 20273 \let\Checkedbox\textCheckedbox  
 20274 \let\Crossedbox\textCrossedbox  
 20275 \let\Coffeecup\textCoffeecup  
 20276 \let\HandCuffLeft\textHandCuffLeft  
 20277 \let\HandCuffRight\textHandCuffRight  
 20278 \let\HandLeft\textHandLeft  
 20279 \let\HandRight\textHandRight  
 20280 \let\Radioactivity\textRadioactivity  
 20281 \let\Biohazard\textBiohazard  
 20282 \let\Ankh\textAnkh  
 20283 \let\YinYang\textYinYang  
 20284 \let\frownie\textfrownie  
 20285 \let\smiley\textsmiley  
 20286 \let\blacksmiley\textblacksmiley  
 20287 \let\sun\textsun  
 20288 \let\leftmoon\textleftmoon  
 20289 \let\rightmoon\textrightmoon  
 20290 \let\mercury\textmercury  
 20291 \let\earth\textearth  
 20292 \let\male\textmale  
 20293 \let\jupiter\textjupiter  
 20294 \let\saturn\textsaturn  
 20295 \let\uranus\texturanus  
 20296 \let\neptune\textneptune  
 20297 \let\pluto\textpluto  
 20298 \let\aries\textaries  
 20299 \let\taurus\texttaurus  
 20300 \let\gemini\textgemini  
 20301 \let\cancer\textcancer  
 20302 \let\leo\textleo  
 20303 \let\virgo\textvirgo  
 20304 \let\libra\textlibra  
 20305 \let\scorpio\textscorpio  
 20306 \let\sagittarius\textsagittarius  
 20307 \let\capricornus\textcapricornus  
 20308 \let\aquarius\textaquarius  
 20309 \let\pisces\textpisces  
 20310 \let\quarternote\textquarternote  
 20311 \let\twonotes\texttwonotes  
 20312 \let\sixteenthnote\textsixteenthnote  
 20313 \let\flat\textflat  
 20314 \let\natural\textnatural  
 20315 \let\sharp\textsharp  
 20316 \let\recycle\textrecycle  
 20317 \let\Wheelchair\textWheelchair  
 20318 \let\Flag\textFlag

20319 \let\MineSign\textMineSign  
 20320 \let\ds military\textds military  
 20321 \let\ds medical\textds medical  
 20322 \let\ds juridical\textds juridical  
 20323 \let\ds chemical\textds chemical  
 20324 \let\ds biological\textds biological  
 20325 \let\ds commercial\textds commercial  
 20326 \let\manstar\textmanstar  
 20327 \let\danger\textdanger  
 20328 \let\FemaleFemale\textFemaleFemale  
 20329 \let\MaleMale\textMaleMale  
 20330 \let\FemaleMale\textFemaleMale  
 20331 \let\Hermaphrodite\textHermaphrodite  
 20332 \let\Neutral\textNeutral  
 20333 \let\hexstar\texthexstar  
 20334 \let\SunCload\textSunCload  
 20335 \let\Rain\textRain  
 20336 \let\noway\textnoway  
 20337 \let\Mountain\textMountain  
 20338 \let\Tent\textTent  
 20339 \let\ScissorRight\textScissorRight  
 20340 \let\ScissorRightBrokenTop\textScissorRightBrokenTop  
 20341 \let\ScissorHollowRight\textScissorHollowRight  
 20342 \let\PhoneHandset\textPhoneHandset  
 20343 \let\Tape\textTape  
 20344 \let\Plane\textPlane  
 20345 \let\Envelope\textEnvelope  
 20346 \let\Peace\textPeace  
 20347 \let\WritingHand\textWritingHand  
 20348 \let\PencilRightDown\textPencilRightDown  
 20349 \let\PencilRight\textPencilRight  
 20350 \let\PencilRightUp\textPencilRightUp  
 20351 \let\NibRight\textNibRight  
 20352 \let\NibSolidRight\textNibSolidRight  
 20353 \let\Checkmark\textCheckmark  
 20354 \let\CheckmarkBold\textCheckmarkBold  
 20355 \let\XSolid\textXSolid  
 20356 \let\XSolidBold\textXSolidBold  
 20357 \let\XSolidBrush\textXSolidBrush  
 20358 \let\PlusOutline\textPlusOutline  
 20359 \let\Plus\textPlus  
 20360 \let\PlusThinCenterOpen\textPlusThinCenterOpen  
 20361 \let\PlusCenterOpen\textPlusCenterOpen  
 20362 \let\Cross\textCross  
 20363 \let\CrossOpenShadow\textCrossOpenShadow  
 20364 \let\CrossOutline\textCrossOutline  
 20365 \let\CrossMaltese\textCrossMaltese  
 20366 \let\DavidStar\textDavidStar  
 20367 \let\FourAsterisk\textFourAsterisk  
 20368 \let\JackStar\textJackStar  
 20369 \let\JackStarBold\textJackStarBold  
 20370 \let\ClowerTips\textClowerTips  
 20371 \let\FourStar\textFourStar  
 20372 \let\FourStarOpen\textFourStarOpen

20373 \let\FiveStarOpenCircled\textFiveStarOpenCircled  
 20374 \let\FiveStarCenterOpen\textFiveStarCenterOpen  
 20375 \let\FiveStarOpenDotted\textFiveStarOpenDotted  
 20376 \let\FiveStarOutline\textFiveStarOutline  
 20377 \let\FiveStarOutlineHeavy\textFiveStarOutlineHeavy  
 20378 \let\FiveStarConvex\textFiveStarConvex  
 20379 \let\FiveStarShadow\textFiveStarShadow  
 20380 \let\AsteriskBold\textAsteriskBold  
 20381 \let\AsteriskCenterOpen\textAsteriskCenterOpen  
 20382 \let\EightStarTaper\textEightStarTaper  
 20383 \let\EightStarConvex\textEightStarConvex  
 20384 \let\SixStar\textSixStar  
 20385 \let\EightStar\textEightStar  
 20386 \let\EightStarBold\textEightStarBold  
 20387 \let\TwelveStar\textTwelveStar  
 20388 \let\SixteenStarLight\textSixteenStarLight  
 20389 \let\SixFlowerPetalRemoved\textSixFlowerPetalRemoved  
 20390 \let\SixFlowerOpenCenter\textSixFlowerOpenCenter  
 20391 \let\Asterisk\textAsterisk  
 20392 \let\SixFlowerAlternate\textSixFlowerAlternate  
 20393 \let\FiveFlowerPetal\textFiveFlowerPetal  
 20394 \let\FiveFlowerOpen\textFiveFlowerOpen  
 20395 \let\EightFlowerPetal\textEightFlowerPetal  
 20396 \let\SunshineOpenCircled\textSunshineOpenCircled  
 20397 \let\SixFlowerAltPetal\textSixFlowerAltPetal  
 20398 \let\SnowflakeChevron\textSnowflakeChevron  
 20399 \let\Snowflake\textSnowflake  
 20400 \let\SnowflakeChevronBold\textSnowflakeChevronBold  
 20401 \let\Sparkle\textSparkle  
 20402 \let\SparkleBold\textSparkleBold  
 20403 \let\AsteriskRoundedEnds\textAsteriskRoundedEnds  
 20404 \let\EightFlowerPetalRemoved\textEightFlowerPetalRemoved  
 20405 \let\EightAsterisk\textEightAsterisk  
 20406 \let\CircleShadow\textCircleShadow  
 20407 \let\SquareShadowBottomRight\textSquareShadowBottomRight  
 20408 \let\SquareTopRight\textSquareTopRight  
 20409 \let\SquareCastShadowBottomRight\textSquareCastShadowBottomRight  
 20410 \let\SquareCastShadowTopRight\textSquareCastShadowTopRight  
 20411 \let\DiamondSolid\textDiamondSolid  
 20412 \let\RectangleThin\textRectangleThin  
 20413 \let\Rectangle\textRectangle  
 20414 \let\RectangleBold\textRectangleBold  
 20415 \let\perp\textperp  
 20416 \let\notperp\textnotperp  
 20417 \let\veedot\textveedot  
 20418 \let\wedgedot\textwedgedot  
 20419 \let\leftspoon\textleftspoon  
 20420 \let\lbrackdbl\textlbrackdbl  
 20421 \let\rbrackdbl\textrbrackdbl  
 20422 \let\circlearrowleft\textcirclearrowleft  
 20423 \let\circlearrowright\textcirclearrowright  
 20424 \let\longleftarrow\textlongleftarrow  
 20425 \let\longrightarrow\textlongrightarrow  
 20426 \let\longleftarrow\textlongleftarrow



20427 `\let\Longleftarrow\textLongleftarrow`  
 20428 `\let\Longrightarrow\textLongrightarrow`  
 20429 `\let\Longlefttrightarrow\textLonglefttrightarrow`  
 20430 `\let\longmapsto\textlongmapsto`  
 20431 `\let\Longmapsfrom\textLongmapsfrom`  
 20432 `\let\Longmapsto\textLongmapsto`  
 20433 `\let\nwsearrow\textnwsearrow`  
 20434 `\let\neswarrow\textneswarrow`  
 20435 `\let\hookrightarrow\texthookrightarrow`  
 20436 `\let\rhookrightarrow\text\rhookrightarrow`  
 20437 `\let\hooksearrow\texthooksearrow`  
 20438 `\let\rhooksearrow\text\rhooksearrow`  
 20439 `\let\leadsto\textleadsto`  
 20440 `\let\rcurvesearrow\textrcurvesearrow`  
 20441 `\let\lcurvesearrow\textlcurvesearrow`  
 20442 `\let\lcurvesearrowsw\textlcurvesearrowsw`  
 20443 `\let\rcurvesearrowse\textrcurvesearrowse`  
 20444 `\let\lcurvesearrowdown\textlcurvesearrowdown`  
 20445 `\let\rcurvesearrowdown\textrcurvesearrowdown`  
 20446 `\let\rcurvesearrowleft\textrcurvesearrowleft`  
 20447 `\let\rcurvesearrowright\textrcurvesearrowright`  
 20448 `\let\leftrightharpoon\textleftrightharpoon`  
 20449 `\let\rightrightharpoon\text\rightrightharpoon`  
 20450 `\let\updownharpoonrightleft\textupdownharpoonrightleft`  
 20451 `\let\updownharpoonleftright\textupdownharpoonleftright`  
 20452 `\let\leftleftharpoons\textleftleftharpoons`  
 20453 `\let\upupharpoons\textupupharpoons`  
 20454 `\let\righttrightharpoons\textrighttrightharpoons`  
 20455 `\let\downdownharpoons\textdowndownharpoons`  
 20456 `\let\leftbarharpoon\textleftbarharpoon`  
 20457 `\let\barleftharpoon\textbarleftharpoon`  
 20458 `\let\rightbarharpoon\textrightbarharpoon`  
 20459 `\let\bartrightharpoon\textbartrightharpoon`  
 20460 `\let\updownharpoons\textupdownharpoons`  
 20461 `\let\downupharpoons\textdownupharpoons`  
 20462 `\let\moo\textmoo`  
 20463 `\let\llparenthesis\textllparenthesis`  
 20464 `\let\rrparenthesis\textrrparenthesis`  
 20465 `\let\invdiameter\textinvdiameter`  
 20466 `\let\obar\textobar`  
 20467 `\let\obslash\textobslash`  
 20468 `\let\obot\textobot`  
 20469 `\let\NoChemicalCleaning\textNoChemicalCleaning`  
 20470 `\let\olessthan\textolessthan`  
 20471 `\let\ogreaterthan\textogreaterthan`  
 20472 `\let\boxslash\textboxslash`  
 20473 `\let\boxbslash\textboxbslash`  
 20474 `\let\boxast\textboxast`  
 20475 `\let\boxcircle\textboxcircle`  
 20476 `\let\boxbox\textboxbox`  
 20477 `\let\Valve\textValve`  
 20478 `\let\multimapboth\textmultimapboth`  
 20479 `\let\shuffle\textshuffle`  
 20480 `\let\uplus\textuplus`

20481  $\backslash\mathrm{let}\backslash\mathrm{bigdoublewedge}\backslash\mathrm{textbigdoublewedge}$   
 20482  $\backslash\mathrm{let}\backslash\mathrm{bigdoublevee}\backslash\mathrm{textbigdoublevee}$   
 20483  $\backslash\mathrm{let}\backslash\mathrm{Join}\backslash\mathrm{textJoin}$   
 20484  $\backslash\mathrm{let}\backslash\mathrm{fatsemi}\backslash\mathrm{textfatsemi}$   
 20485  $\backslash\mathrm{let}\backslash\mathrm{circplus}\backslash\mathrm{textcircplus}$   
 20486  $\backslash\mathrm{let}\backslash\mathrm{minusdot}\backslash\mathrm{textminusdot}$   
 20487  $\backslash\mathrm{let}\backslash\mathrm{dottimes}\backslash\mathrm{textdottimes}$   
 20488  $\backslash\mathrm{let}\backslash\mathrm{dtimes}\backslash\mathrm{textdtimes}$   
 20489  $\backslash\mathrm{let}\backslash\mathrm{odiv}\backslash\mathrm{textodiv}$   
 20490  $\backslash\mathrm{let}\backslash\mathrm{invneg}\backslash\mathrm{textinvneg}$   
 20491  $\backslash\mathrm{let}\backslash\mathrm{sqdoublecap}\backslash\mathrm{textsqdoublecap}$   
 20492  $\backslash\mathrm{let}\backslash\mathrm{capdot}\backslash\mathrm{textcapdot}$   
 20493  $\backslash\mathrm{let}\backslash\mathrm{sqdoublecup}\backslash\mathrm{textsqdoublecup}$   
 20494  $\backslash\mathrm{let}\backslash\mathrm{doublewedge}\backslash\mathrm{textdoublewedge}$   
 20495  $\backslash\mathrm{let}\backslash\mathrm{doublevee}\backslash\mathrm{textdoublevee}$   
 20496  $\backslash\mathrm{let}\backslash\mathrm{doublebarwedge}\backslash\mathrm{textdoublebarwedge}$   
 20497  $\backslash\mathrm{let}\backslash\mathrm{veedoublebar}\backslash\mathrm{textveedoublebar}$   
 20498  $\backslash\mathrm{let}\backslash\mathrm{eqdot}\backslash\mathrm{texteqdot}$   
 20499  $\backslash\mathrm{let}\backslash\mathrm{neqdot}\backslash\mathrm{textneqdot}$   
 20500  $\backslash\mathrm{let}\backslash\mathrm{coloncolonequals}\backslash\mathrm{textcoloncolonequals}$   
 20501  $\backslash\mathrm{let}\backslash\mathrm{leqslant}\backslash\mathrm{textleqslant}$   
 20502  $\backslash\mathrm{let}\backslash\mathrm{nleqslant}\backslash\mathrm{textnleqslant}$   
 20503  $\backslash\mathrm{let}\backslash\mathrm{geqslant}\backslash\mathrm{textgeqslant}$   
 20504  $\backslash\mathrm{let}\backslash\mathrm{ngeqslant}\backslash\mathrm{textngeqslant}$   
 20505  $\backslash\mathrm{let}\backslash\mathrm{lessapprox}\backslash\mathrm{textlessapprox}$   
 20506  $\backslash\mathrm{let}\backslash\mathrm{nlessapprox}\backslash\mathrm{textnlessapprox}$   
 20507  $\backslash\mathrm{let}\backslash\mathrm{gtrapprox}\backslash\mathrm{textgtrapprox}$   
 20508  $\backslash\mathrm{let}\backslash\mathrm{ngtrapprox}\backslash\mathrm{textngtrapprox}$   
 20509  $\backslash\mathrm{let}\backslash\mathrm{lneq}\backslash\mathrm{textlneq}$   
 20510  $\backslash\mathrm{let}\backslash\mathrm{gneq}\backslash\mathrm{textgneq}$   
 20511  $\backslash\mathrm{let}\backslash\mathrm{lnapprox}\backslash\mathrm{textlnapprox}$   
 20512  $\backslash\mathrm{let}\backslash\mathrm{gnapprox}\backslash\mathrm{textgnapprox}$   
 20513  $\backslash\mathrm{let}\backslash\mathrm{lesseqgtr}\backslash\mathrm{textlesseqgtr}$   
 20514  $\backslash\mathrm{let}\backslash\mathrm{gtreqqless}\backslash\mathrm{textgtreqqless}$   
 20515  $\backslash\mathrm{let}\backslash\mathrm{eqslantless}\backslash\mathrm{texteqslantless}$   
 20516  $\backslash\mathrm{let}\backslash\mathrm{eqslantgtr}\backslash\mathrm{texteqslantgtr}$   
 20517  $\backslash\mathrm{let}\backslash\mathrm{leftslice}\backslash\mathrm{textleftslice}$   
 20518  $\backslash\mathrm{let}\backslash\mathrm{rightslice}\backslash\mathrm{textrightslice}$   
 20519  $\backslash\mathrm{let}\backslash\mathrm{preceq}\backslash\mathrm{textpreceq}$   
 20520  $\backslash\mathrm{let}\backslash\mathrm{npreceq}\backslash\mathrm{textnpreceq}$   
 20521  $\backslash\mathrm{let}\backslash\mathrm{succeq}\backslash\mathrm{textsucceq}$   
 20522  $\backslash\mathrm{let}\backslash\mathrm{nsucceq}\backslash\mathrm{textnsucceq}$   
 20523  $\backslash\mathrm{let}\backslash\mathrm{precneq}\backslash\mathrm{textprecneq}$   
 20524  $\backslash\mathrm{let}\backslash\mathrm{succneq}\backslash\mathrm{textsuccneq}$   
 20525  $\backslash\mathrm{let}\backslash\mathrm{preceqq}\backslash\mathrm{textpreceqq}$   
 20526  $\backslash\mathrm{let}\backslash\mathrm{npreceqq}\backslash\mathrm{textnpreceqq}$   
 20527  $\backslash\mathrm{let}\backslash\mathrm{succeqq}\backslash\mathrm{textsucceqq}$   
 20528  $\backslash\mathrm{let}\backslash\mathrm{nsucceqq}\backslash\mathrm{textnsucceqq}$   
 20529  $\backslash\mathrm{let}\backslash\mathrm{precneqq}\backslash\mathrm{textprecneqq}$   
 20530  $\backslash\mathrm{let}\backslash\mathrm{succneqq}\backslash\mathrm{textsuccneqq}$   
 20531  $\backslash\mathrm{let}\backslash\mathrm{precapprox}\backslash\mathrm{textprecapprox}$   
 20532  $\backslash\mathrm{let}\backslash\mathrm{nprecapprox}\backslash\mathrm{textnprecapprox}$   
 20533  $\backslash\mathrm{let}\backslash\mathrm{succapprox}\backslash\mathrm{textsuccapprox}$   
 20534  $\backslash\mathrm{let}\backslash\mathrm{nsuccapprox}\backslash\mathrm{textnsuccapprox}$

20535 \let\precnapprox\textprecnapprox  
 20536 \let\succnapprox\textsuccnapprox  
 20537 \let\subseteqq\textsubseteqq  
 20538 \let\nsubseteqq\textnsubseteqq  
 20539 \let\supseteqq\textsupseteqq  
 20540 \let\nsupseteqq\textnsupseteqq  
 20541 \let\dashV\textdashV  
 20542 \let\ndashV\textndashV  
 20543 \let\Dashv\textDashv  
 20544 \let\ndashv\textndashv  
 20545 \let\DashV\textDashV  
 20546 \let\ndashV\textndashV  
 20547 \let\downmodels\textdownmodels  
 20548 \let\ndownmodels\textndownmodels  
 20549 \let\upmodels\textupmodels  
 20550 \let\nupmodels\textnupmodels  
 20551 \let\upspoon\textupspoon  
 20552 \let\interleave\textinterleave  
 20553 \let\slash\textslash  
 20554 \let\pentagon\textpentagon  
 20555 \let\varhexagon\textvarhexagon  
 20556 \let\jinferior\textjinferior  
 20557 \let\slashdiv\textslashdiv  
 20558 \let\fivedots\textfivedots  
 20559 \let\oo\textoo  
 20560 \let\GaPa\textGaPa  
 20561 \let\HaPa\textHaPa  
 20562 \let\ViPa\textViPa  
 20563 \let\AcPa\textAcPa  
 20564 \let\SePa\textSePa  
 20565 \let\ZwPa\textZwPa  
 20566 \let\fullnote\textfullnote  
 20567 \let\halfnote\texthalfnote  
 20568 \let\Vier\textVier  
 20569 \let\Acht\textAcht  
 20570 \let\Sech\textSech  
 20571 \let\Zwdr\textZwdr  
 20572 \let\Mundus\textMundus  
 20573 \let\Moon\textMoon  
 20574 \let\ManFace\textManFace  
 20575 \let\WomanFace\textWomanFace  
 20576 \let\Fax\textFax  
 20577 \let\Fire\textFire  
 20578 \let\Bicycle\textBicycle  
 20579 \let\Gentsroom\textGentsroom  
 20580 \let\Ladiesroom\textLadiesroom  
 20581 \let\ccnc\textccnc  
 20582 \let\ccsa\textccsa  
 20583 \let\Info\textInfo  
 20584 \let\CESign\textCESign  
 20585 \let\neg\textneg  
 20586 \let\times\texttimes  
 20587 \let\div\textdiv  
 20588 \let\pm\textpm

```

20589 \let\cdot\textcdot
20590 }% \psdmapshortnames
20591 \newcommand*{\psdaliasnames}{%
20592 \let\epsdice\HyPsd@DieFace
20593 \let\fcdice\HyPsd@DieFace
20594 \let\MoonPha\HyPsd@MoonPha
20595 \let\mathdollar\textdollar
20596 \let\EyesDollar\textdollar
20597 \let\binampersand\textampersand
20598 \let\with\textampersand
20599 \let\mathunderscore\textunderscore
20600 \let\textvertline\textbar
20601 \let\mathsterling\textsterling
20602 \let\pounds\textsterling
20603 \let\brokenvert\textbrokenbar
20604 \let\mathsection\textsection
20605 \let\S\textsection
20606 \let\mathparagraph\textparagraph
20607 \let\MultiplicationDot\textperiodcentered
20608 \let\Squaredot\textperiodcentered
20609 \let\vartimes\textmultiply
20610 \let\MVMultiplication\textmultiply
20611 \let\eth\dh
20612 \let\crossd\textcrd
20613 \let\textbard\textcrd
20614 \let\bard\textcrd
20615 \let\textcrh\texthbar
20616 \let\crossh\texthbar
20617 \let\planck\texthbar
20618 \let\eng\ng
20619 \let\engma\ng
20620 \let\crossb\textcrb
20621 \let\textbarb\textcrb
20622 \let\barb\textcrb
20623 \let\Florin\textflorin
20624 \let\hv\texthvlig
20625 \let\hausak\texthtk
20626 \let\crossnilambda\textcrlambda
20627 \let\barlambda\textcrlambda
20628 \let\lambdabar\textcrlambda
20629 \let\lambdaslash\textcrlambda
20630 \let\textnrleg\textPUnrleg
20631 \let\textpipevar\textpipe
20632 \let\textdoublepipevar\textdoublepipe
20633 \let\textdoublebarpipevar\textdoublebarpipe
20634 \let\textcrg\textgslash
20635 \let\textdblig\textPUdblig
20636 \let\textqplig\textPUqplig
20637 \let\textcentoldstyle\textslashc
20638 \let\textbarc\textslashc
20639 \let\inva\textturna
20640 \let\vara\textscripta
20641 \let\invscripta\textturnscripta
20642 \let\rotvara\textturnscripta

```

20643 \let\hookb\texthtb  
 20644 \let\hausab\texthtb  
 20645 \let\varopeno\textopeno  
 20646 \let\curlyc\textctc  
 20647 \let\taild\textrtaild  
 20648 \let\hookd\texthtd  
 20649 \let\hausad\texthtd  
 20650 \let\er\textrhooschwa  
 20651 \let\epsi\textniepsilon  
 20652 \let\hookrepsilon\textrhoorepsilon  
 20653 \let\closedrepsilon\textcloserepsilon  
 20654 \let\barj\textbardotlessj  
 20655 \let\hookg\texthtg  
 20656 \let\varg\textscriptg  
 20657 \let\vod\textipagamma  
 20658 \let\invh\textturnh  
 20659 \let\udesc\textturnh  
 20660 \let\hookh\texthth  
 20661 \let\voicedh\texthth  
 20662 \let\hookheng\texththeng  
 20663 \let\ibar\textbari  
 20664 \let\vari\textniiota  
 20665 \let\tildel\textltilde  
 20666 \let\latfric\textbeltl  
 20667 \let\taill\textrtail  
 20668 \let\lz\textlyoghlig  
 20669 \let\invm\textturnm  
 20670 \let\rotm\textturnm  
 20671 \let\legm\textturnmrleg  
 20672 \let\labdentalnas\textltailm  
 20673 \let\emgma\textltailm  
 20674 \let\nj\textltailn  
 20675 \let\enya\textltailn  
 20676 \let\tailn\textrtailn  
 20677 \let\closedniomega\textcloseomega  
 20678 \let\varomega\textcloseomega  
 20679 \let\invr\textturnr  
 20680 \let\rotr\textturnr  
 20681 \let\invlegr\textturnlonglegr  
 20682 \let\tailinvr\textturnrrtail  
 20683 \let\legr\textlonglegr  
 20684 \let\tailr\textrtailr  
 20685 \let\flapr\textfishhookr  
 20686 \let\flap\textfishhookr  
 20687 \let\tails\textrtails  
 20688 \let\curlyesh\textctesh  
 20689 \let\clickt\textturnt  
 20690 \let\tailt\textrtailt  
 20691 \let\ubar\textbaru  
 20692 \let\rotOmega\textniupsilon  
 20693 \let\invv\textturnv  
 20694 \let\pwedge\textturnv  
 20695 \let\invw\textturnw  
 20696 \let\rotw\textturnw

20697 \let\invy\textturny  
 20698 \let\roty\textturny  
 20699 \let\tailz\textrtailz  
 20700 \let\curlyz\textctz  
 20701 \let\curlyyogh\textctyogh  
 20702 \let\ejective\textglotstop  
 20703 \let\glottal\textglotstop  
 20704 \let\reveject\textrevglotstop  
 20705 \let\clickc\textstretchc  
 20706 \let\textstretchcvar\textstretchc  
 20707 \let\clickb\textbullseye  
 20708 \let\textObullseye\textbullseye  
 20709 \let\textctjvar\textctj  
 20710 \let\textturnsck\textturnk  
 20711 \let\dz\textdzlig  
 20712 \let\tesh\texttेशlig  
 20713 \let\digamma\textdigammagreek  
 20714 \let\hardsign\cyrhrdsn  
 20715 \let\softsign\cyrsoftsn  
 20716 \let\hebsin\hebshin  
 20717 \let\textsck\textPUscK  
 20718 \let\textscm\textPUscm  
 20719 \let\textscp\textPUscp  
 20720 \let\textrevscr\textPUrevscr  
 20721 \let\textrhooka\textPUrhooka  
 20722 \let\textrhooke\textPUrhooke  
 20723 \let\textrhookepsilon\textPUrhookepsilon  
 20724 \let\texthookopeno\textPUhookopeno  
 20725 \let\textdoublevertline\textbardbl  
 20726 \let\dag\textdagger  
 20727 \let\ddagger\textdaggerdbl  
 20728 \let\ddag\textdaggerdbl  
 20729 \let\mathellipsis\textellipsis  
 20730 \let\EurDig\texteuro  
 20731 \let\EURdig\texteuro  
 20732 \let\EurHv\texteuro  
 20733 \let\EURhv\texteuro  
 20734 \let\EurCr\texteuro  
 20735 \let\EURcr\texteuro  
 20736 \let\EurTm\texteuro  
 20737 \let\EURtm\texteuro  
 20738 \let\Eur\texteuro  
 20739 \let\Denarius\textDeleatur  
 20740 \let\agemO\textmho  
 20741 \let\EstimatedSign\textestimated  
 20742 \let\Ecommerce\textestimated  
 20743 \let\bindnasrepma\textinvamp  
 20744 \let\parr\textinvamp  
 20745 \let\MVRightArrow\textrightarrow  
 20746 \let\MVRightarrow\textrightarrow  
 20747 \let\MVArrowDown\textdownarrow  
 20748 \let\Force\textdownarrow  
 20749 \let\textglobrise\textnearrow  
 20750 \let\textglobfall\textsearrow

20751 `\let\Lightning\textlightning`  
 20752 `\let\Conclusion\textRightarrow`  
 20753 `\let\dashedleftarrow\textdashleftarrow`  
 20754 `\let\dashedrightarrow\textdashrightarrow`  
 20755 `\let\varnothing\textemptyset`  
 20756 `\let\owns\textni`  
 20757 `\let\notni\textnotowner`  
 20758 `\let\varprop\textpropto`  
 20759 `\let\varangle\textsphericalangle`  
 20760 `\let\Anglesign\textsphericalangle`  
 20761 `\let\AngleSign\textsphericalangle`  
 20762 `\let\notdivides\textnmid`  
 20763 `\let\varowedge\textowedge`  
 20764 `\let\varovee\textovee`  
 20765 `\let\varint\textint`  
 20766 `\let\varoint\textoint`  
 20767 `\let\downtherefore\textbecause`  
 20768 `\let\textdotdiv\textdotminus`  
 20769 `\let\AC\textsim`  
 20770 `\let\wreath\textwr`  
 20771 `\let\nthickapprox\textnapprox`  
 20772 `\let\VHF\texttriplesim`  
 20773 `\let\notasymp\textnasym`  
 20774 `\let\Doteq\textdoteqdot`  
 20775 `\let\corresponds\texthateq`  
 20776 `\let\Corresponds\texthateq`  
 20777 `\let\nequal\textneq`  
 20778 `\let\Congruent\textequiv`  
 20779 `\let\NotCongruent\textnequiv`  
 20780 `\let\notequiv\textnequiv`  
 20781 `\let\LessOrEqual\textleq`  
 20782 `\let\LargerOrEqual\textgeq`  
 20783 `\let\apprle\textlessssim`  
 20784 `\let\apprge\textgtrsim`  
 20785 `\let\varoplus\textoplus`  
 20786 `\let\varominus\textominus`  
 20787 `\let\varotimes\textotimes`  
 20788 `\let\varoslash\textoslash`  
 20789 `\let\varodot\textodot`  
 20790 `\let\ocirc\textcircledcirc`  
 20791 `\let\varocircle\textcircledcirc`  
 20792 `\let\varoast\textcircledast`  
 20793 `\let\oasterisk\textcircledast`  
 20794 `\let\rightvdash\textvdash`  
 20795 `\let\leftvdash\textdashv`  
 20796 `\let\nleftvdash\textndashv`  
 20797 `\let\downvdash\texttop`  
 20798 `\let\upvdash\textbot`  
 20799 `\let\nperp\textnupvdash`  
 20800 `\let\models\textvDash`  
 20801 `\let\rightmodels\textvDash`  
 20802 `\let\rightVdash\textVdash`  
 20803 `\let\rightModels\textVDash`  
 20804 `\let\nrightvdash\textnvdash`

20805 \let\nrightmodels\textnvDash  
 20806 \let\nmodels\textnvDash  
 20807 \let\nrightVdash\textnVdash  
 20808 \let\nrightModels\textnVDash  
 20809 \let\lessclosed\textlhd  
 20810 \let\gtrclosed\textrhd  
 20811 \let\leqclosed\textunlhd  
 20812 \let\trianglelefteq\textunlhd  
 20813 \let\geqclosed\textunrhd  
 20814 \let\trianglerighteq\textunrhd  
 20815 \let\Bowtie\textbowtie  
 20816 \let\varcurlyvee\textcurlyvee  
 20817 \let\varcurlywedge\textcurlywedge  
 20818 \let\doublecap\textCap  
 20819 \let\doublecup\textCup  
 20820 \let\varsqsubsetneq\textsqssubsetneq  
 20821 \let\varsqsupsetneq\textsqsupsetneq  
 20822 \let\nlessclosed\textntriangleleft  
 20823 \let\ngtrclosed\textntriangleright  
 20824 \let\Clocklogo\textclock  
 20825 \let\ClockLogo\textclock  
 20826 \let\baro\textstmaryrdbaro  
 20827 \let\varparallelinv\textbbslash  
 20828 \let\CleaningA\textCircledA  
 20829 \let\Kutline\textCuttingLine  
 20830 \let\CutLine\textCuttingLine  
 20831 \let\Cutline\textCuttingLine  
 20832 \let\MoveUp\textUParrow  
 20833 \let\APLup\textbigtriangleup  
 20834 \let\Bleech\textbigtriangleup  
 20835 \let\MoveDown\textDOWNarrow  
 20836 \let\APLdown\textbigtriangledown  
 20837 \let\Diamond\textdiamond  
 20838 \let\varbigcirc\textbigcircle  
 20839 \let\Telefon\textPhone  
 20840 \let\Box\textboxempty  
 20841 \let\CheckedBox\textCheckedbox  
 20842 \let\XBox\textCrossedbox  
 20843 \let\CrossedBox\textCrossedbox  
 20844 \let\rightpointleft\textHandLeft  
 20845 \let\leftpointright\textHandRight  
 20846 \let\PointingHand\textHandRight  
 20847 \let\Pointinghand\textHandRight  
 20848 \let\Radiation\textRadioactivity  
 20849 \let\Yinyang\textYinYang  
 20850 \let\YingYang\textYinYang  
 20851 \let\Yingyang\textYinYang  
 20852 \let\Frowny\textfrownie  
 20853 \let\Smiley\textsmiley  
 20854 \let\Sun\textsun  
 20855 \let\Mercury\textmercury  
 20856 \let\textfemale\textPUfemale  
 20857 \let\female\textPUfemale  
 20858 \let\venus\textPUfemale



20859 \let\Venus\textPUfemale  
 20860 \let\Female\textPUfemale  
 20861 \let\Earth\textearth  
 20862 \let\mars\textmale  
 20863 \let\Mars\textmale  
 20864 \let\Male\textmale  
 20865 \let\Jupiter\textjupiter  
 20866 \let\Saturn\textsaturn  
 20867 \let\Uranus\texturanus  
 20868 \let\Neptune\textneptune  
 20869 \let\Pluto\textpluto  
 20870 \let\Aries\textaries  
 20871 \let\Taurus\texttaurus  
 20872 \let\Gemini\textgemini  
 20873 \let\Cancer\textcancer  
 20874 \let\Leo\textleo  
 20875 \let\Virgo\textvirgo  
 20876 \let\Libra\textlibra  
 20877 \let\Scorpio\textscorpio  
 20878 \let\Sagittarius\textsagittarius  
 20879 \let\Capricorn\textcapricornus  
 20880 \let\Aquarius\textaquarius  
 20881 \let\Pisces\textpisces  
 20882 \let\spadesuit\textspadesuitblack  
 20883 \let\Heart\textheartsuitwhite  
 20884 \let\heartsuit\textheartsuitwhite  
 20885 \let\diamondsuit\textdiamondsuitwhite  
 20886 \let\clubsuit\textclubsuitblack  
 20887 \let\eighthnote\textmusicalnote  
 20888 \let\Recycling\textrecycle  
 20889 \let\VarFlag\textFlag  
 20890 \let\textxswup\textdsmilitary  
 20891 \let\textuncrfemale\textPUuncrfemale  
 20892 \let\Football\textSoccerBall  
 20893 \let\CutLeft\textScissorRightBrokenBottom  
 20894 \let\Cutright\textScissorRightBrokenBottom  
 20895 \let\RightScissors\textScissorRight  
 20896 \let\Leftscissors\textScissorRight  
 20897 \let\Letter\textEnvelope  
 20898 \let\Writinghand\textWritingHand  
 20899 \let\checkmark\textCheckmark  
 20900 \let\dauidstar\textDavidStar  
 20901 \let\llbracket\textlbrackdbl  
 20902 \let\rrbracket\textrrbrackdbl  
 20903 \let\RightTorque\textlcurvearrowdown  
 20904 \let\Righttorque\textlcurvearrowdown  
 20905 \let\LeftTorque\textrcurvearrowdown  
 20906 \let\Lefttorque\textrcurvearrowdown  
 20907 \let\textvarobar\textobar  
 20908 \let\circledbslash\textobslash  
 20909 \let\obackslash\textobslash  
 20910 \let\varobslash\textobslash  
 20911 \let\odplus\textobot  
 20912 \let\varolessthan\textolessthan

```

20913 \let\varogreaterthan\textogreaterthan
20914 \let\divdot\textminusdot
20915 \let\doublesqcap\textsquaddoublecap
20916 \let\doublesqcup\textsquaddoublecup
20917 \let\merge\textdoublevee
20918 \let\leftVdash\textdashV
20919 \let\nleftVdash\textndashV
20920 \let\leftmodels\textDashv
20921 \let\nleftmodels\textnDashv
20922 \let\leftModels\textDashV
20923 \let\nleftModels\textnDashV
20924 \let\varparallel\textsslash
20925 \let\textheng\textPUheng
20926 \let\textlhookfour\textPUlhookfour
20927 \let\textscf\textPUscf
20928 \let\textaolig\textPUaolig
20929 \let\Ganz\textfullnote
20930 \let\Halb\texthalfnote
20931 \let\Womanface\textWomanFace
20932 \let\Faxmachine\textFax
20933 \let\CEsign\textCESign
20934 }% \psdaliasnames
20935 </psdextra>

```

## 48 End of file hyccheck.tex

```

20936 <*check>
20937 \typeout{}
20938 \begin{document}
20939 \end{document}
20940 </check>

```

## 49 Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in *roman* refer to the code lines where the entry is used.

Symbols			
\! . . . . .	195, 220, 1742	15392, 15401, 15417, 15426, 15427, 15442, 15456, 15462,	16806, 16830, 16832, 17050, 17052
\" . . . . .	202, 227, 3055, 14327, 14643, 14655, 14667, 14793, 14881, 14895, 14903, 14918, 14930, 14947, 14961, 14972, 14973, 14987, 14999, 15006, 15059, 15105, 15134, 15165, 15340, 15354, 15362, 15376, 15390, 15407, 15421, 15432, 15433, 15448, 15460, 15468, 15726, 16342, 16356, 16512, 16526, 16770, 16772, 16787, 16790, 16792, 16794, 16796, 16798, 16808, 16810, 16812, 16814, 16821, 16824, 16826, 16828, 16834, 16836, 16842, 16844, 16850, 16852, 17062, 17064, 17214, 17216, 17230, 17232, 17252	15482, 15484, 15598, 15600, 15618, 15620, 15654, 15656, 15666, 15668, 15728, 15730, 15851, 15853, 15859, 15861, 15864, 15867, 16346, 16366, 16516, 16536, 17078, 17080, 17102, 17104, 17142, 17144, 17210, 17212, 19452, 19457, 19462, 19467, 19472, 19477, 19482, 19487, 19492, 19497, 19502, 19507, 19512, 19517, 19522, 19527, 19532, 19537, 19542, 19547, 19552, 19557, 19562, 19567	\> . . . . . 197, 222 \? . . . . . 320 \@ . . . . . 3046 \@@@ . . . . . 2186 \@@BOOKMARK 14308, 14311, 14369, 14434, 14441 \@@ListBox 12610, 12641, 13212, 13246, 13568, 13609 \@@Menu . . . . . 12851, 12859 \@@PasswordField 12800, 12806 \@@Radio 12595, 12616, 12849, 12873, 13197, 13218, 13553, 13574 \@@TextField . . . 12802, 12817 \@@commahyperpage 8338, 8339 \@Chyper@Creadexternallink . . . . . 5157, 5159 \@Chyperref . . . . . 4966, 4967 \@Cwindex . . . . . 8239, 8240 \@Cwritetorep . . . 14169, 14175 \@Alph . . . . . 7054, 7056 \@BIBLABEL . 7708, 7714, 7720 \@BOOKMARK . 14308, 14310 \@CheckBox 6146, 10338, 12730, 12766, 12904, 13334, 13711 \@ChoiceMenu . . . 6143, 10341, 12548, 12769, 12839, 13149, 13505 \@Form . . . 5819, 10328, 12300, 12756, 12783, 13038, 13419 \@Gauge . . 6152, 10332, 12485, 12760, 12788, 12925, 13416 \@Localurlfalse . . . . . 10281 \@Localurltrue . . . . . 10278 \@M . . . . . 2231, 4849 \@MM . . . . . 7465 \@PackageError . . . . . 246 \@PackageInfo . . . . . 249 \@PackageInfoNoLine . . . . 250 \@PackageWarning . . . . . 247 \@PackageWarningNoLine . 248 \@PushButton . . . 6149, 10344, 12652, 12772, 12885, 13256, 13625 \@Refstar . . . . . 4715, 8447 \@Reset . . . 6158, 10347, 12703, 12775, 12901, 13309, 13682
\# . . . . .	516, 1827, 1828, 4742, 4753, 4755, 4771, 4803, 4863, 8644, 8646, 9388, 9397, 9432, 10273, 11921, 11932, 11968, 12206, 12215, 12255, 14247	\( . . . 190, 215, 315, 736, 739, 741, 1744, 14393, 14713 \) . . . 191, 216, 316, 708, 714, 717, 1745, 14394, 14715 \* . . . . . 318 \+ . . . . . 200, 225, 319 \- . . . . . 201, 226 \. . . . . 198, 223, 312, 3506, 3919, 14646, 14658, 14670, 14734, 15030, 15037, 15057, 15108, 15137, 15171, 15248, 15249, 15490, 15492, 15520, 15522, 15540, 15542, 15579, 15610, 15612, 15732, 15734, 15935, 15937, 15943, 15945, 16994, 16996, 17006, 17008, 17046, 17048, 17054, 17056, 17106, 17108, 17114, 17116, 17146, 17148, 17150, 17152, 17162, 17164, 17170, 17172, 17218, 17220, 17226, 17228, 17234, 17236, 17258 \/ . . . 194, 219, 649, 650, 651, 719, 1511, 8204 \: . . . . . 189, 214 \; . . . . . 199, 224 \< . . . . . 196, 221 \= . . . 167, 173, 180, 183, 14648, 14660, 14672, 15050, 15114, 15143, 15170, 15470, 15472, 15512, 15514, 15564, 15566, 15567, 15638, 15640, 15698, 15700, 15947, 15949, 16804,	
\\$ 184, 209, 314, 517, 4744, 4862			
\% . . . 518, 1742, 1802, 1803, 4741, 4750, 4752, 4804, 8646			
\& . . . 185, 210, 519, 4745, 4756, 4758, 11978			
\' . . . . . 203, 228, 2995, 3009, 3050, 3052, 3053, 3054, 3055, 3060, 3061, 3063, 3068, 3074, 3078, 3079, 3082, 3125, 3126, 3131, 3132, 3133, 3134, 3135, 3136, 3137, 3138, 3140, 3143, 3150, 3151, 3152, 3153, 3156, 3162, 3175, 14325, 14640, 14652, 14664, 14875, 14891, 14899, 14912, 14926, 14932, 14941, 14957, 14966, 14967, 14981, 14995, 15001, 15025, 15027, 15028, 15029, 15032, 15034, 15035, 15036, 15044, 15102, 15131, 15162, 15334, 15350, 15358, 15370, 15386,			

\@Submit . . . 6155, 10350, 12683, 12778, 12898, 13286, <u>13659</u>	\@currValue . . . 5909, 5911, 5913, 12621, 12632, 12868, 12879, 13223, 13233, 13582, 13599	\@fifthoffive . . . 5001, 8399, 8532
\@TextField 6140, 10335, 12516, 12763, 12791, 13119, <u>13468</u>	\@currentHlabel . . . . . <u>7101</u>	\@filebordercolor . . . . . ... 3541, 4130, 9024, 9026, 9964, 9966, 10486, 10488, 11552
\@addtoreset . . . 8137, 8138, 8153	\@currentHpage . . . . 7879, 7884, 7891, 7942, 7953, 7960	\@filecolor . . . . 3475, 3487, 9045, 9571, 9588, 9982, 10492
\@alph . . . . . 7050, 7052	\@currentHref . . . . . ... 2188, 5059, 5350, 6263, 6939, 7080, 7082, 7092, 7094, 7101, 7117, 7119, 7129, 7157, 7168, 7170, 7188, 7209, 7213, 7218, 7241, 7282, 7289, 7291, 7303, 7305, 7381, 7391, 7393, 7394, 7450, 7479, 7579, 7605, 7609, 7636, 7638, 7798, 7989, 8012, 8025, 8032, 8114, 14159, 14546, 14559, 14570, 14597, 14614	\@firstoffive . . . . 4705, 8439, 8537
\@anchorcolor 3485, 9357, 9452, 10400, 11889, 12176	\@currentcounter . . . . . 7468	\@firstofone . . . . . 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 603, 636, 1247, 4594, 4987, 5785, 5791, 6041, 6854, 7047, 7059, 7572, 7654, 7946, 8194, 9250, 12992, 13798, 13815, 13833
\@arabic . . . . . 6957, 6973, 7049	\@currentlabel 7469, 7791, 7798, 8119, 8126	\@firsttwo 595, 619, 891, 6352, 14604
\@auxout 2180, 5014, 5321, 6385, 7728, 7743, 7760, 7770, 7789, 7795, 7819	\@currentlabelname . 2178, 7382, 7451, 7480, 7584	\@fnsymbol . . . . . 7048
\@backslashchar . . . . . ... 1045, 1704, 1708, 1711, 1849, 1866, 1872, 1876, 1884, 4766, 8659, 8669	\@currentlabstr . . . . 2177, 2185	\@footnotemark . . . . 7324, 7387, 7405, 7488, 7500, 7502, 7514, 7515, 7546, 7548
\@baseurl 3492, 3494, 5215, 9096, 9099, 9342, 9344, 9629, 9631, 10150, 10160, 10246, 10248, 10783, 10785, 11167, 11181, 11874, 11876, 12074, 12088, 12162, 12164	\@currname . . . . . 2301	\@footnotetext 7323, 7330, 7364, 7404, 7501, 7503, 7517, 7518, 7539
\@bibitem . . . . . 7735, 7767	\@curropt 12557, 12558, 12619, 12620, 12857, 12864, 12865, 12867, 12874, 12875, 12877, 13158, 13159, 13221, 13222, 13514, 13515, 13580, 13581	\@for . . . 3517, 5427, 12557, 12619, 12857, 12864, 12874, 13158, 13221, 13514, 13580
\@biblabel . . . . . 7708, 7756	\@dblarg . . . . . 7574, 7656	\@fourthoffive . 5002, 8527, 8534
\@bookmarkopenstatus . . . 4592, 4609, <u>14229</u>	\@definecounter . . . . 8093, 8094	\@gobble . . . 49, 56, 117, 542, 543, 544, 545, 582, 583, 584, 585, 605, 622, 623, 624, 633, 635, 898, 1184, 1245, 1264, 1277, 1281, 1344, 1407, 1408, 1415, 1420, 1434, 1439, 2036, 2200, 2497, 2509, 3892, 4205, 4242, 4297, 4732, 5770, 6031, 6317, 6321, 6338, 6340, 6356, 6357, 6360, 6361, 6363, 6460, 6828, 6848, 6852, 7561, 7651, 7988, 8592, 9252, 10669, 10672, 13039, 13420, 14216, 14217, 14218, 14219
\@bookmarksopenlevel . . . 3446, 3448, 4595	\@documentclasshook . . . 4213	\@gobblefour 548, 659, 941, 942, 943, 3700
\@bsphack . . . . 2173, 5007, 7793	\@ehc . . . 2553, 2680, 2706, 2722, 2757, 2796, 2803, 2814, 2820, 2858, 4295, 4911, 5179, 5531, 5655, 5851, 5884, 6078, 6131, 12661, 12714, 13266, 13320, 13635, 13693	\@gobbleopt . . . . . 6363, 6365
\@capstartfalse . . . . . 7599	\@ehd . . . 63, 265, 271, 295, 7560, 7650	\@gobbletwo . . . . 546, 626, 652, 660, 661, 940, 1362, 1439, 1443, 2385, 3698, 3699, 4246, 5716, 6342, 6351, 6359, 6363, 8516, 14556
\@caption 7564, 7576, 7619, 7656, 7658	\@elt . . . . 6945, 6947, 6948, 6953	\@harvarditem . . . . . 7808, 7810
\@capttype . . . . 2182, 7559, 7563, 7567, 7574, 7581, 7635, 7649, 7653, 7656	\@endForm 5820, 10331, 12484, 12759, 12787, 13092, <u>13446</u>	
\@car . . . . 1327, 1343, 1361, 1381, 3425, 5437	\@eqnocr . . . . . 7229	
\@chapter . . . . . 14565, 14566	\@eqnstarfalse . . . . . 7203, 7232	
\@cite . . . . . 7854, 7860	\@eqnstartrue . . . . . 7229	
\@cite@opt . . . 7855, 7861, 7865, 7875	\@esphack 2194, 5018, 7803, 8251	
\@citebordercolor . . . 3540, 4132	\@extra@b@citeb . . . 7693, 7696, 7713, 7718, 7738	
\@citecolor . . . . . 3486	\@extra@binfo . . . 7692, 7695, 7699	
\@citedata@opt 7856, 7862, <u>7864</u>		
\@citedatax . . . . . 7871, 7876		
\@citedatax@opt . . . 7868, <u>7874</u>		
\@citeseppen . . . . . 7853, 7859		
\@commahyperpage . . . 8333, 8338		
\@ctrerr . . . . . 7022, 7031		
\@currDisplay . . . . 5907, 12560, 12623, 12868, 12882, 13161, 13225, 13517, 13584		

<code>\@hyper@anchor</code> .. 5265, 5266	<code>\@latex@warning</code> ... 4994, 8374, 8394, 8411, 8543	11713, 12491, 13455
<code>\@hyper@itemfalse</code> .. 6885, 6902, 6917	<code>\@lbibitem</code> ..... 7709, 7755	<code>\@newctr</code> ..... 8101, 8102
<code>\@hyper@itemtrue</code> ..... 6886	<code>\@linkbordercolor</code> .. 3542, 4127, 8979, 10390	<code>\@newl@bel</code> ... 5304, 6409, 7695
<code>\@hyper@launch</code> ... 5185, 5194, 9049, 9987, 10561, 11570	<code>\@linkcolor</code> ..... 3484, 11220	<code>\@nil</code> ..... 276, 303, 1239, 1242, 1250, 1327, 1345, 1363, 1379, 1381, 1384, 1387, 1390, 1920, 1922, 1938, 1940, 3425, 4788, 4792, 4797, 5232, 5240, 5246, 5248, 5437, 6022, 6025, 6044, 6435, 6438, 6445, 6447, 6448, 6562, 6610, 6611, 6613, 6636, 6653, 6707, 6709, 7152, 7161, 7163, 7175, 8317, 8319, 8326, 8349, 8352, 8362, 8378, 8381, 8551, 8582, 8655, 8661, 8665, 8671, 10634, 10636, 13805, 13818, 13824, 14257, 14260, 14263, 14272, 14275, 14284
<code>\@hyper@linkfile</code> ... 5166, 5169, 5173, 5205	<code>\@linkdim</code> 457, 9406, 9407, 9415, 9416, 9417, 9486, 9487, 9499, 9500, 9501, 9523, 9524, 9537, 9538, 9539, 9563, 9564, 9577, 9578, 9579, 11942, 11943, 11951, 11952, 11953, 12224, 12225, 12238, 12239, 12240	<code>\@nocnterr</code> ..... 8152, 8167
<code>\@hyper@readexternallink</code> 5160, 5164	<code>\@listctr</code> ..... 7744, 7771	<code>\@nocounterr</code> ..... 8151, 8166
<code>\@hyperdef</code> ..... 4974, 4975	<code>\@m</code> 9280, 10214, 10358, 10716, 11672	<code>\@number</code> ..... 7047, 7946
<code>\@hyperpage</code> ..... 8330, 8331	<code>\@mainaux</code> .. 5369, 6811, 6819, 12985, 12988, 13016, 13031	<code>\@nx</code> ... 8155, 8170, 8173, 8175
<code>\@hyperref</code> ..... 4954, 4966	<code>\@makecaption</code> 7600, 7602, 7669	<code>\@onelevel@sanitize</code> . 2378, 2382, 2587, 3424, 4272, 4302, 4316, 4822, 5227, 5230, 5243, 5257, 5527, 5763, 5847, 6663, 6665, 7088, 8018, 8425, 9751, 14254
<code>\@ifclassloaded</code> ..... 9255	<code>\@makefnmark</code> ..... 7396, 7551	<code>\@outlinefile</code> 14227, 14316, 14411, 14413, 14490, 14492
<code>\@if@t@r</code> 2223, 6367, 6381, 7104	<code>\@makefntext</code> ..... 7470	<code>\@pagerefstar</code> . 4707, 8441, 8462, 8469, 8478, 8487
<code>\@ifnextchar</code> .. 12, 88, 103, 123, 653, 4856, 4954, 4974, 5113, 5819, 6140, 6143, 6146, 6149, 6152, 6155, 6158, 6363, 6416, 6425, 7504, 7522, 7808, 7866, 11192, 11481, 11495, 14308, 14311	<code>\@makeoother</code> ..... 166, 167, 179, 180, 182, 183, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 4756, 8631, 14397, 14400, 14424, 14427	<code>\@pagesetref</code> ..... 8390
<code>\@ifpackageloaded</code> ..... 788, 2168, 2606, 4190, 4388, 7112, 7145, 7182, 7313, 7401, 7417, 7457, 7632, 7778, 7851, 8199, 8200, 8201, 8457, 12154	<code>\@menubordercolor</code> . 3543, 4129, 9318, 9320, 10061, 10063, 10599, 10601, 11474	<code>\@parboxrestore</code> 7467, 7592, 7664
<code>\@ifpackagewith</code> ..... 4188	<code>\@menucolor</code> 3489, 9333, 10072, 10605	<code>\@parcount</code> ..... 14375, 14383
<code>\@ifstar</code> .. 66, 6299, 6303, 6372, 6376, 8496	<code>\@mkboth</code> ..... 626, 14556	<code>\@part</code> ..... 14583, 14587
<code>\@ifundefined</code> 34, 342, 475, 855, 865, 894, 897, 2298, 2474, 2624, 2645, 2646, 3301, 3346, 3354, 3361, 3383, 3423, 4385, 4386, 5526, 5846, 6296, 6781, 6895, 6943, 7146, 7149, 7150, 7181, 7206, 7297, 7311, 7320, 7557, 7565, 7583, 7689, 7702, 7985, 8040, 8091, 8099, 8105, 8109, 8135, 8142, 8151, 8152, 8162, 8166, 8167, 8174, 8458, 8594, 10865, 10866, 12937, 13039, 13420, 13796, 13807, 14225, 14537, 14584	<code>\@mpfn</code> ..... 7327, 7523, 7536	<code>\@partaux</code> ..... 5367
<code>\@indexfile</code> ... 8243, 8258, 8273, 8277, 8287	<code>\@mpfootnotetext</code> .. 7330, 7343, 7344, 7406	<code>\@pdfauthor</code> . 3716, 4135, 9156, 9609, 10095, 10836, 11091, 12003
<code>\@inmathwarn</code> ..... 510, 511	<code>\@mycount</code> ..... 14373, 14383	<code>\@pdfborder</code> ..... 3375, 3561, 3562, 3563, 3570, 3574, 3597, 3599, 4675, 8912, 9769, 10388, 10969, 11052, 11472, 11485, 11500, 11521, 11549, 11580, 11609, 11719, 11815, 11983
<code>\@inpenc@undefined@</code> ... 1911	<code>\@namedef</code> ... 2139, 2141, 2143, 2145, 2147, 2149, 2151, 2153, 2155, 2157, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2321, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 3292, 3304, 5537, 5538, 5539, 5540, 5862, 5863, 7228, 7231, 7783, 7784, 7785, 7786	<code>\@pdfborderstyle</code> ... 3376, 3578, 3579, 3580, 3589, 3593, 3601, 3603, 4676, 5993
<code>\@latex@</code> ..... 6447, 6448	<code>\@namerefstar</code> ..... 4711, 8444	
<code>\@latex@error</code> ..... 7560, 7650	<code>\@nameuse</code> .. 2182, 2631, 5543, 5854	
	<code>\@ne</code> 2572, 2745, 4506, 4580, 4881, 9893, 9894, 9899, 10762,	

8913, 9770, 10389, 10970, 11053, 11473, 11486, 11501, 11522, 11550, 11581, 11610, 11720, 11816, 11984	11008, 11010, 11018	\@pdfsubject . 3751, 4140, 9158, 9614, 10085, 10838, 11089, 12008
\@pdfcreationdate . . . . . .. 3738, 4138, 9160, 9162, 9601, 9603, 10087, 10089, 11066, 11068, 11995, 11997	\@pdfpagelayout . . . . . 9144, 9694, 10169, 10815, 10817, 11176, 12083	\@pdftempa . . . 5171, 5172, 5175
\@pdfcreator . 3728, 3733, 4137, 9159, 9600, 10086, 10839, 11090, 11994	\@pdfpagemode 4374, 4375, 4605, 4606, 4615, 4616, 9098, 9650, 10164, 10782, 11130, 12037	\@pdftempwordfile . . 5162, 5172
\@pdfdirection . . . . . 9119, 9667, 10130, 10795, 11147, 12054	\@pdfpagescrop 3962, 4143, 9083, 9087, 9633, 9634, 9655, 9657, 10176, 10178, 10771, 10773, 11135, 11137, 12042, 12044	\@pdftempwordrun . 5163, 5175
\@pdfduplex 9125, 9673, 10136, 10801, 11153, 12060	\@pdfpagetransition . 3498, 9193, 9197, 9202, 10184, 10186, 10189, 10614, 10616, 10618, 10991, 10993, 11001	\@pdftitle 3710, 4134, 9157, 9599, 10084, 10837, 11088, 11993
\@pdfhighlight 3547, 3555, 3557, 4133, 10968, 11051, 11471, 11520, 11548, 11579	\@pdfpicktraybypdfsize . . . . . .. 9126, 9128, 9674, 9676, 10137, 10139, 10802, 10804, 11154, 11156, 12061, 12063	\@pdftrapped 3762, 3765, 3768, 3777, 3786, 4142, 9173, 9175, 10101, 10103, 11093
\@pdfkeywords 3757, 4141, 9172, 9598, 10100, 10844, 11092, 11992	\@pdfprintarea . . . . 9122, 9670, 10133, 10798, 11150, 12057	\@pdfview . . . 3894, 8894, 8902, 9719, 9723, 9727, 9731, 9735, 9739, 9740, 9743, 9744, 9747, 9751, 9753, 9768, 10387, 10397, 10409, 10906, 10926, 11611, 11721, 11817, 12096
\@pdflang 4008, 4010, 4011, 4013, 4015, 4017, 4023, 4053, 4054, 4056, 4077, 4081, 4083, 4100, 4109, 4116, 4148, 9145, 9147, 9695, 9697, 10170, 10172, 11177, 11179, 12084, 12086	\@pdfprintclip 9123, 9671, 10134, 10799, 11151, 12058	\@pdfviewarea 9120, 9668, 10131, 10796, 11148, 12055
\@pdfm@dest . . 9713, 9772, 9776	\@pdfprintpagerange . . . . . .. 3668, 4147, 9130, 9132, 9678, 9680, 10141, 10143, 10806, 10808, 11158, 11160, 12065, 12067	\@pdfviewclip 9121, 9669, 10132, 10797, 11149, 12056
\@pdfm@mark . . . . . .. 6799, 9712, 9764, 9784, 9798, 9800, 9814, 9816, 9821, 9822, 9852, 9876, 9878, 9883, 9901, 9924, 9957, 9992, 10024, 10054, 10082, 10151, 10178, 13423, 13424, 13425, 13444, 13462, 13465, 13495, 13590, 13617, 13648, 13673, 13701, 13730, 13741, 13774, 13782, 14461	\@pdfprintscaling . . 9124, 9672, 10135, 10800, 11152, 12059	\@percentchar 4751, 4752, 4804, 14231
\@pdfmoddate . . . . . .. 3744, 4139, 9164, 9166, 9605, 9607, 10091, 10093, 11070, 11074, 11999, 12001	\@pdfproducer . . . . . .. 3722, 4136, 9168, 9170, 9610, 9612, 10096, 10098, 10739, 10740, 10744, 10747, 10748, 10840, 10842, 11077, 11081, 11606, 11607, 11712, 11714, 11716, 11812, 11813, 12004, 12006	\@processme . . . . . .. 5895, 5896, 9199, 9205, 9223, 9229, 11195, 11196, 11318, 11319, 11322, 11323
\@pdfnonfullscreenpagemode . . 9118, 9666, 10129, 10794, 11146, 12053	\@pdfremotestartview . . . . . .. 3923, 3925, 3926, 3949, 3953, 3955, 3956, 3958, 4145, 9037, 9973, 11560	\@protected@testopt . . . . . 656
\@pdfnumcopies 9134, 9136, 9682, 9684, 10145, 10147, 10810, 10812, 11162, 11164, 12069, 12071	\@pdfstartpage . . . . . .. 3906, 3908, 4146, 9104, 9108, 9637, 9642, 10153, 10157, 10775, 10779, 11117, 11122, 12024, 12029	\@protected@testopt@xargs 657
\@pdfpageduration . 3502, 9217, 9221, 9226, 10195, 10197, 10200, 10725, 10727, 10730,	\@pdfstartview . . . . . .. 3913, 3915, 4144, 9106, 9108, 9639, 9643, 10155, 10157, 10777, 11119, 11123, 12026, 12030	\@refstar . . . . . 4703, 8438

\@sharp . . . . .	7152, 7158	7559, 7623, 7628, 7634,	15550, 15587, 15589, 15590,
\@skiphyperreffalse .	6903, 7724, 7736	7649, 8433, 10750, 10764,	15670, 15672, 15718, 15720,
\@skiphyperreftrue .	7710, 7736	15053, 15070, 16332, 16337,	15722, 15724, 17238, 17240
\@spaces . . . . .	253	16858	\_ . . . . 187, 212, 521, 4743, 4760,
\@spart . . . . .	14593, 14594	\@unexpandable@protect .	4761, 5031, 5044, 5057
\@ssect . . . . .	14539, 14540	8304, 8423	\` . . . . . 166, 172, 179,
\@tempa . . . . .	7419, 7423, 7426, 7438	\@unprocessedoptions . . .	182, 3009, 3144, 3149, 3154,
\@tempb . . . . .	7253, 7257	\@urlbordercolor . . . . .	3155, 3158, 3161, 3164,
\@tempboxa . . . . .	9404, 9406, 9415,	8989, 8991, 10031, 10033,	3166, 3174, 14248, 14639,
	9484, 9486, 9489, 9490,	10512, 10514, 11523	14651, 14663, 14873, 14889,
	9499, 9505, 9506, 9521,	\@urlcolor 3488, 9008, 9411, 9424,	14897, 14910, 14924, 14939,
	9523, 9526, 9527, 9537,	9531, 9548, 10045, 10518,	14955, 14963, 14964, 14979,
	9543, 9544, 9561, 9563,	11947, 11960, 12233, 12246	14993, 15042, 15101, 15130,
	9566, 9567, 9577, 9583,	\@urltype . . . . . 9377, 9382, 10251,	15161, 15332, 15348, 15356,
	9584, 11940, 11942, 11951,	10277, 10417, 10431, 11909,	15368, 15384, 15399, 15415,
	12222, 12224, 12238	11914, 12195, 12200	15423, 15424, 15440, 15454,
\@tempcnta . . . . .	1890, 14181, 14182,	\@vwid@setup . . . . . 7109	15855, 15857, 16339, 16368,
	14183, 14184, 14185, 14187,	\@vwid@wrap . . . . . 7108	16509, 16538, 17206, 17208,
	14190, 14191, 14192, 14198,	\@whilenum . . . . . 957	17284, 17286, 19454, 19459,
	14200, 14202, 14292, 14293,	\@wrindex . . . . . 8207, 8208, 8239	19464, 19469, 19474, 19479,
	14294, 14297, 14298, 14299,	\@writefile . . . . . 7796	19484, 19489, 19494, 19499,
	14300, 14301, 14509, 14510,	\@x@sf . . . . . 7389, 7398, 7550, 7552	19504, 19509, 19514, 19519,
	14511	\@xfootnote . . . . . 7522	19524, 19529, 19534, 19539,
\@tempdima . . . . .	2234, 6195, 6196,	\@xfootnotemark . . . . . 7336, 7541	19544, 19549, 19554, 19559,
	6197, 6198, 6199, 6200,	\@xfootnotenext . . . . . 7325, 7534	19564, 19569
	6201, 6202, 12556, 12561,	\@xp . . . . . 8125, 8154, 8155, 8169,	\  . . . . . 188, 213,
	12563, 12599, 12600, 12601,	8170, 8172, 8173	317, 1650, 1743, 1784, 2955,
	12605, 12606, 12607, 12608,	\@xxxii . . . . . 5069	4171, 8203, 8630, 8640
	13157, 13162, 13164, 13201,	\[ . . . . . 192, 217, 313, 3567, 3585, 4923	\~ . . . . . 520,
	13202, 13203, 13207, 13208,	\{ . . . . . 321, 513, 1744, 10897, 14249	959, 1898, 3067, 3075, 3076,
	13209, 13210, 13513, 13518,	\} . . . . . 322, 514, 1745, 10897, 14250	3077, 4764, 14642, 14654,
	13520, 13557, 13558, 13559,	\_ . . . . . 324, 641, 3090, 3093,	14666, 14879, 14908, 14916,
	13563, 13564, 13565, 13566	3919, 14663, 14664, 14665,	14945, 14977, 14985, 15048,
\@tempdimb . . . . .	12560, 12561,	14666, 14667, 14668, 14669,	15104, 15133, 15164, 15338,
	13161, 13162, 13517, 13518	14670, 14671, 14672, 14673,	15366, 15374, 15405, 15438,
\@tempswafalse . . . . .	7870	14674, 15130, 15131, 15132,	15446, 15559, 15561, 15562,
\@tempswattrue . . . . .	7840, 7843, 7846, 7867	15133, 15134, 15135, 15136,	15694, 15696, 17198, 17200,
\@temptokena . . . . .	3270, 3275, 3278, 3280	15137, 15138, 15139, 15141,	17268, 17270, 17292, 17294,
\@tfor . . . . .	7254	15143, 15144, 15145, 15146,	19456, 19461, 19466, 19471,
\@the@H@page . . . . .	7912, 7949, 7951, 7952, 7953	15147, 15148, 15149, 15150,	19476, 19481, 19486, 19491,
\@thefnmark . . . . .	7328, 7339, 7430,	15151, 15152, 15153, 15154,	19496, 19501, 19506, 19511,
	7469, 7486, 7493, 7524,	15155, 15156, 15157, 15158	19516, 19521, 19526, 19531,
	7537, 7544	\] . . . . . 193, 218	19536, 19541, 19546, 19551,
\@thirdoffive . . . . .	4713, 8445	\^ . . . . . 186, 211,	19556, 19561, 19566, 19571
\@thm . . . . .	7316, 7317	311, 1842, 1843, 3073, 4739,	
\@typeset@protect . . . . .	14522	4740, 4748, 14641, 14653,	<b>Numbers</b>
\@undefined . . . . .	355, 358, 444, 446,	14665, 14877, 14893, 14901,	\3 . . . . . 497, 1003, 1004, 1005,
	662, 2651, 2711, 3274, 4394,	14914, 14928, 14943, 14959,	1006, 1007, 1008, 1009,
	4483, 6353, 6389, 6397,	14969, 14970, 14983, 14997,	1010, 1119, 1120, 1121,
	6408, 6625, 6643, 6688,	15046, 15103, 15132, 15163,	1122, 1123, 1124, 1125,
		15336, 15352, 15360, 15372,	1126, 2013, 2149, 2157,
		15388, 15403, 15419, 15429,	2159, 14392, 14873, 14875,
		15430, 15444, 15458, 15486,	14877, 14879, 14881, 14883,
		15488, 15532, 15534, 15548,	14885, 14887, 14889, 14891,

14893, 14895, 14897, 14899,  
14901, 14903, 14905, 14906,  
14908, 14910, 14912, 14914,  
14916, 14918, 14920, 14922,  
14924, 14926, 14928, 14930,  
14932, 14934, 14935, 14937,  
14939, 14941, 14943, 14945,  
14947, 14949, 14951, 14953,  
14955, 14957, 14959, 14961,  
14963, 14964, 14966, 14967,  
14969, 14970, 14972, 14973,  
14975, 14977, 14979, 14981,  
14983, 14985, 14987, 14989,  
14991, 14993, 14995, 14997,  
14999, 15001, 15003, 15004,  
15006, 15098, 15332, 15334,  
15336, 15338, 15340, 15342,  
15344, 15346, 15348, 15350,  
15352, 15354, 15356, 15358,  
15360, 15362, 15364, 15366,  
15368, 15370, 15372, 15374,  
15376, 15378, 15382, 15384,  
15386, 15388, 15390, 15392,  
15394, 15395, 15397, 15399,  
15401, 15403, 15405, 15407,  
15409, 15411, 15413, 15415,  
15417, 15419, 15421, 15423,  
15424, 15426, 15427, 15429,  
15430, 15432, 15433, 15435,  
15438, 15440, 15442, 15444,  
15446, 15448, 15450, 15452,  
15454, 15456, 15458, 15460,  
15462, 15465, 15466, 15468,  
15801, 15805, 15809, 15812,  
15814, 15816, 15818, 15819,  
15821, 15823, 15825, 15827,  
15829, 15831, 15833, 15836,  
15838, 15840, 15842, 15844,  
15846, 15848, 15849, 15851,  
15853, 15855, 15857, 15859,  
15861, 15864, 15867, 16278,  
16281, 16284, 16286, 16289,  
16292, 16295, 16298, 16300,  
16302, 16304, 16306, 16308,  
16310, 16311, 16313, 16315,  
16317, 16319, 16321, 16740,  
16742, 16744, 16746, 16748,  
16750, 16752, 16754, 16756,  
16758, 16760, 16762, 16764,  
16766, 16768, 16770, 16772,  
16774, 16776, 16778, 16780,  
16782, 16784, 16787, 16790,  
16792, 16794, 16796, 16798,  
16800, 16802, 16804, 16806,

16808, 16810, 16812, 16814,  
16816, 16818, 16821, 16824,  
16826, 16828, 16830, 16832,  
16834, 16836, 16838, 16840,  
16842, 16844, 16846, 16848,  
16850, 16852, 16854, 16856,  
16860, 16862, 16864, 16866,  
16868, 16870, 16872, 16874,  
16876, 16878, 16880, 16882,  
16884, 16886, 16888, 16890,  
16892, 16894, 16896, 16898,  
16900, 16902, 16904, 16906,  
16908, 16910, 16912, 16915,  
16917, 16919, 16921, 17272,  
17274, 17276, 17278, 17280,  
17282, 17284, 17286, 17288,  
17290, 17292, 17294, 17650,  
17653, 17656, 17659, 17662,  
17665, 17668, 17670, 17672,  
17674, 17676, 17679, 17682,  
17685, 17687, 17690, 17693,  
17695, 17698, 17701, 17704,  
17707, 17709, 17711, 17713,  
17715, 17717, 17719, 17721,  
17723, 17726, 17729, 17731,  
17734, 17736, 17739, 17741,  
17743, 17745, 17792, 17830,  
17835, 18208, 18210, 18212,  
18215, 18218, 18220, 18222,  
18224, 18226, 18228, 18231,  
18234, 18236, 18238, 18240,  
18242, 18245, 18248, 18250,  
18252, 18254, 18256, 18259,  
18262, 18264, 18266, 18268,  
18270, 18272, 18274, 18276,  
18278, 18280, 18283, 18286,  
18288, 18290, 18292, 18294,  
18297, 18301, 18304, 18307,  
18309, 18311, 18313, 18315,  
18384, 18387, 18463, 18465,  
18467, 18469, 18471, 18473,  
18475, 18477, 18479, 18481,  
18483, 18485, 18487, 18489,  
18491, 18493, 18495, 18497,  
18499, 18501, 18503, 18505,  
18507, 18509, 18511, 18513,  
18515, 18517, 18519, 18521,  
18523, 18525, 18527, 18529,  
18531, 18533, 18535, 18537,  
18539, 18541, 18543, 18545,  
18547, 18549, 18551, 18580,  
18583, 18585, 18587, 18590,  
18592, 18594, 18596, 18599,  
18601, 18819, 18821, 18823,

18825, 18827, 18998, 19000,  
19002, 19004, 19006, 19008,  
19011, 19015, 19017, 19019,  
19021, 19023, 19025, 19027,  
19029, 19031, 19033, 19035,  
19139, 19142, 19145, 19147,  
19149, 19151, 19153, 19155,  
19157, 19159, 19286, 19288,  
19290, 19292, 19294, 19297,  
19300, 19303, 19307, 19310,  
19313, 19315, 19317, 19319,  
19321, 19324, 19326, 19401,  
19413, 19415, 19417, 19419,  
19421, 19441, 19442, 19443,  
19447, 19448, 19449, 19452,  
19454, 19456, 19467, 19469,  
19473, 19474, 19475, 19476,  
19477, 19478, 19479, 19480,  
19482, 19483, 19484, 19485,  
19486, 19487, 19488, 19489,  
19490, 19491, 19492, 19493,  
19494, 19495, 19496, 19497,  
19498, 19499, 19500, 19502,  
19503, 19504, 19505, 19506,  
19507, 19508, 19509, 19510,  
19511, 19512, 19514, 19516,  
19527, 19529, 19533, 19534,  
19535, 19536, 19537, 19538,  
19539, 19540, 19542, 19543,  
19544, 19545, 19546, 19547,  
19548, 19549, 19550, 19551,  
19552, 19553, 19554, 19555,  
19556, 19557, 19558, 19559,  
19560, 19562, 19563, 19564,  
19565, 19566, 19567, 19568,  
19569, 19570, 19571, 19675,  
19709, 19710, 19711, 19712,  
19713, 19714, 19715, 19716,  
19717, 19718

\9 . 500, 1023, 1026, 1057, 1941,  
1956, 1965, 1993, 2013,  
2049, 2053, 2067, 2071,  
2079, 2084, 2087, 2121,  
2125, 2128, 2131, 2141,  
2143, 2145, 2147, 2149,  
2151, 2153, 2155, 2157,  
2159, 15098, 16924, 16926,  
16928, 16930, 16932, 16934,  
16937, 16940, 16943, 16946,  
16948, 16950, 16952, 16954,  
16956, 16958, 16960, 16962,  
16964, 16967, 16969, 16972,  
16974, 16977, 16979, 16983,  
16987, 16990, 16992, 16994,



16996, 16998, 17000, 17002,  
17004, 17006, 17008, 17010,  
17012, 17014, 17016, 17018,  
17020, 17022, 17024, 17027,  
17030, 17033, 17036, 17038,  
17040, 17042, 17044, 17046,  
17048, 17050, 17052, 17054,  
17056, 17058, 17060, 17062,  
17064, 17066, 17068, 17070,  
17072, 17074, 17076, 17078,  
17080, 17082, 17084, 17086,  
17088, 17090, 17092, 17094,  
17096, 17098, 17100, 17102,  
17104, 17106, 17108, 17110,  
17112, 17114, 17116, 17118,  
17120, 17122, 17124, 17126,  
17128, 17131, 17134, 17137,  
17140, 17142, 17144, 17146,  
17148, 17150, 17152, 17154,  
17156, 17158, 17160, 17162,  
17164, 17166, 17168, 17170,  
17172, 17174, 17176, 17178,  
17180, 17182, 17184, 17186,  
17188, 17190, 17192, 17194,  
17196, 17198, 17200, 17202,  
17204, 17206, 17208, 17210,  
17212, 17214, 17216, 17218,  
17220, 17222, 17224, 17226,  
17228, 17230, 17232, 17234,  
17236, 17238, 17240, 17242,  
17244, 17246, 17248, 17250,  
17252, 17254, 17256, 17258,  
17260, 17262, 17264, 17266,  
17268, 17270, 17272, 17274,  
17276, 17278, 17280, 17282,  
17284, 17286, 17288, 17290,  
17292, 17294, 17296, 17298,  
17300, 17302, 17305, 17307,  
17309, 17311, 17313, 17315,  
17317, 17320, 17324, 17326,  
17328, 17331, 17333, 17335,  
17337, 17339, 17341, 17343,  
17345, 17347, 17349, 17351,  
17353, 17355, 17357, 17359,  
17361, 17363, 17365, 17367,  
17369, 17371, 17373, 17375,  
17377, 17379, 17381, 17383,  
17385, 17387, 17389, 17391,  
17393, 17395, 17397, 17399,  
17401, 17403, 17405, 17407,  
17409, 17411, 17413, 17415,  
17417, 17419, 17421, 17423,  
17425, 17427, 17429, 17431,  
17433, 17435, 17437, 17439,

17441, 17443, 17445, 17447,  
17449, 17451, 17453, 17455,  
17457, 17459, 17461, 17472,  
17475, 17477, 17479, 17481,  
17483, 17485, 17487, 17489,  
17492, 17494, 17496, 17498,  
17500, 17502, 17504, 17507,  
17509, 17511, 17515, 17517,  
17519, 17521, 17523, 17525,  
17527, 17529, 17533, 17535,  
17537, 17539, 17541, 17543,  
17545, 17547, 17549, 17551,  
17553, 17555, 17557, 17559,  
17561, 17563, 17565, 17567,  
17569, 17571, 17575, 17579,  
17581, 17583, 17585, 17588,  
17591, 17593, 17595, 17597,  
17599, 17601, 17604, 17606,  
17608, 17610, 17612, 17614,  
17616, 17618, 17620, 17622,  
17624, 17626, 17630, 17633,  
17635, 17638, 17641, 17644,  
17647, 17650, 17653, 17656,  
17659, 17662, 17665, 17668,  
17670, 17672, 17674, 17676,  
17679, 17682, 17685, 17687,  
17690, 17693, 17695, 17698,  
17701, 17704, 17707, 17709,  
17711, 17713, 17715, 17717,  
17719, 17721, 17723, 17726,  
17729, 17731, 17734, 17736,  
17739, 17741, 17743, 17745,  
17747, 17749, 17751, 17753,  
17755, 17757, 17760, 17762,  
17764, 17766, 17768, 17770,  
17773, 17776, 17778, 17780,  
17782, 17784, 17786, 17788,  
17790, 17792, 17794, 17796,  
17798, 17800, 17802, 17804,  
17807, 17809, 17811, 17813,  
17818, 17820, 17823, 17825,  
17828, 17830, 17833, 17835,  
17838, 17840, 17842, 17845,  
17847, 17849, 17852, 17855,  
17857, 17859, 17862, 17865,  
17867, 17869, 17872, 17874,  
17877, 17879, 17881, 17884,  
17886, 17888, 17890, 17892,  
17894, 17897, 17899, 17901,  
17904, 17906, 17908, 17911,  
17913, 17915, 17917, 17919,  
17922, 17924, 17926, 17928,  
17930, 17932, 17935, 17938,  
17941, 17943, 17946, 17948,

17950, 17952, 17954, 17956,  
17958, 17960, 17962, 17966,  
17968, 17970, 17971, 17974,  
17977, 17981, 17982, 17986,  
17987, 17990, 17992, 17994,  
17996, 17998, 18000, 18002,  
18004, 18006, 18008, 18010,  
18012, 18014, 18017, 18019,  
18021, 18024, 18027, 18029,  
18031, 18033, 18035, 18037,  
18039, 18041, 18043, 18045,  
18047, 18049, 18051, 18053,  
18055, 18057, 18059, 18061,  
18063, 18065, 18067, 18069,  
18071, 18073, 18075, 18077,  
18079, 18081, 18083, 18085,  
18087, 18089, 18091, 18093,  
18095, 18097, 18099, 18101,  
18103, 18106, 18109, 18112,  
18115, 18118, 18122, 18126,  
18128, 18130, 18132, 18134,  
18136, 18139, 18142, 18145,  
18148, 18150, 18153, 18156,  
18160, 18163, 18165, 18168,  
18171, 18174, 18178, 18181,  
18184, 18187, 18190, 18194,  
18198, 18200, 18202, 18204,  
18206, 18208, 18210, 18212,  
18215, 18218, 18220, 18222,  
18224, 18226, 18228, 18231,  
18234, 18236, 18238, 18240,  
18242, 18245, 18248, 18250,  
18252, 18254, 18256, 18259,  
18262, 18264, 18266, 18268,  
18270, 18272, 18274, 18276,  
18278, 18280, 18283, 18286,  
18288, 18290, 18292, 18294,  
18297, 18301, 18304, 18307,  
18309, 18311, 18313, 18315,  
18317, 18319, 18321, 18323,  
18325, 18329, 18331, 18333,  
18335, 18337, 18339, 18341,  
18343, 18345, 18347, 18349,  
18351, 18354, 18357, 18359,  
18362, 18365, 18367, 18370,  
18373, 18375, 18377, 18379,  
18381, 18384, 18387, 18389,  
18391, 18393, 18396, 18398,  
18400, 18402, 18404, 18406,  
18408, 18410, 18412, 18414,  
18416, 18418, 18420, 18422,  
18424, 18426, 18428, 18430,  
18432, 18434, 18436, 18438,  
18441, 18443, 18445, 18447,

18449, 18451, 18453, 18455,  
 18457, 18459, 18461, 18463,  
 18465, 18467, 18469, 18471,  
 18473, 18475, 18477, 18479,  
 18481, 18483, 18485, 18487,  
 18489, 18491, 18493, 18495,  
 18497, 18499, 18501, 18503,  
 18505, 18507, 18509, 18511,  
 18513, 18515, 18517, 18519,  
 18521, 18523, 18525, 18527,  
 18529, 18531, 18533, 18535,  
 18537, 18539, 18541, 18543,  
 18545, 18547, 18549, 18551,  
 18553, 18558, 18562, 18566,  
 18569, 18571, 18573, 18577,  
 18580, 18583, 18585, 18587,  
 18590, 18592, 18594, 18596,  
 18599, 18601, 18605, 18607,  
 18609, 18611, 18614, 18617,  
 18620, 18624, 18626, 18628,  
 18630, 18633, 18638, 18641,  
 18643, 18645, 18650, 18653,  
 18656, 18658, 18661, 18663,  
 18665, 18668, 18675, 18678,  
 18683, 18686, 18689, 18692,  
 18695, 18698, 18701, 18704,  
 18707, 18710, 18713, 18716,  
 18719, 18722, 18725, 18728,  
 18731, 18734, 18737, 18741,  
 18744, 18747, 18749, 18751,  
 18753, 18755, 18757, 18760,  
 18762, 18764, 18766, 18768,  
 18770, 18773, 18775, 18778,  
 18780, 18783, 18785, 18787,  
 18789, 18791, 18793, 18795,  
 18797, 18799, 18801, 18803,  
 18805, 18807, 18809, 18811,  
 18814, 18816, 18819, 18821,  
 18823, 18825, 18827, 18829,  
 18833, 18837, 18839, 18841,  
 18843, 18845, 18847, 18850,  
 18852, 18855, 18857, 18859,  
 18861, 18863, 18865, 18868,  
 18870, 18872, 18874, 18876,  
 18878, 18880, 18882, 18884,  
 18886, 18888, 18890, 18892,  
 18895, 18897, 18899, 18901,  
 18903, 18905, 18907, 18909,  
 18911, 18913, 18915, 18917,  
 18919, 18921, 18923, 18925,  
 18927, 18929, 18931, 18933,  
 18935, 18937, 18939, 18942,  
 18944, 18946, 18948, 18950,  
 18952, 18954, 18956, 18958,

18960, 18962, 18964, 18966,  
 18968, 18971, 18974, 18976,  
 18979, 18982, 18985, 18988,  
 18990, 18992, 18994, 18996,  
 18998, 19000, 19002, 19004,  
 19006, 19008, 19011, 19015,  
 19017, 19019, 19021, 19023,  
 19025, 19027, 19029, 19031,  
 19033, 19035, 19037, 19039,  
 19041, 19043, 19045, 19047,  
 19049, 19052, 19055, 19058,  
 19061, 19063, 19068, 19072,  
 19075, 19077, 19079, 19082,  
 19085, 19088, 19091, 19094,  
 19097, 19100, 19103, 19106,  
 19109, 19112, 19115, 19117,  
 19119, 19121, 19123, 19125,  
 19128, 19134, 19137, 19139,  
 19142, 19145, 19147, 19149,  
 19151, 19153, 19155, 19157,  
 19159, 19161, 19163, 19165,  
 19168, 19170, 19172, 19174,  
 19177, 19180, 19182, 19184,  
 19186, 19189, 19191, 19194,  
 19196, 19200, 19203, 19205,  
 19207, 19209, 19211, 19213,  
 19215, 19217, 19219, 19221,  
 19223, 19225, 19227, 19230,  
 19232, 19234, 19237, 19240,  
 19242, 19244, 19246, 19248,  
 19250, 19252, 19254, 19256,  
 19258, 19260, 19262, 19264,  
 19266, 19268, 19270, 19272,  
 19274, 19276, 19278, 19280,  
 19282, 19284, 19286, 19288,  
 19290, 19292, 19294, 19297,  
 19300, 19303, 19307, 19310,  
 19313, 19315, 19317, 19319,  
 19321, 19324, 19326, 19329,  
 19331, 19333, 19335, 19337,  
 19339, 19341, 19344, 19346,  
 19349, 19352, 19355, 19358,  
 19360, 19362, 19364, 19366,  
 19368, 19370, 19372, 19374,  
 19376, 19378, 19381, 19384,  
 19386, 19388, 19390, 19392,  
 19394, 19396, 19398, 19401,  
 19404, 19406, 19408, 19410,  
 19413, 19415, 19417, 19419,  
 19421, 19453, 19455, 19457,  
 19458, 19459, 19460, 19461,  
 19462, 19463, 19464, 19465,  
 19466, 19468, 19470, 19471,  
 19472, 19473, 19474, 19475,

19476, 19478, 19480, 19483,  
 19485, 19487, 19488, 19489,  
 19490, 19491, 19492, 19493,  
 19494, 19495, 19496, 19498,  
 19500, 19502, 19503, 19504,  
 19505, 19506, 19508, 19509,  
 19510, 19511, 19513, 19515,  
 19517, 19518, 19519, 19520,  
 19521, 19522, 19523, 19524,  
 19525, 19526, 19528, 19530,  
 19531, 19532, 19533, 19534,  
 19535, 19536, 19538, 19540,  
 19543, 19545, 19547, 19548,  
 19549, 19550, 19551, 19552,  
 19553, 19554, 19555, 19556,  
 19558, 19560, 19562, 19563,  
 19564, 19565, 19566, 19568,  
 19569, 19570, 19571, 19677,  
 19679

## A

\a ..... 282, 284, 288, 294  
 \ABREVE 19446, 19517, 19518,  
 19519, 19520, 19521  
 \abreve .. 19440, 19457, 19458,  
 19459, 19460, 19461  
 \AC ..... 17875, 20769  
 \AccFancyVerbLineautorefname  
 ..... 3117  
 \Accfootnoteautorefname . 3097  
 \Acctheoremautorefname . 3121  
 \acctonos 3179, 3180, 3181, 3182,  
 3183, 3184, 3185, 3186,  
 3187, 3188, 3189, 3190,  
 3191, 3192, 3193, 3194  
 \Acht ..... 19385, 20569  
 \ACIRCUMFLEX 19447, 19522,  
 19523, 19524, 19525, 19526  
 \acircumflex 3166, 19441, 19462,  
 19463, 19464, 19465, 19466  
 \AcPa ..... 19371, 20563  
 \Acrobatmenu 2202, 4251, 6350,  
 9310, 10050, 10591, 11465  
 \active ..... 937,  
 944, 1521, 4740, 4741, 4742,  
 4743, 4744, 4745, 4748,  
 4750, 4753, 4761, 14396,  
 14423  
 \add@accent ..... 512  
 \addcontentsline ... 7588, 7660,  
 7986, 7991, 8085  
 \addtocontents .... 8031, 8086  
 \addtocounter ..... 7270

\AddToDocumentProperties ..	\APLdownarrowbox ...	\ayn .....
.. 2297, 3707, 3713, 3719,	18369,	19623
3725, 3748, 3754	20236	
\AddToHook . 5366, 5368, 6929,	\APLinput .....	<b>B</b>
7106, 7266, 7273, 7295,	18372, 20237	\b 283, 284, 789, 793, 799, 14649,
7314, 8111, 8164, 8604	\APLinv .....	14661, 14673, 15094, 15123,
\AddToHookNext .. 7036, 7287,	\APLleftarrowbox 18361, 20233	15152, 17002, 17004, 17014,
7288, 7301, 7302	\APLrightarrowbox 18364, 20234	17016, 17086, 17088, 17094,
\AddToNoCaseChangeList 14536	\APLup .....	17096, 17122, 17124, 17158,
\adl@LT@array .....	\APLuparrowbox . 18366, 20235	17160, 17178, 17180, 17246,
7150	\appendix .....	17248, 17250
\advance .....	6994, 7006	\baa .....
455, 456,	\appendixautorefname .....	19589
958, 4889, 5078, 5091, 5387,	.. 2965, 2983, 3001, 3019,	\babygamma .... 16040, 19760
5715, 5761, 6196, 6197,	3037, 3055, 3073, 3105,	\back@none ... 2900, 2910, 2923
6200, 6201, 6535, 6543,	3106, 3131, 3149, 3167,	\back@page .....
6580, 7883, 7894, 7897,	3185, 3203, 3221, 3239,	2902, 2915
7911, 9416, 9500, 9538,	3257, 8615	\back@section 2901, 2907, 2913,
9578, 9893, 9903, 10746,	\apprge .....	2919
11952, 12239, 12491, 12563,	18025, 20784	\back@slide .....
12606, 12607, 13101, 13164,	\apprle .....	2903, 2912
13208, 13209, 13455, 13520,	18022, 20783	\backcite .....
13564, 13565, 14182, 14184,	\approx .....	7797
14185, 14191, 14200, 14300,	17898, 20036	\backcong .....
14510	\approxeq .....	17912, 20042
\AE .....	17903, 20038	\backneg .....
14885, 15344, 15859	\appto .....	18318, 20215
\ae .....	7109	\backprime .....
14951, 15411, 15861	\Aquarius .....	17340, 19838
\afterassignment ... 1530, 1536,	\aquarius .....	\backref .....
1542, 5971	18727, 20308	7828, 12267
\AfterBeginDocument . 342, 356	\arabic . 6626, 6859, 6861, 6863,	\backsim .....
\aftergroup .....	6866, 6867, 6868, 6870,	17876, 20026
7473	6871, 6872, 6873, 6875,	\backsimeq .....
\agemO .....	6876, 6877, 6878, 6879,	18223, 20174
17505, 20740	6880, 6883, 6893, 6894,	\barb .....
\ainferior .....	8096, 8105, 8150, 8165	15746, 20622
19871	\Aries .....	\bard .....
\alef .....	18699, 20870	15510, 20614
19587	\aries .....	\bari .....
\alefhamza .....	18697, 20298	16054, 19761
19579	\AssignSocketPlug .....	\barin .....
\aleflowerhamza .....	7109	18314, 20213
19583	\ast .....	\barj .....
\alefmadda .....	17795, 19994	16025, 20654
19577	\Asterisk .....	\barl .....
\alefmaqsura .....	18943, 20391	15768, 19746
19645	\AsteriskBold ... 18920, 20380	\barlambda .... 15775, 20627
\aleph .....	\AsteriskCenterOpen ... 18922,	\barleftharpoon .. 19102, 20457
17516, 19893	20381	\baro .... 16100, 16101, 18350,
\Alph .....	\AsteriskRoundedEnds . 18967,	18352, 20826
6629, 7002	20403	\barp .....
\alph .....	\asympt .....	16968, 19829
6630, 7246, 7275	17916, 20044	\barrightharpoon . 19108, 20459
\alpha .....	\AtBeginDocument . 343, 5333,	\barsci .....
19792	5337, 6387, 7312, 12268	16966, 19828
\amalg .....	\AtBeginShipout ... 6481, 6493,	\barscu .....
17779, 19987	9849	16971, 19830
\AMSautorefname .....	\AtBeginShipoutBox 6485, 6488,	\baru .....
8605	9850, 9851	16165, 19770
\anchor@spot . 5270, 5283, 5290,	\AtBeginShipoutFirst ... 6498,	\barwedge .....
5296, 5298, 8949, 9357,	10211, 11669, 11808	18205, 20166
9452, 10323, 10400, 10903,	\AtEndDocument .....	\baselineskip 2205, 9471, 10922,
11250, 11253, 11889, 12176	6396	10954, 11652
\and .....	\AtEndOfPackage .....	\bbl@cite@choice .....
6459	353	7703
\angle .....	\AtVeryEndDocument ... 6728,	\bbl@info .....
17808, 19999	13048	605
\AngleSign .....	\author .....	\bbslash .....
17816, 20761	6415, 6425	18392, 20244
\Anglesign .....	\autopageref .....	\BCPdata .....
17815, 20760	4373, 8495	473, 480, 486
\Ankh .....	\autoref . 630, 4372, 8514, 12263	\Beam .....
18642, 20282		18376, 20239
\APLbox .....		\because .....
18380, 20241		17861, 20020
\APLdown .....		\BeforeTeXIVht .....
18578, 20836		2687
		\begin .....
		590, 12289, 20938
		\belowpdfbookmark .... 14296
		\beta .....
		19793
		\betainferior .....
		19823
		\beth .....
		17518, 19894

`\between` . . . . . 18009, 20085  
`\bfseries` 564, 8373, 8393, 8410, 8542  
`\bgroup` . 650, 4856, 7459, 7472, 8862, 9867, 10323, 10943, 12795, 12887, 12908  
`\biblecite` . 7694, 7700, 7704, 7729, 7744, 7761, 7771  
`\Bicycle` . . . . . 19405, 20578  
`\bigcircle` . . . . . 20267  
`\bigdoublevee` . . . 19164, 20482  
`\bigdoublewedge` . 19162, 20481  
`\bigtriangledown` . 18576, 20257  
`\bigtriangleup` . . . 18561, 20252  
`\binampersand` . . 15192, 20597  
`\bindnasrepma` . . 17530, 20743  
`\Biohazard` . . . . 18640, 20281  
`\bitsetGetDec` . . . . . 5439, 5572, 5590, 5604, 5617, 5633, 5665, 5690  
`\bitsetGetHex` . . . . . 5440  
`\bitsetGetSetBitList` . . . . 5428  
`\bitsetIsEmpty` 5569, 5587, 5601, 5614, 5630, 5662, 5687  
`\bitsetReset` . . 5542, 5576, 5595, 5609, 5622, 5638, 5670  
`\bitsetSetValue` . . . . 5408, 5418  
`\blacksmiley` . . . . 18655, 20286  
`\Bleech` . . . . . 18564, 20834  
`\BOOKMARK` . . . . 14228, 14307  
`\booknumberline` . 14212, 14217  
`\bool` . . . . . 6909  
`\bot` . . . . . 18149, 20147  
`\Bowtie` . . . . . 18213, 20815  
`\bowtie` . . . . . 18211, 20169  
`\Box` . . . . . 18615, 20840  
`\box` . . . . . 6203, 6488, 8876, 9881, 11297, 11300  
`\boxast` . . . . . 19148, 20474  
`\boxbackslash` . . . 18358, 20232  
`\boxbar` . . . . . 18598, 20266  
`\boxbox` . . . . . 19152, 20476  
`\boxbslash` . . . . 19146, 20473  
`\boxcircle` . . . . 19150, 20475  
`\boxdot` . . . . . 18133, 20141  
`\boxempty` . . . . . 18613, 20272  
`\boxminus` . . . . . 18129, 20139  
`\boxplus` . . . . . 18127, 20138  
`\boxslash` . . . . . 19144, 20472  
`\boxtimes` . . . . . 18131, 20140  
`\brokenvert` . . . . 15273, 20603  
`\bullet` . . . . . 17799, 19833  
`\Bumpeq` . . . . . 17921, 20046  
`\bumpeq` . . . . . 17925, 20048

## C

`\C` . . . . . 15071, 16590, 16593  
`\c` . . . . . 790, 794, 800, 3067, 3075, 3076, 3077, 6438, 6445, 14647, 14659, 14671, 14887, 14953, 15083, 15109, 15138, 15159, 15346, 15413, 15544, 15546, 15592, 15594, 15602, 15604, 15622, 15624, 15658, 15660, 15674, 15676, 15682, 15684, 15939, 15941, 16650, 16653, 17018, 17020, 17066, 17068  
`\c@footnote` . . 7338, 7421, 7429, 7543  
`\c@Hy@AnnotLevel` . 9893, 9894, 9903  
`\c@Hy@tempcnt` . . . 4874, 4875, 4881, 4889  
`\c@note` . . . . . 7884  
`\c@overlay` . . . . . 7884  
`\c@page` . 6535, 6543, 6560, 6580, 6581, 6585, 6597, 6599, 6604, 6611, 6613, 6615, 6644, 7883, 7885, 7887, 7894, 7897, 7898, 7911, 7941, 7942  
`\c@secnumdepth` . 14573, 14588, 14603  
`\c@slide` . . . . . 7884  
`\c@tocdepth` . . . . 3416, 3421  
`\calc@bm@number` 14435, 14508  
`\calculate@pdfview` . 3890, 3893  
`\Cancer` . . . . . 18708, 20873  
`\cancer` . . . . . 18706, 20301  
`\Cap` . . . . . 18241, 20182  
`\cap` . . . . . 17837, 20010  
`\capdot` . . . . . 19188, 20492  
`\capitalacute` . . . . . 15162  
`\capitalbreve` . . . . . 15169  
`\capitalcaron` . . . . . 15168  
`\capitalcedilla` . . . . . 15159  
`\capitalcircumflex` . . . . . 15163  
`\capitaldieresis` . . . . . 15165  
`\capitaldotaccent` . . . . . 15171  
`\capitalgrave` . . . . . 15161  
`\capitalhungarumlaut` . . . 15166  
`\capitalmacron` . . . . . 15170  
`\capitalnewtie` . . . . . 15173  
`\capitalogonek` . . . . . 15160  
`\capitalring` . . . . . 15167  
`\capitaltie` . . . . . 15172  
`\capitaltilde` . . . . . 15164  
`\Capricorn` . . . . . 18726, 20879

`\capricornus` . . . . 18724, 20307  
`\caption` 7558, 7560, 7648, 7650  
`\catcode` . . . 172, 173, 184, 185, 186, 187, 206, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 913, 937, 944, 1521, 1650, 1651, 1784, 1785, 1841, 1842, 1843, 4625, 4627, 4739, 4740, 4741, 4742, 4743, 4744, 4745, 4748, 4750, 4753, 4761, 4771, 4862, 4863, 8630, 10984, 10985, 14325, 14327, 14396, 14399, 14423, 14426  
`\ccnc` . . . . . 19414, 20581  
`\ccnd` . . . . . 19416  
`\ccsa` . . . . . 19418, 20582  
`\cdot` . . . . . 20589  
`\cdots` . . . . . 18308, 20210  
`\CESign` . . . . . 19422, 20584  
`\CEsign` . . . . . 19424, 20933  
`\cf@encoding` . . . . . 1262  
`\chapterautorefname` 2966, 2984, 3002, 3020, 3038, 3056, 3074, 3103, 3132, 3150, 3168, 3186, 3204, 3222, 3240, 3258, 8616  
`\chapternumberline` 14214, 14219  
`\char` . . . . . 13082, 14329, 14366  
`\chardef` . . . . . 258, 301, 2464, 2465, 2466, 2467, 2745, 2747, 4548, 4580, 11245, 11248, 11254  
`\check@bm@number` . . . 14446, 14454, 14501, 14509  
`\CheckBox` . . . . . 6145  
`\CheckCommand` . . . . . 7418  
`\checkcommand` . . . . . 42, 7534, 7541, 7548, 7648, 7658, 7755, 7767, 8085, 8088, 8150, 8407  
`\CheckedBox` . . . . 18618, 20841  
`\Checkedbox` . . . . 18616, 20273  
`\checklatex` 4, 7533, 7647, 7754, 8084, 8406  
`\Checkmark` . . . . 18864, 20353  
`\checkmark` . . . . 18866, 20899  
`\CheckmarkBold` . 18867, 20354  
`\checkpackage` . . . . . 9, 8149

\chi	19814	\clickc	16217, 20705	\Cup	18244, 20183
\chiinferior	19827	\clickt	16159, 20689	\cup	17839, 20011
\ChoiceBox	5765	\clock	18324, 20218	\cupdot	18078, 20118
\ChoiceMenu	6142	\ClockLogo	18327, 20825	\cupplus	18080, 20119
\circ	17797, 19995	\Clocklogo	18326, 20824	\curlyc	15989, 20646
\circeq	17957, 20062	\close@pdfink	8943, 8968, 8977, 9009, 9046, 9079, 9334	\curlyeqpprec	18263, 20191
\circlearrowleft	19014, 20422	\closedniomega	16108, 20677	\curlyeqsucc	18267, 20193
\circlearrowright	19016, 20423	\closedrelepsilon	16021, 20653	\curlyesh	16156, 20688
\CircledA	18437, 20245	\closeout	14316	\curlyvee	18227, 20176
\circledast	18121, 20136	\Cloud	18604, 20268	\curlywedge	18230, 20177
\circledbslash	19129, 20908	\ClowerTips	20370	\curlyyogh	16201, 20701
\circledcirc	18117, 20135	\clubsuit	18743, 18745, 20886	\curlyz	16194, 20700
\circleddash	18125, 20137	\codeof	7819	\CurrentBorderColor	8933, 8935, 8962, 8964, 8972, 8974, 8979, 10390, 10424, 10426, 10442, 10444, 10463, 10465, 10527, 10529, 10546, 10548
\CircleShadow	18975, 20406	\Coffeecup	18623, 20275	\currentpdfbookmark	14288
\circplus	19171, 20485	\coloncolonequals	19208, 20500	\curu	16541
\citation	7789	\colonequals	17949, 20058	\curvearrowleft	17632, 19927
\citeauthoryear	7855, 7861	\color@begingroup	8862, 9867	\curvearrowright	17634, 19928
\citeN	7852	\color@endgroup	8869, 9874	\CutLeft	18830, 20893
\CJK@char	940	\columnwidth	7466	\CutLine	18555, 20830
\CJK@charx	941	\comma@entry	5756, 5763, 5765	\Cutline	18556, 20831
\CJK@CJK	929	\comma@parse	5755	\Cutright	18831, 20894
\CJK@eight	1140, 1143, 1257	\complement	17748, 19973	\CuttingLine	18552, 20250
\CJK@five	1140, 1142, 1257	\Conclusion	17699, 20752	\cyr	610, 3085, 3087, 3090, 3093, 3096, 3097, 3098, 3099, 3100, 3101, 3102, 3103, 3104, 3105, 3107, 3109, 3110, 3111, 3112, 3113, 3114, 3115, 3116, 3117, 3118, 3119, 3120, 3121, 3122
\CJK@four	1139, 1142, 1256	\cong	17893, 20034	\CYRA	16375, 16766, 16770
\CJK@hundred	1206	\Congruent	17975, 20778	\cyr	3087, 3094, 3096, 3101, 3104, 3109, 3110, 3116, 3120, 16442, 16768, 16772
\CJK@hundredmillion	1169	\contentsline	8032, 8037, 8086, 8088	\CYRABHCH	16730, 16735
\CJK@ignorespaces	939	\copy	5087, 5089, 5100, 5108, 8872, 9851, 9877	\cyrabhch	16732, 16738
\CJK@kern	927	\copyright	19736	\CYRABHCHDSC	16734
\CJK@minus	1131	\Corresponds	17964, 20776	\cyrabhchdsc	16737
\CJK@nine	1140, 1144, 1257	\corresponds	17963, 20775	\CYRABHDZE	16800
\CJK@null	1233	\count@	956, 957, 958, 959, 1531, 1889, 3432, 3433, 3438, 3439, 5386, 5387, 5402, 5698, 5713, 5715, 5739, 5761, 5777, 10742, 10743, 10744, 10745, 10746, 10749	\cyrabhdze	16802
\CJK@one	1139, 1141, 1256	\Cross	18883, 20362	\CYRABHHA	16685
\CJK@punctchar	942	\crossb	15743, 20620	\cyrabhha	16687
\CJK@punctcharx	943	\CrossClowerTips	18900	\CYRAE	16774
\CJK@seven	1140, 1143, 1257	\crossd	15507, 20612	\cyrae	16776
\CJK@six	1140, 1143, 1257	\CrossedBox	18622, 20843	\CYRB	16377
\CJK@ten	1141, 1142, 1143, 1144, 1221	\Crossedbox	18619, 20274	\cyrb	3101, 16444
\CJK@tenthousand	1154, 1175	\crossh	15556, 20616	\CYRBYUS	16565
\CJK@thousand	1191	\CrossMaltese	18889, 20365	\cyrbusus	16567
\CJK@three	1139, 1142, 1256	\crossnilambda	15774, 20626	\CYRC	16420
\CJK@two	1139, 1141, 1256	\CrossOpenShadow	18885, 20363		
\CJK@zero	1139, 1157, 1174, 1178, 1194, 1209, 1231	\CrossOutline	18887, 20364		
\CJKdigits	1016	\cs	5026, 5031, 5035, 5044, 5048, 5057		
\CJKkern	928	\Cube	587		
\CJKnumber	1015				
\cl@ckpt	6952				
\CleaningA	18439, 20828				
\CleaningF	18450, 20246				
\CleaningFF	18452, 20247				
\CleaningP	18474, 20248				
\CleaningPP	18476, 20249				
\clickb	16222, 20707				

\cyr	16487	\cyri	3087, 3090, 3094, 3100, 3105, 3107, 16458, 16461, 16538, 16806, 16810	\cyrn	3087, 3093, 3094, 3096, 3097, 3099, 3107, 3113, 3114, 16469
\CYRCH	16422, 16842	\CYRIE	16348	\CYRNDSC	16673
\cyrch	3093, 3094, 3102, 16489, 16844	\cyrie	16518	\cyrndsc	16675
\CYRCHLDSC	16758	\CYRII	16353, 16356	\CYRNG	16677
\cyrchldsc	16760	\cyrii	16523, 16526	\cyrng	16679
\CYRCHRDSC	16716	\CYRIOTBYUS	16569	\CYRNHK	16754
\cyrchrdsc	16718	\cyriotbyus	16571	\cyrnhk	16756
\CYRCHVCRS	16721	\CYRIOTE	16553	\CYRNJE	16362
\cyrchvcrs	16724	\cyriote	16555	\cyrnje	16532
\CYRD	16383	\CYRIOTLYUS	16561	\CYRO	16404, 16812
\cyrd	3090, 3093, 3104, 3109, 3110, 16450	\cyriotlyus	16563	\cyro	3090, 3093, 3096, 3097, 3107, 3116, 3117, 3119, 3120, 3121, 16471, 16814
\CYRDJE	16344	\CYRISHRT	16393	\CYROMEGA	16545
\cyrdje	16514	\cyrishrt	16460	\cyromega	16547
\CYRDZE	15053, 15070, 16337, 16350	\CYRISHRTDSC	16617	\CYROMEGARND	16599
\cyrdze	16520	\cyrishrtdsc	16619	\cyromegarnd	16601
\CYRDZHE	16373	\CYRIZH	16585, 16590	\CYROMEGATITLO	16603
\cyrdzhe	16543	\cyrizh	16587, 16593	\cyromegatitlo	16605
\CYRE	16339, 16342, 16385, 16778	\CYRJE	16358	\CYROT	16607
\cyre	3087, 3093, 3094, 3107, 3119, 3120, 3121, 16452, 16509, 16512, 16780	\cyrje	16528	\cyrot	16609
\cyreref	16828	\CYRK	16366, 16396	\CYROTLD	16816, 16821
\CYREREV	16436, 16826	\cyrk	3096, 3097, 3099, 3113, 3114, 3116, 3117, 3118, 16463, 16536	\cyrotld	16818, 16824
\cyrerev	16503	\CYRKBEAK	16669	\CYRP	16406
\CYRERY	16431, 16850	\cyrkbeak	16671	\cyrp	3090, 3093, 3094, 3098, 3099, 3105, 3107, 3111, 3112, 3113, 3114, 16473
\cyrery	3085, 3087, 16498, 16852	\CYRKDSC	16655	\CYRpalachka	16740
\CYRF	16416	\cyrkdsc	16657	\CYRPHK	16681
\cyrf	16483	\CYRKHCERS	16665	\cyrphk	16683
\CYRFITA	16581	\cyrkhcers	16667	\CYRPSI	16577
\cyrfita	16583	\CYRKHK	16746	\cyrpsi	16579
\CYRG	16346, 16381	\cyrkhk	16748	\CYRR	16408
\cyrg	3103, 16448, 16516	\CYRKOPPA	16611	\cyrr	3085, 3087, 3090, 3093, 3094, 3100, 3104, 3105, 3107, 3109, 3110, 3115, 3116, 3117, 3118, 3119, 3120, 3121, 16475
\CYRGDSC	16846	\cyrkoppa	16613	\CYRRTICK	16625
\cyrgdsc	16848	\CYRKSI	16573	\cyrrtick	16627
\CYRGHCERS	16633	\cyrkksi	16575	\CYRS	16410, 16690
\cyrghcers	16635	\CYRKVCERS	16660	\cyrs	3090, 3093, 3096, 3097, 3100, 3115, 3116, 3117, 3118, 3122, 16477, 16693
\CYRGHK	16638	\cyrkvcers	16663	\CYRSCHWA	16782, 16787
\cyrghk	16641	\CYRL	3101, 3103, 3105, 3107, 16465	\cyrschwa	16784, 16790
\CYRGUP	16629	\CYRLDSC	16750	\CYRSDSC	16689, 16690
\cyrgup	16631	\cyrlldsc	16752	\cyrstdsc	16692
\CYRH	16418	\CYRLJE	16360	\CYRSEMISFTSN	16621
\cyrh	16485	\cyrlje	16530	\cyrsemisftsn	16623
\CYRHDSC	16707	\CYRLYUS	16557	\CYRSFTSN	16434
\cyrhdsc	16709	\cyrljus	16559	\cyrstsn	16500, 16501, 20715
\CYRHHK	16854	\CYRM	16400		
\cyrhhk	16856	\cyrm	3090, 3094, 3120, 3121, 16467		
\CYRHRDSN	16429	\CYRMDSC	16762		
\cyrhrdsn	16495, 16496, 20714	\cyrmdsc	16764		
\CYRI	16368, 16391, 16394, 16804, 16808	\CYRN	16402		



\CYRSH ..... 16424  
\cyrsh ..... 16491  
\CYRSHCH ..... 16426  
\cyrshch ..... 16493  
\CYRSHHA ..... 16726  
\cyrshha ..... 16728  
\CYRT ..... 16412  
\cyrt ... 3090, 3093, 3099, 3101,  
3113, 3114, 3115, 3116,  
3117, 3118, 3119, 3120,  
3121, 16479  
\CYRTDSC ..... 16695  
\cyrtsc ..... 16697  
\CYRTETSE ..... 16711  
\cyrtetse ..... 16713  
\cyrthousands ..... 16615  
\CYRTSHE ..... 16364  
\cyrtshe ..... 16534  
\CYRU .. 16371, 16414, 16830,  
16834, 16838  
\cyru ... 3097, 3099, 3113, 3114,  
3117, 3121, 16481, 16832,  
16836, 16840  
\CYRUK ..... 16595  
\cyruk ..... 16597  
\CYRUSHRT ..... 16370  
\cyrushrt ..... 16540  
\CYRV ..... 16379  
\cyrv ..... 3085, 3087, 16446  
\CYRY ..... 16699  
\cyr ..... 16701  
\CYRYA ..... 16440  
\cyr ..... 16507  
\CYRYAT ..... 16549  
\cyr ..... 16551  
\CYRYHCRS ..... 16703  
\cyrhcrs ..... 16705  
\CYRYI ..... 16355  
\cyr ..... 16525  
\CYRYO ..... 16341  
\cyr ..... 16511  
\CYRYU ..... 16438  
\cyr ..... 16505  
\CYRZ ... 16389, 16650, 16796  
\cyrz .. 3104, 3109, 3110, 16456,  
16653, 16798  
\CYRZDSC ..... 16649  
\cyrzsc ..... 16652  
\CYRZH .. 16387, 16742, 16792  
\cyrzh 3087, 3107, 16454, 16744,  
16794  
\CYRZHDSC ..... 16644  
\cyrzhdsc ..... 16647

## D

\d ..... 791,  
795, 801, 3163, 3167, 3169,  
3170, 3171, 3172, 3173,  
3175, 14650, 14662, 14674,  
15077, 15124, 15153, 16998,  
17000, 17010, 17012, 17058,  
17060, 17082, 17084, 17090,  
17092, 17110, 17112, 17118,  
17120, 17154, 17156, 17166,  
17168, 17174, 17176, 17202,  
17204, 17222, 17224, 17242,  
17244, 17260, 17262, 17264,  
17266, 17272, 17274, 17276,  
17278, 17280, 17282, 17288,  
17290, 19453, 19458, 19463,  
19468, 19473, 19478, 19483,  
19488, 19493, 19498, 19503,  
19508, 19513, 19518, 19523,  
19528, 19533, 19538, 19543,  
19548, 19553, 19558, 19563,  
19568  
\dad ..... 19617  
\dag ..... 17318, 20726  
\dagger ..... 19832  
\dal ..... 19603  
\daleth ..... 17522, 19896  
\damma ..... 19657  
\danger ..... 18794, 20327  
\dasheddownarrow 17733, 19966  
\dashedleftarrow . 17727, 20753  
\dashedrightarrow 17732, 20754  
\dasheduparrow .. 17728, 19964  
\dashleftarrow ... 17725, 19963  
\dashrightarrow .. 17730, 19965  
\DashV ..... 19306, 20545  
\Dashv ..... 19299, 20543  
\dashV ..... 20541  
\dashv ..... 18138, 20143  
\DavidStar ..... 18891, 20366  
\davidstar ..... 18893, 20900  
\ddag ..... 17322, 20728  
\ddagger . 14747, 17319, 17321,  
20727  
\ddots ..... 18312, 20212  
\DeclareFontEncoding .. 14638,  
15040  
\DeclareFontFamily ... 861, 871  
\DeclareFontShape ... 862, 872  
\DeclareFontSubstitution .. 863,  
873  
\DeclareLocalOptions ... 4185  
\DeclareRobustCommand ....  
.. 4853, 4940, 4942, 4944,

4953, 6139, 6142, 6145,  
6148, 6151, 6154, 6157,  
6298, 6302, 6371, 6375,  
8495, 14526  
\DeclareTextAccent .... 14639,  
14640, 14641, 14642, 14643,  
14644, 14645, 14646, 14647,  
14648, 14649, 14650  
\DeclareVoidOption . 2684, 2698,  
2709, 2725, 2731, 2736,  
2750, 2760, 2765, 2771,  
2777, 2806, 2823, 2830,  
2836, 2841, 2846, 2861,  
3343, 3351, 3359, 3369  
\DefaultHeightofCheckBox 6209,  
12735, 13339, 13716  
\DefaultHeightofChoiceMenu ..  
6211, 12553, 13154, 13510  
\DefaultHeightofReset ... 6207,  
12705, 13311, 13684  
\DefaultHeightofSubmit . 6205,  
12685, 13288, 13661  
\DefaultHeightofText .... 6213,  
12525, 13128, 13477  
\DefaultHeightofTextMultiline .  
6214, 12523, 13126, 13475  
\DefaultOptionsofCheckBox ...  
6219, 12737, 13341, 13718  
\DefaultOptionsofComboBox ...  
..... 6222  
\DefaultOptionsofListBox 6221  
\DefaultOptionsofPopdownBox  
..... 6223  
\DefaultOptionsofPushButton .  
6218, 12656, 13260, 13629  
\DefaultOptionsofRadio .. 6224  
\DefaultOptionsofReset .. 6217,  
12708, 13314, 13687  
\DefaultOptionsofSubmit 6216,  
12688, 13291, 13664  
\DefaultOptionsofText .. 6220,  
12530, 13133, 13482  
\DefaultWidthofCheckBox 6210,  
12734, 13338, 13715  
\DefaultWidthofChoiceMenu ..  
6212, 12552, 13153, 13509  
\DefaultWidthofReset ... 6208,  
12704, 13310, 13683  
\DefaultWidthofSubmit .. 6206,  
12684, 13287, 13660  
\DefaultWidthofText .... 6215,  
12520, 13123, 13472  
\define@key .. 2362, 2364, 2408,  
2423, 2426, 2429, 2437,





$\backslash$ ecircumflex 19442, 19472, 19473,  
 19474, 19475, 19476  
 $\backslash$ Ecommerce . . . . 17513, 20742  
 $\backslash$ EdefEscapeName . . 3823, 3873,  
 9313, 10053, 10592, 11466,  
 12618, 12621, 13220, 13223,  
 13576, 13582  
 $\backslash$ EdefEscapeString . . . . 762, 772  
 $\backslash$ EdefUnescapeName . . . . 3824  
 $\backslash$ EdefUnescapeString . 757, 7951  
 $\backslash$ egroup . 651, 8869, 9874, 10323,  
 10979, 12804, 12896, 12921  
 $\backslash$ EightAsterisk . . . 18973, 20405  
 $\backslash$ EightFlowerPetal 18951, 20395  
 $\backslash$ EightFlowerPetalRemoved . .  
 . . . . 18970, 20404  
 $\backslash$ eighthnote . . . . 18758, 20887  
 $\backslash$ eightinferior . . . . . 19864  
 $\backslash$ EightStar . . . . . 18930, 20385  
 $\backslash$ EightStarBold . . 18932, 20386  
 $\backslash$ EightStarConvex 18926, 20383  
 $\backslash$ EightStarTaper . 18924, 20382  
 $\backslash$ eightsuperior . . . . . 19848  
 $\backslash$ einferior . . . . . 19872  
 $\backslash$ ejective . . . . . 16205, 20702  
 $\backslash$ ell . . . . . 17484, 19887  
 $\backslash$ em . . . . . 570  
 $\backslash$ emgma . . . . . 16087, 20673  
 $\backslash$ emph . . . . . 549  
 $\backslash$ empty . . . . . 939, 3420  
 $\backslash$ emptyset . . . . . 17756, 19977  
 $\backslash$ enc@html . . . . . 5830, 5833  
 $\backslash$ enc@update . . . . . 509  
 $\backslash$ END . . 1287, 1288, 1314, 1315,  
 1330, 1331, 1348, 1349,  
 1366, 1367, 1723, 1729,  
 1734, 1836, 1838, 9196,  
 9209, 9213, 9220, 9233,  
 9237  
 $\backslash$ end . . . . . 591, 20939  
 $\backslash$ endeqnarray . . 7205, 7224, 7232  
 $\backslash$ endequation . . . . . 7180, 7192  
 $\backslash$ endForm . . . . . 5820  
 $\backslash$ endinput 64, 2695, 2790, 4369,  
 4500, 8367, 10912, 12287,  
 14516  
 $\backslash$ endlinechar . . . 809, 830, 4738  
 $\backslash$ endNoHyper . . . . . 6332  
 $\backslash$ EndPreamble . . . . . 12290  
 $\backslash$ endsubeqnarray . . . 7236, 7243  
 $\backslash$ eng . . . . . 15635, 20618  
 $\backslash$ engma . . . . . 15636, 20619  
 $\backslash$ ensuremath . . . . . 636  
 $\backslash$ Envelope . . . . . 18846, 20345

$\backslash$ enya . . . . . 16091, 20675  
 $\backslash$ epsdice . . . . . 588, 20592  
 $\backslash$ epsi . . . . . 16010, 20651  
 $\backslash$ epsilon . . . . . 19796  
 $\backslash$ eqcirc . . . . . 17953, 20060  
 $\backslash$ eqcolon . . . . . 17871, 20024  
 $\backslash$ eqdot . . . . . 19204, 20498  
 $\backslash$ eqnarray . . . . 7204, 7207, 7229  
 $\backslash$ eqsim . . . . . 17885, 20030  
 $\backslash$ eqslantgtr . . . . . 19243, 20516  
 $\backslash$ eqslantless . . . . . 19241, 20515  
 $\backslash$ equal . . . . . 7816  
 $\backslash$ equalscolon . . . . 17951, 20059  
 $\backslash$ equalsinferior . . . . . 19868  
 $\backslash$ equalssuperior . . . . . 19852  
 $\backslash$ equation . . . . . 7179, 7183  
 $\backslash$ equationautorefname . . . . .  
 . . 2959, 2977, 2995, 3013,  
 3031, 3049, 3067, 3085,  
 3086, 3125, 3143, 3161,  
 3179, 3197, 3215, 3233,  
 3251, 8605, 8609  
 $\backslash$ equiv . . . . . 17973, 20069  
 $\backslash$ Equivalence . . . . . 17705  
 $\backslash$ er . . . . . 16006, 20650  
 $\backslash$ errmessage . . . . . 3297  
 $\backslash$ escapechar . . . 493, 4323, 7250,  
 14255, 14433, 14484  
 $\backslash$ esh . . . . . 16146, 19769  
 $\backslash$ EstimatedSign . . 17512, 20741  
 $\backslash$ eta . . . . . 19798  
 $\backslash$ eTeX . . . . . 535, 12295  
 $\backslash$ eth . . . . . 15436, 20611  
 $\backslash$ Eur . . . . . 17470, 20738  
 $\backslash$ EURcr . . . . . 17467, 20735  
 $\backslash$ EurCr . . . . . 17466, 20734  
 $\backslash$ EURdig . . . . . 17463, 20731  
 $\backslash$ EurDig . . . . . 17462, 20730  
 $\backslash$ EURhiv . . . . . 17465, 20733  
 $\backslash$ EurHv . . . . . 17464, 20732  
 $\backslash$ EURtm . . . . . 17469, 20737  
 $\backslash$ EurTm . . . . . 17468, 20736  
 $\backslash$ evensidemargin . . . . . 7971  
 $\backslash$ ExecuteOptions . . . 4172, 4173,  
 4177  
 $\backslash$ exists . . . . . 17752, 19975  
 $\backslash$ exp . . . . . 479, 485, 2303  
 $\backslash$ ExplSyntaxOff 490, 2315, 5061,  
 6925  
 $\backslash$ ExplSyntaxOn . 232, 474, 2297,  
 5025, 6904  
 $\backslash$ extravietnam . . . . . 3352  
 $\backslash$ extravietnamese . . . . . 3344  
 $\backslash$ EyesDollar . . . . . 15187, 20596

## F

$\backslash$ fa . . . . . 19629  
 $\backslash$ fallingdotseq . . . . . 20054  
 $\backslash$ fallingdotseq . . . . . 17940  
 $\backslash$ FancyVerbLineautorefname . .  
 . . 2972, 2990, 3008, 3026,  
 3044, 3062, 3080, 3115,  
 3118, 3138, 3156, 3174,  
 3192, 3210, 3228, 3246,  
 3264, 8622  
 $\backslash$ farsikaf . . . . . 19671  
 $\backslash$ farsiya . . . . . 19675  
 $\backslash$ fatha . . . . . 19655  
 $\backslash$ fatsemi . . . . . 19169, 20484  
 $\backslash$ Fax . . . . . 19400, 20576  
 $\backslash$ fax . . . . . 17524, 19897  
 $\backslash$ Faxmachine . . . . 19402, 20932  
 $\backslash$ fbox . . . . . 13086, 13089  
 $\backslash$ fcdice . . . . . 589, 20593  
 $\backslash$ Female . . . . . 18673, 20860  
 $\backslash$ female . . . 18667, 18670, 20857  
 $\backslash$ FemaleFemale . . 18796, 20328  
 $\backslash$ FemaleMale . . . 18800, 20330  
 $\backslash$ Field@addtoks 5894, 5926, 5929,  
 6101, 6124  
 $\backslash$ Field@boolkey 5381, 5469, 5888,  
 5919, 5922  
 $\backslash$ Field@toks . . . . . 5892, 5893,  
 5895, 12796, 12813, 12824,  
 12835, 12845, 12862, 12880,  
 12888, 12893, 12909, 12918  
 $\backslash$ Field@Width . . . . 5805, 5952  
 $\backslash$ figureautorefname . 2962, 2980,  
 2998, 3016, 3034, 3052,  
 3070, 3100, 3128, 3146,  
 3164, 3182, 3200, 3218,  
 3236, 3254, 8612  
 $\backslash$ filename@area . . . . . 5211  
 $\backslash$ filename@base . . . . . 5211  
 $\backslash$ filename@ext 5208, 5209, 5211,  
 5212  
 $\backslash$ filename@parse . . . . . 5207  
 $\backslash$ find@pdfink . . 8915, 8966, 8976  
 $\backslash$ Finv . . . . . 17514, 19892  
 $\backslash$ Fire . . . . . 19403, 20577  
 $\backslash$ fivedots . . . . . 19338, 20558  
 $\backslash$ FiveFlowerOpen . 18949, 20394  
 $\backslash$ FiveFlowerPetal . 18947, 20393  
 $\backslash$ fiveinferior . . . . . 19861  
 $\backslash$ FiveStar . . . . . 18606, 20269  
 $\backslash$ FiveStarCenterOpen . . 18908,  
 20374  
 $\backslash$ FiveStarConvex . 18916, 20378  
 $\backslash$ FiveStarOpen . . 18608, 20270

<code>\FiveStarOpenCircled</code> .. 18906, 20373	<code>\Fld@cbsymbol</code> 5816, 6015, 13945	13575, 13583, 13587, 13592, 13603, 13608
<code>\FiveStarOpenDotted</code> .. 18910, 20375	<code>\Fld@charsize</code> 5806, 5807, 5964, 12605, 13207, 13563, 13947, 14012, 14041, 14081, 14132	<code>\Fld@loc</code> ..... 5916
<code>\FiveStarOutline</code> . 18912, 20376	<code>\Fld@checkedfalse</code> ..... 5802	<code>\Fld@mappingname</code> . 5946, 5948, 13844, 13846, 13917, 13919
<code>\FiveStarOutlineHeavy</code> . 18914, 20377	<code>\Fld@checkequals</code> .. 5906, 12558, 12620, 12865, 12875, 13159, 13222, 13515, 13581	<code>\Fld@maxlen</code> . 5808, 5955, 14086
<code>\FiveStarShadow</code> . 18918, 20379	<code>\Fld@choices</code> ..... 5695, 5703, 5705, 5709, 5718, 5726, 5731, 5779, 5781, 5789, 5790, 14014	<code>\Fld@menulength</code> .. 5804, 5958, 12555, 12559, 12605, 12856, 12857, 12860, 13156, 13160, 13207, 13512, 13516, 13563
<code>\fivesuperior</code> ..... 19845	<code>\Fld@color</code> .. 5810, 6057, 13948, 14013, 14042, 14082	<code>\Fld@name</code> 5940, 12517, 12549, 12653, 12731, 12793, 12798, 12809, 12810, 12821, 12822, 12831, 12832, 12840, 12861, 12878, 12886, 12891, 12906, 12915, 13120, 13150, 13257, 13335, 13469, 13506, 13626, 13712, 13839, 13912
<code>\Flag</code> ..... 18774, 20318	<code>\Fld@default</code> . 5720, 5723, 5725, 6006, 12518, 12534, 12550, 12590, 12618, 12732, 12794, 12812, 12826, 12834, 12841, 12867, 12877, 12907, 12917, 13121, 13138, 13151, 13192, 13220, 13336, 13470, 13487, 13507, 13548, 13576, 13713, 14043, 14047, 14048, 14083	<code>\Fld@norotatefalse</code> ..... 5504
<code>\flap</code> ..... 16134, 20686	<code>\Fld@DingDef</code> . 6015, 6018, 6020	<code>\Fld@norotatetrue</code> ..... 5503
<code>\flapr</code> ..... 16133, 20685	<code>\Fld@disabledfalse</code> ..... 5803	<code>\Fld@noviewfalse</code> ..... 5507
<code>\flat</code> ..... 18763, 20313	<code>\Fld@export</code> . 5533, 5536, 5543, 5835	<code>\Fld@noviewtrue</code> ..... 5508
<code>\Fld@@additionalactions</code> 13860, 13903, 13907	<code>\Fld@findlength</code> .. 12844, 12855	<code>\Fld@nozoomfalse</code> ..... 5500
<code>\Fld@@DingDef</code> 6022, 6025, 6044	<code>\Fld@flags</code> 5602, 5604, 5615, 5617, 5631, 5633, 5663, 5665, 5688, 5690, 13928, 13961, 13989, 14023, 14058, 14094, 14130	<code>\Fld@nozoomtrue</code> ..... 5499
<code>\Fld@additionalactions</code> . 13860, 13951, 13980, 14015, 14050, 14085, 14120, 14152	<code>\Fld@format@code</code> . 6060, 13865, 13867	<code>\Fld@onblur@code</code> . 6065, 13881, 13883
<code>\Fld@align</code> .. 5809, 6009, 13929, 13990, 14059	<code>\Fld@getmethodfalse</code> .... 5855	<code>\Fld@onclick@code</code> . 6059, 6135, 13979
<code>\Fld@altname</code> 5942, 5944, 13840, 13842, 13913, 13915	<code>\Fld@getmethodtrue</code> .... 5857	<code>\Fld@onenter@code</code> 6068, 13893, 13895
<code>\Fld@annotflags</code> ..... 5588, 5590, 13924, 13957, 13985, 14019, 14054, 14090, 14126	<code>\Fld@height</code> 5961, 12521, 12539, 12553, 12608, 12628, 12645, 12685, 12705, 12735, 12745, 13124, 13144, 13154, 13210, 13238, 13252, 13288, 13311, 13339, 13351, 13473, 13489, 13510, 13566, 13578, 13612, 13661, 13684, 13716, 13724	<code>\Fld@onexit@code</code> . 6069, 13897, 13899
<code>\Fld@annotnames</code> 13911, 13926, 13959, 13987, 14021, 14056, 14092, 14128	<code>\Fld@hiddenfalse</code> ..... 5491	<code>\Fld@onfocus@code</code> 6064, 13877, 13879
<code>\Fld@bcolor</code> . 5811, 6051, 13941, 13943, 14006, 14008, 14035, 14037, 14063, 14075, 14077	<code>\Fld@hiddenttrue</code> ..... 5492	<code>\Fld@onmousedown@code</code> 6066, 13885, 13887
<code>\fld@bcolor</code> ..... 13994	<code>\Fld@invisiblefalse</code> ..... 5487	<code>\Fld@onmouseup@code</code> .. 6067, 13889, 13891
<code>\Fld@bordercolor</code> ..... 5812, 6054, 13937, 13939, 13965, 13973, 13975, 13993, 14002, 14004, 14031, 14033, 14062, 14071, 14073, 14098, 14106, 14108, 14134, 14142, 14144	<code>\Fld@invisibletrue</code> ..... 5488	<code>\Fld@pageobjref</code> . 12496, 13094, 13105, 13460, 13795, 13925, 13958, 13986, 14020, 14055, 14091, 14127
<code>\Fld@bordersep</code> .... 5813, 6003	<code>\Fld@keystroke@code</code> .... 6063, 13861, 13863	<code>\Fld@printfalse</code> ..... 5496
<code>\Fld@borderstyle</code> ..... 5815, 5987, 5988, 5989, 5999, 13930, 13963, 13991, 14025, 14060, 14096, 14150	<code>\Fld@listcount</code> ... 12617, 12622, 12625, 12630, 12635, 12640, 13219, 13224, 13239, 13245,	<code>\Fld@printtrue</code> ..... 5495
<code>\Fld@borderwidth</code> ..... 5814, 5967, 6193, 6196, 6197, 6200, 6201, 12606, 12607, 13208, 13209, 13564, 13565, 13930, 13963, 13991, 14025, 14060, 14096, 14150		<code>\Fld@radiosymbol</code> .. 5817, 6018, 14039
<code>\Fld@calculate@code</code> 6062, 12505, 13009, 13463, 13873, 13875		<code>\Fld@rotation</code> ..... 5818, 6048, 13933, 13935, 13964, 13969, 13971, 13992, 13998, 14000, 14027, 14029, 14061, 14067, 14069, 14097, 14102, 14104, 14133, 14138, 14140
<code>\Fld@calculate@sortkey</code> .. 6094, 6096, 13018		<code>\Fld@submitflags</code> ... 5570, 5572, 14118

\Fld@temp .. 6021, 6023, 6026,  
           6027, 6036, 6037  
 \Fld@validate@code 6061, 13869,  
           13871  
 \Fld@value .. 5721, 5728, 5730,  
           6012, 12519, 12534, 12551,  
           12589, 12590, 13122, 13138,  
           13152, 13191, 13192, 13471,  
           13487, 13508, 13547, 13548,  
           14084  
 \Fld@width 5951, 12520, 12533,  
           12539, 12552, 12588, 12599,  
           12601, 12628, 12645, 12668,  
           12684, 12692, 12704, 12718,  
           12734, 12740, 12745, 13123,  
           13137, 13144, 13153, 13190,  
           13201, 13203, 13238, 13252,  
           13273, 13287, 13295, 13310,  
           13324, 13338, 13345, 13351,  
           13472, 13486, 13489, 13509,  
           13546, 13557, 13559, 13578,  
           13612, 13643, 13660, 13668,  
           13683, 13697, 13715, 13722,  
           13724  
 \float@caption ..... 7568, 7640  
 \float@makebox .... 7642, 7643  
 \floatingpenalty ..... 7465  
 \Florin ..... 15758, 20623  
 \flq ..... 617  
 \flqq ..... 615  
 \fmtname ..... 7  
 \fmtversion 7, 2223, 6367, 6381,  
           7104  
 \font ..... 5065  
 \fontencoding ... 501, 505, 542,  
           13078  
 \fontfamily ..... 543, 13077  
 \fontseries ..... 544, 13079  
 \fontshape .... 545, 4688, 13080  
 \fontsize ..... 546  
 \Football .. 18815, 18817, 20892  
 \footins ..... 7459  
 \footnoteautorefname .....  
           .. 2960, 2978, 2996, 3014,  
           3032, 3050, 3068, 3089,  
           3092, 3126, 3144, 3162,  
           3180, 3198, 3216, 3234,  
           3252, 8606, 8610  
 \footnotesep ..... 7463, 7471  
 \footnotesize ..... 575, 7461  
 \footnotetext ..... 7421  
 \footref ..... 7490, 7491  
 \forall ..... 17746, 19972  
 \Force ..... 17577, 20748

\forcecjktoken ..... 446  
 \foreignlanguage ..... 602  
 \Form ..... 5819  
 \Form@action 5829, 12785, 14116  
 \Form@boolkey ..... 5823  
 \Form@htmlfalse ... 5822, 5841  
 \Form@htmltrue ..... 5834  
 \Form@method 5853, 5861, 12785  
 \Forward ..... 18565, 20253  
 \ForwardToIndex . 18383, 20242  
 \FourAsterisk ... 18894, 20367  
 \fourinferior ..... 19860  
 \FourStar ..... 18902, 20371  
 \FourStarOpen .. 18904, 20372  
 \foursuperior ..... 19844  
 \fourth ..... 17360, 19840  
 \frown ..... 18336, 20223  
 \frownie ..... 18649, 20284  
 \Frowny ..... 18651, 20852  
 \frq ..... 618  
 \frqq ..... 616  
 \fullnote ..... 19377, 20566  
 \futurelet ..... 671, 1281

## G

\G . 15068, 15112, 15141, 15871,  
           15873, 15875, 15877, 15887,  
           15889, 15890, 15901, 15903,  
           15913, 15915, 15917, 15919  
 \g ..... 2300, 2304, 2312  
 \g@addto@macro ... 6502, 6674,  
           7703, 7923, 7926, 7929,  
           7981, 9241, 10205, 10734,  
           11024, 11614, 11723, 11793,  
           12102, 12301  
 \G@refundefinedtrue 4993, 8372,  
           8392, 8409, 8541  
 \gaf ..... 19673  
 \Game ..... 17526, 19898  
 \Gamma ..... 19781  
 \gamma ..... 19794  
 \gammainferior ..... 19824  
 \Ganz ..... 19379, 20929  
 \GaPa ..... 19365, 20560  
 \Gauge ..... 6151  
 \ge ..... 17985, 20074  
 \Gemini ..... 18705, 20872  
 \gemini ..... 18703, 20300  
 \GenericError ..... 659, 3700  
 \GenericInfo ..... 661, 3698  
 \GenericWarning 252, 660, 3699  
 \Gentsroom ..... 19407, 20579  
 \geq ..... 17985, 20073  
 \geqclosed ..... 18195, 20813

\geqq ..... 17993, 20077  
 \geqslant ..... 19214, 20503  
 \GetDocumentProperties . 2297  
 \getrefbykeydefault . 7102, 7103  
 \gexmode . 10764, 10765, 10867  
 \gg ..... 18005, 20083  
 \ggg ..... 18255, 20188  
 \ghayn ..... 19625  
 \gimel ..... 17520, 19895  
 \Gin@setfile ..... 8183, 8184  
 \glossary ..... 624  
 \glotstop ..... 16203, 19778  
 \glottal ..... 16206, 20703  
 \glq ..... 613  
 \glqq ..... 611  
 \gnapprox ..... 19233, 20512  
 \gneq ..... 19229, 20510  
 \gneqq ..... 17999, 20080  
 \gnsim ..... 18287, 20202  
 \grq ..... 614  
 \grqq ..... 612  
 \gtrapprox ..... 19222, 20507  
 \gtrclosed ..... 18188, 20810  
 \gtrdot ..... 18251, 20186  
 \gtreqless ..... 18261, 20190  
 \gtreqqless ..... 19239, 20514  
 \gtrless ..... 18032, 20095  
 \gtrsim ..... 18023, 20091  
 \guillemetleft .... 14831, 15014,  
           15286, 19429  
 \guillemetright .. 14863, 15015,  
           15322, 19430  
 \guillemotleft ... 14830, 15285  
 \guillemotright .. 14862, 15321  
 \guilsinglleft .... 14761, 15016,  
           17343, 19431  
 \guilsinglright ... 14763, 15017,  
           17345, 19432

## H

\H . 15063, 15115, 15144, 15166,  
           15646, 15648, 15710, 15712,  
           16838, 16840  
 \h .. 3165, 19455, 19460, 19465,  
           19470, 19475, 19480, 19485,  
           19490, 19495, 19500, 19505,  
           19510, 19515, 19520, 19525,  
           19530, 19535, 19540, 19545,  
           19550, 19555, 19560, 19565,  
           19570  
 \H@@footnotemark .....  
           .. 7324, 7341, 7405, 7495,  
           7502, 7514, 7525

<code>\H@@footnotetext</code> . . . . .	9579, 9850, 9867, 10943,	<code>\hookb</code> . . . . .	15981, 20643
.. 7323, 7333, 7365, 7404,	11291, 11305, 11943, 11953,	<code>\hookd</code> . . . . .	15995, 20648
7443, 7503, 7517, 7525	12225, 12240, 12933, 13488,	<code>\hookg</code> . . . . .	16028, 20655
<code>\H@mpfootnotetext</code> 7331, 7343,	13577, 13611, 13641, 13669,	<code>\hookh</code> . . . . .	16048, 20660
7345, 7406	13698, 13723, 14528	<code>\hookheng</code> . . . . .	16052, 20662
<code>\H@definecounter</code> .. 8093, 8095	<code>\hc@currentHref</code> . . . . .	<code>\hookleftarrow</code> . . .	17615, 19920
<code>\H@endeqnarray</code> . . . 7205, 7225	<code>\HCode</code> .. 12785, 12787, 12798,	<code>\hookrepsilon</code> . . .	16017, 20652
<code>\H@endequation</code> . . . 7180, 7198	12807, 12819, 12827, 12829,	<code>\hookrightarrow</code> . .	17617, 19921
<code>\H@endsubeqnarray</code> . 7236, 7244	12860, 12866, 12871, 12876,	<code>\hphantom</code> . . . . .	585
<code>\H@eqnarray</code> . . . . . 7204, 7210	12890, 12895, 12899, 12902,	<code>\href</code> . . . . .	625, 4853, 6358
<code>\H@equation</code> . . . . . 7179, 7185	12911	<code>\href@</code> . . . . .	4856, 4859, 4864
<code>\H@item</code> 6881, 6887, 7711, 7736	<code>\hdotfor</code> . . . . . 17325, 19834	<code>\href@split</code> . . . . .	4864, 4865
<code>\H@newctr</code> . . . . . 8101, 8103	<code>\headerps@out</code> . . . . 6784, 11604,	<code>\hsize</code> . . . . .	7466
<code>\H@old@part</code> . . . . 14583, 14591	11615, 11710, 11724, 11785,	<code>\hskip</code> .. 1540, 1627, 2283, 2284,	4850, 6193, 12933
<code>\H@old@schapter</code> . 14553, 14562	11794, 11807, 11821, 11868,	<code>\hslash</code> . . . . .	17480, 19885
<code>\H@old@ssect</code> 14601, 14612, 14621	11986, 12103, 12302	<code>\hspace</code> . . . . .	621, 7822, 7823
<code>\H@old@spart</code> . . . 14593, 14599	<code>\Heart</code> . . . . . 18738, 20883	<code>\hss</code> . . . 5082, 5094, 7975, 14533	
<code>\H@old@ssect</code> . . . 14539, 14544	<code>\hebrew</code> . . . . . 18736, 18739, 20884	<code>\ht</code> 5086, 5090, 5099, 6195, 6198,	9415, 9490, 9499, 9506,
<code>\H@refstepcounter</code> .. 6898, 6908,	<code>\hebalef</code> . . . . . 16862	9527, 9537, 9544, 9567,	9577, 9584, 11287, 11951,
7155, 7184, 7280, 7563	<code>\hebayin</code> . . . . . 16898	9577, 9584, 11287, 11951,	12238, 13448
<code>\H@subeqnarray</code> . . . 7235, 7239	<code>\hebbet</code> . . . . . 16864	<code>\htrtaild</code> . . . . .	19831
<code>\ha</code> . . . . . 19641	<code>\hebdalef</code> . . . . . 16858, 16868	<code>\Huge</code> . . . . .	572
<code>\Haa</code> . . . . . 19599	<code>\hebfinalkaf</code> . . . . . 16882	<code>\huge</code> . . . . .	576
<code>\Halb</code> . . . . . 19382, 20930	<code>\hebfinalmem</code> . . . . . 16888	<code>\Hurl</code> . . . . . 4939, 4941, 4943	
<code>\halfnote</code> . . . . . 19380, 20567	<code>\hebfinalnun</code> . . . . . 16892	<code>\hv</code> . . . . . 15761, 20624	
<code>\halign</code> . . . . . 633	<code>\hebfinalpe</code> . . . . . 16900	<code>\hv@pdf@char</code> . . . 14324, 14389,	14390, 14391, 14392
<code>\hamza</code> . . . . . 19575	<code>\hebfinaltsadi</code> . . . . . 16904	<code>\hvtex@buffer</code> . . . 10634, 10638,	10646, 10649, 10658, 10662,
<code>\HandCuffLeft</code> . . . 18625, 20276	<code>\hebgimel</code> . . . . . 16866	10678	
<code>\HandCuffRight</code> . . 18627, 20277	<code>\hebhe</code> . . . . . 16870	<code>\hvtex@gettoken</code> . 10633, 10647,	10651, 10660, 10664
<code>\HandLeft</code> . . . . . 18629, 20278	<code>\hebbet</code> . . . . . 16876	<code>\hvtex@gettoken@</code> 10634, 10636	
<code>\HandRight</code> . . . . 18632, 20279	<code>\hebkaf</code> . . . . . 16884	<code>\hvtex@par@dimension</code> . 10629,	10670
<code>\HaPa</code> . . . . . 19367, 20561	<code>\heblamed</code> . . . . . 16886	<code>\hvtex@par@direction</code> .. 10630,	10673
<code>\HAR@checkcitations</code> . . . . 7832	<code>\hebmam</code> . . . . . 16890	<code>\hvtex@par@duration</code> . . . 10631,	10665
<code>\HAR@citetoaux</code> . . . . . 7788	<code>\hebnun</code> . . . . . 16894	<code>\hvtex@par@motion</code> 10632, 10667	
<code>\HAR@tempa</code> 7833, 7834, 7835,	<code>\hebpe</code> . . . . . 16902	<code>\hvtex@param@dimension</code> 10642,	10671, 10689, 10692
7836, 7837, 7838	<code>\hebqof</code> . . . . . 16908	<code>\hvtex@param@direction</code> 10643,	10674, 10700, 10708
<code>\hardsign</code> . . . . . 16496, 20714	<code>\hebreash</code> . . . . . 16910	<code>\hvtex@param@duration</code> 10644,	10666, 10713, 10715
<code>\harvardcite</code> . . . . . 7782, 7819	<code>\hebsamekh</code> . . . . . 16896	<code>\hvtex@param@motion</code> . 10645,	10668, 10689, 10696
<code>\harvarditem</code> . . . . . 7807	<code>\hebshin</code> .. 16912, 16913, 20716	<code>\hvtex@parse@trans</code> 10618, 10640	
<code>\hateq</code> . . . . . 17961, 20064	<code>\hebsin</code> . . . . . 16913, 20716	<code>\hvtex@produce@trans</code> .. 10679,	10685
<code>\hausab</code> . . . . . 15747, 19743	<code>\hebtav</code> . . . . . 16915		
<code>\hausab</code> . . . . . 15982, 20644	<code>\hebtet</code> . . . . . 16878		
<code>\hausad</code> . . . . . 15751, 19744	<code>\hebtsadi</code> . . . . . 16906		
<code>\hausad</code> . . . . . 15996, 20649	<code>\hebvav</code> . . . . . 16872		
<code>\hausak</code> . . . . . 15762, 19745	<code>\hebyod</code> . . . . . 16880		
<code>\hausak</code> . . . . . 15766, 20625	<code>\hebzayin</code> . . . . . 16874		
<code>\hb@xt@</code> . . . . . 5080, 5093	<code>\Hermaphrodite</code> .. 18802, 20331		
<code>\hbar</code> . . . . . 15553, 19742	<code>\hexagon</code> . . . . . 18378, 20240		
<code>\hbox</code> .. 1529, 1535, 1541, 2238,	<code>\hexstar</code> . . . . . 18813, 20333		
3431, 3437, 5081, 5095,	<code>\hfill</code> . . . 6187, 6188, 6189, 6190,		
5246, 5248, 5952, 6187,	7722, 7756		
6188, 6189, 6190, 7966,	<code>\Hfootnoteautorefname</code> .. 8606		
8862, 9407, 9417, 9487,	<code>\hinferior</code> . . . . . 19876		
9501, 9524, 9539, 9564,	<code>\hoffset</code> . . . . . 7967		

\hvtex@token . . . 10637, 10648, 10654, 10661, 10666, 10669, 10672, 10674	\Hy@appendixstring 6990, 7012	\Hy@CatcodeWrapper . . . 4620, 4677, 4726
\hvtex@trans@code 10622, 10623, 10624, 10625, 10626, 10627, 10628, 10641, 10687, 10688, 10690, 10692, 10694, 10696, 10698, 10700, 10702, 10703, 10704, 10705, 10706, 10708	\Hy@AtBeginDocument . . . . . . . . 345, 2544, 2605, 2691, 2786, 3381, 4154, 4223, 4240, 4365, 4371, 4496, 4659, 4723, 6265, 6383, 6817, 7779, 8456, 8857, 9248, 9862, 10383, 11820, 11866, 12950, 12983	\Hy@chapapp 6991, 7012, 7044, 14557, 14568
\hvtex@trans@effect@Blinds . . . . . . . . 10622	\Hy@AtBeginDocumentHook . . . . . 346, 351, 357, 358	\Hy@chapterstring . . 6986, 6988, 6991, 7043
\hvtex@trans@effect@Box 10623	\Hy@AtEndOfPackage . . . . 348, 797, 3345, 3353, 3360, 4379, 4387, 4611	\Hy@CheckOptionValue . . 2375, 2412
\hvtex@trans@effect@Dissolve . . . . . . 10624	\Hy@AtEndOfPackageHook 349, 352, 354, 355	\Hy@CJKbookmarksfalse . . 418
\hvtex@trans@effect@Glitter . . . . . . . 10625	\Hy@author . . . . . 6427, 6431	\Hy@cjkpu . . . . . 950, 952, 973
\hvtex@trans@effect@R . . 10628	\Hy@babelnormalise 4954, 4956	\Hy@CleanupFile . . . 5244, 9015, 9953, 10478, 11539
\hvtex@trans@effect@Split 10626	\Hy@backout . 4732, 6317, 6321, 7675	\Hy@colorlink 3373, 4680, 4688, 4692, 8858, 8938, 9008, 9045, 9078, 9333, 9357, 9380, 9411, 9424, 9452, 9468, 9493, 9509, 9531, 9548, 9571, 9588, 9863, 9942, 9982, 10015, 10045, 10072, 10400, 10422, 10492, 10518, 10553, 10586, 10605, 10947, 11220, 11222, 11889, 11912, 11947, 11960, 12176, 12198, 12233, 12246
\hvtex@trans@effect@Wipe 10627	\Hy@backreffalse . . . 412, 2924, 2946, 4377	\Hy@colorlinksfalse . . . . 3370
\hvtex@trans@par 10661, 10665, 10667, 10670, 10673	\Hy@backreftrue . . . 2917, 2921, 2943	\Hy@ColorList . . . . 3516, 3517
\hvtex@trans@params . . 10655, 10657, 10681	\Hy@BeginAnnot . . . 9892, 9909, 9951, 9989, 10022, 10052	\Hy@CounterExists . 6845, 6858, 6862
\Hy@@CleanupFile . 5246, 5248	\Hy@bibcite . . . . . 7700, 7704	\Hy@currentbookmarklevel . . . . . . . 14173, 14183, 14184, 14190, 14197, 14289, 14292, 14297, 14301
\Hy@@DefNameKey . 2405, 2407	\Hy@bookmarksdepth . . . 3416, 3421, 3433, 3439, 14167	\Hy@debugfalse . . . . . 408
\Hy@@escapeform 13805, 13818, 13824	\Hy@bookmarksnumberedfalse . . . . . 413	\Hy@debugtrue . . . . . 407
\Hy@@SectionAnchor . . . 14523, 14526, 14536	\Hy@bookmarksopenfalse . 414	\Hy@defaultbp . . . . 5967, 5969
\Hy@@temp . . 3461, 3463, 6071, 6073	\Hy@bookmarkstrue . . . . 415	\Hy@defaultbpAux . 5971, 5974
\Hy@@VersionCheck . . 274, 303	\Hy@bookmarkstype 3451, 3453, 7999, 14178	\Hy@defaultdriver . . 4481, 4513, 4523, 4535
\Hy@abspage . 6522, 6608, 6724, 6810	\Hy@boolkey . 2331, 2424, 2427, 2430, 2451, 2454, 2457, 2488, 2491, 2508, 2515, 2518, 2521, 2524, 2527, 2530, 2533, 2536, 2618, 2895, 2898, 2953, 3367, 3379, 3394, 3411, 3414, 3455, 3458, 3677, 3964, 3967, 3970, 3973, 3976, 3979, 3982, 3990, 4122, 4125, 6742	\Hy@DefFormAction 5827, 5829
\Hy@Acrobatmenu . . 4268, 4309, 9311, 10051, 10593, 11467	\Hy@BorderArrayPatch . 11345, 11348, 11613, 12101	\Hy@DefNameKey . . 2404, 3548, 3606, 3614, 3622, 3626, 3633, 3640, 3647, 3654, 3658, 3663, 3670, 3999
\Hy@activeanchorfalse . . . . . . . 4736, 8957, 9359, 9374, 9453, 9463, 9779, 10308, 10325, 10401, 10414, 10929, 11891, 11906, 12178, 12192	\Hy@breaklinks@unsupported . . . . . . 2496, 10895	\Hy@DEST . . . . . 11242, 11309
\Hy@activeanchortrue . . . . . . . 8953, 9356, 9370, 9451, 9460, 9775, 10304, 10322, 10399, 10411, 10919, 11888, 11902, 12175, 12188	\Hy@breaklinksfalse . . . . . 416	\Hy@destlabelfalse . . . . . 419
\Hy@ActiveCarriageReturn 4772, 4775	\Hy@breaklinksunhbox . 11241, 11295	\Hy@DestName . . . . 8902, 8909
\Hy@AllowHyphens 4846, 10917, 10949, 11274		\Hy@DestRename . . 5309, 5334, 5338
\Hy@AlphNoErr 6995, 7008, 7010		\Hy@DisableOption . . . . . . . 2360, 4258, 4259, 4260, 4262, 4267, 4384, 4555, 4556, 4557, 4558, 4559, 4560, 4561, 4562, 4563, 4564, 4565, 4566, 4567,
\Hy@AnchorName . . 4977, 4979, 4982, 4984, 5009, 5011, 5015, 5020, 5022		



4568, 4569, 4570, 4571,	2660, 2666, 2679	\Hy@FirstPageHook . . . . .
4572, 4573, 4574, 4619,	\Hy@DviModetrue . . 2664, 2669	. . . 6480, 6494, 6495, 6499,
4672, 4697, 4698, 4734,	\Hy@DvipdfmxOutlineOpentru	6502, 6782, 6783, 11614,
4735, 5365, 6269, 6270,	. . . . . 4581, 4588	11723, 11793, 12102, 12301
6271, 6272, 6273, 6274,	\Hy@EndAnnot 9898, 9945, 9985,	\Hy@float@caption . . 7569, 7619,
6275, 6276, 6277, 6278,	10018, 10048, 10075	7633
6279, 6280, 6281, 6282,	\Hy@endcolorlink . . 3374, 4684,	\Hy@float@currentHref . . . . .
6283, 6284, 6285, 6286,	4689, 4693, 8867, 8944,	. . . 7623, 7626, 7628, 7634,
6287, 6288, 6289, 6290,	9357, 9394, 9418, 9426,	7636, 7638
6291, 6292, 6451, 6676,	9452, 9476, 9497, 9511,	\Hy@footnote@currentHref . . .
7530, 8188, 8313, 8314,	9535, 9550, 9575, 9590,	. . . 6264, 7353, 7358, 7373,
8781, 8885, 9180, 9181,	9872, 9900, 10400, 10473,	7378, 7381, 7393, 7395,
9182, 9183, 9184, 9185,	10494, 10520, 10555, 10588,	7434, 7476, 7479
9186, 9187, 9188, 9189,	10607, 10974, 11234, 11889,	\Hy@FormObjects 13042, 13357,
9190, 9306, 9615, 9616,	11928, 11954, 11962, 12176,	13412, 13422, 13740, 13791
9617, 9618, 9619, 9620,	12212, 12237, 12248	\Hy@frenchlinksfalse . . . . 3372
9621, 9622, 9623, 9624,	\Hy@EndWrap 4621, 4623, 4624,	\Hy@Gin@setfile . . . 8183, 8185
9625, 9626, 9890, 10108,	4657	\Hy@GlobalStepCount 456, 6608,
10109, 10110, 10111, 10112,	\Hy@Error . . . . . 246, 262, 268,	7074, 7098, 7956
10113, 10114, 10115, 10116,	291, 2548, 2677, 2703, 2719,	\Hy@gtemp . . . . . 785,
10117, 10118, 10119, 10237,	2754, 2793, 2800, 2811,	786, 4324, 4330, 4332, 5725,
10385, 10845, 10846, 10847,	2817, 2855, 4293, 4907,	5726, 5730, 5731, 5742,
10848, 10849, 10850, 10851,	5177, 5528, 5652, 5848,	5756, 7410, 7415, 8679,
10852, 10853, 10854, 10855,	5880, 6076, 6129, 12659,	8681, 13856, 13858
10856, 11102, 11103, 11104,	12712, 13264, 13318, 13633,	\Hy@href . . . . . 4856, 4858
11105, 11106, 11107, 11108,	13691	\Hy@href@nextactionraw . . . . .
11109, 11110, 11111, 11112,	\Hy@escapeform . . 12538, 12624,	. . . 4893, 4916, 4918, 4919,
11113, 11695, 12009, 12010,	12643, 12672, 12693, 12719,	4921, 4926, 4930, 4932,
12011, 12012, 12013, 12014,	12744, 13142, 13228, 13250,	9004, 9041, 9074, 9329,
12015, 12016, 12017, 12018,	13277, 13298, 13326, 13349,	9938, 9978, 10011, 10041,
12019, 12020	13494, 13586, 13615, 13647,	10068, 10437, 10507, 10575,
\Hy@DistillerDestFix . . . . 7937,	13671, 13699, 13729, 13799,	11564, 11593
10860, 10862	13829, 13836	\Hy@href@page 4871, 4873, 4877,
\Hy@draftfalse . . . . . 375	\Hy@escapestring 13796, 13863,	4878, 4880, 4887, 4890,
\Hy@drafttrue . . . . . 376	13867, 13871, 13875, 13879,	9037, 9973, 11560
\Hy@driver . . . 458, 2501, 2688,	13883, 13887, 13891, 13895,	\Hy@hyperfiguresfalse . . . . 421
2700, 2712, 2715, 2727,	13899, 13945, 13979, 14039,	\Hy@hyperfootnotetrue . . . 423
2733, 2738, 2752, 2762,	14083, 14084, 14116	\Hy@hyperindextrue . . . . . 424
2767, 2773, 2780, 2783,	\Hy@EveryPageAnchor . . 7936,	\Hy@hypertextnamesfalse . . 2170
2809, 2825, 2832, 2838,	7982	\Hy@hypertextnametrue . . . 425
2849, 2863, 4389, 4392,	\Hy@EveryPageBoxHook . . . . .	\Hy@ifnotmeasuring 6928, 6931,
4400, 4403, 4407, 4410,	. . . 6479, 6483, 6487, 7981,	6937
4412, 4416, 4422, 4426,	10205, 10734, 11024	\Hy@ifStringEndsWith . . . 5212,
4429, 4433, 4438, 4442,	\Hy@EveryPageHook 6478, 6482,	5224
4445, 4449, 4453, 4457,	6674, 9241	\Hy@implicittrue . . . . . 426
4460, 4464, 4467, 4469,	\Hy@ExchangeLeftParenthesis .	\Hy@Info 249, 2349, 4335, 4337,
4473, 4479, 4484, 4486,	. . . . . 8655, 8661	4340, 4342, 4345, 4347,
4490, 4493, 4504, 4507,	\Hy@ExchangeRightParenthesis	4350, 4352, 4355, 4357,
4510, 4513, 4522, 4523,	. . . . . 8665, 8671	4604, 4610, 4685, 4690,
4535, 4537, 4545, 4547,	\Hy@false 2199, 2341, 2909, 2945,	4694, 4815, 4842, 5435,
4549, 4551	5877	6226, 6228, 6231, 6233,
\Hy@odth@currentHref . . . 7282,	\Hy@finalfalse . . . . . 376	6236, 6238, 6241, 6243,
7283, 7290	\Hy@finaltrue . . . . . 375	6246, 6248, 6251, 6253,
\Hy@DviErrMsg . . . 2655, 2657,	\Hy@FirstPage . . . . . 4279	

6256, 6258, 7780, 8004, 8021	10336, 10339, 10342, 10345, 10348, 10351, 12486, 12757, 12761, 12764, 12767, 12770, 12773, 12776, 12779, 12789, 12926, 13417	\Hy@pdfafalse . . . . . 454
\Hy@InfoNoLine 250, 4360, 4362, 4547, 8703, 12155	\Hy@naturalnamesfalse . . . 430	\Hy@pdfcenterwindowfalse 417
\Hy@IsNotEmpty . . 5316, 5317, 5340	\Hy@nestingfalse . . . . . 431	\Hy@pdfdisplaydoctitlefalse 453
\Hy@LastPage . . . . . 4282	\Hy@newline@author . . . . 6472	\Hy@pdfescapeformfalse . . 420
\Hy@level 14179, 14181, 14192, 14197, 14198, 14199, 14229	\Hy@newline@title . . . . . 6471	\Hy@pdffitwindowfalse . . . 422
\Hy@levelcheck . . 14180, 14195	\Hy@next . . . 6624, 6634, 6639, 14567, 14576, 14579	\Hy@pdfmajorminor@version . . . . . 2644, 8694, 8713
\Hy@linkcounter 460, 462, 7074, 7075, 7098, 7099	\Hy@nextfalse . . . . . 8198	\Hy@pdfmajorversion 2644, 2652, 8736, 8758, 8774, 8779
\Hy@linkfileprefix . . 3495, 5196, 9397, 10273, 11932, 12215	\Hy@NextPage . . . . . 4273	\Hy@pdfmarkerrorfalse . . 11194
\Hy@LinkMath . . 10938, 10940, 10945, 10977, 11266, 11268, 11273, 11275, 11281, 11283	\Hy@nexttrue . . 8199, 8200, 8201	\Hy@pdfmarkerrortrue . . 11378, 11387
\Hy@linktoc . 2459, 2461, 2469, 2471, 2481, 8050	\Hy@NIL . . . . 4197, 4210, 4213	\Hy@pdfmenubartrue . . . . 429
\Hy@linktoc@all . . . . . 2467	\Hy@number . . . . . 3901, 3908	\Hy@pdfminorversion . . . . . 2644, 8691, 8692, 8737, 8759, 8775, 8780
\Hy@linktoc@none . . . . . 2464	\Hy@numberline . 14174, 14211, 14212, 14213, 14214	\Hy@pdfnewwindowfalse . . 433
\Hy@linktoc@page . . 2459, 2466, 2469	\Hy@ObsoletePaperOption 2433, 2441	\Hy@pdfnewwindowsetfalse 432, 3987
\Hy@linktoc@section 2461, 2465, 2471	\Hy@ocgcolor 8861, 8875, 9866, 9880	\Hy@pdfnewwindowsettrue 3989, 4895
\Hy@linktocpagefalse . . . . 427	\Hy@ocgcolorlinksfalse . . . 3371, 4667	\Hy@pdfnewwindowtrue . 4896
\Hy@localanchornamefalse . 428	\Hy@Org@chapter 14565, 14580	\Hy@pdfpagelabelsfalse . . 6509
\Hy@LookForParentCounter 6961	\Hy@OrgMakeLabel 12270, 12277	\Hy@pdfpagelabelstrue . . . 435
\Hy@LT@currentHref 7157, 7168	\Hy@OutlineName 14445, 14497	\Hy@pdfstringdef . . . 784, 5700, 5708, 5913, 6006, 6012
\Hy@LT@footnotetext 7433, 7442	\Hy@OutlineRerunCheck 14313, 14412, 14491	\Hy@pdfstringfalse . . 436, 6294
\Hy@make@anchor . 8112, 8118, 8124	\Hy@PageAnchorSlide . . . 7896, 7934, 7948	\Hy@pdfstringtrue . . . 638, 6266
\Hy@make@df@tag@@ 8116, 8131	\Hy@PageAnchorSlidesPlain . . . . . 7882, 7933, 7943	\Hy@pdftoolbartrue . . . . . 442
\Hy@make@df@tag@@@ . . 8122, 8132	\Hy@pageanchortrue . . . . 434	\Hy@pdfusetitlefalse . . . . 450
\Hy@MakeCurrentHref . . 7037, 7086, 7099	\Hy@pagecounter 461, 463, 7956, 7958, 7960	\Hy@pdfversion . . . . . 2642
\Hy@MakeCurrentHrefAuto 7097, 7114, 8113, 14158, 14541, 14557, 14568, 14595, 14609	\Hy@pageheight . . . 4168, 11725, 11822	\Hy@pdfwindowittrue . . . . 452
\Hy@MakeRemoteAction . 4876, 9018, 9956, 11542	\Hy@param . . 4198, 4199, 4202, 4203, 7042, 7043, 7044, 7071, 7075	\Hy@pkg . . . . . 4196, 4203
\Hy@maketitle@end . 7506, 7511, 7513	\Hy@pdf@majorminor@version . . . . . 2643, 4264, 5702, 8699, 8713, 8740, 8761, 13851	\Hy@plainpagesfalse . . . . 437
\Hy@maketitle@optarg . . . 7504, 7509	\Hy@pdf@majorversion . . . . . 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2643, 6776, 8707, 8736, 8758, 8776, 8779	\Hy@PrevPage . . . . . 4276
\Hy@Match 307, 309, 2871, 3505, 3563, 3580, 3926, 4017, 4023, 4053, 4054, 4057, 4068, 4083, 4921, 5989	\Hy@pdf@minorversion . . . . . 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 6777, 8707, 8737, 8759, 8776, 8780	\Hy@ProvideTheHCounter 6942
\Hy@MaybeStopNow 2776, 4178, 4181		\Hy@ps@CR . . . . 11775, 11782, 11787, 11788, 11805, 11826, 11827, 11828, 11834, 11841, 11848, 11855
\Hy@Message . 251, 2690, 2785, 4364, 4495, 10329, 10333,		\Hy@psdextrafalse . . . . . 441

11573, 12074, 13822, 14444, 14460	\Hy@RestoreSpaceFactor . . . . .	\Hy@scantitle . . . . . 6416, 6421
\Hy@pstringDest . . . 8901, 8902, 9717, 9764, 11376, 11377, 11381, 11385, 11386, 11390	. . 2210, 2239, 2244, 9404, 9412, 9419, 9484, 9494, 9502, 9521, 9532, 9540, 9561, 9572, 9580, 10944, 10980, 11272, 11280, 11307, 11940, 11948, 11955, 12222, 12234, 12241, 12278, 12282	\Hy@secnum@part 14585, 14586, 14588
\Hy@pstringF 9014, 9015, 9016, 9033, 9051, 9067, 9072, 9952, 9953, 9954, 9970, 9990, 10004, 10009, 10477, 10478, 10482, 10562, 10569, 10573, 11538, 11539, 11540, 11557, 11572, 11588, 11591	\Hy@ReturnAfterElseFiFiEnd . . . . . 466, 1496	\Hy@sectionAnchorHref . . 635, 14521, 14546, 14614
\Hy@pstringName 14444, 14445, 14460, 14474	\Hy@ReturnAfterFiFiEnd . 465, 1488, 1502, 1595, 1602	\Hy@sectionHShift 14520, 14529, 14542, 14610
\Hy@pstringP . . . . . 9052, 9072, 9991, 10009, 10563, 10573, 11573, 11591	\Hy@ReturnEnd . 464, 465, 466, 1508, 1607	\Hy@setbreaklinks . . 2493, 2497, 2509, 8687, 9707
\Hy@pstringURI . . . 8982, 9000, 10023, 10037, 10421, 10433, 10499, 10503, 11514, 11526	\Hy@safe@activesfalse 467, 5145, 8530	\Hy@setCatcodes 181, 231, 4176
\Hy@PutCatalog . . . 6670, 6678, 6799	\Hy@safe@activestrue . . . . .	\Hy@setNewWindow 3993, 9035, 9069, 9977, 10006, 10570, 11556, 11587
\Hy@raisedlink . . . . .	. . . 467, 4313, 4768, 4805, 4813, 4841, 4958, 5302, 5312, 7041, 8043, 8422, 8519, 12953, 13012, 14405, 14432	\Hy@setouterhbox 11240, 11271
. . 2226, 6938, 7116, 7137, 7138, 7139, 7142, 7169, 7188, 7193, 7196, 7217, 7356, 7376, 7447, 7474, 7607, 7686, 7712, 7717, 7737, 8114, 11602, 11708, 11982, 12153, 14159, 14530, 14558, 14569, 14596	\Hy@SaveCatcodeSettings . 807, 856, 866, 880	\Hy@setpagesizetrue . . . . . 439
\Hy@raiselinksfalse . . 438, 7781	\Hy@samed@currentHref . . 7391, 7394	\Hy@setpdfborder . . . . .
\Hy@RemoveDurPageAttr 9220, 9233	\Hy@samed@footnotemark 7500, 7515	. . 3596, 8931, 8987, 9022, 9056, 9316, 9929, 9962, 9997, 10029, 10059, 10441, 10462, 10485, 10511, 10545, 10579, 10598
\Hy@RemovePercentCr . . 4788, 4792, 4797	\Hy@samed@footnotetext . 7501, 7518	\Hy@setpdfhighlight . . . . .
\Hy@RemoveTransPageAttr . . . . . 9195, 9209	\Hy@samed@hook . . . 6455, 6467	. . 3554, 8932, 8988, 9023, 9057, 9317, 9930, 9963, 9998, 10030, 10060
\Hy@reserved@a . . . 5112, 7208, 7238, 12792, 12842, 12905	\Hy@samed@refstepcounter 6926	\Hy@setpdfversiontrue . . . 2630
\Hy@RestoreCatcodes 205, 4174, 4554	\Hy@SavedSpaceFactor . . . . .	\Hy@setref@link . . . . 8378, 8381
\Hy@RestoreCatcodeSettings . . . . . 851, 858, 868, 882	. . 2206, 2208, 2213, 2214, 2220, 12275	\Hy@SlidesFormatOptionalPage . 6538, 7881, 7901, 7905
\Hy@RestoreLastskip . . . . .	\Hy@SaveLastskip . . . . .	\Hy@SlidesPage 6545, 7915, 7916, 7922, 7924, 7927, 7930
. . 2247, 8903, 9360, 9375, 9454, 9464, 9766, 10309, 10326, 10402, 10415, 10910, 10930, 11892, 11907, 12179, 12193	. . 2247, 8899, 9348, 9363, 9445, 9457, 9714, 10296, 10312, 10392, 10405, 10900, 10914, 11881, 11895, 12168, 12182	\Hy@StartlinkName . 8929, 8940
\Hy@RestoreSavedSpaceFactor . . 2219, 9405, 9485, 9522, 9562, 11941, 12223	\Hy@SaveSavedSpaceFactor . . . 2218, 9403, 9483, 9520, 9560, 11939, 12221	\Hy@StepCount . . . . . 455, 6585, 12559, 12622, 12857, 13160, 13224, 13516, 13583, 14293, 14298, 14374
	\Hy@SaveSpaceFactor . . . . .	\Hy@stoppedearlyfalse . . . 4183, 6844
	. . 2207, 2230, 2241, 9402, 9414, 9482, 9496, 9519, 9534, 9559, 9574, 10942, 10978, 11264, 11276, 11284, 11938, 11950, 12220, 12236, 12273, 12280	\Hy@stoppedearlytrue 4180, 6841
	\Hy@scanauthor . . . 6425, 6430	\Hy@StringLocalhost 5242, 5243, 5258
	\Hy@scanoptauthor . 6425, 6426	\Hy@tabularx@hook 7403, 7411
	\Hy@scanopttitle . . . 6416, 6417	\Hy@temp . . . . . 666, 673, 2439, 2444, 2445, 2446, 2447, 2448, 2449, 3460, 3469, 3470, 3471, 3472, 3473, 3474, 3475, 3517, 3518, 3519, 3522, 3524, 3527, 3537, 3540, 3541, 3542, 3543, 3544, 3545, 3561, 3574, 3578, 3593, 3760, 3761, 3764, 3767, 3770, 3795, 3803, 3804, 3805, 3806, 3807, 3808,



3809, 3810, 3811, 3985,	9328, 10053, 10067, 10592,	\Hy@toclinkend . . . . 8038, 8054,
3986, 4009, 4010, 4056,	10595, 11466, 11475	8062, 8069, 8073, 8075
4057, 4064, 4068, 4300,	\Hy@tempa . . . . .	\Hy@toclinkstart . . . 8037, 8054,
4304, 4305, 4306, 4307,	. . . 2332, 2334, 2336, 2337,	8062, 8069, 8073, 8075
4395, 4397, 4400, 4405,	2339, 2341, 2343, 2346,	\Hy@true 2198, 2337, 2339, 2939,
4407, 4410, 4424, 4426,	2349, 2350, 2905, 2906,	2941, 5874
4431, 4433, 4440, 4442,	2907, 2909, 2910, 2912,	\Hy@undefinedname . . . . .
4447, 4449, 4455, 4457,	2913, 2915, 2919, 2923,	. . . 8914, 8921, 8923, 9905,
4462, 4464, 4467, 4536,	2934, 2936, 2938, 2939,	9914, 9916, 10418, 10453,
4537, 5425, 5429, 5430,	2941, 2945, 4774, 4775,	10455, 10536, 10538, 11031,
5441, 5525, 5526, 5527,	4786, 4790, 4960, 4964,	11044, 11046
5529, 5533, 5845, 5846,	5124, 5126, 5832, 5833,	\Hy@unicodefalse . . . . . 447,
5847, 5849, 5853, 5854,	5873, 5874, 5877, 5881,	765, 775, 2555, 2556, 2564,
5987, 5999, 6070, 6086,	6614, 6616, 6654, 6656,	3737, 3743, 7947, 13853
6087, 6088, 6089, 6090,	6810, 6812, 7252, 7254,	\Hy@unicodetrue . . . 443, 2556,
6091, 6092, 6093, 6099,	7255, 7258, 7259, 7260,	6735, 6749
6105, 6111, 6112, 6113,	7289, 7291, 7303, 7305,	\Hy@UseMaketitleInfos . . 6473,
6114, 6115, 6116, 6117,	7564, 7569, 7574, 7998,	9153, 9596, 10080, 10834,
6118, 6119, 6120, 6121,	7999, 8017, 8018, 8024,	11063, 11990
6161, 6162, 6169, 6170,	9381, 9382, 10277, 10430,	\Hy@UseMaketitleString . 6452,
6177, 6178, 6565, 6568,	10431, 11913, 11914, 12199,	6474, 6475
6577, 6579, 6583, 6587,	12200, 14177, 14178, 14201,	\Hy@UseNameKey . . . . .
6631, 6633, 6945, 6946,	14203, 14221, 14222, 14230,	. . . 2417, 9118, 9119, 9120,
6967, 7484, 7490, 8057,	14254, 14256, 14257, 14259,	9121, 9122, 9123, 9124,
8058, 8066, 8067, 8268,	14260	9125, 9144, 9666, 9667,
8270, 8274, 8305, 8306,	\Hy@tempb . . . . .	9668, 9669, 9670, 9671,
8307, 8322, 8323, 8715,	. . . 5125, 5127, 5148, 6615,	9672, 9673, 9694, 10129,
8718, 8719, 8735, 8754,	6616, 6655, 6656, 14202,	10130, 10131, 10132, 10133,
9111, 9140, 9142, 9636,	14203, 14230	10134, 10135, 10136, 10169,
9641, 9647, 9651, 9654,	\Hy@tempcolor . . 10956, 10958,	10794, 10795, 10796, 10797,
9659, 9690, 9692, 10122,	10971, 11035, 11037, 11049	10798, 10799, 10800, 10801,
10165, 10167, 11065, 11068,	\Hy@TempPageAnchor . . 7889,	11146, 11147, 11148, 11149,
11072, 11073, 11079, 11080,	7941, 7952, 7957, 7974	11150, 11151, 11152, 11153,
11086, 11116, 11121, 11127,	\Hy@Test@Alph . . . . 7025, 7054	11176, 12053, 12054, 12055,
11131, 11134, 11139, 11172,	\Hy@Test@alph . . . . 7016, 7050	12056, 12057, 12058, 12059,
11174, 11246, 11247, 11251,	\Hy@testname 8917, 8918, 8923,	12060, 12083
11342, 11343, 11351, 11352,	8925, 8926, 8937, 9910,	\Hy@varioref@undefined . 8525
11456, 11457, 12023, 12028,	9911, 9916, 9918, 9920,	\Hy@VerboseAnchor . . . . .
12034, 12038, 12041, 12046,	9937, 10449, 10450, 10455,	. . . 4838, 8900, 9349, 9364,
12079, 12081, 13013, 13025,	10459, 10532, 10533, 10538,	9446, 9458, 9715, 10297,
13804, 13805, 14442, 14448,	10542, 11040, 11041, 11046,	10313, 10393, 10406, 10901,
14456, 14471	11057	10915, 11882, 11896, 12169,
\Hy@temp@A . . . . . 698,	\Hy@texhtfalse . . . . . 440	12183
699, 1480, 1482, 1493, 1495,	\Hy@texhttrue . . . . . 2685, 4390	\Hy@verbosefalse . . . . . 408, 451
1500, 1501, 1504, 3796,	\Hy@theorem@makelinktarget .	\Hy@VerboseGlobalTemp 4814,
3798, 4197, 4210, 4213,	. . . . 7283, 7285, 7299	4815, 4816, 4817, 4821
6962, 6965, 6966, 6967,	\Hy@theorem@refstepcounter .	\Hy@VerboseLinkInfo . . . 4821,
6968, 8217, 8218, 8219,	. . . . . 7278, 7317	4822, 4825, 4832
8226, 8254, 8255, 8256,	\Hy@TheSlideOptionalPage 7900,	\Hy@VerboseLinkStart . . . . .
8265, 8292, 8716, 8727,	7904, 7909, 7918	. . . . . 4810, 8960, 8970,
8728, 8729, 8730, 8733,	\Hy@title . . . . . 6418, 6422	9379, 9431, 9467, 9479,
8739, 8742, 8769	\Hy@tocdestname . . 8037, 8045,	9907, 10253, 10276, 10420,
\Hy@temp@B . . . . . 1481, 1482	8047	10525, 10933, 11033, 11911,
\Hy@temp@menu . . . . . 9313,	\Hy@toclevel . . 8009, 8013, 8026	11967, 12197, 12254

\Hy@VerboselinkStop 4826, 8945	6312, 6314, 6315, 6316,	\HyC@string 131, 152, 155, 158
\Hy@verbosetrue . . . . . 407	6320, 6323, 6326, 6328,	\HyC@Toks 79, 90, 96, 106, 126
\Hy@VersionCheck . 259, 4551,	6329, 6330, 8976, 9008,	\HyCnt@LookForParentCounter
19682	9045, 9078, 9424, 9495,	. . . . . 6949, 6961
\Hy@VersionChecked . 258, 301,	9510, 9533, 9549, 9573,	\HyCnt@ProvideTheHCounter .
4548, 4550	9589, 9947, 9984, 10017,	. . . . . 6935, 6942
\Hy@vt@PutCatalog 6707, 6709	10047, 10074, 10257, 10267,	\HyColor@FieldBColor . . 6051,
\Hy@VTexVersion . . 6687, 6699,	10493, 10519, 10554, 10587,	6054
10481, 10611, 10741, 14326	10606, 11274, 11282, 11949,	\HyColor@FieldColor . . . 6057
\Hy@WarnHTMLFieldOption .	11960, 12235, 12247, 12279	\HyColor@HyperrefBorderColor
. 5899, 5933, 5936, 6107	\HyAnn@AbsPageLabel . 13093,	. . . . . 3520, 3538
\Hy@Warning . . . . . 247,	13100, 13141, 13227, 13249,	\HyColor@HyperrefColor . . . . .
332, 1448, 2354, 2370, 2395,	13276, 13297, 13325, 13348	. . . 3465, 3484, 3485, 3486,
2475, 2583, 2588, 2842,	\HyAnn@Count . . 13098, 13099,	3487, 3488, 3489, 3490
2850, 2875, 2888, 3385,	13101, 13102, 13103, 13106,	\HyColor@UseColor . 4682, 8864,
3429, 3508, 3569, 3588,	13108, 13110	8875, 9869, 9880
3772, 3819, 3827, 3948,	\HyC@@cmd . . . . . 87, 109, 122	\HyField@@AddToFields 13006,
4071, 4094, 4104, 4112,	\HyC@check . . . . . 68, 71, 74	13028
4663, 4882, 4925, 5121,	\HyC@checkcommand 50, 57, 59	\HyField@@PDFChoices . 5720,
5128, 5268, 5482, 5837,	\HyC@checkFailed . . . . 146, 157	5721, 5736
5900, 5992, 6745, 6760,	\HyC@checkItem . 132, 133, 134,	\HyField@@SetFlag . 5415, 5417
7990, 8506, 8555, 8919,	135, 138	\HyField@@UseFlag . 5405, 5407
9748, 9752, 9912, 10451,	\HyC@checklong . . . . . 45, 53	\HyField@ABD@AuxAddToCoFields
10534, 10822, 10828, 11042,	\HyC@checkOk . . . . . 144, 154	. . . . . 12951, 13003
11379, 11388, 14186, 14204	\HyC@checkPackage . 12, 16, 18	\HyField@AddCoField . . 12961,
\Hy@WarningNoLine . . . . . 248,	\HyC@cmd . 62, 75, 87, 95, 118,	12974, 12977
285, 2434, 2499, 2512, 2610,	131	\HyField@AddToFields . 12497,
3480, 3533, 3683, 3788,	\HyC@date . . 11, 15, 23, 29, 31	12545, 12636, 12650, 12679,
4161, 4256, 4402, 4411,	\HyC@DeclareRobustCommand	12700, 12726, 12751, 12939,
4428, 4444, 4459, 4468,	. . . . . 114	13005, 13145, 13240, 13254,
6510, 6701, 6824, 8000,	\HyC@def . . . . . 125	13281, 13306, 13330, 13353,
8750, 11203	\HyC@defcmd . . . . . 47, 54, 93	13461, 13501, 13604, 13623,
\Hy@WarningPageBorderColor	\HyC@doCheck . . . . . 99, 130	13655, 13679, 13707, 13736
. . . 3530, 3532, 3534	\HyC@edef . . . . . 125	\HyField@AdvanceAnnotCount
\Hy@WarningPageColor . 3477,	\HyC@getDate . . . . . 12, 14	. . . . 12490, 12535, 12626,
3479, 3481	\HyC@meaning . . . . . 152, 160	12644, 12669, 12694, 12720,
\Hy@WarnOptionDisabled 2366,	\HyC@nc@default . . . . 103, 105	12741, 13454, 13491, 13588,
2369	\HyC@nc@noopt . . 88, 91, 103,	13616, 13644, 13672, 13700,
\Hy@WarnOptionValue . . 2347,	112, 123, 127	13726
2353, 2926, 2948	\HyC@nc@opt . . . . 88, 101, 123	\HyField@afields . 12935, 12994,
\Hy@wrapper@babel 4311, 4329	\HyC@newcommand . . . . . 86	12995, 12997, 13051
\Hy@WrapperDef . . . . .	\HyC@next . . . . . 48, 55, 60, 83	\HyField@AfterAuxOpen 12950,
. . 4321, 8895, 9347, 9362,	\HyC@noValue 80, 81, 82, 85, 139	12992, 13029
9444, 9456, 9713, 10295,	\HyC@optcmd . . . . . 107, 111	\HyField@AnnotCount . 12488,
10311, 10391, 10404, 10899,	\HyC@org@cmd . . . . . 76	12489, 12491, 12494, 13452,
10913, 11880, 11894, 12167,	\HyC@org@optcmd . . . . 80, 111	13455, 13458
12181	\HyC@org@robustcmd . . 81, 120	\HyField@AuxAddToCoFields .
\Hy@writebookmark 2203, 8010,	\HyC@org@robustoptcmd . . 82	. . . . 12949, 12989, 13003,
14163, 14304	\HyC@package 10, 22, 28, 34, 37,	13017
\Hy@xspace@end . . . . .	38	\HyField@AuxAddToFields . . .
. . 4221, 4226, 4230, 4235,	\HyC@param . . . . . 78, 96, 102	. . . . 12948, 12986, 12993,
4238, 4243, 4244, 4245,	\HyC@robustcmd 115, 120, 121,	13032
4247, 4248, 4249, 4250,	122	

13054

\HyField@FlagsAnnot 5575, 5594, 5608, 5621, 5637, 5669

\HyField@FlagsCheckBox 5607, 12739, 13344, 13721

\HyField@FlagsChoice ... 5668, 12598, 13200, 13556

\HyField@FlagsPushButton 5593, 12667, 12690, 12717, 13272, 13293, 13323, 13642, 13666, 13696

\HyField@FlagsRadioButton ... 5620, 12594, 13196, 13552

\HyField@FlagsSubmit ... 5541, 12691, 13294, 13667

\HyField@FlagsText 5636, 12532, 13136, 13485

\HyField@NeedAppearancesfalse ... 5865, 5878

\HyField@NeedAppearancestrue ... 5868, 5871, 5875

\HyField@NewBitsetFlag . 5373, 5376, 5384

\HyField@NewFlag ... 5371, 5447, 5448, 5449, 5450, 5451, 5452, 5453, 5454, 5455, 5456, 5457, 5458, 5459, 5460, 5461, 5462, 5463, 5464, 5465, 5466, 5471, 5472, 5473, 5474, 5475, 5476, 5477, 5478, 5479, 5512, 5514, 5515, 5517, 5518, 5520, 5521, 5522, 5523

\HyField@NewFlagOnly . 5375, 5513, 5516, 5519

\HyField@NewOption 5372, 5378

\HyField@PDFAFlagWarning . 5481, 5489, 5493, 5497, 5501, 5505, 5509

\HyField@PDFChoices ... 5693, 12642, 13247, 13610

\HyField@PrintFlags ... 5422, 5568, 5586, 5600, 5613, 5629, 5661, 5686

\HyField@SetFlag ... 5414, 5554, 5560, 5565, 5599, 5627

\HyField@SetKeys . 5797, 12529, 12565, 12568, 12587, 12655, 12687, 12707, 12736, 13132, 13166, 13169, 13188, 13259, 13290, 13313, 13340, 13481, 13522, 13525, 13544, 13628, 13663, 13686, 13717

\HyField@TheAnnotCount ... 12493, 12502, 12511, 12541, 12630, 12647, 12675, 12697, 12723, 12747, 13457, 13462, 13465, 13496, 13593, 13618, 13649, 13674, 13702, 13731

\HyField@UseFlag ... 5404, 5545, 5546, 5547, 5548, 5549, 5550, 5551, 5552, 5555, 5556, 5557, 5558, 5561, 5562, 5563, 5566, 5577, 5578, 5579, 5580, 5581, 5582, 5583, 5584, 5585, 5596, 5597, 5598, 5610, 5611, 5612, 5623, 5624, 5625, 5626, 5628, 5639, 5640, 5641, 5642, 5643, 5644, 5645, 5646, 5657, 5660, 5671, 5672, 5673, 5674, 5676, 5678, 5679, 5682, 5685

\HyInd@@@wrrindex . 8213, 8216, 8247, 8253

\HyInd@@hyperpage 8320, 8330

\HyInd@@wrrindex ... 8208, 8209

\HyInd@DefKey ... 8266, 8280, 8293, 8302

\HyInd@EncapChar . 2956, 4171, 8203

\HyInd@hyperpage . 8317, 8319, 8326

\HyInd@key ... 8267, 8271, 8282, 8295, 8307

\HyInd@org@wrrindex 8207, 8211, 8221, 8227, 8229, 8232

\HyInd@pagelink ... 8335, 8341, 8343, 8346

\HyInd@ParenLeft ... 8190, 8218, 8255, 8292

\HyInd@ParenRight . 8191, 8219, 8226, 8256, 8265

\HyInd@removespaces ... 8349, 8352, 8362

\HyInfo@AddonHandler ... 3814, 3817

\HyInfo@AddonList . 3847, 3848, 3882, 3889

\HyInfo@Addons ... 3868, 3884, 9177, 10105, 11095, 11099

\HyInfo@AddonUnsupportedtrue ... 9594, 10820, 11988

\HyInfo@do ... 3816, 3849, 3872

\HyInfo@GenerateAddons 3866, 9154, 10081, 11064

\HyInfo@Key . 3824, 3825, 3843, 3845, 3846, 3849, 3852, 3859, 3873, 3877

\HyInfo@KeyEscaped 3823, 3824

\HyInfo@tmp ... 3833, 3843

\HyInfo@trapped@false ... 3764, 3783

\HyInfo@trapped@true ... 3761, 3782

\HyInfo@trapped@unknown 3767, 3784

\HyInfo@TrappedUnsupported . 3785, 3789, 9597, 10835, 11991

\HyInfo@Value ... 3837, 3840

\HyLang@addto ... 3268, 3284, 3302, 3344, 3352

\HyLang@afrikaans ... 2958

\HyLang@catalan ... 3142

\HyLang@danish ... 3232

\HyLang@DeclareLang ... 3282, 3311, 3312, 3313, 3314, 3315, 3316, 3317, 3318, 3319, 3320, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3333, 3334, 3335, 3336, 3337, 3338, 3339, 3340, 3341, 3342

\HyLang@dutch ... 3196

\HyLang@english ... 2976

\HyLang@french ... 2994

\HyLang@german ... 3012

\HyLang@greek ... 3178

\HyLang@italian ... 3030

\HyLang@magyar ... 3048

\HyLang@norsk ... 3214

\HyLang@portuges ... 3066

\HyLang@russian ... 3084

\HyLang@spanish ... 3124

\HyLang@swedish ... 3250

\HyLang@vietnamese 3160, 3344, 3352

\HyLinguex@OrgB ... 789, 793

\HyLinguex@OrgC ... 790, 794

\HyLinguex@OrgD ... 791, 795

\HyLinguex@Restore . 792, 805, 859, 869

\HyNew@float@makebox . 7620, 7643

\HyOpt@CheckDvi ... 2673, 2726, 2732, 2737,

2761, 2766, 2772, 2824,  
 2831, 2837, 2862  
 \HyOpt@CustomDriver . . . 283,  
 2883, 2886, 4478, 4545  
 \HyOpt@DriverFallback . . . . .  
 . . 2867, 2870, 2871, 2879,  
 4512, 4517  
 \HyOpt@DriverType . . . . .  
 . . 4477, 4480, 4514, 4524,  
 4526, 4544, 4547  
 \HyOrg@addtoreset . 8137, 8139,  
 8168  
 \HyOrg@appendix . . 6994, 7013  
 \HyOrg@author 6415, 6428, 6432  
 \HyOrg@elt . . . . . 6947, 6953  
 \HyOrg@float@makebox . . 7621,  
 7642  
 \HyOrg@hyperpage . 8193, 8195,  
 8196  
 \HyOrg@make@df@tag@@ 8129  
 \HyOrg@make@df@tag@@@ 8130  
 \HyOrg@maketitle . . 7498, 7505,  
 7510  
 \HyOrg@title . . 6414, 6419, 6423  
 \HyOrg@TX@endtabularx 7402  
 \HyOrg@url . . . . . 4938  
 \HyPat@NonNegativeReal . . . .  
 . . 3564, 3565, 3566, 3567,  
 3583, 3585, 3918, 3929,  
 3930, 3931, 3938, 3941,  
 3942, 3943, 3944  
 \HyPat@ObjRef . . . . 4922, 4923,  
 4936, 8688, 9708, 10896  
 \hyper@@@anchor . . . 4242, 4948,  
 4950, 4982, 4984, 5020,  
 5022, 5265, 6307, 6322,  
 6338, 7352, 7357, 7372,  
 7377, 7445, 7448, 7475,  
 7605, 7608, 7625, 7890,  
 7941, 7952, 7958  
 \hyper@@link . 4808, 4866, 4972,  
 5001, 5112, 7696, 7783,  
 7784, 7785, 7833, 7835,  
 7837, 8383, 8398, 8516  
 \hyper@@normalise . 4777, 4781,  
 4785  
 \hyper@anchor 5292, 6310, 6324,  
 6389, 6397, 8948, 9347,  
 9444, 9771, 10311, 10391,  
 10899, 11880, 12167  
 \hyper@anchorend . . 4230, 4238,  
 4245, 6293, 6312, 6326,  
 6341, 6939, 7118, 7170,  
 7194, 7196, 7218, 7241,  
 7688, 7715, 7718, 7738,  
 7812, 8114, 8955, 9372,  
 9462, 9778, 10306, 10413,  
 10921, 11904, 12190, 14159,  
 14305, 14531, 14559, 14570,  
 14597  
 \hyper@anchorstart . . . . .  
 . . 4244, 6293, 6311, 6325,  
 6340, 6939, 7117, 7170,  
 7188, 7218, 7241, 7686,  
 7713, 7718, 7738, 7812,  
 8114, 8951, 9362, 9456,  
 9774, 10295, 10404, 10913,  
 11894, 12181, 14159, 14305,  
 14531, 14559, 14570, 14597  
 \hyper@chars . . . . .  
 . . 4802, 8983, 9352, 9366,  
 9386, 9408, 9422, 9436,  
 9516, 9556, 10262, 10283,  
 10299, 10316, 10396, 10408,  
 10500, 11515, 11898, 11918,  
 11944, 11958, 11972, 12185,  
 12204, 12227, 12244, 12259  
 \hyper@currentanchor . . 10918,  
 10927, 10950, 10967  
 \hyper@currentlinktype . 10951,  
 10955, 10959  
 \hyper@destlabel@hook . . 5308,  
 5315  
 \hyper@hash . 4754, 4755, 4803,  
 5188, 5200, 5217, 5220,  
 6260, 10256  
 \hyper@image 4944, 4945, 9434,  
 10558, 11028, 11970, 12257  
 \hyper@last . . . . . 6403, 6408  
 \hyper@link . . . . .  
 . . 4243, 5136, 6308, 6309,  
 6323, 6333, 6339, 8969,  
 9430, 9478, 9946, 10252,  
 10524, 11032, 11966, 12253  
 \hyper@link@ . 4250, 5113, 5119,  
 6306, 6320, 6346  
 \hyper@linkend . . . . .  
 . . 4230, 4238, 4247, 6314,  
 6328, 6343, 7397, 7680,  
 7683, 8038, 8968, 9392,  
 9475, 9945, 9947, 10288,  
 10471, 10953, 11926, 12210  
 \hyper@linkfile 4249, 5213, 6316,  
 6330, 6345, 9012, 9396,  
 9554, 9949, 10272, 10475,  
 11536, 11930, 12214  
 \hyper@linkstart . . . . .  
 . . 4246, 6313, 6327, 6342,  
 7395, 7676, 7683, 8037,  
 8959, 9378, 9466, 9906,  
 9947, 10275, 10419, 10932,  
 11910, 12196  
 \hyper@linkurl . . . . .  
 . . 4248, 4943, 5188, 5195,  
 5216, 5220, 6315, 6329,  
 6344, 8980, 9397, 9399,  
 9432, 9514, 10020, 10260,  
 10273, 10497, 10559, 11029,  
 11512, 11931, 11935, 11968,  
 12215, 12217, 12255  
 \hyper@livelink . . . . 6308, 6333  
 \hyper@makecurrent 6936, 7039,  
 7156, 7186, 7215, 7240,  
 7281, 7392, 7581, 7635  
 \hyper@n@rmalise . . 4769, 4773  
 \hyper@nat@current . . . . 7677  
 \hyper@nat@anchorend . . . 7688  
 \hyper@nat@anchorstart . . 7685  
 \hyper@nat@linkbreak . . . . 7682  
 \hyper@nat@linkend . . . . . 7679  
 \hyper@nat@linkstart . . . . . 7674  
 \hyper@newdestlabel 5300, 5322,  
 5361, 5367, 5369  
 \hyper@normalise . . 4172, 4177,  
 4746, 4856, 4859, 4940,  
 4942, 4944, 4966, 5827  
 \hyper@pageduration . . . . 9216,  
 9243, 10194, 10207, 10724,  
 10736, 11007, 11026  
 \hyper@pagetransition . . . 9192,  
 9242, 10183, 10206, 10613,  
 10735, 10990, 11025  
 \hyper@quote 6262, 9354, 9368,  
 9383, 9388, 9409, 9423,  
 9437, 10256, 10266, 10279,  
 10302, 10320, 11886, 11900,  
 11915, 11921, 11945, 11959,  
 11973, 12173, 12186, 12201,  
 12206, 12229, 12245, 12260  
 \hyper@readexternallink . 5142,  
 5153  
 \hyper@refstepcounter . . . 6916,  
 6920, 6934  
 \hyper@tilde . 4763, 4764, 4765,  
 6261  
 \hyperbaseurl . 3492, 3493, 6357  
 \hypercalcbp . . . . . 469, 469  
 \hypercalcbpdef . . . . . 472  
 \hyperdef . . . . . 4974, 6359  
 \HyperDestLabelReplace . 5352,  
 5359, 5362

\HyperDestNameFilter . . . . .	\HyPL@EveryPage . 6550, 6674	\HyPsd@@CJKNumber . . . . .
.. 4153, 4842, 5033, 5046,	\HyPL@Format 6626, 6627, 6628,	.. 1132, 1134, 1137, 1190,
5059, 5359, 8901, 8926,	6629, 6630, 6642	1205, 1218, 1220, 1224
9354, 9368, 9388, 9432,	\HyPL@found 6625, 6632, 6636,	\HyPsd@@ConvertToUnicode .
9717, 9919, 10256, 10266,	6643, 6653, 6655	..... 1838
10284, 10302, 10320, 10397,	\HyPL@Labels 6521, 6665, 6666,	\HyPsd@@ding 2103, 2107, 2118
10409, 10458, 10541, 11376,	6668, 6670, 6721, 6722,	\HyPsd@@GetNextTwoTokens .
11385, 11886, 11900, 11921,	6823, 6831, 6832	..... 1836
11968, 12173, 12186, 12206,	\HyPL@LastNumber 6525, 6581,	\HyPsd@@GlyphProcessWarning
12255, 14383, 14444, 14460	6604	..... 1696, 1699
\HyperDestRename . 5332, 5350,	\HyPL@LastPrefix .. 6526, 6575,	\HyPsd@@hspace ... 1287, 1288
5363	6606	\HyPsd@@LetCommand . 1411,
\HyperFirstAtBeginDocument .	\HyPL@LastType .. 6524, 6566,	1432
.. 6386, 6388, 6404, 6407	6605	\HyPsd@@nameref .. 1348, 1349
\hyperget . . . . . 5025	\HyPL@page . 6544, 6553, 6556,	\HyPsd@@pageref .. 1330, 1331
\hypergetpageref . . . . . 7103	6562, 6571	\HyPsd@@ProtectSpacesFi 1455,
\hypergetref . . . . . 7102	\HyPL@Prefix 6571, 6573, 6575,	1461
\HyperGlobalCurrentHref . . . .	6589, 6592, 6594, 6606,	\HyPsd@@ref . . . . . 1314, 1315
.. 7060, 7062, 7070, 7071,	6620, 6658	\HyPsd@@RemoveBraces . 1478
7075, 7078, 7082, 7089,	\HyPL@Roman . . . . . 6528	\HyPsd@@RemoveBracesFi 1475,
7090, 7094	\HyPL@roman . . . . . 6529	1478
\hyperimage . . . . . 4944, 8185	\HyPL@SetPageLabels ... 6664,	\HyPsd@@RemoveCmdPrefix . .
\hyperindexformat . . . . . 8192	6729, 6826	..... 1653, 1656
\hyperlink . . . . 4807, 6360, 8358	\HyPL@SlidesOptionalPage 6537,	\HyPsd@@ReplaceFi 1723, 1729,
\hyperlinkfileprefix . 3495, 3496,	6541, 6546	1734
3497, 12159	\HyPL@SlidesSetPage ... 6532,	\HyPsd@@UTFviii@four .. 1950,
\HyperLocalCurrentHref . . . . .	6534, 6554, 6561	1955
.. 7078, 7080, 7087, 7088,	\HyPL@storePageLabel .. 6589,	\HyPsd@add@accent . 512, 1276
7089, 7090, 7092	6591, 6661, 6719, 6807	\HyPsd@AfterCountRemove ..
\hyperpage .. 6366, 8193, 8194,	\HyPL@thisLabel .. 6518, 6520,	..... 1530, 1610
8196, 8316	6552, 6556, 6557	\HyPsd@AfterDimenRemove ..
\HyperRaiseLinkDefault . 2205,	\HyPL@Type . . . . .	..... 1536, 1613
2235	.. 6559, 6566, 6570, 6588,	\HyPsd@AfterSkipRemove 1542,
\HyperRaiseLinkHook 2204, 2236	6596, 6605, 6619, 6657	1625
\HyperRaiseLinkLength .. 2234,	\HyPL@Useless . . . . 6662, 6668	\HyPsd@AMScsfix 620, 1297,
2235, 2238	\HyPsd@@@autoref . 1369, 1371,	1299
\hyperref 4953, 6362, 8454, 8470,	1374	\HyPsd@AppendItalcorr . 1494,
8479, 8501	\HyPsd@@@CJKdigits ... 1239,	1501, 1510
\hyperrefundefinedlink .. 4987,	1242, 1250	\HyPsd@autoref . . . . . 630, 1366
4998	\HyPsd@@@nameref 1351, 1353,	\HyPsd@autorefname 1378, 1384
\hypersetup .. 2576, 2621, 3322,	1356	\HyPsd@CatcodeWarning . . . .
3800, 4173, 6356	\HyPsd@@@pageref . 1333, 1335,	.. 1546, 1570, 1573, 1576,
\hypertarget . . . . . 4946, 6361	1338	1579, 1637
\HyPL@@@CheckThePage 6635,	\HyPsd@@@ref . 1317, 1319, 1322	\HyPsd@Char . . . . . 1840
6653	\HyPsd@@@UTFviii@four 1966,	\HyPsd@CharOctByte ... 1860,
\HyPL@@CheckThePage . 6611,	1969	1862, 1865, 1874, 1879
6613	\HyPsd@@AppendItalcorr 1510	\HyPsd@CharSurrogate .. 1854,
\HyPL@Alph . . . . . 6530	\HyPsd@@autoref .. 1366, 1367	1871
\HyPL@alph . . . . . 6531	\HyPsd@@autorefname .. 1387,	\HyPsd@CharTwoByte .. 1852,
\HyPL@arabic . . . . . 6527	1390	1859
\HyPL@CheckThePage .. 6562,	\HyPsd@CJKdigits 1231, 1233,	\HyPsd@CheckCatcodes .. 684,
6610	1236	1520
\HyPL@Entry 6812, 6820, 6828,		\HyPsd@CJK@Unicode .. 1014,
6830		1018



\HyPsd@CJKActiveChars . 954, 969	\HyPsd@GetNextTwoTokens .. ..... 1836	\HyPsd@PrerenderUnicode 3693, 3709, 3715, 3721, 3727, 3732, 3750, 3756, 3836
\HyPsd@CJKdigit .. 1243, 1253	\HyPsd@GetOneByte .... 1831	\HyPsd@protected@testopt 656, 657, 1441
\HyPsd@CJKdigits . 1016, 1229	\HyPsd@GetTwoBytes ... 1827	\HyPsd@ProtectSpaces ... 677, 1451, 1500
\HyPsd@CJKhook 637, 925, 936	\HyPsd@GLYPHERR 690, 1263, 1277, 1284	\HyPsd@ref ..... 627, 1314
\HyPsd@CJKhook@bookmarks ..... 931, 965	\HyPsd@GlyphProcess ... 692, 1684, 1697	\HyPsd@RemoveBraces ... 679, 1472, 1489, 1497, 1503
\HyPsd@CJKhook@unicode 933, 1013	\HyPsd@GlyphProcessWarning ..... 1691, 1695	\HyPsd@RemoveCmdPrefix 1646, 1652
\HyPsd@CJKnumber 1015, 1129	\HyPsd@GobbleFiFi 1268, 1274	\HyPsd@RemoveMask 687, 1459, 1469
\HyPsd@CJKnumberFour .... .. 1147, 1151, 1155, 1168, 1172, 1176, 1182	\HyPsd@HighA .... 1024, 1033	\HyPsd@RemoveSpaceWarning ... 1620, 1632, 1658
\HyPsd@CJKnumberLarge 1160, 1167	\HyPsd@HighB .... 1034, 1039	\HyPsd@ReplaceSpaceWarning ... 1615, 1627, 1671
\HyPsd@CJKnumberThree 1188, 1192, 1198	\HyPsd@HighC .... 1040, 1043	\HyPsd@Rest 1524, 1592, 1600, 1603, 1611, 1616, 1622, 1628, 1634
\HyPsd@CJKnumberTwo 1203, 1207, 1213	\HyPsd@HighD .... 1036, 1048	\HyPsd@SanitizeForOutFile .. ..... 14222, 14253
\HyPsd@ConvertToUnicode 753, 1786	\HyPsd@hhref ..... 625, 1313	\HyPsd@SanitizeOut@BraceLeft .. 14257, 14263, 14272
\HyPsd@DecimalToOctal .. 946, 977	\HyPsd@hspace ..... 621, 1287	\HyPsd@SanitizeOut@BraceRight .. 14260, 14275, 14284
\HyPsd@DecimalToOctalFirst . ..... 1020, 1056	\HyPsd@hspacetest . 1290, 1292, 1295	\HyPsd@SPACEOPTI 681, 697, 698, 700, 702, 704, 705, 744, 746, 1566, 1770
\HyPsd@DecimalToOctalSecond .. 1021, 1030, 1093, 2122, 2128, 2131	\HyPsd@ifnextchar 653, 654, 655, 1437	\HyPsd@spaceopti ... 746, 1715
\HyPsd@DefCommand 667, 668, 669, 670, 1400	\HyPsd@ignorespaces . 634, 912	\HyPsd@String 678, 680, 683, 685, 691, 693, 1483, 1484, 1494, 1554, 1556, 1560, 1561, 1565, 1566, 1581, 1582, 1614, 1626, 1685, 1686
\HyPsd@DieFace . 587, 588, 589, 2043, 20592, 20593	\HyPsd@inmathwarn . 511, 1260	\HyPsd@StringSubst . 694, 696, 702, 708, 711, 714, 717, 736, 739, 741, 1738
\HyPsd@DieFaceLarge ... 2051, 2060	\HyPsd@ITALCORR . 645, 649, 1284	\HyPsd@Subst ..... 690, 699, 703, 709, 715, 719, 723, 728, 729, 730, 731, 732, 733, 737, 740, 1722, 1739, 1754, 1755, 1756
\HyPsd@ding ..... 586, 2093	\HyPsd@LetCommand 671, 672, 1400	\HyPsd@temp ..... 757, 759, 760, 762, 763, 770, 772, 773, 2561, 2562, 2563, 2566, 2569, 2575, 2587, 2591, 6753, 6754, 6755, 6757, 6758, 6763
\HyPsd@DisableCommands 903, 905	\HyPsd@LetUnexpandableSpace . 640, 641, 642, 643, 1280, 1283	\HyPsd@tocsection ..... .. 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1308
\HyPsd@DoConvert . 1788, 1798	\HyPsd@LoadExtra .. 874, 877, 2619	\HyPsd@UnescapedString . 759
\HyPsd@DoEscape ..... 1812	\HyPsd@LoadStringEnc ..... .. 2580, 2601, 2603, 2607, 2609, 6740	
\HyPsd@doxspace ... 725, 1759	\HyPsd@LoadUnicode ..... ... 864, 2539, 2545, 2547, 2554, 2600, 6734	
\HyPsd@empty .. 710, 712, 716, 717, 719, 727, 734	\HyPsd@MoonPha .. 2074, 2092, 20594	
\HyPsd@end ... 684, 688, 1459, 1469, 1475, 1478, 1523, 1531, 1537, 1543, 1596, 1603, 1610, 1613, 1625	\HyPsd@nameref .... 629, 1348	
\HyPsd@endWithElse ... 1266, 1275	\HyPsd@pageref .... 628, 1330	
\HyPsd@EscapeTeX . 764, 767, 774, 1741	\HyPsd@pdfencoding 754, 2538, 2541, 2563, 2575, 2578, 2579, 2584, 2599, 6736, 6738, 6755, 6758	
\HyPsd@expand@utfvii .. 1888, 1895, 1901	\HyPsd@pdfencoding@auto ... ... 754, 2569, 2579, 2596, 6738, 6757	
\HyPsd@fi 1451, 1457, 1461, 1467	\HyPsd@pdfencoding@pdfdoc . ... 2562, 2584, 2597	
	\HyPsd@pdfencoding@unicode . .. 2566, 2598, 2599, 6736, 6754	

\HyPsd@UnexpandableSpace ..	\HyRef@StarSetRef . 4705, 4709,	5276, 5278
. 1283, 1466, 1616, 1628	4713, 4717, 8420, 8439,	\ifcsname . . . . 1887, 3283, 10355
\HyPsd@unichar . . . 1908, 1975,	8442, 8445, 8448	\ifdim . . 1295, 1614, 1618, 1626,
1981, 1986	\HyRef@StripStar . . 8551, 8582	1630, 2250, 2273, 4156,
\HyPsd@unichar@first@byte . . .	\HyRef@testreftype . 8529, 8548	4158, 4578, 9261, 9265,
. . . . . 1994, 2014	\HyRef@thisref . . . . 8526, 8529	9270, 9274, 9281, 9282,
\HyPsd@unichar@octtwo . 2016,	\HyTmp@found 5747, 5757, 5760	9286, 9287, 9294, 9295,
2024, 2030	\HyTmp@key . . . . . 5741, 5742	9296, 10215, 10216, 10219,
\HyPsd@unichar@second@byte .	\HyTmp@optitem . . . . .	10220, 10226, 10227, 10228,
. . . . . 2002, 2022	. . 5697, 5713, 5740, 5745,	10359, 10360, 10364, 10365,
\HyPsd@UnicodeReplacementCharacter	5751, 5772, 5783	10372, 10373, 10374, 11288,
. . 1978, 2013, 2046, 2076,	\HyTmp@optlist . . . 5696, 5711,	11302, 11673, 11674, 11677,
2081, 2089, 2096, 2099,	5712, 5743, 5744, 5749,	11678, 11684, 11685, 11686,
2109, 2167	5750, 5758, 5759, 5779,	12561, 12599, 12600, 13162,
\HyPsd@utf@viii@undeferr . 508,	5781, 5788, 5791	13201, 13202, 13518, 13557,
2035	\HyXeTeX@CheckUnicode . . . .	13558
\HyPsd@UTFviii . . . . 502, 1900	. . 3679, 3690, 3708, 3714,	\iffalse . . . . . 5866
\HyPsd@UTFviii@cthree . 1931,	3720, 3726, 3731, 3749,	\ifFileExists . 2848, 2885, 8741,
1940	3755, 3835, 6768	12287
\HyPsd@UTFviii@ctwo . . 1916,		\ifFld@checked . . . 5800, 12912,
1922		13950
\HyPsd@UTFviii@ccxliv@def . .	I	\ifFld@comb . . . . . 5647
. . . . . 1906, 1912	\i . . 14798, 14964, 14967, 14970,	\ifFld@combo . . . . . 5675,
\HyPsd@UTFviii@ccxliv@undef	14973, 15248, 15424, 15427,	5680, 12574, 12603, 13175,
. . . . . 1905, 1911	15430, 15433, 15562, 15567,	13205, 13531, 13561
\HyPsd@UTFviii@four . . . 1904,	15572, 15577, 15581, 15818,	\ifFld@disabled . . . 5801, 12913
1949	15889, 15897	\ifFld@edit . . . . . 5681
\HyPsd@UTFviii@three . . 1903,	\ibar . . . . . 16056, 20663	\ifFld@fileselect . . . . . 5650
1930	\if 1309, 6579, 6587, 7258, 7259,	\ifFld@hidden . . . 12533, 12588,
\HyPsd@UTFviii@two 1902, 1915	10687, 10690, 10694, 10698,	12668, 12692, 12718, 12740,
\HyPsd@Warning . . 1445, 1638,	10702, 10704, 10706, 13903	12811, 12823, 12833, 12916,
1659, 1672, 1701, 1707	\if@eqnstar . . . . . 7202, 7211	13137, 13190, 13273, 13295,
\HyPsd@XSPACE 647, 724, 1284	\if@files 2175, 5013, 5320, 6384,	13324, 13345, 13486, 13546,
\HyPsd@xspace . . 722, 724, 725	6808, 6818, 7725, 7740,	13643, 13668, 13697, 13722
\HyRef@StarSetRef 8427, 8432	7757, 7769, 7789, 7794,	\ifFld@multiline . . . 5648, 12522,
\HyRef@autopageref 8498, 8500	7813, 8241, 12984, 13015,	12818, 13125, 13474
\HyRef@autopagerefname 8497,	13030, 14223, 14410, 14489	\ifFld@multiselect . . . . . 5719
8501, 8503	\if@hyper@item . . . . . 6900	\ifFld@password . . 5649, 12799
\HyRef@autoref . . . . 8516, 8517	\if@Localurl . . . . 10243, 10289	\ifFld@popdown . . 5467, 12575,
\HyRef@autosetref . . 8520, 8523	\if@mid@expandable . . . . . 619	13176, 13532
\HyRef@CaseStar . . 8584, 8590	\if@minipage . . . . . 7593, 7665	\ifFld@radio 12571, 12593, 12848,
\HyRef@currentHtag . . . . .	\if@nmbrlist . . . . . 6886	13172, 13195, 13528, 13551
. . 8536, 8554, 8557, 8563,	\if@skiphyperref . . . . . 6901	\ifFld@readonly . . 12820, 12830,
8570, 8576, 8591	\IfBooleanTF . . . . . 8516	12914
\HyRef@MakeUppercaseFirstOfFive	\ifcase . . . . . 325,	\ifForm@html . . . . . 5821
. . . 4717, 8448, 8450	978, 1027, 1049, 1052, 1058,	\ifhint . . . . . 2847, 4441, 4503
\HyRef@name . . . . .	1094, 1138, 1254, 1944,	\ifhmode 2208, 2212, 2272, 2281,
. . 8552, 8553, 8558, 8565,	2075, 2566, 3426, 4550,	4848, 7314, 7389, 7398,
8583, 8584, 8585, 8587	5543, 5648, 5777, 5854,	7550, 7552, 8896, 8904,
\HyRef@Ref . . . . . 4702, 8453	7017, 7026, 8050, 8218,	11294, 12272
\HyRef@ShowKeysInit . . . 8593,	8255, 8525, 10754, 11259,	\ifHy@activeanchor . . 364, 5289
8604	13964, 13992, 14061, 14097,	\ifHy@backref . 365, 4354, 4729,
\HyRef@ShowKeysRef 8524, 8592	14133, 14330	6240, 7790, 7826
	\ifcat . . . 1525, 1552, 1559, 1564,	\ifHy@bookmarks . . . 366, 4603
	1569, 1572, 1575, 1578,	

<code>\ifHy@bookmarksnumbered</code>	367, 14210	<code>\ifHy@pdfdisplaydoctitle</code>	410, 9117, 9665, 10128, 10793, 11145, 12052	<code>\IfHyperBooleanExists</code>	2316, 2323
<code>\ifHy@bookmarksopen</code>	368, 4593	<code>\ifHy@pdfescapeform</code>	377, 13800, 13830	<code>\ifin@</code>	6969
<code>\ifHy@breaklinks</code>	369, 2498, 10934, 10975, 11270, 11293	<code>\ifHy@pdffitwindow</code>	379, 9115, 9663, 10126, 10791, 11143, 12050	<code>\ifmeasuring@</code>	6927, 6932
<code>\ifHy@CJKbookmarks</code>	371, 930	<code>\ifHy@pdfmarkerror</code>	11191, 11200	<code>\ifmmode</code>	595, 10937, 11265
<code>\ifHy@colorlinks</code>	372, 4674, 6245, 11867	<code>\ifHy@pdfmenubar</code>	387, 9113, 9661, 10124, 10789, 11141, 12048	<code>\ifnum</code>	1019, 1130, 1146, 1150, 1170, 1183, 1186, 1199, 1201, 1214, 1216, 1222, 1848, 1851, 1934, 1977, 1980, 1992, 2045, 2048, 2061, 2095, 2098, 2101, 2105, 2120, 2124, 2127, 2213, 2251, 2663, 2779, 2782, 2808, 3427, 3428, 4264, 4456, 4492, 4506, 4509, 4587, 4594, 4881, 5702, 5773, 5784, 6536, 6560, 6581, 6597, 6699, 6996, 6999, 7885, 7898, 8694, 8699, 8713, 8717, 8722, 8740, 8761, 9280, 9894, 9899, 10214, 10358, 10481, 10611, 10741, 10749, 10751, 10752, 10762, 10765, 10865, 10867, 10987, 11672, 11713, 12625, 12630, 12635, 12966, 13043, 13239, 13587, 13592, 13603, 13851, 13933, 13964, 13969, 13992, 13998, 14027, 14061, 14067, 14086, 14097, 14102, 14133, 14138, 14167, 14183, 14326, 14396, 14399, 14423, 14426, 14464, 14573, 14588, 14603
<code>\ifHy@destlabel</code>	373, 5299	<code>\ifHy@pdfnewwindow</code>	391, 3996, 10481	<code>\ifodd</code>	1958, 1963, 7968
<code>\ifHy@draft</code>	374, 4241	<code>\ifHy@pdfnewwindowset</code>	390, 3994	<code>\ifpatchable</code>	7316
<code>\ifHy@DviMode</code>	2654, 2674, 2869	<code>\ifHy@pdfpagelabels</code>	394, 6506, 6719, 6806	<code>\ifpdf</code>	2656, 2699, 2710, 4399, 4482
<code>\ifHy@DvipdfmxOutlineOpen</code>	4576, 14462	<code>\ifHy@pdfstring</code>	395, 888	<code>\ifpdfstringunicode</code>	503, 506
<code>\ifHy@frenchlinks</code>	380, 4687	<code>\ifHy@pdftoolbar</code>	403, 9112, 9660, 10123, 10788, 11140, 12047	<code>\ifportrait</code>	9260
<code>\ifHy@href@ismap</code>	4904, 9001, 10038, 10434, 10504, 11527	<code>\ifHy@pdfusetitle</code>	405, 6413	<code>\ifthenelse</code>	7816
<code>\ifHy@hyperfigures</code>	378, 4334, 6225, 8182	<code>\ifHy@pdfwindowui</code>	409, 9114, 9662, 10125, 10790, 11142, 12049	<code>\iftrue</code>	1454, 1733, 5869, 14575
<code>\ifHy@hyperfootnotes</code>	381, 7321	<code>\ifHy@plainpages</code>	396, 4349, 7940	<code>\iftutex</code>	758
<code>\ifHy@hyperindex</code>	382, 4344, 6235, 8189	<code>\ifHy@psdextra</code>	402, 596, 878	<code>\ifvmode</code>	2227, 2249, 2262
<code>\ifHy@hypertextnames</code>	383, 7046, 7939	<code>\ifHy@psize</code>	397	<code>\ifvoid</code>	7163, 7167
<code>\ifHy@implicit</code>	384, 4359, 4701, 14514	<code>\ifHy@raiselinks</code>	398, 9401, 9481, 9518, 9558, 11937, 12219	<code>\ifvtex</code>	2662, 2778, 2807, 4456, 4492, 4506, 4509
<code>\ifHy@linktocpage</code>	385, 2458, 2468	<code>\ifHy@seminarslides</code>	399	<code>\ifxetex</code>	2659, 2751, 3680, 4425, 4489, 4577, 5064
<code>\ifHy@localanchorname</code>	386, 7079, 7091	<code>\ifHy@setpagesize</code>	400, 9249, 10212, 10356, 11670	<code>\ignorespaces</code>	634, 7276, 7354, 7360, 7374, 7383, 7481, 7589, 7600, 7603, 7661, 7669, 7733, 7748, 7765, 7774, 7824
<code>\ifHy@naturalnames</code>	388, 7058	<code>\ifHy@setpdfversion</code>	2622, 8698		
<code>\ifHy@nesting</code>	389, 4339, 4947, 4981, 5019, 5274, 6230, 7346, 7366, 7444, 7604	<code>\ifHy@stoppedearly</code>	362		
<code>\ifHy@next</code>	921, 8206	<code>\ifHy@texht</code>	401, 4420, 4699, 5891, 5924, 6098, 6122, 6293, 8366		
<code>\ifHy@ocgcolorlinks</code>	392, 3384, 4660, 4670, 6250, 8693, 8782, 8860, 8868, 9782, 9865, 9873	<code>\ifHy@typexml</code>	363		
<code>\ifHy@pageanchor</code>	393, 7938	<code>\ifHy@unicode</code>	404, 498, 533, 536, 597, 695, 707, 735, 743, 752, 949, 1640, 1661, 1674, 1703, 1709, 1976, 2044, 2094, 2537, 2577, 3681, 6743, 13852		
<code>\ifHy@pdfa</code>	411, 4263, 4662, 5176, 5480, 6074, 6127, 6255, 8930, 8996, 9031, 9065, 9325, 9928, 9961, 9996, 10028, 10058, 10440, 10461, 10484, 10510, 10544, 10578, 10597, 11400, 12467, 12658, 12711, 13063, 13263, 13317, 13436, 13632, 13690, 13905, 13953, 14122	<code>\ifHy@verbose</code>	406, 4811, 4827, 4839, 5423, 8015, 8702		
<code>\ifHy@pdfcenterwindow</code>	370, 9116, 9664, 10127, 10792, 11144, 12051	<code>\ifHyField@NeedAppearances</code>	5864, 5866, 5869, 12469, 13065, 13438		
		<code>\ifHyInfo@AddonUnsupported</code>	3812, 3826, 3867		
		<code>\IfHyperBoolean</code>	2322		



\iint	17846, 20014	\invbackneg	18322, 20217	\keepPDF@SetupDoc	11871, 11878
\iinferior	19819	\invdiameter	19122, 20465	\kern	1534, 1615, 1620, 1632, 7963, 7964, 7965, 7967, 7968, 7973, 14529
\iint	17844, 20013	\inve	15828, 19747	\kernel@ifnextchar	654
\IJ	14794, 15583	\invglotstop	16213, 19780	\Keyboard	18340, 20225
\ij	15007, 15585	\invh	16044, 20658	\kha	19601
\Im	17482, 19886	\invlegr	16119, 20681	\kinferior	19877
\immediate	5367, 5369, 6385, 6712, 6811, 6819, 7728, 7743, 7760, 7770, 7789, 7819, 8784, 8799, 8814, 10870, 11710, 12929, 12985, 12988, 13049, 14316, 14382, 14413, 14492	\invvm	16078, 20669	\Kutline	18554, 20829
\in	17763, 19980	\invneg	19183, 20490	\kv@define@key	3834
\in@	6967	\invr	16114, 20679	\KV@href@pdfnewwindow	4902
\index	623	\invscr	16141, 19768	\KV@href@pdfnewwindow@default	4903
\indexentry	8244, 8259, 8274, 8278, 8288	\invscripta	15977, 20641	\KV@Hyp@draft	2432
\Info	19420, 20583	\invv	16176, 20693	\KV@Hyp@nolinks	2432
\infy	17806, 19998	\invw	16180, 20695	\KV@Hyp@pdfnewwindow	4902
\input	857, 867, 881, 3347, 3355, 3362, 4549, 11605, 11711, 11810, 11987, 16333	\invy	16184, 20697	\KV@Hyp@pdfnewwindow@default	4903
\InputIfFileExists	4175, 14406, 14437, 14482, 14484	\iota	19800	\kv@key	3820, 3823, 3830, 5700, 5703, 5705, 5709, 5713
\inputlineno	4818, 5281	\ipagamma	16036, 19759	\kv@parse	5699
\insert	7459	\isuperior	19843	\kv@parse@normalized	3851, 3858
\int	17841, 20012	\item	6881, 6884, 7756, 7768, 7811	\kv@processor@default	3854, 3861
\IntCalcAdd	1877	\Itemautorefname	8607	\kv@set@family@handler	3813
\IntCalcDec	1041, 2071	\itemautorefname	2961, 2979, 2997, 3015, 3033, 3051, 3069, 3098, 3099, 3127, 3145, 3163, 3181, 3199, 3217, 3235, 3253, 8607, 8608, 8611	\kv@value	3818, 5701, 5708, 5709
\IntCalcDiv	1035, 1044, 1049, 1152, 1161, 1173, 1190, 1205, 1220, 1861, 1867, 1873	\itshape	566	\kvsetkeys	2621, 2686, 2826, 3687, 3793, 4265, 4519, 4538, 4661, 5798, 8695, 11199, 12482, 12784, 12797, 12846, 12889, 12910, 13040, 13421
\intcalcDiv	1025, 1868, 1875, 1878	J		L	
\IntCalcMod	1037, 1046, 1052, 1156, 1162, 1177, 1193, 1208, 1222, 1224, 1863, 1868, 1869, 1875, 1878, 1880	\j	15590, 15848, 15955	\L	14787, 15614
\intcalcMod	1027	\JackStar	18896, 20368	\l	6910, 14800, 15616
\intcalcNum	2075, 2103, 2107	\JackStarBold	18898, 20369	\labdentálnas	16086, 20672
\IntCalcSub	2069, 2122, 2125, 2128, 2131	\jarr	19653	\label	622, 7988
\intcalcSub	1855, 2051	\jeem	19597	\label@Chyperref	4989, 4991
\interfootnotelinepenalty	7462	\jeh	19669	\label@hook	5349
\interleave	19323, 20552	\jinferior	20556	\label@hyperdef	4974, 5005
\interlinepenalty	7462	\jobname	12287, 14315, 14406, 14413, 14437, 14482, 14484, 14492	\label@hyperref	4954, 4988
\inva	15969, 20639	\Join	19166, 20483	\label@name	5314, 5324, 5350
\invamp	17528	\Jupiter	18684, 20865	\labelsep	7823
		\jupiter	18682, 20293	\labelwidth	7822
		K		\Ladiesroom	19409, 20580
		\k	14675, 15024, 15026, 15031, 15033, 15085, 15116, 15145, 15160, 15478, 15480, 15524, 15526, 15574, 15576, 15577, 15714, 15716, 15844, 15846, 16693, 16735, 16738	\lam	19635
		\kaf	19633	\Lambda	19784
		\kanjiskip	444	\lambda	19802
		\kappa	19801	\lambdabar	15776, 20628
		\kasra	19659	\lambdaslash	15777, 20629
				\langle	18342, 20226
				\language@group	606

<code>\LARGE</code> . . . . .	573	<code>\LEFTCIRCLE</code> . .	18591, 20263	<code>\limits</code> . . . . .	4794
<code>\Large</code> . . . . .	574	<code>\leftharpoondown</code> .	17640, 19930	<code>\linferior</code> . . . . .	19878
<code>\large</code> . . . . .	577	<code>\leftharpoonup</code> . .	17637, 19929	<code>\literals@out</code> 2200, 10859, 10864,	
<code>\LargerOrEqual</code> . .	17988, 20782	<code>\leftleftarrows</code> . .	17669, 19940	10916, 10922, 10948, 10954,	
<code>\lastnodetype</code> . . . . .	2251	<code>\leftleftharpoons</code> .	19087, 20452	11210, 11226, 11260, 11261,	
<code>\lastskip</code> 2250, 2258, 2265, 2273,		<code>\leftModels</code> . . . . .	19308, 20922	11289, 11291, 11303, 11305,	
2277, 2284		<code>\leftmodels</code> . . . . .	19301, 20920	11603, 11700, 11709, 11767,	
<code>\LaTeX</code> . 530, 532, 12293, 12294		<code>\leftmoon</code> . . . . .	18660, 20288	11780, 11861, 11985, 12145	
<code>\LaTeXe</code> . . . . .	531, 12294	<code>\leftpointright</code> . .	18634, 20845	<code>\ll</code> . . . . .	18001, 20081
<code>\latfric</code> . . . . .	16068, 20666	<code>\Leftrightarrow</code> . .	17703, 19953	<code>\llap</code> . . . . .	5079
<code>\LayoutCheckField</code> 6176, 12742,		<code>\leftrightharpoonup</code> . .	17578, 19903	<code>\llbracket</code> . . . . .	19009, 20901
13346, 13727		<code>\leftrightharrows</code> . .	17667, 19939	<code>\llcorner</code> . . . . .	18332, 20221
<code>\LayoutChoiceField</code> 6168, 12592,		<code>\leftrightharrowtriangle</code> . .	17744,	<code>\Lleftarrow</code> . . . . .	17716, 19959
13194, 13550		19971		<code>\lll</code> . . . . .	18253, 20187
<code>\LayoutPushButtonField</code> . 6184,		<code>\lefrightharpoon</code> .	19076, 20448	<code>\llparenthesis</code> . . . .	19118, 20463
12662, 12670, 13267, 13274,		<code>\lefrightharpoons</code> .	17678, 19944	<code>\lnapprox</code> . . . . .	19231, 20511
13636, 13645		<code>\Leftscissors</code> . . . .	18835, 20896	<code>\lneq</code> . . . . .	19226, 20509
<code>\LayoutTextField</code> . 6160, 12536,		<code>\leftslice</code> . . . . .	19245, 20517	<code>\lneqq</code> . . . . .	17997, 20079
13139, 13492		<code>\leftspoon</code> . . . . .	19005, 20419	<code>\lnsim</code> . . . . .	18285, 20201
<code>\lbrackdbl</code> . . . . .	20420	<code>\leftsquigarrow</code> . .	17720, 19961	<code>\Longleftarrow</code> . .	19024, 20427
<code>\lccode</code> . 959, 1742, 1743, 1744,		<code>\lefttherefore</code> . . .	17358, 19839	<code>\longleftarrow</code> . . .	19018, 20424
1745, 1746, 1747, 1748,		<code>\leftthreetimes</code> . .	18219, 20172	<code>\Longleftrightharrow</code>	19028, 20429
1749, 1750, 1751, 1898,		<code>\LeftTorque</code> . . . .	19069, 20905	<code>\longleftrightharrow</code>	19022, 20426
6034, 8203, 8204, 14240,		<code>\Lefttorque</code> . . . .	19070, 20906	<code>\longlegr</code> . . . . .	19766
14241, 14242, 14243, 14244,		<code>\leftVdash</code> . . . . .	19295, 20918	<code>\Longmapsfrom</code> . .	19032, 20431
14245, 14246, 14247, 14248,		<code>\leftvdash</code> . . . . .	18140, 20795	<code>\Longmapsto</code> . . . .	19034, 20432
14249, 14250		<code>\legacy</code> . . . . .	6906, 6911, 6913	<code>\longmapsto</code> . . . .	19030, 20430
<code>\lcurvearrowdown</code> 19062, 20444		<code>\legm</code> . . . . .	16083, 20671	<code>\Longrightarrow</code> .	19026, 20428
<code>\lcurvearrowse</code> . . . 19054, 20441		<code>\legr</code> . . . . .	16126, 20683	<code>\longrightarrow</code> . .	19020, 20425
<code>\lcurvearrowsw</code> . . 19057, 20442		<code>\Leo</code> . . . . .	18711, 20874	<code>\looparrowleft</code> . .	17619, 19922
<code>\ldots</code> . . . . .	523	<code>\leo</code> . . . . .	18709, 20302	<code>\looparrowright</code> . .	17621, 19923
<code>\le</code> . . . . .	17980, 20072	<code>\leq</code> . . . . .	17980, 20071	<code>\lower</code> . . 5081, 9407, 9487, 9524,	
<code>\leadsto</code> . . . . .	19048, 20439	<code>\leqclosed</code> . . . . .	18191, 20811	9564, 11291, 11943, 12225	
<code>\leavevmode</code> . . 631, 2202, 4251,		<code>\leqq</code> . . . . .	17989, 20075	<code>\lowercase</code> 960, 1752, 1899, 2333,	
4269, 4309, 5074, 5106,		<code>\leqslant</code> . . . . .	19210, 20501	2905, 2935, 3760, 3796,	
5181, 6350, 7388, 7549,		<code>\lessapprox</code> . . . .	19218, 20505	5372, 5373, 5376, 5381,	
8515, 8916, 8984, 9019,		<code>\lessclosed</code> . . . .	18185, 20809	5405, 5415, 5469, 5525,	
9053, 9312, 9400, 9480,		<code>\lessdot</code> . . . . .	18249, 20185	5845, 5919, 5922, 6035,	
9517, 9557, 9908, 9950,		<code>\lesseqgtr</code> . . . . .	18258, 20189	8205, 10986, 14251	
9988, 10021, 10254, 10263,		<code>\lesseqqgtr</code> . . . .	19236, 20513	<code>\lozenge</code> . . . . .	18589, 20262
10317, 10476, 10501, 10531,		<code>\lessgtr</code> . . . . .	18030, 20094	<code>\lrcorner</code> . . . . .	18334, 20222
10564, 10936, 11263, 11516,		<code>\LessOrEqual</code> . . .	17983, 20781	<code>\LT@array</code> . . . . .	7148
11543, 11574, 11936, 12218,		<code>\lesssim</code> . . . . .	18020, 20090	<code>\LT@foot</code> . . . . .	7163, 7167
12537, 12663, 12671, 12710,		<code>\LetLtxMacro</code> 6297, 6301, 6370,		<code>\LT@p@ftn</code> . . 7420, 7423, 7427,	
12743, 13140, 13226, 13248,		6374		7437	
13268, 13275, 13296, 13316,		<code>\Letter</code> . . . . .	18848, 20897	<code>\LT@p@ftntext</code> . . . .	7418, 7425
13347, 13493, 13585, 13614,		<code>\LHD</code> . . . . .	18584, 20260	<code>\LT@start</code> . . . . .	7165, 7175
13637, 13646, 13670, 13689,		<code>\lhd</code> . . . . .	18183, 20158	<code>\ltimes</code> . . . . .	18214, 20170
13728, 14527		<code>\hooknwarrow</code> . .	19040, 20435	<code>\ltx@backslashchar</code> 311, 312, 313,	
<code>\Leftarrow</code> . . . . .	17692, 19949	<code>\hooksearrow</code> . . .	19044, 20437	314, 315, 316, 317, 318, 319,	
<code>\leftarrow</code> . . . . .	19899	<code>\Libra</code> . . . . .	18717, 20876	320, 321, 323, 4069	
<code>\leftarrowtail</code> . . .	17609, 19917	<code>\libra</code> . . . . .	18715, 20304	<code>\ltx@empty</code> . . . . .	351, 352,
<code>\leftarrowtriangle</code>	17740, 19969	<code>\Lightning</code> . . . .	17627, 20751	458, 1522, 2655, 2867, 2879,	
<code>\leftbarharpoon</code> . .	19099, 20456	<code>\lightning</code> . . . .	17625, 19925	2883, 3376, 3513, 3889,	

3906, 3913, 4015, 4134, 4135, 4138, 4139, 4140, 4141, 4142, 4143, 4147, 4199, 4477, 4478, 4512, 4522, 4621, 5126, 5127, 5298, 5319, 5342, 5570, 5588, 5602, 5615, 5631, 5663, 5688, 5695, 5696, 6021, 6059, 6060, 6061, 6062, 6063, 6064, 6065, 6066, 6067, 6068, 6069, 6094, 6478, 6479, 6480, 6483, 6495, 6504, 6521, 6526, 6532, 6541, 6561, 7193, 8047, 8058, 8067, 8268, 8715, 8735, 8739, 9340, 10244, 10331, 10940, 11198, 11212, 11228, 11247, 11268, 11335, 11602, 11708, 11982, 12153, 12160, 12484, 12505, 12518, 12759, 12794, 12841, 12935, 12936, 12955, 12962, 12978, 13009, 13052, 13092, 13093, 13094, 13121, 13446, 13463, 13470	8731, 8961, 8971, 10423, 10526, 10912, 10955, 11034, 11219, 13095, 14564, 14574	\MakeLowercaseUnsupportedInPdfStrings ..... 473, 594
\ltx@firstofone 2675, 4207, 5345, 5362, 6407, 14268, 14280	\ltx@ifundefined 2119, 2317, 2318, 2361, 5353, 7915, 8762	\MakeRadioField .. 6187, 12628, 13238, 13578
\ltx@firstoftwo ..... 330, 338, 2062, 2318, 2325, 5237, 7347, 7367	\ltx@leftbracechar ..... 321	\maketag@@@ ..... 8118
\ltx@GlobalAppendToMacro 906, 5349	\ltx@LocalAppendToMacro 346, 349, 6955, 6971, 6976	\MakeTextField ... 6189, 12539, 13144, 13489
\ltx@gobble 255, 2681, 4200, 4227, 4236, 4609, 5341, 5343, 6310, 6311, 6322, 6324, 6325, 6680, 12267, 12948, 12964, 12969, 14266, 14278	\ltx@one 6535, 6536, 6543, 7883, 7885, 7894, 7897, 7898, 7911, 8722, 13101	\maketitle ..... 7498, 7499
\ltx@gobblethree ..... 7920	\ltx@onelevel@sanitize ... 6946, 6965, 8306	\MakeUppercase .... 593, 8451
\ltx@gobbletwo 5361, 5363, 6313, 6327, 12949	\ltx@ReturnAfterElseFi .. 4776	\MakeUppercaseUnsupportedInPdfStrings ..... 473, 593
\ltx@ifclassloaded .. 6533, 7880	\ltx@ReturnAfterFi ..... .. 1690, 4780, 4796, 8325, 8361, 8660, 8670, 13823	\Male ..... 18681, 20864
\ltx@ifempty ..... 5120	\ltx@rightbracechar ..... 322	\male ..... 18677, 20292
\ltx@iffileloaded ..... 879, 6492	\ltx@secondoftwo ..... ... 327, 2064, 2317, 2318, 2327, 2329, 5131, 5235, 7349, 7369, 12954, 12957, 12960, 12963, 12967, 12968, 12971	\MaleMale ..... 18798, 20329
\ltx@ifpackageloaded 926, 13097	\ltx@space ..... 324, 1447	\ManFace ..... 19395, 20574
\ltx@ifUndefined ..... ..... 261, 267, 306, 525, 604, 644, 720, 755, 799, 800, 801, 1296, 1391, 1392, 1516, 2169, 4193, 4222, 4224, 4906, 5310, 5341, 6453, 6865, 6963, 6970, 6992, 7007, 7234, 7691, 7899, 8267, 8504, 8505, 8549, 8550, 8552, 8553, 8700,	\ltx@zero 1746, 1747, 1748, 1749, 1750, 1751, 8710, 8717, 12966, 13099	\manstar ..... 18792, 20326
	\lz ..... 16075, 20668	\mapsto ..... 17613, 19919
	<b>M</b>	\Mars ..... 18680, 20863
	\m@ne .. 4323, 4456, 4492, 4506, 4509, 4830, 4889, 5387, 7250, 9903, 14484, 14573, 14586	\mars ..... 18679, 20862
	\mag 9280, 10214, 10358, 11672	\MathBSuppress . 10264, 10268
	\make@df@tag@@ ... 8129, 8131	\mathclose ..... 7196
	\make@df@tag@@@ . 8130, 8132	\mathdollar ..... 15186, 20595
	\make@stripped@name .. 7248	\mathellipsis .... 17329, 20729
	\makeatletter ..... 3, 849, 902	\mathopen ..... 7187, 7216
	\MakeButtonField . 6191, 12664, 12673, 12695, 12715, 12721, 13269, 13279, 13304, 13321, 13328, 13638, 13641, 13669, 13694, 13698	\mathparagraph . 15309, 20606
	\MakeCheckField . 6188, 12745, 13351, 13724	\mathsection .... 15276, 20604
	\MakeChoiceField . 6190, 12645, 13252, 13612	\mathsterling ... 15265, 20601
	\MakeFieldObject 12928, 13075, 13085, 13088	\mathunderscore . 15244, 20599
	\MakeLinkTarget ... 7290, 7304	\mathversion ..... 582
	\MakeLowercase ..... 594	\maxdimen ..... 3448, 12933
		\MaybeStopEarly ..... ... 459, 2689, 2784, 4363, 4494, 6839, 6842
		\mbox ..... 632, 8870, 9875
		\mdseries ..... 565
		\meaning ..... 62, 153, 159, 2178, 6437, 7071, 7255, 14448, 14456, 14471
		\measuredangle .. 17810, 20000
		\measuring@false ..... 6927
		\mediaheight 10361, 10366, 10375
		\mediawidth 10362, 10367, 10376
		\meem ..... 19637
		\Mercury ..... 18666, 20855
		\mercury ..... 18664, 20290
		\merge ..... 19197, 20917
		\MessageBreak ..... 263, 269, 286, 287, 292, 293, 333, 334, 1646, 1667, 1680, 1703, 1708, 1710, 2355, 2356, 2371, 2393, 2396, 2398, 2476, 2477, 2500, 2501, 2549, 2550, 2551, 2589, 2590, 2611, 2626, 2678,

2704, 2720, 2755, 2794,	\MVArrowDown .	17576, 20747	\neqcirc . . . . .	17955, 20061
2801, 2812, 2818, 2842,	\MVAt . . . . .	15236, 19735	\neqdot . . . . .	19206, 20499
2851, 2856, 2876, 2889,	\MVComma . . . .	15204, 19721	\neqsim . . . . .	17887, 20031
2927, 3386, 3509, 3510,	\MVDivision . . .	15210, 19724	\nequal . . . . .	17972, 20777
3570, 3571, 3589, 3590,	\MVEight . . . . .	15228, 19733	\nequiv . . . . .	17976, 20070
3684, 3773, 3828, 3829,	\MVFive . . . . .	15222, 19730	\neswarrow . . . . .	19038, 20434
3949, 3950, 4072, 4073,	\MVFour . . . . .	15220, 19729	\netscape . . . . .	9443
4074, 4095, 4097, 4105,	\MVMinus . . . . .	15206, 19722	\Neural . . . . .	18804
4106, 4113, 4163, 4403,	\MVMultiplication	15380, 20610	\Neutral . . . . .	20332
4404, 4412, 4413, 4429,	\MVNine . . . . .	15230, 19734	\new@ifnextchar . . . . .	655
4430, 4445, 4446, 4460,	\MVOne . . . . .	15214, 19726	\new@pdfink . . . . .	8895, 8949, 8952
4461, 4469, 4470, 4664,	\MVPeriod . . . . .	15208, 19723	\new@refstepcounter	7178, 7190
4883, 4884, 4908, 4909,	\MVPlus . . . . .	15202, 19720	\newblock . . . . .	7827
4925, 4926, 5426, 5431,	\MVRightArrow .	17572, 20745	\newcommand . . . . .	4, 9,
5440, 5483, 5529, 5653,	\MVRightarrow . .	17573, 20746		42, 2201, 5066, 5072, 5104,
5766, 5838, 5849, 5881,	\MVSeven . . . . .	15226, 19732		5309, 5332, 6354, 6358,
5882, 5901, 5993, 5994,	\MVSix . . . . .	15224, 19731		6928, 7278, 7285, 7620,
5995, 5996, 6511, 6746,	\MVThree . . . . .	15218, 19728		8150, 14288, 14291, 14296,
6761, 6762, 7992, 8022,	\MVTwo . . . . .	15216, 19727		19719, 20591
8023, 8024, 8025, 8026,	\MVZero . . . . .	15212, 19725	\newcount . . . . .	460,
8705, 8723, 8743, 8745,				461, 2206, 2647, 4874, 5804,
8751, 8753, 8756, 8764,	N			6522, 12488, 12640, 13098,
8920, 9913, 10452, 10535,	\nabla . . . . .	17761, 19979		13245, 13452, 13608, 14323
10823, 10829, 11043, 12942,	\name@of@eq . . . . .	6899	\newcounter . . . . .	6882, 7322, 9781,
12944, 14188, 14206, 14318	\nameref . . . . .	629		14238
\MF . . . . .	\napprox . . . . .	17900, 20037	\newdimen . . . . .	457, 4385, 4386,
\mho . . . . .	\napproxeq . . . .	17905, 20039		5062, 5805, 5806
\mid . . . . .	\nasb . . . . .	19649	\NewDocumentCommand	2301,
\MineSign . . . . .	\nasym . . . . .	17918, 20045		8514
\minferior . . . . .	\natural . . . . .	18765, 20314	\NewExpandableDocumentCommand	
\minusdot . . . . .	\nbackcong . . . . .	17914, 20043		2310
\minusinferior . . . . .	\nbacksim . . . . .	17878, 20027	\NewHook . . . . .	7034
\minussuperior . . . . .	\nbacksimeq . . . .	18225, 20175	\newif . . . . .	362, 363, 364, 365,
\models . . . . .	\nBumpeq . . . . .	17923, 20047		366, 367, 368, 369, 370, 371,
\moo . . . . .	\nbumpeq . . . . .	17927, 20049		372, 373, 374, 377, 378, 379,
\Moon . . . . .	\ncirceq . . . . .	17959, 20063		380, 381, 382, 383, 384, 385,
\MoonPha . . . . .	\ncong . . . . .	17896, 20035		386, 387, 388, 389, 390, 391,
2092, 20594	\ncurlyeqprec . . .	18265, 20192		392, 393, 394, 395, 396, 397,
\Mountain . . . . .	\ncurlyeqsucc . . .	18269, 20194		398, 399, 400, 401, 402, 403,
\MoveDown . . . . .	\nDashV . . . . .	19309, 20546		404, 405, 406, 409, 410, 411,
\MoveUp . . . . .	\nDashv . . . . .	19302, 20544		921, 2622, 2654, 3812, 4576,
\MP . . . . .	\ndashV . . . . .	19296, 20542		4904, 5379, 5467, 5800,
\mp . . . . .	\ndashv . . . . .	18141, 20144		5801, 5821, 5864, 6900,
\mu . . . . .	\nDoteq . . . . .	17937, 20053		6901, 6927, 7202, 10243,
\mugreek . . . . .	\ndoteq . . . . .	17931, 20051		11191
\multimap . . . . .	\ndownmodels . . .	19314, 20548	\newlabel	2181, 5015, 6390, 6391,
\multimapboth . . . .	\ndownvdash . . . .	18147, 20146		6398, 6409
\multimapdotbothA . . .	\ne . . . . .	17969, 20068	\newlabelxx . . . . .	6392, 6393
20162	\Narrow . . . . .	17710, 19956	\newlength . . . . .	14520
\multimapdotbothB . . .	\narrow . . . . .	17584, 19906	\newline . . . . .	528, 6458
20163	\neg . . . . .	20585	\newname . . . . .	7251, 7260
\MultiplicationDot	\Neptune . . . . .	18693, 20868	\newsavebox . . . . .	9711, 11239
\multiply . . . . .	\neptune . . . . .	18691, 20296	\NewSocket . . . . .	2224
\Mundus . . . . .	\neq . . . . .	17969, 20067	\NewSocketPlug . . . . .	7108

<code>\newtie</code> .. 14677, 14678, 15075, 15126, 15155, 15173	<code>\nmodels</code> ..... 18176, 20806	<code>\notasymp</code> ..... 17920, 20773
<code>\newtoks</code> 90, 5892, 11061, 11314, 11315	<code>\noboundary</code> ..... 526	<code>\notbackslash</code> ... 18356, 20231
<code>\newwrite</code> ..... 14411, 14490	<code>\nobreak</code> 2254, 2263, 2274, 2282, 7389, 7550	<code>\NotCongruent</code> .. 17978, 20779
<code>\nexists</code> ..... 17754, 19976	<code>\nobreakspace</code> . 643, 8508, 8511	<code>\notdivides</code> ..... 17821, 20762
<code>\next</code> .. 7817, 7818, 7819, 10679, 10681, 10683	<code>\NoChemicalCleaning</code> .. 19136, 20469	<code>\note</code> ..... 7929
<code>\nfallingdoteq</code> ..... 20055	<code>\noexpand</code> ..... . 22, 93, 95, 108, 116, 169, 171, 172, 173, 176, 206, 910, 973, 1406, 1423, 1525, 1552, 1913, 2261, 2262, 2263, 2266, 2280, 2281, 2282, 2285, 3296, 3298, 3300, 3301, 3302, 3304, 3322, 3519, 3520, 3522, 3884, 4325, 4329, 4330, 4519, 4788, 4962, 5276, 5278, 5304, 5435, 5980, 6635, 6636, 6645, 6647, 6650, 6784, 6949, 6950, 6967, 7116, 7117, 7118, 7119, 7120, 7128, 7129, 7130, 7254, 7411, 7421, 7429, 7430, 7431, 7433, 7560, 7650, 7727, 7742, 7759, 7890, 8045, 8141, 8143, 8427, 8428, 8558, 8559, 8564, 8566, 8571, 8572, 8577, 8578, 9648, 11128, 11195, 11777, 12035, 12567, 12568, 12569, 12570, 13168, 13169, 13170, 13171, 13524, 13525, 13526, 13527, 13802	<code>\notequiv</code> ..... 17979, 20780
<code>\nfallingdotseq</code> ..... 17942	<code>\noexpandQ</code> ..... 1552	<code>\notin</code> ..... 17765, 19981
<code>\nfss@text</code> 8373, 8393, 8410, 8542	<code>\nofrenchguillemets</code> ... 662, 664	<code>\notni</code> ..... 17774, 20757
<code>\NG</code> ..... 15632	<code>\NoHy@OrgPageRef</code> 6301, 6303, 6374, 6376	<code>\notowner</code> ..... 17772, 19984
<code>\ng</code> 15634, 15635, 15636, 20618, 20619	<code>\NoHy@OrgRef</code> 6297, 6299, 6370, 6372	<code>\notperp</code> ..... 18999, 20416
<code>\ngeq</code> ..... 18018, 20089	<code>\NoHyper</code> ..... 6305	<code>\notslash</code> ..... 18353, 20230
<code>\ngeqq</code> ..... 17995, 20078	<code>\nohyperpage</code> 6349, 8315, 8317, 8319	<code>\noway</code> ..... 18822, 20336
<code>\ngeqslang</code> ..... 19216	<code>\nolinkurl</code> ..... 4940	<code>\nparallel</code> ..... 17824, 20005
<code>\ngeqslant</code> ..... 20504	<code>\nolinkurl@</code> ..... 4940, 4941	<code>\nperp</code> ..... 18154, 20799
<code>\ngg</code> ..... 18007, 20084	<code>\NomFancyVerbLineautorefname</code> ..... 3116	<code>\nprec</code> ..... 18054, 20106
<code>\ngtr</code> ..... 18013, 20087	<code>\Nomfootnoteautorefname</code> 3096	<code>\nprecapprox</code> .... 19275, 20532
<code>\ngtrapprox</code> ..... 19224, 20508	<code>\Nomtheoremautorefname</code> 3120	<code>\npreccurlyeq</code> ... 18271, 20195
<code>\ngtrclosed</code> ..... 18298, 20823	<code>\nonumber</code> ..... 7229, 7232	<code>\npreceq</code> ..... 19251, 20520
<code>\ngtrless</code> ..... 18034, 20096	<code>\normalbaselineskip</code> . 6209, 6210, 6211, 6212, 6213, 6214	<code>\npreceqq</code> ..... 19263, 20526
<code>\ngtrsim</code> ..... 18028, 20093	<code>\normalfont</code> ..... 560	<code>\nprecsim</code> ..... 18048, 20103
<code>\nhateq</code> ..... 17965, 20065	<code>\normalsize</code> ... 578, 7596, 7668	<code>\nqsubseteq</code> ..... 20197
<code>\ni</code> ..... 17769, 19983		<code>\nqsupseteq</code> ..... 20198
<code>\NibRight</code> ..... 18860, 20351		<code>\NR@gettextitle</code> ..... 7586
<code>\NibSolidRight</code> .. 18862, 20352		<code>\NR@ref@showkeys</code> . 4704, 4708, 4712, 4716
<code>\niepsilon</code> ..... 16008, 19754		<code>\nRightarrow</code> .... 17689, 19948
<code>\niiota</code> ..... 16057, 19762		<code>\nrightarrow</code> .... 17594, 19910
<code>\nineinferior</code> ..... 19865		<code>\nrightModels</code> ... 18182, 20808
<code>\ninesuperior</code> ..... 19849		<code>\nrightModels</code> ... 18175, 20805
<code>\ninferior</code> ..... 19880		<code>\nrightVdash</code> .... 18179, 20807
<code>\niphy</code> ..... 16110, 19765		<code>\nrightvdash</code> .... 18172, 20804
<code>\niupsilon</code> ..... 16168, 19771		<code>\nrisingdoteq</code> .... 17947, 20057
<code>\nj</code> ..... 16090, 20674		<code>\nsim</code> ..... 17883, 20029
<code>\nLeftarrow</code> ..... 17684, 19946		<code>\nsimeq</code> ..... 17891, 20033
<code>\nleftarrow</code> ..... 17592, 19909		<code>\nsqsubset</code> ..... 18084, 20121
<code>\nleftModels</code> .... 19311, 20923		<code>\nsqsubseteq</code> 18092, 18275, 20125
<code>\nleftmodels</code> .... 19304, 20921		<code>\nsqsupset</code> ..... 18088, 20123
<code>\nLeftrightarrow</code> . 17686, 19947		<code>\nsqsupseteq</code> 18096, 18277, 20127
<code>\nleftrightharpoonup</code> .. 17623, 19924		<code>\nSubset</code> ..... 18235, 20179
<code>\nleftVdash</code> ..... 19298, 20919		<code>\nsubset</code> ..... 18062, 20110
<code>\nleftvdash</code> ..... 18143, 20796		<code>\nsubseteq</code> ..... 18070, 20114
<code>\nleq</code> ..... 18016, 20088		<code>\nsubseteqq</code> ..... 19287, 20538
<code>\nleqq</code> ..... 17991, 20076		<code>\nsucc</code> ..... 18056, 20107
<code>\nleqslant</code> ..... 19212, 20502		<code>\nsuccapprox</code> .... 19279, 20534
<code>\nless</code> ..... 18011, 20086		<code>\nsucccurlyeq</code> ... 18273, 20196
<code>\nlessapprox</code> .... 19220, 20506		<code>\nsucceq</code> ..... 19255, 20522
<code>\nlessclosed</code> ..... 18295, 20822		<code>\nsucceqq</code> ..... 19267, 20528
<code>\nlessgtr</code> ..... 18036, 20097		<code>\nsuccsim</code> ..... 18052, 20105
<code>\nlesssim</code> ..... 18026, 20092		<code>\nsuperior</code> ..... 19855
<code>\nll</code> ..... 18003, 20082		<code>\nSupset</code> ..... 18239, 20181
<code>\nmid</code> ..... 17819, 20003		<code>\nsupset</code> ..... 18064, 20111
		<code>\nsupseteq</code> ..... 18072, 20115
		<code>\nsupseteqq</code> ..... 19291, 20540
		<code>\nthickapprox</code> ... 17902, 20771



$\backslash$ ntriangleleft . . . . 18293, 20205  
 $\backslash$ ntrianglelefteq . . 18300, 20207  
 $\backslash$ ntriangleright . . . 18296, 20206  
 $\backslash$ ntrianglerighteq . . 18303, 20208  
 $\backslash$ ntriplesim . . . . 17910, 20041  
 $\backslash$ ntwoheadleftarrow 17598, 19912  
 $\backslash$ ntwoheadrightarrow . . . 17605, 19915  
 $\backslash$ nu . . . . . 19805  
 $\backslash$ null . . . 7808, 7816, 8415, 8538  
 $\backslash$ number 1132, 1134, 1161, 1162, 1852, 1917, 1918, 1919, 1920, 1924, 1925, 1926, 1927, 1928, 1932, 1933, 1934, 1935, 1936, 1937, 1938, 1942, 1943, 1944, 1945, 1946, 1947, 1950, 1952, 1956, 1957, 1959, 1961, 1963, 1966, 1970, 1971, 1972, 1973, 1982, 1983, 1987, 1988, 1995, 1996, 2000, 2003, 2004, 2005, 2015, 2017, 2018, 2023, 2025, 2026, 2031, 2032, 4578, 4595, 5393, 6997, 7000, 7048, 7049, 7052, 7056, 8776, 8779, 8780, 9471, 9489, 9490, 9505, 9506, 9526, 9527, 9543, 9544, 9566, 9567, 9583, 9584  
 $\backslash$ numberline . 7589, 7661, 14211, 14216  
 $\backslash$ numberwithin . . . . . 8147  
 $\backslash$ numexpr 1924, 1925, 1926, 1928, 1934, 1942, 1943, 1944, 1945, 1946, 1947, 1951, 1953, 1957, 1959, 1961, 1963, 1967, 1970, 1971, 1973, 1982, 1987, 2004, 2018, 2026, 2032, 2643, 2644, 3902  
 $\backslash$ nun . . . . . 19639  
 $\backslash$ nupmodels . . . . . 19318, 20550  
 $\backslash$ nupvdash . . . . . 18152, 20148  
 $\backslash$ nVDash . . . . . 18180, 20157  
 $\backslash$ nVdash . . . . . 18177, 20156  
 $\backslash$ nvDash . . . . . 18173, 20155  
 $\backslash$ nvdash . . . . . 18170, 20154  
 $\backslash$ nVdash . . . . . 18164, 20152  
 $\backslash$ Nwarrow . . . . . 17708, 19955  
 $\backslash$ nwarrow . . . . . 17582, 19905  
 $\backslash$ nwsearrow . . . . . 19036, 20433

## O

$\backslash$ O . . . . . 14922, 15382, 15864  
 $\backslash$ o . . . . . 14991, 15452, 15867  
 $\backslash$ oasterisk . . . . . 18124, 20793  
 $\backslash$ obackslash . . . . . 19130, 20909  
 $\backslash$ obar . . . . . 19124, 20466  
 $\backslash$ obeylines . . . . . 11776  
 $\backslash$ OBJ@acroform . . 13071, 13072  
 $\backslash$ OBJ@Helv 13046, 13059, 13411  
 $\backslash$ OBJ@OCG@print . . 8813, 8816, 8824, 8851, 9799, 9801, 9814, 9818, 9827, 9856  
 $\backslash$ OBJ@OCG@view . . . . . 8798, 8816, 8850, 9783, 9785, 9798, 9818, 9855  
 $\backslash$ OBJ@OCGs . . . . . 8819, 8822, 8828, 8833, 8838, 9815, 9817, 9821, 9825, 9831, 9836, 9841  
 $\backslash$ OBJ@pdfdocencoding . 13044, 13392, 13408  
 $\backslash$ OBJ@ZaDb 13045, 13058, 13401  
 $\backslash$ obot . . . . . 19133, 20468  
 $\backslash$ obslash . . . . . 19127, 20467  
 $\backslash$ ocirc . . . . . 18119, 20790  
 $\backslash$ OCIRCUMFLEX 19449, 19547, 19548, 19549, 19550, 19551  
 $\backslash$ ocircumflex . . . . 19443, 19487, 19488, 19489, 19490, 19491  
 $\backslash$ oddsidemargin . . . . . 7969  
 $\backslash$ odiv . . . . . 19181, 20489  
 $\backslash$ odot . . . . . 18114, 20134  
 $\backslash$ odplus . . . . . 19135, 20911  
 $\backslash$ OE . . . . . 14789, 15650  
 $\backslash$ oe . . . . . 14802, 15652  
 $\backslash$ offinterlineskip . . . . . 6486  
 $\backslash$ ogreaterthan . . . 19141, 20471  
 $\backslash$ OHORN . 19450, 19552, 19553, 19554, 19555, 19556  
 $\backslash$ ohorn 3161, 3168, 19444, 19492, 19493, 19494, 19495, 19496  
 $\backslash$ oiint . . . . . 17851, 20016  
 $\backslash$ oinferior . . . . . 19873  
 $\backslash$ oint . . . . . 17848, 20015  
 $\backslash$ ointclockwise . . . 17854, 20017  
 $\backslash$ ointctrclockwise . 17856, 20018  
 $\backslash$ oldb . . . . . 799  
 $\backslash$ oldc . . . . . 800  
 $\backslash$ oldd . . . . . 801  
 $\backslash$ oldnewlabel . . . 6390, 6395, 6398  
 $\backslash$ olessthan . . . . . 19138, 20470  
 $\backslash$ OMEGA . . . . . 12292  
 $\backslash$ Omega . . . . . 19791  
 $\backslash$ omega . . . . . 19816

$\backslash$ ominus . . . . . 18105, 20131  
 $\backslash$ on@line . . . . . 8019, 8020  
 $\backslash$ oneinferior . . . . . 19857  
 $\backslash$ onesuperior . . . . . 19739  
 $\backslash$ oo . . . . . 19357, 20559  
 $\backslash$ openbullet . . . . . 20265  
 $\backslash$ openo . . . . . 15984, 19750  
 $\backslash$ openout . . . . . 14413, 14492  
 $\backslash$ oplus . . . . . 18102, 20130  
 $\backslash$ OpMode 2663, 2779, 2782, 2795, 2808, 2813, 4456, 4492, 4506, 4509, 10762, 10867, 11713  
 $\backslash$ or . . . . . 328, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1028, 1050, 1053, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1139, 1140, 1141, 1142, 1143, 1255, 1256, 1257, 2077, 2080, 2082, 2085, 5553, 5559, 5564, 5778, 7017, 7018, 7019, 7020, 7026, 7027, 7028, 7029, 8052, 8056, 10755, 14331, 14332, 14333, 14334, 14335, 14336, 14337, 14338, 14339, 14340, 14341, 14342, 14343, 14344, 14345, 14346, 14347, 14348, 14349, 14350, 14351, 14352, 14353, 14354, 14355, 14356, 14357, 14358, 14359, 14360, 14361, 14362  
 $\backslash$ OrnamentDiamondSolid . 18989  
 $\backslash$ oslash . . . . . 18111, 20133

<code>\otimes</code> . . . . .	18108, 20132	3166, 3184, 3202, 3220, 3238, 3256, 8614	<code>\pdf@type</code> 11197, 11202, 11216, 11232, 11309, 11329
<code>\ovee</code> . . . . .	17834, 20009		<code>\pdfbookmark</code> 2201, 6353, 6354, 14289, 14294, 14299, 14303
<code>\overlay</code> . . . . .	7926	<code>\partial</code> . . . . . 17750, 19974	<code>\pdfcatalog</code> . . 6682, 8820, 9097, 9139, 13072
<code>\owedge</code> . . . . .	17829, 20007	<code>\partnumberline</code> . 14213, 14218	<code>\PDFdefaults</code> . . . . . 11325
<code>\owns</code> . . . . .	17771, 20756	<code>\PassOptionsToPackage</code> . . . . . . . 2701, 2713, 2716, 2728, 2739, 2768, 2827, 2833, 2864, 2916, 2920, 2942, 4191, 4204, 4215, 4539	<code>\pdfdest</code> . . . . . 8910
<b>P</b>			
<code>\P</code> . . . . .	522	<code>\patchcmd</code> . . . . . 7317	<code>\pdfendlink</code> 8946, 13144, 13238, 13253, 13280, 13305, 13329, 13352
<code>\p@</code> 1983, 1988, 5807, 5813, 9416, 9500, 9538, 9578, 10715, 11952, 12239, 12563, 13164, 13520		<code>\pdf@addtoks</code> . . . 11317, 11339, 11345, 11354, 11361, 11365, 11367, 11369, 11371, 11373, 11381, 11390, 11394, 11396, 11398, 11401, 11410, 11414, 11416, 11418, 11420, 11422, 11424, 11426, 11428, 11430, 11432, 11434, 11436, 11438, 11440, 11442, 11444, 11445, 11446, 11447, 11448, 11449, 11450, 11451, 11452, 11453, 11454, 11459	<code>\pdfescapestring</code> . . . . . 13831
<code>\p@equation</code> . . . . .	8125	<code>\pdf@addtoksx</code> . . 11311, 11321, 11337	<code>\pdfextension</code> . 2711, 4394, 4483
<code>\PackageError</code> . . . . .	61	<code>\pdf@box</code> . 11239, 11271, 11279, 11287, 11288, 11291, 11295, 11297, 11300	<code>\PDFForm@CName</code> . . . . 13839, 13842, 13846, 13849
<code>\PackageInfo</code> . . . . .	8773, 12940	<code>\pdf@defaulttoks</code> . 11195, 11315, 11316, 11326	<code>\PDFForm@Check</code> 12744, 12748, 13349, 13350, 13729, 13733, 13922
<code>\PackageWarning</code> . . 2625, 5764		<code>\pdf@docset</code> . . . . . 11061	<code>\PDFForm@List</code> . 12643, 12648, 13250, 13251, 13615, 13620, 13983
<code>\pageautorefname</code> . . 2974, 2992, 3010, 3028, 3046, 3064, 3082, 3122, 3140, 3158, 3176, 3194, 3212, 3230, 3248, 3266, 8511, 8624		<code>\pdf@endanchor</code> 8908, 8949, 8956	<code>\PDFForm@Name</code> 13135, 13189, 13262, 13343, 13484, 13545, 13631, 13720, 13838
<code>\pagename</code> . . . . .	8508	<code>\pdf@escapestring</code> . . . . . 8679	<code>\PDFForm@Push</code> . 12672, 12676, 13277, 13278, 13647, 13651, 13953
<code>\pageref</code> . 628, 4373, 6301, 6302, 6374, 6375, 8497, 8501		<code>\PDF@FinishDoc</code> . . . 2692, 2693, 2787, 2788, 4150, 4253, 4366, 4367, 4497, 4498, 6348, 6503, 6504, 9151, 9340, 9595, 10079, 10244, 10833, 11062, 11989, 12160	<code>\PDFForm@Radio</code> 12624, 12632, 13228, 13230, 13586, 13598, 14017
<code>\paperheight</code> . 4156, 9265, 9267, 9270, 9272, 9287, 9289, 9296, 9298, 10220, 10221, 10228, 10229, 10365, 10366, 10374, 10375, 11678, 11679, 11686, 11687		<code>\pdf@ifdraftmode</code> . . 6679, 8783, 9152, 9240, 13041, 14420	<code>\PDFForm@Reset</code> 12719, 12724, 13326, 13327, 13699, 13704, 14122
<code>\paperwidth</code> . 9261, 9263, 9274, 9276, 9286, 9288, 9295, 9297, 10219, 10221, 10227, 10229, 10364, 10367, 10373, 10376, 11677, 11679, 11685, 11687		<code>\pdf@linktype</code> . . . 11219, 11223, 11331, 11332	<code>\PDFForm@Submit</code> . . . . 12693, 12698, 13298, 13300, 13671, 13676, 14088
<code>\par</code> . . . . 7588, 7616, 7659, 7669, 7810, 7830		<code>\pdf@objdef</code> 11198, 11212, 11214, 11228, 11230, 11334, 11335	<code>\PDFForm@Text</code> . 12538, 12542, 13142, 13143, 13494, 13497, 14052
<code>\paragraphautorefname</code> . . . . . . . 2970, 2988, 3006, 3024, 3042, 3060, 3078, 3111, 3113, 3136, 3154, 3172, 3190, 3208, 3226, 3244, 3262, 8620		<code>\pdf@rect</code> . 11206, 11225, 11243	<code>\pdfhorigin</code> . . . . . 9257
<code>\parallel</code> . . . . .	17822, 20004	<code>\PDF@SetupDoc</code> . . . 4149, 4252, 6267, 6268, 6347, 9082, 9341, 9628, 10121, 10245, 10770, 11115, 11873, 12022, 12161	<code>\pdffinfo</code> . . . . . 9155
<code>\parenleftinferior</code> . . . . .	19869	<code>\PDF@SetupDox</code> . . . . . 9082	<code>\pdflastannot</code> . . . . . 8730
<code>\parenleftsuperior</code> . . . . .	19853	<code>\pdf@toks</code> 11195, 11216, 11232, 11314, 11318, 11322	<code>\pdflastlink</code> . 8733, 13007, 13020
<code>\parenrightinferior</code> . . . . .	19870		<code>\pdflastmatch</code> . . . . . 4065
<code>\parenrightsuperior</code> . . . . .	19854		<code>\pdflastobj</code> . . 8727, 8798, 8813, 8819, 13071, 13392, 13401, 13411
<code>\parr</code> . . . . .	17531, 20744		<code>\pdflastxform</code> 8728, 12931, 12933
<code>\partautorefname</code> . . 2964, 2982, 3000, 3018, 3036, 3054, 3072, 3102, 3130, 3148,			<code>\pdflastximage</code> . . . . . 8729

13654, 13669, 13678, 13698, 13706, 13723, 13735	\pdfstringdefPreHook 639, <u>894</u> , 906, 6455, 6467	\precnsim . . . . . 18289, 20203
\pdfmajorversion . . . 2647, 2648, 2651, 2652	\pdfstringdefWarn 527, 528, 633, <u>909</u> , 1414, 1419, 1438, 1442	\precsm . . . . . 18046, 20102
\pdfmark 6802, 9648, 9657, 9687, 10903, 10923, 10962, 10997, 11014, 11048, 11085, 11097, 11128, 11137, 11168, 11192, 11468, 11483, 11498, 11510, 11517, 11544, 11575, 12035, 12044, 12075, 12498, 12507, 12539, 12628, 12645, 12673, 12695, 12721, 12745, 14452	\pdftexversion . . . . . 13043	\PrerenderUnicode . . . . . 3701
\pdfmark@ . . . . . 11192, 11193	\pdfvorigin . . . . . 9258	\prime . . . . . 17334, 19835
\pdfmatch . . . . . 325	\pdfxform . . . . . 12929	\process@me . 6435, 6447, 6448, 9085, 9094
\pdfminorversion . . . . . 8692	\Peace . . . . . 18849, 20346	\ProcessKeyvalOptions . . 4220
\PDFNextPage . . . . . 11481	\peh . . . . . 19665	\prod . . . . . 17777, 19986
\PDFNextPage@ . 11481, 11482	\penalty . . . . . 1528, 2231, 4849	\prop . . . . . 2300, 2304, 2312
\pdfobj 8784, 8799, 8814, 13049, 13358, 13393, 13402	\PencilRight . . . . 18856, 20349	\propto . . . . . 17803, 19997
\pdfobjcompresslevel 8710, 8766	\PencilRightDown 18854, 20348	\protect . 1526, 4959, 4993, 7589, 7661, 7727, 7742, 7759, 7815, 7822, 7823, 8032, 8086, 8304, 8372, 8392, 8398, 8409, 8423, 8541, 9351, 9448, 10315, 10395, 11884, 12171, 14228, 14522
\PDFOpen . . . . . 11509	\PencilRightUp . . 18858, 20350	\protected . . . . 7229, 8037, 8038
\pdfoptionpdfminorversion 8691	\pentagon . . . . . 19328, 20554	\protected@edef . . . . . . . 5124, 6537, 6631, 7252, 7269, 7469, 7900, 7904, 8917, 9910, 10449, 10532, 11040
\pdfoutline . . . . . 14498	\perp . . . . . 18997, 20415	\protected@file@percent . . 7984, 8032
\pdfpageattr . . . . . . . 9196, 9200, 9201, 9211, 9220, 9224, 9225, 9235	\phantom . . . . . 583	\protected@write . . . 2180, 5014, 5321, 7795, 8243, 8258, 8273, 8277, 8287, 14227
\pdfpageheight 9267, 9276, 9284, 9289, 9298	\phantomsection . . . 4151, 6355, 7994, 14157, 14208, 14589	\protected@xdef . . . 7430, 7524
\pdfpageref . . . . . 13109	\Phi . . . . . 19789	\providecommand . . . . . . . . 473, 2225, 4481, 4802, 4945, 5308, 5367, 5369, 6386, 6661, 6686, 6820, 6859, 6861, 6863, 6866, 6867, 6868, 6870, 6871, 6872, 6873, 6875, 6876, 6877, 6878, 6879, 6880, 6889, 6890, 6891, 6892, 6893, 6894, 7246, 7692, 7693, 7708, 7984, 8605, 8606, 8607, 8608, 8609, 8610, 8611, 8612, 8613, 8614, 8615, 8616, 8617, 8618, 8619, 8620, 8621, 8622, 8623, 8624, 8686, 8894, 8912, 8913, 9339, 9442, 9443, 9706, 9768, 9769, 9770, 10241, 10357, 10387, 10388, 10389, 10860, 11240, 11241, 11601, 11609, 11610, 11611, 11612, 11707, 11719, 11720, 11721, 11722, 11774, 11815, 11816, 11817, 11818, 11981, 11983, 11984,
\PDFPreviousPage . . . . . 11494	\phi . . . . . 19813	
\PDFPreviousPage@ . . . 11495, 11497	\phiinferior . . . . . 19826	
\pdfrefobj . 13044, 13045, 13046	\Phone . . . . . 18610, 20271	
\pdfrefxform . . . . . 12933	\PhoneHandset . . 18840, 20342	
\pdfstartlink . 8941, 8985, 9020, 9054, 9314, 13143, 13229, 13251, 13278, 13299, 13327, 13350	\Pi . . . . . 19786	
\pdfstrcmp . . . . . 12966	\pi . . . . . 19807	
\pdfstringdef . . . . . <u>491</u> , 785, 3710, 3716, 3722, 3728, 3733, 3738, 3744, 3751, 3757, 3837, 5725, 5730, 5756, 6463, 6571, 6573, 7912, 7949, 13856, 14221	\pinferior . . . . . 19881	
\pdfstringdefDisableCommands . . 798, <u>900</u> , 6351, 6456	\Pisces . . . . . 18732, 20881	
\pdfstringdefPostHook . 781, <u>894</u>	\piscs . . . . . 18730, 20309	
	\pitchfork . . . . . 18247, 20184	
	\planck . . . . . 15557, 20617	
	\Plane . . . . . 18844, 20344	
	\Plus . . . . . 18877, 20359	
	\PlusCenterOpen . 18881, 20361	
	\plusinferior . . . . . 19866	
	\PlusOutline . . . . 18875, 20358	
	\plussuperior . . . . . 19850	
	\PlusThinCenterOpen . . 18879, 20360	
	\Pluto . . . . . 18696, 20869	
	\pluto . . . . . 18694, 20297	
	\pm . . . . . 20588	
	\pointer . . . . . 17735, 19967	
	\PointingHand . . . 18635, 20846	
	\Pointinghand . . . 18636, 20847	
	\pounds . . . . . 15266, 20602	
	\Preamble . . . . . 12288	
	\prec . . . . . 18038, 20098	
	\precapprox . . . . . 19273, 20531	
	\preccurlyeq . . . . 18042, 20100	
	\preceq . . . . . 19249, 20519	
	\preceqq . . . . . 19261, 20525	
	\precnapprox . . . . 19281, 20535	
	\precneq . . . . . 19257, 20523	
	\precneqq . . . . . 19269, 20529	



12096, 12097, 12152, 12986,  
12989, 13795  
\psdaliasnames .. 20591, 20934  
\psdmapshortnames ... 19719,  
20590  
\Psi ..... 19790  
\psi ..... 19815  
\PushButton ..... 6148  
\put@me@back 5271, 5284, 5294  
\pwedge ..... 16177, 20694  
\pxfonts ..... 19327

## Q

\Q ..... 1521, 13054  
\qaf ..... 19631  
\quaternote .... 18754, 20310  
\quotedblbase ... 14769, 15010,  
17315, 19425  
\quotesinglbase .. 14779, 15012,  
17309, 19427

## R

\r . 14644, 14656, 14668, 14883,  
14949, 15061, 15106, 15135,  
15167, 15342, 15409, 15706,  
15708, 17254, 17256  
\ra ..... 19607  
\Radiation ..... 18639, 20848  
\Radioactivity ... 18637, 20280  
\raff ..... 19651  
\Rain ..... 18820, 20335  
\raise ... 2238, 5095, 9417, 9501,  
9539, 9579, 11305, 11953,  
12240  
\rangle ..... 18344, 20227  
\rbrackdbl ..... 20421  
\rcurvearrowdown 19067, 20445  
\rcurvearrowleft .. 19071, 20446  
\rcurvearrowne .. 19051, 20440  
\rcurvearrowright 19074, 20447  
\rcurvearrowse ... 19060, 20443  
\Re ..... 17493, 19889  
\ReadBookmarks .....  
.. 4219, 4254, 4380, 4612,  
4724, 4726, 14387, 14419  
\real@setref ..... 8369, 8436  
\realfootnote ..... 7521  
\Rectangle ..... 18993, 20413  
\RectangleBold .. 18995, 20414  
\RectangleThin .. 18991, 20412  
\recycle ..... 18769, 20316  
\Recycling ..... 18771, 20888  
\Ref ..... 8454, 8463, 8471

\ref 627, 4372, 6297, 6298, 6370,  
6371, 7486, 7493, 8480,  
8488, 12263  
\ref@one ..... 4968, 4969  
\rEfLiNK ..... 12264, 12265  
\refstepcounter 6898, 6905, 6926,  
7141, 7152, 7178, 7184,  
7190, 7316, 7317, 7653  
\rem@ptetc ..... 10987, 10989  
\renewcommand ... 2172, 6931,  
7299, 8165, 8460, 8467,  
8476, 8485, 14303  
\Request ..... 18374, 20238  
\RequirePackage . 22, 232, 233,  
234, 235, 236, 237, 238, 239,  
240, 241, 242, 243, 244, 245,  
361, 924, 2602, 2687, 4197,  
4213, 4678, 4730, 4937,  
5370, 6337, 6477, 6727,  
8744, 10242, 12157, 14313  
\RerunFileCheck ..... 14315  
\Reset ..... 6157  
\reset@font .. 8373, 8393, 8410,  
8542  
\reve ..... 15998, 19752  
\reveject ..... 16211, 20704  
\revepsilon ..... 16012, 19755  
\revglotstop ..... 16209, 19779  
\Rewind ..... 18579, 20258  
\RewindToIndex . 18386, 20243  
\RHD ..... 18570, 20255  
\rhd ..... 18186, 20159  
\rho ..... 19808  
\rhoinferior ..... 19825  
\rhooknearrow ... 19042, 20436  
\rhookrepsilon ..... 19756  
\rhookswarrow .. 19046, 20438  
\Rightarrow ..... 17697, 19951  
\rightarrow ..... 19901  
\rightarrowtail ... 17611, 19918  
\rightarrowtriangle 17742, 19970  
\rightarrowbarharpoon . 19105, 20458  
\RIGHTCIRCLE . 18593, 20264  
\rightharpoondown 17652, 19934  
\rightharpoonup . 17649, 19933  
\rightleftarrows .. 17661, 19937  
\rightleftharpoon . 19078, 20449  
\rightleftharpoons 17681, 19945  
\rightModels .... 18169, 20803  
\rightmodels .... 18158, 20801  
\rightmoon ..... 18662, 20289  
\rightpointleft ... 18631, 20844  
\rightrightarrow . 17673, 19942  
\righttrightharpoons 19093, 20454

\RightScissors ... 18834, 20895  
\rightslice ..... 19247, 20518  
\rightsquigarrow . 17722, 19962  
\rightthreetimes . 18221, 20173  
\RightTorque ... 19064, 20903  
\Righttorque .... 19065, 20904  
\rightVdash ..... 18161, 20802  
\rightvdash ..... 18137, 20794  
\rinferior ..... 19820  
\riota ..... 17506, 19891  
\risingdoteq ..... 20056  
\risingdotseq ..... 17945  
\rlap ..... 5092, 8872, 9877  
\rm ..... 571  
\rmfamily ..... 561  
\Roman ..... 6627  
\roman ..... 6628  
\romannumeral 916, 917, 13054  
\rotm ..... 16079, 20670  
\rotOmega ..... 16170, 20692  
\rotr ..... 16115, 20680  
\rotrvar ..... 15978, 20642  
\rotrw ..... 16181, 20696  
\roty ..... 16185, 20698  
\rrbracket ..... 19012, 20902  
\Rrightarrow .... 17718, 19960  
\rrparenthesis ... 19120, 20464  
\rtaild ..... 19751  
\rtimes ..... 18217, 20171  
\rule ..... 7471

## S

\S ..... 15277, 20605  
\sad ..... 19615  
\Sagittarius ..... 18723, 20878  
\sagittarius ..... 18721, 20306  
\Saturn ..... 18687, 20866  
\saturn ..... 18685, 20294  
\sbox ..... 3697, 5075, 5107,  
6192, 9404, 9484, 9521,  
9561, 11240, 11279, 11940,  
12222, 12928  
\scd ..... 16927, 19817  
\scdefault ..... 4688  
\scg ..... 16033, 19758  
\schwa ..... 16001, 19753  
\schwainferior ..... 19875  
\sci ..... 16060, 19763  
\ScissorHollowRight ... 18838,  
20341  
\ScissorRight .... 18832, 20339  
\ScissorRightBrokenBottom ..  
..... 18828

<code>\ScissorRightBrokenTop</code>	18836, 20340	<code>\sharp</code>	18767, 20315	<code>\sphericalangle</code>	17812, 20001
<code>\scn</code>	16096, 19764	<code>\sheen</code>	19613	<code>\splitmaxdepth</code>	7464
<code>\Scorpio</code>	18720, 20877	<code>\shortciteN</code>	7858	<code>\splittopskip</code>	7463
<code>\scorpio</code>	18718, 20305	<code>\shuffle</code>	19158, 20479	<code>\sqcap</code>	18098, 20128
<code>\scr</code>	16138, 19767	<code>\Sigma</code>	19787	<code>\sqcup</code>	18100, 20129
<code>\scr@LT@array</code>	7151	<code>\sigma</code>	19810	<code>\sqdoublecap</code>	19185, 20491
<code>\scripta</code>	15971, 19749	<code>\sim</code>	17873, 20025	<code>\sqdoublecup</code>	19190, 20493
<code>\scriptg</code>	16030, 19757	<code>\simeq</code>	17889, 20032	<code>\sqsubset</code>	18082, 20120
<code>\scriptsize</code>	579	<code>\sinferior</code>	19882	<code>\sqsubsest</code>	18090, 20124
<code>\scriptv</code>	16172, 19772	<code>\SixFlowerAlternate</code>	18945, 20392	<code>\sqsubsetneq</code>	18279, 20199
<code>\scrollmode</code>	1464, 1473, 1486, 1593, 1726	<code>\SixFlowerAltPetal</code>	18955, 20397	<code>\sqsupset</code>	18086, 20122
<code>\scshape</code>	567	<code>\SixFlowerOpenCenter</code>	18941, 20390	<code>\sqsupseteq</code>	18094, 20126
<code>\scu</code>	16945, 19818	<code>\SixFlowerPetalRemoved</code>	18938, 20389	<code>\sqsupsetneq</code>	18282, 20200
<code>\scy</code>	16186, 19776	<code>\sixinferior</code>	19862	<code>\SquareCastShadowBottomRight</code>	18984, 20409
<code>\searrow</code>	17712, 19957	<code>\SixStar</code>	18928, 20384	<code>\SquareCastShadowTopRight</code>	18987, 20410
<code>\searrow</code>	17587, 19907	<code>\sixsuperior</code>	19846	<code>\Squaredot</code>	15313, 20608
<code>\Sech</code>	19387, 20570	<code>\SixteenStarLight</code>	18936, 20388	<code>\squaredots</code>	17866, 20022
<code>\second</code>	17336, 19836	<code>\sixteenthnote</code>	18761, 20312	<code>\SquareShadowBottomRight</code>	18978, 20407
<code>\sectionautorefname</code>	2967, 2985, 3003, 3021, 3039, 3057, 3075, 3104, 3133, 3151, 3169, 3187, 3205, 3223, 3241, 3259, 8617	<code>\SK@</code>	8599	<code>\SquareShadowTopRight</code>	18981
<code>\seen</code>	19611	<code>\SK@@ref</code>	8599	<code>\SquareTopRight</code>	20408
<code>\selectfont</code>	547, 4688, 13081	<code>\SK@ref</code>	8596	<code>\SS</code>	15008, 19411
<code>\SePa</code>	19373, 20564	<code>\skip@</code>	1543, 1626, 1627, 1630, 1632, 2258, 2264, 2277, 2283	<code>\ss</code>	3014, 14937, 15023, 15397
<code>\set@display@protect</code>	4314	<code>\slashc</code>	15962, 19748	<code>\slash</code>	19325, 20553
<code>\setbox</code>	1529, 1535, 1541, 3431, 3437, 5079, 5092, 5952, 6485, 8862, 9850, 9867, 13488, 13577, 13611, 13641, 13669, 13698, 13723	<code>\slashdiv</code>	19334, 20557	<code>\star</code>	18207, 20167
<code>\setcounter</code>	4880	<code>\slide</code>	7923	<code>\stepcounter</code>	6915, 7268, 7390, 7523, 14224
<code>\setkeys</code>	4855, 4900	<code>\SlTeX</code>	539	<code>\stockheight</code>	4156, 4386, 9282, 9284, 10216, 10217, 10360, 10361, 11674, 11675
<code>\setlength</code>	2235, 5063, 5964, 6771, 8889, 9257, 9258, 9263, 9267, 9272, 9276, 9283, 9284, 9288, 9289, 9297, 9298, 10361, 10362, 10366, 10367, 10375, 10376, 10715, 11699, 11766, 11860, 12144, 14542, 14610	<code>\slshape</code>	568	<code>\stockwidth</code>	4385, 9281, 9283, 9294, 10215, 10217, 10226, 10359, 10362, 10372, 11673, 11675, 11684
<code>\setminus</code>	17793, 19993	<code>\small</code>	580	<code>\stop@hyper</code>	6319
<code>\setpdfinkmargin</code>	3891, 3892, 6769, 8887, 11697, 11764, 11858, 12142	<code>\smallin</code>	17767, 19982	<code>\StringEncodingConvertTest</code>	760, 770
<code>\settowidth</code>	12560, 13161, 13517	<code>\smallowns</code>	17775, 19985	<code>\strip@period</code>	2185
<code>\SetupKeyvalOptions</code>	2293, 4184	<code>\smash</code>	2232	<code>\strip@prefix</code>	62, 2178, 4065, 6437, 7071, 7255, 14448, 14456, 14471
<code>\seveninferior</code>	19863	<code>\smile</code>	18338, 20224	<code>\strip@pt</code>	470, 4168, 5981, 6772, 9263, 9267, 9272, 9276, 10718, 11701, 11768, 11862, 12146, 13947, 14012, 14041, 14081, 14132
<code>\sevensuperior</code>	19847	<code>\Smiley</code>	18654, 20853	<code>\strip@pt@and@otherjunk</code>	10922, 10954, 10989
<code>\sffamily</code>	562	<code>\smiley</code>	18652, 20285	<code>\strutbox</code>	7464
<code>\shadda</code>	19661	<code>\Snowflake</code>	18959, 20399	<code>\sub@label</code>	2172
		<code>\SnowflakeChevron</code>	18957, 20398	<code>\subeqnarray</code>	7235, 7237
		<code>\SnowflakeChevronBold</code>	18961, 20400	<code>\subfig@oldlabel</code>	2174
		<code>\sofpasuq</code>	16860		
		<code>\softsign</code>	16501, 20715		
		<code>\spacefactor</code>	2208, 2214, 7389, 7398, 7550, 7552, 8897, 8905		
		<code>\spadesuit</code>	18733, 18735, 20882		
		<code>\Sparkle</code>	18963, 20401		
		<code>\SparkleBold</code>	18965, 20402		
		<code>\special@paper</code>	4152		
		<code>\SpecialDvipdfmxOutlineOpen</code>	2745, 2747, 4580, 4587		

`\Submit` ..... 6154  
`\SubmitObject` ..... 13301  
`\SubmitPObject` ..... 13301  
`\subparagraphautorefname` ...  
    .. 2971, 2989, 3007, 3025,  
    3043, 3061, 3079, 3112,  
    3114, 3137, 3155, 3173,  
    3191, 3209, 3227, 3245,  
    3263, 8621  
`\subpdfbookmark` ..... 14291  
`\subsection` ..... 11977  
`\subsectionautorefname` .. 2968,  
    2986, 3004, 3022, 3040,  
    3058, 3076, 3109, 3134,  
    3152, 3170, 3188, 3206,  
    3224, 3242, 3260, 8618  
`\Subset` ..... 18233, 20178  
`\subset` ..... 18058, 20108  
`\subseteq` ..... 18066, 20112  
`\subseteqq` ..... 19285, 20537  
`\subsetneq` ..... 18074, 20116  
`\subsectionautorefname` 2969,  
    2987, 3005, 3023, 3041,  
    3059, 3077, 3110, 3135,  
    3153, 3171, 3189, 3207,  
    3225, 3243, 3261, 8619  
`\succ` ..... 18040, 20099  
`\succapprox` ..... 19277, 20533  
`\succcurlyeq` ..... 18044, 20101  
`\succeq` ..... 19253, 20521  
`\succeqq` ..... 19265, 20527  
`\succnapprox` ..... 19283, 20536  
`\succneq` ..... 19259, 20524  
`\succneqq` ..... 19271, 20530  
`\succnsim` ..... 18291, 20204  
`\succsim` ..... 18050, 20104  
`\sukun` ..... 19663  
`\sum` ..... 17781, 19988  
`\Sun` ..... 18659, 20854  
`\sun` ..... 18657, 20287  
`\SunCloud` ..... 20334  
`\SunCloud` ..... 18818  
`\SunshineOpenCircled` .. 18953,  
    20396  
`\Supset` ..... 18237, 20180  
`\supset` ..... 18060, 20109  
`\supseteq` ..... 18068, 20113  
`\supseteqq` ..... 19289, 20539  
`\supsetneq` ..... 18076, 20117  
`\surd` ..... 19996  
`\Swarrow` ..... 17714, 19958  
`\swarrow` ..... 17590, 19908

## T

`\T` ..... 19591  
`\t` . 14676, 15096, 15125, 15154,  
    15172  
`\T@pageref` .. 8462, 8469, 8478,  
    8487  
`\T@Ref` ..... 4702  
`\Ta` ..... 19619  
`\taa` ..... 19593  
`\tableautorefname` .. 2963, 2981,  
    2999, 3017, 3035, 3053,  
    3071, 3101, 3129, 3147,  
    3165, 3183, 3201, 3219,  
    3237, 3255, 8613  
`\tagform@` ..... 8124  
`\taild` ..... 15992, 20647  
`\tailinvr` ..... 16123, 20682  
`\taill` ..... 16072, 20667  
`\tailn` ..... 16095, 20676  
`\tailr` ..... 16129, 20684  
`\tails` ..... 16145, 20687  
`\tailt` ..... 16163, 20690  
`\tailz` ..... 16191, 20699  
`\Tape` ..... 18842, 20343  
`\tatweel` ..... 19627  
`\tau` ..... 19811  
`\Taurus` ..... 18702, 20871  
`\taurus` ..... 18700, 20299  
`\tcheh` ..... 19667  
`\Telefon` ..... 18612, 20839  
`\temp@online` ..... 8019, 8022  
`\Tent` ..... 18826, 20338  
`\tesh` ..... 16263, 20712  
`\TeX` . 529, 530, 537, 539, 12291,  
    12293, 12295  
`\texorpdfstring` ..... 887, 6352  
`\text` ..... 480, 486  
`\textAcht` ..... 19386, 20569  
`\textAcPa` ..... 19372, 20563  
`\textacute` 14640, 14652, 14664,  
    14848, 15102, 15131, 15303  
`\textacutedbl` ..... 16311  
`\textacutemacron` 15099, 15128,  
    15157, 17033, 17036, 17137,  
    17140  
`\textainferior` .... 17423, 19871  
`\textaleph` ..... 17517, 19893  
`\textalpha` ... 3181, 3182, 3183,  
    3185, 3186, 3187, 3188,  
    3189, 3190, 3191, 3192,  
    3193, 3194, 19695, 19792  
`\textamalg` ..... 17780, 19987

`\textampersand` .... 519, 14711,  
    15191, 15192, 15193, 20597,  
    20598  
`\textangle` ..... 17809, 19999  
`\textangstrom` ..... 17509  
`\textAnkh` ..... 18643, 20282  
`\textaoilig` . 19354, 19356, 20928  
`\textAPLbox` .... 18381, 20241  
`\textAPLdownarrowbox` 18370,  
    20236  
`\textAPLinput` .. 18373, 20237  
`\textAPLinu` .... 18347, 20228  
`\textAPLleftarrowbox` .. 18362,  
    20233  
`\textAPLrightarrowbox` . 18365,  
    20234  
`\textAPLuparrowbox` .. 18367,  
    20235  
`\textapprox` ..... 17899, 20036  
`\textapproxeq` ... 17904, 20038  
`\textaquarius` .... 18728, 18729,  
    20308, 20880  
`\textaries` . 18698, 18699, 20298,  
    20870  
`\textasciicircum` ..... 15304  
`\textasciibreve` ... 14687, 15110,  
    15139, 16300  
`\textasciicaron` ... 14645, 14657,  
    14669, 14689, 15107, 15136,  
    16286  
`\textasciicircum` .. 14641, 14653,  
    14665, 14727, 15103, 15132,  
    15241  
`\textasciidieresis` . 14643, 14655,  
    14667, 14824, 15105, 15134,  
    15279  
`\textasciigrave` ... 14639, 14651,  
    14663, 14732, 15101, 15130,  
    15246  
`\textasciimacron` . 14648, 14660,  
    14672, 14838, 15114, 15143,  
    15293  
`\textasciitilde` 520, 4765, 14742,  
    15258  
`\textast` ..... 17796, 19994  
`\textAsterisk` .... 18944, 20391  
`\textAsteriskBold` 18921, 20380  
`\textAsteriskcentered` .... 15201  
`\textAsteriskCenterOpen` 18923,  
    20381  
`\textAsteriskRoundedEnds` ...  
    ..... 18968, 20403  
`\textasympt` ..... 17917, 20044  
`\textbabygamma` . 16041, 19760

<code>\textbackcong</code> . . .	17913, 20042	<code>\textbigtriangleup</code> . . .	18562, 18563, 18564, 20252, 20833, 20834	<code>\textCESign</code> . . . .	19423, 19424, 20584, 20933
<code>\textbackneg</code> . . . .	18319, 20215	<code>\textBiohazard</code> . .	18641, 20281	<code>\textCheckedbox</code> .	18617, 18618, 20273, 20841
<code>\textbackprime</code> . .	17341, 19838	<code>\textblacksmiley</code> .	18656, 20286	<code>\textCheckmark</code> .	18865, 18866, 20353, 20899
<code>\textbacksim</code> . . . .	17877, 20026	<code>\textblank</code> . . . . .	18389	<code>\textCheckmarkBold</code> . . .	18868, 20354
<code>\textbacksimeq</code> . .	18224, 20174	<code>\textbot</code> . .	18150, 18151, 20147, 20798	<code>\textChi</code> . . . . .	19692
<code>\textbackslash</code> . .	515, 694, 2038, 14723, 14725, 15239	<code>\textbowtie</code> .	18212, 18213, 20169, 20815	<code>\textchi</code> . . . .	3182, 19716, 19814
<code>\textbaht</code> . . . . .	16924	<code>\textboxast</code> . . . . .	19149, 20474	<code>\textchiinferior</code> . .	16964, 19827
<code>\textbar</code> .	14738, 15253, 15254, 20600	<code>\textboxbackslash</code> .	18359, 20232	<code>\textcirc</code> . . . . .	17798, 19995
<code>\textbarb</code> . . . . .	15745, 20621	<code>\textboxbar</code> . . . . .	18599, 20266	<code>\textcirceq</code> . . . . .	17958, 20062
<code>\textbarc</code> . . . . .	15966, 20638	<code>\textboxbox</code> . . . .	19153, 20476	<code>\textcirclearrowleft</code> .	19015, 20422
<code>\textbard</code> . . . . .	15509, 20613	<code>\textboxbslash</code> . . .	19147, 20473	<code>\textcirclearrowright</code> . . .	19017, 20423
<code>\textbardbl</code> .	17302, 17303, 20725	<code>\textboxcircle</code> . . .	19151, 20475	<code>\textcircled</code> .	15098, 15127, 15156, 18396, 18398, 18400, 18402, 18404, 18406, 18408, 18410, 18412, 18414, 18416, 18418, 18420, 18422, 18424, 18426, 18428, 18430, 18432, 18434, 18436, 18441, 18443, 18445, 18447, 18449, 18455, 18457, 18459, 18461, 18463, 18465, 18467, 18469, 18471, 18473, 18479, 18481, 18483, 18485, 18487, 18489, 18491, 18493, 18495, 18497, 18499, 18501, 18503, 18505, 18507, 18509, 18511, 18513, 18515, 18517, 18519, 18521, 18523, 18525, 18527, 18529, 18531, 18533, 18535, 18537, 18539, 18541, 18543, 18545, 18547, 18549, 18551
<code>\textbardotlessj</code> . .	16023, 16024, 16025, 20654	<code>\textboxdot</code> . . . . .	18134, 20141	<code>\textCircledA</code> . . .	18438, 18439, 20245, 20828
<code>\textbarglotstop</code> .	16245, 16246	<code>\textboxempty</code> . .	18614, 18615, 20272, 20840	<code>\textcircledast</code> . . .	18122, 18123, 18124, 20136, 20792, 20793
<code>\textbari</code> .	16054, 16055, 16056, 19761, 20663	<code>\textboxminus</code> . . .	18130, 20139	<code>\textcircledcirc</code> . .	18118, 18119, 18120, 20135, 20790, 20791
<code>\textbarin</code> . . . . .	18315, 20213	<code>\textboxplus</code> . . . .	18128, 20138	<code>\textcircledddash</code> . .	18126, 20137
<code>\textbarl</code> . .	15768, 15769, 19746	<code>\textboxslash</code> . . . .	19145, 20472	<code>\textcircledP</code> . . . . .	17489
<code>\textbarleftharpoon</code>	19103, 20457	<code>\textboxtimes</code> . . .	18132, 20140	<code>\textCircleShadow</code> .	18976, 20406
<code>\textbaro</code> . . . . .	16100, 16102	<code>\textbraceleft</code> .	513, 2039, 14736, 15251	<code>\textcircplus</code> . . . . .	19172, 20485
<code>\textbarp</code> . . . . .	16969, 19829	<code>\textbraceright</code> .	514, 2039, 14740, 15256	<code>\textcircumflex</code> . . . . .	14691
<code>\textbarrevglotstop</code>	16249, 16250	<code>\textbrokenbar</code> . .	14820, 15272, 15273, 20603	<code>\textcircumlow</code> . .	15120, 15149, 19360
<code>\textbarrightharpoon</code> . . .	19109, 20459	<code>\textbullet</code> .	14744, 17324, 19833	<code>\textCleaningF</code> . .	18451, 20246
<code>\textbarsci</code> . . . . .	16967, 19828	<code>\textbulletoperator</code> . . . . .	17800	<code>\textCleaningFF</code> .	18453, 20247
<code>\textbarscu</code> . . . . .	16972, 19830	<code>\textbullseye</code> . . . .	16220, 16221, 16222, 16223, 20707, 20708	<code>\textCleaningP</code> . .	18475, 20248
<code>\textbaru</code> .	16165, 16166, 16167, 19770, 20691	<code>\textBumpeq</code> . . . .	17922, 20046	<code>\textCleaningPP</code> .	18477, 20249
<code>\textbarwedge</code> . . .	18206, 20166	<code>\textbumpeq</code> . . . .	17926, 20048		
<code>\textbbslash</code> . . . .	18393, 18394, 20244, 20827	<code>\textcancer</code> .	18707, 18708, 20301, 20873		
<code>\textBeam</code> . . . . .	18377, 20239	<code>\textCap</code> .	18242, 18243, 20182, 20818		
<code>\textbecause</code> . . . .	17862, 17863, 20020, 20767	<code>\textcap</code> . . . . .	17838, 20010		
<code>\textbeltl</code> .	16066, 16067, 16068, 20666	<code>\textcapdot</code> . . . . .	19189, 20492		
<code>\textBeta</code> . . . . .	16332	<code>\textcapricornus</code> .	18725, 18726, 20307, 20879		
<code>\textbeta</code> . .	15023, 19696, 19793	<code>\textccnc</code> . . . . .	19415, 20581		
<code>\textbetainferior</code> .	16956, 19823	<code>\textccnd</code> . . . . .	19417		
<code>\textbeth</code> . . . . .	17519, 19894	<code>\textccsa</code> . . . . .	19419, 20582		
<code>\textbetween</code> . . . .	18010, 20085	<code>\textcdj</code> . . . . .	16234		
<code>\textbf</code> . . . . .	554	<code>\textcdot</code> . .	15022, 19437, 20589		
<code>\textBicycle</code> . . . .	19406, 20578	<code>\textcdots</code> . . . . .	18309, 20210		
<code>\textbigcircle</code> . . . .	15127, 15156, 18601, 18602, 20267, 20838	<code>\textcedilla</code> .	14647, 14659, 14671, 14856, 15109, 15138, 15315		
<code>\textbigdoublevee</code> .	19165, 20482	<code>\textcelsius</code> . . . . .	15009, 17479		
<code>\textbigdoublewedge</code> . . .	19163, 20481	<code>\textcent</code> . . . . .	14812, 15262		
<code>\textbigtriangledown</code> . . .	18577, 18578, 20257, 20836	<code>\textcentoldstyle</code> .	15964, 20637		

<code>\textclock</code>	18325, 18326, 18327, 20218, 20824, 20825
<code>\textcloseepsilon</code>	16227, 16228
<code>\textcloseomega</code>	16106, 16107, 16108, 16109, 20677, 20678
<code>\textcloserevepsilon</code>	16019, 16020, 16021, 20653
<code>\textCloud</code>	18605, 20268
<code>\textClowerTips</code>	18901, 20370
<code>\textclubsuitblack</code>	2160, 18744, 18745, 20886
<code>\textclubsuitwhite</code>	18753
<code>\textCoffeecup</code>	18624, 20275
<code>\textcoloncolonequals</code>	19209, 20500
<code>\textcolonequals</code>	17950, 20058
<code>\textcolonmonetary</code>	17449
<code>\textcolor</code>	592, 13039, 13086, 13089, 13420
<code>\textcommatailz</code>	15932, 15933
<code>\textcomplement</code>	17749, 19973
<code>\textcompwordmark</code>	17296
<code>\textcong</code>	17894, 20034
<code>\textcopyleft</code>	19412, 19413
<code>\textcopyright</code>	14826, 15281, 19736
<code>\textcorner</code>	16320, 16321
<code>\textCR</code>	14685, 15179
<code>\textcrb</code>	15741, 15742, 15743, 15745, 15746, 20620, 20621, 20622
<code>\textcrd</code>	15504, 15506, 15507, 15509, 15510, 20612, 20613, 20614
<code>\textcrg</code>	15834, 20634
<code>\textcrh</code>	15555, 20615
<code>\textcrinvglotstop</code>	15795, 15796
<code>\textcrlambda</code>	15772, 15773, 15774, 15775, 15776, 15777, 20626, 20627, 20628, 20629
<code>\textCross</code>	18884, 20362
<code>\textCrossedbox</code>	18620, 18621, 18622, 20274, 20842, 20843
<code>\textCrossMaltese</code>	18890, 20365
<code>\textCrossOpenShadow</code>	18886, 20363
<code>\textCrossOutline</code>	18888, 20364
<code>\textcrtwo</code>	15792, 15793
<code>\textctc</code>	15987, 15988, 15989, 20646
<code>\textctd</code>	15930, 15931
<code>\textctesh</code>	16154, 16155, 16156, 20688
<code>\textctj</code>	16235, 16236, 20709
<code>\textctjvar</code>	16236, 20709
<code>\textctn</code>	15950, 15951
<code>\textctt</code>	15952, 15953
<code>\textctyogh</code>	16199, 16200, 16201, 20701
<code>\textctz</code>	16192, 16193, 16194, 20700
<code>\textCup</code>	18245, 18246, 20183, 20819
<code>\textcup</code>	17840, 20011
<code>\textcupdot</code>	18079, 20118
<code>\textcupplus</code>	18081, 20119
<code>\textcurlyeqprec</code>	18264, 20191
<code>\textcurlyeqsucc</code>	18268, 20193
<code>\textcurlyvee</code>	18228, 18229, 20176, 20816
<code>\textcurlywedge</code>	18231, 18232, 20177, 20817
<code>\textcurrency</code>	14816, 15268
<code>\textcurvearrowleft</code>	17633, 19927
<code>\textcurvearrowright</code>	17635, 19928
<code>\textCuttingLine</code>	18553, 18554, 18555, 18556, 20250, 20829, 20830, 20831
<code>\textdagger</code>	14746, 17317, 17318, 19832, 20726
<code>\textdaggerdbl</code>	14748, 17320, 17321, 17322, 20727, 20728
<code>\textdaleth</code>	17523, 19896
<code>\textdanger</code>	18795, 20327
<code>\textdasheddownarrow</code>	17734, 19966
<code>\textdasheduparrow</code>	17729, 19964
<code>\textdashleftarrow</code>	17726, 17727, 19963, 20753
<code>\textdashrightarrow</code>	17731, 17732, 19965, 20754
<code>\textDashV</code>	19307, 19308, 20545, 20922
<code>\textDashv</code>	19300, 19301, 20543, 20920
<code>\textdashV</code>	19294, 19295, 20541, 20918
<code>\textdashv</code>	18139, 18140, 20143, 20795
<code>\textDavidStar</code>	18892, 18893, 20366, 20900
<code>\textdblig</code>	15956, 15958, 20635
<code>\textdctzlig</code>	16257, 16258
<code>\textddagger</code>	14749
<code>\textddots</code>	18313, 20212
<code>\textdegree</code>	14840, 15009, 15295
<code>\textDeleatur</code>	17472, 17473, 19884, 20739
<code>\textDelta</code>	19684, 19782
<code>\textdelta</code>	3194, 19698, 19795
<code>\textDiamondSolid</code>	18990, 20411
<code>\textdiameter</code>	18317, 20214
<code>\textdiamond</code>	18587, 18588, 20261, 20837
<code>\textdiamonddots</code>	17363, 19841
<code>\textdiamondsuitblack</code>	2161, 18751
<code>\textdiamondsuitwhite</code>	18741, 18742, 20885
<code>\textdigammagreek</code>	20713
<code>\textdiscount</code>	17357
<code>\textdiv</code>	15020, 19435, 20587
<code>\textdivide</code>	14989, 15020, 15450, 19435
<code>\textdivideontimes</code>	18210, 20168
<code>\textDivides</code>	17790, 19991
<code>\textDividesNot</code>	17792, 19992
<code>\textdivorced</code>	18809
<code>\textdlsh</code>	17630, 19926
<code>\textdollar</code>	517, 14707, 15185, 15186, 15187, 20595, 20596
<code>\textdong</code>	17459
<code>\textdotaccent</code>	14646, 14658, 14670, 14693, 15108, 15137, 16302
<code>\textdotbelow</code>	14650, 14662, 14674, 14717, 15124, 15153, 16327
<code>\textdotdiv</code>	17870, 20768
<code>\textdoteq</code>	17930, 20050
<code>\textdoteqdot</code>	17935, 17936, 20052, 20774
<code>\textdotminus</code>	17869, 17870, 20023, 20768
<code>\textdotplus</code>	17788, 19990
<code>\textdottimes</code>	19177, 20487
<code>\textdoublebarpipe</code>	15808, 15809, 15810, 20633
<code>\textdoublebarpipevar</code>	15810, 20633
<code>\textdoublebarwedge</code>	19200, 20496
<code>\textdoublegrave</code>	15112, 15141, 16323
<code>\textdoublepipe</code>	15804, 15805, 15806, 20632
<code>\textdoublepipevar</code>	15806, 20632
<code>\textdoublevee</code>	19196, 19197, 20495, 20917
<code>\textdoublevertline</code>	17303, 20725



<code>\textdoublewedge</code>	19194, 20494	<code>\textendash</code>	729, 14755, 17298	<code>\textfiveinferior</code>	17403, 19861
<code>\textDOWNarrow</code>	18573, 18574, 20256, 20835	<code>\textEnvelope</code>	18847, 18848, 20345, 20897	<code>\textfivesixths</code>	17553
<code>\textDownarrow</code>	17701, 19952	<code>\textEpsilon</code>	3179	<code>\textFiveStar</code>	18607, 20269
<code>\textdownarrow</code>	17575, 17576, 17577, 19902, 20747, 20748	<code>\textepsilon</code>	3180, 3181, 3184, 3186, 3187, 3188, 3189, 3193, 3194, 19699, 19796	<code>\textFiveStarCenterOpen</code>	18909, 20374
<code>\textdownarrowdownarrows</code>	17676, 19943	<code>\texteqcirc</code>	17954, 20060	<code>\textFiveStarConvex</code>	18917, 20378
<code>\textdownarrowdownharpoons</code>	19097, 20455	<code>\texteqcolon</code>	17872, 20024	<code>\textFiveStarOpen</code>	18609, 20270
<code>\textdownharpoonleft</code>	17659, 19936	<code>\texteqdot</code>	19205, 20498	<code>\textFiveStarOpenCircled</code>	18907, 20373
<code>\textdownharpoonright</code>	17656, 19935	<code>\texteqsim</code>	17886, 20030	<code>\textFiveStarOpenDotted</code>	18911, 20375
<code>\textdownmodels</code>	19313, 20547	<code>\texteqslantgtr</code>	19244, 20516	<code>\textFiveStarOutline</code>	18913, 20376
<code>\textdownstep</code>	19343, 19344	<code>\texteqslantless</code>	19242, 20515	<code>\textFiveStarOutlineHeavy</code>	18915, 20377
<code>\textdownuparrows</code>	17739, 19968	<code>\textequalscolon</code>	17952, 20059	<code>\textFiveStarShadow</code>	18919, 20379
<code>\textdownupharpoons</code>	19115, 20461	<code>\textequalsinferior</code>	17417, 19868	<code>\textfivesuperior</code>	17371, 19845
<code>\textdsbiological</code>	18789, 20324	<code>\textequalssuperior</code>	17385, 19852	<code>\textfl</code>	731, 14785, 19364
<code>\textdschemical</code>	18787, 20323	<code>\textequiv</code>	17974, 17975, 20069, 20778	<code>\textFlag</code>	18775, 18776, 20318, 20889
<code>\textdscommercial</code>	18791, 20325	<code>\textEreversed</code>	15754	<code>\textflat</code>	18764, 20313
<code>\textdsjuridical</code>	18785, 20322	<code>\textesh</code>	16146, 16147, 19769	<code>\textflorin</code>	14757, 15757, 15758, 20623
<code>\textdsmedical</code>	18783, 20321	<code>\textestimated</code>	17511, 17512, 17513, 20741, 20742	<code>\textflq</code>	617, 15016, 19431
<code>\textdsmilitary</code>	18780, 18781, 20320, 20890	<code>\texteta</code>	3179, 3180, 3182, 3185, 3187, 3188, 3189, 3192, 3193, 19701, 19798	<code>\textflqq</code>	615, 15014, 19429
<code>\textdtimes</code>	19180, 20488	<code>\texteuro</code>	14808, 17461, 17462, 17463, 17464, 17465, 17466, 17467, 17468, 17469, 17470, 20730, 20731, 20732, 20733, 20734, 20735, 20736, 20737, 20738	<code>\textforall</code>	17747, 19972
<code>\textdyoghlig</code>	16254, 16255	<code>\textexclamdown</code>	732, 14810, 15260	<code>\textForward</code>	18566, 20253
<code>\textdzlig</code>	16251, 16252, 16253, 20711	<code>\textexists</code>	17753, 19975	<code>\textForwardToIndex</code>	18384, 20242
<code>\textearth</code>	18675, 18676, 20291, 20861	<code>\textfallingdoteq</code>	17941, 20054	<code>\textFourAsterisk</code>	18895, 20367
<code>\textEightAsterisk</code>	18974, 20405	<code>\textfatsemi</code>	19170, 20484	<code>\textfourfifths</code>	17549
<code>\textEightFlowerPetal</code>	18952, 20395	<code>\textFax</code>	19401, 19402, 20576, 20932	<code>\textfourinferior</code>	17401, 19860
<code>\textEightFlowerPetalRemoved</code>	18971, 20404	<code>\textfax</code>	17525, 19897	<code>\textFourStar</code>	18903, 20371
<code>\texteightinferior</code>	17409, 19864	<code>\textfemale</code>	18669, 20856	<code>\textFourStarOpen</code>	18905, 20372
<code>\textEightStar</code>	18931, 20385	<code>\textFemaleFemale</code>	18797, 20328	<code>\textfoursuperior</code>	17369, 19844
<code>\textEightStarBold</code>	18933, 20386	<code>\textFemaleMale</code>	18801, 20330	<code>\textfourth</code>	17361, 19840
<code>\textEightStarConvex</code>	18927, 20383	<code>\textfi</code>	730, 14783, 19362	<code>\textfractionsolidus</code>	14759, 17351
<code>\textEightStarTaper</code>	18925, 20382	<code>\TextField</code>	6139	<code>\textfrown</code>	18337, 20223
<code>\texteightsuperior</code>	17377, 19848	<code>\textFinv</code>	17515, 19892	<code>\textfrownie</code>	18650, 18651, 20284, 20852
<code>\texteinferior</code>	17425, 19872	<code>\textFire</code>	19404, 20577	<code>\textfrq</code>	618, 15017, 19432
<code>\textell</code>	17485, 19887	<code>\textfishhookr</code>	16131, 16132, 16133, 16134, 20685, 20686	<code>\textfrqq</code>	616, 15015, 19430
<code>\textellipsis</code>	523, 524, 14751, 17328, 17329, 20729	<code>\textfivedots</code>	19339, 20558	<code>\textfullnote</code>	19378, 19379, 20566, 20929
<code>\textemdash</code>	728, 14753, 17300	<code>\textfiveighths</code>	17559	<code>\textGame</code>	17527, 19898
<code>\textemptyset</code>	17757, 17758, 19977, 20755	<code>\textFiveFlowerOpen</code>	18950, 20394	<code>\textGamma</code>	19683, 19781
<code>\textEncodingNoboundary</code>	526, 19679	<code>\textFiveFlowerPetal</code>	18948, 20393	<code>\textgamma</code>	3190, 3191, 3192, 19697, 19794
				<code>\textgammainferior</code>	16958, 19824
				<code>\textGaPa</code>	19366, 20560
				<code>\textgt</code>	17987, 20074

<code>\textgemini</code>	18704, 18705, 20300, 20872	<code>\texthausaK</code>	15763, 19745	<code>\textinterrobangdown</code>	19336, 19337
<code>\textGentsroom</code>	19408, 20579	<code>\texthbar</code>	15554, 15555, 15556, 15557, 19742, 20615, 20616, 20617	<code>\textinvamp</code>	17529, 17530, 17531, 20743, 20744
<code>\textgreq</code>	17986, 17988, 20073, 20782	<code>\texthdotfor</code>	17326, 19834	<code>\textinvbackneg</code>	18323, 20217
<code>\textgreqq</code>	17994, 20077	<code>\textheartsuitblack</code>	2162, 18749	<code>\textinvbreve</code>	15074, 15117, 15146, 15881, 15883, 15894, 15896, 15897, 15907, 15909, 15923, 15925
<code>\textgreqslant</code>	19215, 20503	<code>\textheartsuitwhite</code>	18737, 18738, 18739, 20883, 20884	<code>\textinvdiameter</code>	19123, 20465
<code>\textgg</code>	18006, 20083	<code>\textheng</code>	19345, 19347, 20925	<code>\textinve</code>	15829, 19747
<code>\textggg</code>	18256, 20188	<code>\textHermaphrodite</code>	18803, 20331	<code>\textinvglotstop</code>	16213, 16214, 19780
<code>\textgimel</code>	17521, 19895	<code>\texthexagon</code>	18379, 20240	<code>\textinvneg</code>	19184, 20490
<code>\textglobfall</code>	17589, 20750	<code>\texthexstar</code>	18814, 20333	<code>\textinvsqr</code>	16141, 16142, 19768
<code>\textglobrise</code>	17586, 20749	<code>\texthinferior</code>	17433, 19876	<code>\textiota</code>	3179, 3180, 3181, 3183, 3186, 3194, 19703, 19800
<code>\textglotstop</code>	16203, 16204, 16205, 16206, 19778, 20702, 20703	<code>\texthookleftarrow</code>	17616, 19920	<code>\textipagamma</code>	16037, 16038, 19759, 20657
<code>\textglq</code>	613, 15012, 19427	<code>\texthookrightarrow</code>	17618, 19921	<code>\textisuperior</code>	17367, 19843
<code>\textglqq</code>	611, 15010, 19425	<code>\textHslash</code>	15552	<code>\textit</code>	556
<code>\textgnapprox</code>	19234, 20512	<code>\texthslash</code>	17481, 19885	<code>\textJackStar</code>	18897, 20368
<code>\textgneq</code>	19230, 20510	<code>\textHT</code>	14681, 15175	<code>\textJackStarBold</code>	18899, 20369
<code>\textgneqq</code>	18000, 20080	<code>\texthtb</code>	15979, 15980, 15981, 15982, 20643, 20644	<code>\textjinferior</code>	19333, 20556
<code>\textgnsim</code>	18288, 20202	<code>\texthtbardotlessj</code>	16149, 16150	<code>\textJoin</code>	19168, 20483
<code>\textgravedbl</code>	16315	<code>\texthtc</code>	15749, 15750	<code>\textjupiter</code>	18683, 18684, 20293, 20865
<code>\textgravemacron</code>	15100, 15129, 15158, 17027, 17030, 17131, 17134	<code>\texthtd</code>	15993, 15994, 15995, 15996, 20648, 20649	<code>\textkappa</code>	3181, 3183, 3186, 19704, 19801
<code>\textgreater</code>	14721, 15235	<code>\texthtg</code>	16026, 16027, 16028, 20655	<code>\textKeyboard</code>	18341, 20225
<code>\textgrq</code>	614, 15013, 19428	<code>\texthth</code>	16046, 16047, 16048, 16049, 20660, 20661	<code>\textkinferior</code>	17435, 19877
<code>\textgrqq</code>	612, 15011, 19426	<code>\texththeng</code>	16050, 16051, 16052, 20662	<code>\textkra</code>	15596
<code>\textGslash</code>	15831	<code>\texthtk</code>	15764, 15765, 15766, 20625	<code>\textLadiesroom</code>	19410, 20580
<code>\textgslash</code>	15833, 15834, 20634	<code>\texthtp</code>	15782, 15783	<code>\textLambda</code>	19686, 19784
<code>\textgtrapprox</code>	19223, 20507	<code>\texthtq</code>	16242, 16243	<code>\textlambda</code>	3186, 3194, 19705, 19802
<code>\textgtrdot</code>	18252, 20186	<code>\texthtrtaild</code>	16976, 16977, 19831	<code>\textlangle</code>	18343, 20226
<code>\textgtreqless</code>	18262, 20190	<code>\texhtscg</code>	16230, 16231	<code>\textlatin</code>	603, 7059
<code>\textgtreqqlless</code>	19240, 20514	<code>\texhttt</code>	15787, 15788	<code>\textlbrackdbl</code>	19008, 19009, 20420, 20901
<code>\textgtrless</code>	18033, 20095	<code>\texthungarumlaut</code>	14695, 15115, 15144, 16310	<code>\textlcurvearrowdown</code>	19063, 19064, 19065, 20444, 20903, 20904
<code>\textgtrsim</code>	18024, 18025, 20091, 20784	<code>\texthvlig</code>	15759, 15760, 15761, 20624	<code>\textlcurvearrowse</code>	19055, 20441
<code>\textguarani</code>	17477	<code>\textiint</code>	17847, 20014	<code>\textlcurvearrowsw</code>	19058, 20442
<code>\texthalflength</code>	16297, 16298	<code>\textiinferior</code>	16948, 19819	<code>\textle</code>	17982, 20072
<code>\texthalfnote</code>	19381, 19382, 20567, 20930	<code>\textiint</code>	17845, 20013	<code>\textleadsto</code>	19049, 20439
<code>\textHandCuffLeft</code>	18626, 20276	<code>\textlm</code>	17483, 19886	<code>\textLeftarrow</code>	17693, 19949
<code>\textHandCuffRight</code>	18628, 20277	<code>\textin</code>	17764, 19980	<code>\textleftarrow</code>	17567, 19899
<code>\textHandLeft</code>	18630, 18631, 20278, 20844	<code>\textInfo</code>	19421, 20583	<code>\textleftarrowtail</code>	17610, 19917
<code>\textHandRight</code>	18633, 18634, 18635, 18636, 20279, 20845, 20846, 20847	<code>\textinfty</code>	17807, 19998	<code>\textleftarrowtriangle</code>	17741, 19969
<code>\textHaPa</code>	19368, 20561	<code>\textint</code>	17842, 17843, 20012, 20765	<code>\textleftbarharpoon</code>	19100, 20456
<code>\texthateq</code>	17962, 17963, 17964, 20064, 20775, 20776	<code>\textinterleave</code>	19324, 20552	<code>\textLEFTCIRCLE</code>	18592, 20263
<code>\texthausaB</code>	15748, 19743	<code>\textinterrobang</code>	17349		
<code>\texthausaD</code>	15752, 19744				

<code>\textlefttharpoondown</code> ..	17641, 19930	<code>\textll</code> .....	18002, 20081	<code>\textmeasuredangle</code>	17811, 20000
<code>\textlefttharpoonup</code>	17638, 19929	<code>\textllcorner</code> ....	18333, 20221	<code>\textmercury</code> ....	18665, 18666, 20290, 20855
<code>\textleftleftarrows</code>	17670, 19940	<code>\textLleftarrow</code> ..	17717, 19959	<code>\textmho</code> .	17504, 17505, 19890, 20740
<code>\textleftleftharpoons</code> ...	19088, 20452	<code>\textlll</code> .....	18254, 20187	<code>\textmid</code> .....	17818, 20002
<code>\textleftmoon</code> ...	18661, 20288	<code>\textllparenthesis</code> .	19119, 20463	<code>\textMineSign</code> ...	18778, 20319
<code>\textLeftrightarrow</code>	17704, 19953	<code>\textlnapprox</code> ...	19232, 20511	<code>\textminferior</code> ...	17439, 19879
<code>\textleftrightharpoonup</code> .	2165, 17579, 19903	<code>\textlneq</code> .....	19227, 20509	<code>\textminus</code> .....	14765, 17784
<code>\textleftrightharrows</code>	17668, 19939	<code>\textlneqq</code> .....	17998, 20079	<code>\textminusdot</code> ...	19174, 19175, 20486, 20914
<code>\textleftrightharrowtriangle</code>	17745, 19971	<code>\textlnsim</code> .....	14834, 15289	<code>\textminusinferior</code>	17415, 19867
<code>\textleftrightharpoon</code> ...	19077, 20448	<code>\textlnlogicalnot</code> ...	14833, 15018, 15288, 19433	<code>\textminussuperior</code>	17383, 19851
<code>\textleftrightharpoons</code> ..	17679, 19944	<code>\textLongleftarrow</code>	19025, 20427	<code>\textmoo</code> .....	19117, 20462
<code>\textleftslice</code> ....	19246, 20517	<code>\textlongleftarrow</code>	19019, 20424	<code>\textMoon</code> .....	19394, 20573
<code>\textleftspoon</code> ...	19006, 20419	<code>\textLonglefrightharpoon</code> .	19029, 20429	<code>\textMountain</code> ...	18825, 20337
<code>\textleftsquigarrow</code>	17721, 19961	<code>\textlonglefrightharpoon</code> .	19023, 20426	<code>\textmp</code> .....	17786, 19989
<code>\textlefttherefore</code> .	17359, 19839	<code>\textlonglegr</code> ....	16124, 16125, 16126, 19766, 20683	<code>\textMu</code> .....	3184
<code>\textleftthreetimes</code>	18220, 20172	<code>\textLongmapsfrom</code>	19033, 20431	<code>\textmu</code> .	3180, 3181, 3182, 3185, 3192, 3193, 14850, 15306, 19803
<code>\textlengthmark</code> .	16294, 16295	<code>\textLongmapsto</code> .	19035, 20432	<code>\textmugreek</code> ....	19706, 19804
<code>\textleo</code> ..	18710, 18711, 20302, 20874	<code>\textlongmapsto</code> .	19031, 20430	<code>\textmultimap</code> ...	18202, 20164
<code>\textleq</code> ..	17981, 17983, 20071, 20781	<code>\textLongrightharpoon</code> ...	19027, 20428	<code>\textmultimapboth</code>	19157, 20478
<code>\textleqq</code> .....	17990, 20075	<code>\textlongrightharpoon</code>	19021, 20425	<code>\textmultimapdotbothA</code>	18198, 20162
<code>\textleqslant</code> ....	19211, 20501	<code>\textlongs</code> .....	15740, 17258	<code>\textmultimapdotbothB</code>	18200, 20163
<code>\textless</code> .....	14719, 15233	<code>\textlooparrowleft</code>	17620, 19922	<code>\textmultiply</code> ....	14920, 15019, 15378, 15379, 15380, 19434, 20609, 20610
<code>\textlessapprox</code> ..	19219, 20505	<code>\textlooparrowright</code>	17622, 19923	<code>\textMundus</code> ....	19392, 20572
<code>\textlessdot</code> .....	18250, 20185	<code>\textlozenge</code> ....	18590, 20262	<code>\textmusicalnote</code> .	18756, 18757, 18758, 20887
<code>\textlesseqgtr</code> ...	18259, 20189	<code>\textlptr</code> .....	16280, 16281	<code>\textMVAt</code> ....	15237, 19735
<code>\textlesseqqgtr</code> ..	19237, 20513	<code>\textlquill</code> .....	17353	<code>\textMVComma</code> .	15205, 19721
<code>\textlessgtr</code> .....	18031, 20094	<code>\textlrcorner</code> ....	18335, 20222	<code>\textMVDivision</code> .	15211, 19724
<code>\textlessssim</code>	18021, 18022, 20090, 20783	<code>\textltailm</code>	16084, 16085, 16086, 16087, 20672, 20673	<code>\textMVEight</code> ...	15229, 19733
<code>\textLF</code> .....	14683, 15177	<code>\textltailn</code>	16088, 16089, 16090, 16091, 20674, 20675	<code>\textMVFive</code> ....	15223, 19730
<code>\textLHD</code> .....	18585, 20260	<code>\textltilde</code>	16063, 16064, 16065, 20665	<code>\textMVFour</code> ....	15221, 19729
<code>\textlhd</code> ..	18184, 18185, 20158, 20809	<code>\textltimes</code> .....	18215, 20170	<code>\textMVMinus</code> ...	15207, 19722
<code>\textlhookfour</code> ...	19348, 19350, 20926	<code>\textlyoghlig</code> ....	16073, 16074, 16075, 20668	<code>\textMVNine</code> ....	15231, 19734
<code>\textlhooknarrow</code>	19041, 20435	<code>\textmacronbelow</code>	14649, 14661, 14673, 14730, 15123, 15152, 16329	<code>\textMVOne</code> ....	15215, 19726
<code>\textlhooksearrow</code>	19045, 20437	<code>\textmale</code>	18678, 18679, 18680, 18681, 20292, 20862, 20863, 20864	<code>\textMVPeriod</code> ..	15209, 19723
<code>\textlhookt</code> .....	15785, 15786	<code>\textMaleMale</code> ...	18799, 20329	<code>\textMVPlus</code> ....	15203, 19720
<code>\textlhtlongi</code> ....	16136, 16137	<code>\textManFace</code> ...	19396, 20574	<code>\textMVSeven</code> ...	15227, 19732
<code>\textlhtlongy</code> ....	16268, 16269	<code>\textmanstar</code> ....	18793, 20326	<code>\textMVSix</code> .....	15225, 19731
<code>\textlibra</code> .	18716, 18717, 20304, 20876	<code>\textmapsto</code> ....	17614, 19919	<code>\textMVThree</code> ...	15219, 19728
<code>\textlightning</code> ...	17626, 17627, 19925, 20751	<code>\textmarried</code> .....	18807	<code>\textMVTwo</code> ....	15217, 19727
<code>\textlinferior</code> ....	17437, 19878	<code>\textmd</code> .....	555	<code>\textMVZero</code> ....	15213, 19725
<code>\textlira</code> .....	17451			<code>\textnabla</code> .....	17762, 19979
				<code>\textnaira</code> .....	17453
				<code>\textnapostrophe</code> .....	15630



<code>\textnapprox</code> . . . .	17901, 17902, 20037, 20771	<code>\textnhateq</code> . . . . .	17966, 20065	<code>\textnsim</code> . . . . .	17884, 20029
<code>\textnapproxeq</code> . .	17906, 20039	<code>\textni</code> . . . . .	17770, 17771, 19983, 20756	<code>\textnsimeq</code> . . . . .	17892, 20033
<code>\textnasymp</code> . . . .	17919, 17920, 20045, 20773	<code>\textNibRight</code> . . .	18861, 20351	<code>\textnsqlsubset</code> . . .	18085, 20121
<code>\textnatural</code> . . . . .	18766, 20314	<code>\textNibSolidRight</code>	18863, 20352	<code>\textnsqlsubseq</code> . .	18093, 20125
<code>\textnbackcong</code> . .	17915, 20043	<code>\textniepsilon</code> . . .	16009, 16010, 19754, 20651	<code>\textnsqlsupset</code> . . .	18089, 20123
<code>\textnbacksim</code> . . .	17879, 20027	<code>\textniiota</code> . . . . .	16058, 16059, 19762, 20664	<code>\textnsqlsupseteq</code> .	18097, 20127
<code>\textnbacksimeq</code> .	18226, 20175	<code>\textnineinferior</code> .	17411, 19865	<code>\textnSubset</code> . . . .	18236, 20179
<code>\textnBumpeq</code> . . .	17924, 20047	<code>\textninesuperior</code> .	17379, 19849	<code>\textnsubset</code> . . . .	18063, 20110
<code>\textnbumpeq</code> . . .	17928, 20049	<code>\textninferior</code> . . .	17441, 19880	<code>\textnsubseq</code> . . . .	18071, 20114
<code>\textncirceq</code> . . . . .	17960, 20063	<code>\textnphi</code> . . . . .	16111, 19765	<code>\textnsubseqq</code> . . .	19288, 20538
<code>\textncong</code> . . . . .	17897, 20035	<code>\textniupsilon</code> . . .	16169, 16170, 19771, 20692	<code>\textnsucc</code> . . . . .	18057, 20107
<code>\textncurlyeqprec</code>	18266, 20192	<code>\textnLeftarrow</code> . . .	17685, 19946	<code>\textnsuccapprox</code> .	19280, 20534
<code>\textncurlyeqsucc</code>	18270, 20194	<code>\textnleftarrow</code> . .	17593, 19909	<code>\textnsucccurlyeq</code>	18274, 20196
<code>\textnDashV</code> . . . .	19310, 19311, 20546, 20923	<code>\textnLeftrightarrow</code>	17687, 19947	<code>\textnsucceq</code> . . . .	19256, 20522
<code>\textnDashv</code> . . . .	19303, 19304, 20544, 20921	<code>\textnlefttriarow</code>	17624, 19924	<code>\textnsucceqq</code> . . .	19268, 20528
<code>\textndashV</code> . . . .	19297, 19298, 20542, 20919	<code>\textnleq</code> . . . . .	18017, 20088	<code>\textnsuccsim</code> . . .	18053, 20105
<code>\textndashv</code> . . . .	18142, 18143, 20144, 20796	<code>\textnleqq</code> . . . . .	17992, 20076	<code>\textnsuperior</code> . . .	17391, 19855
<code>\textnDoteq</code> . . . .	17938, 20053	<code>\textnleqslant</code> . . .	19213, 20502	<code>\textnSupset</code> . . . .	18240, 20181
<code>\textndoteq</code> . . . . .	17932, 20051	<code>\textnless</code> . . . . .	18012, 20086	<code>\textnsubset</code> . . . .	18065, 20111
<code>\textndownmodels</code>	19315, 20548	<code>\textnlessapprox</code> .	19221, 20506	<code>\textnsubseq</code> . . . .	18073, 20115
<code>\textndownvdash</code> .	18148, 20146	<code>\textnlessgtr</code> . . .	18037, 20097	<code>\textnsubseqq</code> . . .	19292, 20540
<code>\textne</code> . . . . .	17971, 20068	<code>\textnlesssim</code> . . .	18027, 20092	<code>\textntriangleleft</code>	18294, 18295, 20205, 20822
<code>\textNearrow</code> . . . .	17711, 19956	<code>\textnll</code> . . . . .	18004, 20082	<code>\textntrianglelefteq</code>	18301, 20207
<code>\textnearrow</code> . . . .	17585, 17586, 19906, 20749	<code>\textnmid</code> . . . . .	17820, 17821, 20003, 20762	<code>\textntriangleright</code>	18297, 18298, 20206, 20823
<code>\textneg</code> . . . . .	15018, 19433, 20585	<code>\textNoChemicalCleaning</code>	19137, 20469	<code>\textntrianglerighteq</code>	18304, 18305, 20208
<code>\textneptune</code> . . . .	18692, 18693, 20296, 20868	<code>\textnormal</code> . . . . .	550	<code>\textntriplesim</code> . .	17911, 20041
<code>\textneq</code> . . . . .	17970, 17972, 20067, 20777	<code>\textnotbackslash</code>	18357, 20231	<code>\textntwoheadleftarrow</code>	17599, 19912
<code>\textneqcirc</code> . . . . .	17956, 20061	<code>\textnotin</code> . . . . .	17766, 19981	<code>\textntwoheadrightarrow</code>	17606, 19915
<code>\textneqdot</code> . . . . .	19207, 20499	<code>\textnotowner</code> . . .	17773, 17774, 19984, 20757	<code>\textnu</code> . . . . .	3181, 3183, 3187, 3188, 3189, 19707, 19805
<code>\textneqsim</code> . . . . .	17888, 20031	<code>\textnotperp</code> . . . .	19000, 20416	<code>\textnumersign</code> . . .	516, 14705, 15183
<code>\textnequiv</code> . . . . .	17977, 17978, 17979, 20070, 20779, 20780	<code>\textnotslash</code> . . . .	18354, 20230	<code>\textnumero</code> . . . . .	17487
<code>\textneswarrow</code> . .	19039, 20434	<code>\textnoway</code> . . . . .	18823, 20336	<code>\textnupmodels</code> . .	19319, 20550
<code>\textNeutral</code> . . . .	18805, 20332	<code>\textnparallel</code> . . .	17825, 17826, 20005	<code>\textnupvdash</code> . . .	18153, 18154, 20148, 20799
<code>\textnewtie</code> . . . .	15126, 15155, 16325	<code>\textnprec</code> . . . . .	18055, 20106	<code>\textnVDash</code> . . . .	18181, 18182, 20157, 20808
<code>\textnexists</code> . . . . .	17755, 19976	<code>\textnprecapprox</code> .	19276, 20532	<code>\textnVdash</code> . . . .	18178, 18179, 20156, 20807
<code>\textnfallingdoteq</code>	17943, 20055	<code>\textnpreccurlyeq</code>	18272, 20195	<code>\textnvDash</code> . . . .	18174, 18175, 18176, 20155, 20805, 20806
<code>\textngeq</code> . . . . .	18019, 20089	<code>\textnpreceq</code> . . . .	19252, 20520	<code>\textnvdash</code> . . . .	18171, 18172, 20154, 20804
<code>\textngeqq</code> . . . . .	17996, 20078	<code>\textnpreceqq</code> . . .	19264, 20526	<code>\textnVdash</code> . . . .	18165, 20152
<code>\textngeqslant</code> . . .	19217, 20504	<code>\textnprecsim</code> . . .	18049, 20103	<code>\textNarrow</code> . . . .	17709, 19955
<code>\textngg</code> . . . . .	18008, 20084	<code>\textnqsubseteq</code> . .	18276, 20197	<code>\textnarrow</code> . . . .	17583, 19905
<code>\textngtr</code> . . . . .	18014, 20087	<code>\textnqsupseteq</code> . .	18278, 20198	<code>\textnwsearrow</code> . . .	19037, 20433
<code>\textngtrapprox</code> . .	19225, 20508	<code>\textnRightarrow</code>	17690, 19948		
<code>\textngtrless</code> . . . .	18035, 20096	<code>\textnrightarrow</code> .	17595, 19910		
<code>\textngtrsim</code> . . . .	18029, 20093	<code>\textnrisingdoteq</code>	17948, 20057		
		<code>\textnrlg</code> . . . . .	15779, 15781, 20630		

<code>\textobar</code> .	19125, 19126, 20466, 20907	<code>\TextOrMath</code> . . . . .	595	<code>\textpisces</code>	18731, 18732, 20309, 20881
<code>\textobot</code> .	19134, 19135, 20468, 20911	<code>\textoslash</code>	18112, 18113, 20133, 20788	<code>\textpitchfork</code> . . .	18248, 20184
<code>\textobslash</code>	19128, 19129, 19130, 19131, 20467, 20908, 20909, 20910	<code>\textotimes</code>	18109, 18110, 20132, 20787	<code>\textPlane</code> . . . . .	18845, 20344
<code>\textObullseye</code> . . .	16223, 20708	<code>\textovee</code> .	17835, 17836, 20009, 20764	<code>\textPlusCenterOpen</code> . .	18882, 20361
<code>\textodiv</code> . . . . .	19182, 20489	<code>\textowedge</code>	17830, 17831, 20007, 20763	<code>\textplusinferior</code> .	17413, 19866
<code>\textodot</code> .	18115, 18116, 20134, 20789	<code>\textparagraph</code> . . . .	522, 14852, 15308, 15309, 20606	<code>\textplusminus</code> . .	14842, 15021, 15297, 19436
<code>\textogonek</code>	14697, 15116, 15145, 16306	<code>\textparallel</code> . . . .	17823, 20004	<code>\textPlusOutline</code> .	18876, 20358
<code>\textogreaterthan</code>	19142, 19143, 20471, 20913	<code>\textparenleft</code> .	736, 737, 14713, 15197	<code>\textplussuperior</code> .	17381, 19850
<code>\textohm</code> . . . . .	17502	<code>\textparenleftinferior</code> . . .	17419, 19869	<code>\textPlusThinCenterOpen</code>	18880, 20360
<code>\textoint</code> . . . . .	17852, 20016	<code>\textparenleftsuperior</code> . .	17387, 19853	<code>\textpluto</code>	18695, 18696, 20297, 20869
<code>\textoinferior</code> . . . .	17427, 19873	<code>\textparenlefts superior</code> . .	17387, 19853	<code>\textpm</code> . . .	15021, 19436, 20588
<code>\textoint</code> .	17849, 17850, 20015, 20766	<code>\textparenright</code> . .	14715, 15199	<code>\textpointer</code> . . . . .	17736, 19967
<code>\textointclockwise</code>	17855, 20017	<code>\textparenrightinferior</code> . .	17421, 19870	<code>\textprec</code> . . . . .	18039, 20098
<code>\textointctr clockwise</code> . . .	17857, 20018	<code>\textparenrightsuperior</code> .	17389, 19854	<code>\textprecapprox</code> . .	19274, 20531
<code>\textolessthan</code> . . .	19139, 19140, 20470, 20912	<code>\textpartial</code> . . . . .	17751, 19974	<code>\textpreccurlyeq</code> .	18043, 20100
<code>\textOmega</code> . . . . .	19694, 19791	<code>\textPeace</code> . . . . .	18850, 20346	<code>\textpreceq</code> . . . . .	19250, 20519
<code>\textomega</code> . .	3179, 3180, 3193, 19718, 19816	<code>\textPencilRight</code> .	18857, 20349	<code>\textpreceqq</code> . . . .	19262, 20525
<code>\textomicron</code> .	3180, 3181, 3184, 3186, 3187, 3188, 3189, 3190, 3191	<code>\textPencilRightDown</code> . .	18855, 20348	<code>\textprecnapprox</code> .	19282, 20535
<code>\textominus</code>	18106, 18107, 20131, 20786	<code>\textPencilRightUp</code>	18859, 20350	<code>\textprecneq</code> . . . .	19258, 20523
<code>\textoneeighth</code> . . . . .	17555	<code>\textpentagon</code> . . .	19329, 20554	<code>\textprecneqq</code> . . .	19270, 20529
<code>\textonefifth</code> . . . . .	17543	<code>\textpercent</code> .	518, 14709, 15189	<code>\textprecnsim</code> . . .	18290, 20203
<code>\textonehalf</code> . . . . .	14867, 15326	<code>\textperiodcentered</code> . . . .	14854, 15022, 15311, 15312, 15313, 19437, 20607, 20608	<code>\textprec sim</code> . . . .	18047, 20102
<code>\textoneinferior</code> . .	17395, 19857	<code>\textperp</code> . . . . .	18998, 20415	<code>\textprime</code> . . . . .	17335, 19835
<code>\textoneninth</code> . . . . .	17535	<code>\textpertenthousand</code> . . . .	17333	<code>\textprimstress</code> . .	16288, 16289
<code>\textonequarter</code> . .	14865, 15324	<code>\textperthousand</code> .	14767, 17331	<code>\textprod</code> . . . . .	17778, 19986
<code>\textoneseventh</code> . . . . .	17533	<code>\textpeseta</code> . . . . .	17455	<code>\textpropto</code>	17804, 17805, 19997, 20758
<code>\textonesixth</code> . . . . .	17551	<code>\textpeso</code> . . . . .	17475	<code>\textPsi</code> . . . . .	19693, 19790
<code>\textonesuperior</code> .	14858, 15317, 19739	<code>\textPhi</code> . . . . .	19691, 19789	<code>\textpsi</code> . . . . .	19717, 19815
<code>\textonetenth</code> . . . . .	17537	<code>\textphi</code>	3186, 3190, 3191, 19715, 19813	<code>\textPUaolig</code>	19355, 19356, 20928
<code>\textonethird</code> . . . . .	17539	<code>\textphiinferior</code> . .	16962, 19826	<code>\textPUdblig</code> . . . .	15957, 15958, 20635
<code>\textoo</code> . . . . .	19358, 20559	<code>\textPhone</code>	18611, 18612, 20271, 20839	<code>\textPUfemale</code> . . .	18668, 18669, 18670, 18671, 18672, 18673, 20856, 20857, 20858, 20859, 20860
<code>\textopenbullet</code> . .	18596, 20265	<code>\textPhoneHandset</code>	18841, 20342	<code>\textPUheng</code>	19346, 19347, 20925
<code>\textopencorner</code> . .	16318, 16319	<code>\textPi</code>	3183, 3185, 19688, 19786	<code>\textPUhookfour</code>	19349, 19350, 20926
<code>\textopeno</code>	15984, 15985, 15986, 19750, 20645	<code>\textpi</code> . .	3180, 3188, 3189, 3190, 3191, 19709, 19807	<code>\textPUnrleg</code> . . . .	15780, 15781, 20630
<code>\textoplus</code>	18103, 18104, 20130, 20785	<code>\textpinferior</code> . . . .	17443, 19881	<code>\textPUqplig</code>	15960, 15961, 20636
<code>\textordfeminine</code> .	14828, 15283	<code>\textpipe</code> .	15800, 15801, 15802, 20631	<code>\textPUrevscr</code> . . .	16943, 16944, 20720
<code>\textordmasculine</code>	14860, 15319	<code>\textpipevar</code> . . . .	15802, 20631	<code>\textPUrho ka</code> . .	16974, 16975, 20721
				<code>\textPUrhookoe</code> . .	16979, 16980, 20722

<code>\textPUrhookepsilon</code> . . . 16983, 16984, 20723	<code>\textrevglotstop</code> . 16209, 16210, 16211, 19779, 20704	<code>\textrightthreetimes</code> . . . 18222, 20173
<code>\textPUrhoopeno</code> . . . . 16987, 16988, 20724	<code>\textrevscr</code> 16942, 16944, 20720	<code>\textrinferior</code> . . . . 16950, 19820
<code>\textPUscf</code> . 19352, 19353, 20927	<code>\textrevyogh</code> . . . . 15790, 15791	<code>\textring</code> . 14644, 14656, 14668, 14699, 15106, 15135, 16304
<code>\textPUsck</code> 16934, 16935, 20717	<code>\textRewind</code> . . . . 18580, 20258	<code>\textringlow</code> 15119, 15148, 16313
<code>\textPUscm</code> 16937, 16938, 20718	<code>\textRewindToIndex</code> . . . 18387, 20243	<code>\textriota</code> . . . . . 17507, 19891
<code>\textPUscp</code> 16940, 16941, 20719	<code>\textRHD</code> . . . . . 18571, 20255	<code>\textrisingdoteq</code> . . 17946, 20056
<code>\textPUuncrfemale</code> 18811, 18812, 20891	<code>\textrhd</code> . 18187, 18188, 20159, 20810	<code>\textrm</code> . . . . . 551
<code>\textqplig</code> . 15959, 15961, 20636	<code>\textrho</code> 3184, 3185, 3190, 3191, 3192, 3193, 19710, 19808	<code>\textrptr</code> . . . . . 16283, 16284
<code>\textquarternote</code> . 18755, 20310	<code>\textrhoinferior</code> . . 16960, 19825	<code>\textrquill</code> . . . . . 17355
<code>\textquestiondown</code> . . 733, 14871, 15330	<code>\textrhooka</code> 16973, 16975, 20721	<code>\textRrightarrow</code> . 17719, 19960
<code>\textquotedbl</code> . . . 14703, 15181	<code>\textrhooko</code> 16978, 16980, 20722	<code>\textrrparenthesis</code> 19121, 20464
<code>\textquotedblleft</code> . 14771, 15011, 17311, 19426	<code>\textrhookepsilon</code> 16982, 16984, 20723	<code>\textrtaild</code> 15990, 15991, 15992, 19751, 20647
<code>\textquotedblright</code> 14773, 17313	<code>\textrhooknearrow</code> 19043, 20436	<code>\textrtail</code> 16070, 16071, 16072, 20667
<code>\textquoteleft</code> . . 14775, 15013, 17305, 19428	<code>\textrhookopeno</code> . 16986, 16988, 20724	<code>\textrtailn</code> 16093, 16094, 16095, 20676
<code>\textquoteright</code> . . 14777, 17307	<code>\textrhookrepspsilon</code> . . . 16015, 16016, 16017, 19756, 20652	<code>\textrtailr</code> 16127, 16128, 16129, 20684
<code>\textquotesingle</code> . . . . . 15195	<code>\textrhookschwa</code> . 16004, 16005, 16006, 20650	<code>\textrtails</code> 16143, 16144, 16145, 20687
<code>\textRadioactivity</code> 18638, 18639, 20280, 20848	<code>\textrhookswarrow</code> 19047, 20438	<code>\textrtailt</code> 16161, 16162, 16163, 20690
<code>\textRain</code> . . . . . 18821, 20335	<code>\textRrightarrow</code> . 17698, 17699, 19951, 20752	<code>\textrtailz</code> 16189, 16190, 16191, 20699
<code>\textraiseglotstop</code> 16277, 16278	<code>\textrightarrow</code> . . . 2164, 17571, 17572, 17573, 19901, 20745, 20746	<code>\textrtimes</code> . . . . 18218, 20171
<code>\textrangle</code> . . . . 18345, 20227	<code>\textrightarrowtail</code> 17612, 19918	<code>\textxsagittarius</code> . . 18722, 18723, 20306, 20878
<code>\textrbrackdbl</code> . . . 19011, 19012, 20421, 20902	<code>\textrightarrowtriangle</code> . 17743, 19970	<code>\textxsaturn</code> 18686, 18687, 20294, 20866
<code>\textrcurvearrowdown</code> . . 19068, 19069, 19070, 20445, 20905, 20906	<code>\textrightbarharpoon</code> . . . 19106, 20458	<code>\textxsc</code> . . . . . 557
<code>\textrcurvearrowleft</code> . . . 19072, 20446	<code>\textRIGHTCIRCLE</code> . . . 18594, 20264	<code>\textxsc</code> . . . . . 16925, 16926
<code>\textrcurvearrowne</code> 19052, 20440	<code>\textrightharpoondown</code> . 17653, 19934	<code>\textxscb</code> . . . . . 16224, 16225
<code>\textrcurvearrowright</code> . . 19075, 20447	<code>\textrightharpoonup</code> . . . 17650, 19933	<code>\textxscd</code> . . . . . 16928, 19817
<code>\textrcurvearrowse</code> 19061, 20443	<code>\textrightleftarrows</code> 17662, 19937	<code>\textxsce</code> . . . . . 16929, 16930
<code>\textRe</code> . . . . . 17494, 19889	<code>\textrightleftharpoon</code> . . . 19079, 20449	<code>\textxscf</code> . . . 19351, 19353, 20927
<code>\textrecipe</code> . . . . . 17496	<code>\textrightleftharpoons</code> . . 17682, 19945	<code>\textxscg</code> . . . 16033, 16034, 19758
<code>\textRectangle</code> . . . 18994, 20413	<code>\textrightmoon</code> . . 18663, 20289	<code>\textxsch</code> . . . . . 16232, 16233
<code>\textRectangleBold</code> 18996, 20414	<code>\textrightrightarrows</code> . . . 17674, 19942	<code>\textxschwa</code> . 16001, 16002, 19753
<code>\textRectangleThin</code> 18992, 20412	<code>\textrightrightarpoons</code> . 19094, 20454	<code>\textxschwainferior</code> 17431, 19875
<code>\textrecycle</code> 18770, 18771, 20316, 20888	<code>\textrightslice</code> . . . 19248, 20518	<code>\textxsci</code> . . . 16060, 16061, 19763
<code>\textreferencemark</code> . . . . 17347	<code>\textrightsquigarrow</code> . . . 17723, 19962	<code>\textScissorHollowRight</code> 18839, 20341
<code>\textregistered</code> . . . 14836, 15291		<code>\textScissorRight</code> . 18833, 18834, 18835, 20339, 20895, 20896
<code>\textRequest</code> . . . . 18375, 20238		<code>\textScissorRightBrokenBottom</code> . . . . 18829, 18830, 18831, 20893, 20894
<code>\textrevapostrophe</code> 16274, 16275		<code>\textScissorRightBrokenTop</code> . . . . . . 18837, 20340
<code>\textrevc</code> . . . . . 17563		<code>\textscj</code> . . . . . 16931, 16932
<code>\textrevE</code> . . . . . 15755		<code>\textxsck</code> . . . 16933, 16935, 20717
<code>\textreve</code> . . . 15998, 15999, 19752		
<code>\textrevepsilon</code> . . 16012, 16013, 19755		

<code>\textscI</code> . . . . .	16240, 16241	<code>\textsl</code> . . . . .	558	<code>\textstretchc</code> . . . .	16215, 16216, 16217, 16218, 20705, 20706
<code>\textscM</code> . . . . .	16936, 16938, 20718	<code>\textslashc</code> . . . . .	15963, 15964, 15966, 19748, 20637, 20638	<code>\textstretchcvar</code> . .	16218, 20706
<code>\textscN</code> . . . . .	16096, 16097, 19764	<code>\textslashdiv</code> . . . .	19335, 20557	<code>\textsubbreve</code> . . . .	15090, 15121, 15150, 17070, 17072
<code>\textscOelig</code> . . . . .	16103, 16104	<code>\textsmallin</code> . . . . .	17768, 19982	<code>\textsubcircum</code> . . .	15087, 15088, 15120, 15149, 17022, 17024, 17038, 17040, 17098, 17100, 17126, 17128, 17182, 17184, 17194, 17196
<code>\textscOrpio</code> . . . . .	18719, 18720, 20305, 20877	<code>\textsmallowns</code> . . . .	17776, 19985	<code>\textsubring</code> . . . . .	15080, 15081, 15119, 15148, 16990, 16992
<code>\textscP</code> . . . . .	16939, 16941, 20719	<code>\textsmile</code> . . . . .	18339, 20224	<code>\textSubset</code> . . . . .	18234, 20178
<code>\textscr</code> . . . . .	16138, 16139, 19767	<code>\textsmiley</code> . . . . .	18653, 18654, 20285, 20853	<code>\textsubset</code> . . . . .	18059, 20108
<code>\textscripta</code> . . . . .	15971, 15972, 15973, 19749, 20640	<code>\textSnowflake</code> . . . .	18960, 20399	<code>\textsubseteq</code> . . . . .	18067, 20112
<code>\textscriptg</code> . . . . .	16030, 16031, 16032, 19757, 20656	<code>\textSnowflakeChevron</code> .	18958, 20398	<code>\textsubseteqq</code> . . . .	19286, 20537
<code>\textscriptv</code> . . . . .	16172, 16173, 19772	<code>\textSnowflakeChevronBold</code> . .	18962, 20400	<code>\textsubsetneq</code> . . . .	18075, 20116
<code>\textscu</code> . . . . .	16945, 16946, 19818	<code>\textSoccerBall</code> . . . .	18816, 18817, 20892	<code>\textsubtilde</code> . . . . .	15091, 15092, 15122, 15151, 17042, 17044, 17074, 17076, 17190, 17192
<code>\textscy</code> . . . . .	16186, 16187, 19776	<code>\textspadesuitblack</code> . . . .	2163, 18734, 18735, 20882	<code>\textsubumlaut</code> . . . .	15078, 15079, 15118, 15147, 17186, 17188
<code>\textSearrow</code> . . . . .	17713, 19957	<code>\textspadesuitwhite</code> . . . . .	18747	<code>\textsucc</code> . . . . .	18041, 20099
<code>\textsearrow</code> . . . . .	17588, 17589, 19907, 20750	<code>\textSparkle</code> . . . . .	18964, 20401	<code>\textsuccapprox</code> . . . .	19278, 20533
<code>\textSech</code> . . . . .	19388, 20570	<code>\textSparkleBold</code> . . . .	18966, 20402	<code>\textsucccurlyeq</code> . . . .	18045, 20101
<code>\textsecond</code> . . . . .	17337, 19836	<code>\textSphericalangle</code> . . . .	17813, 17814, 17815, 17816, 20001, 20759, 20760, 20761	<code>\textsucceq</code> . . . . .	19254, 20521
<code>\textsecstress</code> . . . . .	16291, 16292	<code>\textsqcap</code> . . . . .	18099, 20128	<code>\textsucceqq</code> . . . . .	19266, 20527
<code>\textsection</code> . . . . .	14822, 15275, 15276, 15277, 20604, 20605	<code>\textsqcup</code> . . . . .	18101, 20129	<code>\textsuccnapprox</code> . . . .	19284, 20536
<code>\textSePa</code> . . . . .	19374, 20564	<code>\textsqdoublecap</code> . . . . .	19186, 19187, 20491, 20915	<code>\textsuccneq</code> . . . . .	19260, 20524
<code>\textservicemark</code> . . . . .	17498	<code>\textsqdoublecup</code> . . . . .	19191, 19192, 20493, 20916	<code>\textsuccneqq</code> . . . . .	19272, 20530
<code>\textsetminus</code> . . . . .	14725, 17794, 19993	<code>\textsqsubset</code> . . . . .	18083, 20120	<code>\textsuccnsim</code> . . . . .	18292, 20204
<code>\textsevenighths</code> . . . . .	17561	<code>\textsqsubseq</code> . . . . .	18091, 20124	<code>\textsuccsim</code> . . . . .	18051, 20104
<code>\textseveninferior</code> . . . . .	17407, 19863	<code>\textsqsubsetneq</code> . . . . .	18280, 18281, 20199, 20820	<code>\textsum</code> . . . . .	17782, 19988
<code>\textseveninferior</code> . . . . .	17375, 19847	<code>\textsqsupset</code> . . . . .	18087, 20122	<code>\textsun</code> . . . . .	18658, 18659, 20287, 20854
<code>\textsf</code> . . . . .	552, 13086, 13089	<code>\textsqsupseteq</code> . . . . .	18095, 20126	<code>\textSunCloud</code> . . . . .	18819, 20334
<code>\textsharp</code> . . . . .	18768, 20315	<code>\textsqsupsetneq</code> . . . . .	18283, 18284, 20200, 20821	<code>\textSunshineOpenCircled</code>	18954, 20396
<code>\textshuffle</code> . . . . .	19159, 20479	<code>\textSquareCastShadowBottomRight</code>	18985, 20409	<code>\textSupset</code> . . . . .	18238, 20180
<code>\textSigma</code> . . . . .	3182, 19689, 19787	<code>\textSquareCastShadowTopRight</code>	18988, 20410	<code>\textsupset</code> . . . . .	18061, 20109
<code>\textsigma</code> . . . . .	3179, 3180, 3194, 19712, 19810	<code>\textSquaredots</code> . . . . .	17867, 20022	<code>\textsupseteq</code> . . . . .	18069, 20113
<code>\textsim</code> . . . . .	17874, 17875, 20025, 20769	<code>\textSquareShadowBottomRight</code>	18979, 20407	<code>\textsupseteqq</code> . . . . .	19290, 20539
<code>\textstimeq</code> . . . . .	17890, 20032	<code>\textSquareTopRight</code> . . . .	18982, 20408	<code>\textsupsetneq</code> . . . . .	18077, 20117
<code>\textsinferior</code> . . . . .	17445, 19882	<code>\textsslash</code> . . . . .	19326, 19327, 20553, 20924	<code>\textsurd</code> . . . . .	17802, 19996
<code>\textSixFlowerAlternate</code> . . . . .	18946, 20392	<code>\textstar</code> . . . . .	18208, 20167	<code>\textSwarrow</code> . . . . .	17715, 19958
<code>\textSixFlowerAltPetal</code> . . . . .	18956, 20397	<code>\textsterling</code> . . . . .	14814, 15264, 15265, 15266, 20601, 20602	<code>\textswarrow</code> . . . . .	17591, 19908
<code>\textSixFlowerOpenCenter</code> . . . . .	18942, 20390	<code>\textstmaryrdbaro</code> . . . . .	18351, 18352, 20826	<code>\TextSymbolUnavailable</code>	14675, 14676, 14678
<code>\textSixFlowerPetalRemoved</code> . . . . .	18939, 20389			<code>\textTape</code> . . . . .	18843, 20343
<code>\textsixinferior</code> . . . . .	17405, 19862			<code>\texttau</code> . . . . .	3181, 3185, 3187, 3188, 3189, 19713, 19811
<code>\textSixStar</code> . . . . .	18929, 20384			<code>\texttaurus</code> . . . . .	18701, 18702, 20299, 20871
<code>\textsixsuperior</code> . . . . .	17373, 19846			<code>\texttctclig</code> . . . . .	16265, 16266
<code>\textSixteenStarLight</code> . . . . .	18937, 20388				
<code>\textsixteenthnote</code> . . . . .	18762, 20312				

<code>\textTent</code> . . . . .	18827, 20338	<code>\textturnscripta</code> . .	15975, 15976, 15977, 15978, 20641, 20642	<code>\textupharpoonright</code> . . .	17644, 19931
<code>\texttreshlig</code> 16261, 16262, 16263, 20712		<code>\textturnt</code> 16157, 16158, 16159, 20689		<code>\textuplus</code> . . . . .	19161, 20480
<code>\texttherefore</code> . . .	17859, 17860, 20019	<code>\textturnv</code> 16174, 16175, 16176, 16177, 19773, 20693, 20694		<code>\textupmodels</code> . . .	19317, 20549
<code>\textTheta</code> .	3193, 19685, 19783	<code>\textturnw</code> 16178, 16179, 16180, 16181, 19774, 20695, 20696		<code>\textUpsilon</code> . . . .	19690, 19788
<code>\texttheta</code> . . . . .	19702, 19799	<code>\textturny</code> 16182, 16183, 16184, 16185, 19775, 20697, 20698		<code>\textupsilon</code> . .	3180, 3188, 3189, 3191, 19714, 19812
<code>\textthird</code> . . . . .	17339, 19837	<code>\textTwelveStar</code> . .	18935, 20387	<code>\textupspoon</code> . . . .	19321, 20551
<code>\textThorn</code> 14935, 15395, 19740		<code>\texttwofifths</code> . . . . .	17545	<code>\textupstep</code> . . . . .	19340, 19341
<code>\textthorn</code> 15004, 15464, 15466, 19741		<code>\texttwoheaddownarrow</code> 17608, 19916		<code>\textupstar</code> .	17672, 19941
<code>\textthreeeighths</code> . . . . .	17557	<code>\texttwoheadleftarrow</code> . .	17597, 19911	<code>\textupstarpoons</code> 19091, 20453	
<code>\textthreefifths</code> . . . . .	17547	<code>\texttwoheadrightarrow</code> .	17604, 19914	<code>\texturanus</code> 18689, 18690, 20295, 20867	
<code>\textthreeinferior</code> .	17399, 19859	<code>\texttwoheaduparrow</code> . .	17601, 19913	<code>\texturcorner</code> . . . .	18331, 20220
<code>\textthreequarters</code> 14869, 15328		<code>\texttwoinferior</code> . .	17397, 19858	<code>\textValve</code> . . . . .	19155, 20477
<code>\textthreesuperior</code> 14846, 15301, 19738		<code>\texttwonotes</code> . .	18760, 20311	<code>\textvarhexagon</code> .	19331, 20555
<code>\texttie</code> . . .	15125, 15154, 16331	<code>\texttwosuperior</code> .	14844, 15299, 19737	<code>\textvarobar</code> . . . .	19126, 20907
<code>\texttilde</code> .	14642, 14654, 14666, 14701, 15104, 15133, 16308	<code>\texttwothirds</code> . . . . .	17541	<code>\textvarsigma</code> 3184, 3190, 3191, 19711, 19809	
<code>\texttildelow</code> 15122, 15151, 16317		<code>\texttudots</code> . . . . .	18311, 20211	<code>\textVDash</code> 18168, 18169, 20153, 20803	
<code>\texttimes</code> .	15019, 19434, 20586	<code>\texttuinferior</code> . . . .	16952, 19821	<code>\textVdash</code> 18160, 18161, 20150, 20802	
<code>\texttinferior</code> . . . .	17447, 19883	<code>\texttulcorner</code> . . . .	18329, 20219	<code>\textvDash</code> 18156, 18157, 18158, 20149, 20800, 20801	
<code>\texttop</code> .	18145, 18146, 20145, 20797	<code>\texttuncrfemale</code> . .	18810, 18812, 20891	<code>\textvdash</code> 18136, 18137, 20142, 20794	
<code>\texttrademark</code> . .	14781, 17500	<code>\textunderscore</code> 521, 4759, 4760, 4762, 14729, 15243, 15244, 20599		<code>\textvdotdot</code> . . . .	17865, 20021
<code>\texttriangle</code> . . . .	17760, 19978	<code>\textunlhd</code> 18190, 18191, 18192, 20160, 20811, 20812		<code>\textvdots</code> . . . . .	18307, 20209
<code>\texttriangleleft</code> . .	17968, 20066	<code>\textunrhd</code> 18194, 18195, 18196, 20161, 20813, 20814		<code>\textvee</code> . . . . .	17833, 20008
<code>\texttriangleleft</code> . .	18583, 20259	<code>\textup</code> . . . . .	559	<code>\textveebar</code> . . . . .	18204, 20165
<code>\texttriangleright</code> .	18569, 20254	<code>\textUParrow</code> . . .	18558, 18559, 20251, 20832	<code>\textveedot</code> . . . . .	19002, 20417
<code>\texttriplesim</code> . . .	17908, 17909, 20040, 20772	<code>\textUparrow</code> . . .	17695, 19950	<code>\textveedoublebar</code> 19203, 20497	
<code>\textTslash</code> . . . . .	15690	<code>\textuparrow</code> . . . . .	17569, 19900	<code>\textvertline</code> . . . .	15254, 20600
<code>\texttslash</code> . . . . .	15692	<code>\textupdownarrow</code> 17707, 19954		<code>\textvibyi</code> . . . . .	16152, 16153
<code>\texttslig</code> . . . . .	16259, 16260	<code>\textupdownarrow</code> .	2166, 17581, 19904	<code>\textvibyy</code> . . . . .	16271, 16272
<code>\texttt</code> . . . . .	553	<code>\textupdownarrows</code> 17665, 19938		<code>\textVier</code> . . . . .	19384, 20568
<code>\textTumbler</code> . . . .	18349, 20229	<code>\textupdownharpoonleftright</code> . .	. . . . . 19085, 20451	<code>\textvinferior</code> . . . .	16954, 19822
<code>\textturna</code> 15967, 15968, 15969, 20639		<code>\textupdownharpoonrightleft</code> . .	. . . . . 19082, 20450	<code>\textViPa</code> . . . . .	19370, 20562
<code>\textturnh</code> 16042, 16043, 16044, 16045, 20658, 20659		<code>\textupdownharpoons</code> . .	19112, 20460	<code>\textvirgo</code> 18713, 18714, 20303, 20875	
<code>\textturnk</code> 16237, 16238, 16239, 20710		<code>\textupharpoonleft</code> 17647, 19932		<code>\textvisiblespace</code> . . . . .	18391
<code>\textturnlongleg</code> .	16117, 16118, 16119, 20681			<code>\textVvdash</code> . . . .	18163, 20151
<code>\textturnm</code> 16076, 16077, 16078, 16079, 20669, 20670				<code>\textwasylounge</code> .	18321, 20216
<code>\textturnmrlg</code> . .	16081, 16082, 16083, 20671			<code>\textwedge</code> . . . . .	17828, 20006
<code>\textturnr</code> 16112, 16113, 16114, 16115, 20679, 20680				<code>\textwedgedot</code> . . .	19004, 20418
<code>\textturnrrtail</code> . .	16121, 16122, 16123, 20682			<code>\textWheelchair</code> . .	18773, 20317
<code>\textturnsck</code> . . . .	16239, 20710			<code>\textWomanFace</code> .	19398, 19399, 20575, 20931



<code>\textWritingHand</code>	18852, 18853, 20347, 20898	<code>\theHthm</code>	6880	<code>\toks</code>	.. 8383, 8384, 8386, 14545, 14550, 14613, 14618
<code>\textwynn</code>	15797, 15798	<code>\theHy@tempcnt</code>	... 4875, 4883, 4890	<code>\toks@</code>	. 171, 208, 938, 961, 964, 966, 3277, 3278, 3280, 3871, 3875, 3876, 3884, 4317, 4318, 4517, 4519, 5129, 5134, 5140, 5146, 5147, 5150, 5250, 5255, 5259, 5263, 6633, 6635, 6721, 6723, 6782, 6794, 7126, 7131, 7409, 7412, 8125, 8126, 8348, 8353, 8355, 8358, 14544, 14550, 14612, 14618
<code>\textxi</code>	19687, 19785	<code>\thempfn</code>	7328, 7431, 7524, 7537	<code>\top</code>	18144, 20145
<code>\textxi</code>	3179, 19708, 19806	<code>\theoremautorefname</code>	2973, 2991, 3009, 3027, 3045, 3063, 3081, 3119, 3139, 3157, 3175, 3193, 3211, 3229, 3247, 3265, 8623	<code>\topmargin</code>	7964
<code>\textxinferior</code>	17429, 19874	<code>\thepage</code>	2183, 4995, 6512, 6538, 6553, 7798, 7901, 7949, 8032, 8086, 8244, 8261, 8274, 8278, 8290, 8375, 8395, 8412, 8544	<code>\triangle</code>	17759, 19978
<code>\textXSolid</code>	18870, 20355	<code>\therefore</code>	17858, 20019	<code>\triangleeq</code>	17967, 20066
<code>\textXSolidBold</code>	18872, 20356	<code>\Theta</code>	19783	<code>\triangleleft</code>	18582, 20259
<code>\textXSolidBrush</code>	18874, 20357	<code>\theta</code>	19799	<code>\trianglelefteq</code>	18192, 20812
<code>\textxswup</code>	18781, 20890	<code>\third</code>	17338, 19837	<code>\triangleright</code>	18568, 20254
<code>\textyen</code>	14818, 15270	<code>\thispdfpagelabel</code>	6517	<code>\trianglerighteq</code>	18196, 20814
<code>\textYinYang</code>	18645, 18646, 18647, 18648, 20283, 20849, 20850, 20851	<code>\ThisShouldNotHappen</code>	13809	<code>\triplesim</code>	17907, 20040
<code>\textyogh</code>	16196, 16197, 19777	<code>\Thorn</code>	14933, 15393, 19740	<code>\tryhyper@link</code>	4969, 4971
<code>\textzeroinferior</code>	17393, 19856	<code>\thorn</code>	15002, 15464, 19741	<code>\ttfamily</code>	563
<code>\textzerosuperior</code>	17365, 19842	<code>\threeinferior</code>	19859	<code>\ttl@b</code>	7137, 7142
<code>\textzerthirds</code>	17565	<code>\threesuperior</code>	19738	<code>\ttl@Hy@PatchSaveWrite</code>	7120, 7124
<code>\textzeta</code>	19700, 19797	<code>\tildel</code>	16065, 20665	<code>\ttl@Hy@refstepcounter</code>	7136
<code>\textZwdr</code>	19390, 20571	<code>\times</code>	20586	<code>\ttl@Hy@saveanchor</code>	7115, 7139
<code>\textZwPa</code>	19376, 20565	<code>\tinferior</code>	19883	<code>\ttl@Hy@SavedCurrentHref</code>	7119, 7130
<code>\TH</code>	14933, 14934, 15393, 15394	<code>\tiny</code>	581	<code>\ttl@Hy@steplink</code>	7113
<code>\th</code>	15002, 15003, 15464, 15465	<code>\title</code>	6414, 6416	<code>\ttl@savewrite</code>	7126, 7128
<code>\thaa</code>	19595	<code>\tl</code>	2306, 5037, 5050	<code>\Tumbler</code>	18348, 20229
<code>\thanks</code>	6460	<code>\TMP@EnsureCode</code>	.. 4622, 4629, 4630, 4631, 4632, 4633, 4634, 4635, 4636, 4637, 4638, 4639, 4640, 4641, 4642, 4643, 4644, 4645, 4646, 4647, 4648, 4649, 4650, 4651, 4652, 4653, 4654, 4655	<code>\turnv</code>	19773
<code>\thebookmark@seq@number</code>	14231	<code>\tocappendix</code>	1302	<code>\turnw</code>	19774
<code>\thefootnote</code>	7339, 7544	<code>\tocchapter</code>	1301	<code>\turny</code>	19775
<code>\theHchapter</code>	6870, 6871, 6872, 6873, 7010	<code>\toclevel@chapter</code>	3402	<code>\tw@</code>	.. 4509, 5079, 5085, 5086, 5087, 5092, 5098, 5099, 5100, 14545, 14550, 14613, 14618
<code>\theHenumi</code>	6889	<code>\toclevel@figure</code>	3408	<code>\TwelveStar</code>	18934, 20387
<code>\theHenumii</code>	6890	<code>\toclevel@paragraph</code>	3406	<code>\twoheaddownarrow</code>	17607, 19916
<code>\theHenumiii</code>	6891	<code>\toclevel@part</code>	3398, 3400	<code>\twoheadleftarrow</code>	17596, 19911
<code>\theHenumiv</code>	6892	<code>\toclevel@section</code>	3403	<code>\twoheadrightarrow</code>	17603, 19914
<code>\theHequation</code>	6859, 6861, 7246, 7269, 7275	<code>\toclevel@subparagraph</code>	3407	<code>\twoheaduparrow</code>	17600, 19913
<code>\theHfigure</code>	6867, 6871	<code>\toclevel@subsection</code>	3404	<code>\twoinferior</code>	19858
<code>\theHHfootnote</code>	6893, 6896	<code>\toclevel@subsubsection</code>	3405	<code>\twonotes</code>	18759, 20311
<code>\theHHmpfootnote</code>	6896	<code>\toclevel@table</code>	3409	<code>\twosuperior</code>	19737
<code>\theHItem</code>	6883, 6889, 6890, 6891, 6892	<code>\tocparagraph</code>	1306	<code>\TX@endtabularx</code>	7402, 7409, 7415
<code>\theHmpfootnote</code>	6894	<code>\tocpart</code>	1300		
<code>\theHpage</code>	7905	<code>\tocsection</code>	1303		
<code>\theHparagraph</code>	6877, 6878	<code>\tocsubsection</code>	1304		
<code>\theHparentequation</code>	7269, 7275	<code>\tocsubsubsection</code>	1305		
<code>\theHpart</code>	6863				
<code>\theHsection</code>	6859, 6866, 6873, 6875, 6879, 6880, 7008				
<code>\theHsubequation</code>	7246				
<code>\theHsubparagraph</code>	6878				
<code>\theHsubsection</code>	6875, 6876				
<code>\theHsubsubsection</code>	6876, 6877				
<code>\theHtable</code>	6868, 6872				
<code>\theHtheorem</code>	6879				

\typeout . . . 5, 6, 7, 19, 26, 27,  
36, 131, 155, 158, 159, 160,  
5280, 20937

## U

\U . 15054, 16371, 16394, 16461,  
16541, 16742, 16744, 16766,  
16768, 16778, 16780  
\u . 15052, 15110, 15139, 15169,  
15474, 15476, 15516, 15518,  
15536, 15538, 15569, 15571,  
15572, 15642, 15644, 15702,  
15704  
\ubar . . . . . 16167, 20691  
\udesc . . . . . 16045, 20659  
\udots . . . . . 18310, 20211  
\Uhorn . 19451, 19562, 19563,  
19564, 19565, 19566  
\uhorn 3161, 3168, 19445, 19502,  
19503, 19504, 19505, 19506  
\uinferior . . . . . 19821  
\ulcorner . . . . . 18328, 20219  
\UnDef . . . . . 12264  
\undefined . . . . . 232  
\unexpanded . . . . . 1463, 1470  
\unhbox . 11241, 13500, 13622,  
13654, 13678, 13706, 13735  
\unhcopy . . . . . 13602  
\unichar . . . . . 1908  
\Unicode . . . . . 1014  
\unlhd . . . . . 18189, 20160  
\unrestored@protected@xdef . .  
. . 7328, 7339, 7486, 7493,  
7537, 7544  
\unrhd . . . . . 18193, 20161  
\unskip . . . . . 7314  
\UParrow . . . . . 18557, 20251  
\Uparrow . . . . . 17694, 19950  
\uparrow . . . . . 19900  
\Updownarrow . . 17706, 19954  
\updownarrow . . 17580, 19904  
\updownarrows . . 17664, 19938  
\updownharpoonleftright 19084,  
20451  
\updownharpoonrightleft 19081,  
20450  
\updownharpoons 19111, 20460  
\upharpoonleft . . 17646, 19932  
\upharpoonright . 17643, 19931  
\uplus . . . . . 19160, 20480  
\upmodels . . . . . 19316, 20549  
\upshape . . . . . 569  
\Upsilon . . . . . 19788  
\upsilon . . . . . 19812

\upspoon . . . . . 19320, 20551  
\upuparrows . . . . 17671, 19941  
\upupharpoons . . . 19090, 20453  
\upvdash . . . . . 18151, 20798  
\Uranus . . . . . 18690, 20867  
\uranus . . . . . 18688, 20295  
\urcorner . . . . . 18330, 20220  
\Url . . . . . 4939  
\url . . . . . 4938, 4942  
\url@ . . . . . 4942, 4943  
\use . . . . . 478, 484, 5028  
\use@file . . . . . 5211, 5213, 5220  
\usefont . . . . . 548  
\UseHook . . . . . 7084, 7100  
\UseSocket . . . . . 2225, 2228  
\utf@viii@undeferr . . . . . 508  
\UTFviii@four@octets 1904, 1913  
\UTFviii@loop . . . . . 1892  
\UTFviii@three@octets . . 1903  
\UTFviii@tmp . . . . . 1891  
\UTFviii@two@octets . . . 1902

## V

\v . 14645, 14657, 14669, 14791,  
14796, 14804, 14806, 15065,  
15107, 15136, 15168, 15494,  
15496, 15498, 15500, 15528,  
15530, 15606, 15608, 15626,  
15628, 15662, 15664, 15678,  
15680, 15686, 15688, 15736,  
15738, 15812, 15814, 15816,  
15818, 15819, 15821, 15823,  
15825, 15827, 15836, 15838,  
15840, 15842, 15848, 15849,  
15927, 15929  
\V@@@footnotetext . . . . 7473  
\V@footnotetext . . . . . 7458  
\value . . 6536, 6996, 6997, 6999,  
7000, 7744, 7771, 7968,  
8143, 9899  
\Valve . . . . . 19154, 20477  
\vara . . . . . 15973, 20640  
\varangle . . . . . 17814, 20759  
\varbigcirc . . . . . 18602, 20838  
\varcurlyvee . . . . 18229, 20816  
\varcurlywedge . . 18232, 20817  
\VarFlag . . . . . 18776, 20889  
\varg . . . . . 16032, 20656  
\varhexagon . . . . 19330, 20555  
\vari . . . . . 16059, 20664  
\varint . . . . . 17843, 20765  
\varnothing 17756, 17758, 20755  
\varoast . . . . . 18123, 20792  
\varobslash . . . . . 19131, 20910

\varocircle . . . . . 18120, 20791  
\varodot . . . . . 18116, 20789  
\varogreaterthan . . 19143, 20913  
\varoint . . . . . 17850, 20766  
\varolessthan . . . . 19140, 20912  
\varomega . . . . . 16109, 20678  
\varominus . . . . . 18107, 20786  
\varopeno . . . . . 15986, 20645  
\varoplus . . . . . 18104, 20785  
\varoslash . . . . . 18113, 20788  
\varotimes . . . . . 18110, 20787  
\varovee . . . . . 17836, 20764  
\varowedge . . . . . 17831, 20763  
\varparallel . . . . . 19327, 20924  
\varparallelinv . . . 18394, 20827  
\varprop . . . . . 17805, 20758  
\varsigma . . . . . 19809  
\varsubsetneq . . . 18281, 20820  
\varsupsetneq . . . 18284, 20821  
\vartimes . . . . . 15379, 20609  
\vavyod . . . . . 16919  
\vbox . . 6187, 6188, 6189, 6190,  
6485, 7962  
\VDash . . . . . 18167, 20153  
\Vdash . . . . . 18159, 20150  
\vDash . . . . . 18155, 20149  
\vdash . . . . . 18135, 20142  
\vdotdot . . . . . 17864, 20021  
\vdots . . . . . 18306, 20209  
\vee . . . . . 17832, 20008  
\veebar . . . . . 18203, 20165  
\veedot . . . . . 19001, 20417  
\veedoublebar . . . 19202, 20497  
\Venus . . . . . 18672, 20859  
\venus . . . . . 18671, 20858  
\vfill . . . 6187, 6188, 6189, 6190  
\VHF . . . . . 17909, 20772  
\Vier . . . . . 19383, 20568  
\vinferior . . . . . 19822  
\ViPa . . . . . 19369, 20562  
\Virgo . . . . . 18714, 20875  
\virgo . . . . . 18712, 20303  
\vod . . . . . 16036, 16038, 20657  
\voffset . . . . . 7963  
\voicedh . . . . . 16049, 20661  
\vpageref 8464, 8472, 8481, 8489  
\vphantom . . . . . 584  
\Vr@f . . . . . 8467  
\vr@f . . . . . 8476  
\Vref@star . . . . . 8460  
\vref@star . . . . . 8485  
\vskip . . . . . 2264, 2265  
\vss . . . . . 7977

<code>\vtex@trans@special</code> . . .	10686, 10688, 10691, 10695, 10699, 10703, 10705, 10707, 10711, 10717, 10718, 10721	4318, 4319, 4518, 4521, 4829, 4835, 5226, 5227, 5228, 5240, 5251, 5252, 5253, 5254, 5257, 5258, 5303, 5306, 5388, 5402, 5427, 5431, 5434, 5444, 5979, 5983, 6436, 6437, 6442, 7127, 7134, 7152, 7161, 7163, 7175, 8044, 8046, 8355, 8356, 8385, 8388, 8424, 8425, 8426, 8428, 8430, 8846, 8855, 9718, 9719, 9720, 9722, 9723, 9724, 9726, 9727, 9728, 9730, 9731, 9732, 9734, 9735, 9736, 9738, 9739, 9740, 9742, 9743, 9744, 9746, 9747, 9749, 9755, 9764, 10864, 10869, 10873, 11245, 11248, 11254, 11259, 11407, 11408, 12566, 12586, 13167, 13187, 13523, 13543, 14549, 14551, 14617, 14619	7161, 11250, 11251, 11252, 11253		
<code>\VTeXInitMediaSize</code> . . .	10357, 10383			<code>\ya</code> . . . . .	19647
<code>\VTeXOS</code>	10750, 10751, 10752, 10754			<code>\yahamza</code> . . . . .	19585
<code>\VTeXversion</code>	6688, 6691, 6694, 10742, 10746			<code>\YingYang</code> . . . . .	18647, 20850
<code>\Vvdash</code> . . . . .	18162, 20151			<code>\Yingyang</code> . . . . .	18648, 20851
<b>W</b>					
<code>\wasylozenge</code> . . . .	18320, 20216			<code>\YinYang</code> . . . . .	18644, 20283
<code>\waw</code> . . . . .	19643			<code>\Yinyang</code> . . . . .	18646, 20849
<code>\wawhamza</code> . . . . .	19581			<code>\yogh</code> . . . . .	16196, 19777
<code>\wd</code>	9489, 9505, 9526, 9543, 9566, 9583, 13449			<b>Z</b>	
<code>\wedge</code> . . . . .	17827, 20006			<code>\z</code>	279, 280, 288, 294, 2381, 2382, 2383, 5232, 5240
<code>\wedgedot</code> . . . . .	19003, 20418			<code>\z@</code>	1130, 1170, 1183, 1199, 1214, 1222, 1295, 1529, 1535, 1541, 1614, 1618, 1626, 1630, 2208, 2213, 2250, 2273, 2567, 2570, 2663, 2747, 3431, 3437, 4156, 4158, 4587, 5075, 5077, 5085, 5086, 5089, 5090, 5098, 5099, 5107, 5108, 6689, 6692, 7471, 9261, 9265, 9270, 9274, 9281, 9282, 9286, 9287, 9294, 9295, 9296, 10215, 10216, 10219, 10220, 10226, 10227, 10228, 10359, 10360, 10364, 10365, 10372, 10373, 10374, 10741, 10765, 10987, 11288, 11302, 11673, 11674, 11677, 11678, 11684, 11685, 11686, 12489, 12556, 13157, 13453, 13513, 13933, 13964, 13969, 13992, 13998, 14027, 14061, 14067, 14086, 14097, 14102, 14133, 14138, 14242, 14243, 14244, 14245, 14246, 14247, 14248, 14249, 14250, 14464, 14585
<code>\wedgedot</code> . . . . .	19003, 20418			<code>\z@skip</code> . . . . .	4850
<code>\Wheelchair</code> . . . . .	18772, 20317			<code>\za</code> . . . . .	19621
<code>\with</code> . . . . .	15193, 20598			<code>\zay</code> . . . . .	19609
<code>\WomanFace</code> . . . .	19397, 20575			<code>\zeroinferior</code> . . . . .	19856
<code>\Womanface</code> . . . .	19399, 20931			<code>\zerosuperior</code> . . . . .	19842
<code>\wp</code> . . . . .	17491, 19888	<code>\XBox</code> . . . . .	18621, 20842	<code>\zeta</code> . . . . .	19797
<code>\wr</code> . . . . .	17880, 20028	<code>\XeTeXLink@font</code> . .	5065, 5068	<code>\zref@extractdefault</code> . . . .	13110
<code>\wreath</code> . . . . .	17882, 20770	<code>\XeTeXLink@space</code> .	5066, 5081, 5095	<code>\zref@ifrefcontainsprop</code> . .	13108
<code>\write</code> . .	4830, 5367, 5369, 6385, 6811, 6819, 7728, 7743, 7760, 7770, 7789, 7819, 12985, 12988, 13016, 13031	<code>\XeTeXLink@space</code> .	5066, 5081, 5095	<code>\zref@ifrefundefined</code> . . . .	13106
<code>\WriteBookmarks</code> . .	4255, 4381, 4591, 4613, 14165, 14408, 14438, 14439, 14481, 14487	<code>\XeTeXLinkBox</code> . . .	5072, 5104	<code>\zref@labelbyprops</code> . . . . .	13102
<code>\WritingHand</code> . . .	18851, 20347	<code>\XeTeXLinkMargin</code> .	5062, 5063, 5078, 5080, 5091, 5093	<code>\zref@refused</code> . . . . .	13103
<code>\Writinghand</code> . . . .	18853, 20898	<code>\XeTeXrevision</code> . . . . .	4578	<code>\Zwdr</code> . . . . .	19389, 20571
<code>\wwwbrowser</code> .	9443, 9528, 9545	<code>\XeTeXversion</code> . . . . .	4578	<code>\ZWNJ</code> . . . . .	19677
<b>X</b>					
<code>\x</code> . . . . .	21, 25, 92, 98, 168, 169, 176, 178, 206, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 273, 278, 279, 914, 920, 1401, 1429, 1844, 1846, 2259, 2269, 2278, 2288, 2377, 2378, 2383, 2399, 3288, 3291, 3295, 3308, 3419, 3420, 3423, 3424, 3425, 3429, 3432, 3438, 3874, 3880, 3883, 3886, 4156, 4157, 4162, 4163, 4271, 4272, 4273, 4276, 4279, 4282, 4315, 4316,	<code>\Xi</code> . . . . .	19785	<code>\ZwPa</code> . . . . .	19375, 20565
		<code>\xi</code> . . . . .	19806		
		<code>\xinferior</code> . . . . .	19874		
		<code>\XR@ext</code>	2485, 2486, 5209, 5212, 6686, 8686, 9339, 9442, 9706, 10241, 11601, 11707, 11774, 11981, 12152		
		<code>\XSolid</code> . . . . .	18869, 20355		
		<code>\XSolidBold</code> . . . .	18871, 20356		
		<code>\XSolidBrush</code> . . .	18873, 20357		
		<code>\xspace</code> . . . . .	645, 647		
		<code>\xspaceaddexceptions</code>	4229, 4238		
<b>Y</b>					
		<code>\y</code> . . . . .	278, 280, 287, 293, 2379, 2384, 2389, 3425, 3426, 3427, 3428, 4274, 4277, 4280, 4283, 4285, 4291, 5229, 5230, 5231, 5232, 5240, 6437, 6445, 7148, 7150, 7151, 7154,		