Hypertext marks in LaTeX

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1 Documentation overview for hyperref

The documentation for package hyperref consists of several files:

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

README The **README** file (also available as text file). Here information is collected that is not yet in the manual: new features, package compatibility, limitations, known problems, ...

ChangeLog This file records the version history (also available as text file).

Options This file provides a short option summary.

Bookmark talk, slides Slides for the talk "PDF information and navigation elements with hyperref, pdfTeX and thumbpdf" at EuroTeX 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 LaTeX"

2 Contents

1 Documentation overview for hyperref **1**

2 Contents **2**

3 File hycheck.tex **7**

4 Package options and setup **11**
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

5 Common help macros **17**
5.1 Macros for recursions . . . 17
5.2 Babel's protection of shorthand characters . . . 17
5.3 Coordinate transformations . . . 17

6 Dealing with PDF strings **19**
6.1 Description of PDF strings . . . 19
6.2 Definition of \pdfstringdef . . . 19
6.2.1 Preprocessing . . . 20
6.2.2 Expansion . . . 25
6.2.3 Postprocessing . . . 26
6.3 Encodings . . . 31
6.3.1 XeTeX . . . 31
6.3.2 Workaround for package linguex . . . 32
6.3.3 PD1 encoding . . . 33
6.3.4 PU encoding . . . 33
6.4 Additional user commands . . . 33
6.4.1 \texorpdfstring . . . 33
6.4.2 Hooks for \pdfstringdef . . . 33
6.5 Help macros for expansion . . . 34
6.5.1 \ignorespaces . . . 34
6.5.2 Babel languages . . . 35
6.5.3 CJK patch . . . 40
6.5.4 CJK bookmarks . . . 40
6.5.5 CJK unicode . . . 42
6.5.6 \@inmathwarn-Patch . . . 46
6.5.7 Unexpandable spaces . . . 48
6.5.8 Marker for commands . . . 48
6.5.9 \hspace fix . . . 48
6.5.10 Fix for AMS classes . . . 49
6.5.11 Reference commands . . . 49
6.5.12 Redefining the defining commands . . . 51
6.5.13 \ifnextchar . . . 52
6.5.14 \@protected@testoptifnextchar . . . 53
6.6 Help macros for postprocessing . . . 53
6.6.1 Generic warning. . . . 53
6.6.2 Protecting spaces . . . 53
6.6.3 Remove grouping braces . . . 54
6.6.4 Catcode check . . . 55

6.6.5 Check for wrong glyphs . . . 59
6.6.6 Replacing tokens . . . 60
6.6.7 Support for package xspace . . . 60
6.6.8 Converting to Unicode . . . 61
6.6.9 Support for UTF-8 input encoding . . . 63

7 Support of other packages 67
7.1 Class memoir . . . 67
7.2 Package subfigure . . . 67
7.3 Package xr and xr-hyper . . . 68

8 Help macros for links 68

9 Options 70
9.1 Help macros . . . 70
9.2 Defining the options . . . 72

10 Options for different drivers 77

11 Options to add extra features 80

12 Language options 81

13 Options to change appearance of links 88

14 Bookmarking 88

15 PDF-specific options 91
15.1 Package xspace support . . . 101
15.2 Option draft . . . 102
15.3 PDF/A . . . 102
15.4 Patch for babel's \texttilde . . . 103
15.4.1 Driver loading . . . 105
15.4.2 Bookmarks . . . 108

16 User hypertext macros 111

17 Underlying basic hypertext macros 117

18 Compatibility with the *LaTeX2html* package 121

19 Forms creation 121
19.1 Field flags . . . 121
19.1.1 Declarations of field flags . . . 123
19.1.2 Set submit flags . . . 125
19.1.3 Set annot flags in fields . . . 126
19.1.4 Pushbutton field . . . 126
19.1.5 Check box field . . . 127
19.1.6 Radio button field . . . 127
19.1.7 Text fields . . . 127
19.1.8 Choice fields . . . 128
19.2 Choice field . . . 128
19.3 Forms . . . 130

20 Setup 137

21 Low-level utility macros **138**

22 Localized nullifying of package **139**

23 Package nohyperref **140**

24 The Mangling Of Aux and Toc Files **141**

25 Title strings **142**

26 Page numbers **143**

27 Every page **143**
27.1 PDF /PageLabels 144
27.1.1 pdfTeX and VTeX 148
27.1.2 xetex 149
27.1.3 pdfmarkbase, dvipdfm, xetex 150

28 Automated LaTeX hypertext cross-references **151**

29 Package lastpage support **156**

30 Package ifthen support **157**

31 Package titlesec and titletoc support **157**

32 Package varioref support **158**

33 Package longtable support **159**

34 Equations **159**

35 Footnotes **164**

36 Float captions **169**

37 Bibliographic references **171**
37.1 Package harvard 174
37.2 Package chicago 176

38 Page numbers **176**

39 Table of contents **178**

40 New counters **180**

41 AMSLaTeX compatibility **180**
41.1 \@addtoreset and \numberwithin patches 181

42 Included figures **182**

43 hyperindex entries **182**

44 Compatibility with foiltex **185**

45 Compatibility with seminar slide package **186**

46 Configuration files **194**
46.1 PS/PDF strings . . . 194
46.2 pdftex . . . 195
46.2.1 Fix for problem with different nesting levels . . . 208
46.3 hypertex . . . 209
46.4 dviwindo . . . 211
46.5 dvipdfm/xetex dvi to PDF converter . . . 216
46.6 VTeX typesetting system . . . 226
46.7 Fix for Adobe bug number 466320 . . . 238
46.8 Direct pdfmark support . . . 239
46.9 Rokicki's dvips . . . 252
46.10 VTeX's vtexpdfmark driver . . . 254
46.11 Textures . . . 256
46.12 dvipsone . . . 260
46.13 TeX4ht . . . 263

47 Driver-specific form support **266**
47.1 pdfmarks . . . 266
47.2 HyperTeX . . . 273
47.3 TeX4ht . . . 273
47.4 pdfTeX . . . 276
47.5 dvipdfm, xetex . . . 283
47.6 Common forms part . . . 290

48 Bookmarks in the PDF file **297**
48.1 Bookmarks . . . 297
48.1.1 Rerun warning . . . 300
48.1.2 Driver stuff . . . 301

49 Compatibility with koma-script classes **307**

50 Encoding definition files for encodings of PDF strings **307**
50.1 PD1 encoding . . . 307
50.2 PU encoding . . . 315
50.2.1 NFSS2 accents . . . 315
50.2.2 Basic Latin: U+0000 to U+007F . . . 317
50.2.3 Latin-1 Supplement: U+0080 to U+00FF . . . 319
50.2.4 Latin Extended-A: U+0080 to U+017F . . . 322
50.2.5 Latin Extended-B: U+0180 to U+024F . . . 327
50.2.6 Spacing Modifier Letters: U+02B0 to U+02FF . . . 329
50.2.7 Combining Diacritical Marks: U+0300 to U+036F . . . 329
50.2.8 Greek and Coptic: U+0370 to U+03FF . . . 330
50.2.9 Cyrillic: U+0400 to U+04FF . . . 333
50.2.10 Thai: U+0E00 to U+0E7F . . . 343
50.2.11 Latin Extended Additional: U+1E00 to U+1EFF . . . 343
50.2.12 General Punctuation: U+2000 to U+206F . . . 346
50.2.13 Superscripts and Subscripts: U+2070 to U+209F . . . 347
50.2.14 Currency Symbols: U+20A0 to U+20CF . . . 348
50.2.15 Letterlike Symbols: U+2100 to U+214F . . . 348
50.2.16 Arrows: U+2190 to U+21FF . . . 348
50.2.17 Mathematical Operators: U+2200 to U+22FF . . . 348
50.2.18 Miscellaneous Technical: U+2300 to U+23FF . . . 349
50.2.19 Control Pictures: U+2400 to U+243F . . . 349

50.2.20 Enclosed Alphanumerics: U+2460 to U+24FF 349
50.2.21 Box Drawing: U+2500 to U+257F 351
50.2.22 Miscellaneous Symbols: U+2600 to U+26FF 351
50.2.23 Miscellaneous Mathematical Symbols-A: U+27C0 to U+27EF 352
50.2.24 Alphabetic Presentation Forms: U+FB00 to U+FB4F . . . 352
50.2.25 Miscellaneous 352
50.2.26 Aliases 352
50.3 PU encoding, additions for VnTEX 352
50.4 PU encoding, additions for Arabi 355

51 End of file hycheck.tex **356**

52 Index **357**

3 File hycheck.tex

Many commands of LaTeX 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 LaTeX's `\CheckCommand`, because it takes `\DeclareRobustCommand` and optional parameters better into account.

```
⟨*check⟩
\documentclass{article}
\makeatletter
```

`\checklatex` Optional argument: release date of LaTeX.

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

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

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

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

```
\def\HyC@getDate[#1]{%
  \def\HyC@date{#1}%
  \HyC@checkPackage
}
```

`\HyC@checkPackage`

```
\def\HyC@checkPackage{%
  \typeout{}%
  \begingroup
    \edef\x{\endgroup
      \noexpand\RequirePackage{\HyC@package}%
      \ifx\HyC@date\@empty\relax\else[\HyC@date]\fi%
    }%
  \x
  \typeout{}%
  \typeout{%
    * Package '\HyC@package'%
    \ifx\HyC@date\@empty
    \else
      \space\HyC@date
    \fi
  }%
  \@ifundefined{ver@\HyC@package.sty}{%
  }{%
    \typeout{%
      \space\space Loaded: '\HyC@package' %
      \csname ver@\HyC@package.sty\endcsname
    }%
```

```
  }%
}
```

\checkcommand The macro \checkcommand parses the next tokens as a LaTeX definition and compares this definition with the current meaning of that command.

```
\newcommand*{\checkcommand}[1]{%
  \begingroup
  \ifx\long#1\relax
    \expandafter\HyC@checklong
  \else
    \def\HyC@defcmd{#1}%
    \expandafter\let\expandafter\HyC@next
      \csname HyC@\expandafter\@gobble\string#1\endcsname
    \expandafter\HyC@checkcommand
  \fi
}
```

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

```
\def\HyC@checklong#1{%
  \def\HyC@defcmd{\long#1}%
  \expandafter\let\expandafter\HyC@next
    \csname HyC@\expandafter\@gobble\string#1\endcsname
  \HyC@checkcommand
}
```

\HyC@checkcommand The optional star of LaTeX's definitions is parsed.

```
\def\HyC@checkcommand{%
  \ifx\HyC@next\relax
    \PackageError{hycheck}{%
      Unknown command `\expandafter\strip@prefix\meaning\HyC@cmd'%
    }\@ehd
    \expandafter\endinput
  \fi
  \@ifstar{%
    \def\HyC@star{*}%
    \HyC@check
  }{%
    \let\HyC@star\@empty
    \HyC@check
  }%
}
```

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

```
\def\HyC@check#1{%
  \def\HyC@cmd{#1}%
  \let\HyC@org@cmd#1%
  \let#1\relax
  \let\HyC@param\@empty
  \HyC@Toks{}%
  \let\HyC@org@optcmd\HyC@noValue
  \let\HyC@org@robustcmd\HyC@noValue
  \let\HyC@org@robustoptcmd\HyC@noValue
  \HyC@next
}
```

\HyC@noValue

```
\def\HyC@noValue{NoValue}
```

\HyC@newcommand The code for \newcommand.

```
\def\HyC@newcommand{%
  \let\HyC@@cmd\HyC@cmd
  \@ifnextchar[\HyC@nc@opt\HyC@nc@noopt
}
```

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

```
\newtoks\HyC@Toks
```

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

```
\long\def\HyC@nc@noopt#1{%
  \edef\x{%
    \expandafter\noexpand\HyC@defcmd
    \HyC@star
    \expandafter\noexpand\HyC@cmd
    \HyC@param\the\HyC@Toks
  }%
  \x{#1}%
  \HyC@doCheck
}
```

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

```
\def\HyC@nc@opt[#1]{%
  \def\HyC@param{[{#1}]}%
  \@ifnextchar[\HyC@nc@default\HyC@nc@noopt
}
```

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

```
\def\HyC@nc@default[#1]{%
  \HyC@Toks={[{#1}]}%
  \edef\HyC@optcmd{%
    \expandafter\noexpand
    \csname\expandafter\string\HyC@@cmd\endcsname
  }%
  \expandafter\let\expandafter\HyC@org@optcmd\HyC@optcmd
  \HyC@nc@noopt
}
```

\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 \Hy@nc@noopt of the \HyC@newcommand chain.

```
\def\HyC@DeclareRobustCommand{%
  \edef\HyC@robustcmd{%
    \expandafter\noexpand
    \csname\expandafter\expandafter\expandafter\@gobble
      \expandafter\string\HyC@cmd\space\endcsname
  }%
  \expandafter\let\expandafter\HyC@org@robustcmd\HyC@robustcmd
  \expandafter\let\HyC@robustcmd\relax
  \let\HyC@@cmd\HyC@robustcmd
  \@ifnextchar[\HyC@nc@opt\HyC@nc@noopt
}
```

\HyC@def
\HyC@edef
The parameter text of \def or \edef is stored in the token register \HyC@Toks.

```
\def\HyC@def#1#{%
  \HyC@Toks={#1}%
  \HyC@nc@noopt
}
\let\HyC@edef\HyC@def
```

\HyC@doCheck
This command performs the checks and prints the result.

```
\def\HyC@doCheck{%
  \typeout{* Checking `\HyC@string\HyC@cmd':}%
  \HyC@checkItem{cmd}%
  \HyC@checkItem{robustcmd}%
  \HyC@checkItem{optcmd}%
  \HyC@checkItem{robustoptcmd}%
  \endgroup
}
```

\HyC@checkItem
A single check.

```
\def\HyC@checkItem#1{%
  \expandafter\ifx\csname HyC@org@#1\endcsname\HyC@noValue
  \else
    \expandafter\expandafter\expandafter\ifx
    \csname HyC@#1\expandafter\endcsname
    \csname HyC@org@#1\endcsname
      \expandafter\HyC@checkOk\csname HyC@#1\endcsname
    \else
      \expandafter\HyC@checkFailed
        \csname HyC@#1\expandafter\endcsname
        \csname HyC@org@#1\endcsname
    \fi
  \fi
}
```

\HyC@string
\HyC@meaning
Some shorthands.

```
\def\HyC@string#1{\expandafter\string#1}
\def\HyC@meaning#1{\expandafter\meaning#1}
```

\HyC@checkOk
The result, if the check succeeds.

```
\def\HyC@checkOk#1{%
  \typeout{\space\space`\HyC@string#1' ok.}%
}
```

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

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

% ************************************************
⟨/check⟩
⟨*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.

```
\begingroup
  \@makeother\‘%
  \@makeother\=%
  \edef\x{%
    \edef\noexpand\x{%
      \endgroup
      \noexpand\toks@{%
        \catcode 96=\noexpand\the\catcode‘\noexpand\‘\relax
        \catcode 61=\noexpand\the\catcode‘\noexpand\=\relax
      }%
    }%
    \noexpand\x
  }%
\x
\@makeother\‘
\@makeother\=
```

\Hy@SetCatcodes

```
\def\Hy@SetCatcodes{%
  \@makeother\‘%
  \@makeother\=%
  \catcode‘\$=3 %
  \catcode‘\&=4 %
  \catcode‘\^=7 %
  \catcode‘\_=8 %
  \@makeother\|%
  \@makeother\:%
  \@makeother\(%
  \@makeother\)%
  \@makeother\[%
  \@makeother\]%
  \@makeother\/%
  \@makeother\!%
  \@makeother\<%
  \@makeother\>%
  \@makeother\.%
  \@makeother\;%
  \@makeother\+%
  \@makeother\-%
  \@makeother\”%
  \@makeother\’%
}
```

\Hy@RestoreCatcodes

```
\begingroup
  \def\x#1{\catcode‘\noexpand#1=\the\catcode‘#1\relax}%
  \xdef\Hy@RestoreCatcodes{%
    \the\toks@
    \x\$%
```

```
    \x\&%
    \x\^%
    \x\_%
    \x\|%
    \x\:%
    \x\(%
    \x\)%
    \x\[%
    \x\]%
    \x\/%
    \x\!%
    \x\<%
    \x\>%
    \x\.%
    \x\;%
    \x\+%
    \x\-%
    \x\"%
    \x\'%
  }%
\endgroup
```

```
\Hy@SetCatcodes
```

It needs the December 95 release of LaTeX, because it uses `\protected@write`, and it defines commands in options; and the page setup internal code changed at that point. It'll probably break with the later releases!

Use package `hobsub-hyperref` for faster package loading.

```
\IfFileExists{hobsub-hyperref.sty}{%
  \RequirePackage{hobsub-hyperref}[2011/01/30]%
}{}
```

```
\RequirePackage{ltxcmds}[2010/10/25]
\RequirePackage{ifpdf}[2006/02/20]
\RequirePackage{pdftexcmds}[2009/04/10]
\@ifpackagelater{pdftexcmds}{2010/11/04}{}{%
  \ltx@IfUndefined{pdfdraftmode}{%
    \let\pdf@ifdraftmode\ltx@secondoftwo
  }{%
    \ifpdf
      \def\pdf@ifdraftmode{%
        \ifnum\pdfdraftmode=\ltx@one
          \expandafter\ltx@firstoftwo
        \else
          \expandafter\ltx@secondoftwo
        \fi
      }%
    \else
      \let\pdf@ifdraftmode\ltx@secondoftwo
    \fi
  }%
}
```

```
\RequirePackage{infwarerr}[2010/04/08]
\RequirePackage{keyval}[1997/11/10]
\RequirePackage{kvsetkeys}[2007/09/29]
\RequirePackage{pdfescape}[2007/11/11]
\RequirePackage{ifvtex}
\RequirePackage{ifxetex}[2006/08/21]
```

```
\RequirePackage{hycolor}
\RequirePackage{letltxmacro}[2008/06/13]
\def\Hy@Error{\@PackageError{hyperref}}
\def\Hy@Warning{\@PackageWarning{hyperref}}
\def\Hy@WarningNoLine{\@PackageWarningNoLine{hyperref}}
\def\Hy@Info{\@PackageInfo{hyperref}}
\def\Hy@InfoNoLine{\@PackageInfoNoLine{hyperref}}
\def\Hy@Message#1{%
  \GenericWarning{%
    (hyperref)\@spaces\@spaces\@spaces\@spaces
  }{%
    Package hyperref Message: #1\ltx@gobble
  }%
}
```

4.2 Version check

\Hy@VersionChecked

```
\chardef\Hy@VersionChecked=0 %
```

\Hy@VersionCheck

```
\def\Hy@VersionCheck#1{%
  \begingroup
    \ltx@IfUndefined{ver@hyperref.sty}{%
      \Hy@Error{%
        This should not happen!\MessageBreak
        Missing hyperref version%
      }\@ehd
    }{%
      \ltx@IfUndefined{ver@#1}{%
        \Hy@Error{%
          This should not happen!\MessageBreak
          Missing version of '#1'%
        }\@ehd
      }{%
        \def\x##1##2##3{%
          \expandafter\expandafter\expandafter\Hy@@VersionCheck
          \expandafter\expandafter\expandafter##2%
          \csname ver@##3\endcsname##1##1\@nil
        }%
        \x{ }\y{hyperref.sty}%
        \x{ }\z{#1}%
        \ifx\y\z
        \else
          \Hy@Error{%
            Version mismatch!\MessageBreak
            * \y: hyperref.sty\MessageBreak
            * \z: #1%
          }\@ehd
        \fi
      }%
    }%
  \endgroup
  \chardef\Hy@VersionChecked=1 %
}
```

\Hy@@VersionCheck

```
\def\Hy@@VersionCheck #1#2 #3 #4\@nil{%
  \def#1{#2 #3}%
}
```

4.3 Checks with regular expressions

```
\ltx@IfUndefined{pdfmatch}{%
  \let\Hy@Match\ltx@gobblefour
}{%
  \def\Hy@Match#1#2{%
    \begingroup
    \edef\^{\ltx@backslashchar\string^}%
    \edef\.{\ltx@backslashchar.}%
    \edef\[{\ltx@backslashchar[}% ]]
    \edef\${\ltx@backslashchar$}%
    \edef\({\ltx@backslashchar(}%
    \edef\){\ltx@backslashchar)}%
    \edef\|{\ltx@backslashchar|}%
    \edef\*{\ltx@backslashchar*}%
    \edef\+{\ltx@backslashchar+}%
    \edef\?{\ltx@backslashchar?}%
    \edef\{{\ltx@backslashchar\ltx@leftbracechar}%
    \edef\}{\ltx@rightbracechar}%
    \edef\\{\ltx@backslashchar\ltx@backslashchar}%
    \let\ \ltx@space
    \ifcase\pdfmatch{#2}{#1} %
      \endgroup
      \expandafter\ltx@secondoftwo
    \or
      \endgroup
      \expandafter\ltx@firstoftwo
    \else
      \Hy@Warning{%
        Internal error: Wrong pattern!\MessageBreak
        --> #2 <--\MessageBreak
        Pattern check ignored%
      }%
      \endgroup
      \expandafter\ltx@firstoftwo
    \fi
  }%
  \ltx@ifpackagelater{ltxcmds}{2010/09/11}{}{%
    \begingroup
      \lccode`0=`\{\relax
    \lowercase{\endgroup
      \def\ltx@leftbracechar{0}%
    }%
    \begingroup
      \lccode`0=`\}\relax
    \lowercase{\endgroup
      \def\ltx@rightbracechar{0}%
    }%
  }%
}
```

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 LaTeX processing.

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

```
\@ifundefined{AfterBeginDocument}{%
  \def\AfterBeginDocument{\AtBeginDocument}%
}{}%
```

\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.

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

\Hy@AtEndOfPackage

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

\Hy@AtBeginDocumentHook

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

\Hy@AtEndOfPackageHook

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

Install the hook, before package 'kvoptions' is loaded.

```
\AtEndOfPackage{%
  \Hy@AtEndOfPackageHook
  \let\Hy@AtEndOfPackageHook\@undefined
  \AfterBeginDocument{%
    \Hy@AtBeginDocumentHook{}%
    \let\Hy@AtBeginDocumentHook\@undefined
  }%
}
```

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

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

4.5 Switches

```
\newif\ifHy@stoppedearly
\newif\ifHy@typexml
\newif\ifHy@activeanchor
\newif\ifHy@backref
\newif\ifHy@bookmarks
\newif\ifHy@bookmarksnumbered
\newif\ifHy@bookmarksopen
\newif\ifHy@breaklinks
```

```
\newif\ifHy@pdfcenterwindow
\newif\ifHy@CJKbookmarks
\newif\ifHy@colorlinks
\newif\ifHy@draft
\let\Hy@finaltrue\Hy@draftfalse
\let\Hy@finalfalse\Hy@drafttrue
\newif\ifHy@pdfescapeform
\newif\ifHy@hyperfigures
\newif\ifHy@pdffitwindow
\newif\ifHy@frenchlinks
\newif\ifHy@hyperfootnotes
\newif\ifHy@hyperindex
\newif\ifHy@hypertexnames
\newif\ifHy@implicit
\newif\ifHy@linktocpage
\newif\ifHy@localanchorname
\newif\ifHy@pdfmenubar
\newif\ifHy@naturalnames
\newif\ifHy@nesting
\newif\ifHy@pdfnewwindowset
\newif\ifHy@pdfnewwindow
\newif\ifHy@ocgcolorlinks
\newif\ifHy@pageanchor
\newif\ifHy@pdfpagelabels
\newif\ifHy@pdfpagehidden
\newif\ifHy@pdfstring
\newif\ifHy@plainpages
\newif\ifHy@psize
\newif\ifHy@raiselinks
\newif\ifHy@seminarslides
\newif\ifHy@setpagesize
\newif\ifHy@texht
\newif\ifHy@pdftoolbar
\newif\ifHy@unicode
\newif\ifHy@pdfusetitle
\newif\ifHy@verbose
\let\Hy@debugtrue\Hy@verbosetrue
\let\Hy@debugfalse\Hy@verbosefalse
\newif\ifHy@pdfwindowui
\newif\ifHy@pdfdisplaydoctitle
\newif\ifHy@pdfa
```

Defaults for the switches are now set.

```
\Hy@backreffalse
\Hy@bookmarksnumberedfalse
\Hy@bookmarksopenfalse
\Hy@bookmarkstrue
\Hy@breaklinksfalse
\Hy@pdfcenterwindowfalse
\Hy@CJKbookmarksfalse
\Hy@pdfescapeformfalse
\Hy@hyperfiguresfalse
\Hy@pdffitwindowfalse
\Hy@hyperfootnotestrue
\Hy@hyperindextrue
\Hy@hypertexnamestrue
\Hy@implicittrue
\Hy@linktocpagefalse
```

```
\Hy@localanchornamefalse
\Hy@pdfmenubartrue
\Hy@naturalnamesfalse
\Hy@nestingfalse
\Hy@pdfnewwindowsetfalse
\Hy@pdfnewwindowfalse
\Hy@pageanchortrue
\Hy@pdfpagelabelstrue
\Hy@pdfpagehiddenfalse
\Hy@pdfstringfalse
\Hy@plainpagesfalse
\Hy@raiselinksfalse
\Hy@setpagesizetrue
\Hy@texhtfalse
\Hy@pdftoolbartrue
\Hy@typexmlfalse
\Hy@unicodefalse
\Hy@pdfusetitlefalse
\Hy@verbosefalse
\Hy@pdfwindowuitrue
\Hy@pdfdisplaydoctitlefalse
\Hy@pdfafalse
```

5 Common help macros

\Hy@StepCount

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

\Hy@GlobalStepCount

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

```
\newdimen\@linkdim
\let\Hy@driver\ltx@empty
\let\MaybeStopEarly\relax
\newcount\Hy@linkcounter
\newcount\Hy@pagecounter
\Hy@linkcounter0
\Hy@pagecounter0
```

5.1 Macros for recursions

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

5.2 Babel's protection of shorthand characters

\Hy@safe@activestrue
\Hy@safe@activesfalse

Babel's switch setting commands cannot used directly, because they can be undefined if babel is not loaded.

```
\def\Hy@safe@activestrue{\csname @safe@activestrue\endcsname}
\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 e-TeX extensions an expandable implementation is very easy; \hypercalcbp can be used everywhere and is expanded at use.
- Without e-TeX's features \hypercalcbp cannot be implemented expandable (practically) and have to be supported by \hypercalcbpdef. Limitations:
  - Works only in options that use \hypercalcbpdef (currently only pdfstartview).
  - For calculations package calc has to be loaded.
  - The expansion of the argument is done at definition time.

Example (TEX):

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

\hypercalcbp

```
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname dimexpr\endcsname\relax
 \def\hypercalcbpdef#1#2{%
  \begingroup
   \toks@{}%
   \HyCal@scan#2\hypercalcbp\@nil
  \expandafter\endgroup
  \expandafter\def\expandafter#1\expandafter{\the\toks@}%
 }%
 \def\HyCal@scan#1\hypercalcbp#2\@nil{%
  \toks@\expandafter{\the\toks@ #1}%
  \ifx\\#2\\%
  \else
   \ltx@ReturnAfterFi{%
    \HyCal@do#2\@nil
   }%
  \fi
 }%
 \def\HyCal@do#1#2\@nil{%
  \@ifpackageloaded{calc}{}{%
   \Hy@Warning{%
    For calculations \string\hypercalcbp\space needs\MessageBreak
    package calc or e-TeX%
   }%
  }%
  \setlength{\dimen@}{#1}%
  \setlength{\dimen@}{0.99626401\dimen@}%
  \edef\x{%
   \toks@{%
    \the\toks@
```

```
      \strip@pt\dimen@
    }%
  }\x
  \HyCal@scan#2\@nil
}%
\else
  \def\hypercalcbp#1{%
    \strip@pt\dimexpr 0.99626401\dimexpr(#1)\relax\relax
  }%
  \def\hypercalcbpdef{\def}%
\fi
```

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:

`\\`	the backslash itself
`\)`, `\(`	unbalanced parentheses
`\n`, `\r`, `\t`, `\b`, `\f`	special white space escape sequences
`\ddd`	octal character code `ddd`

- 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 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 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 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.

\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 processed by TEX, because the tokens have only catcodes 10 until 12.

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

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

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

```
  \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 TEX escape character indeed prints as a normal backslash. Eventually this line can be removed, because this is standard LATEX behaviour.

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

From the view of TEX a 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.

```
  \edef\0{\string\0}%
  \edef\1{\string\1}%
  \edef\2{\string\2}%
  \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.

```
  \ifHy@unicode
    \edef\8{\string\8}%
    \edef\9{\string\9}%
    \fontencoding{PU}%
    \HyPsd@UTFviii
    \def\ifpdfstringunicode##1##2{##1}%
  \else
    \fontencoding{PD1}%
```

```
    \def\ifpdfstringunicode##1##2{##2}%
  \fi
  \let\utf@viii@undeferr\HyPsd@utf@viii@undeferr
  \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).

```
  \@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 assigments 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).

```
  \let\@inmathwarn\HyPsd@inmathwarn
```

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

```
  \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.

```
  \let\{\textbraceleft
  \let\}\textbraceright
  \let\\\textbackslash
  \let\#\textnumbersign
  \let\$\textdollar
  \let\%\textpercent
  \let\&\textampersand
% \let\~\textasciitilde
  \let\_\textunderscore
  \let\P\textparagraph
  \let\ldots\textellipsis
  \let\dots\textellipsis
```

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.

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

Logos. Because the box shifting used in the TEX logo does not work while writing to a file, the standard TEX logos are redefined.

```
\def\TeX{TeX}%
\def\LaTeX{La\TeX}%
\def\LaTeXe{%
  \LaTeX2%
  \ifHy@unicode\textepsilon\else e\fi
}%
\def\eTeX{%
  \ifHy@unicode\textepsilon\else e\fi
  -\TeX%
}%
\def\SliTeX{Sli\TeX}%
\def\MF{Metafont}%
\def\MP{Metapost}%
```

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

```
\let\fontencoding\@gobble
\let\fontfamily\@gobble
\let\fontseries\@gobble
\let\fontshape\@gobble
\let\fontsize\@gobbletwo
\let\selectfont\@empty
\let\usefont\@gobblefour
\let\emph\@firstofone
\let\textnormal\@firstofone
\let\textrm\@firstofone
\let\textsf\@firstofone
\let\texttt\@firstofone
\let\textbf\@firstofone
\let\textmd\@firstofone
\let\textit\@firstofone
\let\textsc\@firstofone
\let\textsl\@firstofone
\let\textup\@firstofone
\let\normalfont\@empty
\let\rmfamily\@empty
\let\sffamily\@empty
\let\ttfamily\@empty
\let\bfseries\@empty
\let\mdseries\@empty
\let\itshape\@empty
\let\scshape\@empty
\let\slshape\@empty
\let\upshape\@empty
\let\em\@empty
\let\rm\@empty
\let\Huge\@empty
\let\LARGE\@empty
\let\Large\@empty
\let\footnotesize\@empty
\let\huge\@empty
\let\large\@empty
\let\normalsize\@empty
\let\scriptsize\@empty
```

```
\let\small\@empty
\let\tiny\@empty
\let\mathversion\@gobble
\let\phantom\@gobble
\let\vphantom\@gobble
\let\hphantom\@gobble
```

Environments.

```
\def\begin#1{\csname#1\endcsname}%
\def\end#1{\csname end#1\endcsname}%
```

Package color.

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

Upper- and lowercase.

```
\def\MakeUppercase{\MakeUppercaseUnsupportedInPdfStrings}%
\def\MakeLowercase{\MakeLowercaseUnsupportedInPdfStrings}%
```

Package babel. Whereever "naturalnames" is used, disable `\textlatin` (from Babel 3.6k). Thanks to Felix Neubauer (Email: `Felix.Neubauer@gmx.net`).

```
\let\foreignlanguage\@secondoftwo
\let\textlatin\@firstofone
\ltx@IfUndefined{language@group}{}{%
  \csname HyPsd@babel@\language@group\endcsname
}%
\HyPsd@GreekPatch
\HyPsd@SpanishPatch
\HyPsd@RussianPatch
\HyPsd@BabelPatch
\let\@safe@activestrue\relax
\let\@safe@activesfalse\relax
```

Disable `\cyr`, used in russianb.ldf.

```
\let\cyr\relax
```

Redefine `\es@roman`, used in spanish.ldf.

```
\let\es@roman\@Roman
```

Package german.

```
\let\glqq\textglqq
\let\grqq\textgrqq
\let\glq\textglq
\let\grq\textgrq
\let\flqq\textflqq
\let\frqq\textfrqq
\let\flq\textflq
\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}

```
\let\if@mid@expandable\@firstoftwo
```

AMS classes.

```
\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.

```
\let\hspace\HyPsd@hspace
```

Commands of referencing and indexing systems. Some LaTeX commands that are legal in \section commands have to be disabled here.

```
\let\label\@gobble
\let\index\@gobble
\let\glossary\@gobble
\let\href\HyPsd@href
\let\@mkboth\@gobbletwo
```

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

```
\let\ref\HyPsd@ref
\let\pageref\HyPsd@pageref
\let\nameref\HyPsd@nameref
\let\autoref\HyPsd@autoref
```

Miscellaneous commands.

```
\let\leavevmode\@empty
\let\mbox\@empty
```

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

```
\def\halign{\pdfstringdefWarn\halign\@gobble}%
\let\ignorespaces\HyPsd@ignorespaces
\let\Hy@SectionAnchorHref\@gobble
```

Patch for cjk bookmarks.

```
\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 TeX'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 by added by the hook \pdfstringdefPreHook.

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).

```
\Hy@pdfstringtrue
\pdfstringdefPreHook
```

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

```
\HyPsd@LetUnexpandableSpace\space
\HyPsd@LetUnexpandableSpace\ %
\HyPsd@LetUnexpandableSpace~%
\HyPsd@LetUnexpandableSpace\nobreakspace
```

Package xspace.

```
\ltx@IfUndefined{@xspace}{%
  \let\xspace\HyPsd@ITALCORR
}{%
  \let\xspace\HyPsd@XSPACE
}%
\let\/\HyPsd@ITALCORR
\let\bgroup\/%
\let\egroup\/%
```

Redefinitions of miscellaneous commands. Hyphenation does not make sense.

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

`\@ifstar` is defined in LaTeX 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:

```
\def\@ifnextchar{\HyPsd@ifnextchar\@ifnextchar}%
\def\kernel@ifnextchar{\HyPsd@ifnextchar\kernel@ifnextchar}%
\def\new@ifnextchar{\HyPsd@ifnextchar\new@ifnextchar}%
\let\@protected@testopt\HyPsd@protected@testopt
```

Support for package 'xargs':

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

6.2.2 Expansion

There are several possibilities to expand tokens within LaTeX:

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

`\csname`: First the string is expanded whithin 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 TeX 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. TeX 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 LaTeX's `\protected@edef`. So the font encoding mechanism works and the glyph commands are converted to the correct tokens for PDF strings whith the definitions of the PD1 encoding. Because the protecting mechanism of LaTeX 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 TeX, 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).

```
\begingroup
  \let\GenericError\@gobblefour
  \let\GenericWarning\@gobbletwo
  \let\GenericInfo\@gobbletwo
```

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

```
  \ifx\nofrenchguillemets\@undefined
  \else
    \nofrenchguillemets
  \fi
```

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

```
  \let\Hy@temp\xdef
  \let\def\HyPsd@DefCommand
  \let\gdef\HyPsd@DefCommand
  \let\edef\HyPsd@DefCommand
  \let\xdef\HyPsd@DefCommand
  \let\futurelet\HyPsd@LetCommand
  \let\let\HyPsd@LetCommand
  \Hy@temp#1{#2}%
\endgroup
```

6.2.3 Postprocessing

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

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

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

- 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 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.
- 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.

```
\HyPsd@ProtectSpaces#1%
\let\HyPsd@String\@empty
\expandafter\HyPsd@RemoveBraces\expandafter{#1|}%
\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 `\HyPsd@CheckCatcodes` the command `\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 `\HyPsd@CheckCatcodes` is called.

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

```
\let\HyPsd@SPACEOPTI\relax
{%
  \let\HyPsd@String\@empty
  \expandafter\HyPsd@CheckCatcodes#1\HyPsd@End
  \global\let#1\HyPsd@String
}%
\expandafter\HyPsd@RemoveMask\expandafter
  |\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.

```
\expandafter\HyPsd@Subst\expandafter{\HyPsd@GLYPHERR}{\relax}#1%
  \let\HyPsd@String\@empty
  \expandafter\HyPsd@GlyphProcess#1\relax\@empty
  \global\let#1\HyPsd@String
```

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

```
  \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 `\guillemotright`, because `\lastskip` and `\unskip` do not work. Therefore it is removed here.

```
  \ifHy@unicode
    \expandafter\HyPsd@StringSubst\csname 80\040\endcsname
      \HyPsd@SPACEOPTI#1%
    \edef\Hy@temp@A{\HyPsd@SPACEOPTI\HyPsd@SPACEOPTI\80\273}%
    \expandafter\HyPsd@Subst\expandafter{\Hy@temp@A}%
      {\HyPsd@SPACEOPTI\80\273}#1%
  \else
    \HyPsd@StringSubst{\040}\HyPsd@SPACEOPTI#1%
    \expandafter\HyPsd@Subst\expandafter{%
      \expandafter\HyPsd@SPACEOPTI\expandafter\HyPsd@SPACEOPTI
      \string\273}{\HyPsd@SPACEOPTI\273}#1%
  \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.

```
  \ifHy@unicode
    \HyPsd@StringSubst{\)}{\80\051}#1%
    \HyPsd@Subst)}{\80\051}#1%
    \let\HyPsd@empty\relax
    \expandafter\HyPsd@StringSubst\csname 80\051\endcsname
      {\HyPsd@empty\80\051}#1%
  \else
    \HyPsd@StringSubst{\)}{\051}#1%
    \HyPsd@Subst)}{\051}#1%
```

```
    \let\HyPsd@empty\relax
    \HyPsd@StringSubst{\051}{\HyPsd@empty\string\)}#1%
  \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`.

```
  \expandafter\HyPsd@Subst\expandafter{\/}\HyPsd@empty#1%
  \ltx@IfUndefined{@xspace}{%
  }{%
    \let\HyPsd@xspace\relax
    \expandafter\HyPsd@Subst\expandafter
      {\HyPsd@XSPACE}\HyPsd@xspace#1%
    \let\HyPsd@xspace\HyPsd@doxspace
  }%
  \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.

```
  \HyPsd@Subst{---}\textemdash#1%
  \HyPsd@Subst{--}\textendash#1%
% \HyPsd@Subst{fi}\textfi#1%
% \HyPsd@Subst{fl}\textfl#1%
  \HyPsd@Subst{!`}\textexclamdown#1%
  \HyPsd@Subst{?`}\textquestiondown#1%
```

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

```
  \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 replaced by a `()` pair. But this code is removed to save TEX memory and time.

```
  \ifHy@unicode
```

```
      \HyPsd@StringSubst\(\textparenleft#1%
      \HyPsd@Subst(\textparenleft#1%
    \else
      \HyPsd@StringSubst\({\050}#1%
      \HyPsd@Subst({\050}#1%
      \HyPsd@StringSubst{\050}{\string\(}#1%
    \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.

```
    \ifHy@unicode
      \edef\HyPsd@SPACEOPTI{\80\040}%
    \else
      \let\HyPsd@SPACEOPTI\HyPsd@spaceopti
    \fi
    \xdef#1{#1\@empty}%
  \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.

```
\endgroup
\begingroup
  \ifHy@unicode
    \HyPsd@ConvertToUnicode#1%
```

Try conversion back to PDFDocEncoding.

```
    \ifx\HyPsd@pdfencoding\HyPsd@pdfencoding@auto
      \ltx@IfUndefined{StringEncodingConvertTest}{%
      }{%
        \EdefUnescapeString\HyPsd@temp#1%
        \ifxetex
          \let\HyPsd@UnescapedString\HyPsd@temp
          \StringEncodingConvertTest\HyPsd@temp\HyPsd@temp
                                {utf16be}{ascii-print}{%
            \EdefEscapeString\HyPsd@temp\HyPsd@temp
            \global\let#1\HyPsd@temp
            \HyPsd@EscapeTeX#1%
            \Hy@unicodefalse
          }{%
            \HyPsd@ToBigChars#1%
          }%
        \else
          \StringEncodingConvertTest\HyPsd@temp\HyPsd@temp
                                {utf16be}{pdfdoc}{%
            \EdefEscapeString\HyPsd@temp\HyPsd@temp
            \global\let#1\HyPsd@temp
            \HyPsd@EscapeTeX#1%
            \Hy@unicodefalse
          }{}%
        \fi
      }%
    \fi
```

```
    \fi
    \HyPsd@XeTeXBigCharsfalse
```

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

```
    \pdfstringdefPostHook#1%
  \endgroup
}
```

\Hy@pdfstringdef

```
\def\Hy@pdfstringdef#1#2{%
  \pdfstringdef\Hy@gtemp{#2}%
  \let#1\Hy@gtemp
}
```

6.3 Encodings

6.3.1 XeTEX

```
\edef\Hy@temp{\catcode0=\the\catcode0\relax}
\catcode\z@=12 %
\ifxetex
  \expandafter\@firstofone
\else
  \let\HyPsd@XeTeXBigCharstrue\@empty
  \let\HyPsd@XeTeXBigCharsfalse\@empty
  \expandafter\@gobble
\fi
{%
  \newif\ifHyPsd@XeTeXBigChars
  \def\HyPsd@XeTeXBigCharsfalse{%
    \global\let\ifHyPsd@XeTeXBigChars\iffalse
  }%
  \def\HyPsd@XeTeXBigCharstrue{%
    \global\let\ifHyPsd@XeTeXBigChars\iftrue
  }%
  \def\HyPsd@ToBigChars#1{%
    \ifHyPsd@XeTeXBigChars
      \EdefEscapeHex\HyPsd@UnescapedString{%
        \expandafter\@gobbletwo\HyPsd@UnescapedString
      }%
      \begingroup
        \toks@{}%
        \escapechar=92\relax
        \let\x\HyPsd@ToBigChar
        \expandafter\HyPsd@ToBigChar\HyPsd@UnescapedString
        \relax\relax\relax\relax\relax\relax\relax
      \edef\x{%
        \endgroup
        \gdef\noexpand#1{\the\toks@}%
      }%
      \x
    \fi
  }%
  \def\HyPsd@ToBigChar#1#2#3#4{%
    \ifx\relax#1\relax
      \let\x\relax
```

```
    \else
      \count@="#1#2#3#4\relax
      \let\y\@empty
      \lccode\z@=\count@
      \ifnum\count@=40 % (
        \let\y\@backslashchar
      \else
        \ifnum\count@=41 % )
          \let\y\@backslashchar
        \else
          \ifnum\count@=92 % backslash
            \let\y\@backslashchar
          \else
            \ifnum\count@=10 % newline
              \edef\y##1{\string\n}%
            \else
              \ifnum\count@=13 % carriage return
                \edef\y##1{\string\r}%
              \fi
            \fi
          \fi
        \fi
      \fi
      \lowercase{%
        \toks@\expandafter{%
          \the\expandafter\toks@
          \y
          ^^@%
        }%
      }%
    \fi
    \x
  }%
}
\Hy@temp
```

6.3.2 Workaround for package linguex

```
\@ifpackageloaded{linguex}{%
  \let\HyLinguex@OrgB\b
  \let\HyLinguex@OrgC\c
  \let\HyLinguex@OrgD\d
  \def\HyLinguex@Restore{%
    \let\b\HyLinguex@OrgB
    \let\c\HyLinguex@OrgC
    \let\d\HyLinguex@OrgD
  }%
  \Hy@AtEndOfPackage{%
    \pdfstringdefDisableCommands{%
      \ltx@IfUndefined{oldb}{}{\let\b\oldb}%
      \ltx@IfUndefined{oldc}{}{\let\c\oldc}%
      \ltx@IfUndefined{oldd}{}{\let\d\oldd}%
    }%
  }%
}{%
  \let\HyLinguex@Restore\relax
}%
```

6.3.3 PD1 encoding

The PD1 encoding implements the PDFDocEncoding for use with LaTeX 2_ε's NFSS. Because the informational strings are not set by TeX'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 TeX does not process it anyway. So use CM.

```
\@ifundefined{T@PD1}{%
  \input{pd1enc.def}%
  \HyLinguex@Restore
}{}
\DeclareFontFamily{PD1}{pdf}{}
\DeclareFontShape{PD1}{pdf}{m}{n}{ <-> cmr10 }{}
\DeclareFontSubstitution{PD1}{pdf}{m}{n}
```

6.3.4 PU encoding

The PU encoding implements the Unicode encoding for use with LaTeX's NFSS. Because of large memory requirements the encoding file for Unicode support is only loaded, if option unicode is specified as package option.

\HyPsd@InitUnicode

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

```
\def\HyPsd@InitUnicode{%
  \@ifundefined{T@PU}{%
    \input{puenc.def}%
    \HyLinguex@Restore
  }{}%
  \DeclareFontFamily{PU}{pdf}{}%
  \DeclareFontShape{PU}{pdf}{m}{n}{ <-> cmr10 }{}%
  \DeclareFontSubstitution{PU}{pdf}{m}{n}%
  \let\HyPsd@InitUnicode\relax
}
```

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 TeX's stomach, the second contains the replacement for PDF strings.

```
\def\texorpdfstring{%
  \ifHy@pdfstring
    \expandafter\@secondoftwo
  \else
    \expandafter\@firstoftwo
  \fi
}
```

6.4.2 Hooks for \pdfstringdef

\pdfstringdefPreHook
\pdfstringdefPostHook

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

```
\@ifundefined{pdfstringdefPreHook}{%
  \let\pdfstringdefPreHook\@empty
}{}
\@ifundefined{pdfstringdefPostHook}{%
  \let\pdfstringdefPostHook\@gobble
}{}
```

\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 LaTeX commands like \@gobble or \@firstofone.

```
\def\pdfstringdefDisableCommands{%
  \begingroup
    \makeatletter
    \HyPsd@DisableCommands
}
```

\HyPsd@DisableCommands

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

\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.

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

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.

```
\begingroup
  \catcode0=12 %
  \def\x{\endgroup
    \def\HyPsd@ignorespaces{%
      \romannumeral\expandafter`\expandafter^^@%
      \romannumeral`^^@%
    }%
  }%
\x
```

6.5.2 Babel languages

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

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

As consequence the shorthands are shown in the bookmarks, not its result. Therefore \languageshorthands is disabled before the user hook. If there is a need to use the command, then \HyOrg@languageshorthands can be used inside \pdfstringdefDisableCommands.

```
\def\HyPsd@BabelPatch{%
  \let\HyOrg@languageshorthands\languageshorthands
  \let\languageshorthands\HyPsd@LanguageShorthands
}
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname pdf@strcmp\endcsname\relax
  \let\HyPsd@langshort@system\@empty
  \def\HyPsd@LanguageShorthands#1{%
    \expandafter\ifx\csname HyPsd@langshort@#1\endcsname
                \HyPsd@langshort@system
      \expandafter\@gobble
    \else
      \expandafter\@firstofone
    \fi
    {%
      \HyOrg@languageshorthands{#1}%
    }%
  }%
\else
  \def\HyPsd@LanguageShorthands#1{%
    \ifnum\pdf@strcmp{#1}{system}=\z@
      \expandafter\@gobble
    \else
      \expandafter\@firstofone
    \fi
    {%
      \HyOrg@languageshorthands{#1}%
    }%
  }%
\fi
\def\Hy@temp{%
  \@ifpackageloaded{babel}{%
    \@ifpackagelater{babel}{2008/03/16}{%
```

```
      \let\Hy@temp\@empty
    }{%
      \def\HyPsd@BabelPatch{%
        \let\HyOrg@languageshorthands\languageshorthands
      }%
    }%
  }{}%
}
\Hy@temp
\expandafter\Hy@AtBeginDocument\expandafter{\Hy@temp}
\newif\ifHy@next
```

Nothing to do for english.

```
\ltx@IfUndefined{danish@sh@"@sel}{}{%
  \def\HyPsd@babel@danish{%
    \declare@shorthand{danish}{"|}{}%
    \declare@shorthand{danish}{"~}{-}%
  }%
}
\ltx@IfUndefined{dutch@sh@"@sel}{}{%
  \def\HyPsd@babel@dutch{%
    \declare@shorthand{dutch}{"|}{}%
    \declare@shorthand{dutch}{"~}{-}%
  }%
}
\ltx@IfUndefined{finnish@sh@"@sel}{}{%
  \def\HyPsd@babel@finnish{%
    \declare@shorthand{finnish}{"|}{}%
  }%
}
\ltx@IfUndefined{french@sh@:@sel}{}{%
  \def\HyPsd@babel@frenchb{%
    \def\guill@spacing{ }%
  }%
}
\ltx@IfUndefined{german@sh@"@sel}{}{%
  \def\HyPsd@babel@german{%
    \declare@shorthand{german}{"f}{f}%
    \declare@shorthand{german}{"|}{}%
    \declare@shorthand{german}{"~}{-}%
  }%
}
\ltx@IfUndefined{macedonian@sh@"@sel}{}{%
  \def\HyPsd@babel@macedonian{%
    \declare@shorthand{macedonian}{"|}{}%
    \declare@shorthand{macedonian}{"~}{-}%
  }%
}{}
\ltx@IfUndefined{ngerman@sh@"@sel}{}{%
  \def\HyPsd@babel@ngerman{%
    \declare@shorthand{ngerman}{"|}{}%
    \declare@shorthand{ngerman}{"~}{-}%
  }%
}
\ltx@IfUndefined{portuges@sh@"@sel}{}{%
  \def\HyPsd@babel@portuges{%
    \declare@shorthand{portuges}{"|}{}%
```

```
  }%
}
\ltx@IfUndefined{russian@sh@"@sel}{}{%
  \def\HyPsd@babel@russian{%
    \declare@shorthand{russian}{"|}{}%
    \declare@shorthand{russian}{"~}{-}%
  }%
}
\ltx@IfUndefined{slovene@sh@"@sel}{}{%
  \def\HyPsd@babel@slovene{%
    \declare@shorthand{slovene}{"|}{}%
  }%
}
```

Nested quoting environments are not supported (<<, >>).

```
\ltx@IfUndefined{spanish@sh@>@sel}{}{%
  \def\HyPsd@babel@spanish{%
    \declare@shorthand{spanish}{<<}{\guillemotleft}%
    \declare@shorthand{spanish}{>>}{\guillemotright}%
    \declare@shorthand{spanish}{"=}{-}%
    \declare@shorthand{spanish}{"~}{-}%
    \declare@shorthand{spanish}{"!}{\textexclamdown}%
    \declare@shorthand{spanish}{"?}{\textquestiondown}%
  }%
}
\ltx@IfUndefined{swedish@sh@"@sel}{}{%
  \def\HyPsd@babel@swedish{%
    \declare@shorthand{swedish}{"|}{}%
    \declare@shorthand{swedish}{"~}{-}%
  }%
}
\ltx@IfUndefined{ukrainian@sh@"@sel}{}{%
  \def\HyPsd@babel@ukrainian{%
    \declare@shorthand{ukrainian}{"|}{}%
    \declare@shorthand{ukrainian}{"~}{-}%
  }%
}
\ltx@IfUndefined{usorbian@sh@"@sel}{}{%
  \def\HyPsd@babel@usorbian{%
    \declare@shorthand{usorbian}{"f}{f}%
    \declare@shorthand{usorbian}{"|}{}%
  }%
}
\ltx@IfUndefined{greek@sh@\string~@sel}{%
  \let\HyPsd@GreekPatch\@empty
}{%
  \def\HyPsd@GreekPatch{%
    \let\greeknumeral\HyPsd@greeknumeral
    \let\Greeknumeral\HyPsd@Greeknumeral
  }%
}
\def\HyPsd@greeknumeral#1{%
  \HyPsd@GreekNum\@firstoftwo{#1}%
}
\def\HyPsd@Greeknumeral#1{%
  \HyPsd@GreekNum\@secondoftwo{#1}%
}
\def\HyPsd@GreekNum#1#2{%
```

```
  \ifHy@unicode
    \ifnum#2<\@ne
      \@arabic{#2}%
    \else
      \ifnum#2<1000000 %
        \HyPsd@@GreekNum#1{#2}%
      \else
        \@arabic{#2}%
      \fi
    \fi
  \else
    \@arabic{#2}%
  \fi
}
\def\HyPsd@@GreekNum#1#2{%
  \ifnum#2<\@m
    \ifnum#2<10 %
      \expandafter\HyPsd@GreekNumI
          \expandafter\@gobble\expandafter#1\number#2%
    \else
      \ifnum#2<100 %
        \expandafter\HyPsd@GreekNumII
            \expandafter\@gobble\expandafter#1\number#2%
      \else
        \expandafter\HyPsd@GreekNumIII
            \expandafter\@gobble\expandafter#1\number#2%
      \fi
    \fi
    \ifnum#2>\z@
      \textnumeralsigngreek
    \fi
  \else
    \ifnum#2<\@M
      \expandafter\HyPsd@GreekNumIV\expandafter#1\number#2%
    \else
      \ifnum#2<100000 %
        \expandafter\HyPsd@GreekNumV\expandafter#1\number#2%
      \else
        \expandafter\HyPsd@GreekNumVI\expandafter#1\number#2%
      \fi
    \fi
  \fi
}
\def\HyPsd@GreekNumI#1#2#3{%
  #1{%
    \ifnum#3>\z@
      \textnumeralsignlowergreek
    \fi
  }%
  \expandafter#2%
  \ifcase#3 %
    {}{}%
  \or\textalpha\textAlpha
  \or\textbeta\textBeta
  \or\textgamma\textGamma
  \or\textdelta\textDelta
  \or\textepsilon\textEpsilon
```

```
  \or\textstigmagreek\textStigmagreek
  \or\textzeta\textZeta
  \or\texteta\textEta
  \or\texttheta\textTheta
  \else
    {}{}%
  \fi
}
\def\HyPsd@GreekNumII#1#2#3#4{%
  #1{%
    \ifnum#3>\z@
      \textnumeralsignlowergreek
    \fi
  }%
  \expandafter#2%
  \ifcase#3 %
    {}{}%
  \or\textiota\textIota
  \or\textkappa\textKappa
  \or\textlambda\textLambda
  \or\textmu\textMu
  \or\textnu\textNu
  \or\textxi\textXi
  \or\textomicron\textOmicron
  \or\textpi\textPi
  \or\textkoppagreek\textKoppagreek
  \else
    {}{}%
  \fi
  \HyPsd@GreekNumI#1#2#4%
}
\def\HyPsd@GreekNumIII#1#2#3#4#5{%
  #1{%
    \ifnum#3>\z@
      \textnumeralsignlowergreek
    \fi
  }%
  \expandafter#2%
  \ifcase#3 %
    {}{}%
  \or\textrho\textRho
  \or\textsigma\textSigma
  \or\texttau\textTau
  \or\textupsilon\textUpsilon
  \or\textphi\textPhi
  \or\textchi\textChi
  \or\textpsi\textPsi
  \or\textomega\textOmega
  \or\textsampigreek\textSampigreek
  \else
    {}{}%
  \fi
  \HyPsd@GreekNumII#1#2#4#5%
}
\def\HyPsd@GreekNumIV#1#2#3#4#5{%
  \HyPsd@GreekNumI\@firstofone#1#2%
  \HyPsd@@GreekNum#1{#3#4#5}%
```

```
}
\def\HyPsd@GreekNumV#1#2#3#4#5#6{%
  \HyPsd@GreekNumII\@firstofone#1#2#3%
  \HyPsd@@GreekNum#1{#4#5#6}%
}
\def\HyPsd@GreekNumVI#1#2#3#4#5#6#7{%
  \HyPsd@GreekNumIII\@firstofone#1#2#3#4%
  \HyPsd@@GreekNum#1{#5#6#7}%
}
\def\HyPsd@SpanishPatch{%
  \ltx@IfUndefined{es@save@dot}{%
  }{%
    \let\.\es@save@dot
  }%
}
```

Shorthand "- of 'russianb.ldf' is not expandable, therefore it is disabled and replaced by -.

```
\def\HyPsd@RussianPatch{%
  \ltx@IfUndefined{russian@sh@"@-@}{%
  }{%
    \@namedef{russian@sh@"@-@}{-}%
  }%
}
```

6.5.3 CJK patch

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

\HyPsd@CJKhook

```
\def\HyPsd@CJKhook{%
  \ltx@ifpackageloaded{CJK}{%
    \let\CJK@kern\relax
    \let\CJKkern\relax
    \let\CJK@CJK\relax
    \ifHy@CJKbookmarks
      \HyPsd@CJKhook@bookmarks
    \fi
    \HyPsd@CJKhook@unicode
  }{}%
}
```

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).

```
\begingroup
  \catcode"7F=\active
  \toks@{%
```

```
    \let\CJK@ignorespaces\empty
    \def\CJK@char#1{\@gobbletwo}%
    \let\CJK@charx\@gobblefour
    \let\CJK@punctchar\@gobblefour
    \def\CJK@punctcharx#1{\@gobblefour}%
    \catcode"7F=\active
    \def^^7f#1^^7f#2^^7f{%
      \string #1\HyPsd@DecimalToOctal{#2}%
    }%
    % ... ?
    \ifHy@unicode
      \def\Hy@cjkpu{\80}%
    \else
      \let\Hy@cjkpu\@empty
    \fi
    \HyPsd@CJKActiveChars
  }%
  \count@=127 %
  \@whilenum\count@<255 \do{%
    \advance\count@ by 1 %
    \lccode`\~=\count@
    \lowercase{%
      \toks@\expandafter{\the\toks@ ~}%
    }%
  }%
  \toks@\expandafter{\the\toks@ !}%
  \xdef\HyPsd@CJKhook@bookmarks{%
    \the\toks@
  }%
\endgroup
```

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

```
\def\HyPsd@CJKActiveChars#1{%
  \ifx#1!%
    \let\HyPsd@CJKActiveChars\relax
  \else
    \edef#1{\noexpand\Hy@cjkpu\string#1}%
  \fi
  \HyPsd@CJKActiveChars
}
```

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

```
\def\HyPsd@DecimalToOctal#1{%
  \ifcase #1 %
       \000\or \001\or \002\or \003\or \004\or \005\or \006\or \007%
    \or \010\or \011\or \012\or \013\or \014\or \015\or \016\or \017%
    \or \020\or \021\or \022\or \023\or \024\or \025\or \026\or \027%
    \or \030\or \031\or \032\or \033\or \034\or \035\or \036\or \037%
    \or \040\or \041\or \042\or \043\or \044\or \045\or \046\or \047%
    \or \050\or \051\or \052\or \053\or \054\or \055\or \056\or \057%
    \or   0\or   1\or   2\or   3\or   4\or   5\or   6\or   7%
    \or   8\or   9\or \072\or \073\or \074\or \075\or \076\or \077%
    \or   @\or   A\or   B\or   C\or   D\or   E\or   F\or   G%
    \or   H\or   I\or   J\or   K\or   L\or   M\or   N\or   O%
    \or   P\or   Q\or   R\or   S\or   T\or   U\or   V\or   W%
    \or   X\or   Y\or   Z\or \133\or \134\or \135\or \136\or \137%
```

```
    \or \140\or   a\or   b\or   c\or   d\or   e\or   f\or   g%
    \or   h\or   i\or   j\or   k\or   l\or   m\or   n\or   o%
    \or   p\or   q\or   r\or   s\or   t\or   u\or   v\or   w%
    \or   x\or   y\or   z\or \173\or \174\or \175\or \176\or \177%
    \or \200\or \201\or \202\or \203\or \204\or \205\or \206\or \207%
    \or \210\or \211\or \212\or \213\or \214\or \215\or \216\or \217%
    \or \220\or \221\or \222\or \223\or \224\or \225\or \226\or \227%
    \or \230\or \231\or \232\or \233\or \234\or \235\or \236\or \237%
    \or \240\or \241\or \242\or \243\or \244\or \245\or \246\or \247%
    \or \250\or \251\or \252\or \253\or \254\or \255\or \256\or \257%
    \or \260\or \261\or \262\or \263\or \264\or \265\or \266\or \267%
    \or \270\or \271\or \272\or \273\or \274\or \275\or \276\or \277%
    \or \300\or \301\or \302\or \303\or \304\or \305\or \306\or \307%
    \or \310\or \311\or \312\or \313\or \314\or \315\or \316\or \317%
    \or \320\or \321\or \322\or \323\or \324\or \325\or \326\or \327%
    \or \330\or \331\or \332\or \333\or \334\or \335\or \336\or \337%
    \or \340\or \341\or \342\or \343\or \344\or \345\or \346\or \347%
    \or \350\or \351\or \352\or \353\or \354\or \355\or \356\or \357%
    \or \360\or \361\or \362\or \363\or \364\or \365\or \366\or \367%
    \or \370\or \371\or \372\or \373\or \374\or \375\or \376\or \377%
  \fi
}
```

6.5.5 CJK unicode

\HyPsd@CJKhook@unicode

```
\def\HyPsd@CJKhook@unicode{%
  \let\Unicode\HyPsd@CJK@Unicode
  \let\CJKnumber\HyPsd@CJKnumber
  \let\CJKdigits\HyPsd@CJKdigits
}
```

\HyPsd@CJK@Unicode

```
\def\HyPsd@CJK@Unicode#1#2{%
  \ifnum#1<256 %
    \HyPsd@DecimalToOctalFirst{#1}%
    \HyPsd@DecimalToOctalSecond{#2}%
  \else
    \933%
    \expandafter\expandafter\expandafter\HyPsd@HighA
    \intcalcDiv{#1}{4}!%
    \933%
    \ifcase\intcalcMod{#1}{4} %
      4\or 5\or 6\or 7%
    \fi
    \HyPsd@DecimalToOctalSecond{#2}%
  \fi
}

\def\HyPsd@HighA#1!{%
  \expandafter\expandafter\expandafter\HyPsd@HighB
  \IntCalcDiv#1!64!!%
  \expandafter\expandafter\expandafter\HyPsd@HighD
  \IntCalcMod#1!64!!%
}
\def\HyPsd@HighB#1!{%
  \expandafter\expandafter\expandafter\HyPsd@HighC
```

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

```
    \or \030\or \031\or \032\or \033\or \034\or \035\or \036\or \037%
    \or \040\or \041\or \042\or \043\or \044\or \045\or \046\or \047%
    \or \050\or \051\or \052\or \053\or \054\or \055\or \056\or \057%
    \or \060\or \061\or \062\or \063\or \064\or \065\or \066\or \067%
    \or \070\or \071\or \072\or \073\or \074\or \075\or \076\or \077%
    \or \100\or \101\or \102\or \103\or \104\or \105\or \106\or \107%
    \or \110\or \111\or \112\or \113\or \114\or \115\or \116\or \117%
    \or \120\or \121\or \122\or \123\or \124\or \125\or \126\or \127%
    \or \130\or \131\or \132\or \133\or \134\or \135\or \136\or \137%
    \or \140\or \141\or \142\or \143\or \144\or \145\or \146\or \147%
    \or \150\or \151\or \152\or \153\or \154\or \155\or \156\or \157%
    \or \160\or \161\or \162\or \163\or \164\or \165\or \166\or \167%
    \or \170\or \171\or \172\or \173\or \174\or \175\or \176\or \177%
    \or \200\or \201\or \202\or \203\or \204\or \205\or \206\or \207%
    \or \210\or \211\or \212\or \213\or \214\or \215\or \216\or \217%
    \or \220\or \221\or \222\or \223\or \224\or \225\or \226\or \227%
    \or \230\or \231\or \232\or \233\or \234\or \235\or \236\or \237%
    \or \240\or \241\or \242\or \243\or \244\or \245\or \246\or \247%
    \or \250\or \251\or \252\or \253\or \254\or \255\or \256\or \257%
    \or \260\or \261\or \262\or \263\or \264\or \265\or \266\or \267%
    \or \270\or \271\or \272\or \273\or \274\or \275\or \276\or \277%
    \or \300\or \301\or \302\or \303\or \304\or \305\or \306\or \307%
    \or \310\or \311\or \312\or \313\or \314\or \315\or \316\or \317%
    \or \320\or \321\or \322\or \323\or \324\or \325\or \326\or \327%
    \or \330\or \331\or \332\or \333\or \334\or \335\or \336\or \337%
    \or \340\or \341\or \342\or \343\or \344\or \345\or \346\or \347%
    \or \350\or \351\or \352\or \353\or \354\or \355\or \356\or \357%
    \or \360\or \361\or \362\or \363\or \364\or \365\or \366\or \367%
    \or \370\or \371\or \372\or \373\or \374\or \375\or \376\or \377%
  \fi
}
\def\HyPsd@CJKnumber#1{%
  \ifnum#1<\z@
    \CJK@minus
    \expandafter\HyPsd@@CJKnumber\expandafter{\number-\number#1}%
  \else
    \expandafter\HyPsd@@CJKnumber\expandafter{\number#1}%
  \fi
}
\def\HyPsd@@CJKnumber#1{%
  \ifcase#1 %
    \CJK@zero\or\CJK@one\or\CJK@two\or\CJK@three\or\CJK@four\or
    \CJK@five\or\CJK@six\or\CJK@seven\or\CJK@eight\or\CJK@nine\or
    \CJK@ten\or\CJK@ten\CJK@one\or\CJK@ten\CJK@two\or
    \CJK@ten\CJK@three\or\CJK@ten\CJK@four\or\CJK@ten\CJK@five\or
    \CJK@ten\CJK@six\or\CJK@ten\CJK@seven\or\CJK@ten\CJK@eight\or
    \CJK@ten\CJK@nine
  \else
    \ifnum#1<10000 %
      \HyPsd@CJKnumberFour#1!\@empty{20}%
      \@empty
    \else
      \ifnum#1<100000000 %
        \expandafter\expandafter\expandafter\HyPsd@CJKnumberFour
          \IntCalcDiv#1!10000!%
        !{}{20}%
        \CJK@tenthousand
```

```
      \expandafter\expandafter\expandafter\HyPsd@CJKnumberFour
        \IntCalcMod#1!10000!%
      !\CJK@zero{10}%
      \@empty
    \else
      \expandafter\HyPsd@CJKnumberLarge
      \number\IntCalcDiv#1!100000000!\expandafter!%
      \number\IntCalcMod#1!100000000!!%
    \fi
  \fi
 \fi
}
\def\HyPsd@CJKnumberLarge#1!#2!{%
 \HyPsd@CJKnumberFour#1!{}{20}%
 \CJK@hundredmillion
 \ifnum#2=\z@
 \else
  \expandafter\expandafter\expandafter\HyPsd@CJKnumberFour
    \IntCalcDiv#2!10000!%
  !\CJK@zero{10}%
  \CJK@tenthousand
  \expandafter\expandafter\expandafter\HyPsd@CJKnumberFour
    \IntCalcMod#2!10000!%
  !\CJK@zero{10}%
  \@empty
 \fi
}
\def\HyPsd@CJKnumberFour#1!#2#3{%
 \ifnum#1=\z@
  \expandafter\@gobble
 \else
  \ifnum#1<1000 %
    #2%
    \HyPsd@CJKnumberThree#1!{}{#3}%
  \else
    \HyPsd@@CJKnumber{\IntCalcDiv#1!1000!}%
    \CJK@thousand
    \expandafter\expandafter\expandafter\HyPsd@CJKnumberThree
      \IntCalcMod#1!1000!%
    !\CJK@zero{10}%
  \fi
 \fi
}
\def\HyPsd@CJKnumberThree#1!#2#3{%
 \ifnum#1=\z@
 \else
  \ifnum#1<100 %
    #2%
    \HyPsd@CJKnumberTwo#1!{}{#3}%
  \else
    \HyPsd@@CJKnumber{\IntCalcDiv#1!100!}%
    \CJK@hundred
    \expandafter\expandafter\expandafter\HyPsd@CJKnumberTwo
      \IntCalcMod#1!100!%
    !\CJK@zero{10}%
  \fi
 \fi
```

```
}
\def\HyPsd@CJKnumberTwo#1!#2#3{%
  \ifnum#1=\z@
  \else
    \ifnum#1<#3 %
      #2%
      \HyPsd@@CJKnumber{#1}%
    \else
      \HyPsd@@CJKnumber{\IntCalcDiv#1!10!}%
      \CJK@ten
      \ifnum\IntCalcMod#1!10!=\z@
      \else
        \HyPsd@@CJKnumber{\IntCalcMod#1!10!}%
      \fi
    \fi
  \fi
}
\def\HyPsd@CJKdigits#1{%
  \ifx*#1\relax
    \expandafter\HyPsd@@CJKdigits\expandafter\CJK@zero
  \else
    \HyPsd@@CJKdigits\CJK@null{#1}%
  \fi
}
\def\HyPsd@@CJKdigits#1#2{%
  \ifx\\#2\\%
  \else
    \HyPsd@@@CJKdigits#1#2\@nil
  \fi
}%
\def\HyPsd@@@CJKdigits#1#2#3\@nil{%
  \HyPsd@CJKdigit#1{#2}%
  \ifx\\#3\\%
    \expandafter\@gobble
  \else
    \expandafter\@firstofone
  \fi
  {%
    \HyPsd@@@CJKdigits#1#3\@nil
  }%
}
\def\HyPsd@CJKdigit#1#2{%
  \ifcase#2 %
    #1\or
    \CJK@one\or\CJK@two\or\CJK@three\or\CJK@four\or
    \CJK@five\or\CJK@six\or\CJK@seven\or\CJK@eight\or\CJK@nine
  \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 LaTeX 2_ε 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 (LaTeX 2_ε 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}
```

```
1567 \def\HyPsd@inmathwarn#1#2{%
1568   \ifx#2\expandafter
1569     \expandafter\ifx\csname\cf@encoding\string#1\endcsname\relax
1570       \HyPsd@GLYPHERR
1571       \expandafter\@gobble\string#1%
1572       >%
1573       \expandafter\expandafter\expandafter\HyPsd@EndWithElse
1574     \else
1575       \expandafter\expandafter\expandafter\HyPsd@GobbleFiFi
1576     \fi
1577   \else
1578     \expandafter#2%
1579   \fi
1580 }
1581 \def\HyPsd@GobbleFiFi#1\fi#2\fi{}
1582 \def\HyPsd@EndWithElse#1\else{\else}
```

`\HyPsd@add@accent`

```
1583 \def\HyPsd@add@accent#1#2{%
1584   \HyPsd@GLYPHERR\expandafter\@gobble\string#1+\string#2>%
```

```
  #2%
}%
```

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 caught by undelimited arguments.
- And they work in number, dimen, and skip assignments.

These properties are used in \HyPsd@CheckCatcodes.

```
\def\HyPsd@LetUnexpandableSpace#1{%
  \expandafter\futurelet\expandafter#1\expandafter\@gobble\space\relax
}
```

\HyPsd@UnexpandableSpace

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

```
\HyPsd@LetUnexpandableSpace\HyPsd@UnexpandableSpace
```

6.5.8 Marker for commands

\HyPsd@XSPACE
\HyPsd@ITALCORR
\HyPsd@GLYPHERR

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.

```
\edef\HyPsd@XSPACE{\string#\string X}
\edef\HyPsd@ITALCORR{\string#\string I}
\edef\HyPsd@GLYPHERR{\string#\string G}
```

6.5.9 \hspace fix

\HyPsd@hspace

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

\HyPsd@@hspace

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

```
\def\HyPsd@@hspace#1*#2\END{%
  \ifx\\#2\\%
    \HyPsd@hspacetest{#1}%
  \else
    \expandafter\HyPsd@hspacetest
  \fi
}
```

\HyPsd@hspacetest

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

```
\def\HyPsd@hspacetest#1{\ifdim#1>\z@\space\fi}
```

6.5.10 Fix for AMS classes

```
\ltx@IfUndefined{tocsection}{%
  \let\HyPsd@AMSclassfix\relax
}{%
  \def\HyPsd@AMSclassfix{%
    \let\tocpart\HyPsd@tocsection
    \let\tocchapter\HyPsd@tocsection
    \let\tocappendix\HyPsd@tocsection
    \let\tocsection\HyPsd@tocsection
    \let\tocsubsection\HyPsd@tocsection
    \let\tocsubsubsection\HyPsd@tocsection
    \let\tocparagraph\HyPsd@tocsection
  }%
  \def\HyPsd@tocsection#1#2#3{%
    \if @#2@\else\if @#1@\else#1 \fi#2. \fi
    #3%
  }%
}
```

6.5.11 Reference commands

\HyPsd@href

```
\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.

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

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

```
\def\HyPsd@@ref#1*#2\END{%
  \ifx\\#2\\%
    \HyPsd@@@ref{#1}%
  \else
    \expandafter\HyPsd@@@ref
  \fi
}%
```

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

```
\def\HyPsd@@@ref#1{%
  \expandafter\ifx\csname r@#1\endcsname\relax
    ??%
  \else
    \expandafter\expandafter\expandafter
    \@car\csname r@#1\endcsname\@nil
  \fi
}
```

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

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

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

```
\def\HyPsd@@pageref#1*#2\END{%
  \ifx\\#2\\%
    \HyPsd@@@pageref{#1}%
  \else
    \expandafter\HyPsd@@@pageref
```

```
  \fi
}
```

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

```
\def\HyPsd@@@pageref#1{%
  \expandafter\ifx\csname r@#1\endcsname\relax
    ??%
  \else
    \expandafter\expandafter\expandafter\expandafter
    \expandafter\expandafter\expandafter\@car
    \expandafter\expandafter\expandafter\@gobble
    \csname r@#1\endcsname{}\@nil
  \fi
}
```

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

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

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

```
\def\HyPsd@@nameref#1*#2\END{%
  \ifx\\#2\\%
    \HyPsd@@@nameref{#1}%
  \else
    \expandafter\HyPsd@@@nameref
  \fi
}
```

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

```
\def\HyPsd@@@nameref#1{%
  \expandafter\ifx\csname r@#1\endcsname\relax
    ??%
  \else
    \expandafter\expandafter\expandafter\expandafter
    \expandafter\expandafter\expandafter\@car
    \expandafter\expandafter\expandafter\@gobbletwo
    \csname r@#1\endcsname{}{}\@nil
  \fi
}
```

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

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

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

```
\def\HyPsd@@autoref#1*#2\END{%
  \ifx\\#2\\%
    \HyPsd@@@autoref{#1}%
  \else
    \expandafter\HyPsd@@@autoref
  \fi
}
```

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

```
\def\HyPsd@@@autoref#1{%
  \expandafter\ifx\csname r@#1\endcsname\relax
```

```
    ??%
  \else
    \expandafter\expandafter\expandafter\HyPsd@autorefname
        \csname r@#1\endcsname{}{}{}{}\@nil
    \expandafter\expandafter\expandafter
    \@car\csname r@#1\endcsname\@nil
  \fi
}
```

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

```
\def\HyPsd@autorefname#1#2#3#4#5\@nil{%
  \ifx\\#4\\%
  \else
    \HyPsd@@autorefname#4.\@nil
  \fi
}
```

\HyPsd@@autorefname

```
\def\HyPsd@@autorefname#1.#2\@nil{%
  \ltx@IfUndefined{#1autorefname}{%
    \ltx@IfUndefined{#1name}{%
    }{%
      \csname#1name\endcsname\space
    }%
  }{%
    \csname#1autorefname\endcsname\space
  }%
}
```

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 \HyPsdLetCommand 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 unmachted \if... tokens, the cases \let\if...\iftrue and \let\if...\iffalse are checked and ignored.

\HyPsd@DefCommand
\HyPsd@LetCommand

```
\begingroup
  \def\x#1#2{%
    \endgroup
    \let#1\def
    \def\HyPsd@DefCommand##1##2##{%
      #1%
      \expandafter\noexpand
        \csname\expandafter\@gobble\string##1\@empty\endcsname
      \@gobble
    }%
    \let#2\let
    \def\HyPsd@@LetCommand##1{%
      \expandafter\ifx\csname##1\expandafter\endcsname
                  \csname iftrue\endcsname
        \pdfstringdefWarn\let
        \expandafter\@gobble
      \else
        \expandafter\ifx\csname##1\expandafter\endcsname
                    \csname iffalse\endcsname
          \pdfstringdefWarn\let
          \expandafter\expandafter\expandafter\@gobble
        \else
          #2%
          \expandafter\noexpand
            \csname##1\expandafter\expandafter\expandafter\endcsname
        \fi
      \fi
    }%
  }%
\expandafter\x\csname <def>-command\expandafter\endcsname
            \csname <let>-command\endcsname
\def\HyPsd@LetCommand#1{%
  \expandafter\expandafter\expandafter\HyPsd@@LetCommand
    \expandafter\expandafter\expandafter{%
    \expandafter\@gobble\string#1\@empty
  }%
}
```

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).

```
\def\HyPsd@ifnextchar#1{%
  \pdfstringdefWarn#1%
  \expandafter\@gobbletwo\@gobble
}
```

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.

```
\def\HyPsd@protected@testopt#1{%
  \pdfstringdefWarn#1%
  \@gobbletwo
}
```

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:

```
\def\HyPsd@Warning#1{%
  \begingroup
    \let\space\ltx@space
    \Hy@Warning{#1}%
  \endgroup
}
```

6.6.2 Protecting spaces

```
\RequirePackage{etexcmds}[2007/09/09]
\ifetex@unexpanded
  \expandafter\@secondoftwo
\else
  \expandafter\@firstoftwo
\fi
{%
```

\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.

```
  \def\HyPsd@ProtectSpaces#1{%
    \iftrue
      \expandafter\HyPsd@@ProtectSpacesFi
        \expandafter|\expandafter\@empty#1| \HyPsd@End#1%
    \fi
  }%
```

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

```
  \def\HyPsd@@ProtectSpacesFi#1 #2\HyPsd@End#3\fi{%
```

```
    \fi
    \ifx\scrollmode#2\scrollmode
      \HyPsd@RemoveMask#1\HyPsd@End#3%
    \else
      \gdef#3{#1\HyPsd@UnexpandableSpace#2}%
      \expandafter\HyPsd@@ProtectSpacesFi#3\HyPsd@End#3%
    \fi
  }%
```

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 chararcters.

```
  \def\HyPsd@RemoveMask|#1|\HyPsd@End#2{%
    \toks@\expandafter{#1}%
    \xdef#2{\the\toks@}%
  }%
}{%
  \let\HyPsd@fi\fi
  \def\HyPsd@ProtectSpaces#1{%
    \xdef#1{%
      \iftrue
        \expandafter\HyPsd@@ProtectSpacesFi
          \expandafter|\expandafter\@empty#1| %
      \HyPsd@fi
    }%
    \expandafter\HyPsd@RemoveMask#1\HyPsd@End#1%
  }%
  \def\HyPsd@@ProtectSpacesFi#1 #2\HyPsd@fi{%
    \fi
    \etex@unexpanded{#1}%
    \ifx\scrollmode#2\scrollmode
    \else
      \HyPsd@@ProtectSpacesFi\HyPsd@UnexpandableSpace#2%
    \HyPsd@fi
  }%
  \def\HyPsd@RemoveMask|#1|\HyPsd@End#2{%
    \xdef#2{\etex@unexpanded\expandafter{#1}}%
  }%
}
```

6.6.3 Remove grouping braces

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

```
\def\HyPsd@RemoveBraces#1{%
  \ifx\scrollmode#1\scrollmode
  \else
    \HyPsd@@RemoveBracesFi#1\HyPsd@End{#1}%
  \fi
}
```

\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.

```
\def\HyPsd@@RemoveBracesFi#1#2\HyPsd@End#3\fi{%
  \fi
  \def\Hy@temp@A{#1#2}%
  \def\Hy@temp@B{#3}%
  \ifx\Hy@temp@A\Hy@temp@B
    \expandafter\def\expandafter\HyPsd@String\expandafter{%
      \HyPsd@String#1%
    }%
    \ifx\scrollmode#2\scrollmode
    \else
      \Hy@ReturnAfterFiFiEnd{%
        \HyPsd@RemoveBraces{#2}%
      }%
    \fi
  \else
    \def\Hy@temp@A{#1}%
    \HyPsd@AppendItalcorr\HyPsd@String
    \ifx\Hy@temp@A\@empty
      \Hy@ReturnAfterElseFiFiEnd{%
        \HyPsd@RemoveBraces{#2}%
      }%
    \else
      \HyPsd@ProtectSpaces\Hy@temp@A
      \HyPsd@AppendItalcorr\Hy@temp@A
      \Hy@ReturnAfterFiFiEnd{%
        \expandafter\HyPsd@RemoveBraces\expandafter
          {\Hy@temp@A#2}%
      }%
    \fi
  \fi
  \Hy@ReturnEnd
}
```

\HyPsd@AppendItalcorr
\HyPsd@@AppendItalcorr

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.

```
\def\HyPsd@AppendItalcorr#1{%
  \expandafter\HyPsd@@AppendItalcorr\expandafter{\/}#1%
}
\def\HyPsd@@AppendItalcorr#1#2{%
  \expandafter\def\expandafter#2\expandafter{#2#1}%
}
```

6.6.4 Catcode check

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).

```
\def\HyPsd@CheckCatcodes#1#2\HyPsd@End{%
  \global\let\HyPsd@Rest\relax
  \ifcat\relax\noexpand#1\relax
    \ifx#1\protect
    \else
      \ifx#1\penalty
        \setbox\z@=\hbox{%
          \afterassignment\HyPsd@AfterCountRemove
          \count@=#2\HyPsd@End
        }%
      \else
        \ifx#1\kern
          \setbox\z@=\hbox{%
            \afterassignment\HyPsd@AfterDimenRemove
            \dimen@=#2\HyPsd@End
          }%
        \else
          \ifx#1\hskip
            \setbox\z@=\hbox{%
              \afterassignment\HyPsd@AfterSkipRemove
              \skip@=#2\HyPsd@End
            }%
          \else
            \HyPsd@CatcodeWarning{#1}%
          \fi
        \fi
      \fi
    \fi
  \else
    \ifcat#1A% letter
      \expandafter\def\expandafter\HyPsd@String\expandafter{%
        \HyPsd@String#1%
      }%
    \else
      \ifcat#1 % SPACE
        \expandafter\def\expandafter\HyPsd@String\expandafter{%
          \HyPsd@String\HyPsd@SPACEOPTI
        }%
      \else
        \ifcat$#1%
          \HyPsd@CatcodeWarning{math shift}%
        \else
          \ifcat&#1%
            \HyPsd@CatcodeWarning{alignment tab}%
          \else
            \ifcat^#1%
              \HyPsd@CatcodeWarning{superscript}%
            \else
              \ifcat_#1%
                \HyPsd@CatcodeWarning{subscript}%
              \else
```

```
            \expandafter\def\expandafter\HyPsd@String\expandafter{%
              \HyPsd@String#1%
            }%
          \fi
        \fi
      \fi
    \fi
  \fi
 \fi
 \ifx\HyPsd@Rest\relax
  \ifx\scrollmode#2\scrollmode
  \else
   \Hy@ReturnAfterFiFiEnd{%
    \HyPsd@CheckCatcodes#2\HyPsd@End
   }%
  \fi
 \else
  \ifx\HyPsd@Rest\@empty
  \else
   \Hy@ReturnAfterFiFiEnd{%
    \expandafter\HyPsd@CheckCatcodes\HyPsd@Rest\HyPsd@End
   }%
  \fi
 \fi
 \Hy@ReturnEnd
}
```

Remove counts, dimens, skips.

\HyPsd@AfterCountRemove

Counts like \penalty are removed silently.

```
\def\HyPsd@AfterCountRemove#1\HyPsd@End{%
 \gdef\HyPsd@Rest{#1}%
}
```

\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.

```
\def\HyPsd@AfterDimenRemove#1\HyPsd@End{%
 \ifdim\ifx\HyPsd@String\@empty\z@\else\dimen@\fi>1ex %
  \HyPsd@ReplaceSpaceWarning{\string\kern\space\the\dimen@}%
  \gdef\HyPsd@Rest{\HyPsd@UnexpandableSpace #1}%
 \else
  \ifdim\dimen@=\z@
  \else
   \HyPsd@RemoveSpaceWarning{\string\kern\space\the\dimen@}%
  \fi
  \gdef\HyPsd@Rest{#1}%
 \fi
}
```

\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).

```
\def\HyPsd@AfterSkipRemove#1\HyPsd@End{%
 \ifdim\ifx\HyPsd@String\@empty\z@\else\skip@\fi>1ex %
  \HyPsd@ReplaceSpaceWarning{\string\hskip\space\the\skip@}%
```

```
    \gdef\HyPsd@Rest{\HyPsd@UnexpandableSpace #1}%
  \else
    \ifdim\skip@=\z@
    \else
      \HyPsd@RemoveSpaceWarning{\string\kern\space\the\skip@}%
    \fi
    \gdef\HyPsd@Rest{#1}%
  \fi
}
```

Catcode warnings.

\HyPsd@CatcodeWarning

\HyPsd@CatcodeWarning produces a warning for the user.

```
\def\HyPsd@CatcodeWarning#1{%
  \HyPsd@Warning{%
    Token not allowed in a PDF string (%
    \ifHy@unicode
      Unicode%
    \else
      PDFDocEncoding%
    \fi
    ):%
    \MessageBreak removing `\HyPsd@RemoveCmdPrefix#1'%
  }%
}
\begingroup
  \catcode`\|=0 %
  \catcode`\\=12 %
  |gdef|HyPsd@RemoveCmdPrefix#1{%
    |expandafter|HyPsd@@RemoveCmdPrefix
      |string#1|@empty\<>-|@empty|@empty
  }%
  |gdef|HyPsd@@RemoveCmdPrefix#1\<>-#2|@empty#3|@empty{#1#2}%
|endgroup
```

\HyPsd@RemoveSpaceWarning

```
\def\HyPsd@RemoveSpaceWarning#1{%
  \HyPsd@Warning{%
    Token not allowed in a PDF string (%
    \ifHy@unicode
      Unicode%
    \else
      PDFDocEncoding%
    \fi
    ):%
    \MessageBreak #1\MessageBreak
    removed%
  }%
}
```

\HyPsd@ReplaceSpaceWarning

```
\def\HyPsd@ReplaceSpaceWarning#1{%
  \HyPsd@Warning{%
    Token not allowed in a PDF string (%
    \ifHy@unicode
      Unicode%
    \else
```

```
    PDFDocEncoding%
   \fi
   ):%
   \MessageBreak #1\MessageBreak
   replaced by space%
  }%
}
```

6.6.5 Check for wrong glyphs

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

```
\def\HyPsd@GlyphProcess#1\relax#2\@empty{%
  \expandafter\def\expandafter\HyPsd@String\expandafter{%
    \HyPsd@String#1%
  }%
  \ifx\\#2\\%
  \else
    \ltx@ReturnAfterFi{%
      \HyPsd@GlyphProcessWarning#2\@empty
    }%
  \fi
}
\def\HyPsd@GlyphProcessWarning#1>#2\@empty{%
  \HyPsd@@GlyphProcessWarning#1++>%
  \HyPsd@GlyphProcess#2\@empty
}
\def\HyPsd@@GlyphProcessWarning#1+#2+#3>{%
  \ifx\\#2\\%
    \HyPsd@Warning{%
      Glyph not defined in %
      P\ifHy@unicode U\else D1\fi\space encoding,\MessageBreak
      removing '\@backslashchar#1'%
    }%
  \else
    \HyPsd@Warning{%
      Composite letter '\@backslashchar#1+#2'\MessageBreak
      not defined in P\ifHy@unicode U\else D1\fi\space encoding,%
      \MessageBreak
      removing '\@backslashchar#1'%
    }%
  \fi
}
```

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`.

```
\def\HyPsd@spaceopti#1{ % first space
  \ifx\HyPsd@spaceopti#1%
    \040%
  \else
    #1%
  \fi
}%
```

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.

```
\def\HyPsd@Subst#1#2#3{%
  \def\HyPsd@@ReplaceFi##1#1##2\END\fi{%
    \fi
    ##1%
    \ifx\scrollmode##2\scrollmode
    \else
      #2%
      \HyPsd@@ReplaceFi##2\END
    \fi
  }%
  \xdef#3{%
    \iftrue
      \expandafter\HyPsd@@ReplaceFi#3#1\END
    \fi
  }%
}
```

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

```
\def\HyPsd@StringSubst#1{%
  \expandafter\HyPsd@Subst\expandafter{\string#1}%
}
```

\HyPsd@EscapeTeX

```
\begingroup
  \lccode`\!=`\%%
  \lccode`\|=`\\%
  \lccode`\(=`\{%
  \lccode`\)=`\}%
  \lccode`0=\ltx@zero
  \lccode`1=\ltx@zero
  \lccode`3=\ltx@zero
  \lccode`4=\ltx@zero
  \lccode`5=\ltx@zero
  \lccode`7=\ltx@zero
\lowercase{\endgroup
  \def\HyPsd@EscapeTeX#1{%
    \HyPsd@Subst!{|045}#1%
    \HyPsd@Subst({|173}#1%
    \HyPsd@Subst){|175}#1%
  }%
}
```

6.6.7 Support for package xspace

\HyPsd@doxspace \xspace does not work, because it uses a \futurelet that cannot be executed in 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.

```
\def\HyPsd@doxspace#1{%
  \ifx#1\relax\else
   \ifx#1.\else
    \ifx#1:\else
     \ifx#1,\else
      \ifx#1;\else
       \ifx#1!\else
        \ifx#1?\else
         \ifx#1/\else
          \ifx#1-\else
           \ifx#1'\else
             \HyPsd@SPACEOPTI
           \fi
          \fi
         \fi
        \fi
       \fi
      \fi
     \fi
    \fi
   \fi
  \fi
  #1%
}%
```

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.

```
\begingroup
  \catcode`\|=0 %
  \catcode`\\=12 %
```

\HyPsd@ConvertToUnicode

```
  |gdef|HyPsd@ConvertToUnicode#1{%
    |xdef#1{%
      |expandafter|HyPsd@DoConvert#1|@empty|@empty|@empty
    }%
    |ifx#1|@empty
    |else
      |xdef#1{%
        \376\377%
        #1%
      }%
    |fi
  }%
```

\HyPsd@DoConvert

```
  |gdef|HyPsd@DoConvert#1{%
    |ifx#1|@empty
    |else
      |ltx@ReturnAfterFi{%
        |ifx#1\%%
          \%%
          |expandafter|HyPsd@DoEscape
        |else
```

```
      |HyPsd@Char{#1}%
      |expandafter|HyPsd@DoConvert
    |fi
   }%
  |fi
}%
```

\HyPsd@DoEscape

```
|gdef|HyPsd@DoEscape#1{%
  |ifx#19%
    |expandafter|HyPsd@GetTwoBytes
  |else
    |ltx@ReturnAfterFi{%
      |ifx#18%
        00%
        |expandafter|HyPsd@GetTwoBytes
      |else
        #1%
        |expandafter|HyPsd@GetOneByte
      |fi
    }%
  |fi
}%
```

\HyPsd@GetTwoBytes

```
|gdef|HyPsd@GetTwoBytes#1\#2#3#4{%
  #1\#2#3#4%
  |HyPsd@DoConvert
}%
```

\HyPsd@GetOneBye

```
|gdef|HyPsd@GetOneByte#1#2{%
  #1#2%
  |HyPsd@DoConvert
}%
|endgroup
```

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

```
\def\HyPsd@GetNextTwoTokens#1#2#3\END#4{%
  \xdef#4{#4#1#2}%
  \HyPsd@@ConvertToUnicode#3\END#4%
}
```

\HyPsd@Char

```
\begingroup
  \catcode0=9 %
  \catcode`\^=7 %
  \catcode`\^^^=12 %
  \def\x{^^^^0000}%
\expandafter\endgroup
\ifx\x\@empty
  \def\HyPsd@Char#1{%
    \ifnum`#1<128 %
      \@backslashchar 000#1%
    \else
      \ifnum`#1<65536 %
```

```
      \expandafter\HyPsd@CharTwoByte\number`#1!%
    \else
      \expandafter\expandafter\expandafter\HyPsd@CharSurrogate
      \intcalcSub{`#1}{65536}!%
    \fi
  \fi
}%
\def\HyPsd@CharTwoByte#1!{%
  \expandafter\expandafter\expandafter\HyPsd@CharOctByte
  \IntCalcDiv#1!256!!%
  \expandafter\expandafter\expandafter\HyPsd@CharOctByte
  \IntCalcMod#1!256!!%
}%
\def\HyPsd@CharOctByte#1!{%
  \@backslashchar
  \IntCalcDiv#1!64!%
  \intcalcDiv{\IntCalcMod#1!64!}{8}%
  \IntCalcMod#1!8!%
}%
\def\HyPsd@CharSurrogate#1!{%
  \@backslashchar 33%
  \IntCalcDiv#1!262144!%
  \expandafter\expandafter\expandafter\HyPsd@CharOctByte
  \intcalcDiv{\IntCalcMod#1!262144!}{1024}!%
  \@backslashchar 33%
  \expandafter\expandafter\expandafter\IntCalcAdd
  \intcalcDiv{\IntCalcMod#1!1024!}{256}!4!%
  \expandafter\expandafter\expandafter\HyPsd@CharOctByte
  \IntCalcMod#1!256!!%
}%
\else
  \def\HyPsd@Char#1{%
    \@backslashchar 000#1%
  }%
\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 eTEXhere 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`

```
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname numexpr\endcsname\relax
  \let\HyPsd@UTFviii\relax
\else
  \begingroup
    \lccode`\~=`^^f4\relax
  \lowercase{\endgroup
    \def\HyPsd@UTFviii{%
```

```
    \let\UTFviii@two@octets\HyPsd@UTFviii@two
    \let\UTFviii@three@octets\HyPsd@UTFviii@three
    \let\UTFviii@four@octets\HyPsd@UTFviii@four
    \ifx~\HyPsd@UTFviii@ccxliv@undef
      \let~\HyPsd@UTFviii@ccxliv@def
    \fi
    \let\unichar\HyPsd@unichar
  }%
}%
\def\HyPsd@UTFviii@ccxliv@undef{\@inpenc@undefined@{utf8}}%
\edef\HyPsd@UTFviii@ccxliv@def{%
  \noexpand\UTFviii@four@octets\string ^^f4%
}%
```

The two octet form of UTF-8 `110aaabb` (A) and `10cccddd` (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.

$$
\begin{aligned}
a &:= A/4 - 48 && (1)\\
b &:= A - 4 * (A/4) && (2)\\
c &:= B/8 - 8 * ((8 * (B/8))/8) && (3)\\
d &:= B - 8 * (B/8) && (4)\\
& && (5)
\end{aligned}
$$

```
\def\HyPsd@UTFviii@two#1#2{%
  \expandafter\HyPsd@UTFviii@@two
    \number\dimexpr.25\dimexpr`#1sp\expandafter\relax\expandafter|%
    \number`#1\expandafter|%
    \number\dimexpr.125\dimexpr`#2sp\expandafter\relax\expandafter|%
    \number`#2 \@nil
}%
\def\HyPsd@UTFviii@@two#1|#2|#3|#4\@nil{%
  \expandafter\8%
  \number\numexpr #1-48\expandafter\relax
  \csname\number\numexpr #2-4*#1\relax\expandafter\endcsname
  \number\numexpr #3-8*%
     \number\dimexpr.125\dimexpr#3sp\relax\relax\expandafter\relax
  \number\numexpr #4-8*#3\relax
}%
```

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

$$
\begin{aligned}
a &:= A/4 - 56 && (6)\\
b &:= 2 * (A - 4 * (A/4)) + ((B - 128 < 32)?0 : 1) && (7)\\
c &:= B/4 - 32 - ((B - 128 < 32)?0 : 8) && (8)\\
d &:= B - 4 * (B/4) && (9)\\
e &:= C/8 - 16 && (10)\\
f &:= C - 8 * (C/8) && (11)\\
& && (12)
\end{aligned}
$$

```
\def\HyPsd@UTFviii@three#1#2#3{%
  \expandafter\HyPsd@UTFviii@@three
    \number\dimexpr.25\dimexpr`#1sp\expandafter\relax\expandafter|%
    \number`#1\expandafter|%
```

```
    \number\ifnum\numexpr‘#2-128\relax <32 0\else 1\fi\expandafter|%
    \number\dimexpr.25\dimexpr‘#2sp\expandafter\relax\expandafter|%
    \number‘#2\expandafter|%
    \number\dimexpr.125\dimexpr‘#3sp\expandafter\relax\expandafter|%
    \number‘#3 \@nil
}%
\def\HyPsd@UTFviii@@three#1|#2|#3|#4|#5|#6|#7\@nil{%
  \expandafter\9%
  \number\numexpr #1-56\expandafter\relax
  \number\numexpr 2*(#2-4*#1)+#3\expandafter\relax
  \number\numexpr #4 - 32 -\ifcase#3 0\else 8\fi\expandafter\relax
  \csname\number\numexpr #5-4*#4\relax\expandafter\endcsname
  \number\numexpr #6-16\expandafter\relax
  \number\numexpr #7-8*#6\relax
}%
```

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
wwww =  uuuuu - 1
UTF-16: 110110ww    wwzzzzyy    110111yy    yyxxxxxx
octal:  011 011 0ww  0ww zzz zyy  011 011 1yy  0yy xxx xxx
```

```
\def\HyPsd@UTFviii@four#1#2{%
  \expandafter\HyPsd@@UTFviii@four\number
  \numexpr-1+(‘#1-240)*4+\dimexpr.0625\dimexpr‘#2sp-128sp%
  \expandafter|\number
  \numexpr‘#2-16*\dimexpr.0625\dimexpr‘#2sp|%
}%
\def\HyPsd@@UTFviii@four#1|#2|#3{%
  \933\number\dimexpr.25\dimexpr#1sp\relax\relax
  \csname\number\numexpr#1-4*\dimexpr.25\dimexpr#1sp\endcsname
  \ifodd#2 %
    \number\numexpr(#2-1)/2\relax
  \else
    \number\numexpr#2/2\relax
  \fi
  \number\numexpr\ifodd#2 4+\fi
      \dimexpr.0625\dimexpr‘#3sp-128sp\relax\relax\relax
  \933%
  \expandafter\HyPsd@@@UTFviii@four\number
  \numexpr‘#3-16*\dimexpr.0625\dimexpr‘#3sp|%
}%
\def\HyPsd@@@UTFviii@four#1|#2{%
  \number\numexpr4+\dimexpr.25\dimexpr#1sp\relax\relax\relax
  \csname\number\numexpr#1-4*\dimexpr.25\dimexpr#1sp\endcsname
  \number\dimexpr.125\dimexpr‘#2sp-128sp\relax\relax
  \number\numexpr‘#2-8*\dimexpr.125\dimexpr‘#2sp\relax\relax\relax
}%
```

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

```
\def\HyPsd@unichar#1{%
  \ifHy@unicode
    \ifnum#1>"10FFFF %
      \HyPsd@UnicodeReplacementCharacter % illegal
    \else
      \ifnum#1>"FFFF %
```

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

```
      \expandafter\HyPsd@unichar\expandafter{%
        \number\numexpr 55296+%
            \dimexpr.0009765625\dimexpr\number#1sp-\p@
            \relax\relax\relax
      }%
```

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

```
      \expandafter\HyPsd@unichar\expandafter{%
        \number\numexpr#1-9216%
            -1024*\dimexpr.0009765625\dimexpr\number#1sp-\p@
            \relax\relax\relax
     }%
     \else
      \ifnum#1>"7FF %
        \9%
        \expandafter\HyPsd@unichar@first@byte\expandafter{%
          \number
          \dimexpr.00390625\dimexpr\number#1sp\relax\relax
        }%
      \else
        \8%
        \number\dimexpr.00390625\dimexpr\number#1sp\relax\relax
      \fi
      \expandafter\HyPsd@unichar@second@byte\expandafter{%
        \number
        \numexpr#1-256*\number
            \dimexpr.00390625\dimexpr\number#1sp\relax\relax\relax
      }%
     \fi
    \fi
  \else
    .% unsupported (Unicode -> PDF Doc Encoding)
  \fi
}%
\def\HyPsd@UnicodeReplacementCharacter{\9377\375}%
\def\HyPsd@unichar@first@byte#1{%
  \number\dimexpr.015625\dimexpr#1sp\relax\relax
  \expandafter\HyPsd@unichar@octtwo\expandafter{%
    \number
    \numexpr#1-64*\number\dimexpr.015625\dimexpr#1sp%
    \relax\relax\relax
  }%
}%
\def\HyPsd@unichar@second@byte#1{%
  \csname\number\dimexpr.015625\dimexpr#1sp\relax\relax\endcsname
  \expandafter\HyPsd@unichar@octtwo\expandafter{%
    \number
    \numexpr#1-64*\number\dimexpr.015625\dimexpr#1sp%
    \relax\relax\relax
  }%
}%
\def\HyPsd@unichar@octtwo#1{%
  \number\dimexpr.125\dimexpr#1sp\relax\relax
  \number\numexpr#1-8*\number\dimexpr.125\dimexpr#1sp%
  \relax\relax\relax
}%
```

```
\fi
```

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

```
\def\HyPsd@utf@viii@undeferr#1#2#3#4#5#6{%
  \ifx\@gobble#1%
  \else
    [Please insert \textbackslash PrerenderUnicode%
    \textbraceleft#1\textbraceright\space
    into preamble]%
  \fi
}%
```

7 Support of other packages

7.1 Class memoir

```
\@ifclassloaded{memoir}{%
  \Hy@AtEndOfPackage{\RequirePackage{memhfixc}}%
}{}
```

7.2 Package subfigure

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

```
\@ifpackageloaded{subfigure}{%
  \ltx@IfUndefined{sub@label}{%
    \Hy@hypertexnamesfalse
  }{%
    \renewcommand*{\sub@label}[1]{%
      \@bsphack
      \subfig@oldlabel{#1}%
      \if@filesw
        \begingroup
          \edef\@currentlabstr{%
            \expandafter\strip@prefix\meaning\@currentlabelname
          }%
          \protected@write\@auxout{}{%
            \string\newlabel{sub@#1}{%
              {\@nameuse{@@thesub\@captype}}%
              {\thepage}%
              {%
                \expandafter\strip@period\@currentlabstr
                \relax.\relax\@@@%
              }%
              {\@currentHref}%
              {}%
            }%
          }%
        \endgroup
      \fi
      \@esphack
    }%
    \@ifpackagelater{subfigure}{2002/03/26}{}{%
      \providecommand*{\toclevel@subfigure}{1}%
      \providecommand*{\toclevel@subtable}{1}%
    }%
  }%
}{}
```

7.3 Package xr and xr-hyper

The beta version of xr that supports `\XR@addURL` is called `xr-hyper`. Therefore we test for the macro itself and not for the package name:

```
\ltx@IfUndefined{XR@addURL}{%
}{%
```

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.

```
  \def\XR@addURL#1{\XR@@dURL#1{}{}{}{}\\}%
  \def\XR@@dURL#1#2#3#4#5\\{%
    {#1}{#2}%
    \if!#4!%
    \else
      {#3}{#4}{\XR@URL}%
    \fi
  }%
}
```

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

Providing dummy definitions.

```
\let\literalps@out\@gobble
\newcommand\pdfbookmark[3][]{}
\def\Acrobatmenu#1#2{\leavevmode#2}
\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

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

`\HyperRaiseLinkHook` allows the user to reassign `\HyperRaiseLinkLength`.

```
\newcount\Hy@SavedSpaceFactor
\def\Hy@SaveSpaceFactor{%
  \global\Hy@SavedSpaceFactor=\ifhmode\spacefactor\else\z@\fi
}
\def\Hy@RestoreSpaceFactor{%
  \relax
  \ifhmode
    \ifnum\Hy@SavedSpaceFactor>\z@
      \spacefactor=\Hy@SavedSpaceFactor
    \fi
  \fi
```

```
}
\def\Hy@SaveSavedSpaceFactor{%
  \edef\Hy@RestoreSavedSpaceFactor{%
    \global\Hy@SavedSpaceFactor=\the\Hy@SavedSpaceFactor\relax
  }%
}
\def\Hy@raisedlink#1{%
  \ifvmode
    #1%
  \else
    \Hy@SaveSpaceFactor
    \penalty\@M
    \smash{%
      \begingroup
        \let\HyperRaiseLinkLength\@tempdima
        \setlength\HyperRaiseLinkLength\HyperRaiseLinkDefault
        \HyperRaiseLinkHook
      \expandafter\endgroup
      \expandafter\raise\the\HyperRaiseLinkLength\hbox{%
        \Hy@RestoreSpaceFactor
        #1%
        \Hy@SaveSpaceFactor
      }%
    }%
    \Hy@RestoreSpaceFactor
  \fi
}
```

\Hy@SaveLastskip
\Hy@RestoreLastskip

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

```
\def\Hy@SaveLastskip{%
  \let\Hy@RestoreLastskip\relax
  \ifvmode
    \ifdim\lastskip=\z@
      \let\Hy@RestoreLastskip\nobreak
    \else
      \begingroup
        \skip@=-\lastskip
        \edef\x{%
          \endgroup
          \def\noexpand\Hy@RestoreLastskip{%
            \noexpand\ifvmode
              \noexpand\nobreak
              \vskip\the\skip@
              \vskip\the\lastskip\relax
            \noexpand\fi
          }%
        }%
      \x
    \fi
  \else
    \ifhmode
      \ifdim\lastskip=\z@
        \let\Hy@RestoreLastskip\nobreak
      \else
        \begingroup
          \skip@=-\lastskip
          \edef\x{%
```

```
          \endgroup
          \def\noexpand\Hy@RestoreLastskip{%
            \noexpand\ifhmode
              \noexpand\nobreak
              \hskip\the\skip@
              \hskip\the\lastskip\relax
            \noexpand\fi
          }%
        }%
      \x
    \fi
  \fi
 \fi
}%
```

9 Options

```
\SetupKeyvalOptions{%
  family=Hyp,%
  prefix=HyOpt%
}
```

9.1 Help macros

\IfHyperBooleanExists

```
\def\IfHyperBooleanExists#1{%
  \ltx@ifundefined{Hy@#1false}\ltx@secondoftwo{%
    \ltx@ifundefined{KV@Hyp@#1@default}\ltx@secondoftwo\ltx@firstoftwo
  }%
}
```

```
\@namedef{KV@Hyp@stoppedearly@default}{}
```

\IfHyperBoolean

```
\def\IfHyperBoolean#1{%
  \IfHyperBooleanExists{#1}{%
    \csname ifHy@#1\endcsname
      \expandafter\ltx@firstoftwo
    \else
      \expandafter\ltx@secondoftwo
    \fi
  }\ltx@secondoftwo
}
```

\Hy@boolkey

```
\def\Hy@boolkey#1#2{%
  \edef\Hy@tempa{#2}%
  \lowercase\expandafter{%
    \expandafter\def\expandafter\Hy@tempa\expandafter{\Hy@tempa}%
  }%
  \ifx\Hy@tempa\@empty
    \let\Hy@tempa\Hy@true
  \fi
  \ifx\Hy@tempa\Hy@true
  \else
    \ifx\Hy@tempa\Hy@false
    \else
```

```
      \let\Hy@tempa\relax
    \fi
  \fi
  \ifx\Hy@tempa\relax
    \Hy@WarnOptionValue{#2}{#1}{‘true’ or ’false’}%
  \else
    \Hy@Info{Option ‘#1’ set ‘\Hy@tempa’}%
    \csname Hy@#1\Hy@tempa\endcsname
  \fi
}
```

\Hy@WarnOptionValue

```
\def\Hy@WarnOptionValue#1#2#3{%
  \Hy@Warning{%
    Unexpected value ‘#1’\MessageBreak
    of option ‘#2’ instead of\MessageBreak
    #3%
  }%
}
```

\Hy@DisableOption

```
\def\Hy@DisableOption#1{%
  \ltx@ifundefined{KV@Hyp@#1@default}{%
    \define@key{Hyp}{#1}%
  }{%
    \define@key{Hyp}{#1}[]%
  }%
  {\Hy@WarnOptionDisabled{#1}}%
}
```

\Hy@WarnOptionDisabled

```
\def\Hy@WarnOptionDisabled#1{%
  \Hy@Warning{%
    Option ‘#1’ has already been used,\MessageBreak
    setting the option has no effect%
  }%
}
```

\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.

```
\def\Hy@CheckOptionValue#1#2#3{%
  \begingroup
    \edef\x{#1}%
    \@onelevel@sanitize\x
    \let\y=y%
    \def\do##1##2{%
      \def\z{##1}%
      \@onelevel@sanitize\z
      \ifx\x\z
        \let\y=n%
        \let\do\@gobbletwo
      \fi
    }%
    #3%
    \ifx\y y%
      \def\do##1##2{%
```

```
      * '##1'%
      \ifx\\##2\\\else\space(##2)\fi
      \MessageBreak
    }%
    \Hy@Warning{%
      Values of option '#2':\MessageBreak
      #3%
      * An empty value disables the option.\MessageBreak
      Unknown value '\x'%
    }%
  \fi
 \endgroup
}
```

\Hy@DefNameKey #1: option name
#2: \do list with known values, first argument of \do is value, second argument is a comment.

```
\def\Hy@DefNameKey#1{%
 \expandafter\Hy@@DefNameKey\csname @#1\endcsname{#1}%
}
```

\Hy@@DefNameKey #1: macro for value storage
#2: option name
#3: \do list with known values.

```
\def\Hy@@DefNameKey#1#2#3{%
 \define@key{Hyp}{#2}{%
  \edef#1{##1}%
  \ifx#1\@empty
  \else
   \Hy@CheckOptionValue{##1}{#2}{#3}%
  \fi
 }%
 \let#1\@empty
}
```

\Hy@UseNameKey

```
\def\Hy@UseNameKey#1#2{%
 \ifx#2\@empty
 \else
  /#1/#2%
 \fi
}
```

9.2 Defining the options

```
\define@key{Hyp}{implicit}[true]{%
 \Hy@boolkey{implicit}{#1}%
}
\define@key{Hyp}{draft}[true]{%
 \Hy@boolkey{draft}{#1}%
}
\define@key{Hyp}{final}[true]{%
 \Hy@boolkey{final}{#1}%
}
\let\KV@Hyp@nolinks\KV@Hyp@draft
\def\Hy@ObsoletePaperOption#1{%
```

```
  \Hy@WarningNoLine{%
    Option '#1' is no longer used%
  }%
  \define@key{Hyp}{#1}[true]{}%
}
\def\Hy@temp#1{%
  \define@key{Hyp}{#1}[true]{%
    \Hy@ObsoletePaperOption{#1}%
  }%
}
\Hy@temp{a4paper}
\Hy@temp{a5paper}
\Hy@temp{b5paper}
\Hy@temp{letterpaper}
\Hy@temp{legalpaper}
\Hy@temp{executivepaper}
\define@key{Hyp}{setpagesize}[true]{%
  \Hy@boolkey{setpagesize}{#1}%
}
\define@key{Hyp}{debug}[true]{%
  \Hy@boolkey{debug}{#1}%
}
\define@key{Hyp}{linktocpage}[true]{%
  \Hy@boolkey{linktocpage}{#1}%
  \ifHy@linktocpage
    \let\Hy@linktoc\Hy@linktoc@page
  \else
    \let\Hy@linktoc\Hy@linktoc@section
  \fi
}
\chardef\Hy@linktoc@none=0 %
\chardef\Hy@linktoc@section=1 %
\chardef\Hy@linktoc@page=2 %
\chardef\Hy@linktoc@all=3 %
\ifHy@linktocpage
  \let\Hy@linktoc\Hy@linktoc@page
\else
  \let\Hy@linktoc\Hy@linktoc@section
\fi
\define@key{Hyp}{linktoc}{%
  \@ifundefined{Hy@linktoc@#1}{%
    \Hy@Warning{%
      Unexpected value '#1' of\MessageBreak
      option 'linktoc' instead of 'none',\MessageBreak
      'section', 'page' or 'all'%
    }%
  }{%
    \expandafter\let\expandafter\Hy@linktoc
    \csname Hy@linktoc@#1\endcsname
  }%
}
\define@key{Hyp}{extension}{\def\XR@ext{#1}}
\let\XR@ext\relax
\define@key{Hyp}{verbose}[true]{%
  \Hy@boolkey{verbose}{#1}%
}
\define@key{Hyp}{typexml}[true]{%
```

```
  \Hy@boolkey{typexml}{#1}%
}
```

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.

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

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

```
\def\Hy@setbreaklinks#1{%
  \csname breaklinks#1\endcsname
}
\def\Hy@breaklinks@unsupported{%
  \ifx\Hy@setbreaklinks\@gobble
    \ifHy@breaklinks
      \Hy@WarningNoLine{%
        You have enabled option 'breaklinks'.\MessageBreak
        But driver '\Hy@driver.def' does not suppport this.\MessageBreak
        Expect trouble with the link areas of broken links%
      }%
    \fi
  \fi
}
\define@key{Hyp}{breaklinks}[true]{%
  \Hy@boolkey{breaklinks}{#1}%
  \let\Hy@setbreaklinks\@gobble
}
\define@key{Hyp}{localanchorname}[true]{%
  \Hy@boolkey{localanchorname}{#1}%
}
```

Determines whether an automatic anchor is put on each page

```
\define@key{Hyp}{pageanchor}[true]{%
  \Hy@boolkey{pageanchor}{#1}%
}
```

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.

```
\define@key{Hyp}{plainpages}[true]{%
  \Hy@boolkey{plainpages}{#1}%
}
```

Are the names for anchors made as per the HyperTeX system, or do they simply use what LaTeX provides?

```
\define@key{Hyp}{naturalnames}[true]{%
  \Hy@boolkey{naturalnames}{#1}%
}
```

Completely ignore the names as per the HyperTeX system, and use unique counters.

```
\define@key{Hyp}{hypertexnames}[true]{%
  \Hy@boolkey{hypertexnames}{#1}%
}
```

Currently, `dvips` doesn't allow anchors nested within targets, so this option tries to stop that happening. Other processors may be able to cope.

```
\define@key{Hyp}{nesting}[true]{%
```

```
  \Hy@boolkey{nesting}{#1}%
}
\define@key{Hyp}{unicode}[true]{%
  \Hy@boolkey{unicode}{#1}%
  \ifHy@unicode
    \def\HyPsd@pdfencoding{unicode}%
    \HyPsd@LoadUnicode
  \else
    \def\HyPsd@pdfencoding{pdfdoc}%
  \fi
}
\def\HyPsd@LoadUnicode{%
  \@ifundefined{T@PU}{%
    \input{puenc.def}%
    \HyLinguex@Restore
  }{}%
  \DeclareFontFamily{PU}{pdf}{}%
  \DeclareFontShape{PU}{pdf}{m}{n}{ <-> cmr10 }{}%
  \DeclareFontSubstitution{PU}{pdf}{m}{n}%
  \global\let\HyPsd@LoadUnicode\relax
}
\Hy@AtBeginDocument{%
  \ifx\HyPsd@LoadUnicode\relax
  \else
    \def\HyPsd@LoadUnicode{%
      \Hy@Error{%
        Unicode support for bookmarks is not available.\MessageBreak
        Activate unicode support by using one of the options\MessageBreak
        'unicode', 'pdfencoding=unicode', 'pdfencoding=auto'\MessageBreak
        in the preamble%
      }\@ehc
      \global\let\HyPsd@LoadUnicode\relax
      \global\Hy@unicodefalse
      \global\let\Hy@unicodetrue\Hy@unicodefalse
    }%
  \fi
}
\define@key{Hyp}{pdfencoding}{%
  \edef\HyPsd@temp{#1}%
  \ifx\HyPsd@temp\HyPsd@pdfencoding@pdfdoc
    \let\HyPsd@pdfencoding\HyPsd@temp
    \Hy@unicodefalse
  \else
    \ifcase\ifx\HyPsd@temp\HyPsd@pdfencoding@unicode
            \z@
          \else
            \ifx\HyPsd@temp\HyPsd@pdfencoding@auto
              \z@
            \else
              \@ne
            \fi
          \fi
      \let\HyPsd@pdfencoding\HyPsd@temp
      \hypersetup{unicode}%
      \ifHy@unicode
        \def\HyPsd@pdfencoding{#1}%
        \ifx\HyPsd@pdfencoding\HyPsd@pdfencoding@auto
```

```
        \HyPsd@LoadStringEnc
      \fi
    \else
      \Hy@Warning{Cannot switch to unicode bookmarks}%
      \let\HyPsd@pdfencoding\HyPsd@pdfencoding@pdfdoc
    \fi
  \else
    \@onelevel@sanitize\HyPsd@temp
    \Hy@Warning{%
      Values of option 'pdfencoding':\MessageBreak
      'pdfdoc', 'unicode', 'auto'.\MessageBreak
      Ignoring unknown value '\HyPsd@temp'%
    }%
  \fi
 \fi
}
\def\HyPsd@pdfencoding@auto{auto}
\def\HyPsd@pdfencoding@pdfdoc{pdfdoc}
\def\HyPsd@pdfencoding@unicode{unicode}
\let\HyPsd@pdfencoding\Hy@pdfencoding@pdfdoc
\def\HyPsd@LoadStringEnc{%
 \RequirePackage{stringenc}[2009/12/15]%
 \let\HyPsd@LoadStringEnc\relax
}
\Hy@AtBeginDocument{%
 \@ifpackageloaded{stringenc}{%
  \let\HyPsd@LoadStringEnc\relax
 }{%
  \def\HyPsd@LoadStringEnc{%
   \Hy@WarningNoLine{%
    Missing package 'stringenc'. Use 'pdfencoding=auto'\MessageBreak
    in the preamble or load the package there%
   }%
  }%
 }%
}
\def\hypersetup{\kvsetkeys{Hyp}}
\newif\ifHy@setpdfversion
\define@key{Hyp}{pdfversion}{%
 \@ifundefined{Hy@pdfversion@#1}{%
  \PackageWarning{hyperref}{%
   Unsupported PDF version '#1'.\MessageBreak
   Valid values: 1.2 until 1.9%
  }%
 }{%
  \Hy@setpdfversiontrue
  \edef\Hy@pdfversion{\@nameuse{Hy@pdfversion@#1}}%
 }%
}
\@namedef{Hy@pdfversion@1.2}{2}%
\@namedef{Hy@pdfversion@1.3}{3}%
\@namedef{Hy@pdfversion@1.4}{4}%
\@namedef{Hy@pdfversion@1.5}{5}%
\@namedef{Hy@pdfversion@1.6}{6}%
\@namedef{Hy@pdfversion@1.7}{7}%
\@namedef{Hy@pdfversion@1.8}{8}%
\@namedef{Hy@pdfversion@1.9}{9}%
```

```
\def\Hy@pdfversion{2}
```

10 Options for different drivers

```
\newif\ifHy@DviMode
\let\Hy@DviErrMsg\ltx@empty
\ifpdf
  \def\Hy@DviErrMsg{pdfTeX or LuaTeX is running in PDF mode}%
\else
  \ifxetex
    \def\Hy@DviErrMsg{XeTeX is running}%
  \else
    \ifvtex
      \ifvtexdvi
        \Hy@DviModetrue
      \else
        \def\Hy@DviErrMsg{VTeX is running, but not in DVI mode}%
      \fi
    \else
      \Hy@DviModetrue
    \fi
  \fi
\fi
\def\HyOpt@CheckDvi#1{%
  \ifHy@DviMode
    \expandafter\ltx@firstofone
  \else
    \Hy@Error{%
      Wrong DVI mode driver option '#1',\MessageBreak
      because \Hy@DviErrMsg
    }\@ehc
    \expandafter\ltx@gobble
  \fi
}
\DeclareVoidOption{tex4ht}{%
  \Hy@texhttrue
  \kvsetkeys{Hyp}{colorlinks=true}%
  \def\BeforeTeXIVht{\RequirePackage{color}}%
  \def\Hy@driver{htex4ht}%
  \def\MaybeStopEarly{%
    \Hy@Message{Stopped early}%
    \Hy@AtBeginDocument{%
      \PDF@FinishDoc
      \gdef\PDF@FinishDoc{}%
    }%
    \endinput
  }%
}
\DeclareVoidOption{pdftex}{%
  \ifpdf
    \def\Hy@driver{hpdftex}%
  \else
    \Hy@Error{%
      Wrong driver option 'pdftex',\MessageBreak
      because pdfTeX in PDF mode is not detected%
    }\@ehc
  \fi
```

```
}
\DeclareVoidOption{nativepdf}{%
  \HyOpt@CheckDvi{nativepdf}{%
    \def\Hy@driver{hdvips}%
  }%
}
\DeclareVoidOption{dvipdfm}{%
  \HyOpt@CheckDvi{dvipdfm}{%
    \def\Hy@driver{hdvipdfm}%
  }%
}
\DeclareVoidOption{dvipdfmx}{%
  \HyOpt@CheckDvi{dvipdfmx}{%
    \def\Hy@driver{hdvipdfm}%
  }%
}
\define@key{Hyp}{dvipdfmx-outline-open}[true]{%
  \expandafter\ifx\csname if#1\expandafter\endcsname
                \csname iftrue\endcsname
    \chardef\SpecialDvipdfmxOutlineOpen\@ne
  \else
    \chardef\SpecialDvipdfmxOutlineOpen\z@
  \fi
}
\DeclareVoidOption{xetex}{%
  \ifxetex
    \def\Hy@driver{hxetex}%
  \else
    \Hy@Error{%
      Wrong driver option 'xetex',\MessageBreak
      because XeTeX is not detected%
    }\@ehc
  \fi
}
\DeclareVoidOption{pdfmark}{%
  \HyOpt@CheckDvi{pdfmark}{%
    \def\Hy@driver{hdvips}%
  }%
}
\DeclareVoidOption{dvips}{%
  \HyOpt@CheckDvi{dvips}{%
    \def\Hy@driver{hdvips}%
  }%
}
\DeclareVoidOption{hypertex}{%
  \HyOpt@CheckDvi{hypertex}{%
    \def\Hy@driver{hypertex}%
  }%
}
\let\Hy@MaybeStopNow\relax
\DeclareVoidOption{vtex}{%
  \ifvtex
    \ifnum 0\ifnum\OpMode<1 1\fi \ifnum\OpMode>3 1\fi =0 %
      \def\Hy@driver{hvtex}%
    \else
      \ifnum\OpMode=10\relax
        \def\Hy@driver{hvtexhtm}%
```

```
      \def\MaybeStopEarly{%
        \Hy@Message{Stopped early}%
        \Hy@AtBeginDocument{%
          \PDF@FinishDoc
          \gdef\PDF@FinishDoc{}%
        }%
        \endinput
      }%
    \else
      \Hy@Error{%
        Wrong driver option 'vtex',\MessageBreak
        because of wrong OpMode (\the\OpMode)%
      }\@ehc
    \fi
  \fi
 \else
  \Hy@Error{%
    Wrong driver option 'vtex',\MessageBreak
    because VTeX is not running%
  }\@ehc
 \fi
}
\DeclareVoidOption{vtexpdfmark}{%
 \ifvtex
  \ifnum 0\ifnum\OpMode<1 1\fi \ifnum\OpMode>3 1\fi =0 %
    \def\Hy@driver{hvtexmrk}%
  \else
    \Hy@Error{%
      Wrong driver option 'vtexpdfmark',\MessageBreak
      because of wrong OpMode (\the\OpMode)%
    }\@ehc
  \fi
 \else
  \Hy@Error{%
    Wrong driver option 'vtexpdfmark,\MessageBreak
    because VTeX is not running%
  }\@ehc
 \fi
}
\DeclareVoidOption{dviwindo}{%
 \HyOpt@CheckDvi{dviwindo}{%
  \def\Hy@driver{hdviwind}%
  \kvsetkeys{Hyp}{colorlinks}%
  \PassOptionsToPackage{dviwindo}{color}%
 }%
}
\DeclareVoidOption{dvipsone}{%
 \HyOpt@CheckDvi{dvipsone}{%
  \def\Hy@driver{hdvipson}%
 }%
}
\DeclareVoidOption{textures}{%
 \HyOpt@CheckDvi{textures}{%
  \def\Hy@driver{htexture}%
 }%
}
\DeclareVoidOption{latex2html}{%
```

```
  \HyOpt@CheckDvi{latex2html}{%
    \Hy@AtBeginDocument{\@@latextohtmlX}%
  }%
}
```

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

```
\DeclareVoidOption{ps2pdf}{%
  \HyOpt@CheckDvi{ps2pdf}{%
    \def\Hy@driver{hdvips}%
  }%
}
\let\HyOpt@DriverFallback\ltx@empty
\define@key{Hyp}{driverfallback}{%
  \ifHy@DviMode
    \def\HyOpt@DriverFallback{#1}%
    \Hy@Match\HyOpt@DriverFallback{%
      ^(|dvipdfm|dvipdfmx|dvips|dvipsone|dviwindo|hypertex|ps2pdf|%
       latex2html|tex4ht)$%
    }{}{%
      \let\HyOpt@DriverFallback\ltx@empty
    }%
  \fi
}
```

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.

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

The automatic footnote linking can be disabled by option hyperfootnotes.

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

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

```
\def\back@none{none}
\def\back@section{section}
\def\back@page{page}
\def\back@slide{slide}
\define@key{Hyp}{backref}[section]{%
  \lowercase{\def\Hy@tempa{#1}}%
  \ifx\Hy@tempa\@empty
    \let\Hy@tempa\back@section
  \fi
  \ifx\Hy@tempa\Hy@false
    \let\Hy@tempa\back@none
  \fi
  \ifx\Hy@tempa\back@slide
    \let\Hy@tempa\back@section
  \fi
  \ifx\Hy@tempa\back@page
    \PassOptionsToPackage{hyperpageref}{backref}%
    \Hy@backreftrue
  \else
    \ifx\Hy@tempa\back@section
```

```
      \PassOptionsToPackage{hyperref}{backref}%
      \Hy@backreftrue
    \else
      \ifx\Hy@tempa\back@none
        \Hy@backreffalse
      \else
        \Hy@WarnOptionValue{#1}{backref}{%
          'section', 'slide', 'page', 'none',\MessageBreak
          or 'false'}%
      \fi
    \fi
  \fi
}
\define@key{Hyp}{pagebackref}[true]{%
  \edef\Hy@tempa{#1}%
  \lowercase\expandafter{%
    \expandafter\def\expandafter\Hy@tempa\expandafter{\Hy@tempa}%
  }%
  \ifx\Hy@tempa\@empty
    \let\Hy@tempa\Hy@true
  \fi
  \ifx\Hy@tempa\Hy@true
    \PassOptionsToPackage{hyperpageref}{backref}%
    \Hy@backreftrue
  \else
    \ifx\Hy@tempa\Hy@false
      \Hy@backreffalse
    \else
      \Hy@WarnOptionValue{#1}{pagebackref}{'true' or 'false'}%
    \fi
  \fi
}
```

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

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

Configuration of encap char.

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

12 Language options

The `\autoref` feature depends on the language.

```
\def\HyLang@afrikaans{%
  \def\equationautorefname{Vergelyking}%
  \def\footnoteautorefname{Voetnota}%
  \def\itemautorefname{Item}%
  \def\figureautorefname{Figuur}%
  \def\tableautorefname{Tabel}%
  \def\partautorefname{Deel}%
  \def\appendixautorefname{Bylae}%
  \def\chapterautorefname{Hoofstuk}%
  \def\sectionautorefname{Afdeling}%
```

```
  \def\subsectionautorefname{Subafdeling}%
  \def\subsubsectionautorefname{Subsubafdeling}%
  \def\paragraphautorefname{Paragraaf}%
  \def\subparagraphautorefname{Subparagraaf}%
  \def\FancyVerbLineautorefname{Lyn}%
  \def\theoremautorefname{Teorema}%
  \def\pageautorefname{Bladsy}%
}
\def\HyLang@english{%
  \def\equationautorefname{Equation}%
  \def\footnoteautorefname{footnote}%
  \def\itemautorefname{item}%
  \def\figureautorefname{Figure}%
  \def\tableautorefname{Table}%
  \def\partautorefname{Part}%
  \def\appendixautorefname{Appendix}%
  \def\chapterautorefname{chapter}%
  \def\sectionautorefname{section}%
  \def\subsectionautorefname{subsection}%
  \def\subsubsectionautorefname{subsubsection}%
  \def\paragraphautorefname{paragraph}%
  \def\subparagraphautorefname{subparagraph}%
  \def\FancyVerbLineautorefname{line}%
  \def\theoremautorefname{Theorem}%
  \def\pageautorefname{page}%
}
\def\HyLang@french{%
  \def\equationautorefname{\'Equation}%
  \def\footnoteautorefname{note}%
  \def\itemautorefname{item}%
  \def\figureautorefname{Figure}%
  \def\tableautorefname{Tableau}%
  \def\partautorefname{Partie}%
  \def\appendixautorefname{Appendice}%
  \def\chapterautorefname{chapitre}%
  \def\sectionautorefname{section}%
  \def\subsectionautorefname{sous-section}%
  \def\subsubsectionautorefname{sous-sous-section}%
  \def\paragraphautorefname{paragraphe}%
  \def\subparagraphautorefname{sous-paragraphe}%
  \def\FancyVerbLineautorefname{ligne}%
  \def\theoremautorefname{Th\'eor\`eme}%
  \def\pageautorefname{page}%
}
\def\HyLang@german{%
  \def\equationautorefname{Gleichung}%
  \def\footnoteautorefname{Fu\ss note}%
  \def\itemautorefname{Punkt}%
  \def\figureautorefname{Abbildung}%
  \def\tableautorefname{Tabelle}%
  \def\partautorefname{Teil}%
  \def\appendixautorefname{Anhang}%
  \def\chapterautorefname{Kapitel}%
  \def\sectionautorefname{Abschnitt}%
  \def\subsectionautorefname{Unterabschnitt}%
  \def\subsubsectionautorefname{Unterunterabschnitt}%
  \def\paragraphautorefname{Absatz}%
```

```
  \def\subparagraphautorefname{Unterabsatz}%
  \def\FancyVerbLineautorefname{Zeile}%
  \def\theoremautorefname{Theorem}%
  \def\pageautorefname{Seite}%
}
\def\HyLang@italian{%
  \def\equationautorefname{Equazione}%
  \def\footnoteautorefname{nota}%
  \def\itemautorefname{punto}%
  \def\figureautorefname{Figura}%
  \def\tableautorefname{Tabella}%
  \def\partautorefname{Parte}%
  \def\appendixautorefname{Appendice}%
  \def\chapterautorefname{Capitolo}%
  \def\sectionautorefname{sezione}%
  \def\subsectionautorefname{sottosezione}%
  \def\subsubsectionautorefname{sottosottosezione}%
  \def\paragraphautorefname{paragrafo}%
  \def\subparagraphautorefname{sottoparagrafo}%
  \def\FancyVerbLineautorefname{linea}%
  \def\theoremautorefname{Teorema}%
  \def\pageautorefname{Pag.\@}%
}
\def\HyLang@magyar{%
  \def\equationautorefname{Egyenlet}%
  \def\footnoteautorefname{l\'abjegyzet}%
  \def\itemautorefname{Elem}%
  \def\figureautorefname{\'Abra}%
  \def\tableautorefname{T\'abl\'azat}%
  \def\partautorefname{R\'esz}%
  \def\appendixautorefname{F\"uggel\'ek}%
  \def\chapterautorefname{fejezet}%
  \def\sectionautorefname{szakasz}%
  \def\subsectionautorefname{alszakasz}%
  \def\subsubsectionautorefname{alalszakasz}%
  \def\paragraphautorefname{bekezd\'es}%
  \def\subparagraphautorefname{albekezd\'es}%
  \def\FancyVerbLineautorefname{sor}%
  \def\theoremautorefname{T\'etel}%
  \def\pageautorefname{oldal}%
}
\def\HyLang@portuges{%
  \def\equationautorefname{Equa\c c\~ao}%
  \def\footnoteautorefname{Nota de rodap\'e}%
  \def\itemautorefname{Item}%
  \def\figureautorefname{Figura}%
  \def\tableautorefname{Tabela}%
  \def\partautorefname{Parte}%
  \def\appendixautorefname{Ap\^endice}%
  \def\chapterautorefname{Cap\'itulo}%
  \def\sectionautorefname{Se\c c\~ao}%
  \def\subsectionautorefname{Subse\c c\~ao}%
  \def\subsubsectionautorefname{Subsubse\c c\~ao}%
  \def\paragraphautorefname{par\'agrafo}%
  \def\subparagraphautorefname{subpar\'agrafo}%
  \def\FancyVerbLineautorefname{linha}%
  \def\theoremautorefname{Teorema}%
```

```
  \def\pageautorefname{P\'agina}%
}
```

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.

```
\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?

```
  \def\equationautorefname{\cyr\cyrv\cyrery\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.

```
% \def\equationautorefname{%
%   \cyr\cyrv\cyrery\cyrr\cyra\cyrzh\cyre\cyrn\cyri\cyre
% }%
```

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

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

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}"

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

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

```
% \def\Nomfootnoteautorefname{\cyr\cyrs\cyrn\cyro\cyrs\cyrk\cyra}%
% \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.

```
  \def\itemautorefname{\cyr\cyrp.}%
% \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.

```
  \def\figureautorefname{\cyr\cyrr\cyri\cyrs.}%
  \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.

```
  \def\partautorefname{\cyr\cyrch.}%
  \def\chapterautorefname{\cyr\cyrg\cyrl.}%
  \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.

```
\def\appendixautorefname{\cyr\cyrp\cyrr\cyri\cyrl.}%
% \def\appendixautorefname{%
%   \cyr\cyrp\cyrr\cyri\cyrl\cyro\cyrzh\cyre\cyrn\cyri\cyre
% }%
```

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.

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

```
\def\paragraphautorefname{\cyr\cyrp.}%
\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.

```
% \def\paragraphautorefname{\cyr\cyrp\cyru\cyrn\cyrk\cyrt}%
% \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.

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

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

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

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

```
% \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 …

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

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

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

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

```
\def\pageautorefname{\cyr\cyrs.}%
}
\def\HyLang@spanish{%
  \def\equationautorefname{Ecuaci\'on}%
  \def\footnoteautorefname{Nota a pie de p\'agina}%
  \def\itemautorefname{Elemento}%
  \def\figureautorefname{Figura}%
```

```
  \def\tableautorefname{Tabla}%
  \def\partautorefname{Parte}%
  \def\appendixautorefname{Ap\'endice}%
  \def\chapterautorefname{Cap\'itulo}%
  \def\sectionautorefname{Secci\'on}%
  \def\subsectionautorefname{Subsecci\'on}%
  \def\subsubsectionautorefname{Subsubsecci\'on}%
  \def\paragraphautorefname{P\'arrafo}%
  \def\subparagraphautorefname{Subp\'arrafo}%
  \def\FancyVerbLineautorefname{L\'inea}%
  \def\theoremautorefname{Teorema}%
  \def\pageautorefname{P\'agina}%
}
\def\HyLang@vietnamese{%
  \def\equationautorefname{Ph\uhorn{}\ohorn{}ng tr\`inh}%
  \def\footnoteautorefname{Ch\'u th\'ich}%
  \def\itemautorefname{m\d{u}c}%
  \def\figureautorefname{H\`inh}%
  \def\tableautorefname{B\h{a}ng}%
  \def\partautorefname{Ph\`\acircumflex{}n}%
  \def\appendixautorefname{Ph\d{u} l\d{u}c}%
  \def\chapterautorefname{ch\uhorn{}\ohorn{}ng}%
  \def\sectionautorefname{m\d{u}c}%
  \def\subsectionautorefname{m\d{u}c}%
  \def\subsubsectionautorefname{m\d{u}c}%
  \def\paragraphautorefname{\dj{}o\d{a}n}%
  \def\subparagraphautorefname{\dj{}o\d{a}n}%
  \def\FancyVerbLineautorefname{d\`ong}%
  \def\theoremautorefname{\DJ{}\d{i}nh l\'y}%
  \def\pageautorefname{Trang}%
}
```

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

```
\def\HyLang@addto#1#2{%
  #2%
  \@temptokena{#2}%
  \ifx#1\relax
    \let#1\@empty
  \fi
  \ifx#1\@undefined
    \edef#1{\the\@temptokena}%
  \else
    \toks@\expandafter{#1}%
    \edef#1{\the\toks@\the\@temptokena}%
  \fi
  \@temptokena{}\toks@\@temptokena
}
\def\HyLang@DeclareLang#1#2#3{%
  \@ifpackagewith{babel}{#1}{%
    \expandafter\HyLang@addto
        \csname extras#1\expandafter\endcsname
        \csname HyLang@#2\endcsname
    \begingroup
      \edef\x{\endgroup
        #3%
      }%
```

```
    \x
    \@namedef{HyLang@#1@done}{}%
  }{}%
  \begingroup
    \edef\x##1##2{%
      \noexpand\ifx##2\relax
        \errmessage{No definitions for language #2' found!}%
      \noexpand\fi
      \endgroup
      \noexpand\define@key{Hyp}{#1}[]{%
        \noexpand\@ifundefined{HyLang@#1@done}{%
          \noexpand\HyLang@addto{\noexpand##1}{\noexpand##2}%
          #3%
          \noexpand\@namedef{HyLang@#1@done}{}%
        }{}%
      }%
    }%
  \expandafter\x\csname extras#1\expandafter\endcsname
              \csname HyLang@#2\endcsname
}
\HyLang@DeclareLang{english}{english}{}
\HyLang@DeclareLang{UKenglish}{english}{}
\HyLang@DeclareLang{british}{english}{}
\HyLang@DeclareLang{USenglish}{english}{}
\HyLang@DeclareLang{american}{english}{}
\HyLang@DeclareLang{german}{german}{}
\HyLang@DeclareLang{austrian}{german}{}
\HyLang@DeclareLang{ngerman}{german}{}
\HyLang@DeclareLang{naustrian}{german}{}
\HyLang@DeclareLang{russian}{russian}{\noexpand\hypersetup{unicode}}
\HyLang@DeclareLang{brazil}{portuges}{}
\HyLang@DeclareLang{brazilian}{portuges}{}
\HyLang@DeclareLang{portuguese}{portuges}{}
\HyLang@DeclareLang{spanish}{spanish}{}
\HyLang@DeclareLang{afrikaans}{afrikaans}{}
\HyLang@DeclareLang{french}{french}{}
\HyLang@DeclareLang{frenchb}{french}{}
\HyLang@DeclareLang{francais}{french}{}
\HyLang@DeclareLang{acadian}{french}{}
\HyLang@DeclareLang{canadien}{french}{}
\HyLang@DeclareLang{italian}{italian}{}
\HyLang@DeclareLang{magyar}{magyar}{}
\HyLang@DeclareLang{hungarian}{magyar}{}
```

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

```
\DeclareVoidOption{vietnamese}{%
  \HyLang@addto\extrasvietnamese\HyLang@vietnamese
  \Hy@AtEndOfPackage{%
    \@ifundefined{T@PU}{}{%
      \input{puvnenc.def}%
    }%
  }%
}
\DeclareVoidOption{vietnam}{%
  \HyLang@addto\extrasvietnam\HyLang@vietnamese
  \Hy@AtEndOfPackage{%
    \@ifundefined{T@PU}{}{%
      \input{puvnenc.def}%
```

```
    }%
  }%
}
```

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

```
\DeclareVoidOption{arabic}{%
  \Hy@AtEndOfPackage{%
    \@ifundefined{T@PU}{}{%
      \input{puarenc.def}%
    }%
  }%
}
```

13 Options to change appearance of links

Colouring links at the LaTeX level is useful for debugging, perhaps.

```
\define@key{Hyp}{colorlinks}[true]{%
  \Hy@boolkey{colorlinks}{#1}%
}
\DeclareVoidOption{hidelinks}{%
  \Hy@colorlinksfalse
  \Hy@ocgcolorlinksfalse
  \Hy@frenchlinksfalse
  \def\Hy@colorlink##1{\begingroup}%
  \def\Hy@endcolorlink{\endgroup}%
  \def\@pdfborder{0 0 0}%
  \let\@pdfborderstyle\ltx@empty
}
\define@key{Hyp}{ocgcolorlinks}[true]{%
  \Hy@boolkey{ocgcolorlinks}{#1}%
}
\Hy@AtBeginDocument{%
  \begingroup
    \@ifundefined{OBJ@OCG@view}{%
      \ifHy@ocgcolorlinks
        \Hy@Warning{%
          Driver does not support 'ocgcolorlinks',\MessageBreak
          using 'colorlinks' instead%
        }%
      \fi
    }{}%
  \endgroup
}
\define@key{Hyp}{frenchlinks}[true]{%
  \Hy@boolkey{frenchlinks}{#1}%
}
```

14 Bookmarking

```
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname chapter\endcsname\relax
  \def\toclevel@part{0}%
\else
  \def\toclevel@part{-1}%
\fi
\def\toclevel@chapter{0}
```

```
\def\toclevel@section{1}
\def\toclevel@subsection{2}
\def\toclevel@subsubsection{3}
\def\toclevel@paragraph{4}
\def\toclevel@subparagraph{5}
\def\toclevel@figure{0}
\def\toclevel@table{0}
\@ifpackageloaded{listings}{%
  \providecommand*\theHlstlisting{\thelstlisting}%
  \providecommand*\toclevel@lstlisting{0}%
}{}
\@ifpackageloaded{listing}{%
  \providecommand*\theHlisting{\thelisting}%
  \providecommand*\toclevel@listing{0}%
}{}
```

```
\define@key{Hyp}{bookmarks}[true]{%
  \Hy@boolkey{bookmarks}{#1}%
}
```

```
\define@key{Hyp}{bookmarksopen}[true]{%
  \Hy@boolkey{bookmarksopen}{#1}%
}
```

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.

```
\let\Hy@bookmarksdepth\c@tocdepth
\define@key{Hyp}{bookmarksdepth}[]{%
  \begingroup
    \edef\x{#1}%
    \ifx\x\empty
      \global\let\Hy@bookmarksdepth\c@tocdepth
    \else
      \@ifundefined{toclevel@\x}{%
        \@onelevel@sanitize\x
        \edef\y{\expandafter\@car\x\@nil}%
        \ifcase 0\expandafter\ifx\y-1\fi
                \expandafter\ifnum\expandafter`\y>47 %
                  \expandafter\ifnum\expandafter`\y<58 1\fi\fi\relax
          \Hy@Warning{Unknown document division name (\x)}%
        \else
          \setbox\z@=\hbox{%
            \count@=\x
            \xdef\Hy@bookmarksdepth{\the\count@}%
          }%
        \fi
      }{%
        \setbox\z@=\hbox{%
          \count@=\csname toclevel@\x\endcsname
          \xdef\Hy@bookmarksdepth{\the\count@}%
```

```
      }%
    }%
  \fi
\endgroup
}
```

'bookmarksopenlevel' to specify the open level. From Heiko Oberdiek.

```
\define@key{Hyp}{bookmarksopenlevel}{%
  \def\@bookmarksopenlevel{#1}%
}
\def\@bookmarksopenlevel{\maxdimen}
% 'bookmarkstype' to specify which 'toc' file to mimic
\define@key{Hyp}{bookmarkstype}{%
  \def\Hy@bookmarkstype{#1}%
}
\def\Hy@bookmarkstype{toc}
```

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

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

Option CJKbookmarks enables the patch for CJK bookmarks.

```
\define@key{Hyp}{CJKbookmarks}[true]{%
  \Hy@boolkey{CJKbookmarks}{#1}%
}
\def\Hy@temp#1{%
  \expandafter\Hy@@temp\csname @#1color\endcsname{#1}%
}
\def\Hy@@temp#1#2#3{%
  \define@key{Hyp}{#2color}{%
    \HyColor@HyperrefColor{##1}#1%
  }%
  \def#1{#3}%
}
\Hy@temp{link}{red}
\Hy@temp{anchor}{black}
\Hy@temp{cite}{green}
\Hy@temp{file}{cyan}
\Hy@temp{url}{magenta}
\Hy@temp{menu}{red}
\Hy@temp{run}{\@filecolor}
\define@key{Hyp}{pagecolor}{%
  \Hy@WarningPageColor
}
\def\Hy@WarningPageColor{%
  \Hy@WarningNoLine{Option 'pagecolor' is not available anymore}%
  \global\let\Hy@WarningPageColor\relax
}
\define@key{Hyp}{allcolors}{%
  \HyColor@HyperrefColor{#1}\@linkcolor
  \HyColor@HyperrefColor{#1}\@anchorcolor
  \HyColor@HyperrefColor{#1}\@citecolor
  \HyColor@HyperrefColor{#1}\@filecolor
  \HyColor@HyperrefColor{#1}\@urlcolor
  \HyColor@HyperrefColor{#1}\@menucolor
  \HyColor@HyperrefColor{#1}\@runcolor
```

```
}
\def\hyperbaseurl#1{\def\@baseurl{#1}}
\define@key{Hyp}{baseurl}{\hyperbaseurl{#1}}
\let\@baseurl\@empty
\def\hyperlinkfileprefix#1{\def\Hy@linkfileprefix{#1}}
\define@key{Hyp}{linkfileprefix}{\hyperlinkfileprefix{#1}}
\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.

```
\let\@pdfpagetransition\relax
\define@key{Hyp}{pdfpagetransition}{%
  \def\@pdfpagetransition{#1}%
}
```

\@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.

```
\let\@pdfpageduration\relax
\define@key{Hyp}{pdfpageduration}{%
  \def\@pdfpageduration{#1}%
  \Hy@Match\@pdfpageduration{%
    ^(|[0-9]+\.?[0-9]*|[0-9]*\.?[0-9]+)$%
  }{}{%
    \Hy@Warning{%
      Invalid value '\@pdfpageduration'\MessageBreak
      of option 'pdfpageduration'\MessageBreak
      is replaced by an empty value%
    }%
    \let\@pdfpageduration\ltx@empty
  }%
}
```

The entry for the /Hid key in the page object is only necessary, if it is used and set to true for at least one time. If it is always false, then the /Hid key is not written to the pdf page object in order not to enlarge the pdf file.

```
\newif\ifHy@useHidKey
\Hy@useHidKeyfalse
\define@key{Hyp}{pdfpagehidden}[true]{%
  \Hy@boolkey{pdfpagehidden}{#1}%
  \ifHy@pdfpagehidden
    \global\Hy@useHidKeytrue
  \fi
}
```

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).

```
\def\Hy@ColorList{cite,file,link,menu,run,url}
\@for\Hy@temp:=\Hy@ColorList\do{%
  \edef\Hy@temp{%
    \noexpand\define@key{Hyp}{\Hy@temp bordercolor}{%
      \noexpand\HyColor@HyperrefBorderColor
        {##1}%
        \expandafter\noexpand\csname @\Hy@temp bordercolor\endcsname
        {hyperref}%
        {\Hy@temp bordercolor}%
    }%
  }%
  \Hy@temp
}
\define@key{Hyp}{pagebordercolor}{%
  \Hy@WarningPageBorderColor
}
\def\Hy@WarningPageBorderColor{%
  \Hy@WarningNoLine{Option 'pagebordercolor' is not available anymore}%
  \global\let\Hy@WarningPageBorderColor\relax
}
\define@key{Hyp}{allbordercolors}{%
  \def\Hy@temp##1##2{%
    \HyColor@HyperrefBorderColor{#1}##1{hyperref}{##2bordercolor}%
  }%
  \Hy@temp\@citebordercolor{cite}%
  \Hy@temp\@filebordercolor{file}%
  \Hy@temp\@linkbordercolor{link}%
  \Hy@temp\@menubordercolor{menu}%
  \Hy@temp\@runbordercolor{run}%
  \Hy@temp\@urlbordercolor{url}%
}
\define@key{Hyp}{pdfhighlight}{\def\@pdfhighlight{#1}}
\Hy@DefNameKey{pdfhighlight}{%
  \do{/I}{Invert}%
  \do{/N}{None}%
  \do{/O}{Outline}%
  \do{/P}{Push}%
}
\define@key{Hyp}{pdfborder}{%
  \let\Hy@temp\@pdfborder
  \def\@pdfborder{#1}%
  \Hy@Match\@pdfborder{%
    ^\HyPat@NonNegativeReal/ %
     \HyPat@NonNegativeReal/ %
     \HyPat@NonNegativeReal/%
     ( ?\[\HyPat@NonNegativeReal/( \HyPat@NonNegativeReal/)*])?$%
  }{}{%
    \Hy@Warning{%
      Invalid value '\@pdfborder'\MessageBreak
      for option 'pdfborder'.\MessageBreak
      Option setting is ignored%
    }%
    \let\@pdfborder\Hy@temp
  }%
}
```

```
\define@key{Hyp}{pdfborderstyle}{%
  \let\Hy@temp\@pdfborderstyle
  \def\@pdfborderstyle{#1}%
  \Hy@Match\@pdfborderstyle{%
    ^%
    ( */Type */Border%
    | */W +\HyPat@NonNegativeReal/%
    | */S */[SDBIU]%
    | */D *\[ *(\HyPat@NonNegativeReal/( \HyPat@NonNegativeReal/)?)?]%
    )* *$%
  }{}{%
    \Hy@Warning{%
      Invalid value '\@pdfborderstyle'\MessageBreak
      for option 'pdfborderstyle'.\MessageBreak
      Option setting is ignored%
    }%
    \let\@pdfborderstyle\Hy@temp
  }%
}
\def\Hy@setpdfborder{%
  \ifx\@pdfborder\@empty
  \else
    /Border[\@pdfborder]%
  \fi
  \ifx\@pdfborderstyle\@empty
  \else
    /BS<<\@pdfborderstyle>>%
  \fi
}
\Hy@DefNameKey{pdfpagemode}{%
  \do{UseNone}{}%
  \do{UseOutlines}{}%
  \do{UseThumbs}{}%
  \do{FullScreen}{}%
  \do{UseOC}{PDF 1.5}%
  \do{UseAttachments}{PDF 1.6}%
}
\Hy@DefNameKey{pdfnonfullscreenpagemode}{%
  \do{UseNone}{}%
  \do{UseOutlines}{}%
  \do{UseThumbs}{}%
  \do{FullScreen}{}%
  \do{UseOC}{PDF 1.5}%
  \do{UseAttachments}{PDF 1.6}%
}
\Hy@DefNameKey{pdfdirection}{%
  \do{L2R}{Left to right}%
  \do{R2L}{Right to left}%
}
\Hy@DefNameKey{pdfviewarea}{%
  \do{MediaBox}{}%
  \do{CropBox}{}%
  \do{BleedBox}{}%
  \do{TrimBox}{}%
  \do{ArtBox}{}%
}
\Hy@DefNameKey{pdfviewclip}{%
```

```
  \do{MediaBox}{}%
  \do{CropBox}{}%
  \do{BleedBox}{}%
  \do{TrimBox}{}%
  \do{ArtBox}{}%
}
\Hy@DefNameKey{pdfprintarea}{%
  \do{MediaBox}{}%
  \do{CropBox}{}%
  \do{BleedBox}{}%
  \do{TrimBox}{}%
  \do{ArtBox}{}%
}
\Hy@DefNameKey{pdfprintclip}{%
  \do{MediaBox}{}%
  \do{CropBox}{}%
  \do{BleedBox}{}%
  \do{TrimBox}{}%
  \do{ArtBox}{}%
}
\Hy@DefNameKey{pdfprintscaling}{%
  \do{AppDefault}{}%
  \do{None}{}%
}
\Hy@DefNameKey{pdfduplex}{%
  \do{Simplex}{}%
  \do{DuplexFlipShortEdge}{}%
  \do{DuplexFlipLongEdge}{}%
}
\Hy@DefNameKey{pdfpicktraybypdfsize}{%
  \do{true}{}%
  \do{false}{}%
}
\define@key{Hyp}{pdfprintpagerange}{%
  \def\@pdfprintpagerange{#1}%
}
\Hy@DefNameKey{pdfnumcopies}{%
  \do{2}{two copies}%
  \do{3}{three copies}%
  \do{4}{four copies}%
  \do{5}{five copies}%
}
\define@key{Hyp}{pdfusetitle}[true]{%
  \Hy@boolkey{pdfusetitle}{#1}%
}
\def\HyXeTeX@CheckUnicode{%
  \ifxetex
    \ifHy@unicode
    \else
      \Hy@WarningNoLine{%
        XeTeX driver only supports unicode.\MessageBreak
        Enabling option 'unicode'%
      }%
      \kvsetkeys{Hyp}{unicode}%
    \fi
  \else
    \let\HyXeTeX@CheckUnicode\relax
```

```
  \fi
}
\def\HyPsd@PrerenderUnicode#1{%
  \begingroup
    \expandafter\ifx\csname PrerenderUnicode\endcsname\relax
    \else
      \sbox0{%
        \let\GenericInfo\@gobbletwo
        \let\GenericWarning\@gobbletwo
        \let\GenericError\@gobblefour
        \PrerenderUnicode{#1}%
       }%
    \fi
  \endgroup
}
\define@key{Hyp}{pdftitle}{%
  \HyXeTeX@CheckUnicode
  \HyPsd@XeTeXBigCharstrue
  \HyPsd@PrerenderUnicode{#1}%
  \pdfstringdef\@pdftitle{#1}%
}
\define@key{Hyp}{pdfauthor}{%
  \HyXeTeX@CheckUnicode
  \HyPsd@XeTeXBigCharstrue
  \HyPsd@PrerenderUnicode{#1}%
  \pdfstringdef\@pdfauthor{#1}%
}
\define@key{Hyp}{pdfproducer}{%
  \HyXeTeX@CheckUnicode
  \HyPsd@XeTeXBigCharstrue
  \HyPsd@PrerenderUnicode{#1}%
  \pdfstringdef\@pdfproducer{#1}%
}
\define@key{Hyp}{pdfcreator}{%
  \HyXeTeX@CheckUnicode
  \HyPsd@XeTeXBigCharstrue
  \HyPsd@PrerenderUnicode{#1}%
  \pdfstringdef\@pdfcreator{#1}%
}
\define@key{Hyp}{pdfcreationdate}{%
  \begingroup
    \Hy@unicodefalse
    \pdfstringdef\@pdfcreationdate{#1}%
  \endgroup
}
\define@key{Hyp}{pdfmoddate}{%
  \begingroup
    \Hy@unicodefalse
    \pdfstringdef\@pdfmoddate{#1}%
  \endgroup
}
\define@key{Hyp}{pdfsubject}{%
  \HyXeTeX@CheckUnicode
  \HyPsd@XeTeXBigCharstrue
  \HyPsd@PrerenderUnicode{#1}%
  \pdfstringdef\@pdfsubject{#1}%
}
```

```
\define@key{Hyp}{pdfkeywords}{%
  \HyXeTeX@CheckUnicode
  \HyPsd@XeTeXBigCharstrue
  \HyPsd@PrerenderUnicode{#1}%
  \pdfstringdef\@pdfkeywords{#1}%
}
\define@key{Hyp}{pdftrapped}{%
  \lowercase{\edef\Hy@temp{#1}}%
  \ifx\Hy@temp\HyInfo@trapped@true
    \def\@pdftrapped{True}%
  \else
    \ifx\Hy@temp\HyInfo@trapped@false
      \def\@pdftrapped{False}%
    \else
      \ifx\Hy@temp\HyInfo@trapped@unknown
        \def\@pdftrapped{Unknown}%
      \else
        \ifx\Hy@temp\@empty
        \else
          \Hy@Warning{%
            Unsupported value '#1'\MessageBreak
            for option 'pdftrapped'%
          }%
        \fi
        \def\@pdftrapped{}%
      \fi
    \fi
  \fi
}
\def\HyInfo@trapped@true{true}
\def\HyInfo@trapped@false{false}
\def\HyInfo@trapped@unknown{unknown}
\def\HyInfo@TrappedUnsupported{%
  \ifx\@pdftrapped\@empty
  \else
    \Hy@WarningNoLine{'pdftrapped' is not supported by this driver}%
    \gdef\HyInfo@TrappedUnsupported{}%
  \fi
}
\define@key{Hyp}{pdfinfo}{%
  \kvsetkeys{pdfinfo}{#1}%
}
\def\Hy@temp#1{%
  \lowercase{\Hy@temp@A{#1}}{#1}%
}
\def\Hy@temp@A#1#2{%
  \define@key{pdfinfo}{#2}{%
    \hypersetup{pdf#1={##1}}%
  }%
}
\Hy@temp{Title}
\Hy@temp{Author}
\Hy@temp{Keywords}
\Hy@temp{Subject}
\Hy@temp{Creator}
\Hy@temp{Producer}
\Hy@temp{CreationDate}
```

```
\Hy@temp{ModDate}
\Hy@temp{Trapped}
\newif\ifHyInfo@AddonUnsupported
\kv@set@family@handler{pdfinfo}{%
  \HyInfo@AddonHandler{#1}{#2}%
}
\let\HyInfo@do\relax
\def\HyInfo@AddonHandler#1#2{%
  \ifx\kv@value\relax
    \Hy@Warning{%
      Option 'pdfinfo': ignoring key '\kv@key' without value%
    }%
  \else
    \EdefEscapeName\HyInfo@KeyEscaped{\kv@key}%
    \EdefUnescapeName\HyInfo@Key{\HyInfo@KeyEscaped}%
    \expandafter\ifx\csname KV@pdfinfo@\HyInfo@Key\endcsname\relax
      \ifHyInfo@AddonUnsupported
        \Hy@Warning{%
          This driver does not support additional\MessageBreak
          information entries, therefore\MessageBreak
          '\kv@key' is ignored%
        }%
      \else
        \define@key{pdfinfo}{\HyInfo@Key}{%
          \HyXeTeX@CheckUnicode
          \HyPsd@XeTeXBigCharstrue
          \HyPsd@PrerenderUnicode{##1}%
          \pdfstringdef\HyInfo@Value{##1}%
          \expandafter\let\csname HyInfo@Value@\HyInfo@Key\endcsname
              \HyInfo@Value
        }%
        \edef\HyInfo@AddonList{%
          \HyInfo@AddonList
          \HyInfo@do{\HyInfo@Key}%
        }%
        \kv@parse@normalized{%
          \HyInfo@Key={#2}%
        }{%
          \kv@processor@default{pdfinfo}%
        }%
      \fi
    \else
      \kv@parse@normalized{%
        \HyInfo@Key={#2}%
      }{%
        \kv@processor@default{pdfinfo}%
      }%
    \fi
  \fi
}
\def\HyInfo@GenerateAddons{%
  \ifHyInfo@AddonUnsupported
    \def\HyInfo@Addons{}%
  \else
    \begingroup
      \toks@{}%
      \def\HyInfo@do##1{%
```

```
      \EdefEscapeName\HyInfo@Key{##1}%
      \edef\x{%
       \toks@{%
        \the\toks@
        /\HyInfo@Key(\csname HyInfo@Value@##1\endcsname)%
       }%
      }%
      \x
     }%
     \HyInfo@AddonList
     \edef\x{\endgroup
      \def\noexpand\HyInfo@Addons{\the\toks@}%
     }%
    \x
  \fi
}
\let\HyInfo@AddonList\ltx@empty
\define@key{Hyp}{pdfview}{\calculate@pdfview#1 \\}
\define@key{Hyp}{pdflinkmargin}{\setpdflinkmargin{#1}}
\let\setpdflinkmargin\@gobble
\def\calculate@pdfview#1 #2\\{%
  \def\@pdfview{#1}%
  \ifx\\#2\\%
    \def\@pdfviewparams{ -32768}%
  \else
    \def\@pdfviewparams{ #2}%
  \fi
}
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname numexpr\endcsname\relax
  \def\Hy@number#1{%
    \expandafter\@firstofone\expandafter{\number#1}%
  }%
\else
  \def\Hy@number#1{%
    \the\numexpr#1\relax
  }%
\fi
\define@key{Hyp}{pdfstartpage}{%
  \ifx\\#1\\%
    \let\@pdfstartpage\ltx@empty
  \else
    \edef\@pdfstartpage{\Hy@number{#1}}%
  \fi
}%
\define@key{Hyp}{pdfstartview}{%
  \ifx\\#1\\%
    \let\@pdfstartview\ltx@empty
  \else
    \hypercalcbpdef\@pdfstartview{/#1}%
  \fi
}
\def\HyPat@NonNegativeReal/{%
  \ *([0-9]+\.?[0-9]*|[0-9]*\.?[0-9]+) *%
}
\define@key{Hyp}{pdfremotestartview}{%
  \ifx\\#1\\%
```

```
    \def\@pdfremotestartview{/Fit}%
  \else
    \hypercalcbpdef\@pdfremotestartview{#1}%
    \edef\@pdfremotestartview{\@pdfremotestartview}%
    \Hy@Match\@pdfremotestartview{%
      ^(XYZ -?(null|\HyPat@NonNegativeReal/) %
          -?(null|\HyPat@NonNegativeReal/) %
          (null|\HyPat@NonNegativeReal/)|%
        Fit(|B|%
         (H|V|BH|BV) (null|\HyPat@NonNegativeReal/)|%
         R \HyPat@NonNegativeReal/ \HyPat@NonNegativeReal/ %
           \HyPat@NonNegativeReal/ \HyPat@NonNegativeReal/%
      ))$%
    }{}{%
      \Hy@Warning{%
        Invalid value '\@pdfremotestartview'\MessageBreak
        of 'pdfremotestartview'\MessageBreak
        is replaced by 'Fit'%
      }%
      \let\@pdfremotestartview\@empty
    }%
    \ifx\@pdfremotestartview\@empty
      \def\@pdfremotestartview{/Fit}%
    \else
      \edef\@pdfremotestartview{/\@pdfremotestartview}%
    \fi
  \fi
}
\define@key{Hyp}{pdfpagescrop}{\edef\@pdfpagescrop{#1}}
\define@key{Hyp}{pdftoolbar}[true]{%
  \Hy@boolkey{pdftoolbar}{#1}%
}
\define@key{Hyp}{pdfmenubar}[true]{%
  \Hy@boolkey{pdfmenubar}{#1}%
}
\define@key{Hyp}{pdfwindowui}[true]{%
  \Hy@boolkey{pdfwindowui}{#1}%
}
\define@key{Hyp}{pdffitwindow}[true]{%
  \Hy@boolkey{pdffitwindow}{#1}%
}
\define@key{Hyp}{pdfcenterwindow}[true]{%
  \Hy@boolkey{pdfcenterwindow}{#1}%
}
\define@key{Hyp}{pdfdisplaydoctitle}[true]{%
  \Hy@boolkey{pdfdisplaydoctitle}{#1}%
}
\define@key{Hyp}{pdfa}[true]{%
  \Hy@boolkey{pdfa}{#1}%
}
\define@key{Hyp}{pdfnewwindow}[true]{%
  \def\Hy@temp{#1}%
  \ifx\Hy@temp\@empty
    \Hy@pdfnewwindowsetfalse
  \else
    \Hy@pdfnewwindowsettrue
    \Hy@boolkey{pdfnewwindow}{#1}%
```

```
  \fi
}
\def\Hy@SetNewWindow{%
  \ifHy@pdfnewwindowset
    /NewWindow %
    \ifHy@pdfnewwindow true\else false\fi
  \fi
}
\Hy@DefNameKey{pdfpagelayout}{%
  \do{SinglePage}{}%
  \do{OneColumn}{}%
  \do{TwoColumnLeft}{}%
  \do{TwoColumnRight}{}%
  \do{TwoPageLeft}{PDF 1.5}%
  \do{TwoPageRight}{PDF 1.5}%
}
\define@key{Hyp}{pdflang}{%
  \def\@pdflang{#1}%
}
\define@key{Hyp}{pdfpagelabels}[true]{%
  \Hy@boolkey{pdfpagelabels}{#1}%
}
\define@key{Hyp}{pdfescapeform}[true]{%
  \Hy@boolkey{pdfescapeform}{#1}%
}
```

Default values:

```
\def\@linkbordercolor{1 0 0}
\def\@urlbordercolor{0 1 1}
\def\@menubordercolor{1 0 0}
\def\@filebordercolor{0 .5 .5}
\def\@runbordercolor{0 .7 .7}
\def\@citebordercolor{0 1 0}
\def\@pdfhighlight{/I}
\let\@pdftitle\ltx@empty
\let\@pdfauthor\ltx@empty
\let\@pdfproducer\relax
\def\@pdfcreator{LaTeX with hyperref package}
\let\@pdfcreationdate\ltx@empty
\let\@pdfmoddate\ltx@empty
\let\@pdfsubject\ltx@empty
\let\@pdfkeywords\ltx@empty
\let\@pdftrapped\ltx@empty
\let\@pdfpagescrop\ltx@empty
\def\@pdfstartview{/Fit}
\def\@pdfremotestartview{/Fit}
\def\@pdfstartpage{1}
\let\@pdfprintpagerange\ltx@empty
\let\@pdflang\ltx@empty
\let\PDF@SetupDoc\@empty
\let\PDF@FinishDoc\@empty
\let\phantomsection\@empty
\let\special@paper\@empty
\def\HyperDestNameFilter#1{#1}
\Hy@AtBeginDocument{%
  \begingroup
    \edef\x{\@ifundefined{stockheight}\paperheight\stockheight}%
    \dimen@=\x\relax
```

```
    \ifdim\dimen@>\z@
    \else
      \dimen@=11in\relax
      \Hy@WarningNoLine{%
        Height of page (\expandafter\string\x) %
        is invalid (\the\x),\MessageBreak
        using 11in%
      }%
    \fi
    \dimen@=0.99626401\dimen@
    \xdef\Hy@pageheight{\strip@pt\dimen@}%
  \endgroup
}
\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.

```
\let\hyper@normalise\ExecuteOptions
\let\ExecuteOptions\hypersetup
\Hy@RestoreCatcodes
\InputIfFileExists{hyperref.cfg}{}{}
\Hy@SetCatcodes
\let\ExecuteOptions\hyper@normalise
\ifx\Hy@MaybeStopNow\relax
\else
  \Hy@stoppedearlytrue
  \expandafter\Hy@MaybeStopNow
\fi
\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.

```
\SetupKeyvalOptions{family=Hyp}
\DeclareLocalOptions{%
  a4paper,a5paper,b5paper,letterpaper,legalpaper,executivepaper%
}
```

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

```
\@ifpackageloaded{tex4ht}{%
  \@ifpackagewith{hyperref}{tex4ht}{}{%
    \PassOptionsToPackage{tex4ht}{hyperref}%
  }%
}{}
```

```
\let\ReadBookmarks\relax
\ProcessKeyvalOptions{Hyp}
```

After processing options.

15.1 Package xspace support

```
\def\Hy@xspace@end{}
\ltx@IfUndefined{xspaceaddexceptions}{%
  \Hy@AtBeginDocument{%
    \ltx@IfUndefined{xspaceaddexceptions}{%
    }{%
      \def\Hy@xspace@end{%
        \ltx@gobble{end for xspace}%
```

```
    }%
   \xspaceaddexceptions{\Hy@xspace@end,\hyper@linkend,\hyper@anchorend}%
   }%
  }%
}{%
  \def\Hy@xspace@end{%
   \ltx@gobble{end for xspace}%
  }%
  \xspaceaddexceptions{\Hy@xspace@end,\hyper@linkend,\hyper@anchorend}%
}
```

15.2 Option draft

```
\Hy@AtBeginDocument{%
  \ifHy@draft
   \let\hyper@@anchor\@gobble
   \gdef\hyper@link#1#2#3{#3\Hy@xspace@end}%
   \def\hyper@anchorstart#1#2{#2\Hy@xspace@end}%
   \def\hyper@anchorend{\Hy@xspace@end}%
   \let\hyper@linkstart\@gobbletwo
   \def\hyper@linkend{\Hy@xspace@end}%
   \def\hyper@linkurl#1#2{#1\Hy@xspace@end}%
   \def\hyper@linkfile#1#2#3{#1\Hy@xspace@end}%
   \def\hyper@link@[#1]#2#3#4{#4\Hy@xspace@end}%
   \def\Acrobatmenu#1#2{\leavevmode#2\Hy@xspace@end}%
   \let\PDF@SetupDoc\@empty
   \let\PDF@FinishDoc\@empty
   \let\@fifthoffive\@secondoftwo
   \let\@secondoffive\@secondoftwo
   \let\ReadBookmarks\relax
   \let\WriteBookmarks\relax
   \Hy@WarningNoLine{Draft mode on}%
  \fi
  \Hy@DisableOption{draft}%
  \Hy@DisableOption{nolinks}%
  \Hy@DisableOption{final}%
}
```

15.3 PDF/A

```
\Hy@DisableOption{pdfa}
\ifHy@pdfa
  \kvsetkeys{Hyp}{pdfversion=1.4}%
  \def\Hy@Acrobatmenu#1#2{%
   \leavevmode
   \begingroup
    \edef\x{#1}%
    \@onelevel@sanitize\x
    \ifx\x\Hy@NextPage
     \let\y=Y%
    \else
     \ifx\x\Hy@PrevPage
      \let\y=Y%
     \else
      \ifx\x\Hy@FirstPage
       \let\y=Y%
      \else
       \ifx\x\Hy@LastPage
        \let\y=Y%
```

```
          \else
            \let\y=N%
          \fi
        \fi
      \fi
    \fi
    \expandafter\endgroup
    \ifx\y Y%
    \else
      \Hy@Error{%
        PDF/A: Named action '#1' is not permitted%
      }\@ehc
      {#2}%
      \expandafter\@gobble
    \fi
  }%
  \def\Hy@temp#1{%
    \expandafter\def\csname Hy@#1\endcsname{#1}%
    \expandafter\@onelevel@sanitize\csname Hy@#1\endcsname
  }%
  \Hy@temp{NextPage}%
  \Hy@temp{PrevPage}%
  \Hy@temp{FirstPage}%
  \Hy@temp{LastPage}%
\else
  \def\Hy@Acrobatmenu#1#2{\leavevmode}%
\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.

```
\Hy@nextfalse
\ltx@IfUndefined{spanish@sh@"@sel}{}{\Hy@nexttrue}
\ltx@IfUndefined{galician@sh@"@sel}{}{\Hy@nexttrue}
\ltx@IfUndefined{estonian@sh@"@sel}{}{\Hy@nexttrue}
\ifHy@next
  \let\texttilde\~%
\fi
\def\Hy@wrapper@babel#1#2{%
  \begingroup
    \Hy@safe@activestrue
    \set@display@protect
    \edef\x{#2}%
    \@onelevel@sanitize\x
    \toks@{#1}%
    \edef\x{\endgroup\the\toks@{\x}}%
  \x
}
\def\Hy@WrapperDef#1{%
  \begingroup
    \escapechar=\m@ne
    \xdef\Hy@gtemp{%
      \expandafter\noexpand\csname HyWrap@\string#1\endcsname
    }%
  \endgroup
```

```
  \edef#1{%
    \noexpand\Hy@wrapper@babel
    \expandafter\noexpand\Hy@gtemp
  }%
  \expandafter\def\Hy@gtemp
}
\ifHy@hyperfigures
  \Hy@Info{Hyper figures ON}%
\else
  \Hy@Info{Hyper figures OFF}%
\fi
\ifHy@nesting
  \Hy@Info{Link nesting ON}%
\else
  \Hy@Info{Link nesting OFF}%
\fi
\ifHy@hyperindex
  \Hy@Info{Hyper index ON}%
\else
  \Hy@Info{Hyper index OFF}%
\fi
\ifHy@plainpages
  \Hy@Info{Plain pages ON}%
\else
  \Hy@Info{Plain pages OFF}%
\fi
\ifHy@backref
  \Hy@Info{Backreferencing ON}%
\else
  \Hy@Info{Backreferencing OFF}%
\fi
\ifHy@typexml
  \Hy@AtEndOfPackage{%
    \RequirePackage{color}%
    \RequirePackage{nameref}%
  }%
\fi
\Hy@DisableOption{typexml}
\ifHy@implicit
  \Hy@InfoNoLine{Implicit mode ON; LaTeX internals redefined}%
\else
  \Hy@InfoNoLine{Implicit mode OFF; no redefinition of LaTeX internals}%
  \def\MaybeStopEarly{%
    \Hy@Message{Stopped early}%
    \Hy@AtBeginDocument{%
      \PDF@FinishDoc
      \gdef\PDF@FinishDoc{}%
    }%
    \endinput
  }%
  \Hy@AtBeginDocument{%
    \let\autoref\ref
    \let\autopageref\pageref
    \ifx\@pdfpagemode\@empty
      \gdef\@pdfpagemode{UseNone}%
    \fi
    \global\Hy@backreffalse
```

```
  }%
  \Hy@AtEndOfPackage{%
    \global\let\ReadBookmarks\relax
    \global\let\WriteBookmarks\relax
  }%
\fi
\Hy@DisableOption{implicit}
```

15.4.1 Driver loading

```
\Hy@AtEndOfPackage{%
  \@ifpackageloaded{tex4ht}{%
    \def\Hy@driver{htex4ht}%
    \Hy@texhttrue
  }{}%
```

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.

```
  \ifx\Hy@driver\@empty
  \else
    \def\Hy@temp{hpdftex}%
    \ifpdf
      \ifx\Hy@driver\Hy@temp
      \else
        \Hy@WarningNoLine{%
          Wrong driver `\Hy@driver.def';\MessageBreak
          pdfTeX is running in PDF mode.\MessageBreak
          Forcing driver `\Hy@temp.def'%
        }%
        \let\Hy@driver\Hy@temp
      \fi
    \else
      \ifx\Hy@driver\Hy@temp
        \Hy@WarningNoLine{%
          Wrong driver `\Hy@driver.def';\MessageBreak
          pdfTeX is not running in PDF mode.\MessageBreak
          Using default driver%
        }%
        \let\Hy@driver\@empty
      \fi
    \fi
  \fi
  \ifHy@texht
  \else
    \ifx\Hy@driver\@empty
    \else
      \def\Hy@temp{hxetex}%
      \ifxetex
        \ifx\Hy@driver\Hy@temp
        \else
          \Hy@WarningNoLine{%
            Wrong driver `\Hy@driver.def';\MessageBreak
            XeTeX is running.\MessageBreak
            Forcing driver `\Hy@temp.def' for XeTeX%
          }%
          \let\Hy@driver\Hy@temp
        \fi
      \fi
```

```
  \fi
\fi
\ifx\Hy@driver\@empty
\else
  \def\Hy@temp{hvtexhtm}%
  \ifvtexhtml
    \ifx\Hy@driver\Hy@temp
    \else
      \Hy@WarningNoLine{%
        Wrong driver `\Hy@driver.def';\MessageBreak
        VTeX is running in HTML mode.\MessageBreak
        Forcing driver `\Hy@temp.def'%
      }%
      \let\Hy@driver\Hy@temp
    \fi
  \else
    \ifx\Hy@driver\Hy@temp
      \Hy@WarningNoLine{%
        Wrong driver `\Hy@driver.def';\MessageBreak
        VTeX is not running in HTML mode.\MessageBreak
        Using default driver%
      }%
      \let\Hy@driver\@empty
    \fi
  \fi
\fi
```

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

```
\def\HyOpt@DriverType{}%
\ifx\Hy@driver\@empty
  \def\HyOpt@DriverType{ (autodetected)}%
  \providecommand*{\Hy@defaultdriver}{hypertex}%
  \ifpdf
    \def\Hy@driver{hpdftex}%
  \else
    \ifxetex
      \def\Hy@driver{hxetex}%
    \else
      \ifvtexhtml
        \def\Hy@driver{hvtexhtm}%
        \def\MaybeStopEarly{%
          \Hy@Message{Stopped early}%
          \Hy@AtBeginDocument{%
            \PDF@FinishDoc
            \gdef\PDF@FinishDoc{}%
          }%
          \endinput
        }%
      \else
        \ifvtexpdf
          \def\Hy@driver{hvtex}%
        \else
          \ifvtexps
            \def\Hy@driver{hvtex}%
          \else
            \ifx\HyOpt@DriverFallback\ltx@empty
              \let\Hy@driver\Hy@defaultdriver
              \def\HyOpt@DriverType{ (default)}%
```

```
            \else
              \begingroup
                \toks@\expandafter{\HyOpt@DriverFallback}%
                \edef\x{\endgroup
                  \noexpand\kvsetkeys{Hyp}{\the\toks@}%
                }%
              \x
              \ifx\Hy@driver\ltx@empty
                \let\Hy@driver\Hy@defaultdriver
                \def\HyOpt@DriverType{ (default)}%
              \else
                \def\HyOpt@DriverType{ (fallback)}%
              \fi
            \fi
          \fi
        \fi
      \fi
    \fi
  \fi
  \ifx\Hy@driver\Hy@defaultdriver
    \def\Hy@temp{hdviwind}%
    \ifx\Hy@temp\Hy@driver
      \kvsetkeys{Hyp}{colorlinks}%
      \PassOptionsToPackage{dviwindo}{color}%
    \fi
  \fi
\fi
\Hy@Message{Driver\HyOpt@DriverType: \Hy@driver}%
\chardef\Hy@VersionChecked=0 %
\input{\Hy@driver.def}%
\ifcase\Hy@VersionChecked
  \Hy@VersionCheck{\Hy@driver.def}%
\fi
\let\@unprocessedoptions\relax
\Hy@RestoreCatcodes
\Hy@DisableOption{tex4ht}%
\Hy@DisableOption{pdftex}%
\Hy@DisableOption{nativepdf}%
\Hy@DisableOption{dvipdfm}%
\Hy@DisableOption{dvipdfmx}%
\Hy@DisableOption{dvipdfmx-outline-open}%
\Hy@DisableOption{pdfmark}%
\Hy@DisableOption{dvips}%
\Hy@DisableOption{hypertex}%
\Hy@DisableOption{vtex}%
\Hy@DisableOption{vtexpdfmark}%
\Hy@DisableOption{dviwindo}%
\Hy@DisableOption{dvipsone}%
\Hy@DisableOption{textures}%
\Hy@DisableOption{latex2html}%
\Hy@DisableOption{ps2pdf}%
\Hy@DisableOption{xetex}%
\Hy@DisableOption{pdfversion}%
}
```

Support for open outlines is enabled for XeTEX >= 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.

```
\newif\ifHy@DvipdfmxOutlineOpen
\ifxetex
  \ifdim\number\XeTeXversion\XeTeXrevision in<0.9995in %
  \else
    \chardef\SpecialDvipdfmxOutlineOpen\@ne
    \Hy@DvipdfmxOutlineOpentrue
  \fi
\fi
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname SpecialDvipdfmxOutlineOpen\endcsname\relax
\else
  \ifnum\SpecialDvipdfmxOutlineOpen>\z@
    \Hy@DvipdfmxOutlineOpentrue
  \fi
\fi
```

15.4.2 Bookmarks

```
\def\WriteBookmarks{0}
\def\@bookmarkopenstatus#1{%
  \ifHy@bookmarksopen
```

The purpose of the `\@firstofone`-number-space-construct is that no `\relax` will be inserted by TEX before the `\else`:

```
    \ifnum#1<\expandafter\@firstofone\expandafter
          {\number\@bookmarksopenlevel} % explicit space
    \else
      -%
    \fi
  \else
    -%
  \fi
}
\ifHy@bookmarks
  \Hy@Info{Bookmarks ON}%
  \ifx\@pdfpagemode\@empty
    \def\@pdfpagemode{UseOutlines}%
  \fi
\else
  \let\@bookmarkopenstatus\ltx@gobble
  \Hy@Info{Bookmarks OFF}%
  \Hy@AtEndOfPackage{%
    \global\let\ReadBookmarks\relax
    \global\let\WriteBookmarks\relax
  }%
  \ifx\@pdfpagemode\@empty
    \def\@pdfpagemode{UseNone}%
  \fi
\fi
\Hy@DisableOption{bookmarks}
```

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

```
\def\Hy@CatcodeWrapper#1{%
  \let\Hy@EndWrap\ltx@empty
  \def\TMP@EnsureCode##1##2{%
    \edef\Hy@EndWrap{%
      \Hy@EndWrap
      \catcode##1 \the\catcode##1\relax
    }%
    \catcode##1 ##2\relax
```

```
  }%
  \TMP@EnsureCode{10}{12}% ^^J
  \TMP@EnsureCode{33}{12}% !
  \TMP@EnsureCode{34}{12}% "
  \TMP@EnsureCode{36}{3}% $ (math)
  \TMP@EnsureCode{38}{4}% & (alignment)
  \TMP@EnsureCode{39}{12}% '
  \TMP@EnsureCode{40}{12}% (
  \TMP@EnsureCode{41}{12}% )
  \TMP@EnsureCode{42}{12}% *
  \TMP@EnsureCode{43}{12}% +
  \TMP@EnsureCode{44}{12}% ,
  \TMP@EnsureCode{45}{12}% -
  \TMP@EnsureCode{46}{12}% .
  \TMP@EnsureCode{47}{12}% /
  \TMP@EnsureCode{58}{12}% :
  \TMP@EnsureCode{59}{12}% ;
  \TMP@EnsureCode{60}{12}% <
  \TMP@EnsureCode{61}{12}% =
  \TMP@EnsureCode{62}{12}% >
  \TMP@EnsureCode{63}{12}% ?
  \TMP@EnsureCode{91}{12}% [
  \TMP@EnsureCode{93}{12}% ]
  \TMP@EnsureCode{94}{7}% ^ (superscript)
  \TMP@EnsureCode{95}{8}% _ (subscript)
  \TMP@EnsureCode{96}{12}% `
  \TMP@EnsureCode{124}{12}% |
  \TMP@EnsureCode{126}{13}% ~ (active)
  #1\relax
  \Hy@EndWrap
}
```

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

```
\Hy@AtBeginDocument{%
  \ifHy@ocgcolorlinks
    \kvsetkeys{Hyp}{colorlinks}%
    \ifHy@pdfa
      \Hy@Warning{%
        PDF/A: Optional Content Groups are prohibited,\MessageBreak
        using 'colorlinks' instead of 'ocgcolorlinks'%
      }%
      \Hy@ocgcolorlinksfalse
    \fi
  \fi
  \ifHy@ocgcolorlinks
  \else
    \Hy@DisableOption{ocgcolorlinks}%
  \fi
  \ifHy@colorlinks
    \def\@pdfborder{0 0 0}%
    \let\@pdfborderstyle\@empty
    \ifHy@typexml
    \else
      \Hy@CatcodeWrapper{%
        \RequirePackage{color}%
      }%
    \fi
```

```
    \def\Hy@colorlink#1{%
      \begingroup
      \HyColor@UseColor#1%
    }%
    \def\Hy@endcolorlink{\endgroup}%
    \Hy@Info{Link coloring ON}%
  \else
    \ifHy@frenchlinks
      \def\Hy@colorlink#1{\begingroup\fontshape{sc}\selectfont}%
      \def\Hy@endcolorlink{\endgroup}%
      \Hy@Info{French linking ON}%
    \else
```

for grouping consistency:

```
      \def\Hy@colorlink#1{\begingroup}%
      \def\Hy@endcolorlink{\endgroup}%
      \Hy@Info{Link coloring OFF}%
    \fi
  \fi
  \Hy@DisableOption{colorlinks}%
  \Hy@DisableOption{frenchlinks}%
  \ifHy@texht
    \long\def\@firstoffive#1#2#3#4#5{#1}%
    \long\def\@secondoffive#1#2#3#4#5{#2}%
    \long\def\@thirdoffive#1#2#3#4#5{#3}%
    \long\def\@fourthoffive#1#2#3#4#5{#4}%
    \long\def\@fifthoffive#1#2#3#4#5{#5}%
    \providecommand*\@safe@activestrue{}%
    \providecommand*\@safe@activesfalse{}%
    \def\T@ref#1{%
      \Hy@safe@activestrue
      \expandafter\@setref\csname r@#1\endcsname\@firstoffive{#1}%
      \Hy@safe@activesfalse
    }%
    \def\T@pageref#1{%
      \Hy@safe@activestrue
      \expandafter\@setref\csname r@#1\endcsname\@secondoffive{#1}%
      \Hy@safe@activesfalse
    }%
  \else
    \ifHy@typexml
    \else
      \Hy@CatcodeWrapper{%
        \RequirePackage{nameref}%
      }%
    \fi
  \fi
  \DeclareRobustCommand\ref{%
    \@ifstar\@refstar\T@ref
  }%
  \DeclareRobustCommand\pageref{%
    \@ifstar\@pagerefstar\T@pageref
  }%
% \@ifclassloaded{memoir}{%
%   \ltx@IfUndefined{@mem@titlerefnolink}\ltx@secondoftwo{%
%     \ltx@IfUndefined{@mem@titleref}\ltx@secondoftwo\ltx@firstoftwo
%   }%
% }\ltx@secondoftwo
```

```
% {%
%   \DeclareRobustCommand*{\nameref}{%
%     \@ifstar\@mem@titlerefnolink\@mem@titleref
%   }%
% }{%
  \DeclareRobustCommand*{\nameref}{%
    \@ifstar\@namerefstar\T@nameref
  }%
% }%
}
\Hy@AtBeginDocument{%
  \ifHy@texht
  \else
    \Hy@CatcodeWrapper\ReadBookmarks
  \fi
}
\ifHy@backref
  \RequirePackage{backref}%
\else
  \let\Hy@backout\@gobble
\fi
\Hy@DisableOption{backref}
\Hy@DisableOption{pagebackref}
\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.

```
\begingroup
  \endlinechar=-1 %
  \catcode`\^^A=14 %
  \catcode`\^^M\active
  \catcode`\%\active
  \catcode`\#\active
  \catcode`\_\active
  \catcode`\$\active
  \catcode`\&\active
  \gdef\hyper@normalise{^^A
    \begingroup
    \catcode`\^^M\active
    \def^^M{ }^^A
    \catcode`\%\active
    \let%\@percentchar
    \let\%\@percentchar
    \catcode`\#\active
    \def#{\hyper@hash}^^A
    \def\#{\hyper@hash}^^A
    \@makeother\&^^A
    \edef&{\string&}^^A
    \edef\&{\string&}^^A
```

```
    \edef\textunderscore{\string_}^^A
    \let\_\textunderscore
    \catcode`\_\active
    \let_\textunderscore
    \let~\hyper@tilde
    \let\~\hyper@tilde
    \let\textasciitilde\hyper@tilde
    \let\\\@backslashchar
    \edef${\string$}^^A
    \Hy@safe@activestrue
    \hyper@n@rmalise
  }^^A
  \catcode`\#=6 ^^A
  \gdef\Hy@ActiveCarriageReturn{^^M}^^A
  \gdef\hyper@n@rmalise#1#2{^^A
    \def\Hy@tempa{#2}^^A
    \ifx\Hy@tempa\Hy@ActiveCarriageReturn
      \ltx@ReturnAfterElseFi{^^A
        \hyper@@normalise{#1}^^A
      }^^A
    \else
      \ltx@ReturnAfterFi{^^A
        \hyper@@normalise{#1}{#2}^^A
      }^^A
    \fi
  }^^A
  \gdef\hyper@@normalise#1#2{^^A
    \edef\Hy@tempa{^^A
      \endgroup
      \noexpand#1{\Hy@RemovePercentCr#2%^^M\@nil}^^A
    }^^A
    \Hy@tempa
  }^^A
  \gdef\Hy@RemovePercentCr#1%^^M#2\@nil{^^A
    #1^^A
    \ifx\limits#2\limits
    \else
      \ltx@ReturnAfterFi{^^A
        \Hy@RemovePercentCr #2\@nil
      }^^A
    \fi
  }^^A
\endgroup
\providecommand*\hyper@chars{%
  \let\#\hyper@hash
  \let\%\@percentchar
  \Hy@safe@activestrue
}
\def\hyperlink#1#2{%
  \hyper@@link{}{#1}{#2}%
}
\def\Hy@VerboseLinkStart#1#2{%
  \ifHy@verbose
    \begingroup
      \Hy@safe@activestrue
      \xdef\Hy@VerboseGlobalTemp{(#1) `#2'}%
      \Hy@Info{Reference \Hy@VerboseGlobalTemp}%
```

```
      \xdef\Hy@VerboseGlobalTemp{%
        \Hy@VerboseGlobalTemp, %
        line \the\inputlineno
      }%
    \endgroup
    \let\Hy@VerboseLinkInfo\Hy@VerboseGlobalTemp
    \@onelevel@sanitize\Hy@VerboseLinkInfo
  \fi
}
\def\Hy@VerboseLinkInfo{<VerboseLinkInfo>}
\def\Hy@VerboseLinkStop{%
  \ifHy@verbose
    \begingroup
      \edef\x{\endgroup
        \write\m@ne{%
          Package 'hyperref' Info: %
          End of reference \Hy@VerboseLinkInfo.%
        }%
      }%
    \x
  \fi
}
\def\Hy@VerboseAnchor#1{%
  \ifHy@verbose
    \begingroup
      \Hy@safe@activestrue
      \Hy@Info{Anchor '\HyperDestNameFilter{#1}'}%
    \endgroup
  \fi
}
\def\Hy@AllowHyphens{%
  \relax
  \ifhmode
    \penalty\@M
    \hskip\z@skip
  \fi
}
\DeclareRobustCommand*{\href}[1][]{%
  \begingroup
  \setkeys{href}{#1}%
  \@ifnextchar\bgroup\Hy@href{\hyper@normalise\href@}%
}
\def\Hy@href#{%
  \hyper@normalise\href@
}
\begingroup
  \catcode`\$=6 %
  \catcode`\#=12 %
  \gdef\href@$1{\expandafter\href@split$1##\\}%
  \gdef\href@split$1#$2#$3\\$4{%
    \hyper@@link{$1}{$2}{$4}%
    \endgroup
  }%
\endgroup
```

Option 'page'.

```
\define@key{href}{page}{%
  \def\Hy@href@page{#1}%
}
\let\Hy@href@page\@empty
\newcount\c@Hy@tempcnt
\def\theHy@tempcnt{\the\c@Hy@tempcnt}
\def\Hy@MakeRemoteAction{%
  \ifx\Hy@href@page\@empty
    \def\Hy@href@page{0}%
  \else
    \setcounter{Hy@tempcnt}{\Hy@href@page}%
    \ifnum\c@Hy@tempcnt<\@ne
      \Hy@Warning{%
        Invalid page number (\theHy@tempcnt)\MessageBreak
        for remote PDF file.\MessageBreak
        Using page 1%
      }%
      \def\Hy@href@page{0}%
    \else
      \global\advance\c@Hy@tempcnt\m@ne
      \edef\Hy@href@page{\theHy@tempcnt}%
    \fi
  \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.

```
  \ifx\Hy@href@nextactionraw\@empty
  \else
    \Hy@pdfnewwindowsettrue
    \Hy@pdfnewwindowtrue
  \fi
}
```

Option 'pdfremotestartview'.

```
\define@key{href}{pdfremotestartview}{%
  \setkeys{Hyp}{pdfremotestartview={#1}}%
}
```

Option 'pdfnewwindow'.

```
\let\KV@href@pdfnewwindow\KV@Hyp@pdfnewwindow
\let\KV@href@pdfnewwindow@default\KV@Hyp@pdfnewwindow@default
```

Option 'ismap'.

```
\newif\ifHy@href@ismap
\define@key{href}{ismap}[true]{%
  \ltx@IfUndefined{Hy@href@ismap#1}{%
    \Hy@Error{%
      Invalid value (#1) for key 'ismap'.\MessageBreak
      Permitted values are 'true' or 'false'.\MessageBreak
      Ignoring 'ismap'%
    }\@ehc
  }{%
    \csname Hy@href@ismap#1\endcsname
  }%
}
```

Option 'nextactionraw'.

```
\let\Hy@href@nextactionraw\@empty
\define@key{href}{nextactionraw}{%
```

```
  \edef\Hy@href@nextactionraw{#1}%
  \ifx\Hy@href@nextactionraw\@empty
  \else
    \Hy@Match\Hy@href@nextactionraw{%
      ^(\HyPat@ObjRef/|<<.*/S[ /].+>>|%
       \[( ?\HyPat@ObjRef/|<<.*/S[ /].+>>)+ ?])$%
    }{}{%
      \Hy@Warning{Invalid value for 'nextactionraw':\MessageBreak
        \Hy@href@nextactionraw\MessageBreak
        The action is discarded%
      }%
    }%
    \ifx\Hy@href@nextactionraw\@empty
    \else
      \edef\Hy@href@nextactionraw{/Next \Hy@href@nextactionraw}%
    \fi
  \fi
}
\def\HyPat@ObjRef/{.+}
```

Load package url.sty and save the meaning of the original \url in \nolinkurl.

```
\RequirePackage{url}
\let\HyOrg@url\url
\def\Hurl{\begingroup \Url}
\DeclareRobustCommand*{\nolinkurl}{\hyper@normalise\nolinkurl@}
\def\nolinkurl@#1{\Hurl{#1}}
\DeclareRobustCommand*{\url}{\hyper@normalise\url@}
\def\url@#1{\hyper@linkurl{\Hurl{#1}}{#1}}
\DeclareRobustCommand*{\hyperimage}{\hyper@normalise\hyper@image}
\providecommand\hyper@image[2]{#2}
\def\hypertarget#1#2{%
  \ifHy@nesting
    \hyper@@anchor{#1}{#2}%
  \else
    \hyper@@anchor{#1}{\relax}#2%
  \fi
}
```

\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.

```
\DeclareRobustCommand*{\hyperref}{%
  \@ifnextchar[{\Hy@babelnormalise\label@hyperref}\@hyperref
}
\def\Hy@babelnormalise#1[#2]{%
  \begingroup
    \Hy@safe@activestrue
    \edef\Hy@tempa{%
      \endgroup
      \noexpand#1[{#2}]%
    }%
  \Hy@tempa
}
```

```
\def\@hyperref{\hyper@normalise\@@hyperref}
\def\@@hyperref#1#2#3{%
  \edef\ref@one{\ifx\\#2\\\else#2.\fi#3}%
  \expandafter\tryhyper@link\ref@one\\{#1}%
}
\def\tryhyper@link#1\\#2{%
  \hyper@@link{#2}{#1}%
}
\def\hyperdef{\@ifnextchar[{\label@hyperdef}{\@hyperdef}}
\def\@hyperdef#1#2#3{%, category, name, text
  \ifx\\#1\\%
    \def\Hy@AnchorName{#2}%
  \else
    \def\Hy@AnchorName{#1.#2}%
  \fi
  \ifHy@nesting
    \expandafter\hyper@@anchor\expandafter{\Hy@AnchorName}{#3}%
  \else
    \expandafter\hyper@@anchor\expandafter{\Hy@AnchorName}{\relax}#3%
  \fi
}
```

We also have a need to give a LaTeX *label* to a hyper reference, to ease the pain of referring to it later.

```
\def\label@hyperref[#1]{%
  \expandafter\label@@hyperref\csname r@#1\endcsname{#1}%
}%
\def\label@@hyperref#1#2#3{%
  \ifx#1\relax
    \protect\G@refundefinedtrue
    \@latex@warning{%
      Hyper reference `#2' on page \thepage \space undefined%
    }%
    \begingroup
      #3%
    \endgroup
  \else
    \hyper@@link{\expandafter\@fifthoffive#1}%
      {\expandafter\@fourthoffive#1\@empty\@empty}{#3}%
  \fi
}
\def\label@hyperdef[#1]#2#3#4{% label name, category, name,
                              % anchor text
  \@bsphack
  \ifx\\#2\\%
    \def\Hy@AnchorName{#3}%
  \else
    \def\Hy@AnchorName{#2.#3}%
  \fi
  \if@filesw
    \protected@write\@auxout{}{%
      \string\newlabel{#1}{{}{}{}{\Hy@AnchorName}{}}%
    }%
  \fi
  \@esphack
  \ifHy@nesting
    \expandafter\hyper@@anchor\expandafter{\Hy@AnchorName}{#4}%
```

```
  \else
    \expandafter\hyper@@anchor\expandafter{\Hy@AnchorName}{\relax}#4%
  \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.

```
\def\hyper@@link{\let\Hy@reserved@a\relax
  \@ifnextchar[{\hyper@link@}{\hyper@link@[link]}%
}
\def\hyper@link@[#1]#2#3#4{%
  \begingroup
    \protected@edef\Hy@tempa{#2}%
    \Hy@safe@activestrue
    \edef\x{#3}%
    \ifx\Hy@tempa\@empty
      \toks0{\hyper@link{#1}}%
    \else
      \toks0{\expandafter\hyper@readexternallink#2\\{#1}}%
    \fi
    \toks2{%
      \Hy@safe@activesfalse
      #4%
    }%
    \edef\Hy@tempa{\the\toks2}%
    \edef\x{\endgroup
      \ifx\Hy@tempa\@empty
        \noexpand\Hy@Warning{Suppressing empty link}%
      \else
        \the\toks0 {\x}{\the\toks2}%%
      \fi
    }%
  \x
}
```

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.

```
\def\hyper@readexternallink#1\\#2#3#4{%
  \begingroup
    \let\\\relax
  \expandafter\endgroup
  \expandafter\@@hyper@@readexternallink#1\\{#2}{#3}{#4}%
}
\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.

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

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

```
\def\@pdftempwordfile{file}%
\def\@pdftempwordrun{run}%
\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:

```
  \ifx\\#6\\%
    \@hyper@linkfile file:#7\\{#3}{#2}{#7}%
  \else
    \ifx\\#4\\%
      \@hyper@linkfile file:#7\\{#3}{#2}{#7}%
    \else
```

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

```
      \def\@pdftempa{#4}%
      \ifx\@pdftempa\@pdftempwordfile
        \@hyper@linkfile#7\\{#3}{#2}{#7}%
      \else
```

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

```
        \ifx\@pdftempa\@pdftempwordrun
          \ifHy@pdfa
            \Hy@Error{%
              PDF/A: Launch action is prohibited%
            }\@ehc
            \begingroup
              \leavevmode
              #2%
            \endgroup
          \else
            \@hyper@launch#7\\{#3}{#2}%
          \fi
        \else
```

otherwise its a URL

```
          \hyper@linkurl{#3}{#7\ifx\\#2\\\else\hyper@hash#2\fi}%
        \fi
      \fi
    \fi
  \fi
}
```

By default, turn run: into file:

```
\def\@hyper@launch run:#1\\#2#3{% filename, anchor text, linkname
  \hyper@linkurl{#2}{%
```

```
    \Hy@linkfileprefix
    #1%
    \ifx\\#3\\%
    \else
      \hyper@hash
      #3%
    \fi
  }%
}
```

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

```
\def\@hyper@linkfile file:#1\\#2#3#4{%
    %file url,link string, name, original uri
  \filename@parse{#1}%
  \ifx\filename@ext\relax
    \edef\filename@ext{\XR@ext}%
  \fi
  \def\use@file{\filename@area\filename@base.\filename@ext}%
  \Hy@IfStringEndsWith\filename@ext\XR@ext{%
    \hyper@linkfile{#2}{\use@file}{#3}%
  }{%
    \ifx\@baseurl\@empty
      \hyper@linkurl{#2}{%
        #4\ifx\\#3\\\else\hyper@hash#3\fi
      }%
    \else
      \hyper@linkurl{#2}{\use@file\ifx\\#3\\\else\hyper@hash#3\fi}%
    \fi
  }%
}
\def\Hy@IfStringEndsWith#1#2{%
  \begingroup
    \edef\x{#1}%
    \@onelevel@sanitize\x
    \edef\x{.\x$}%
    \edef\y{#2}%
    \@onelevel@sanitize\y
    \edef\y{.\y$}%
   \expandafter\def\expandafter\z\expandafter##\expandafter1\y##2\@nil{%
      \endgroup
      \ifx\relax##2\relax
        \expandafter\ltx@secondoftwo
      \else
        \expandafter\ltx@firstoftwo
      \fi
    }%
  \expandafter\expandafter\expandafter\z\expandafter\x\y\@nil
}
\def\Hy@StringLocalhost{localhost}
\@onelevel@sanitize\Hy@StringLocalhost
\def\Hy@CleanupFile#1{%
  \edef#1{#1}%
  \expandafter\Hy@@CleanupFile#1\hbox///\hbox\@nil{#1}%
}
\def\Hy@@CleanupFile#1//#2/#3\hbox#4\@nil#5{%
  \begingroup
```

```
    \toks@{\endgroup}%
    \def\x{#1}%
    \ifx\x\@empty
      \def\x{#2}%
      \ifx\x\@empty
        \toks@{\endgroup\def#5{/#3}}%
      \else
        \@onelevel@sanitize\x
        \ifx\x\Hy@StringLocalhost
          \toks@{\endgroup\def#5{/#3}}%
        \fi
      \fi
    \fi
  \the\toks@
}
```

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.

```
\long\def\hyper@@anchor#1#2{\@hyper@@anchor#1\relax#2\relax}
\long\def\@hyper@@anchor#1\relax#2#3\relax{%
  \ifx\\#1\\%
    #2\Hy@Warning{Ignoring empty anchor}%
  \else
    \def\anchor@spot{#2#3}%
    \let\put@me@back\@empty
    \ifx\relax#2\relax
    \else
      \ifHy@nesting
      \else
        \ifcat a\noexpand#2\relax
        \else
          \ifcat 0\noexpand#2 \relax
          \else
% \typeout{Anchor start is not alphanumeric %
% on input line\the\inputlineno%
% }%
            \let\anchor@spot\@empty
            \def\put@me@back{#2#3}%
          \fi
        \fi
      \fi
    \fi
    \ifHy@activeanchor
      \anchor@spot
    \else
      \hyper@anchor{#1}%
    \fi
    \expandafter\put@me@back
  \fi
  \let\anchor@spot\@empty
}
\let\anchor@spot\ltx@empty
```

18 Compatibility with the *LaTeX2html* package

Map our macro names on to Nikos', so that documents prepared for that system will work without change.

Note, however, that the whole complicated structure for segmenting documents is not supported; it is assumed that the user will load `html.sty` first, and then `hyperref.sty`, so that the definitions in `html.sty` take effect, and are then overridden in a few circumstances by this package.

```
\let\htmladdimg\hyperimage

\def\htmladdnormallink#1#2{\href{#2}{#1}}
\def\htmladdnormallinkfoot#1#2{\href{#2}{#1}\footnote{#2}}
\def\htmlref#1#2{% anchor text, label
  \label@hyperref[{#2}]{#1}%
}
```

This is really too much. The LaTeX2html package defines its own `\hyperref` command, with a different syntax. Was this always here? Its weird, anyway. We interpret it in the 'printed' way, since we are about fidelity to the page.

```
\def\@@latextohtmlX{%
  \let\hhyperref\hyperref
  \def\hyperref##1##2##3##4{% anchor text for HTML
                % text to print before label in print
                % label
                % post-label text in print
    ##2\ref{##4}##3%
  }%
}
```

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.

```
\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

```
\def\HyField@NewFlag#1#2{%
  \lowercase{\HyField@NewOption{#2}}%
  \lowercase{\HyField@NewBitsetFlag{#2}}{#2}{#1}%
}
```

\HyField@NewFlagOnly

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

\HyField@NewOption #1: option name

```
\def\HyField@NewOption#1{%
  \expandafter\newif\csname ifFld@#1\endcsname
  \define@key{Field}{#1}[true]{%
    \lowercase{\Field@boolkey{##1}}{#1}%
  }%
}
```

\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

```
\def\HyField@NewBitsetFlag#1#2#3#4{%
  \begingroup
    \count@=#4\relax
    \advance\count@\m@ne
    \def\x##1{%
      \endgroup
      \expandafter\def\csname HyField@#3@#1\endcsname{##1}%
      \expandafter\ifx\csname HyField@#3@##1\endcsname\relax
        \expandafter\edef\csname HyField@#3@##1\endcsname{%
          (\number#4) #2%
        }%
      \else
        \expandafter\edef\csname HyField@#3@##1\endcsname{%
          \csname HyField@#3@##1\endcsname
          /#2%
        }%
      \fi
    }%
  \expandafter\x\expandafter{\the\count@}%
}
```

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

```
\def\HyField@UseFlag#1#2{%
  \lowercase{\HyField@@UseFlag{#2}}{#1}%
}
```

\HyField@@UseFlag

```
\def\HyField@@UseFlag#1#2{%
  \bitsetSetValue{HyField@#2}{%
    \csname HyField@#2@#1\endcsname
  }{%
    \csname ifFld@#1\endcsname 1\else 0\fi
  }%
}
```

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

```
\def\HyField@SetFlag#1#2{%
  \lowercase{\HyField@@SetFlag{#2}}{#1}%
}
```

\HyField@@SetFlag

```
\def\HyField@@SetFlag#1#2{%
  \bitsetSetValue{HyField@#2}{%
    \csname HyField@#2@#1\endcsname
  }{1}%
}
```

\HyField@PrintFlags

```
\def\HyField@PrintFlags#1#2{%
  \ifHy@verbose
    \begingroup
      \let\Hy@temp\@empty
      \let\MessageBreak\relax
      \expandafter\@for\expandafter\x\expandafter:\expandafter=%
      \bitsetGetSetBitList{HyField@#1}\do{%
        \edef\Hy@temp{%
          \Hy@temp
          \csname HyField@#1@\x\endcsname\MessageBreak
        }%
      }%
    \edef\x{\endgroup
      \noexpand\Hy@Info{%
        Field flags: %
          \expandafter\ifx\@car#1\@nil S\else/\fi
          #1 %
          \bitsetGetDec{HyField@#1} %
          (0x\bitsetGetHex{HyField@#1}{32})\MessageBreak
        \Hy@temp
        for #2%
      }%
    }\x
  \fi
}
```

19.1.1 Declarations of field flags

"Table 8.70 Field flags common to all field types"

```
\HyField@NewFlag{Ff}{ReadOnly}{1}
\HyField@NewFlag{Ff}{Required}{2}
\HyField@NewFlag{Ff}{NoExport}{3}
```

"Table 8.75 Field flags specific to button fields"

```
\HyField@NewFlag{Ff}{NoToggleToOff}{15}
\HyField@NewFlag{Ff}{Radio}{16}
\HyField@NewFlag{Ff}{Pushbutton}{17}
\HyField@NewFlag{Ff}{RadiosInUnison}{26}
```

"Table 8.77 Field flags specific to text fields"

```
\HyField@NewFlag{Ff}{Multiline}{13}
\HyField@NewFlag{Ff}{Password}{14}
\HyField@NewFlag{Ff}{FileSelect}{21}% PDF 1.4
\HyField@NewFlag{Ff}{DoNotSpellCheck}{23}% PDF 1.4
\HyField@NewFlag{Ff}{DoNotScroll}{24}% PDF 1.4
\HyField@NewFlag{Ff}{Comb}{25}% PDF 1.4
\HyField@NewFlag{Ff}{RichText}{26}% PDF 1.5
```

"Table 8.79 field flags specific to choice fields"

```
\HyField@NewFlag{Ff}{Combo}{18}
```

```
\HyField@NewFlag{Ff}{Edit}{19}
\HyField@NewFlag{Ff}{Sort}{20}
\HyField@NewFlag{Ff}{MultiSelect}{22}% PDF 1.4
% \HyField@NewFlag{Ff}{DoNotSpellCheck}{23}% PDF 1.4
\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.

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

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.

```
\HyField@NewFlag{F}{Invisible}{1}
\HyField@NewFlag{F}{Hidden}{2}% PDF 1.2
\HyField@NewFlag{F}{Print}{3}% PDF 1.2
\HyField@NewFlag{F}{NoZoom}{4}% PDF 1.2
\HyField@NewFlag{F}{NoRotate}{5}% PDF 1.3
\HyField@NewFlag{F}{NoView}{6}% PDF 1.3
\HyField@NewFlag{F}{Locked}{8}% PDF 1.4
\HyField@NewFlag{F}{ToggleNoView}{9}% PDF 1.5
\HyField@NewFlag{F}{LockedContents}{10}% PDF 1.7

\ifHy@pdfa
  \def\HyField@PDFAFlagWarning#1#2{%
    \Hy@Warning{%
      PDF/A: Annotation flag '#1' must\MessageBreak
      be set to '#2'%
    }%
  }%
  \Fld@invisiblefalse
  \def\Fld@invisibletrue{%
    \HyField@PDFAFlagWarning{invisible}{false}%
  }%
  \Fld@hiddenfalse
  \def\Fld@hiddentrue{%
    \HyField@PDFAFlagWarning{hidden}{false}%
  }%
  \Fld@printtrue
  \def\Fld@printfalse{%
    \HyField@PDFAFlagWarning{print}{true}%
  }%
  \Fld@nozoomtrue
  \def\Fld@nozoomfalse{%
    \HyField@PDFAFlagWarning{nozoom}{true}%
  }%
  \Fld@norotatetrue
  \def\Fld@norotatefalse{%
    \HyField@PDFAFlagWarning{norotate}{true}%
  }%
  \Fld@noviewfalse
  \def\Fld@noviewtrue{%
```

```
    \HyField@PDFAFlagWarning{noview}{false}%
  }%
\fi
```

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

```
\HyField@NewFlag{Submit}{IncludeNoValueFields}{2}
\HyField@NewFlagOnly{Submit}{ExportFormat}{3}
\HyField@NewFlag{Submit}{GetMethod}{4}
\HyField@NewFlag{Submit}{SubmitCoordinates}{5}
\HyField@NewFlagOnly{Submit}{XFDF}{6}
\HyField@NewFlag{Submit}{IncludeAppendSaves}{7}
\HyField@NewFlag{Submit}{IncludeAnnotations}{8}
\HyField@NewFlagOnly{Submit}{SubmitPDF}{9}
\HyField@NewFlag{Submit}{CanonicalFormat}{10}
\HyField@NewFlag{Submit}{ExclNonUserAnnots}{11}
\HyField@NewFlag{Submit}{ExclFKey}{12}
\HyField@NewFlag{Submit}{EmbedForm}{14}
```

```
\define@key{Field}{export}{%
  \lowercase{\def\Hy@temp{#1}}%
  \@ifundefined{Fld@export@\Hy@temp}{%
    \@onelevel@sanitize\Hy@temp
    \Hy@Error{%
      Unknown export format '\Hy@temp'.\MessageBreak
      Known formats are 'FDF', 'HTML', 'XFDF', and 'PDF'%
    }\@ehc
  }{%
    \let\Fld@export\Hy@temp
  }%
}
\def\Fld@export{fdf}
\@namedef{Fld@export@fdf}{0}%
\@namedef{Fld@export@html}{1}%
\@namedef{Fld@export@xfdf}{2}%
\@namedef{Fld@export@pdf}{3}%
```

19.1.2 Set submit flags

\HyField@FlagsSubmit

```
\def\HyField@FlagsSubmit{%
  \bitsetReset{HyField@Submit}%
  \ifcase\@nameuse{Fld@export@\Fld@export} %
    % FDF
    \HyField@UseFlag{Submit}{IncludeNoValueFields}%
    \HyField@UseFlag{Submit}{SubmitCoordinates}%
    \HyField@UseFlag{Submit}{IncludeAppendSaves}%
    \HyField@UseFlag{Submit}{IncludeAnnotations}%
    \HyField@UseFlag{Submit}{CanonicalFormat}%
    \HyField@UseFlag{Submit}{ExclNonUserAnnots}%
    \HyField@UseFlag{Submit}{ExclFKey}%
    \HyField@UseFlag{Submit}{EmbedForm}%
  \or % HTML
    \HyField@SetFlag{Submit}{ExportFormat}%
    \HyField@UseFlag{Submit}{IncludeNoValueFields}%
    \HyField@UseFlag{Submit}{GetMethod}%
    \HyField@UseFlag{Submit}{SubmitCoordinates}%
    \HyField@UseFlag{Submit}{CanonicalFormat}%
```

```
  \or % XFDF
    \HyField@SetFlag{Submit}{XFDF}%
    \HyField@UseFlag{Submit}{IncludeNoValueFields}%
    \HyField@UseFlag{Submit}{SubmitCoordinates}%
    \HyField@UseFlag{Submit}{CanonicalFormat}%
  \or % PDF
    \HyField@SetFlag{Submit}{SubmitPDF}%
    \HyField@UseFlag{Submit}{GetMethod}%
  \fi
  \HyField@PrintFlags{Submit}{submit button field}%
  \bitsetIsEmpty{HyField@Submit}{%
    \let\Fld@submitflags\ltx@empty
  }{%
    \edef\Fld@submitflags{/Flags \bitsetGetDec{HyField@Submit}}%
  }%
}
```

19.1.3 Set annot flags in fields

\HyField@FlagsAnnot

```
\def\HyField@FlagsAnnot#1{%
  \bitsetReset{HyField@F}%
  \HyField@UseFlag{F}{Invisible}%
  \HyField@UseFlag{F}{Hidden}%
  \HyField@UseFlag{F}{Print}%
  \HyField@UseFlag{F}{NoZoom}%
  \HyField@UseFlag{F}{NoRotate}%
  \HyField@UseFlag{F}{NoView}%
  \HyField@UseFlag{F}{Locked}%
  \HyField@UseFlag{F}{ToggleNoView}%
  \HyField@UseFlag{F}{LockedContents}%
  \HyField@PrintFlags{F}{#1}%
  \bitsetIsEmpty{HyField@F}{%
    \let\Fld@annotflags\ltx@empty
  }{%
    \edef\Fld@annotflags{/F \bitsetGetDec{HyField@F}}%
  }%
}
```

19.1.4 Pushbutton field

\HyField@FlagsPushButton

```
\def\HyField@FlagsPushButton{%
  \HyField@FlagsAnnot{push button field}%
  \bitsetReset{HyField@Ff}%
  \HyField@UseFlag{Ff}{ReadOnly}%
  \HyField@UseFlag{Ff}{Required}%
  \HyField@UseFlag{Ff}{NoExport}%
  \HyField@SetFlag{Ff}{Pushbutton}%
  \HyField@PrintFlags{Ff}{push button field}%
  \bitsetIsEmpty{HyField@Ff}{%
    \let\Fld@flags\ltx@empty
  }{%
    \edef\Fld@flags{/Ff \bitsetGetDec{HyField@Ff}}%
  }%
}
```

19.1.5 Check box field

\HyField@FlagsCheckBox

```
\def\HyField@FlagsCheckBox{%
  \HyField@FlagsAnnot{check box field}%
  \bitsetReset{HyField@Ff}%
  \HyField@UseFlag{Ff}{ReadOnly}%
  \HyField@UseFlag{Ff}{Required}%
  \HyField@UseFlag{Ff}{NoExport}%
  \HyField@PrintFlags{Ff}{check box field}%
  \bitsetIsEmpty{HyField@Ff}{%
    \let\Fld@flags\ltx@empty
  }{%
    \edef\Fld@flags{/Ff \bitsetGetDec{HyField@Ff}}%
  }%
}
```

19.1.6 Radio button field

\HyField@FlagsRadioButton

```
\def\HyField@FlagsRadioButton{%
  \HyField@FlagsAnnot{radio button field}%
  \bitsetReset{HyField@Ff}%
  \HyField@UseFlag{Ff}{ReadOnly}%
  \HyField@UseFlag{Ff}{Required}%
  \HyField@UseFlag{Ff}{NoExport}%
  \HyField@UseFlag{Ff}{NoToggleToOff}%
  \HyField@SetFlag{Ff}{Radio}%
  \HyField@UseFlag{Ff}{RadiosInUnison}%
  \HyField@PrintFlags{Ff}{radio button field}%
  \bitsetIsEmpty{HyField@Ff}{%
    \let\Fld@flags\ltx@empty
  }{%
    \edef\Fld@flags{/Ff \bitsetGetDec{HyField@Ff}}%
  }%
}
```

19.1.7 Text fields

\HyField@FlagsText

```
\def\HyField@FlagsText{%
  \HyField@FlagsAnnot{text field}%
  \bitsetReset{HyField@Ff}%
  \HyField@UseFlag{Ff}{ReadOnly}%
  \HyField@UseFlag{Ff}{Required}%
  \HyField@UseFlag{Ff}{NoExport}%
  \HyField@UseFlag{Ff}{Multiline}%
  \HyField@UseFlag{Ff}{Password}%
  \HyField@UseFlag{Ff}{FileSelect}%
  \HyField@UseFlag{Ff}{DoNotSpellCheck}%
  \HyField@UseFlag{Ff}{DoNotScroll}%
  \ifFld@comb
    \ifcase0\ifFld@multiline
          \else\ifFld@password
          \else\ifFld@fileselect
          \else 1\fi\fi\fi\relax
      \Hy@Error{%
```

```
      Field option 'comb' cannot used together with\MessageBreak
      'multiline', 'password', or 'fileselect'%
    }\@ehc
  \else
    \HyField@UseFlag{Ff}{Comb}%
  \fi
\fi
\HyField@UseFlag{Ff}{RichText}%
\HyField@PrintFlags{Ff}{text field}%
\bitsetIsEmpty{HyField@Ff}{%
  \let\Fld@flags\ltx@empty
}{%
  \edef\Fld@flags{/Ff \bitsetGetDec{HyField@Ff}}%
}%
}
```

19.1.8 Choice fields

\HyField@FlagsChoice

```
\def\HyField@FlagsChoice{%
  \HyField@FlagsAnnot{choice field}%
  \bitsetReset{HyField@Ff}%
  \HyField@UseFlag{Ff}{ReadOnly}%
  \HyField@UseFlag{Ff}{Required}%
  \HyField@UseFlag{Ff}{NoExport}%
  \HyField@UseFlag{Ff}{Combo}%
  \ifFld@combo
    \HyField@UseFlag{Ff}{Edit}%
  \fi
  \HyField@UseFlag{Ff}{Sort}%
  \HyField@UseFlag{Ff}{MultiSelect}%
  \ifFld@combo
    \ifFld@edit
      \HyField@UseFlag{Ff}{DoNotSpellCheck}%
    \fi
  \fi
  \HyField@UseFlag{Ff}{CommitOnSelChange}%
  \HyField@PrintFlags{Ff}{choice field}%
  \bitsetIsEmpty{HyField@Ff}{%
    \let\Fld@flags\ltx@empty
  }{%
    \edef\Fld@flags{/Ff \bitsetGetDec{HyField@Ff}}%
  }%
}
```

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.

```
\def\HyField@PDFChoices#1{%
  \begingroup
    \global\let\Fld@choices\ltx@empty
    \let\HyTmp@optlist\ltx@empty
    \let\HyTmp@optitem\relax
```

```
    \count@=0 %
    \kv@parse{#1}{%
      \Hy@pdfstringdef\kv@key\kv@key
      \ifx\kv@value\relax
        \ifnum\Hy@pdfversion<3 % implementation note 122, PDF spec 1.7
          \xdef\Fld@choices{\Fld@choices[(\kv@key)(\kv@key)]}%
        \else
          \xdef\Fld@choices{\Fld@choices(\kv@key)}%
        \fi
      \else
        \Hy@pdfstringdef\kv@value\kv@value
        \xdef\Fld@choices{\Fld@choices[(\kv@value)(\kv@key)]}%
      \fi
      \edef\HyTmp@optlist{%
        \HyTmp@optlist
        \HyTmp@optitem{\the\count@}{\kv@key}0%
      }%
      \advance\count@ by 1 %
      \@gobbletwo
    }%
    \xdef\Fld@choices{/Opt[\Fld@choices]}%
    \ifFld@multiselect
      \HyField@@PDFChoices{DV}\Fld@default
      \HyField@@PDFChoices{V}\Fld@value
    \else
      \ifx\Fld@default\relax
      \else
        \pdfstringdef\Hy@gtemp\Fld@default
        \xdef\Fld@choices{\Fld@choices/DV(\Hy@gtemp)}%
      \fi
      \ifx\Fld@value\relax
      \else
        \pdfstringdef\Hy@gtemp\Fld@value
        \xdef\Fld@choices{\Fld@choices/V(\Hy@gtemp)}%
      \fi
    \fi
  \endgroup
}
```

\HyField@@PDFChoices

```
\def\HyField@@PDFChoices#1#2{%
  \ifx#2\relax
  \else
    \count@=0 %
    \def\HyTmp@optitem##1##2##3{%
      \def\HyTmp@key{##2}%
      \ifx\HyTmp@key\Hy@gtemp
        \expandafter\def\expandafter\HyTmp@optlist\expandafter{%
          \HyTmp@optlist
          \HyTmp@optitem{##1}{##2}1%
        }%
        \let\HyTmp@found=Y%
      \else
        \expandafter\def\expandafter\HyTmp@optlist\expandafter{%
          \HyTmp@optlist
          \HyTmp@optitem{##1}{##2}##3%
        }%
      \fi
```

```
    }%
    \expandafter\comma@parse\expandafter{#2}{%
      \pdfstringdef\Hy@gtemp\comma@entry
      \let\HyTmp@found=N %
      \expandafter\let\expandafter\HyTmp@optlist\expandafter\@empty
      \HyTmp@optlist
      \ifx\HyTmp@found Y%
        \advance\count@ by 1 %
      \else
        \@onelevel@sanitize\comma@entry
        \PackageWarning{hyperref}{%
          \string\ChoiceBox: Ignoring value `\comma@entry',%
          \MessageBreak
          it cannot be found in the choices%
        }%
      \fi
      \@gobble
    }%
    \def\HyTmp@optitem##1##2##3{%
      \ifnum##3=1 %
        (##2)%
      \fi
    }%
    \ifcase\count@
    \or
      \xdef\Fld@choices{\Fld@choices/#1\HyTmp@optlist}%
    \else
      \xdef\Fld@choices{\Fld@choices/#1[\HyTmp@optlist]}%
      \ifx#1V%
        \def\HyTmp@optitem##1##2##3{%
          \ifnum##3=1 %
            \@firstofone{ ##1}%
          \fi
        }%
        \edef\HyTmp@optlist{\HyTmp@optlist}%
        \xdef\Fld@choices{%
          \Fld@choices
          /I[\expandafter\@firstofone\HyTmp@optlist]%
        }%
      \fi
    \fi
  \fi
}
```

19.3 Forms

\HyField@SetKeys

```
\def\HyField@SetKeys{%
  \kvsetkeys{Field}%
}

\newif\ifFld@checked
\newif\ifFld@disabled
\Fld@checkedfalse
\Fld@disabledfalse
\newcount\Fld@menulength
\newdimen\Field@Width
```

```
\newdimen\Fld@charsize
\Fld@charsize=10\p@
\def\Fld@maxlen{0}
\def\Fld@align{0}
\def\Fld@color{0 0 0 rg}
\def\Fld@bcolor{1 1 1}
\def\Fld@bordercolor{1 0 0}
\def\Fld@bordersep{1\p@}
\def\Fld@borderwidth{1}
\def\Fld@borderstyle{S}
\def\Fld@cbsymbol{4}
\def\Fld@radiosymbol{H}
\def\Fld@rotation{0}
\def\Form{\@ifnextchar[{\@Form}{\@Form[]}}
\def\endForm{\@endForm}
\newif\ifForm@html
\Form@htmlfalse
\def\Form@boolkey#1#2{%
  \csname Form@#2\ifx\relax#1\relax true\else#1\fi\endcsname
}
\define@key{Form}{action}{%
  \hyper@normalise\Hy@DefFormAction{#1}%
}
\def\Hy@DefFormAction{\def\Form@action}
\def\enc@@html{html}
\define@key{Form}{encoding}{%
  \def\Hy@tempa{#1}%
  \ifx\Hy@tempa\enc@@html
    \Form@htmltrue
    \def\Fld@export{html}%
  \else
    \Hy@Warning{%
      Form 'encoding' key with \MessageBreak
      unknown value '#1'%
    }%
    \Form@htmlfalse
  \fi
}
\define@key{Form}{method}{%
  \lowercase{\def\Hy@temp{#1}}%
  \@ifundefined{Form@method@\Hy@temp}{%
    \@onelevel@sanitize\Hy@temp
    \Hy@Error{%
      Unknown method '\Hy@temp'.\MessageBreak
      Known values are 'post' and 'get'%
    }\@ehc
  }{%
    \let\Form@method\Hy@temp
    \ifcase\@nameuse{Form@method@\Hy@temp} %
      \Fld@getmethodfalse
    \else
      \Fld@getmethodtrue
    \fi
  }%
}
\def\Form@method{}
\@namedef{Form@method@post}{0}
```

```
\@namedef{Form@method@get}{1}
\newif\ifHyField@NeedAppearances
\def\HyField@NeedAppearancesfalse{%
  \global\let\ifHyField@NeedAppearances\iffalse
}
\def\HyField@NeedAppearancestrue{%
  \global\let\ifHyField@NeedAppearances\iftrue
}
\HyField@NeedAppearancestrue
\define@key{Form}{NeedAppearances}[true]{%
  \edef\Hy@tempa{#1}%
  \ifx\Hy@tempa\Hy@true
    \HyField@NeedAppearancestrue
  \else
    \ifx\Hy@tempa\Hy@false
      \HyField@NeedAppearancesfalse
    \else
      \Hy@Error{%
        Unexpected value `\Hy@tempa'\MessageBreak
        of option `NeedAppearances' instead of\MessageBreak
        `true' or `false'%
      }\@ehc
    \fi
  \fi
}
\def\Field@boolkey#1#2{%
  \csname Fld@#2\ifx\relax#1\relax true\else#1\fi\endcsname
}
\ifHy@texht
  \newtoks\Field@toks
  \Field@toks={ }%
  \def\Field@addtoks#1#2{%
    \edef\@processme{\Field@toks{\the\Field@toks\space #1="#2"}}%
    \@processme
  }%
\else
  \def\Hy@WarnHTMLFieldOption#1{%
    \Hy@Warning{%
      HTML field option `#1'\MessageBreak
      is ignored%
    }%
  }%
\fi
\def\Fld@checkequals#1=#2=#3\\{%
  \def\@currDisplay{#1}%
  \ifx\\#2\\%
    \def\@currValue{#1}%
  \else
    \def\@currValue{#2}%
  \fi
}
\define@key{Field}{loc}{%
  \def\Fld@loc{#1}%
}
\define@key{Field}{checked}[true]{%
  \lowercase{\Field@boolkey{#1}}{checked}%
}
```

```
\define@key{Field}{disabled}[true]{%
  \lowercase{\Field@boolkey{#1}}{disabled}%
}
\ifHy@texht
  \define@key{Field}{accesskey}{%
    \Field@addtoks{accesskey}{#1}%
  }%
  \define@key{Field}{tabkey}{%
    \Field@addtoks{tabkey}{#1}%
  }%
\else
  \define@key{Field}{accesskey}{%
    \Hy@WarnHTMLFieldOption{accesskey}%
  }%
  \define@key{Field}{tabkey}{%
    \Hy@WarnHTMLFieldOption{tabkey}%
  }%
\fi
\define@key{Field}{name}{%
  \def\Fld@name{#1}%
}
\let\Fld@altname\relax
\define@key{Field}{altname}{%
  \def\Fld@altname{#1}%
}
\let\Fld@mappingname\relax
\define@key{Field}{mappingname}{%
  \def\Fld@mappingname{#1}%
}
\define@key{Field}{width}{%
  \def\Fld@width{#1}%
  \Field@Width#1\setbox0=\hbox{m}%
}
\define@key{Field}{maxlen}{%
  \def\Fld@maxlen{#1}%
}
\define@key{Field}{menulength}{%
  \Fld@menulength=#1\relax
}
\define@key{Field}{height}{%
  \def\Fld@height{#1}%
}
\define@key{Field}{charsize}{%
  \Fld@charsize#1%
}
\define@key{Field}{borderwidth}{%
  \def\Fld@borderwidth{#1}%
}
\define@key{Field}{borderstyle}{%
  \let\Hy@temp\Fld@borderstyle
  \def\Fld@borderstyle{#1}%
  \Hy@Match\Fld@borderstyle{%
    ^[SDBIU]$%
  }{}{%
    \Hy@Warning{%
      Invalid value '\@pdfborderstyle'\MessageBreak
      for option 'pdfborderstyle'. Valid values:\MessageBreak
```

```
      \space\space S (Solid), D (Dashed), B (Beveled),\MessageBreak
      \space\space I (Inset), U (Underline)\MessageBreak
      Option setting is ignored%
    }%
    \let\Fld@borderstyle\Hy@temp
  }%
}
\define@key{Field}{bordersep}{%
  \def\Fld@bordersep{#1}%
}
\define@key{Field}{default}{%
  \def\Fld@default{#1}%
}
\define@key{Field}{align}{%
  \def\Fld@align{#1}%
}
\define@key{Field}{value}{%
  \def\Fld@value{#1}%
}
\define@key{Field}{checkboxsymbol}{%
  \Fld@DingDef\Fld@cbsymbol{#1}%
}
\define@key{Field}{radiosymbol}{%
  \Fld@DingDef\Fld@radiosymbol{#1}%
}
\def\Fld@DingDef#1#2{%
  \let\Fld@temp\ltx@empty
  \Fld@@DingDef#2\ding{}\@nil
  \let#1\Fld@temp
}
\def\Fld@@DingDef#1\ding#2#3\@nil{%
  \expandafter\def\expandafter\Fld@temp\expandafter{%
    \Fld@temp
    #1%
  }%
  \ifx\\#3\\%
    \expandafter\@gobble
  \else
    \begingroup
      \lccode`0=#2\relax
    \lowercase{\endgroup
      \expandafter\def\expandafter\Fld@temp\expandafter{%
        \Fld@temp
        0%
      }%
    }%
    \expandafter\@firstofone
  \fi
  {%
    \Fld@@DingDef#3\@nil
  }%
}
\define@key{Field}{rotation}{%
  \def\Fld@rotation{#1}%
}
\define@key{Field}{backgroundcolor}{%
  \HyColor@FieldBColor{#1}\Fld@bcolor{hyperref}{backgroundcolor}%
```

```
}
\define@key{Field}{bordercolor}{%
  \HyColor@FieldBColor{#1}\Fld@bordercolor{hyperref}{bordercolor}%
}
\define@key{Field}{color}{%
  \HyColor@FieldColor{#1}\Fld@color{hyperref}{color}%
}
\let\Fld@onclick@code\ltx@empty
\let\Fld@format@code\ltx@empty
\let\Fld@validate@code\ltx@empty
\let\Fld@calculate@code\ltx@empty
\let\Fld@keystroke@code\ltx@empty
\let\Fld@onfocus@code\ltx@empty
\let\Fld@onblur@code\ltx@empty
\let\Fld@onmousedown@code\ltx@empty
\let\Fld@onmouseup@code\ltx@empty
\let\Fld@onenter@code\ltx@empty
\let\Fld@onexit@code\ltx@empty
\def\Hy@temp#1{%
  \expandafter\Hy@@temp\csname Fld@#1@code\endcsname{#1}%
}
\def\Hy@@temp#1#2{%
  \ifHy@pdfa
    \define@key{Field}{#2}{%
      \Hy@Error{%
        PDF/A: Additional action '#2' is prohibited%
      }\@ehc
    }%
  \else
    \define@key{Field}{#2}{%
      \def#1{##1}%
    }%
  \fi
}
\Hy@temp{keystroke}
\Hy@temp{format}
\Hy@temp{validate}
\Hy@temp{calculate}
\Hy@temp{onfocus}
\Hy@temp{onblur}
\Hy@temp{onenter}
\Hy@temp{onexit}
\ifHy@texht
  \def\Hy@temp#1{%
    \define@key{Field}{#1}{%
      \Field@addtoks{#1}{##1}%
    }%
  }%
\else
  \def\Hy@temp#1{%
    \define@key{Field}{#1}{%
      \Hy@WarnHTMLFieldOption{#1}%
    }%
  }%
\fi
\Hy@temp{ondblclick}
\Hy@temp{onmousedown}
```

```
\Hy@temp{onmouseup}
\Hy@temp{onmouseover}
\Hy@temp{onmousemove}
\Hy@temp{onmouseout}
\Hy@temp{onkeydown}
\Hy@temp{onkeyup}
\Hy@temp{onselect}
\Hy@temp{onchange}
\Hy@temp{onkeypress}
\ifHy@texht
  \define@key{Field}{onclick}{%
    \Field@addtoks{onclick}{#1}%
  }%
\else
  \ifHy@pdfa
    \define@key{Field}{onclick}{%
      \Hy@Error{%
        PDF/A: Action 'onclick' is prohibited%
      }\@ehc
    }%
  \else
    \define@key{Field}{onclick}{%
      \def\Fld@onclick@code{#1}%
    }%
  \fi
\fi
\DeclareRobustCommand\TextField{%
  \@ifnextchar[{\@TextField}{\@TextField[]}%
}
\DeclareRobustCommand\ChoiceMenu{%
  \@ifnextchar[{\@ChoiceMenu}{\@ChoiceMenu[]}%
}
\DeclareRobustCommand\CheckBox{%
  \@ifnextchar[{\@CheckBox}{\@CheckBox[]}%
}
\DeclareRobustCommand\PushButton{%
  \@ifnextchar[{\@PushButton}{\@PushButton[]}%
}
\DeclareRobustCommand\Gauge{%
  \@ifnextchar[{\@Gauge}{\@Gauge[]}%
}
\DeclareRobustCommand\Submit{%
  \@ifnextchar[{\@Submit}{\@Submit[]}%
}
\DeclareRobustCommand\Reset{%
  \@ifnextchar[{\@Reset}{\@Reset[]}%
}
\def\LayoutTextField#1#2{% label, field
  #1 #2%
}
\def\LayoutChoiceField#1#2{% label, field
  #1 #2%
}
\def\LayoutCheckField#1#2{% label, field
  #1 #2%
}
\def\LayoutPushButtonField#1{% button
```

```
  #1%
}
\def\MakeRadioField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
\def\MakeCheckField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
\def\MakeTextField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
\def\MakeChoiceField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
\def\MakeButtonField#1{%
  \sbox0{%
    \hskip\Fld@borderwidth bp#1\hskip\Fld@borderwidth bp%
  }%
  \@tempdima\ht0 %
  \advance\@tempdima by \Fld@borderwidth bp %
  \advance\@tempdima by \Fld@borderwidth bp %
  \ht0\@tempdima
  \@tempdima\dp0 %
  \advance\@tempdima by \Fld@borderwidth bp %
  \advance\@tempdima by \Fld@borderwidth bp %
  \dp0\@tempdima
  \box0\relax
}
\def\DefaultHeightofSubmit{14pt}
\def\DefaultWidthofSubmit{2cm}
\def\DefaultHeightofReset{14pt}
\def\DefaultWidthofReset{2cm}
\def\DefaultHeightofCheckBox{\baselineskip}
\def\DefaultWidthofCheckBox{\baselineskip}
\def\DefaultHeightofChoiceMenu{\baselineskip}
\def\DefaultWidthofChoiceMenu{\baselineskip}
\def\DefaultHeightofText{\baselineskip}
\def\DefaultHeightofTextMultiline{4\baselineskip}
\def\DefaultWidthofText{3cm}
\def\DefaultOptionsofSubmit{print,name=Submit,noexport}
\def\DefaultOptionsofReset{print,name=Reset,noexport}
\def\DefaultOptionsofPushButton{print}
\def\DefaultOptionsofCheckBox{print}
\def\DefaultOptionsofText{print}
```

Default options for the types of \ChoiceMenu.

```
\def\DefaultOptionsofListBox{print}
\def\DefaultOptionsofComboBox{print,edit,sort}
\def\DefaultOptionsofPopdownBox{print}
\def\DefaultOptionsofRadio{print,notoggletooff}
```

20 Setup

```
\ifHy@hyperfigures
  \Hy@Info{Hyper figures ON}%
\else
  \Hy@Info{Hyper figures OFF}%
\fi
\ifHy@nesting
  \Hy@Info{Link nesting ON}%
\else
  \Hy@Info{Link nesting OFF}%
\fi
\ifHy@hyperindex
  \Hy@Info{Hyper index ON}%
```

```
\else
  \Hy@Info{Hyper index OFF}%
\fi
\ifHy@backref
  \Hy@Info{backreferencing ON}%
\else
  \Hy@Info{backreferencing OFF}%
\fi
\ifHy@colorlinks
  \Hy@Info{Link coloring ON}%
\else
  \Hy@Info{Link coloring OFF}%
\fi
\ifHy@ocgcolorlinks
  \Hy@Info{Link coloring with OCG ON}%
\else
  \Hy@Info{Link coloring with OCG OFF}%
\fi
\ifHy@pdfa
  \Hy@Info{PDF/A mode ON}%
\else
  \Hy@Info{PDF/A mode OFF}%
\fi
```

21 Low-level utility macros

We need unrestricted access to the #, ~ and " characters, so make them nice macros.

```
\edef\hyper@hash{\string#}
\edef\hyper@tilde{\string~}
\edef\hyper@quote{\string"}
```

Support \label before \begin{document}.

```
\def\@currentHref{Doc-Start}
\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.

```
\Hy@AtBeginDocument{%
  \Hy@pdfstringtrue
  \PDF@SetupDoc
  \let\PDF@SetupDoc\@empty
  \Hy@DisableOption{pdfpagescrop}%
  \Hy@DisableOption{pdfpagemode}%
  \Hy@DisableOption{pdfnonfullscreenpagemode}%
  \Hy@DisableOption{pdfdirection}%
  \Hy@DisableOption{pdfviewarea}%
  \Hy@DisableOption{pdfviewclip}%
  \Hy@DisableOption{pdfprintarea}%
  \Hy@DisableOption{pdfprintclip}%
  \Hy@DisableOption{pdfprintscaling}%
  \Hy@DisableOption{pdfduplex}%
  \Hy@DisableOption{pdfpicktraybypdfsize}%
  \Hy@DisableOption{pdfprintpagerange}%
  \Hy@DisableOption{pdfnumcopies}%
  \Hy@DisableOption{pdfstartview}%
  \Hy@DisableOption{pdfstartpage}%
  \Hy@DisableOption{pdftoolbar}%
```

```
  \Hy@DisableOption{pdfmenubar}%
  \Hy@DisableOption{pdfwindowui}%
  \Hy@DisableOption{pdffitwindow}%
  \Hy@DisableOption{pdfcenterwindow}%
  \Hy@DisableOption{pdfdisplaydoctitle}%
  \Hy@DisableOption{pdfpagelayout}%
  \Hy@DisableOption{pdflang}%
  \Hy@DisableOption{baseurl}%
  \ifHy@texht\else\hyper@anchorstart{Doc-Start}\hyper@anchorend\fi
  \Hy@pdfstringfalse
}
```

Ignore star from referencing macros:

```
\LetLtxMacro\NoHy@OrgRef\ref
\DeclareRobustCommand*{\ref}{%
  \@ifstar\NoHy@OrgRef\NoHy@OrgRef
}
\LetLtxMacro\NoHy@OrgPageRef\pageref
\DeclareRobustCommand*{\pageref}{%
  \@ifstar\NoHy@OrgPageRef\NoHy@OrgPageRef
}
```

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.

```
\def\NoHyper{%
  \def\hyper@link@[##1]##2##3##4{##4\Hy@xspace@end}%
  \def\hyper@@anchor##1##2{##2\Hy@xspace@end}%
  \global\let\hyper@livelink\hyper@link
  \gdef\hyper@link##1##2##3{##3\Hy@xspace@end}%
  \let\hyper@anchor\ltx@gobble
  \let\hyper@anchorstart\ltx@gobble
  \def\hyper@anchorend{\Hy@xspace@end}%
  \let\hyper@linkstart\ltx@gobbletwo
  \def\hyper@linkend{\Hy@xspace@end}%
  \def\hyper@linkurl##1##2{##1\Hy@xspace@end}%
  \def\hyper@linkfile##1##2##3{##1\Hy@xspace@end}%
  \let\Hy@backout\@gobble
}
\def\stop@hyper{%
  \def\hyper@link@[##1]##2##3##4{##4\Hy@xspace@end}%
  \let\Hy@backout\@gobble
  \let\hyper@@anchor\ltx@gobble
  \def\hyper@link##1##2##3{##3\Hy@xspace@end}%
  \let\hyper@anchor\ltx@gobble
  \let\hyper@anchorstart\ltx@gobble
  \def\hyper@anchorend{\Hy@xspace@end}%
  \let\hyper@linkstart\ltx@gobbletwo
  \def\hyper@linkend{\Hy@xspace@end}%
  \def\hyper@linkurl##1##2{##1\Hy@xspace@end}%
  \def\hyper@linkfile##1##2##3{##1\Hy@xspace@end}%
}
\def\endNoHyper{%
```

```
  \global\let\hyper@link\hyper@livelink
}
⟨/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:

```
⟨*nohyperref⟩
\RequirePackage{letltxmacro}[2008/06/13]
\let\hyper@@anchor\@gobble
\def\hyper@link#1#2#3{#3}%
\let\hyper@anchorstart\@gobble
\let\hyper@anchorend\@empty
\let\hyper@linkstart\@gobbletwo
\let\hyper@linkend\@empty
\def\hyper@linkurl#1#2{#1}%
\def\hyper@linkfile#1#2#3{#1}%
\def\hyper@link@[#1]#2#3{}%
\let\PDF@SetupDoc\@empty
\let\PDF@FinishDoc\@empty
\def\nohyperpage#1{#1}
```

Some top-level commands:

```
\def\Acrobatmenu#1#2{\leavevmode#2}
\let\pdfstringdefDisableCommands\@gobbletwo
\let\texorpdfstring\@firstoftwo
\let\pdfbookmark\@undefined
\newcommand\pdfbookmark[3][]{}
\let\phantomsection\@empty
\let\hypersetup\@gobble
\let\hyperbaseurl\@gobble
\newcommand*{\href}[3][]{#3}
\let\hyperdef\@gobbletwo
\let\hyperlink\@gobble
\let\hypertarget\@gobble
\def\hyperref{%
  \@ifnextchar[\@gobbleopt{\expandafter\@gobbletwo\@gobble}%
}
\long\def\@gobbleopt[#1]{}
\let\hyperpage\@empty
```

Ignore star from referencing macros:

```
\LetLtxMacro\NoHy@OrgRef\ref
\DeclareRobustCommand*{\ref}{%
  \@ifstar\NoHy@OrgRef\NoHy@OrgRef
}
\LetLtxMacro\NoHy@OrgPageRef\pageref
\DeclareRobustCommand*{\pageref}{%
  \@ifstar\NoHy@OrgPageRef\NoHy@OrgPageRef
}
⟨/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}`

```
⟨*package⟩
\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 `\contentsline` and `\newlabel` are defined to cope with the extra arguments.

```
  \if@filesw
    \ifHy@typexml
      \immediate\closeout\@mainaux
      \immediate\openout\@mainaux\jobname.aux\relax
      \immediate\write\@auxout{<relaxxml>\relax}%
    \fi
    \immediate\write\@auxout{%
      \string\providecommand\string\HyperFirstAtBeginDocument{%
        \string\AtBeginDocument}^^J%
      \string\HyperFirstAtBeginDocument{%
        \string\ifx\string\hyper@anchor\string\@undefined^^J%
          \string\global\string\let\string\oldcontentsline\string\contentsline^^J%
          \string\gdef\string\contentsline%
            \string#1\string#2\string#3\string#4{%
            \string\oldcontentsline%
              {\string#1}{\string#2}{\string#3}}^^J%
          \string\global\string\let\string\oldnewlabel\string\newlabel^^J%
          \string\gdef\string\newlabel\string#1\string#2{%
            \string\newlabelxx{\string#1}\string#2}^^J%
          \string\gdef\string\newlabelxx%
            \string#1\string#2\string#3\string#4\string#5\string#6{%
            \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.

```
          \string\AtEndDocument{%
            \string\ifx\string\hyper@anchor\string\@undefined^^J%
              \string\let\string\contentsline\string\oldcontentsline^^J%
              \string\let\string\newlabel\string\oldnewlabel^^J%
            \string\fi%
          }^^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.

```
        \string\fi%
      }^^J%
      \string\global\string\let\string\hyper@last\relax^^J%
      \string\gdef\string\HyperFirstAtBeginDocument\string#1{\string#1}%
    }%
  \fi
  \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. If it was not used, or an old version of hyperref was used, don't use that TOC at all but generate a warning. Not ideal, but better than failing with pre-5.0 hyperref TOCs.

```
\ifx\hyper@last\@undefined
  \def\@starttoc#1{%
    \begingroup
      \makeatletter
      \IfFileExists{\jobname.#1}{%
        \Hy@WarningNoLine{%
          old #1 file detected, not used; run LaTeX again%
        }%
      }{}%
      \if@filesw
        \expandafter\newwrite\csname tf@#1\endcsname
        \immediate\openout\csname tf@#1\endcsname \jobname.#1\relax
      \fi
      \@nobreakfalse
    \endgroup
  }%
  \def\newlabel#1#2{\@newl@bel r{#1}{#2{}{}{}{}}}%
\fi
}
```

25 Title strings

If options pdftitle and pdfauthor are not used, these informations for the pdf information dictionary can be extracted by the nd

```
\ifHy@pdfusetitle
  \let\HyOrg@title\title
  \let\HyOrg@author\author
  \def\title{\@ifnextchar[{\Hy@scanopttitle}{\Hy@scantitle}}%
  \def\Hy@scanopttitle[#1]{%
    \gdef\Hy@title{#1}%
    \HyOrg@title[{#1}]%
  }%
  \def\Hy@scantitle#1{%
    \gdef\Hy@title{#1}%
    \HyOrg@title{#1}%
  }%
  \def\author{\@ifnextchar[{\Hy@scanoptauthor}{\Hy@scanauthor}}%
  \def\Hy@scanoptauthor[#1]{%
    \gdef\Hy@author{#1}%
    \HyOrg@author[{#1}]%
  }%
  \def\Hy@scanauthor#1{%
    \gdef\Hy@author{#1}%
    \HyOrg@author{#1}%
  }%
```

The case, that or re given before hyperref is loaded, is much more complicate, because LaTeX initializes the macros title and author with LaTeX error and warning messages.

```
  \begingroup
    \def\process@me#1\@nil#2{%
      \expandafter\let\expandafter\x\csname @#2\endcsname
      \edef\y{\expandafter\strip@prefix\meaning\x}%
      \def\c##1#1##2\@nil{%
        \ifx\\##1\\%
        \else
```

```
      \expandafter\gdef\csname Hy@#2\expandafter\endcsname
          \expandafter{\x}%
      \fi
    }%
    \expandafter\c\y\relax#1\@nil
  }%
  \expandafter\process@me\string\@latex@\@nil{title}%
  \expandafter\process@me\string\@latex@\@nil{author}%
 \endgroup
\fi
\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.

```
\def\Hy@UseMaketitleString#1{%
 \ltx@IfUndefined{Hy@#1}{}{%
  \begingroup
   \let\Hy@saved@hook\pdfstringdefPreHook
   \pdfstringdefDisableCommands{%
    \expandafter\let\expandafter\\\csname Hy@newline@#1\endcsname
    \let\newline\\%
   }%
   \expandafter\ifx\csname @pdf#1\endcsname\@empty
    \expandafter\pdfstringdef\csname @pdf#1\endcsname{%
     \csname Hy@#1\endcsname\@empty
    }%
   \fi
   \global\let\pdfstringdefPreHook\Hy@saved@hook
  \endgroup
 }%
}
\def\Hy@newline@title#1{ #1}
\def\Hy@newline@author#1{, #1}
\def\Hy@UseMaketitleInfos{%
 \Hy@UseMaketitleString{title}%
 \Hy@UseMaketitleString{author}%
}
```

26 Page numbers

This stuff is done by Heiko Oberdiek.

27 Every page

```
\RequirePackage{atbegshi}[2007/09/09]
\let\Hy@EveryPageHook\ltx@empty
\let\Hy@EveryPageBoxHook\ltx@empty
\let\Hy@FirstPageHook\ltx@empty
```

```
\AtBeginShipout{%
  \Hy@EveryPageHook
  \ifx\Hy@EveryPageBoxHook\ltx@empty
  \else
    \setbox\AtBeginShipoutBox=\vbox{%
      \offinterlineskip
      \Hy@EveryPageBoxHook
      \box\AtBeginShipoutBox
    }%
  \fi
}
\AtBeginShipoutFirst{%
  \Hy@FirstPageHook
}
\g@addto@macro\Hy@FirstPageHook{%
  \PDF@FinishDoc
  \global\let\PDF@FinishDoc\ltx@empty
}
```

27.1 PDF /PageLabels

Internal macros of this module are marked with `\HyPL@`.

```
\ifHy@pdfpagelabels
  \begingroup\expandafter\expandafter\expandafter\endgroup
  \expandafter\ifx\csname thepage\endcsname\relax
    \Hy@pdfpagelabelsfalse
    \Hy@WarningNoLine{%
      Option 'pdfpagelabels' is turned off\MessageBreak
      because \string\thepage\space is undefined%
    }%
    \csname fi\endcsname
    \csname iffalse\expandafter\endcsname
  \fi
```

`\thispdfpagelabel` The command `\thispdfpagelabel` allows to label a special page without the redefinition of `\thepage` for the page.

```
\def\thispdfpagelabel#1{%
  \gdef\HyPL@thisLabel{#1}%
}%
\global\let\HyPL@thisLabel\relax
```

`\HyPL@Labels` The page labels are collected in `\HyPL@Labels` and set at the end of the document.

```
\let\HyPL@Labels\ltx@empty
```

`\Hy@abspage` We have to know the the absolute page number and introduce a new counter for that.

```
\newcount\Hy@abspage
\Hy@abspage=0 %
```

For comparisons with the values of the previous page, some variables are needed:

```
\def\HyPL@LastType{init}%
\def\HyPL@LastNumber{0}%
\let\HyPL@LastPrefix\ltx@empty
```

Definitions for the PDF names of the LaTeX pendents.

```
\def\HyPL@arabic{D}%
\def\HyPL@Roman{R}%
```

```
\def\HyPL@roman{r}%
\def\HyPL@Alph{A}%
\def\HyPL@alph{a}%
\let\HyPL@SlidesSetPage\ltx@empty
\ltx@ifclassloaded{slides}{%
  \def\HyPL@SlidesSetPage{%
    \advance\c@page\ltx@one
    \ifnum\value{page}>\ltx@one
      \protected@edef\HyPL@SlidesOptionalPage{%
        \Hy@SlidesFormatOptionalPage{\thepage}%
      }%
    \else
      \let\HyPL@SlidesOptionalPage\ltx@empty
    \fi
    \advance\c@page-\ltx@one
    \def\HyPL@page{%
      \csname the\Hy@SlidesPage\endcsname
      \HyPL@SlidesOptionalPage
    }%
  }%
}{}%
```

\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.

```
\def\HyPL@EveryPage{%
  \begingroup
    \ifx\HyPL@thisLabel\relax
      \let\HyPL@page\thepage
      \HyPL@SlidesSetPage
    \else
      \let\HyPL@page\HyPL@thisLabel
      \global\let\HyPL@thisLabel\relax
    \fi
    \let\HyPL@Type\relax
    \ifnum\the\c@page>0 %
      \ifx\HyPLSlidesSetPage\ltx@empty
        \expandafter\HyPL@CheckThePage\HyPL@page\@nil
      \fi
    \fi
    \let\Hy@temp Y%
    \ifx\HyPL@Type\HyPL@LastType
    \else
      \let\Hy@temp N%
    \fi
    \ifx\HyPL@Type\relax
       \pdfstringdef\HyPL@Prefix{\HyPL@page}%
    \else
       \pdfstringdef\HyPL@Prefix\HyPL@Prefix
    \fi
    \ifx\HyPL@Prefix\HyPL@LastPrefix
    \else
      \let\Hy@temp N%
    \fi
    \if Y\Hy@temp
      \advance\c@page by -1 %
      \ifnum\HyPL@LastNumber=\the\c@page\relax
      \else
```

```
      \let\Hy@temp N%
    \fi
    \Hy@StepCount\c@page
  \fi
  \if N\Hy@temp
    \ifx\HyPL@Type\relax
      \HyPL@StorePageLabel{/P(\HyPL@Prefix)}%
    \else
      \HyPL@StorePageLabel{%
        \ifx\HyPL@Prefix\@empty
        \else
          /P(\HyPL@Prefix)%
        \fi
        /S/\csname HyPL\HyPL@Type\endcsname
        \ifnum\the\c@page=1 %
        \else
          \space/St \the\c@page
        \fi
      }%
    \fi
  \fi
  \xdef\HyPL@LastNumber{\the\c@page}%
  \global\let\HyPL@LastType\HyPL@Type
  \global\let\HyPL@LastPrefix\HyPL@Prefix
 \endgroup
 \Hy@GlobalStepCount\Hy@abspage
}%
```

\HyPL@CheckThePage Macro \HyPL@CheckThePage calls \HyPL@@CheckThePage that does the job.

```
\def\HyPL@CheckThePage#1\@nil{%
 \HyPL@@CheckThePage{#1}#1\csname\endcsname\c@page\@nil
}%
```

\HyPL@@CheckThePage The first check is, is \thepage is defined such as in LaTeX, 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.

```
\def\HyPL@@CheckThePage#1#2\csname#3\endcsname\c@page#4\@nil{%
 \def\Hy@tempa{#4}%
 \def\Hy@tempb{\csname\endcsname\c@page}%
 \ifx\Hy@tempa\Hy@tempb
   \expandafter\ifx\csname HyPL#3\endcsname\relax
   \else
     \def\HyPL@Type{#3}%
     \def\HyPL@Prefix{#2}%
   \fi
 \else
   \begingroup
     \let\Hy@next\endgroup
     \let\HyPL@found\@undefined
     \def\arabic{\HyPL@Format{arabic}}%
     \def\Roman{\HyPL@Format{Roman}}%
     \def\roman{\HyPL@Format{roman}}%
     \def\Alph{\HyPL@Format{Alph}}%
     \def\alph{\HyPL@Format{alph}}%
     \protected@edef\Hy@temp{#1}%
```

```
      \ifx\HyPL@found\relax
        \toks@\expandafter{\Hy@temp}%
        \edef\Hy@next{\endgroup
          \noexpand\HyPL@@@CheckThePage\the\toks@
            \noexpand\HyPL@found\relax\noexpand\@nil
        }%
      \fi
    \Hy@next
  \fi
}%
```

\HyPL@Format The help macro \HyPL@Format is executed while a \protected@edef in the second check method of \HyPL@@CheckPage. The first occurences of, for example, \arabic{page} is marked by \HyPL@found that is also defined by \csname.

```
\def\HyPL@Format#1#2{%
  \ifx\HyPL@found\@undefined
    \expandafter\ifx\csname c@#2\endcsname\c@page
      \expandafter\noexpand\csname HyPL@found\endcsname{#1}%
    \else
      \expandafter\noexpand\csname#1\endcsname{#2}%
    \fi
  \else
    \expandafter\noexpand\csname#1\endcsname{#2}%
  \fi
}%
```

\HyPL@@@CheckThePage If the second check method is successful, \HyPL@@@CheckThePage scans the result of \HyPL@Format and stores the found values.

```
\def\HyPL@@@CheckThePage#1\HyPL@found#2#3\@nil{%
  \def\Hy@tempa{#3}%
  \def\Hy@tempb{\HyPL@found\relax}%
  \ifx\Hy@tempa\Hy@tempb
    \def\HyPL@Type{@#2}%
    \def\HyPL@Prefix{#1}%
  \fi
}%
```

\HyPL@StorePageLabel Dummy for drivers that does not support /PageLabel.

```
\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.

```
\def\HyPL@Useless{0<</S/D>>}%
\@onelevel@sanitize\HyPL@Useless
```

\HyPL@SetPageLabels The page labels are written to the PDF cataloge. The command \Hy@PutCatalog is defined in the driver files.

```
\def\HyPL@SetPageLabels{%
  \@onelevel@sanitize\HyPL@Labels
  \ifx\HyPL@Labels\@empty
  \else
    \ifx\HyPL@Labels\HyPL@Useless
    \else
      \Hy@PutCatalog{/PageLabels<</Nums[\HyPL@Labels]>>}%
    \fi
```

```
    \fi
  }%
  \g@addto@macro\Hy@EveryPageHook{\HyPL@EveryPage}%
\fi
```

Option 'pdfpagelabels' has been used and is now disabled.

```
\Hy@DisableOption{pdfpagelabels}
```

⟨/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

```
⟨*pdftex⟩
\pdf@ifdraftmode{%
  \let\Hy@PutCatalog\ltx@gobble
}{%
  \let\Hy@PutCatalog\pdfcatalog
}
⟨/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.

```
⟨*vtex⟩
\providecommand*{\XR@ext}{pdf}
\edef\Hy@VTeXversion{%
  \ifx\VTeXversion\@undefined
    \z@
  \else
    \ifx\VTeXversion\relax
      \z@
    \else
      \VTeXversion
    \fi
  \fi
}
\begingroup
  \ifnum\Hy@VTeXversion<660 %
    \gdef\Hy@PutCatalog#1{%
      \Hy@WarningNoLine{%
        VTeX 6.59g or above required for pdfpagelabels%
      }%
    }%
  \else
    \gdef\Hy@PutCatalog#1{%
      \Hy@vt@PutCatalog#1/PageLabels<<>>\@nil
    }%
    \gdef\Hy@vt@PutCatalog#1/PageLabels<<#2>>#3\@nil{%
      \ifx\\#2\\%
      \else
        \immediate\special{!pdfpagelabels #2}%
```

```
      \fi
    }%
  \fi
\endgroup
⟨/vtex⟩
```

```
⟨*pdftex | vtex⟩
```

\HyPL@StorePageLabel This macro adds the entry #1 to \HyPL@Labels.

```
\ifHy@pdfpagelabels
  \def\HyPL@StorePageLabel#1{%
    \toks@\expandafter{\HyPL@Labels}%
    \xdef\HyPL@Labels{%
      \the\toks@
      \the\Hy@abspage<<#1>>%
    }%
  }%
```

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.

```
  \RequirePackage{atveryend}[2009/12/07]%
  \AtVeryEndDocument{%
    \HyPL@SetPageLabels
  }%
\fi
⟨/pdftex | vtex⟩
```

27.1.2 xetex

```
⟨*xetex⟩
\HyPsd@LoadUnicode
\Hy@unicodetrue
\ifx\HyPsd@pdfencoding\HyPsd@pdfencoding@unicode
\else
  \let\HyPsd@pdfencoding\HyPsd@pdfencoding@auto
\fi
\HyPsd@LoadStringEnc
\define@key{Hyp}{unicode}[true]{%
  \Hy@boolkey{unicode}{#1}%
  \ifHy@unicode
  \else
    \Hy@Warning{%
      XeTeX driver only supports 'unicode=true'. Ignoring\MessageBreak
      option setting 'unicode=false'%
    }%
    \Hy@unicodetrue
  \fi
}
\define@key{Hyp}{pdfencoding}{%
  \edef\HyPsd@temp{#1}%
  \ifx\HyPsd@temp\HyPsd@pdfencoding@unicode
    \let\HyPsd@pdfencoding\HyPsd@temp
  \else
    \ifx\HyPsd@temp\HyPsd@pdfencoding@auto
      \let\HyPsd@pdfencoding\HyPsd@temp
    \else
```

```
      \Hy@Warning{%
        XeTeX driver only supports\MessageBreak
        'pdfencoding=unicode|auto'. Ignoring option\MessageBreak
        setting 'pdfencoding=\HyPsd@temp'%
      }%
    \fi
  \fi
}
\let\HyXeTeX@CheckUnicode\relax
⟨/xetex⟩
```

27.1.3 pdfmarkbase, dvipdfm, xetex

```
⟨*pdfmarkbase⟩
\begingroup
  \@ifundefined{headerps@out}{}{%
    \toks@\expandafter{\Hy@FirstPageHook}%
    \xdef\Hy@FirstPageHook{%
      \noexpand\headerps@out{%
        systemdict /pdfmark known%
        {%
          userdict /?pdfmark systemdict /exec get put%
        }{%
          userdict /?pdfmark systemdict /pop get put %
          userdict /pdfmark systemdict /cleartomark get put%
        }%
        ifelse%
      }%
      \the\toks@
    }%
  }%
\endgroup
⟨/pdfmarkbase⟩
```

\Hy@PutCatalog

```
⟨dvipdfm | xetex⟩\def\Hy@PutCatalog#1{\@pdfm@mark{docview << #1 >>}}
⟨*pdfmarkbase⟩
\def\Hy@PutCatalog#1{%
  \pdfmark{pdfmark=/PUT,Raw={\string{Catalog\string} << #1 >>}}%
}
⟨/pdfmarkbase⟩

⟨*pdfmarkbase | dvipdfm | xetex⟩
\ifHy@pdfpagelabels
```

\HyPL@StorePageLabel This macro writes a string to the .aux file.

```
  \def\HyPL@StorePageLabel#1{%
    \if@filesw
      \begingroup
        \edef\Hy@tempa{\the\Hy@abspage<<#1>>}%
        \immediate\write\@mainaux{%
          \string\HyPL@Entry{\Hy@tempa}%
        }%
      \endgroup
    \fi
  }%
```

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.

```
\Hy@AtBeginDocument{%
  \if@filesw
    \immediate\write\@mainaux{%
      \string\providecommand\string*\string\HyPL@Entry[1]{}%
    }%
  \fi
  \ifx\HyPL@Labels\@empty
    \Hy@WarningNoLine{Rerun to get /PageLabels entry}%
  \else
    \HyPL@SetPageLabels
  \fi
  \let\HyPL@Entry\@gobble
}%
```

\HyPL@Entry

```
\def\HyPL@Entry#1{%
  \expandafter\gdef\expandafter\HyPL@Labels\expandafter{%
    \HyPL@Labels
    #1%
  }%
}%
\fi
⟨/pdfmarkbase | dvipdfm | xetex⟩
⟨*package⟩
\ifx\MaybeStopEarly\relax
\else
  \Hy@stoppedearlytrue
  \expandafter\MaybeStopEarly
\fi
\Hy@stoppedearlyfalse
```

28 Automated LaTeX 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 LaTeX provides, which may be useable. But then its up to you to make sure these are legal PDF and HTML names. The 'hypertexnames=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

```
\def\Hy@CounterExists#1{%
```

```
  \begingroup\expandafter\expandafter\expandafter\endgroup
  \expandafter\ifx\csname c@#1\endcsname\relax
    \expandafter\@gobble
  \else
    \begingroup\expandafter\expandafter\expandafter\endgroup
    \expandafter\ifx\csname the#1\endcsname\relax
      \expandafter\expandafter\expandafter\@gobble
    \else
      \expandafter\expandafter\expandafter\@firstofone
    \fi
  \fi
}
\Hy@CounterExists{section}{%
  \providecommand\theHequation{\theHsection.\arabic{equation}}%
}
\Hy@CounterExists{part}{%
  \providecommand\theHpart{\arabic{part}}%
}
\ltx@IfUndefined{thechapter}{%
  \providecommand\theHsection    {\arabic{section}}%
  \providecommand\theHfigure     {\arabic{figure}}%
  \providecommand\theHtable      {\arabic{table}}%
}{%
  \providecommand\theHchapter    {\arabic{chapter}}%
  \providecommand\theHfigure     {\theHchapter.\arabic{figure}}%
  \providecommand\theHtable      {\theHchapter.\arabic{table}}%
  \providecommand\theHsection    {\theHchapter.\arabic{section}}%
}
\providecommand\theHsubsection   {\theHsection.\arabic{subsection}}
\providecommand\theHsubsubsection{\theHsubsection.\arabic{subsubsection}}
\providecommand\theHparagraph    {\theHsubsubsection.\arabic{paragraph}}
\providecommand\theHsubparagraph {\theHparagraph.\arabic{subparagraph}}
\providecommand\theHtheorem      {\theHsection.\arabic{theorem}}
\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.

```
\let\H@item\item
\newcounter{Item}
\def\theHItem{\arabic{Item}}
\def\item{%
  \@hyper@itemfalse
  \if@nmbrlist\@hyper@itemtrue\fi
  \H@item
}
\providecommand\theHenumi     {\theHItem}
\providecommand\theHenumii    {\theHItem}
\providecommand\theHenumiii   {\theHItem}
\providecommand\theHenumiv    {\theHItem}
\providecommand\theHHfootnote {\arabic{Hfootnote}}
\providecommand\theHmpfootnote{\arabic{mpfootnote}}
\@ifundefined{theHHmpfootnote}{%
  \let\theHHmpfootnote\theHHfootnote
}{}
```

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.

```
\let\H@refstepcounter\refstepcounter
\edef\name@of@eq{equation}%
\edef\name@of@slide{slide}%
```

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.

```
\newif\if@hyper@item
\newif\if@skiphyperref
\@hyper@itemfalse
\@skiphyperreffalse
\def\refstepcounter#1{%
  \ifHy@pdfstring
  \else
    \H@refstepcounter{#1}%
    \edef\This@name{#1}%
    \ifx\This@name\name@of@slide
    \else
      \if@skiphyperref
      \else
        \if@hyper@item
          \stepcounter{Item}%
          \hyper@refstepcounter{Item}%
          \@hyper@itemfalse
        \else
          \hyper@refstepcounter{#1}%
        \fi
      \fi
    \fi
  \fi
}
\let\Hy@saved@refstepcounter\refstepcounter
```

AMSLaTeX 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.

```
\@ifpackageloaded{amsmath}{}{\newif\ifmeasuring@\measuring@false}
```

`\hyper@refstepcounter`

```
\def\hyper@refstepcounter#1{%
  \edef\This@name{#1}%
  \ifx\This@name\name@of@eq
    \@ifundefined{theHequation}{%
      \make@stripped@name{\theequation}%
      \let\theHequation\newname
    }{}%
  \fi
  \@ifundefined{theH#1}{%
    \expandafter\def\csname theH#1\endcsname{\arabic{#1}}%
  }{}%
  \hyper@makecurrent{#1}%
  \ifmeasuring@
  \else
    \Hy@raisedlink{%
      \hyper@anchorstart{\@currentHref}\hyper@anchorend
    }%
  \fi
```

```
}
```

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`.

```
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname chapter\endcsname\relax
  \def\Hy@chapterstring{section}%
\else
  \def\Hy@chapterstring{chapter}%
\fi
\def\Hy@appendixstring{appendix}
\def\Hy@chapapp{\Hy@chapterstring}
\ltx@IfUndefined{appendix}{%
}{%
  \let\HyOrg@appendix\appendix
  \def\appendix{%
    \ltx@IfUndefined{chapter}%
      {\gdef\theHsection{\Alph{section}}}%
      {\gdef\theHchapter{\Alph{chapter}}}%
    \xdef\Hy@chapapp{\Hy@appendixstring}%
    \HyOrg@appendix
  }%
}
```

`\Hy@Test@alph`

```
\def\Hy@Test@alph#1{%
  \ifcase#1\or
    a\or b\or c\or d\or e\or f\or g\or h\or i\or j\or
    k\or l\or m\or n\or o\or p\or q\or r\or s\or t\or
    u\or v\or w\or x\or y\or z%
  \else
    \@ctrerr
  \fi
}
```

`\Hy@Test@Alph`

```
\def\Hy@Test@Alph#1{%
  \ifcase#1\or
    A\or B\or C\or D\or E\or F\or G\or H\or I\or J\or
    K\or L\or M\or N\or O\or P\or Q\or R\or S\or T\or
    U\or V\or W\or X\or Y\or Z%
  \else
    \@ctrerr
  \fi
}
```

`\hyper@makecurrent` Because of Babel mucking around, nullify `\textlatin` when making names. And `\@number` because of babel's lrbabel.def.

```
\def\hyper@makecurrent#1{%
  \begingroup
    \edef\Hy@param{#1}%
    \ifx\Hy@param\Hy@chapterstring
```

```
      \let\Hy@param\Hy@chapapp
    \fi
    \ifHy@hypertexnames
      \let\@number\@firstofone
      \def\@fnsymbol##1{fnsymbol\number##1}%
      \def\@arabic##1{\number##1}%
      \ifx\@alph\Hy@Test@alph
      \else
        \def\@alph{alph\number}%
      \fi
      \ifx\@Alph\Hy@Test@Alph
      \else
        \def\@Alph{Alph\number}%
      \fi
      \ifHy@naturalnames
        \let\textlatin\@firstofone
        \xdef\HyperGlobalCurrentHref{\csname the#1\endcsname}%
      \else
        \xdef\HyperGlobalCurrentHref{%
          \csname
            the%
            \expandafter\ifx\csname theH#1\endcsname\relax\else H\fi
            #1%
          \endcsname
        }%
      \fi
      \xdef\HyperGlobalCurrentHref{%
        \Hy@param.\expandafter\strip@prefix\meaning\HyperGlobalCurrentHref
      }%
    \else
      \Hy@GlobalStepCount\Hy@linkcounter
      \xdef\HyperGlobalCurrentHref{\Hy@param.\the\Hy@linkcounter}%
    \fi
  \endgroup
  \let\HyperLocalCurrentHref\HyperGlobalCurrentHref
  \ifHy@localanchorname
    \let\@currentHref\HyperLocalCurrentHref
  \else
    \global\let\@currentHref\HyperGlobalCurrentHref
  \fi
}
```

\Hy@MakeCurrentHref

```
\def\Hy@MakeCurrentHref#1{%
  \edef\HyperLocalCurrentHref{#1}%
  \@onelevel@sanitize\HyperLocalCurrentHref
  \global\let\HyperGlobalCurrentHref\HyperLocalCurrentHref
  \let\HyperLocalCurrentHref\HyperGlobalCurrentHref
  \ifHy@localanchorname
    \let\@currentHref\HyperLocalCurrentHref
  \else
    \global\let\@currentHref\HyperGlobalCurrentHref
  \fi
}
```

\Hy@MakeCurrentHrefAuto

```
\def\Hy@MakeCurrentHrefAuto#1{%
```

```
  \Hy@GlobalStepCount\Hy@linkcounter
  \Hy@MakeCurrentHref{#1.\the\Hy@linkcounter}%
}
```

\@currentHlabel `\@currrentHlabel` is only defined for compatibility with package 'hypdvips'.

```
\def\@currentHlabel{\@currentHref}
```

```
\@ifpackageloaded{fancyvrb}{%
  \@ifpackagelater{fancyvrb}{1998/05/20}{}{%
    \def\FV@StepLineNo{%
      \FV@SetLineNo
      \def\FV@StepLineNo{\H@refstepcounter{FancyVerbLine}}%
      \FV@StepLineNo
    }%
  }%
}{}
```

29 Package lastpage support

Package lastpage directly writes the `\newlabel` command to the aux file. Because package hyperref requires additional arguments, the internal command `\lastpage@putlabel` is redefined. The patch is deferred by `\AtBeginDocument`, because it is possible that package lastpage is loaded after package hyperref. The same algorithm (options hypertexnames and plainpages) is used to get the page anchor name as in `\Hy@EveryPageAnchor` (see sec. 38). The link will not work if option pageanchor is set to false.

\lastpage@putlabel

```
\Hy@AtBeginDocument{%
  \@ifclassloaded{revtex4}{%
    \@namedef{ver@lastpage.sty}{1994/06/25}%
  }{}%
  \@ifpackageloaded{lastpage}{%
    \ifHy@pageanchor
    \else
      \Hy@WarningNoLine{%
        The \string\pageref{LastPage} link doesn't work\MessageBreak
        with disabled option 'pageanchor'%
      }%
    \fi
    \def\lastpage@putlabel{%
      \addtocounter{page}{-1}%
      \if@filesw
        \begingroup
          \let\@number\@firstofone
          \ifHy@pageanchor
            \ifHy@hypertexnames
              \ifHy@plainpages
                \def\Hy@temp{\arabic{page}}%
              \else
                \Hy@unicodefalse
                \pdfstringdef\Hy@temp{\thepage}%
              \fi
            \else
              \def\Hy@temp{\the\Hy@pagecounter}%
            \fi
```

```
        \fi
        \immediate\write\@auxout{%
          \string\newlabel
            {LastPage}{{}{\thepage}{}{%
              \ifHy@pageanchor page.\Hy@temp\fi}{}}%
        }%
      \endgroup
    \fi
    \addtocounter{page}{1}%
  }%
  \@ifclassloaded{revtex4}{%
    \begingroup
      \toks@\expandafter{\lastpage@putlabel}%
      \edef\x{\endgroup
        \def\noexpand\lastpage@putlabel{%
          \noexpand\stepcounter{page}%
          \the\toks@
          \noexpand\addtocounter{page}\noexpand\m@ne
        }%
      }%
    \x
  }{}%
 }{}%
}
⟨/package⟩
⟨*check⟩
\checkpackage{lastpage}[1994/06/25]
\checkcommand\def\lastpage@putlabel{%
  \addtocounter{page}{-1}%
  \immediate\write\@auxout{%
    \string\newlabel{LastPage}{{}{\thepage}}%
  }%
  \addtocounter{page}{1}%
}
⟨/check⟩
⟨*package⟩
```

30 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.

```
\def\hypergetref#1{\getrefbykeydefault{#1}{}{??}}
\def\hypergetpageref#1{\getrefbykeydefault{#1}{page}{0}}
```

31 Package titlesec and titletoc support

This code is contributed by Javier Bezos (Email: jbezos@arrakis.es).

Package titlesec support:

```
\@ifpackageloaded{titlesec}{%
  \def\ttl@Hy@steplink#1{%
    \Hy@MakeCurrentHrefAuto{#1*}%
    \edef\ttl@Hy@saveanchor{%
      \noexpand\Hy@raisedlink{%
        \noexpand\hyper@anchorstart{\@currentHref}%
```

```
      \noexpand\hyper@anchorend
      \def\noexpand\ttl@Hy@SavedCurrentHref{\@currentHref}%
      \noexpand\ttl@Hy@PatchSaveWrite
    }%
  }%
}%
\def\ttl@Hy@PatchSaveWrite{%
  \begingroup
    \toks@\expandafter{\ttl@savewrite}%
    \edef\x{\endgroup
      \def\noexpand\ttl@savewrite{%
        \let\noexpand\@currentHref
            \noexpand\ttl@Hy@SavedCurrentHref
        \the\toks@
      }%
    }%
  \x
}%
\def\ttl@Hy@refstepcounter#1{%
  \let\ttl@b\Hy@raisedlink
  \def\Hy@raisedlink##1{%
    \def\ttl@Hy@saveanchor{\Hy@raisedlink{##1}}%
  }%
  \refstepcounter{#1}%
  \let\Hy@raisedlink\ttl@b
}%
}{}
```

Package titletoc support:

```
\@ifpackageloaded{titletoc}{%
  \def\ttl@gobblecontents#1#2#3#4{\ignorespaces}%
}{}
```

32 Package varioref support

Package nameref uses five arguments for the ref system. Fix provided by Felix Neubauer (felix.neubauer@gmx.net).

```
\def\Hy@varioref@undefined{{??}{??}{}{}{}}
\@ifpackageloaded{varioref}{%
  \def\vref@pagenum#1#2{%
    \@ifundefined{r@#2}{%
      \expandafter\let\csname r@#2\endcsname\Hy@varioref@undefined
    }{}%
    \edef#1{\getpagerefnumber{#2}}%
  }%
}{}
```

Package varioref redefines \refstepcounter, thus it needs fixing, if the package is loaded *after* hyperref.

```
\def\Hy@varioref@refstepcounter#1{%
  \stepcounter{#1}%
  \protected@edef\@currentlabel{%
    \csname p@#1\expandafter\endcsname\csname the#1\endcsname
  }%
}
\AtBeginDocument{%
  \ifx\refstepcounter\Hy@varioref@refstepcounter
```

```
    \let\H@refstepcounter\refstepcounter
    \let\refstepcounter\Hy@saved@refstepcounter
  \fi
}
```

33 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

```
\@ifpackageloaded{longtable}{%
  \begingroup
    \def\y{\LT@array}%
    \@ifundefined{scr@LT@array}{%
      \@ifundefined{adl@LT@array}{}{\def\y{\adl@LT@array}}%
    }{\def\y{\scr@LT@array}}%
    \long\def\x\refstepcounter#1#2\@sharp#3#4\@nil{%
      \expandafter\endgroup
      \expandafter\def\y[##1]##2{%
        \H@refstepcounter{#1}%
        \hyper@makecurrent{table}%
        \let\Hy@LT@currentHref\@currentHref
        #2\@sharp######4%
      }%
    }%
  \expandafter\expandafter\expandafter\x\y[{#1}]{#2}\@nil
```

Patch of `\LT@start`: add anchor before first line after `\vskip\LTpre`

```
  \begingroup
    \def\x#1\ifvoid\LT@foot#2\fi#3\@nil{%
      \endgroup
      \def\LT@start{%
        #1%
        \ifvoid\LT@foot#2\fi
        \let\@currentHref\Hy@LT@currentHref
        \Hy@raisedlink{%
          \hyper@anchorstart{\@currentHref}\hyper@anchorend
        }%
        #3%
      }%
    }%
  \expandafter\x\LT@start\@nil
}{}
```

34 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). The execption is that we move the equation incrementation inside the math environment to avoid specials outside and a wrong vertical spacing of equation environments.

```
\let\new@refstepcounter\refstepcounter
\let\H@equation\equation
```

```
\let\H@endequation\endequation
\@ifpackageloaded{amsmath}{%
  \long\def\Hy@temp{%
    \incr@eqnum
    \mathdisplay@push
    \st@rredfalse \global\@eqnswtrue
    \mathdisplay{equation}%
  }%
  \ifx\Hy@temp\equation
    \expandafter\ifx\csname if@fleqn\expandafter\endcsname
                    \csname iftrue\endcsname
    \else
      \long\def\equation{%
        \mathdisplay@push
        \st@rredfalse \global\@eqnswtrue
        \mathdisplay{equation}%
        \incr@eqnum
      }%
    \fi
  \fi
}{%
  \def\equation{%
    \let\refstepcounter\H@refstepcounter
    \H@equation
    \@ifundefined{theHequation}{%
      \make@stripped@name{\theequation}%
      \let\theHequation\newname
    }{}%
    \hyper@makecurrent{equation}%
    \Hy@raisedlink{\hyper@anchorstart{\@currentHref}}%
    \let\refstepcounter\new@refstepcounter
  }%
  \def\endequation{\Hy@raisedlink{\hyper@anchorend}\H@endequation}%
}
```

My goodness, why can't LaTeX 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.

```
\newif\if@eqnstar
\@eqnstarfalse
\let\H@eqnarray\eqnarray
\let\H@endeqnarray\endeqnarray
\def\eqnarray{%
  \let\Hy@reserved@a\relax
  \def\@currentHref{}%
  \H@eqnarray
  \if@eqnstar
  \else
    \ifx\\\@currentHref\\%
    \else
      \@ifundefined{theHequation}{%
        \make@stripped@name{\theequation}%
        \let\theHequation\newname
      }{}%
      \hyper@makecurrent{equation}%
```

```
      \hyper@anchorstart{\@currentHref}{}\hyper@anchorend
    \fi
  \fi
}
\def\endeqnarray{%
  \H@endeqnarray
}
```

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.

```
\@namedef{eqnarray*}{%
  \def\@eqncr{\nonumber\@seqncr}\@eqnstartrue\eqnarray
}
\@namedef{endeqnarray*}{%
  \nonumber\endeqnarray\@eqnstarfalse
}
```

Then again, we have the *subeqnarray* package. Tanmoy provided some code for this:

```
\ltx@IfUndefined{subeqnarray}{}{%
  \let\H@subeqnarray\subeqnarray
  \let\H@endsubeqnarray\endsubeqnarray
  \def\subeqnarray{%
    \let\Hy@reserved@a\relax
    \H@subeqnarray
    \@ifundefined{theHequation}{%
      \make@stripped@name{\theequation}%
      \let\theHequation\newname
    }{}%
    \hyper@makecurrent{equation}%
    \hyper@anchorstart{\@currentHref}{}\hyper@anchorend
  }%
  \def\endsubeqnarray{%
    \H@endsubeqnarray
  }%
  \providecommand\theHsubequation{\theHequation\alph{subequation}}%
}
```

The aim of this macro is to produce a sanitized version of its argument, to make it a safe label.

```
\def\make@stripped@name#1{%
  \begingroup
    \escapechar\m@ne
    \global\let\newname\@empty
    \protected@edef\Hy@tempa{#1}%
    \edef\@tempb{%
      \noexpand\@tfor\noexpand\Hy@tempa:=%
        \expandafter\strip@prefix\meaning\Hy@tempa
    }%
    \@tempb\do{%
      \if{\Hy@tempa\else
        \if}\Hy@tempa\else
          \xdef\newname{\newname\Hy@tempa}%
        \fi
      \fi
    }%
  \endgroup
}
```

Support for amsmath's subequations:

```
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname subequations\endcsname\relax
\else
  \let\HyOrg@subequations\subequations
  \def\subequations{%
    \stepcounter{equation}%
    \protected@edef\theHparentequation{%
      \@ifundefined{theHequation}\theequation\theHequation
    }%
    \addtocounter{equation}{-1}%
    \HyOrg@subequations
    \def\theHequation{\theHparentequation\alph{equation}}%
    \ignorespaces
  }%
\fi
```

Support for package amsthm (Daniel Müllner):

```
\@ifpackageloaded{amsthm}{%
```

Class amsbook uses a different definition of \@thm, where two lines are added (thanks to Dan Luecking for his analysis):

```
\let\thm@indent\indent % indent
\thm@headfont{\scshape}% heading font small caps
```

```
  \def\Hy@temp#1#2#3{%
    \ifhmode\unskip\unskip\par\fi
    \normalfont
    \trivlist
    \let\thmheadnl\relax
    \let\thm@swap\@gobble
    \let\thm@indent\indent % indent
    \thm@headfont{\scshape}% heading font small caps
    \thm@notefont{\fontseries\mddefault\upshape}%
    \thm@headpunct{.}% add period after heading
    \thm@headsep 5\p@ plus\p@ minus\p@\relax
    \thm@space@setup
    #1% style overrides
    \@topsep \thm@preskip              % used by thm head
    \@topsepadd \thm@postskip          % used by \@endparenv
    \def\@tempa{#2}\ifx\@empty\@tempa
      \def\@tempa{\@oparg{\@begintheorem{#3}{}}[]}%
    \else
      \refstepcounter{#2}%
    \def\@tempa{\@oparg{\@begintheorem{#3}{\csname the#2\endcsname}}[]}%
    \fi
    \@tempa
  }%
  \ifx\Hy@temp\@thm
    \def\@thm#1#2#3{%
      \ifhmode
        \unskip\unskip\par
      \fi
      \normalfont
      \trivlist
      \let\thmheadnl\relax
      \let\thm@swap\@gobble
      \let\thm@indent\indent % indent
```

```
    \thm@headfont{\scshape}% heading font small caps
    \thm@notefont{\fontseries\mddefault\upshape}%
    \thm@headpunct{.}% add period after heading
    \thm@headsep 5\p@ plus\p@ minus\p@\relax
    \thm@space@setup
    #1% style overrides
    \@topsep \thm@preskip              % used by thm head
    \@topsepadd \thm@postskip          % used by \@endparenv
    \def\dth@counter{#2}%
    \ifx\@empty\dth@counter
      \def\@tempa{%
        \@oparg{\@begintheorem{#3}{}}[]%
      }%
    \else
      \H@refstepcounter{#2}%
      \hyper@makecurrent{#2}%
      \let\Hy@dth@currentHref\@currentHref
      \def\@tempa{%
        \@oparg{\@begintheorem{#3}{\csname the#2\endcsname}}[]%
      }%
    \fi
    \@tempa
  }%
\else
  \def\@thm#1#2#3{%
    \ifhmode
      \unskip\unskip\par
    \fi
    \normalfont
    \trivlist
    \let\thmheadnl\relax
    \let\thm@swap\@gobble
    \thm@notefont{\fontseries\mddefault\upshape}%
    \thm@headpunct{.}% add period after heading
    \thm@headsep 5\p@ plus\p@ minus\p@\relax
    \thm@space@setup
    #1% style overrides
    \@topsep \thm@preskip              % used by thm head
    \@topsepadd \thm@postskip          % used by \@endparenv
    \def\dth@counter{#2}%
    \ifx\@empty\dth@counter
      \def\@tempa{%
        \@oparg{\@begintheorem{#3}{}}[]%
      }%
    \else
      \H@refstepcounter{#2}%
      \hyper@makecurrent{#2}%
      \let\Hy@dth@currentHref\@currentHref
      \def\@tempa{%
        \@oparg{\@begintheorem{#3}{\csname the#2\endcsname}}[]%
      }%
    \fi
    \@tempa
  }%
\fi
\dth@everypar={%
  \@minipagefalse
```

```
    \global\@newlistfalse
    \@noparitemfalse
    \if@inlabel
      \global\@inlabelfalse
      \begingroup
        \setbox\z@\lastbox
        \ifvoid\z@
          \kern-\itemindent
        \fi
      \endgroup
      \ifx\@empty\dth@counter
      \else
        \Hy@raisedlink{%
          \hyper@anchorstart{%
            \ltx@ifundefined{Hy@dth@currentHref}%
            \@currentHref\Hy@dth@currentHref
          }\hyper@anchorend
        }%
      \fi
      \unhbox\@labels
    \fi
    \if@nobreak
      \@nobreakfalse \clubpenalty\@M
    \else
      \clubpenalty\@clubpenalty \everypar{}%
    \fi
  }%
}{}
```

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.

```
\ifHy@hyperfootnotes
  \newcounter{Hfootnote}%
  \let\H@@footnotetext\@footnotetext
  \let\H@@footnotemark\@footnotemark
  \def\@xfootnotenext[#1]{%
    \begingroup
      \csname c@\@mpfn\endcsname #1\relax
      \unrestored@protected@xdef\@thefnmark{\thempfn}%
    \endgroup
    \ifx\@footnotetext\@mpfootnotetext
      \expandafter\H@@mpfootnotetext
    \else
      \expandafter\H@@footnotetext
    \fi
  }%
  \def\@xfootnotemark[#1]{%
    \begingroup
      \c@footnote #1\relax
      \unrestored@protected@xdef\@thefnmark{\thefootnote}%
    \endgroup
```

```
  \H@@footnotemark
}%
\let\H@@mpfootnotetext\@mpfootnotetext
\long\def\@mpfootnotetext#1{%
  \H@@mpfootnotetext{%
    \ifHy@nesting
      \expandafter\hyper@@anchor\expandafter{%
        \Hy@footnote@currentHref
       }{#1}%
    \else
      \Hy@raisedlink{%
        \expandafter\hyper@@anchor\expandafter{%
          \Hy@footnote@currentHref
        }{\relax}%
      }#1%
    \fi
  }%
}%
\long\def\@footnotetext#1{%
  \H@@footnotetext{%
    \ifHy@nesting
      \expandafter\hyper@@anchor\expandafter{%
        \Hy@footnote@currentHref
      }{#1}%
    \else
      \Hy@raisedlink{%
        \expandafter\hyper@@anchor\expandafter{%
          \Hy@footnote@currentHref
        }{\relax}%
      }%
      \let\@currentHref\Hy@footnote@currentHref
      \let\@currentlabelname\@empty
      #1%
    \fi
  }%
}%
```

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.

```
\def\@footnotemark{%
  \leavevmode
  \ifhmode\edef\@x@sf{\the\spacefactor}\nobreak\fi
  \stepcounter{Hfootnote}%
  \global\let\Hy@saved@currentHref\@currentHref
  \hyper@makecurrent{Hfootnote}%
  \global\let\Hy@footnote@currentHref\@currentHref
  \global\let\@currentHref\Hy@saved@currentHref
  \hyper@linkstart{link}{\Hy@footnote@currentHref}%
  \@makefnmark
  \hyper@linkend
  \ifhmode\spacefactor\@x@sf\fi
  \relax
}%
```

Tabularx causes footnote problems, disable the linking if that is loaded. Since v6.82i footnotes are only disabled inside the environment 'tabularx'.

```
\@ifpackageloaded{tabularx}{%
  \let\HyOrg@TX@endtabularx\TX@endtabularx
  \def\Hy@tabularx@hook{%
    \let\@footnotetext\H@@footnotetext
    \let\@footnotemark\H@@footnotemark
    \let\@mpfootnotetext\H@@mpfootnotetext
  }%
  \begingroup
    \toks@\expandafter{\TX@endtabularx}%
    \xdef\Hy@gtemp{%
      \noexpand\Hy@tabularx@hook
      \the\toks@
    }%
  \endgroup
  \let\TX@endtabularx\Hy@gtemp
}{}%
```

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

```
\@ifpackageloaded{longtable}{%
  \CheckCommand*{\LT@p@ftntext}[1]{%
    \edef\@tempa{%
      \the\LT@p@ftn
      \noexpand\footnotetext[\the\c@footnote]%
    }%
    \global\LT@p@ftn\expandafter{\@tempa{#1}}%
  }%
  \long\def\LT@p@ftntext#1{%
    \edef\@tempa{%
      \the\LT@p@ftn
      \begingroup
        \noexpand\c@footnote=\the\c@footnote\relax
        \noexpand\protected@xdef\noexpand\@thefnmark{%
          \noexpand\thempfn
        }%
        \noexpand\Hy@LT@footnotetext{%
          \Hy@footnote@currentHref
        }%
    }%
    \global\LT@p@ftn\expandafter{%
       \@tempa{#1}%
      \endgroup
    }%
  }%
  \long\def\Hy@LT@footnotetext#1#2{%
    \H@@footnotetext{%
      \ifHy@nesting
        \hyper@@anchor{#1}{#2}%
      \else
        \Hy@raisedlink{%
          \hyper@@anchor{#1}{\relax}%
        }%
        \def\@currentHref{#1}%
```

```
      \let\@currentlabelname\@empty
      #2%
    \fi
  }%
 }%
}{}%
```

Footnotes for fancyvrb (Fix by Manuel Pégourié-Gonnard).

```
\@ifpackageloaded{fancyvrb}{%
 \def\V@@footnotetext{%
  \insert\footins\bgroup
  \csname reset@font\endcsname
  \footnotesize
  \interlinepenalty\interfootnotelinepenalty
  \splittopskip\footnotesep
  \splitmaxdepth\dp\strutbox
  \floatingpenalty \@MM
  \hsize\columnwidth
  \@parboxrestore
  \edef\@currentlabel{\csname p@footnote\endcsname\@thefnmark}%
  \@makefntext{}%
  \rule{\z@}{\footnotesep}%
  \bgroup
  \aftergroup\V@@@footnotetext
  \Hy@raisedlink{%
   \expandafter\hyper@@anchor\expandafter{%
    \Hy@footnote@currentHref
   }{\relax}%
  }%
  \let\@currentHref\Hy@footnote@currentHref
  \let\@currentlabelname\@empty
  \ignorespaces
 }%
}{}%
```

KOMA-Script defines `\footref` that uses both `\ref` and `\@footnotemark` resulting in two links, one of them wrong.

```
\def\Hy@temp#1{%
 \begingroup
  \unrestored@protected@xdef\@thefnmark{\ref{#1}}%
 \endgroup
 \@footnotemark
}%
\ifx\Hy@temp\footref
 \def\footref#1{%
 \begingroup
  \unrestored@protected@xdef\@thefnmark{\ref{#1}}%
 \endgroup
 \H@@footnotemark
 }%
\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.

```
\let\HyOrg@maketitle\maketitle
\def\maketitle{%
 \let\Hy@saved@footnotemark\@footnotemark
```

```
    \let\Hy@saved@footnotetext\@footnotetext
    \let\@footnotemark\H@@footnotemark
    \let\@footnotetext\H@@footnotetext
    \@ifnextchar[\Hy@maketitle@optarg{% ]
      \HyOrg@maketitle
      \Hy@maketitle@end
    }%
  }%
  \def\Hy@maketitle@optarg[#1]{%
    \HyOrg@maketitle[{#1}]%
    \Hy@maketitle@end
  }%
  \def\Hy@maketitle@end{%
    \ifx\@footnotemark\H@@footnotemark
      \let\@footnotemark\Hy@saved@footnotemark
    \fi
    \ifx\@footnotetext\H@@footnotetext
      \let\@footnotetext\Hy@saved@footnotetext
    \fi
  }%
```

\realfootnote Does anyone remember the function and purpose of \realfootnote?

```
  \def\realfootnote{%
    \@ifnextchar[\@xfootnote{%
      \stepcounter{\@mpfn}%
      \protected@xdef\@thefnmark{\thempfn}%
      \H@@footnotemark\H@@footnotetext
    }%
  }%
\fi
\Hy@DisableOption{hyperfootnotes}

⟨/package⟩
⟨*check⟩
\checklatex
\checkcommand\def\@xfootnotenext[#1]{%
  \begingroup
    \csname c@\@mpfn\endcsname #1\relax
    \unrestored@protected@xdef\@thefnmark{\thempfn}%
  \endgroup
  \@footnotetext
}
\checkcommand\def\@xfootnotemark[#1]{%
  \begingroup
    \c@footnote #1\relax
    \unrestored@protected@xdef\@thefnmark{\thefootnote}%
  \endgroup
  \@footnotemark
}
\checkcommand\def\@footnotemark{%
  \leavevmode
  \ifhmode\edef\@x@sf{\the\spacefactor}\nobreak\fi
  \@makefnmark
  \ifhmode\spacefactor\@x@sf\fi
  \relax
}
⟨/check⟩
⟨*package⟩
```

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.

```
\def\caption{%
  \ifx\@captype\@undefined
    \@latex@error{\noexpand\caption outside float}\@ehd
    \expandafter\@gobble
  \else
    \H@refstepcounter\@captype
    \let\Hy@tempa\@caption
    \@ifundefined{float@caption}{%
    }{%
      \expandafter\ifx\csname @float@c@\@captype\endcsname
                      \float@caption
        \let\Hy@tempa\Hy@float@caption
      \fi
    }%
    \expandafter\@firstofone
  \fi
  {\@dblarg{\Hy@tempa\@captype}}%
}
\long\def\@caption#1[#2]#3{%
  \expandafter\ifx\csname if@capstart\expandafter\endcsname
                  \csname iftrue\endcsname
    \global\let\@currentHref\hc@currentHref
  \else
    \hyper@makecurrent{\@captype}%
  \fi
  \@ifundefined{NR@gettitle}{%
    \def\@currentlabelname{#2}%
  }{%
    \NR@gettitle{#2}%
  }%
  \par\addcontentsline{\csname ext@#1\endcsname}{#1}{%
    \protect\numberline{\csname the#1\endcsname}{\ignorespaces #2}%
  }%
  \begingroup
    \@parboxrestore
    \if@minipage
      \@setminipage
    \fi
    \normalsize
    \expandafter\ifx\csname if@capstart\expandafter\endcsname
                    \csname iftrue\endcsname
      \global\@capstartfalse
      \@makecaption{\csname fnum@#1\endcsname}{\ignorespaces#3}%
    \else
      \@makecaption{\csname fnum@#1\endcsname}{%
        \ignorespaces
```

If we cannot have nesting, the anchor is empty.

```
        \ifHy@nesting
          \expandafter\hyper@@anchor\expandafter{\@currentHref}{#3}%
        \else
          \Hy@raisedlink{%
            \expandafter\hyper@@anchor\expandafter{%
              \@currentHref
```

```
          }{\relax}%
        }%
        #3%
      \fi
    }%
  \fi
  \par
\endgroup
}
```

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.

```
\let\Hy@float@caption\@caption
\@ifpackageloaded{float}{%
  \def\Hy@float@caption{%
    \ifx\Hy@float@currentHref\@undefined
      \hyper@makecurrent{\@captype}%
      \global\let\Hy@float@currentHref\@currentHref
    \else
      \let\@currentHref\Hy@float@currentHref
    \fi
    \float@caption
  }%
  \let\HyOrg@float@makebox\float@makebox
  \renewcommand{\float@makebox}[1]{%
    \HyOrg@float@makebox{%
      #1\relax
      \ifx\Hy@float@currentHref\@undefined
      \else
        \expandafter\hyper@@anchor\expandafter{%
          \Hy@float@currentHref
        }{\relax}%
        \global\let\Hy@float@currentHref\@undefined
      \fi
    }%
  }%
}{}
```

```
⟨/package⟩
⟨*check⟩
\checklatex[1999/06/01 - 2000/06/01]
\checkcommand\def\caption{%
  \ifx\@captype\@undefined
    \@latex@error{\noexpand\caption outside float}\@ehd
    \expandafter\@gobble
  \else
    \refstepcounter\@captype
    \expandafter\@firstofone
  \fi
  {\@dblarg{\@caption\@captype}}%
}
\checkcommand\long\def\@caption#1[#2]#3{%
  \par
  \addcontentsline{\csname ext@#1\endcsname}{#1}{%
    \protect\numberline{\csname the#1\endcsname}{\ignorespaces #2}%
  }%
  \begingroup
```

```
    \@parboxrestore
    \if@minipage
      \@setminipage
    \fi
    \normalsize
    \@makecaption{\csname fnum@#1\endcsname}{\ignorespaces #3}\par
  \endgroup
}
⟨/check⟩
⟨*package⟩
```

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 thats a powerful, important package. Patrick Daly (daly@linmpi.mpg.de) has provided hooks for us, so all we need to do is activate them.

```
\def\hyper@natlinkstart#1{%
  \Hy@backout{#1}%
  \hyper@linkstart{cite}{cite.#1}%
  \def\hyper@nat@current{#1}%
}
\def\hyper@natlinkend{%
  \hyper@linkend
}
\def\hyper@natlinkbreak#1#2{%
  \hyper@linkend#1\hyper@linkstart{cite}{cite.#2}%
}
\def\hyper@natanchorstart#1{%
  \Hy@raisedlink{\hyper@anchorstart{cite.#1}}%
}
\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.

```
\ltx@IfUndefined{NAT@parse}{%
  \providecommand*\@extra@binfo{}%
  \providecommand*\@extra@b@citeb{}%
  \def\bibcite#1#2{%
    \@newl@bel{b}{#1\@extra@binfo}{%
      \hyper@@link[cite]{}{cite.#1\@extra@b@citeb}{#2}%
    }%
  }%
  \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.".

```
  \let\Hy@bibcite\bibcite
  \begingroup
    \@ifundefined{bbl@cite@choice}{}{%
```

```
    \g@addto@macro\bbl@cite@choice{%
      \let\bibcite\Hy@bibcite
    }%
  }%
\endgroup
```

\@BIBLABEL is working around a 'feature' of RevTEX.

```
\providecommand*{\@BIBLABEL}{\@biblabel}%
\def\@lbibitem[#1]#2{%
  \@skiphyperreftrue
  \H@item[%
    \ifx\Hy@raisedlink\@empty
      \hyper@anchorstart{cite.#2\@extra@b@citeb}%
        \@BIBLABEL{#1}%
      \hyper@anchorend
    \else
      \Hy@raisedlink{%
        \hyper@anchorstart{cite.#2\@extra@b@citeb}\hyper@anchorend
      }%
      \@BIBLABEL{#1}%
    \fi
    \hfill
  ]%
  \@skiphyperreffalse
  \if@filesw
    \begingroup
      \let\protect\noexpand
      \immediate\write\@auxout{%
        \string\bibcite{#2}{#1}%
      }%
    \endgroup
  \fi
  \ignorespaces
}%
```

Since \bibitem is doing its own labelling, call the raw version of \item, to avoid extra spurious labels

```
\def\@bibitem#1{%
  \@skiphyperreftrue\H@item\@skiphyperreffalse
  \Hy@raisedlink{%
    \hyper@anchorstart{cite.#1\@extra@b@citeb}\relax\hyper@anchorend
  }%
  \if@filesw
    \begingroup
      \let\protect\noexpand
      \immediate\write\@auxout{%
        \string\bibcite{#1}{\the\value{\@listctr}}%
      }%
    \endgroup
  \fi
  \ignorespaces
}%
}{}
```

```
⟨/package⟩
⟨*check⟩
\checklatex
\checkcommand\def\@lbibitem[#1]#2{%
  \item[\@biblabel{#1}\hfill]%
```

```
  \if@filesw
    {%
      \let\protect\noexpand
      \immediate\write\@auxout{%
        \string\bibcite{#2}{#1}%
      }%
    }%
  \fi
  \ignorespaces
}
\checkcommand\def\@bibitem#1{%
  \item
  \if@filesw
    \immediate\write\@auxout{%
      \string\bibcite{#1}{\the\value{\@listctr}}%
    }%
  \fi
  \ignorespaces
}
⟨/check⟩
⟨*package⟩
```

Revtex (bless its little heart) takes over `\bibcite` and looks at the result to measure something. Make this a hypertext link and it goes ape. Therefore, make an anodyne result first, call its business, then go back to the real thing.

```
\@ifclassloaded{revtex}{%
  \Hy@Info{*** compatibility with revtex **** }%
  \def\revtex@checking#1#2{%
    \expandafter\let\expandafter\T@temp\csname b@#1\endcsname
    \expandafter\def\csname b@#1\endcsname{#2}%
    \@SetMaxRnhefLabel{#1}%
    \expandafter\let\csname b@#1\endcsname\T@temp
  }%
```

Tanmoy provided this replacement for CITEX. Lord knows what it does. For chapterbib added: extra@b@citeb

```
  \@ifundefined{@CITE}{\def\@CITE{\@cite}}{}%
  \providecommand*{\@extra@b@citeb}{}%
  \def\@CITEX[#1]#2{%
    \let\@citea\@empty
    \leavevmode
    \unskip
    $^{%
      \scriptstyle
      \@CITE{%
        \@for\@citeb:=#2\do{%
          \@citea
          \def\@citea{,\penalty\@m\ }%
          \edef\@citeb{\expandafter\@firstofone\@citeb}%
          \if@filesw
            \immediate\write\@auxout{\string\citation{\@citeb}}%
          \fi
          \@ifundefined{b@\@citeb\extra@b@citeb}{%
            \mbox{\reset@font\bfseries ?}%
            \G@refundefinedtrue
            \@latex@warning{%
              Citation `\@citeb' on page \thepage \space undefined%
            }%
```

```
        }{%
          {\csname b@\@citeb\@extra@b@citeb\endcsname}%
        }%
      }%
    }{#1}%
  }$%
}%
```

No, life is too short. I am not going to understand the Revtex `\@collapse` macro, I shall just restore the original behaviour of `\@citex`; sigh. This is SO vile.

```
\def\@citex[#1]#2{%
  \let\@citea\@empty
  \@cite{%
    \@for\@citeb:=#2\do{%
      \@citea
      \def\@citea{,\penalty\@m\ }%
      \edef\@citeb{\expandafter\@firstofone\@citeb}%
      \if@filesw
        \immediate\write\@auxout{\string\citation{\@citeb}}%
      \fi
      \@ifundefined{b@\@citeb\@extra@b@citeb}{%
        \mbox{\reset@font\bfseries ?}%
        \G@refundefinedtrue
        \@latex@warning{%
          Citation `\@citeb' on page \thepage \space undefined%
        }%
      }{%
        \hbox{\csname b@\@citeb\@extra@b@citeb\endcsname}%
      }%
    }%
  }{#1}%
}%
}{}
```

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 pdfTeX, then hyperref is already loaded at the begin of harvard.sty, and the `\newcommand` macros causes error messages.

```
\@ifpackageloaded{harvard}{%
  \Hy@AtBeginDocument{%
    \Hy@Info{*** compatibility with harvard **** }%
    \Hy@raiselinksfalse
    \def\harvardcite#1#2#3#4{%
      \global\@namedef{HAR@fn@#1}{\hyper@@link[cite]{}{cite.#1}{#2}}%
      \global\@namedef{HAR@an@#1}{\hyper@@link[cite]{}{cite.#1}{#3}}%
      \global\@namedef{HAR@yr@#1}{\hyper@@link[cite]{}{cite.#1}{#4}}%
      \global\@namedef{HAR@df@#1}{\csname HAR@fn@#1\endcsname}%
    }%
    \def\HAR@citetoaux#1{%
      \if@filesw\immediate\write\@auxout{\string\citation{#1}}\fi%
      \ifHy@backref
        \ifx\@empty\@currentlabel
```

```
    \else
      \@bsphack
      \if@filesw
        \protected@write\@auxout{}{%
          \string\@writefile{brf}{%
            \string\backcite{#1}{%
              {\thepage}{\@currentlabel}{\@currentHref}%
            }%
          }%
        }%
      \fi
      \@esphack
    \fi
  \fi
}%
\def\harvarditem{%
  \@ifnextchar[{\@harvarditem}{\@harvarditem[\null]}%
}%
\def\@harvarditem[#1]#2#3#4#5\par{%
  \item[]%
  \hyper@anchorstart{cite.#4}\relax\hyper@anchorend
  \if@filesw
    \begingroup
      \def\protect##1{\string ##1\space}%
      \ifthenelse{\equal{#1}{\null}}%
        {\def\next{{#4}{#2}{#2}{#3}}}%
        {\def\next{{#4}{#2}{#1}{#3}}}%
      \immediate\write\@auxout{\string\harvardcite\codeof\next}%
   \endgroup
  \fi
  \protect\hspace*{-\labelwidth}%
  \protect\hspace*{-\labelsep}%
  \ignorespaces
  #5%
  \ifHy@backref
    \newblock
    \backref{\csname br@#4\endcsname}%
  \fi
  \par
}%
```

\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:

```
\long\def\HAR@checkcitations#1#2#3#4{%
  \def\HAR@tempa{\hyper@@link[cite]{}{cite.#1}{#2}}%
  \expandafter\ifx\csname HAR@fn@#1\endcsname\HAR@tempa
    \def\HAR@tempa{\hyper@@link[cite]{}{cite.#1}{#3}}%
    \expandafter\ifx\csname HAR@an@#1\endcsname\HAR@tempa
      \def\HAR@tempa{\hyper@@link[cite]{}{cite.#1}{#4}}%
      \expandafter\ifx\csname HAR@yr@#1\endcsname\HAR@tempa
      \else
        \@tempswatrue
      \fi
    \else
      \@tempswatrue
    \fi
```

```
    \else
      \@tempswatrue
    \fi
  }%
}%
}{}
```

37.2 Package chicago

The links by \citeN and \shortciteN should include the closing parentheses.

```
\@ifpackageloaded{chicago}{%
```

\citeN

```
  \def\citeN{%
    \def\@citeseppen{-1000}%
    \def\@cite##1##2{##1}%
    \def\citeauthoryear##1##2##3{##1 (##3\@cite@opt)}%
    \@citedata@opt
  }%
```

\shortciteN

```
  \def\shortciteN{%
    \def\@citeseppen{-1000}%
    \def\@cite##1##2{##1}%
    \def\citeauthoryear##1##2##3{##2 (##3\@cite@opt)}%
    \@citedata@opt
  }%
```

\@citedata@opt

```
  \def\@citedata@opt{%
    \let\@cite@opt\@empty
    \@ifnextchar [{%
      \@tempswatrue
      \@citedatax@opt
    }{%
      \@tempswafalse
      \@citedatax[]%
    }%
  }%
```

\@citedatax@opt

```
  \def\@citedatax@opt[#1]{%
    \def\@cite@opt{, #1}%
    \@citedatax[{#1}]%
  }%
}{}
```

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.

This where we supply a destination for each page.

```
\ltx@ifclassloaded{slides}{%
  \def\Hy@SlidesFormatOptionalPage#1{(#1)}%
  \def\Hy@PageAnchorSlidesPlain{%
    \advance\c@page\ltx@one
    \edef\Hy@TempPageAnchor{%
      \noexpand\hyper@@anchor{%
        page.\the\c@slide.\the\c@overlay.\the\c@note%
        \ifnum\c@page=\ltx@one
        \else
          .\the\c@page
        \fi
      }%
    }%
    \advance\c@page-\ltx@one
  }%
  \def\Hy@PageAnchorSlide{%
    \advance\c@page\ltx@one
    \ifnum\c@page>\ltx@one
      \ltx@IfUndefined{theHpage}{%
        \protected@edef\Hy@TheSlideOptionalPage{%
          \Hy@SlidesFormatOptionalPage{\thepage}%
        }%
      }{%
        \protected@edef\Hy@TheSlideOptionalPage{%
          \Hy@SlidesFormatOptionalPage{\theHpage}%
        }%
      }%
    \else
      \def\Hy@TheSlideOptionalPage{}%
    \fi
    \advance\c@page-\ltx@one
    \pdfstringdef\@the@H@page{%
      \csname
        the%
        \ltx@ifundefined{theH\Hy@SlidesPage}{}{H}%
        \Hy@SlidesPage
      \endcsname
      \Hy@TheSlideOptionalPage
    }%
    \ltx@gobblethree
  }%
  \def\Hy@SlidesPage{slide}%
  \g@addto@macro\slide{%
    \def\Hy@SlidesPage{slide}%
  }%
  \g@addto@macro\overlay{%
    \def\Hy@SlidesPage{overlay}%
  }%
  \g@addto@macro\note{%
    \def\Hy@SlidesPage{note}%
  }%
}{%
  \def\Hy@PageAnchorSlidesPlain{}%
  \def\Hy@PageAnchorSlide{}%
}
\def\Hy@EveryPageAnchor{%
```

```
\Hy@DistillerDestFix
\ifHy@pageanchor
  \ifHy@hypertexnames
    \ifHy@plainpages
      \def\Hy@TempPageAnchor{\hyper@@anchor{page.\the\c@page}}%
      \Hy@PageAnchorSlidesPlain
    \else
      \begingroup
        \let\@number\@firstofone
        \Hy@unicodefalse
        \Hy@PageAnchorSlide
        \pdfstringdef\@the@H@page{\thepage}%
      \endgroup
      \EdefUnescapeString\@the@H@page{\@the@H@page}%
      \def\Hy@TempPageAnchor{\hyper@@anchor{page.\@the@H@page}}%
    \fi
  \else
    \Hy@GlobalStepCount\Hy@pagecounter
    \def\Hy@TempPageAnchor{%
      \hyper@@anchor{page.\the\Hy@pagecounter}%
    }%
  \fi
  \vbox to 0pt{%
    \kern\voffset
    \kern\topmargin
    \kern-1bp\relax
    \hbox to 0pt{%
      \kern\hoffset
      \kern\ifodd\value{page}%
            \oddsidemargin
          \else
            \evensidemargin
          \fi
      \kern-1bp\relax
      \Hy@TempPageAnchor\relax
      \hss
    }%
    \vss
  }%
\fi
}
\g@addto@macro\Hy@EveryPageBoxHook{%
  \Hy@EveryPageAnchor
}
```

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.

```
\def\addcontentsline#1#2#3{% toc extension, type, tag
  \begingroup
    \let\label\@gobble
    \ifx\@currentHref\@empty
      \Hy@Warning{%
        No destination for bookmark of \string\addcontentsline,%
```

```
      \MessageBreak destination is added%
    }%
    \phantomsection
  \fi
  \expandafter\ifx\csname toclevel@#2\endcsname\relax
    \begingroup
      \def\Hy@tempa{#1}%
      \ifx\Hy@tempa\Hy@bookmarkstype
        \Hy@WarningNoLine{%
          bookmark level for unknown #2 defaults to 0%
        }%
      \else
        \Hy@Info{bookmark level for unknown #2 defaults to 0}%
      \fi
    \endgroup
    \expandafter\gdef\csname toclevel@#2\endcsname{0}%
  \fi
  \edef\Hy@toclevel{\csname toclevel@#2\endcsname}%
  \Hy@writebookmark{\csname the#2\endcsname}%
    {#3}%
    {\@currentHref}%
    {\Hy@toclevel}%
    {#1}%
  \ifHy@verbose
    \begingroup
      \def\Hy@tempa{#3}%
      \@onelevel@sanitize\Hy@tempa
      \let\temp@online\on@line
      \let\on@line\@empty
      \Hy@Info{%
        bookmark\temp@online:\MessageBreak
        thecounter {\csname the#2\endcsname}\MessageBreak
        text {\Hy@tempa}\MessageBreak
        reference {\@currentHref}\MessageBreak
        toclevel {\Hy@toclevel}\MessageBreak
        type {#1}%
      }%
    \endgroup
  \fi
  \addtocontents{#1}{%
    \protect\contentsline{#2}{#3}{\thepage}{\@currentHref}%
  }%
 \endgroup
}
\def\contentsline#1#2#3#4{%
 \ifx\\#4\\%
  \csname l@#1\endcsname{#2}{#3}%
 \else
  \ifcase\Hy@linktoc % none
    \csname l@#1\endcsname{#2}{#3}%
  \or % section
    \csname l@#1\endcsname{%
      \hyper@linkstart{link}{#4}{#2}\hyper@linkend
    }{#3}%
  \or % page
    \csname l@#1\endcsname{{#2}}{%
      \hyper@linkstart{link}{#4}{#3}\hyper@linkend
```

```
    }%
  \else % all
    \csname l@#1\endcsname{%
      \hyper@linkstart{link}{#4}{#2}\hyper@linkend
    }{%
      \hyper@linkstart{link}{#4}{#3}\hyper@linkend
    }%
  \fi
 \fi
}
```

```
⟨/package⟩
⟨*check⟩
\checklatex
\checkcommand\def\addcontentsline#1#2#3{%
  \addtocontents{#1}{\protect\contentsline{#2}{#3}{\thepage}}%
}
\checkcommand\def\contentsline#1{\csname l@#1\endcsname}
⟨/check⟩
⟨*package⟩
```

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.

```
\let\H@definecounter\@definecounter
\def\@definecounter#1{%
  \H@definecounter{#1}%
  \expandafter\def\csname theH#1\endcsname{\arabic{#1}}%
}
```

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.

```
\let\H@newctr\@newctr
\def\@newctr#1[#2]{%
  \H@newctr#1[{#2}]%
  \expandafter\def\csname theH#1\endcsname{%
    \csname the\@ifundefined{theH#2}{}{H}#2\endcsname.\arabic{#1}%
  }%
}
```

41 AMSLaTeX 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.

```
\@ifpackageloaded{amsmath}{%
  \def\Hy@make@anchor{%
    \Hy@MakeCurrentHrefAuto{AMS}%
    \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
  }%
  \def\Hy@make@df@tag@@#1{%
```

```
    \gdef\df@tag{%
      \maketag@@@{\Hy@make@anchor#1}%
      \def\@currentlabel{#1}%
    }%
  }%
  \def\Hy@make@df@tag@@@#1{%
    \gdef\df@tag{%
      \tagform@{\Hy@make@anchor#1}%
      \toks@\@xp{\p@equation{#1}}%
      \edef\@currentlabel{\the\toks@}%
    }%
  }%
  \let\HyOrg@make@df@tag@@\make@df@tag@@
  \let\HyOrg@make@df@tag@@@\make@df@tag@@@
  \let\make@df@tag@@\Hy@make@df@tag@@
  \let\make@df@tag@@@\Hy@make@df@tag@@@
}{}
```

Only play with `\seteqlebal` if we are using pdftex. Other drivers cause problems; requested by Michael Downes (AMS).

```
\@ifpackagewith{hyperref}{pdftex}{%
  \let\H@seteqlabel\@seteqlabel
  \def\@seteqlabel#1{%
    \H@seteqlabel{#1}%
    \xdef\@currentHref{AMS.\the\Hy@linkcounter}%
    \Hy@raisedlink{%
      \hyper@anchorstart{\@currentHref}\hyper@anchorend
    }%
  }%
}{}
```

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.

```
\let\HyOrg@addtoreset\@addtoreset
\def\@addtoreset#1#2{%
  \HyOrg@addtoreset{#1}{#2}%
  \expandafter\xdef\csname theH#1\endcsname{%
    \expandafter\noexpand
      \csname the\@ifundefined{theH#2}{}H#2\endcsname
    .\noexpand\the\noexpand\value{#1}%
  }%
}
```

`\numberwithin` A appropiate definition of hyperref's companion counter (`\theH...`) is added for correct link names.

```
⟨/package⟩
⟨*check⟩
\checkpackage{amsmath}[1999/12/14 - 2000/06/06]
\checkcommand\newcommand{\numberwithin}[3][\arabic]{%
  \@ifundefined{c@#2}{\@nocounterr{#2}}{%
    \@ifundefined{c@#3}{\@nocnterr{#3}}{%
      \@addtoreset{#2}{#3}%
      \@xp\xdef\csname the#2\endcsname{%
        \@xp\@nx\csname the#3\endcsname .\@nx#1{#2}%
      }%
    }%
  }%
}%
⟨/check⟩
⟨*package⟩
\@ifpackageloaded{amsmath}{%
  \@ifpackagelater{amsmath}{1999/12/14}{%
    \renewcommand*{\numberwithin}[3][\arabic]{%
      \@ifundefined{c@#2}{\@nocounterr{#2}}{%
        \@ifundefined{c@#3}{\@nocnterr{#3}}{%
          \HyOrg@addtoreset{#2}{#3}%
          \@xp\xdef\csname the#2\endcsname{%
            \@xp\@nx\csname the#3\endcsname .\@nx#1{#2}%
          }%
          \@xp\xdef\csname theH#2\endcsname{%
            \@xp\@nx
            \csname the\@ifundefined{theH#3}{}H#3\endcsname
            .\@nx#1{#2}%
          }%
        }%
      }%
    }%
  }{%
    \Hy@WarningNoLine{%
      \string\numberwithin\space of package 'amsmath' %
      only fixed\MessageBreak
      for version 2000/06/06 v2.12 or newer%
    }%
  }%
}{}
```

42 Included figures

Simply intercept the low level graphics package macro.

```
\ifHy@hyperfigures
  \let\Hy@Gin@setfile\Gin@setfile
  \def\Gin@setfile#1#2#3{%
    \hyperimage{#3}{\Hy@Gin@setfile{#1}{#2}{#3}}%
  }%
\fi
\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 emboldening 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.

```
\ifHy@hyperindex
  \def\HyInd@ParenLeft{(}%
  \def\HyInd@ParenRight{)}%
  \def\hyperindexformat#1#2{%
    \let\HyOrg@hyperpage\hyperpage
    \let\hyperpage\@firstofone
    #1{\HyOrg@hyperpage{#2}}%
    \let\hyperpage\HyOrg@hyperpage
  }%
  \Hy@nextfalse
  \@ifpackageloaded{multind}{\Hy@nexttrue}{}%
  \@ifpackageloaded{index}{\Hy@nexttrue}{}%
  \@ifpackageloaded{amsmidx}{\Hy@nexttrue}{}%
  \begingroup
    \lccode`\|=\expandafter`\HyInd@EncapChar\relax
    \lccode`\/=`\\\relax
  \lowercase{\endgroup
    \ifHy@next
      \let\HyInd@org@wrindex\@wrindex
      \def\@wrindex#1#2{\HyInd@@wrindex{#1}#2||\\}%
      \def\HyInd@@wrindex#1#2|#3|#4\\{%
        \ifx\\#3\\%
          \HyInd@org@wrindex{#1}{#2|hyperpage}%
        \else
          \HyInd@@@wrindex{#1}{#2}#3\\%
        \fi
      }%
      \def\HyInd@@@wrindex#1#2#3#4\\{%
        \def\Hy@temp@A{#3}%
        \ifcase0\ifx\Hy@temp@A\HyInd@ParenLeft 1\fi
              \ifx\Hy@temp@A\HyInd@ParenRight 1\fi
              \relax
          \HyInd@org@wrindex{#1}{%
            #2|hyperindexformat{/#3#4}%
          }%
        \else
          \ifx\\#4\\%
            \ifx\Hy@temp@A\HyInd@ParenRight
              \HyInd@org@wrindex{#1}{#2|#3}%
            \else
              \HyInd@org@wrindex{#1}{#2|#3hyperpage}%
            \fi
          \else
            \HyInd@org@wrindex{#1}{%
              #2|#3hyperindexformat{/#4}%
            }%
          \fi
        \fi
      }%
```

```
  \else
    \def\@wrindex#1{\@@wrindex#1||\\}%
    \def\@@wrindex#1|#2|#3\\{%
      \if@filesw
        \ifx\\#2\\%
          \protected@write\@indexfile{}{%
            \string\indexentry{#1|hyperpage}{\thepage}%
          }%
        \else
          \HyInd@@@wrindex{#1}#2\\%
        \fi
      \fi
      \endgroup
      \@esphack
    }%
    \def\HyInd@@@wrindex#1#2#3\\{%
      \def\Hy@temp@A{#2}%
      \ifcase0\ifx\Hy@temp@A\HyInd@ParenLeft 1\fi
            \ifx\Hy@temp@A\HyInd@ParenRight 1\fi
            \relax
        \protected@write\@indexfile{}{%
          \string\indexentry{%
            #1|hyperindexformat{/#2#3}%
          }{\thepage}%
        }%
      \else
        \ifx\\#3\\%
          \ifx\Hy@temp@A\HyInd@ParenRight
            \protected@write\@indexfile{}{%
              \string\indexentry{#1|#2}{\thepage}%
            }%
          \else
            \protected@write\@indexfile{}{%
              \string\indexentry{#1|#2hyperpage}{\thepage}%
            }%
          \fi
        \else
          \protected@write\@indexfile{}{%
            \string\indexentry{%
              #1|#2hyperindexformat{/#3}%
            }{\thepage}%
          }%
        \fi
      \fi
    }%
  \fi
}%
\fi
\Hy@DisableOption{hyperindex}
\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.

```
\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.

```
\def\hyperpage#1{%
  \HyInd@hyperpage#1\nohyperpage{}\@nil
}
\def\HyInd@hyperpage#1\nohyperpage#2#3\@nil{%
  \HyInd@@hyperpage{#1}%
  #2%
  \def\Hy@temp{#3}%
  \ifx\Hy@temp\@empty
  \else
    \ltx@ReturnAfterFi{%
      \HyInd@hyperpage#3\@nil
    }%
  \fi
}
\def\HyInd@@hyperpage#1{\@hyperpage#1----\\}
\def\@hyperpage#1--#2--#3\\{%
  \ifx\\#2\\%
    \@commahyperpage{#1}%
  \else
    \HyInd@pagelink{#1}--\HyInd@pagelink{#2}%
  \fi
}
\def\@commahyperpage#1{\@@commahyperpage#1, ,\\}
\def\@@commahyperpage#1, #2,#3\\{%
  \ifx\\#2\\%
    \HyInd@pagelink{#1}%
  \else
    \HyInd@pagelink{#1}, \HyInd@pagelink{#2}%
  \fi
}
```

The argument of \hyperpage can be empty. And the line breaking algorithm of Makeindex can introduce spaces. So we have to remove them.

```
\def\HyInd@pagelink#1{%
  \begingroup
    \toks@={}%
    \HyInd@removespaces#1 \@nil
  \endgroup
}
\def\HyInd@removespaces#1 #2\@nil{%
  \toks@=\expandafter{\the\toks@#1}%
  \ifx\\#2\\%
    \edef\x{\the\toks@}%
    \ifx\x\@empty
    \else
      \hyperlink{page.\the\toks@}{\the\toks@}%
    \fi
  \else
    \ltx@ReturnAfterFi{%
      \HyInd@removespaces#2\@nil
    }%
  \fi
}
```

44 Compatibility with foiltex

```
\@ifclassloaded{foils}{%
```

```
  \providecommand*\ext@table{lot}%
  \providecommand*\ext@figure{lof}%
}{}
```

45 Compatibility with seminar slide package

This requires seminar.bg2, version 1.6 or later. Contributions by Denis Girou (denis.girou@idris.fr).

```
\@ifclassloaded{seminar}{%
  \Hy@seminarslidestrue
  \providecommand\theHslide{\arabic{slide}}%
}{%
  \Hy@seminarslidesfalse
}
\@ifpackageloaded{slidesec}{%
  \providecommand\theHslidesection   {\arabic{slidesection}}%
  \providecommand\theHslidesubsection{%
    \theHslidesection.\arabic{slidesubsection}%
  }%
  \def\slide@heading[#1]#2{%
    \H@refstepcounter{slidesection}%
    \@addtoreset{slidesubsection}{slidesection}%
    \addtocontents{los}{%
      \protect\l@slide{\the\c@slidesection}{\ignorespaces#1}%
        {\@SCTR}{slideheading.\theslidesection}%
    }%
    \def\Hy@tempa{#2}%
    \ifx\Hy@tempa\@empty
    \else
      {%
        \edef\@currentlabel{%
          \csname p@slidesection\endcsname\theslidesection
        }%
        \makeslideheading{#2}%
      }%
    \fi
    \gdef\theslideheading{#1}%
    \gdef\theslidesubheading{}%
    \ifHy@bookmarksnumbered
      \def\Hy@slidetitle{\theslidesection\space #1}%
    \else
      \def\Hy@slidetitle{#1}%
    \fi
    \ifHy@hypertexnames
      \ifHy@naturalnames
        \hyper@@anchor{slideheading.\theslidesection}{\relax}%
        \Hy@writebookmark
          {\theslidesection}%
          {\Hy@slidetitle}%
          {slideheading.\theslidesection}%
          {1}%
          {toc}%
      \else
        \hyper@@anchor{slideheading.\theHslidesection}{\relax}%
        \Hy@writebookmark
          {\theslidesection}%
          {\Hy@slidetitle}%
```

```
        {slideheading.\theHslidesection}%
        {1}%
        {toc}%
    \fi
  \else
    \Hy@GlobalStepCount\Hy@linkcounter
    \hyper@@anchor{slideheading.\the\Hy@linkcounter}{\relax}%
    \Hy@writebookmark
      {\theslidesection}%
      {\Hy@slidetitle}%
      {slideheading.\the\Hy@linkcounter}%
      {1}%
      {toc}%
  \fi
}%
\def\slide@subheading[#1]#2{%
  \H@refstepcounter{slidesubsection}%
  \addtocontents{los}{%
    \protect\l@subslide{\the\c@slidesubsection}{\ignorespaces#1}%
      {\@SCTR}{slideheading.\theslidesubsection}%
  }%
  \def\Hy@tempa{#2}%
  \ifx\Hy@tempa\@empty
  \else
    {%
      \edef\@currentlabel{%
        \csname p@slidesubsection\endcsname\theslidesubsection
      }%
      \makeslidesubheading{#2}%
    }%
  \fi
  \gdef\theslidesubheading{#1}%
  \ifHy@bookmarksnumbered
    \def\Hy@slidetitle{\theslidesubsection\space #1}%
  \else
    \def\Hy@slidetitle{#1}%
  \fi
  \ifHy@hypertexnames
    \ifHy@naturalnames
      \hyper@@anchor{slideheading.\theslidesubsection}{\relax}%
      \Hy@writebookmark
        {\theslidesubsection}%
        {\Hy@slidetitle}%
        {slideheading.\theslidesubsection}%
        {2}%
        {toc}%
    \else
      \hyper@@anchor{slideheading.\theHslidesubsection}{\relax}%
      \Hy@writebookmark
        {\theslidesubsection}%
        {\Hy@slidetitle}%
        {slideheading.\theHslidesubsection}%
        {2}%
        {toc}%
    \fi
  \else
    \Hy@GlobalStepCount\Hy@linkcounter
```

```
    \hyper@@anchor{slideheading.\the\Hy@linkcounter}{\relax}%
    \Hy@writebookmark
      {\theslidesubsection}%
      {\Hy@slidetitle}%
      {slideheading.\the\Hy@linkcounter}%
      {1}%
      {toc}%
  \fi
}%
\providecommand*{\listslidename}{List of Slides}%
\def\listofslides{%
  \section*{%
    \listslidename
    \@mkboth{%
      \expandafter\MakeUppercase\listslidename
    }{%
      \expandafter\MakeUppercase\listslidename
    }%
  }%
  \def\l@slide##1##2##3##4{%
    \slide@undottedcline{%
      \slidenumberline{##3}{\hyperlink{##4}{##2}}%
    }{}%
  }%
  \let\l@subslide\l@slide
  \@startlos
}%
\def\slide@contents{%
  \def\l@slide##1##2##3##4{%
    \slide@cline{\slidenumberline{##3}{\hyperlink{##4}{##2}}}{##3}%
  }%
  \let\l@subslide\@gobblefour
  \@startlos
}%
\def\Slide@contents{%
  \def\l@slide##1##2##3##4{%
    \ifcase\lslide@flag
      \message{##1 ** \the\c@slidesection}%
      \ifnum##1>\c@slidesection
        \def\lslide@flag{1}%
        {%
          \large
          \slide@cline{%
            \slidenumberline{$\Rightarrow\bullet$}%
              {\hyperlink{##4}{##2}}%
          }{##3}%
        }%
      \else
        {%
          \large
          \slide@cline{%
            \slidenumberline{$\surd\;\bullet$}%
              {\hyperlink{##4}{##2}}%
          }{##3}%
        }%
      \fi
    \or
```

```
      \def\lslide@flag{2}%
      {%
        \large
        \slide@cline{%
          \slidenumberline{$\bullet$}%
            {\hyperlink{##4}{##2}}%
        }{##3}%
      }%
    \or
      {%
        \large
        \slide@cline{%
          \slidenumberline{$\bullet$}%
           {\hyperlink{##4}{##2}}%
        }{##3}%
      }%
    \fi
  }%
  \def\l@subslide##1##2##3##4{%
    \ifnum\lslide@flag=1 %
      \@undottedtocline{2}{3.8em}{3.2em}{\hyperlink{##4}{##2}}{}%
    \fi
  }%
  \def\lslide@flag{0}%
  \@startlos
 }%
}{}
```

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.)

```
\ifHy@texht
  \expandafter\endinput
\fi
\let\real@setref\@setref
\def\@setref#1#2#3{% csname, extract group, refname
  \ifx#1\relax
    \protect\G@refundefinedtrue
    \nfss@text{\reset@font\bfseries ??}%
    \@latex@warning{%
      Reference `#3' on page \thepage \space undefined%
    }%
  \else
    \expandafter\Hy@setref@link#1\@empty\@empty\@nil{#2}%
  \fi
}
```

\Hy@setref@link extracts the reference information entries, because **\hyper@@link** does not expand arguments for the automatic link type detection.

```
\def\Hy@setref@link#1#2#3#4#5#6\@nil#7{%
  \begingroup
    \toks0={\hyper@@link{#5}{#4}}%
    \toks1=\expandafter{#7{#1}{#2}{#3}{#4}{#5}}%
    \edef\x{\endgroup
      \the\toks0 {\the\toks1 }%
    }%
  \x
}
```

```
\def\@pagesetref#1#2#3{% csname, extract macro, ref
  \ifx#1\relax
    \protect\G@refundefinedtrue
    \nfss@text{\reset@font\bfseries ??}%
    \@latex@warning{%
      Reference `#3' on page \thepage \space undefined%
    }%
  \else
    \protect\hyper@@link
      {\expandafter\@fifthoffive#1}%
      {page.\expandafter\@secondoffive#1}%
      {\expandafter\@secondoffive#1}%
  \fi
}
⟨/package⟩
⟨*check⟩
\checklatex
\checkcommand\def\@setref#1#2#3{%
  \ifx#1\relax
    \protect\G@refundefinedtrue
    \nfss@text{\reset@font\bfseries ??}%
    \@latex@warning{%
      Reference `#3' on page \thepage\space undefined%
    }%
  \else
    \expandafter#2#1\null
  \fi
}
⟨/check⟩
⟨*package⟩
```

Now some extended referencing. `\ref*` and `\pageref*` are not linked, and `\autoref` prefixes with a tag based on the type.

```
\def\HyRef@StarSetRef#1{%
  \begingroup
    \Hy@safe@activestrue
    \edef\x{#1}%
    \@onelevel@sanitize\x
    \edef\x{\endgroup
      \noexpand\HyRef@@StarSetRef
        \expandafter\noexpand\csname r@\x\endcsname{\x}%
    }%
  \x
}
\def\HyRef@@StarSetRef#1#2#3{%
  \ifx#1\@undefined
    \let#1\relax
  \fi
  \real@setref#1#3{#2}%
}
\def\@refstar#1{%
  \HyRef@StarSetRef{#1}\@firstoffive
}
\def\@pagerefstar#1{%
  \HyRef@StarSetRef{#1}\@secondoffive
}
\def\@namerefstar#1{%
```

```
  \HyRef@StarSetRef{#1}\@thirdoffive
}
\Hy@AtBeginDocument{%
  \@ifpackageloaded{varioref}{%
    \def\@Refstar#1{%
      \HyRef@StarSetRef{#1}\HyRef@MakeUppercaseFirstOfFive
    }%
    \def\HyRef@MakeUppercaseFirstOfFive#1#2#3#4#5{%
      \MakeUppercase#1%
    }%
    \DeclareRobustCommand*{\Ref}{%
      \@ifstar\@Refstar\HyRef@Ref
    }%
    \def\HyRef@Ref#1{%
      \hyperref[{#1}]{\Ref*{#1}}%
    }%
    \def\Vr@f#1{%
      \leavevmode\unskip\vref@space
      \hyperref[{#1}]{%
        \Ref*{#1}%
        \let\vref@space\nobreakspace
        \@vpageref[\unskip]{#1}%
      }%
    }%
    \def\vr@f#1{%
      \leavevmode\unskip\vref@space
      \begingroup
        \let\T@pageref\@pagerefstar
        \hyperref[{#1}]{%
          \ref*{#1}%
          \vpageref[\unskip]{#1}%
        }%
      \endgroup
    }%
  }{}%
}
\DeclareRobustCommand*{\autopageref}{%
  \@ifstar{%
    \HyRef@autopagerefname\pageref*%
  }\HyRef@autopageref
}
\def\HyRef@autopageref#1{%
  \hyperref[{#1}]{\HyRef@autopagerefname\pageref*{#1}}%
}
\def\HyRef@autopagerefname{%
  \ltx@IfUndefined{pageautorefname}{%
    \ltx@IfUndefined{pagename}{%
      \Hy@Warning{No autoref name for 'page'}%
    }{%
      \pagename\nobreakspace
    }%
  }{%
    \pageautorefname\nobreakspace
  }%
}
```

`\leavevmode` is added to make package wrapfigure happy, if `\autoref` starts a paragraph.

```
\DeclareRobustCommand*{\autoref}{%
  \leavevmode
  \@ifstar{\HyRef@autoref\@gobbletwo}{\HyRef@autoref\hyper@@link}%
}
\def\HyRef@autoref#1#2{%
  \begingroup
    \Hy@safe@activestrue
    \expandafter\HyRef@autosetref\csname r@#2\endcsname{#2}{#1}%
  \endgroup
}
\def\HyRef@autosetref#1#2#3{% link command, csname, refname
  \HyRef@ShowKeysRef{#2}%
  \ifcase 0\ifx#1\relax 1\fi\ifx#1\Hy@varioref@undefined 1\fi\relax
    \edef\HyRef@thisref{%
      \expandafter\@fourthoffive#1\@empty\@empty\@empty
    }%
    \expandafter\HyRef@testreftype\HyRef@thisref.\\%
    \Hy@safe@activesfalse
    #3{%
      \expandafter\@fifthoffive#1\@empty\@empty\@empty
    }{%
      \expandafter\@fourthoffive#1\@empty\@empty\@empty
    }{%
      \HyRef@currentHtag
      \expandafter\@firstoffive#1\@empty\@empty\@empty
      \null
    }%
  \else
    \protect\G@refundefinedtrue
    \nfss@text{\reset@font\bfseries ??}%
    \@latex@warning{%
      Reference '#2' on page \thepage\space undefined%
    }%
  \fi
}
\def\HyRef@testreftype#1.#2\\{%
  \ltx@IfUndefined{#1autorefname}{%
    \ltx@IfUndefined{#1name}{%
      \HyRef@StripStar#1\\*\\\@nil{#1}%
      \ltx@IfUndefined{\HyRef@name autorefname}{%
        \ltx@IfUndefined{\HyRef@name name}{%
          \def\HyRef@currentHtag{}%
          \Hy@Warning{No autoref name for '#1'}%
        }{%
          \edef\HyRef@currentHtag{%
            \expandafter\noexpand\csname\HyRef@name name\endcsname
            \noexpand~%
          }%
        }%
      }{%
        \edef\HyRef@currentHtag{%
          \expandafter\noexpand
          \csname\HyRef@name autorefname\endcsname
          \noexpand~%
        }%
      }%
    }{%
```

```
      \edef\HyRef@currentHtag{%
        \expandafter\noexpand\csname#1name\endcsname
        \noexpand~%
      }%
    }%
  }{%
    \edef\HyRef@currentHtag{%
      \expandafter\noexpand\csname#1autorefname\endcsname
      \noexpand~%
    }%
  }%
}
\def\HyRef@StripStar#1*\\#2\@nil#3{%
  \def\HyRef@name{#2}%
  \ifx\HyRef@name\HyRef@CaseStar
    \def\HyRef@name{#1}%
  \else
    \def\HyRef@name{#3}%
  \fi
}
\def\HyRef@CaseStar{*\\}
\def\HyRef@currentHtag{}
```

Support for package showkeys.

\HyRef@ShowKeysRef

```
\let\HyRef@ShowKeysRef\@gobble
\def\HyRef@ShowKeysInit{%
  \begingroup\expandafter\expandafter\expandafter\endgroup
  \expandafter\ifx\csname SK@@label\endcsname\relax
  \else
    \ifx\SK@ref\@empty
    \else
      \def\HyRef@ShowKeysRef{%
        \SK@\SK@@ref
      }%
    \fi
  \fi
}
\@ifpackageloaded{showkeys}{%
  \HyRef@ShowKeysInit
}{%
  \Hy@AtBeginDocument{%
    \@ifpackageloaded{showkeys}{%
      \HyRef@ShowKeysInit
    }{}%
  }%
}
```

Defaults for the names that \autoref uses.

```
\providecommand*\AMSautorefname{\equationautorefname}
\providecommand*\Hfootnoteautorefname{\footnoteautorefname}
\providecommand*\Itemautorefname{\itemautorefname}
\providecommand*\itemautorefname{item}
\providecommand*\equationautorefname{Equation}
\providecommand*\footnoteautorefname{footnote}
\providecommand*\itemautorefname{item}
\providecommand*\figureautorefname{Figure}
```

```
\providecommand*\tableautorefname{Table}
\providecommand*\partautorefname{Part}
\providecommand*\appendixautorefname{Appendix}
\providecommand*\chapterautorefname{chapter}
\providecommand*\sectionautorefname{section}
\providecommand*\subsectionautorefname{subsection}
\providecommand*\subsubsectionautorefname{subsubsection}
\providecommand*\paragraphautorefname{paragraph}
\providecommand*\subparagraphautorefname{subparagraph}
\providecommand*\FancyVerbLineautorefname{line}
\providecommand*\theoremautorefname{Theorem}
\providecommand*\pageautorefname{page}
```

⟨/package⟩

46 Configuration files

46.1 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 pdfTEX offers **\pdfescapestring**.

```
⟨*pdftex | dvipdfm | xetex | vtex | pdfmarkbase | dviwindo⟩
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname pdf@escapestring\endcsname\relax
  \begingroup
    \catcode`\|=0 %
    \@makeother\\%
  |@firstofone{|endgroup
    |def|Hy@pstringdef#1#2{%
      |begingroup
        |edef~{|string~}%
        |xdef|Hy@gtemp{#2}%
      |endgroup
      |let#1|Hy@gtemp
      |@onelevel@sanitize#1%
      |edef#1{|expandafter|Hy@ExchangeBackslash#1\|@nil}%
      |edef#1{|expandafter|Hy@ExchangeLeftParenthesis#1(|@nil}%
      |edef#1{|expandafter|Hy@ExchangeRightParenthesis#1)|@nil}%
    }%
    |def|Hy@ExchangeBackslash#1\#2|@nil{%
      #1%
      |ifx|\#2|\%%
      |else
        \\%
        |ltx@ReturnAfterFi{%
          |Hy@ExchangeBackslash#2|@nil
        }%
      |fi
    }%
  }%
  \def\Hy@ExchangeLeftParenthesis#1(#2\@nil{%
    #1%
```

```
    \ifx\\#2\\%
    \else
      \@backslashchar(%
      \ltx@ReturnAfterFi{%
        \Hy@ExchangeLeftParenthesis#2\@nil
      }%
    \fi
  }%
  \def\Hy@ExchangeRightParenthesis#1)#2\@nil{%
    #1%
    \ifx\\#2\\%
    \else
      \@backslashchar)%
      \ltx@ReturnAfterFi{%
        \Hy@ExchangeRightParenthesis#2\@nil
      }%
    \fi
  }%
\else
  \def\Hy@pstringdef#1#2{%
    \begingroup
      \edef~{\string~}%
      \xdef\Hy@gtemp{\pdf@escapestring{#2}}%
    \endgroup
    \let#1\Hy@gtemp
  }%
\fi
⟨/pdftex | dvipdfm | xetex | vtex | pdfmarkbase | dviwindo⟩
```

46.2 pdftex

```
⟨*pdftex⟩
\providecommand*{\XR@ext}{pdf}
\Hy@setbreaklinks{true}
\def\HyPat@ObjRef{%
  [0-9]*[1-9][0-9]* 0 R%
}
```

This driver is for Han The Thanh's TEX 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.

- pdfTEX 1.10a, 2003-01-16: \pdfoptionpdfminorversion
- pdfTEX 1.30, 2005-08-081: \pdfminorversion

```
\let\Hy@pdfminorversion\relax
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname pdfminorversion\endcsname\relax
  \begingroup\expandafter\expandafter\expandafter\endgroup
  \expandafter\ifx\csname pdfoptionpdfminorversion\endcsname\relax
  \else
    \def\Hy@pdfminorversion{\pdfoptionpdfminorversion}%
  \fi
\else
  \def\Hy@pdfminorversion{\pdfminorversion}%
\fi
\@ifundefined{Hy@pdfminorversion}{%
```

```
  \PackageInfo{hyperref}{%
    PDF version is not set, because pdfTeX is too old (<1.10a)%
  }%
}{%
  \ifHy@ocgcolorlinks
    \ifnum\Hy@pdfminorversion<5 %
      \kvsetkeys{Hyp}{pdfversion=1.5}%
    \fi
  \fi
  \ifHy@setpdfversion
    \ifnum\Hy@pdfminorversion=\Hy@pdfversion\relax
    \else
      \Hy@pdfminorversion=\Hy@pdfversion\relax
    \fi
    \PackageInfo{hyperref}{%
      \expandafter\string\Hy@pdfminorversion
      :=\number\Hy@pdfversion\space
    }%
  \fi
  \edef\Hy@pdfversion{\number\Hy@pdfminorversion}%
}
\Hy@DisableOption{pdfversion}%
\ifHy@ocgcolorlinks
  \pdf@ifdraftmode{}{%
    \immediate\pdfobj{%
      <<%
        /Type/OCG%
        /Name(View)%
        /Usage<<%
          /Print<<%
            /PrintState/OFF%
          >>%
          /View<<%
            /ViewState/ON%
          >>%
        >>%
      >>%
    }%
    \edef\OBJ@OCG@view{\the\pdflastobj\space 0 R}%
    \immediate\pdfobj{%
      <<%
        /Type/OCG%
        /Name(Print)%
        /Usage<<%
          /Print<<%
            /PrintState/ON%
          >>%
          /View<<%
            /ViewState/OFF%
          >>%
        >>%
      >>%
    }%
    \edef\OBJ@OCG@print{\the\pdflastobj\space 0 R}%
    \immediate\pdfobj{%
      [%
        \OBJ@OCG@view\space\OBJ@OCG@print
```

```
    ]%
  }%
  \edef\OBJ@OCGs{\the\pdflastobj\space 0 R}%
  \pdfcatalog{%
    /OCProperties<<%
      /OCGs \OBJ@OCGs
      /D<<%
        /OFF[\OBJ@OCG@print]%
        /AS[%
          <<%
            /Event/View%
            /OCGs \OBJ@OCGs
            /Category[/View]%
          >>%
          <<%
            /Event/Print%
            /OCGs \OBJ@OCGs
            /Category[/Print]%
          >>%
          <<%
            /Event/Export%
            /OCGs \OBJ@OCGs
            /Category[/Print]%
          >>%
        ]%
      >>%
    >>%
  }%
  \begingroup
    \edef\x{\endgroup
      \pdfpageresources{%
        /Properties<<%
          /OCView \OBJ@OCG@view
          /OCPrint \OBJ@OCG@print
        >>%
      }%
    }%
  \x
}%
\Hy@AtBeginDocument{%
  \def\Hy@colorlink#1{%
    \begingroup
      \ifHy@ocgcolorlinks
        \def\Hy@ocgcolor{#1}%
        \setbox0=\hbox\bgroup\color@begingroup
      \else
        \HyColor@UseColor#1%
      \fi
  }%
  \def\Hy@endcolorlink{%
    \ifHy@ocgcolorlinks
      \color@endgroup\egroup
      \mbox{%
        \pdfliteral page{/OC/OCPrint BDC}%
        \rlap{\copy0}%
        \pdfliteral page{EMC/OC/OCView BDC}%
        \begingroup
```

```
          \expandafter\HyColor@UseColor\Hy@ocgcolor
          \box0 %
        \endgroup
        \pdfliteral page{EMC}%
      }%
    \fi
    \endgroup
  }%
 }%
\else
 \Hy@DisableOption{ocgcolorlinks}%
\fi
```

First, allow for some changes and additions to pdftex syntax:

```
\def\setpdflinkmargin#1{\pdflinkmargin#1}
\ifx\pdfstartlink\@undefined% less than version 14
 \let\pdfstartlink\pdfannotlink
 \let\pdflinkmargin\@tempdima
 \let\pdfxform\pdfform
 \let\pdflastxform\pdflastform
 \let\pdfrefxform\pdfrefform
\else
 \pdflinkmargin1pt %
\fi
```

First set up the default linking

```
\providecommand*\@pdfview{XYZ}
```

First define the anchors:

```
\Hy@WrapperDef\new@pdflink#1{%
 \ifhmode
  \@savsf\spacefactor
 \fi
 \Hy@SaveLastskip
 \Hy@VerboseAnchor{#1}%
 \Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}%
 \Hy@DestName\Hy@pstringDest\@pdfview
 \Hy@RestoreLastskip
 \ifhmode
  \spacefactor\@savsf
 \fi
}
\let\pdf@endanchor\@empty
```

`\Hy@DestName` Wrap the call of `\pdfdest name` in `\Hy@DestName`. Then it can easier be catched by package `hypdestopt`.

```
\def\Hy@DestName#1#2{%
 \pdfdest name{#1}#2\relax
}
```

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.

```
\providecommand*\@pdfborder{0 0 1}
\providecommand*\@pdfborderstyle{}
\def\Hy@undefinedname{UNDEFINED}
\def\find@pdflink#1#2{%
```

```
  \leavevmode
  \protected@edef\Hy@testname{#2}%
  \ifx\Hy@testname\@empty
    \Hy@Warning{%
      Empty destination name,\MessageBreak
      using `\Hy@undefinedname'%
    }%
    \let\Hy@testname\Hy@undefinedname
  \else
    \Hy@pstringdef\Hy@testname{%
      \expandafter\HyperDestNameFilter\expandafter{\Hy@testname}%
    }%
  \fi
  \Hy@StartlinkName{%
    \ifHy@pdfa /F 4\fi
    \Hy@setpdfborder
    \ifx\@pdfhighlight\@empty
    \else
      /H\@pdfhighlight
    \fi
    \ifx\CurrentBorderColor\relax
    \else
      /C[\CurrentBorderColor]%
    \fi
  }\Hy@testname
  \expandafter\Hy@colorlink\csname @#1color\endcsname
}
\def\Hy@StartlinkName#1#2{%
  \pdfstartlink attr{#1}goto name{#2}\relax
}
\def\close@pdflink{%
  \Hy@endcolorlink
  \Hy@VerboseLinkStop
  \pdfendlink
}
\def\hyper@anchor#1{%
  \new@pdflink{#1}\anchor@spot\pdf@endanchor
}
\def\hyper@anchorstart#1{%
  \new@pdflink{#1}%
  \Hy@activeanchortrue
}
\def\hyper@anchorend{%
  \pdf@endanchor
  \Hy@activeanchorfalse
}
\def\hyper@linkstart#1#2{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \ltx@IfUndefined{@#1bordercolor}{%
    \let\CurrentBorderColor\relax
  }{%
    \edef\CurrentBorderColor{\csname @#1bordercolor\endcsname}%
  }%
  \find@pdflink{#1}{#2}%
}
\def\hyper@linkend{\close@pdflink}
\def\hyper@link#1#2#3{%
```

```
  \Hy@VerboseLinkStart{#1}{#2}%
  \ltx@IfUndefined{@#1bordercolor}{%
    \let\CurrentBorderColor\relax
  }{%
    \edef\CurrentBorderColor{\csname @#1bordercolor\endcsname}%
  }%
  \find@pdflink{#1}{#2}#3\Hy@xspace@end
  \close@pdflink
}
\let\CurrentBorderColor\@linkbordercolor
\def\hyper@linkurl#1#2{%
  \begingroup
    \Hy@pstringdef\Hy@pstringURI{#2}%
    \hyper@chars
    \leavevmode
    \pdfstartlink
      attr{%
        \Hy@setpdfborder
        \ifx\@pdfhightlight\@empty
        \else
          /H\@pdfhighlight
        \fi
        \ifx\@urlbordercolor\relax
        \else
          /C[\@urlbordercolor]%
        \fi
      }%
      user{%
       /Subtype/Link%
       \ifHy@pdfa /F 4\fi
       /A<<%
         /Type/Action%
         /S/URI%
         /URI(\Hy@pstringURI)%
         \ifHy@href@ismap
           /IsMap true%
         \fi
         \Hy@href@nextactionraw
       >>%
      }%
      \relax
    \Hy@colorlink\@urlcolor#1\Hy@xspace@end
    \close@pdflink
  \endgroup
}
\def\hyper@linkfile#1#2#3{% anchor text, filename, linkname
  \begingroup
    \def\Hy@pstringF{#2}%
    \Hy@CleanupFile\Hy@pstringF
    \Hy@pstringdef\Hy@pstringF\Hy@pstringF
    \Hy@pstringdef\Hy@pstringD{#3}%
    \Hy@MakeRemoteAction
    \leavevmode
    \pdfstartlink
      attr{%
        \Hy@setpdfborder
        \ifx\@pdfhighlight\@empty
```

```
      \else
        /H\@pdfhighlight
      \fi
      \ifx\@filebordercolor\relax
      \else
        /C[\@filebordercolor]%
      \fi
    }%
    user {%
      /Subtype/Link%
      \ifHy@pdfa /F 4\fi
      /A<<%
        /F(\Hy@pstringF)%
        /S/GoToR%
        \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}
```

```
        \ifx\\#3\\%
          /D[\Hy@href@page\@pdfremotestartview]%
        \else
          /D(\Hy@pstringD)%
        \fi
        \Hy@href@nextactionraw
      >>%
    }%
    \relax
  \Hy@colorlink\@filecolor#1\Hy@xspace@end
  \close@pdflink
 \endgroup
}
\def\@hyper@launch run:#1\\#2#3{% filename, anchor text linkname
 \begingroup
  \Hy@pstringdef\Hy@pstringF{#1}%
  \Hy@pstringdef\Hy@pstringP{#3}%
  \leavevmode
  \pdfstartlink
   attr{%
    \Hy@setpdfborder
    \ifx\@pdfhighlight\@empty
    \else
      /H\@pdfhighlight
    \fi
    \ifx\@runbordercolor\relax
    \else
      /C[\@runbordercolor]%
    \fi
  }%
```

```
      user {%
        /Subtype/Link%
        \ifHy@pdfa /F 4\fi
        /A<<%
          /F(\Hy@pstringF)%
          /S/Launch%
          \Hy@SetNewWindow
          \ifx\\#3\\%
          \else
            /Win<</P(\Hy@pstringP)/F(\Hy@pstringF)>>%
          \fi
          \Hy@href@nextactionraw
        >>%
      }%
      \relax
    \Hy@colorlink\@runcolor#2\Hy@xspace@end
    \close@pdflink
  \endgroup
}
```

\@pdfproducer

```
\ifx\@pdfproducer\relax
  \begingroup\expandafter\expandafter\expandafter\endgroup
  \expandafter\ifx\csname luatexversion\endcsname\relax
    \def\@pdfproducer{pdfTeX}%
    \ifx\eTeXversion\@undefined
    \else
      \ifx\eTeXversion\relax
      \else
        \ifnum\eTeXversion>0 %
          \def\@pdfproducer{pdfeTeX}%
        \fi
      \fi
    \fi
    \ifx\pdftexversion\@undefined
    \else
      \ifnum\pdftexversion<100 %
        \edef\@pdfproducer{%
          \@pdfproducer
          \the\pdftexversion.\pdftexrevision
        }%
      \else
        \ifnum\pdftexversion<130 %
          \edef\@pdfproducer{%
            \@pdfproducer-%
            \expandafter\@car\the\pdftexversion\@empty\@nil.%
            \expandafter\@cdr\the\pdftexversion\@empty\@nil
            \pdftexrevision
          }%
        \else
          \ifnum\pdftexversion<140 %
          \else
            \def\@pdfproducer{pdfTeX}%
          \fi
          \edef\@pdfproducer{%
            \@pdfproducer-%
            \expandafter\@car\the\pdftexversion\@empty\@nil.%
```

```
          \expandafter\@cdr\the\pdftexversion\@empty\@nil.%
          \pdftexrevision
        }%
      \fi
    \fi
  \fi
 \else
  \begingroup
    \count@=\luatexversion
    \divide\count@ by 100 %
    \edef\x{\the\count@}%
    \count@=-\x\relax
    \multiply\count@ by 100 %
    \advance\count@ by \luatexversion
    \edef\x{\endgroup
      \def\noexpand\@pdfproducer{%
        LuaTeX-\x.\the\count@.\luatexrevision
      }%
    }%
  \x
 \fi
\fi
```

\PDF@SetupDox

```
\def\PDF@SetupDoc{%
 \ifx\@pdfpagescrop\@empty
 \else
  \edef\process@me{%
    \pdfpagesattr={%
      /CropBox[\@pdfpagescrop]%
      \expandafter\ifx\expandafter\\\the\pdfpagesattr\\%
      \else
        ^^J\the\pdfpagesattr
      \fi
    }%
  }%
  \process@me
 \fi
 \Hy@pstringdef\Hy@pstringB{\@baseurl}%
 \pdfcatalog{%
   /PageMode/\@pdfpagemode
   \ifx\@baseurl\@empty
   \else
     /URI<</Base(\Hy@pstringB)>>%
   \fi
 }%
 \ifx\@pdfstartpage\@empty
 \else
   \ifx\@pdfstartview\@empty
   \else
     openaction goto page\@pdfstartpage{\@pdfstartview}%
   \fi
 \fi
 \edef\Hy@temp{%
   \ifHy@pdftoolbar\else /HideToolbar true\fi
   \ifHy@pdfmenubar\else /HideMenubar true\fi
   \ifHy@pdfwindowui\else /HideWindowUI true\fi
   \ifHy@pdffitwindow /FitWindow true\fi
```

```
    \ifHy@pdfcenterwindow /CenterWindow true\fi
    \ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi
    \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
    \Hy@UseNameKey{Direction}\@pdfdirection
    \Hy@UseNameKey{ViewArea}\@pdfviewarea
    \Hy@UseNameKey{ViewClip}\@pdfviewclip
    \Hy@UseNameKey{PrintArea}\@pdfprintarea
    \Hy@UseNameKey{PrintClip}\@pdfprintclip
    \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
    \Hy@UseNameKey{Duplex}\@pdfduplex
    \ifx\@pdfpicktraybypdfsize\@empty
    \else
      /PickTrayByPDFSize \@pdfpicktraybypdfsize
    \fi
    \ifx\@pdfprintpagerange\@empty
    \else
      /PrintPageRange[\@pdfprintpagerange]%
    \fi
    \ifx\@pdfnumcopies\@empty
    \else
      /NumCopies \@pdfnumcopies
    \fi
  }%
  \pdfcatalog{%
    \ifx\Hy@temp\@empty
    \else
      /ViewerPreferences<<\Hy@temp>>%
    \fi
    \Hy@UseNameKey{PageLayout}\@pdfpagelayout
    \ifx\@pdflang\@empty
    \else
      /Lang(\@pdflang)%
    \fi
  }%
}
```

\PDF@FinishDoc

```
\def\PDF@FinishDoc{%
  \pdf@ifdraftmode{}{%
    \Hy@UseMaketitleInfos
    \HyInfo@GenerateAddons
    \pdfinfo{%
      /Author(\@pdfauthor)%
      /Title(\@pdftitle)%
      /Subject(\@pdfsubject)%
      /Creator(\@pdfcreator)%
      \ifx\@pdfcreationdate\@empty
      \else
        /CreationDate(\@pdfcreationdate)%
      \fi
      \ifx\@pdfmoddate\@empty
      \else
        /ModDate(\@pdfmoddate)%
      \fi
      \ifx\@pdfproducer\relax
      \else
        /Producer(\@pdfproducer)%
      \fi
```

```
    /Keywords(\@pdfkeywords)%
    \ifx\@pdftrapped\@empty
    \else
      /Trapped/\@pdftrapped
    \fi
    \HyInfo@Addons
  }%
}%
\Hy@DisableOption{pdfauthor}%
\Hy@DisableOption{pdftitle}%
\Hy@DisableOption{pdfsubject}%
\Hy@DisableOption{pdfcreator}%
\Hy@DisableOption{pdfcreationdate}%
\Hy@DisableOption{pdfmoddate}%
\Hy@DisableOption{pdfproducer}%
\Hy@DisableOption{pdfkeywords}%
\Hy@DisableOption{pdftrapped}%
\Hy@DisableOption{pdfinfo}%
}
```

\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`.

```
\def\hyper@pagetransition{%
  \ifx\@pdfpagetransition\relax
  \else
    \expandafter\Hy@RemoveTransPageAttr
    \the\pdfpageattr^^J/Trans{}>>\END
    \ifx\@pdfpagetransition\@empty
    \else
      \edef\@processme{%
        \global\pdfpageattr{%
          \the\pdfpageattr
          ^^J/Trans << /S /\@pdfpagetransition\space >>%
        }%
      }%
      \@processme
    \fi
  \fi
}
```

\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.

```
\gdef\Hy@RemoveTransPageAttr#1^^J/Trans#2#3>>#4\END{%
  \ifx\\#2\\%
    \global\pdfpageattr{#1}%
  \else
    \Hy@RemoveTransPageAttr#1#4\END
  \fi
}
```

\hyper@pageduration

`\@pdfpageduration` is initialized with `\relax`. So it indicates, if option pdfpageduration is used. First previous `/Dur` entries are removed. If a new `/Dur` key exists, it is appended to `\pdfpageattr`.

```
\def\hyper@pageduration{%
  \ifx\@pdfpageduration\relax
  \else
    \expandafter
    \Hy@RemoveDurPageAttr\the\pdfpageattr^^J/Dur{} \END
    \ifx\@pdfpageduration\@empty
    \else
      \edef\@processme{%
        \global\pdfpageattr{%
          \the\pdfpageattr
          ^^J/Dur \@pdfpageduration\space
        }%
      }%
      \@processme
    \fi
  \fi
}
```

\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.

```
\gdef\Hy@RemoveDurPageAttr#1^^J/Dur#2#3 #4\END{%
  \ifx\\#2\\%
    \global\pdfpageattr{#1}%
  \else
    \Hy@RemoveDurPageAttr#1#4\END
  \fi
}
```

\hyper@pagehidden The boolean value of the key /Hid is stored in switch \ifHy@pdfpagehidden. First previous /Hid entries are removed, then the new one is appended, if the value is true (the PDF default is false).

```
\def\hyper@pagehidden{%
  \ifHy@useHidKey
    \expandafter
    \Hy@RemoveHidPageAttr\the\pdfpageattr^^J/Hid{} \END
    \ifHy@pdfpagehidden
      \edef\@processme{%
        \global\pdfpageattr{%
          \the\pdfpageattr
          ^^J/Hid true % SPACE
        }%
      }%
      \@processme
    \fi
  \fi
}
```

\Hy@RemoveHidPageAttr Macro \Hy@RemoveHidPageAttr removes a /Hid entry from \pdfpageattr. It is called with the end marker ^^J/Hid{} \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 /Hid object or the end marker.

```
\gdef\Hy@RemoveHidPageAttr#1^^J/Hid#2#3 #4\END{%
  \ifx\\#2\\%
    \global\pdfpageattr{#1}%
```

```
  \else
    \Hy@RemoveHidPageAttr#1#4\END
  \fi
}

\pdf@ifdraftmode{}{%
  \g@addto@macro\Hy@EveryPageHook{%
    \hyper@pagetransition
    \hyper@pageduration
    \hyper@pagehidden
  }%
}
```

Also XeTEX support `\pdfpagewidth` and `\pdfpageheight`, but it does not provide `\pdfhorigin` and `\pdfvorigin`.

```
⟨/pdftex⟩
⟨*pdftex | xetex⟩
\Hy@AtBeginDocument{%
  \ifHy@setpagesize
    \expandafter\@firstofone
  \else
    \expandafter\@gobble
  \fi
  {%
    \@ifclassloaded{seminar}{%
⟨*pdftex⟩
      \setlength{\pdfhorigin}{1truein}%
      \setlength{\pdfvorigin}{1truein}%
⟨/pdftex⟩
      \ifportrait
        \ifdim\paperwidth=\z@
        \else
          \setlength{\pdfpagewidth}{\strip@pt\paperwidth truept}%
        \fi
        \ifdim\paperheight=\z@
        \else
          \setlength{\pdfpageheight}{\strip@pt\paperheight truept}%
        \fi
      \else
        \ifdim\paperheight=\z@
        \else
          \setlength{\pdfpagewidth}{\strip@pt\paperheight truept}%
        \fi
        \ifdim\paperwidth=\z@
        \else
          \setlength{\pdfpageheight}{\strip@pt\paperwidth truept}%
        \fi
      \fi
    }{%
      \ltx@IfUndefined{stockwidth}{%
        \ifdim\paperwidth>\z@
          \setlength{\pdfpagewidth}{\paperwidth}%
        \fi
        \ifdim\paperheight>\z@
          \setlength{\pdfpageheight}{\paperheight}%
        \fi
      }{%
        \ifdim\stockwidth>\z@
```

```
        \setlength{\pdfpagewidth}{\stockwidth}%
      \fi
      \ifdim\stockheight>\z@
        \setlength{\pdfpageheight}{\stockheight}%
      \fi
    }%
  }%
}%
\Hy@DisableOption{setpagesize}%
}
⟨/pdftex | xetex⟩
⟨*pdftex⟩
\def\Acrobatmenu#1#2{%
  \Hy@Acrobatmenu{#1}{#2}{%
    \pdfstartlink
      attr{%
        \Hy@setpdfborder
        \ifx\@pdfhighlight\@empty
        \else
          /H\@pdfhighlight
        \fi
        \ifx\@menubordercolor\relax
        \else
          /C[\@menubordercolor]%
        \fi
      }%
      user{%
        /Subtype/Link%
        \ifHy@pdfa /F 4\fi
        /A<<%
          /S/Named%
          /N/#1%
          \Hy@href@nextactionraw
        >>%
      }%
      \relax
    \Hy@colorlink\@menucolor#2%
    \close@pdflink
  }%
}
```

46.2.1 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 `\special`s 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.

```
\def\Hy@FixNotFirstPage{%
  \gdef\Hy@FixNotFirstPage{%
    \setbox\AtBeginShipoutBox=\hbox{%
      \copy\AtBeginShipoutBox
    }%
  }%
}
```

```
\AtBeginShipout{\Hy@FixNotFirstPage}
⟨/pdftex⟩
```

46.3 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:

name: html:

end: html:

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 be 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 TEX file — the TEX 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.

```
⟨*hypertex⟩
\providecommand*{\XR@ext}{dvi}
\let\PDF@FinishDoc\ltx@empty
\def\PDF@SetupDoc{%
  \ifx\@baseurl\@empty
  \else
    \special{html:<base href="\@baseurl">}%
  \fi
}
\Hy@WrapperDef\hyper@anchor#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \begingroup
    \let\protect=\string
    \hyper@chars
    \special{html:<a name=%
       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
  \endgroup
  \Hy@activeanchortrue
  \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
```

```
  \special{html:</a>}%
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}
\Hy@WrapperDef\hyper@anchorstart#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \begingroup
    \hyper@chars
    \special{html:<a name=%
       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
  \endgroup
  \Hy@activeanchortrue
}
\def\hyper@anchorend{%
  \special{html:</a>}%
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}
\def\@urltype{url}
\def\hyper@linkstart#1#2{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \expandafter\Hy@colorlink\csname @#1color\endcsname
  \def\Hy@tempa{#1}%
  \ifx\Hy@tempa\@urltype
    \special{html:<a href=\hyper@quote#2\hyper@quote>}%
  \else
    \begingroup
      \hyper@chars
      \special{html:<a href=%
         \hyper@quote\#\HyperDestNameFilter{#2}\hyper@quote>}%
    \endgroup
  \fi
}
\def\hyper@linkend{%
  \special{html:</a>}%
  \Hy@endcolorlink
}
\def\hyper@linkfile#1#2#3{%
  \hyper@linkurl{#1}{\Hy@linkfileprefix#2\ifx\\#3\\\else\##3\fi}%
}
\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.

```
  \leavevmode
  \ifHy@raiselinks
    \Hy@SaveSpaceFactor
    \Hy@SaveSavedSpaceFactor
    \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
    \Hy@RestoreSavedSpaceFactor
    \@linkdim\dp\@tempboxa
    \lower\@linkdim\hbox{%
      \hyper@chars
      \special{html:<a href=\hyper@quote#2\hyper@quote>}%
    }%
    \Hy@colorlink\@urlcolor
```

```
      \Hy@RestoreSpaceFactor
      #1%
      \Hy@SaveSpaceFactor
    \@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).

```
    \advance\@linkdim by -6.5\p@
    \raise\@linkdim\hbox{\special{html:</a>}}%
    \Hy@endcolorlink
    \Hy@RestoreSpaceFactor
  \else
    \begingroup
      \hyper@chars
      \special{html:<a href=\hyper@quote#2\hyper@quote>}%
      \Hy@colorlink\@urlcolor#1\Hy@xspace@end
      \special{html:</a>}%
      \Hy@endcolorlink
    \endgroup
  \fi
}
```

Very poor implementation of `\hyper@link` without considering `#1`.

```
\def\hyper@link#1#2#3{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \hyper@linkurl{#3}{\#\HyperDestNameFilter{#2}}%
}
\def\hyper@image#1#2{%
  \begingroup
    \hyper@chars
    \special{html:<img src=\hyper@quote#1\hyper@quote>}%
  \endgroup
}
⟨/hypertex⟩
⟨*dviwindo⟩
```

46.4 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, 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.

```
\providecommand*{\XR@ext}{dvi}
\providecommand*\wwwbrowser{c:\string\netscape\string\netscape}
\Hy@WrapperDef\hyper@anchor#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \begingroup
```

```
    \let\protect=\string
    \special{mark: #1}%
  \endgroup
  \Hy@activeanchortrue
  \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}
\Hy@WrapperDef\hyper@anchorstart#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \special{mark: #1}%
  \Hy@activeanchortrue
}
\def\hyper@anchorend{%
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}
\def\hyper@linkstart#1#2{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \expandafter\Hy@colorlink\csname @#1color\endcsname
  \special{button: %
    10000000 %
    \number\baselineskip\space
    #2%
  }%
}
\def\hyper@linkend{%
  \Hy@endcolorlink
}
\def\hyper@link#1#2#3{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \leavevmode
  \ifHy@raiselinks
    \Hy@SaveSpaceFactor
    \Hy@SaveSavedSpaceFactor
    \sbox\@tempboxa{\Hy@RestoreSpaceFactor#3}%
    \Hy@RestoreSavedSpaceFactor
    \@linkdim\dp\@tempboxa
    \lower\@linkdim\hbox{%
      \special{button: %
        \number\wd\@tempboxa\space
        \number\ht\@tempboxa\space
        #2%
      }%
      \expandafter\Hy@colorlink\csname @#1color\endcsname
      \Hy@RestoreSpaceFactor
      #3\Hy@xspace@end
      \Hy@SaveSpaceFactor
      \Hy@endcolorlink
    }%
    \@linkdim\ht\@tempboxa
    \advance\@linkdim by -6.5\p@
    \raise\@linkdim\hbox{}%
    \Hy@RestoreSpaceFactor
  \else
    \special{button: %
```

```
      \number\wd\@tempboxa\space
      \number\ht\@tempboxa\space
      #2%
    }%
    \expandafter\Hy@colorlink\csname @#1color\endcsname
    #3\Hy@xspace@end
    \Hy@endcolorlink
  \fi
}
\def\hyper@linkurl#1#2{%
  \begingroup
    \hyper@chars
    \leavevmode
    \ifHy@raiselinks
      \Hy@SaveSpaceFactor
      \Hy@SaveSavedSpaceFactor
      \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
      \Hy@RestoreSavedSpaceFactor
      \@linkdim\dp\@tempboxa
      \lower\@linkdim\hbox{%
        \special{button: %
          \number\wd\@tempboxa\space
          \number\ht\@tempboxa\space
          launch: \wwwbrowser\space
          #2%
        }%
        \Hy@colorlink\@urlcolor
          \Hy@RestoreSpaceFactor
          #1\Hy@xspace@end
          \Hy@SaveSpaceFactor
        \Hy@endcolorlink
      }%
      \@linkdim\ht\@tempboxa
      \advance\@linkdim by -6.5\p@
      \raise\@linkdim\hbox{}%
      \Hy@RestoreSpaceFactor
    \else
      \special{button: %
        \number\wd\@tempboxa\space
        \number\ht\@tempboxa\space
        launch: \wwwbrowser\space
        #2%
      }%
      \Hy@colorlink\@urlcolor
        #1\Hy@xspace@end
      \Hy@endcolorlink
    \fi
  \endgroup
}
\def\hyper@linkfile#1#2#3{%
  \begingroup
    \hyper@chars
    \leavevmode
    \ifHy@raiselinks
      \Hy@SaveSpaceFactor
      \Hy@SaveSavedSpaceFactor
      \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
```

```
      \Hy@RestoreSavedSpaceFactor
      \@linkdim\dp\@tempboxa
      \lower\@linkdim\hbox{%
        \special{button: %
          \number\wd\@tempboxa\space
          \number\ht\@tempboxa\space
          #3,%
          file: #2%
        }%
        \Hy@colorlink\@filecolor
          \Hy@RestoreSpaceFactor
          #1\Hy@xspace@end
          \Hy@SaveSpaceFactor
        \Hy@endcolorlink
      }%
      \@linkdim\ht\@tempboxa
      \advance\@linkdim by -6.5\p@
      \raise\@linkdim\hbox{}%
      \Hy@RestoreSpaceFactor
    \else
      \special{button: %
        \number\wd\@tempboxa\space
        \number\ht\@tempboxa\space
        #3,%
        file: #2%
      }%
      \Hy@colorlink\@filecolor
        #1\Hy@xspace@end
      \Hy@endcolorlink
    \fi
  \endgroup
}
\ifx\@pdfproducer\relax
  \def\@pdfproducer{dviwindo + Distiller}%
\fi
\HyInfo@AddonUnsupportedtrue
\def\PDF@FinishDoc{%
  \Hy@UseMaketitleInfos
  \HyInfo@TrappedUnsupported
  \special{PDF: Keywords \@pdfkeywords}%
  \special{PDF: Title \@pdftitle}%
  \special{PDF: Creator \@pdfcreator}%
  \ifx\@pdfcreationdate\@empty
  \else
    \special{PDF: CreationDate \@pdfcreationdate}%
  \fi
  \ifx\@pdfmoddate\@empty
  \else
    \special{PDF: ModDate \@pdfmoddate}%
  \fi
  \special{PDF: Author \@pdfauthor}%
  \ifx\@pdfproducer\relax
  \else
    \special{PDF: Producer \@pdfproducer}%
  \fi
  \special{PDF: Subject \@pdfsubject}%
  \Hy@DisableOption{pdfauthor}%
```

```
  \Hy@DisableOption{pdftitle}%
  \Hy@DisableOption{pdfsubject}%
  \Hy@DisableOption{pdfcreator}%
  \Hy@DisableOption{pdfcreationdate}%
  \Hy@DisableOption{pdfmoddate}%
  \Hy@DisableOption{pdfproducer}%
  \Hy@DisableOption{pdfkeywords}%
  \Hy@DisableOption{pdftrapped}%
  \Hy@DisableOption{pdfinfo}%
}
\def\PDF@SetupDoc{%
  \ifx\@baseurl\@empty
  \else
    \special{PDF: Base \@baseurl}%
  \fi
  \ifx\@pdfpagescrop\@empty\else
    \special{PDF: BBox \@pdfpagescrop}%
  \fi
  \def\Hy@temp{}%
  \ifx\@pdfstartpage\@empty
  \else
    \ifx\@pdfstartview\@empty
    \else
      \edef\Hy@temp{%
        ,Page=\@pdfstartpage
        ,View=\@pdfstartview
      }%
    \fi
  \fi
  \edef\Hy@temp{%
    \noexpand\pdfmark{%
      pdfmark=/DOCVIEW,%
      PageMode=/\@pdfpagemode
      \Hy@temp
    }%
  }%
  \Hy@temp
  \ifx\@pdfpagescrop\@empty
  \else
    \pdfmark{pdfmark=/PAGES,CropBox=\@pdfpagescrop}%
  \fi
  \edef\Hy@temp{%
    \ifHy@pdftoolbar\else /HideToolbar true\fi
    \ifHy@pdfmenubar\else /HideMenubar true\fi
    \ifHy@pdfwindowui\else /HideWindowUI true\fi
    \ifHy@pdffitwindow /FitWindow true\fi
    \ifHy@pdfcenterwindow /CenterWindow true\fi
    \ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi
    \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
    \Hy@UseNameKey{Direction}\@pdfdirection
    \Hy@UseNameKey{ViewArea}\@pdfviewarea
    \Hy@UseNameKey{ViewClip}\@pdfviewclip
    \Hy@UseNameKey{PrintArea}\@pdfprintarea
    \Hy@UseNameKey{PrintClip}\@pdfprintclip
    \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
    \Hy@UseNameKey{Duplex}\@pdfduplex
    \ifx\@pdfpicktraybypdfsize\@empty
```

```
    \else
      /PickTrayByPDFSize \@pdfpicktraybypdfsize
    \fi
    \ifx\@pdfprintpagerange\@empty
    \else
      /PrintPageRange[\@pdfprintpagerange]%
    \fi
    \ifx\@pdfnumcopies\@empty
    \else
      /NumCopies \@pdfnumcopies
    \fi
  }%
  \pdfmark{pdfmark=/PUT,%
    Raw={%
      \string{Catalog\string}<<%
        \ifx\Hy@temp\@empty
        \else
          /ViewerPreferences<<\Hy@temp>>%
        \fi
        \Hy@UseNameKey{PageLayout}\@pdfpagelayout
        \ifx\@pdflang\@empty
        \else
          /Lang(\@pdflang)%
        \fi
      >>%
    }%
  }%
}
⟨/dviwindo⟩
⟨*dvipdfm | xetex⟩
```

46.5 dvipdfm/xetex dvi to PDF converter

Provided by Mark Wicks (mwicks@kettering.edu)

```
\providecommand*{\XR@ext}{pdf}
\Hy@setbreaklinks{true}
\def\HyPat@ObjRef{%
  @[^ ]+%
}
\newsavebox{\pdfm@box}
\def\@pdfm@mark#1{\special{pdf:#1}}
\Hy@WrapperDef\@pdfm@dest#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \begingroup
    \Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}%
    \def\x{XYZ}%
    \ifx\x\@pdfview
      \def\x{XYZ @xpos @ypos null}%
    \else
      \def\x{FitH}%
      \ifx\x\@pdfview
        \def\x{FitH @ypos}%
      \else
        \def\x{FitBH}%
        \ifx\x\@pdfview
          \def\x{FitBH @ypos}%
```

```
      \else
        \def\x{FitV}%
        \ifx\x\@pdfview
          \def\x{FitV @xpos}%
        \else
          \def\x{FitBV}%
          \ifx\x\@pdfview
            \def\x{FitBV @xpos}%
          \else
            \def\x{Fit}%
            \ifx\x\@pdfview
              \let\x\@pdfview
            \else
              \def\x{FitB}%
              \ifx\x\@pdfview
                \let\x\@pdfview
              \else
                \def\x{FitR}%
                \ifx\x\@pdfview
                  \Hy@Warning{'pdfview=FitR' is not supported}%
                  \def\x{XYZ @xpos @ypos null}%
                \else
                  \@onelevel@sanitize\@pdfview
                  \Hy@Warning{%
                    Unknown value '\@pdfview' for pdfview%
                  }%
                  \def\x{XYZ @xpos @ypos null}%
                \fi
              \fi
            \fi
          \fi
        \fi
      \fi
    \fi
  \fi
  \@pdfm@mark{dest (\Hy@pstringDest) [@thispage /\x]}%
 \endgroup
 \Hy@RestoreLastskip
}
\providecommand*\@pdfview{XYZ}
\providecommand*\@pdfborder{0 0 1}
\providecommand*\@pdfborderstyle{}
\def\hyper@anchor#1{%
 \@pdfm@dest{#1}%
}
\def\hyper@anchorstart#1{%
 \Hy@activeanchortrue
 \@pdfm@dest{#1}%
}
\def\hyper@anchorend{%
 \Hy@activeanchorfalse
}
\newcounter{Hy@AnnotLevel}
\ifHy@ocgcolorlinks
 \def\OBJ@OCG@view{@OCG@view}%
 \@pdfm@mark{%
  obj \OBJ@OCG@view <<%
```

```
    /Type/OCG%
    /Name(View)%
    /Usage<<%
      /Print<<%
        /PrintState/OFF%
      >>%
      /View<<%
        /ViewState/ON%
      >>%
    >>%
  >>%
}%
\@pdfm@mark{close \OBJ@OCG@view}%
\def\OBJ@OCG@print{@OCG@print}%
\@pdfm@mark{%
  obj \OBJ@OCG@print <<%
    /Type/OCG%
    /Name(Print)%
    /Usage<<%
      /Print<<%
        /PrintState/ON%
      >>%
      /View<<%
        /ViewState/OFF%
      >>%
    >>%
  >>%
}%
\@pdfm@mark{close \OBJ@OCG@print}%
\def\OBJ@OCGs{@OCGs}%
\@pdfm@mark{%
  obj \OBJ@OCGs [%
    \OBJ@OCG@view\space\OBJ@OCG@print
  ]%
}%
\@pdfm@mark{close \OBJ@OCGs}%
\@pdfm@mark{%
  put @catalog <<%
    /OCProperties<<%
      /OCGs \OBJ@OCGs
      /D<<%
        /OFF[\OBJ@OCG@print]%
        /AS[%
          <<%
            /Event/View%
            /OCGs \OBJ@OCGs
            /Category[/View]%
          >>%
          <<%
            /Event/Print%
            /OCGs \OBJ@OCGs
            /Category[/Print]%
          >>%
          <<%
            /Event/Export%
            /OCGs \OBJ@OCGs
            /Category[/Print]%
```

```
        >>%
      ]%
    >>%
  >>%
 }%
 \AtBeginShipout{%
  \setbox\AtBeginShipoutBox=\hbox{%
   \copy\AtBeginShipoutBox
   \@pdfm@mark{%
    put @resources <<%
     /Properties<<%
      /OCView \OBJ@OCG@view
      /OCPrint \OBJ@OCG@print
     >>%
    >>%
   }%
  }%
 }%
 \Hy@AtBeginDocument{%
  \def\Hy@colorlink#1{%
   \begingroup
    \ifHy@ocgcolorlinks
     \def\Hy@ocgcolor{#1}%
     \setbox0=\hbox\bgroup\color@begingroup
    \else
     \HyColor@UseColor#1%
    \fi
  }%
  \def\Hy@endcolorlink{%
   \ifHy@ocgcolorlinks
    \color@endgroup\egroup
    \mbox{%
     \@pdfm@mark{content /OC/OCPrint BDC}%
     \rlap{\copy0}%
     \@pdfm@mark{content EMC/OC/OCView BDC}%
     \begingroup
      \expandafter\HyColor@UseColor\Hy@ocgcolor
      \box0 %
     \endgroup
     \@pdfm@mark{content EMC}%
    }%
   \fi
   \endgroup
  }%
 }%
\else
 \Hy@DisableOption{ocgcolorlinks}%
\fi
\def\Hy@BeginAnnot#1{%
 \stepcounter{Hy@AnnotLevel}%
 \ifnum\value{Hy@AnnotLevel}=\@ne
  #1%
 \fi
}
\def\Hy@EndAnnot{%
 \ifnum\value{Hy@AnnotLevel}=\@ne
```

```
    \Hy@endcolorlink
    \@pdfm@mark{eann}%
  \fi
  \addtocounter{Hy@AnnotLevel}\m@ne
}
\def\Hy@undefinedname{UNDEFINED}
\def\hyper@linkstart#1#2{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \leavevmode
  \Hy@BeginAnnot{%
    \protected@edef\Hy@testname{#2}%
    \ifx\Hy@testname\@empty
      \Hy@Warning{%
        Empty destination name,\MessageBreak
        using '\Hy@undefinedname'%
      }%
      \let\Hy@testname\Hy@undefinedname
    \else
      \Hy@pstringdef\Hy@testname{%
        \expandafter\HyperDestNameFilter\expandafter{%
          \Hy@testname
        }%
      }%
    \fi
    \@pdfm@mark{%
      bann<<%
        /Type/Annot%
        /Subtype/Link%
        \ifHy@pdfa /F 4\fi
        \Hy@setpdfborder
        \expandafter\ifx\csname @#1bordercolor\endcsname\relax
        \else
          /C[\csname @#1bordercolor\endcsname]%
        \fi
        /A<<%
          /S/GoTo%
          /D(\Hy@testname)%
          \Hy@href@nextactionraw
        >>%
      >>%
    }%
    \expandafter\Hy@colorlink\csname @#1color\endcsname
  }%
}
\def\hyper@linkend{\Hy@EndAnnot}%
\def\hyper@link#1#2#3{%
  \hyper@linkstart{#1}{#2}#3\Hy@xspace@end\hyper@linkend
}
\def\hyper@linkfile#1#2#3{%
  \leavevmode
  \Hy@BeginAnnot{%
    \def\Hy@pstringF{#2}%
    \Hy@CleanupFile\Hy@pstringF
    \Hy@pstringdef\Hy@pstringF\Hy@pstringF
    \Hy@pstringdef\Hy@pstringD{#3}%
    \Hy@MakeRemoteAction
    \@pdfm@mark{%
```

```
    bann<<%
      /Type/Annot%
      /Subtype/Link%
      \ifHy@pdfa /F 4\fi
      \Hy@setpdfborder
      \ifx\@filebordercolor\relax
      \else
        /C[\@filebordercolor]%
      \fi
      /A<<%
        /S/GoToR%
        /F(\Hy@pstringF)%
        /D%
        \ifx\\#3\\%
          [\Hy@href@page\@pdfremotestartview]%
        \else
          (\Hy@pstringD)%
        \fi
        \Hy@SetNewWindow
        \Hy@href@nextactionraw
      >>%
    >>%
  }%
  \Hy@colorlink\@filecolor
 }%
 #1\Hy@xspace@end
 \Hy@EndAnnot
}
\def\@hyper@launch run:#1\\#2#3{% filename, anchor text linkname
 \leavevmode
 \Hy@BeginAnnot{%
  \Hy@pstringdef\Hy@pstringF{#1}%
  \Hy@pstringdef\Hy@pstringP{#3}%
  \@pdfm@mark{%
    bann<<%
      /Type/Annot%
      /Subtype/Link%
      \ifHy@pdfa /F 4\fi
      \Hy@setpdfborder
      \ifx\@runbordercolor\relax
      \else
        /C[\@runbordercolor]%
      \fi
      /A<<%
        /F(\Hy@pstringF)%
        /S/Launch%
        \Hy@SetNewWindow
        \ifx\\#3\\%
        \else
          /Win<</P(\Hy@pstringP)/F(\Hy@pstringF)>>%
        \fi
        \Hy@href@nextactionraw
      >>%
    >>%
  }%
  \Hy@colorlink\@runcolor
 }%
```

```
  #2\Hy@xspace@end
  \Hy@EndAnnot
}
\def\hyper@linkurl#1#2{%
  \leavevmode
  \Hy@BeginAnnot{%
    \Hy@pstringdef\Hy@pstringURI{#2}%
    \@pdfm@mark{%
      bann<<%
        /Type/Annot%
        /Subtype/Link%
        \ifHy@pdfa /F 4\fi
        \Hy@setpdfborder
        \ifx\@urlbordercolor\relax
        \else
          /C[\@urlbordercolor]%
        \fi
        /A<<%
          /S/URI%
          /URI(\Hy@pstringURI)%
          \ifHy@href@ismap
            /IsMap true%
          \fi
          \Hy@href@nextactionraw
        >>%
      >>%
    }%
    \Hy@colorlink\@urlcolor
  }%
  #1\Hy@xspace@end
  \Hy@EndAnnot
}
\def\Acrobatmenu#1#2{%
  \Hy@Acrobatmenu{#1}{#2}{%
    \Hy@BeginAnnot{%
      \@pdfm@mark{%
        bann<<%
          /Type/Annot%
          /Subtype/Link%
          \ifHy@pdfa /F 4\fi
          /A<<%
            /S/Named%
            /N/#1%
            \Hy@href@nextactionraw
          >>%
          \Hy@setpdfborder
          \ifx\@menubordercolor\relax
          \relax
            /C[\@menubordercolor]%
          \fi
        >>%
      }%
      \Hy@colorlink\@menucolor
    }%
    #2\Hy@xspace@end
    \Hy@EndAnnot
  }%
```

```
}
\ifx\@pdfproducer\relax
  \def\@pdfproducer{dvipdfm}%
```

Detect XeTEX. However, but xdvipdfmx will overwrite it in the final PDF file.

```
  \begingroup\expandafter\expandafter\expandafter\endgroup
  \expandafter\ifx\csname XeTeXversion\endcsname\relax
  \else
    \edef\@pdfproducer{XeTeX \the\XeTeXversion\XeTeXrevision}%
  \fi
\fi
\def\PDF@FinishDoc{%
  \Hy@UseMaketitleInfos
  \HyInfo@GenerateAddons
  \@pdfm@mark{%
    docinfo<<%
      /Title(\@pdftitle)%
      /Subject(\@pdfsubject)%
      /Creator(\@pdfcreator)%
      \ifx\@pdfcreationdate\@empty
      \else
        /CreationDate(\@pdfcreationdate)%
      \fi
      \ifx\@pdfmoddate\@empty
      \else
        /ModDate(\@pdfmoddate)%
      \fi
      /Author(\@pdfauthor)%
      \ifx\@pdfproducer\relax
      \else
        /Producer(\@pdfproducer)%
      \fi
      /Keywords(\@pdfkeywords)%
      \ifx\@pdftrapped\@empty
      \else
        /Trapped/\@pdftrapped
      \fi
      \HyInfo@Addons
    >>%
  }%
  \Hy@DisableOption{pdfauthor}%
  \Hy@DisableOption{pdftitle}%
  \Hy@DisableOption{pdfsubject}%
  \Hy@DisableOption{pdfcreator}%
  \Hy@DisableOption{pdfcreationdate}%
  \Hy@DisableOption{pdfmoddate}%
  \Hy@DisableOption{pdfproducer}%
  \Hy@DisableOption{pdfkeywords}%
  \Hy@DisableOption{pdftrapped}%
  \Hy@DisableOption{pdfinfo}%
}
\def\PDF@SetupDoc{%
  \edef\Hy@temp{%
    \ifHy@pdftoolbar\else /HideToolbar true\fi
    \ifHy@pdfmenubar\else /HideMenubar true\fi
    \ifHy@pdfwindowui\else /HideWindowUI true\fi
    \ifHy@pdffitwindow /FitWindow true\fi
```

```
    \ifHy@pdfcenterwindow /CenterWindow true\fi
    \ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi
    \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
    \Hy@UseNameKey{Direction}\@pdfdirection
    \Hy@UseNameKey{ViewArea}\@pdfviewarea
    \Hy@UseNameKey{ViewClip}\@pdfviewclip
    \Hy@UseNameKey{PrintArea}\@pdfprintarea
    \Hy@UseNameKey{PrintClip}\@pdfprintclip
    \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
    \Hy@UseNameKey{Duplex}\@pdfduplex
    \ifx\@pdfpicktraybypdfsize\@empty
    \else
      /PickTrayByPDFSize \@pdfpicktraybypdfsize
    \fi
    \ifx\@pdfprintpagerange\@empty
    \else
      /PrintPageRange[\@pdfprintpagerange]%
    \fi
    \ifx\@pdfnumcopies\@empty
    \else
      /NumCopies \@pdfnumcopies
    \fi
  }%
  \Hy@pstringdef\Hy@pstringB{\@baseurl}%
  \@pdfm@mark{%
    docview<<%
      \ifx\@pdfstartpage\@empty
      \else
        \ifx\@pdfstartview\@empty
        \else
          /OpenAction[@page\@pdfstartpage\@pdfstartview]%
        \fi
      \fi
      \ifx\@baseurl\@empty
      \else
        /URI<</Base(\Hy@pstringB)>>%
      \fi
      /PageMode/\@pdfpagemode
      \ifx\Hy@temp\@empty
      \else
        /ViewerPreferences<<\Hy@temp>>%
      \fi
      \Hy@UseNameKey{PageLayout}\@pdfpagelayout
      \ifx\@pdflang\@empty
      \else
        /Lang(\@pdflang)%
      \fi
    >>%
  }%
  \ifx\@pdfpagescrop\@empty
  \else
    \@pdfm@mark{put @pages <</CropBox[\@pdfpagescrop]>>}%
  \fi
}
⟨/dvipdfm | xetex⟩
⟨*dvipdfm | xetex⟩
```

\hyper@pagetransition

```
\def\hyper@pagetransition{%
  \ifx\@pdfpagetransition\relax
  \else
    \ifx\@pdfpagetransition\@empty
    \else
      \special{pdf:put @thispage %
        <</Trans<</S/\@pdfpagetransition>>>>%
      }%
    \fi
  \fi
}
```

\hyper@pageduration

```
\def\hyper@pageduration{%
  \ifx\@pdfpageduration\relax
  \else
    \ifx\@pdfpageduration\@empty
    \else
      \special{pdf:put @thispage %
        <</Dur \@pdfpageduration>>%
      }%
    \fi
  \fi
}
```

\hyper@pagehidden

```
\def\hyper@pagehidden{%
  \ifHy@useHidKey
    \special{pdf:put @thispage %
      <</Hid \ifHy@pdfpagehidden true\else false\fi>>%
    }%
  \fi
}
```

```
\g@addto@macro\Hy@EveryPageBoxHook{%
  \hyper@pagetransition
  \hyper@pageduration
  \hyper@pagehidden
}
```

⟨/dvipdfm | xetex⟩

XeTEX uses pdfTEX's method \pdfpagewidth and \pdfpageheight for setting the paper size.

⟨*dvipdfm⟩

```
\AtBeginShipoutFirst{%
  \ifHy@setpagesize
    \begingroup
      \@ifundefined{stockwidth}{%
        \ifdim\paperwidth>\z@
          \ifdim\paperheight>\z@
            \special{papersize=\the\paperwidth,\the\paperheight}%
          \fi
        \fi
      }{%
        \ifdim\stockwidth>\z@
          \ifdim\stockheight>\z@
```

```
          \special{papersize=\the\stockwidth,\the\stockheight}%
        \fi
      \fi
    }%
  \endgroup
 \fi
 \Hy@DisableOption{setpagesize}%
}
⟨/dvipdfm⟩
```

46.6 VTeX typesetting system

Provided by MicroPress, May 1998. They require VTeX version 6.02 or newer; see http://www.micropress-inc.com/ for details.

```
⟨*vtexhtml⟩
\providecommand*{\XR@ext}{htm}
\RequirePackage{vtexhtml}
\newif\if@Localurl
\let\PDF@FinishDoc\ltx@empty
\def\PDF@SetupDoc{%
  \ifx\@baseurl\@empty
  \else
    \special{!direct <base href="\@baseurl">}%
  \fi
}
\def\@urltype{url}
\def\hyper@link#1#2#3{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \leavevmode
  \special{!direct <a href=%
     \hyper@quote\hyper@hash\HyperDestNameFilter{#2}\hyper@quote>}%
  #3\Hy@xspace@end
  \special{!direct </a>}%
}
\def\hyper@linkurl#1#2{%
  \begingroup
    \hyper@chars
    \leavevmode
    \MathBSuppress=1\relax
    \special{!direct <a href=%
       \hyper@quote\HyperDestNameFilter{#2}\hyper@quote>}%
    #1\Hy@xspace@end
    \MathBSuppress=0\relax
    \special{!direct </a>}%
  \endgroup
}
\def\hyper@linkfile#1#2#3{%
  \hyper@linkurl{#1}{\Hy@linkfileprefix#2\ifx\\#3\\\else\##3\fi}%
}
\def\hyper@linkstart#1#2{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \def\Hy@tempa{#1}\ifx\Hy@tempa\@urltype
    \@Localurltrue
    \special{!direct <a href=\hyper@quote#2\hyper@quote>}%
  \else
    \@Localurlfalse
    \begingroup
```

```
      \hyper@chars
      \special{!aref \HyperDestNameFilter{#2}}%
    \endgroup
  \fi
}
\def\hyper@linkend{%
  \if@Localurl
    \special{!endaref}%
  \else
    \special{!direct </a>}%
  \fi
}
\Hy@WrapperDef\hyper@anchorstart#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \begingroup
    \hyper@chars
    \special{!aname #1}%
    \special{!direct <a name=%
       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
  \endgroup
  \Hy@activeanchortrue
}
\def\hyper@anchorend{%
  \special{!direct </a>}%
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}
\Hy@WrapperDef\hyper@anchor#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \begingroup
    \let\protect=\string
    \hyper@chars
    \leavevmode
    \special{!aname #1}%
    \special{!direct <a name=%
       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
  \endgroup
  \Hy@activeanchortrue
  \bgroup\anchor@spot\egroup
  \special{!direct </a>}%
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}
\def\@Form[#1]{%
  \Hy@Message{Sorry, TeXpider does not yet support FORMs}%
}
\let\@endForm\ltx@empty
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \Hy@Message{Sorry, TeXpider does not yet support FORM gauges}%
}
\def\@TextField[#1]#2{% parameters, label
  \Hy@Message{Sorry, TeXpider does not yet support FORM text fields}%
}
\def\@CheckBox[#1]#2{% parameters, label
  \Hy@Message{Sorry, TeXpider does not yet support FORM checkboxes}%
```

```
}
\def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
  \Hy@Message{Sorry, TeXpider does not yet support FORM choice menus}%
}
\def\@PushButton[#1]#2{% parameters, label
  \Hy@Message{Sorry, TeXpider does not yet support FORM pushbuttons}%
}
\def\@Reset[#1]#2{%
  \Hy@Message{Sorry, TeXpider does not yet support FORMs}%
}
\def\@Submit[#1]#2{%
  \Hy@Message{Sorry, TeXpider does not yet support FORMs}%
}
⟨/vtexhtml⟩
⟨*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.

```
\ifx\mediaheight\@undefined
\else
  \ifx\mediaheight\relax
  \else
    \ifHy@setpagesize
      \providecommand*{\VTeXInitMediaSize}{%
        \ltx@IfUndefined{stockwidth}{%
          \ifdim\paperheight>0pt %
            \setlength\mediaheight\paperheight
          \fi
          \ifdim\paperheight>0pt %
            \setlength\mediawidth\paperwidth
          \fi
        }{%
          \ifdim\stockheight>0pt %
            \setlength\mediaheight\stockheight
          \fi
          \ifdim\stockwidth>0pt %
            \setlength\mediawidth\stockwidth
          \fi
        }%
      }%
      \Hy@AtBeginDocument{\VTeXInitMediaSize}%
    \fi
    \Hy@DisableOption{setpagesize}%
  \fi
\fi
```

Older versions of VTeX require `xyz` in lower case.

```
\providecommand*\@pdfview{xyz}
\providecommand*\@pdfborder{0 0 1}
\providecommand*\@pdfborderstyle{}
\let\CurrentBorderColor\@linkbordercolor
\Hy@WrapperDef\hyper@anchor#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \begingroup
    \let\protect=\string
    \hyper@chars
```

```
    \special{!aname \HyperDestNameFilter{#1};\@pdfview}%
  \endgroup
  \Hy@activeanchortrue
  \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}
\Hy@WrapperDef\hyper@anchorstart#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \begingroup
    \hyper@chars
    \special{!aname \HyperDestNameFilter{#1};\@pdfview}%
  \endgroup
  \Hy@activeanchortrue
}
\def\hyper@anchorend{%
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}
\def\@urltype{url}
\def\Hy@undefinedname{UNDEFINED}
\def\hyper@linkstart#1#2{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \Hy@pstringdef\Hy@pstringURI{#2}%
  \expandafter\Hy@colorlink\csname @#1color\endcsname
  \ltx@IfUndefined{@#1bordercolor}{%
    \let\CurrentBorderColor\relax
  }{%
    \edef\CurrentBorderColor{%
      \csname @#1bordercolor\endcsname
    }%
  }%
  \def\Hy@tempa{#1}%
  \ifx\Hy@tempa\@urltype
    \special{!%
      aref <u=/Type/Action/S/URI/URI(\Hy@pstringURI)%
        \ifHy@href@ismap
          /IsMap true%
        \fi
        \Hy@href@nextactionraw
        >;%
      a=<%
        \ifHy@pdfa /F 4\fi
        \Hy@setpdfborder
        \ifx\CurrentBorderColor\relax
        \else
          /C [\CurrentBorderColor]%
        \fi
      >%
    }%
  \else
    \protected@edef\Hy@testname{#2}%
    \ifx\Hy@testname\@empty
      \Hy@Warning{%
        Empty destination name,\MessageBreak
        using `\Hy@undefinedname'%
```

```
    }%
    \let\Hy@testname\Hy@undefinedname
  \fi
  \special{!%
    aref \expandafter\HyperDestNameFilter
        \expandafter{\Hy@testname};%
    a=<%
      \ifHy@pdfa /F 4\fi
      \Hy@setpdfborder
      \ifx\CurrentBorderColor\relax
      \else
        /C [\CurrentBorderColor]%
      \fi
    >%
  }%
 \fi
}
\def\hyper@linkend{%
 \special{!endaref}%
 \Hy@endcolorlink
}
\def\hyper@linkfile#1#2#3{%
 \leavevmode
 \def\Hy@pstringF{#2}%
 \Hy@CleanupFile\Hy@pstringF
 \special{!%
  aref <%
  \ifnum\Hy@VTeXversion>753 \ifHy@pdfnewwindow n\fi\fi
  f=\Hy@pstringF>#3;%
  a=<%
    \ifHy@pdfa /F 4\fi
    \Hy@setpdfborder
    \ifx\@filebordercolor\relax
    \else
      /C [\@filebordercolor]%
    \fi
  >%
 }%
 \Hy@colorlink\@filecolor
  #1\Hy@xspace@end
 \Hy@endcolorlink
 \special{!endaref}%
}
\def\hyper@linkurl#1#2{%
 \begingroup
  \Hy@pstringdef\Hy@pstringURI{#2}%
  \hyper@chars
  \leavevmode
  \special{!%
    aref <u=/Type/Action/S/URI/URI(\Hy@pstringURI)%
      \ifHy@href@ismap
        /IsMap true%
      \fi
      \Hy@href@nextactionraw
      >;%
    a=<%
      \ifHy@pdfa /F 4\fi
```

```
      \Hy@setpdfborder
      \ifx\@urlbordercolor\relax
      \else
        /C [\@urlbordercolor]%
      \fi
    >%
  }%
  \Hy@colorlink\@urlcolor
    #1\Hy@xspace@end
  \Hy@endcolorlink
  \special{!endaref}%
 \endgroup
}
\def\hyper@link#1#2#3{%
 \Hy@VerboseLinkStart{#1}{#2}%
 \ltx@IfUndefined{@#1bordercolor}{%
  \let\CurrentBorderColor\relax
 }{%
  \edef\CurrentBorderColor{\csname @#1bordercolor\endcsname}%
 }%
 \leavevmode
 \protected@edef\Hy@testname{#2}%
 \ifx\Hy@testname\@empty
  \Hy@Warning{%
   Empty destination name,\MessageBreak
   using `\Hy@undefinedname'%
  }%
  \let\Hy@testname\Hy@undefinedname
 \fi
 \special{!%
  aref \expandafter\HyperDestNameFilter
      \expandafter{\Hy@testname};%
  a=<%
   \ifHy@pdfa /F 4\fi
   \Hy@setpdfborder
   \ifx\CurrentBorderColor\relax
   \else
     /C [\CurrentBorderColor]%
   \fi
  >%
 }%
 \expandafter
 \Hy@colorlink\csname @#1color\endcsname
  #3\Hy@xspace@end
 \Hy@endcolorlink
 \special{!endaref}%
}
\def\hyper@image#1#2{%
 \hyper@linkurl{#2}{#1}%
}
\def\@hyper@launch run:#1\\#2#3{%
 \Hy@pstringdef\Hy@pstringF{#1}%
 \Hy@pstringdef\Hy@pstringP{#3}%
 \leavevmode
 \special{!aref %
  <u=%
   /Type/Action%
```

```
      /S/Launch%
      /F(\Hy@pstringF)%
      \Hy@SetNewWindow
      \ifx\\#3\\%
      \else
        /Win<</F(\Hy@pstringF)/P(\Hy@pstringP)>>%
      \fi
      \Hy@href@nextactionraw
    >;%
    a=<%
      \ifHy@pdfa /F 4\fi
      \Hy@setpdfborder
      \ifx\@runbordercolor\relax
      \else
        /C[\@runbordercolor]%
      \fi
    >%
  }%
  \Hy@colorlink\@runcolor
    #2\Hy@xspace@end
  \Hy@endcolorlink
  \special{!endaref}%
}
\def\Acrobatmenu#1#2{%
  \Hy@Acrobatmenu{#1}{#2}{%
    \special{!%
      aref <u=/S /Named /N /#1>;%
      a=<%
        \ifHy@pdfa /F 4\fi
        \Hy@setpdfborder
        \ifx\@menubordercolor\relax
        \else
          /C[\@menubordercolor]%
        \fi
      >%
    }%
    \Hy@colorlink\@menucolor
      #2\Hy@xspace@end
    \Hy@endcolorlink
    \special{!endaref}%
  }%
}
```

The following code (transition effects) is made by Alex Kostin.

The code below makes sense for VTEX 7.02 or later.

Please never use `\@ifundefined{VTeXversion}{..}{..}` *globally.*

```
\ifnum\Hy@VTeXversion<702 %
\else
  \def\hyper@pagetransition{%
    \ifx\@pdfpagetransition\relax
    \else
      \ifx\@pdfpagetransition\@empty
```

Standard incantation.

1. Does an old entry have to be deleted? 2. If 1=yes, how to delete?

```
      \else
        \hvtex@parse@trans\@pdfpagetransition
      \fi
```

```
  \fi
}%
```

I have to write an “honest” parser to convert raw PDF code into VTEX \special. (AVK)

Syntax of VTEX \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:

```
\def\hvtex@trans@effect@Blinds{\def\hvtex@trans@code{B}}%
\def\hvtex@trans@effect@Box{\def\hvtex@trans@code{X}}%
\def\hvtex@trans@effect@Dissolve{\def\hvtex@trans@code{D}}%
\def\hvtex@trans@effect@Glitter{\def\hvtex@trans@code{G}}%
\def\hvtex@trans@effect@Split{\def\hvtex@trans@code{S}}%
\def\hvtex@trans@effect@Wipe{\def\hvtex@trans@code{W}}%
\def\hvtex@trans@effect@R{\def\hvtex@trans@code{R}}%
```

Optional parameters:

```
\def\hvtex@par@dimension{/Dm}%
\def\hvtex@par@direction{/Di}%
\def\hvtex@par@duration{/D}%
\def\hvtex@par@motion{/M}%
```

Tokenizer:

```
\def\hvtex@gettoken{%
  \expandafter\hvtex@gettoken@\hvtex@buffer\@nil
}%
```

Notice that tokens in the input buffer must be space delimited.

```
\def\hvtex@gettoken@#1 #2\@nil{%
  \edef\hvtex@token{#1}%
  \edef\hvtex@buffer{#2}%
}%
\def\hvtex@parse@trans#1{%
```

Initializing code:

```
  \let\hvtex@trans@code\@empty
  \let\hvtex@param@dimension\@empty
  \let\hvtex@param@direction\@empty
  \let\hvtex@param@duration\@empty
  \let\hvtex@param@motion\@empty
  \edef\hvtex@buffer{#1\space}%
```

First token is the PDF transition name without escape.

```
  \hvtex@gettoken
  \ifx\hvtex@token\@empty
```

Leading space(s)?

```
    \ifx\hvtex@buffer\@empty
```

The buffer is empty, nothing to do.

```
    \else
      \hvtex@gettoken
    \fi
  \fi
  \csname hvtex@trans@effect@\hvtex@token\endcsname
```

Now is time to parse optional parameters.

```
  \hvtex@trans@params
}%
```

Reentrable macro to parse optional parameters.

```
\def\hvtex@trans@params{%
  \ifx\hvtex@buffer\@empty
  \else
    \hvtex@gettoken
    \let\hvtex@trans@par\hvtex@token
    \ifx\hvtex@buffer\@empty
    \else
      \hvtex@gettoken
      \ifx\hvtex@trans@par\hvtex@par@duration
```

/D is the effect duration in seconds. VTEX special takes it in milliseconds.

```
        \let\hvtex@param@duration\hvtex@token
      \else \ifx\hvtex@trans@par\hvtex@par@motion
```

/M can be either /I or /O

```
        \expandafter\edef\expandafter\hvtex@param@motion
          \expandafter{\expandafter\@gobble\hvtex@token}%
      \else \ifx\hvtex@trans@par\hvtex@par@dimension
```

/Dm can be either /H or /V

```
        \expandafter\edef\expandafter\hvtex@param@dimension
          \expandafter{\expandafter\@gobble\hvtex@token}%
      \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).

```
        \let\hvtex@param@direction\hvtex@token
      \fi\fi\fi\fi
    \fi
  \fi
  \ifx\hvtex@buffer\@empty
    \let\next\hvtex@produce@trans
  \else
    \let\next\hvtex@trans@params
  \fi
  \next
}%
```

Merge `<transition_effect>` and issue the special when possible. Too lazy to validate optional parameters.

```
\def\hvtex@produce@trans{%
  \let\vtex@trans@special\@empty
  \if S\hvtex@trans@code
    \edef\vtex@trans@special{\hvtex@trans@code
      \hvtex@param@dimension\hvtex@param@motion}%
```

```
    \else\if B\hvtex@trans@code
      \edef\vtex@trans@special{%
        \hvtex@trans@code\hvtex@param@dimension
      }%
    \else\if X\hvtex@trans@code
      \edef\vtex@trans@special{%
        \hvtex@trans@code\hvtex@param@motion
      }%
    \else\if W\hvtex@trans@code
      \edef\vtex@trans@special{%
        \hvtex@trans@code\hvtex@param@direction
      }%
    \else\if D\hvtex@trans@code
      \let\vtex@trans@special\hvtex@trans@code
    \else\if R\hvtex@trans@code
      \let\vtex@trans@special\hvtex@trans@code
    \else\if G\hvtex@trans@code
      \edef\vtex@trans@special{%
        \hvtex@trans@code\hvtex@param@direction
      }%
    \fi\fi\fi\fi\fi\fi\fi
    \ifx\vtex@trans@special\@empty
    \else
      \ifx\hvtex@param@duration\@empty
      \else
        \setlength{\dimen@}{\hvtex@param@duration\p@}%
```

I'm not guilty of possible overflow.

```
        \multiply\dimen@\@m
        \edef\vtex@trans@special{%
          \vtex@trans@special,\strip@pt\dimen@
        }%
      \fi
```

And all the mess is just for this.

```
      \special{!trans \vtex@trans@special}%
    \fi
  }%
  \def\hyper@pageduration{%
    \ifx\@pdfpageduration\relax
    \else
      \ifx\@pdfpageduration\@empty
        \special{!duration-}%
      \else
        \special{!duration \@pdfpageduration}%
      \fi
    \fi
  }%
  \def\hyper@pagehidden{%
    \ifHy@useHidKey
      \special{!hidden\ifHy@pdfpagehidden +\else -\fi}%
    \fi
  }%
  \g@addto@macro\Hy@EveryPageBoxHook{%
    \hyper@pagetransition
    \hyper@pageduration
    \hyper@pagehidden
  }%
```

```
\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

```
\ifx\@pdfproducer\relax
  \def\@pdfproducer{VTeX}%
  \ifnum\Hy@VTeXversion>\z@
    \count@\VTeXversion
    \divide\count@ 100 %
    \edef\@pdfproducer{\@pdfproducer\space v\the\count@}%
    \multiply\count@ -100 %
    \advance\count@\VTeXversion
    \edef\@pdfproducer{%
      \@pdfproducer
      .\ifnum\count@<10 0\fi\the\count@
      \ifx\VTeXOS\@undefined\else
        \ifnum\VTeXOS>0 %
          \ifnum\VTeXOS<6 %
            \space(%
            \ifcase\VTeXOS
            \or Windows\or Linux\or OS/2\or MacOS\or MacOS/X%
            \fi
            )%
          \fi
        \fi
      \fi
      ,\space
      \ifnum\OpMode=\@ne PDF\else PS\fi
      \space backend%
      \ifx\gexmode\@undefined\else
        \ifnum\gexmode>\z@\space with GeX\fi
      \fi
    }%
  \fi
\fi
```

Current !pdfinfo key syntax:

Key	Field	Type
a	**A**uthor	String
b	Crop**B**ox	String
c	**C**reator	String
k	**K**eywords	String
l	Page**L**ayout	PS
p	**P**ageMode	PS
r	P**r**oducer	String
s	**S**ubject	String
t	**T**itle	String
u	**U**RI	PS
v	**V**iewPreferences	PS

Note: PS objects that are dicts are in <<<..>>> (yuck; no choice).

```
\def\PDF@SetupDoc{%
  \ifx\@pdfpagescrop\@empty
  \else
    \special{!pdfinfo b=<\@pdfpagescrop>}%
  \fi
  \ifx\@pdfstartpage\@empty
  \else
    \ifx\@pdfstartview\@empty
    \else
      \special{!onopen Page\@pdfstartpage}%
    \fi
  \fi
  \special{!pdfinfo p=</\@pdfpagemode>}%
  \ifx\@baseurl\@empty
  \else
    \special{!pdfinfo u=<<</Base (\@baseurl)>>>}%
  \fi
  \special{!pdfinfo v=<<<%
    \ifHy@pdftoolbar\else /HideToolbar true\fi
    \ifHy@pdfmenubar\else /HideMenubar true\fi
    \ifHy@pdfwindowui\else /HideWindowUI true\fi
    \ifHy@pdffitwindow /FitWindow true\fi
    \ifHy@pdfcenterwindow /CenterWindow true\fi
    \ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi
    \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
    \Hy@UseNameKey{Direction}\@pdfdirection
    \Hy@UseNameKey{ViewArea}\@pdfviewarea
    \Hy@UseNameKey{ViewClip}\@pdfviewclip
    \Hy@UseNameKey{PrintArea}\@pdfprintarea
    \Hy@UseNameKey{PrintClip}\@pdfprintclip
    \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
    \Hy@UseNameKey{Duplex}\@pdfduplex
    \ifx\@pdfpicktraybypdfsize\@empty
    \else
      /PickTrayByPDFSize \@pdfpicktraybypdfsize
    \fi
    \ifx\@pdfprintpagerange\@empty
    \else
      /PrintPageRange[\@pdfprintpagerange]%
    \fi
    \ifx\@pdfnumcopies\@empty
    \else
      /NumCopies \@pdfnumcopies
    \fi
  >>>}%
  \ifx\@pdfpagelayout\@empty
  \else
    \special{!pdfinfo l=</\@pdfpagelayout\space>}%
  \fi
}%
\HyInfo@AddonUnsupportedtrue
\def\PDF@FinishDoc{%
  \Hy@UseMaketitleInfos
  \HyInfo@TrappedUnsupported
  \special{!pdfinfo a=<\@pdfauthor>}%
  \special{!pdfinfo t=<\@pdftitle>}%
```

```
  \special{!pdfinfo s=<\@pdfsubject>}%
  \special{!pdfinfo c=<\@pdfcreator>}%
  \ifx\@pdfproducer\relax
  \else
    \special{!pdfinfo r=<\@pdfproducer>}%
  \fi
  \special{!pdfinfo k=<\@pdfkeywords>}%
  \Hy@DisableOption{pdfauthor}%
  \Hy@DisableOption{pdftitle}%
  \Hy@DisableOption{pdfsubject}%
  \Hy@DisableOption{pdfcreator}%
  \Hy@DisableOption{pdfcreationdate}%
  \Hy@DisableOption{pdfmoddate}%
  \Hy@DisableOption{pdfproducer}%
  \Hy@DisableOption{pdfkeywords}%
  \Hy@DisableOption{pdftrapped}%
  \Hy@DisableOption{pdfinfo}%
}
⟨/vtex⟩
```

46.7 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.

```
⟨dviwindo⟩\def\literalps@out#1{\special{ps:#1}}%
⟨package⟩\providecommand*{\Hy@DistillerDestFix}{}
⟨*pdfmark | dviwindo⟩
\def\Hy@DistillerDestFix{%
  \begingroup
    \let\x\literalps@out
```

The fix has to be passed unchanged through GeX, if VTeX in PostScript mode with GeX is used.

```
    \ifnum \@ifundefined{OpMode}{0}{%
          \@ifundefined{gexmode}{0}{%
          \ifnum\gexmode>0 \OpMode\else 0\fi
          }}>1 %
      \def\x##1{%
        \immediate\special{!=##1}%
      }%
    \fi
    \x{%
      /product where{%
        pop %
        product(Distiller)search{%
          pop pop pop %
          version(.)search{%
            exch pop exch pop%
            (3011)eq{%
              gsave %
```

```
            newpath 0 0 moveto closepath clip%
            /Courier findfont 10 scalefont setfont %
            72 72 moveto(.)show %
            grestore%
          }if%
        }{pop}ifelse%
      }{pop}ifelse%
    }if%
  }%
  \endgroup
}
⟨/pdfmark | dviwindo⟩
```

46.8 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

```
⟨*pdfmark⟩
\Hy@breaklinks@unsupported
\def\HyPat@ObjRef{%
  \{[^{}]+\}%
}
\Hy@WrapperDef\hyper@anchor#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \begingroup
    \pdfmark[\anchor@spot]{%
      pdfmark=/DEST,%
      linktype=anchor,%
      View=/\@pdfview \@pdfviewparams,%
      DestAnchor={#1}%
    }%
  \endgroup
  \Hy@RestoreLastskip
}
\ltx@IfUndefined{hyper@anchorstart}{}{\endinput}
\Hy@WrapperDef\hyper@anchorstart#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \literalps@out{H.S}%
  \Hy@AllowHyphens
  \xdef\hyper@currentanchor{#1}%
  \Hy@activeanchortrue
}
\def\hyper@anchorend{%
  \literalps@out{\strip@pt@and@otherjunk\baselineskip\space H.A}%
```

```
  \pdfmark{%
    pdfmark=/DEST,%
    linktype=anchor,%
    View=/\@pdfview \@pdfviewparams,%
    DestAnchor=\hyper@currentanchor,%
  }%
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}
\def\hyper@linkstart#1#2{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \ifHy@breaklinks
  \else
    \leavevmode
    \ifmmode
      \def\Hy@LinkMath{$}%
    \else
      \let\Hy@LinkMath\ltx@empty
    \fi
    \Hy@SaveSpaceFactor
    \hbox\bgroup
    \Hy@RestoreSpaceFactor
    \Hy@LinkMath
  \fi
  \expandafter\Hy@colorlink\csname @#1color\endcsname
  \literalps@out{H.S}%
  \Hy@AllowHyphens
  \xdef\hyper@currentanchor{#2}%
  \gdef\hyper@currentlinktype{#1}%
}
\def\hyper@linkend{%
  \literalps@out{\strip@pt@and@otherjunk\baselineskip\space H.L}%
  \ltx@IfUndefined{@\hyper@currentlinktype bordercolor}{%
    \let\Hy@tempcolor\relax
  }{%
    \edef\Hy@tempcolor{%
      \csname @\hyper@currentlinktype bordercolor\endcsname
    }%
  }%
  \pdfmark{%
    pdfmark=/ANN,%
    linktype=link,%
    Subtype=/Link,%
    PDFAFlags=4,%
    Dest=\hyper@currentanchor,%
    AcroHighlight=\@pdfhighlight,%
    Border=\@pdfborder,%
    BorderStyle=\@pdfborderstyle,%
    Color=\Hy@tempcolor,%
    Raw=H.B%
  }%
  \Hy@endcolorlink
  \ifHy@breaklinks
  \else
    \Hy@LinkMath
    \Hy@SaveSpaceFactor
    \egroup
```

```
    \Hy@RestoreSpaceFactor
  \fi
}
```

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.

```
\begingroup
  \catcode`P=12 %
  \catcode`T=12 %
  \lowercase{\endgroup
  \gdef\rem@ptetc#1.#2PT#3!{#1\ifnum#2>\z@.#2\fi}%
}
\def\strip@pt@and@otherjunk#1{\expandafter\rem@ptetc\the#1!}
```

`\hyper@pagetransition`

```
\def\hyper@pagetransition{%
  \ifx\@pdfpagetransition\relax
  \else
    \ifx\@pdfpagetransition\@empty
      % 1. Does an old entry have to be deleted?
      % 2. If 1=yes, how to delete?
    \else
      \pdfmark{%
        pdfmark=/PUT,%
        Raw={%
          \string{ThisPage\string}%
          <</Trans << /S /\@pdfpagetransition\space >> >>%
        }%
      }%
    \fi
  \fi
}
```

`\hyper@pageduration`

```
\def\hyper@pageduration{%
  \ifx\@pdfpageduration\relax
  \else
    \ifx\@pdfpageduration\@empty
      % 1. Does an old entry have to be deleted?
      % 2. If 1=yes, how to delete?
    \else
      \pdfmark{%
        pdfmark=/PUT,%
        Raw={%
          \string{ThisPage\string}%
          <</Dur \@pdfpageduration>>%
        }%
      }%
    \fi
  \fi
}
```

`\hyper@pagehidden`

```
\def\hyper@pagehidden{%
  \ifHy@useHidKey
    \pdfmark{%
```

```
      pdfmark=/PUT,%
      Raw={%
        \string{ThisPage\string}%
        <</Hid \ifHy@pdfpagehidden true\else false\fi>>%
      }%
    }%
  \fi
}
\g@addto@macro\Hy@EveryPageBoxHook{%
  \hyper@pagetransition
  \hyper@pageduration
  \hyper@pagehidden
}
\def\hyper@image#1#2{%
  \hyper@linkurl{#2}{#1}%
}
\def\Hy@undefinedname{UNDEFINED}
\def\hyper@link#1#2#3{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \ltx@IfUndefined{@#1bordercolor}{%
    \let\Hy@tempcolor\relax
  }{%
    \edef\Hy@tempcolor{\csname @#1bordercolor\endcsname}%
  }%
  \begingroup
    \protected@edef\Hy@testname{#2}%
    \ifx\Hy@testname\@empty
      \Hy@Warning{%
        Empty destination name,\MessageBreak
        using `\Hy@undefinedname'%
      }%
      \let\Hy@testname\Hy@undefinedname
    \fi
    \pdfmark[{#3}]{%
      Color=\Hy@tempcolor,%
      linktype={#1},%
      AcroHighlight=\@pdfhighlight,%
      Border=\@pdfborder,%
      BorderStyle=\@pdfborderstyle,%
      pdfmark=/ANN,%
      Subtype=/Link,%
      PDFAFlags=4,%
      Dest=\Hy@testname
    }%
  \endgroup
}
\newtoks\pdf@docset
\def\PDF@FinishDoc{%
  \Hy@UseMaketitleInfos
  \HyInfo@GenerateAddons
  \let\Hy@temp\@empty
  \ifx\@pdfcreationdate\@empty
  \else
    \def\Hy@temp{CreationDate=\@pdfcreationdate,}%
  \fi
  \ifx\@pdfmoddate\@empty
  \else
```

```
    \expandafter\def\expandafter\Hy@temp\expandafter{%
      \Hy@temp
      ModDate=\@pdfmoddate,%
    }%
  \fi
  \ifx\@pdfproducer\relax
  \else
    \expandafter\def\expandafter\Hy@temp\expandafter{%
      \Hy@temp
      Producer=\@pdfproducer,%
    }%
  \fi
  \expandafter
  \pdfmark\expandafter{%
    \Hy@temp
    pdfmark=/DOCINFO,%
    Title=\@pdftitle,%
    Subject=\@pdfsubject,%
    Creator=\@pdfcreator,%
    Author=\@pdfauthor,%
    Keywords=\@pdfkeywords,%
    Trapped=\@pdftrapped
  }%
  \ifx\HyInfo@Addons\@empty
  \else
    \pdfmark{%
      pdfmark=/DOCINFO,%
      Raw={\HyInfo@Addons}%
    }%
  \fi
  \Hy@DisableOption{pdfauthor}%
  \Hy@DisableOption{pdftitle}%
  \Hy@DisableOption{pdfsubject}%
  \Hy@DisableOption{pdfcreator}%
  \Hy@DisableOption{pdfcreationdate}%
  \Hy@DisableOption{pdfmoddate}%
  \Hy@DisableOption{pdfproducer}%
  \Hy@DisableOption{pdfkeywords}%
  \Hy@DisableOption{pdftrapped}%
  \Hy@DisableOption{pdfinfo}%
}
\def\PDF@SetupDoc{%
  \def\Hy@temp{}%
  \ifx\@pdfstartpage\@empty
  \else
    \ifx\@pdfstartview\@empty
    \else
      \edef\Hy@temp{%
        ,Page=\@pdfstartpage
        ,View=\@pdfstartview
      }%
    \fi
  \fi
  \edef\Hy@temp{%
    \noexpand\pdfmark{%
      pdfmark=/DOCVIEW,%
      PageMode=/\@pdfpagemode
```

```
    \Hy@temp
  }%
}%
\Hy@temp
\ifx\@pdfpagescrop\@empty
\else
  \pdfmark{pdfmark=/PAGES,CropBox=\@pdfpagescrop}%
\fi
\edef\Hy@temp{%
  \ifHy@pdftoolbar\else /HideToolbar true\fi
  \ifHy@pdfmenubar\else /HideMenubar true\fi
  \ifHy@pdfwindowui\else /HideWindowUI true\fi
  \ifHy@pdffitwindow /FitWindow true\fi
  \ifHy@pdfcenterwindow /CenterWindow true\fi
  \ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi
  \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
  \Hy@UseNameKey{Direction}\@pdfdirection
  \Hy@UseNameKey{ViewArea}\@pdfviewarea
  \Hy@UseNameKey{ViewClip}\@pdfviewclip
  \Hy@UseNameKey{PrintArea}\@pdfprintarea
  \Hy@UseNameKey{PrintClip}\@pdfprintclip
  \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
  \Hy@UseNameKey{Duplex}\@pdfduplex
  \ifx\@pdfpicktraybypdfsize\@empty
  \else
    /PickTrayByPDFSize \@pdfpicktraybypdfsize
  \fi
  \ifx\@pdfprintpagerange\@empty
  \else
    /PrintPageRange[\@pdfprintpagerange]%
  \fi
  \ifx\@pdfnumcopies\@empty
  \else
    /NumCopies \@pdfnumcopies
  \fi
}%
\Hy@pstringdef\Hy@pstringB{\@baseurl}%
\pdfmark{%
  pdfmark=/PUT,%
  Raw={%
    \string{Catalog\string}<<%
      \ifx\Hy@temp\@empty
      \else
        /ViewerPreferences<<\Hy@temp>>%
      \fi
      \Hy@UseNameKey{PageLayout}\@pdfpagelayout
      \ifx\@pdflang\@empty
      \else
        /Lang(\@pdflang)%
      \fi
      \ifx\@baseurl\@empty
      \else
        /URI<</Base(\Hy@pstringB)>>%
      \fi
    >>%
  }%
}%
```

```
}
⟨/pdfmark⟩
⟨*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.

```
\newif\ifHy@pdfmarkerror
\def\pdfmark{\@ifnextchar[{\pdfmark@}{\pdfmark@[]}}
\def\pdfmark@[#1]#2{%
  \Hy@pdfmarkerrorfalse
  \edef\@processme{\noexpand\pdf@toks={\the\pdf@defaulttoks}}%
  \@processme
  \let\pdf@type\relax
  \kvsetkeys{PDF}{#2}%
  \ifHy@pdfmarkerror
  \else
    \ifx\pdf@type\relax
      \Hy@WarningNoLine{no pdfmark type specified in #2!!}%
      \ifx\\#1\\%
      \else
        \pdf@rect{#1}%
      \fi
    \else
      \ifx\\#1\\%
        \literalps@out{%
          [\the\pdf@toks\space\pdf@type\space pdfmark%
        }%
      \else
        \ltx@IfUndefined{@\pdf@linktype color}{%
          \Hy@colorlink\@linkcolor
        }{%
          \expandafter\Hy@colorlink
                \csname @\pdf@linktype color\endcsname
        }%
        \pdf@rect{#1}%
        \literalps@out{%
          [\the\pdf@toks\space\pdf@type\space pdfmark%
        }%
        \Hy@endcolorlink
      \fi
    \fi
  \fi
}
```

The complicated bit is working out the right enclosing rectangle of some piece of TEX text, needed by the /Rect key. This solution originates with Toby Thain (`tobyt@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}
\newsavebox{\pdf@box}
\providecommand*{\Hy@setouterhbox}{\sbox}
\providecommand*{\Hy@breaklinksunhbox}{\unhbox}
\def\Hy@DEST{/DEST}
\def\pdf@rect#1{%
 \begingroup
  \chardef\x=1 %
  \def\Hy@temp{#1}%
  \ifx\Hy@temp\ltx@empty
   \chardef\x=0 %
  \else
   \def\y{\anchor@spot}%
   \ifx\Hy@temp\y
    \def\y{\relax}%
    \ifx\anchor@spot\y
     \chardef\x=0 %
    \fi
   \fi
  \fi
 \expandafter\endgroup
 \ifcase\x
  \literalps@out{H.S}%
  \literalps@out{H.R}%
 \else
  \leavevmode
  \Hy@SaveSpaceFactor
  \ifmmode
   \def\Hy@LinkMath{$}%
  \else
   \let\Hy@LinkMath\ltx@empty
  \fi
  \ifHy@breaklinks
   \Hy@setouterhbox\pdf@box{%
    \Hy@RestoreSpaceFactor
    \Hy@LinkMath
    \Hy@AllowHyphens#1\Hy@xspace@end
    \Hy@LinkMath
    \Hy@SaveSpaceFactor
   }%
  \else
   \sbox\pdf@box{%
    \Hy@RestoreSpaceFactor
    \Hy@LinkMath
    #1\Hy@xspace@end
    \Hy@LinkMath
    \Hy@SaveSpaceFactor
   }%
  \fi
  \dimen@\ht\pdf@box
  \ifdim\dp\pdf@box=\z@
   \literalps@out{H.S}%
  \else
   \lower\dp\pdf@box\hbox{\literalps@out{H.S}}%
  \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…).

```
    \ifHy@breaklinks
      \ifhmode
        \Hy@breaklinksunhbox\pdf@box
      \else
        \box\pdf@box
      \fi
    \else
      \expandafter\box\pdf@box
    \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
```

```
    \ifdim\dimen@=\z@
      \literalps@out{H.R}%
    \else
      \raise\dimen@\hbox{\literalps@out{H.R}}%
    \fi
    \Hy@RestoreSpaceFactor
  \fi
  \ifx\pdf@type\Hy@DEST
  \else
    \pdf@addtoksx{H.B}%
  \fi
}
```

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.

```
\newtoks\pdf@toks
\newtoks\pdf@defaulttoks
\pdf@defaulttoks={}%
\def\pdf@addtoks#1#2{%
  \edef\@processme{\pdf@toks{\the\pdf@toks/#2 #1}}%
  \@processme
}
\def\pdf@addtoksx#1{%
  \edef\@processme{\pdf@toks{\the\pdf@toks\space #1}}%
  \@processme
}
\def\PDFdefaults#1{%
  \pdf@defaulttoks={#1}%
}
```

This is the list of allowed keys. See the Acrobat manual for an explanation.

```
% what is the type of pdfmark?
\define@key{PDF}{pdfmark}{\def\pdf@type{#1}}
% what is the link type?
\define@key{PDF}{linktype}{\def\pdf@linktype{#1}}
\def\pdf@linktype{link}
% parameter is a stream of PDF
\define@key{PDF}{Raw}{\pdf@addtoksx{#1}}
% parameter is a name
\define@key{PDF}{Action}{\pdf@addtoks{#1}{Action}}
```

```
% parameter is a array
\define@key{PDF}{Border}{%
  \edef\Hy@temp{#1}%
  \ifx\Hy@temp\@empty
  \else
    \pdf@addtoks{[#1]\Hy@BorderArrayPatch}{Border}% hash-ok
  \fi
}
\let\Hy@BorderArrayPatch\@empty
% parameter is a dictionary
\define@key{PDF}{BorderStyle}{%
  \edef\Hy@temp{#1}%
  \ifx\Hy@temp\@empty
  \else
    \pdf@addtoks{<<#1>>}{BS}%
  \fi
}
% parameter is a array
\define@key{PDF}{Color}{%
  \ifx\relax#1\relax
  \else
    \pdf@addtoks{[#1]}{Color}% hash-ok
  \fi
}
% parameter is a string
\define@key{PDF}{Contents}{\pdf@addtoks{(#1)}{Contents}}
% parameter is a integer
\define@key{PDF}{Count}{\pdf@addtoks{#1}{Count}}
% parameter is a array
\define@key{PDF}{CropBox}{\pdf@addtoks{[#1]}{CropBox}}% hash-ok
% parameter is a string
\define@key{PDF}{DOSFile}{\pdf@addtoks{(#1)}{DOSFile}}
% parameter is a string or file
\define@key{PDF}{DataSource}{\pdf@addtoks{(#1)}{DataSource}}
% parameter is a destination
\define@key{PDF}{Dest}{%
  \Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}%
  \ifx\Hy@pstringDest\@empty
    \Hy@pdfmarkerrortrue
    \Hy@Warning{Destination with empty name ignored}%
  \else
    \pdf@addtoks{(\Hy@pstringDest) cvn}{Dest}%
  \fi
}
\define@key{PDF}{DestAnchor}{%
  \Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}%
  \ifx\Hy@pstringDest\@empty
    \Hy@pdfmarkerrortrue
    \Hy@Warning{Destination with empty name ignored}%
  \else
    \pdf@addtoks{(\Hy@pstringDest) cvn}{Dest}%
  \fi
}
% parameter is a string
\define@key{PDF}{Dir}{\pdf@addtoks{(#1)}{Dir}}
% parameter is a string
\define@key{PDF}{File}{\pdf@addtoks{(#1)}{File}}
```

```
% parameter is a int
\define@key{PDF}{Flags}{\pdf@addtoks{#1}{Flags}}
\define@key{PDF}{PDFAFlags}{%
  \ifHy@pdfa
    \pdf@addtoks{#1}{F}%
  \fi
}
% parameter is a name
\define@key{PDF}{AcroHighlight}{%
  \begingroup
    \edef\x{#1}%
  \expandafter\endgroup\ifx\x\@empty
  \else
    \pdf@addtoks{#1}{H}%
  \fi
}
% parameter is a string
\define@key{PDF}{ID}{\pdf@addtoks{[#1]}{ID}}% hash-ok
% parameter is a string
\define@key{PDF}{MacFile}{\pdf@addtoks{(#1)}{MacFile}}
% parameter is a string
\define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
% parameter is a string
\define@key{PDF}{Op}{\pdf@addtoks{(#1)}{Op}}
% parameter is a Boolean
\define@key{PDF}{Open}{\pdf@addtoks{#1}{Open}}
% parameter is a integer or name
\define@key{PDF}{Page}{\pdf@addtoks{#1}{Page}}
% parameter is a name
\define@key{PDF}{PageMode}{\pdf@addtoks{#1}{PageMode}}
% parameter is a string
\define@key{PDF}{Params}{\pdf@addtoks{(#1)}{Params}}
% parameter is a array
\define@key{PDF}{Rect}{\pdf@addtoks{[#1]}{Rect}}% hash-ok
% parameter is a integer
\define@key{PDF}{SrcPg}{\pdf@addtoks{#1}{SrcPg}}
% parameter is a name
\define@key{PDF}{Subtype}{\pdf@addtoks{#1}{Subtype}}
% parameter is a string
\define@key{PDF}{Title}{\pdf@addtoks{(#1)}{Title}}
% parameter is a string
\define@key{PDF}{Unix}{\pdf@addtoks{(#1)}{Unix}}
% parameter is a string
\define@key{PDF}{UnixFile}{\pdf@addtoks{(#1)}{UnixFile}}
% parameter is an array
\define@key{PDF}{View}{\pdf@addtoks{[#1]}{View}}% hash-ok
% parameter is a string
\define@key{PDF}{WinFile}{\pdf@addtoks{(#1)}{WinFile}}
```

These are the keys used in the DOCINFO section.

```
\define@key{PDF}{Author}{\pdf@addtoks{(#1)}{Author}}
\define@key{PDF}{Creator}{\pdf@addtoks{(#1)}{Creator}}
\define@key{PDF}{CreationDate}{\pdf@addtoks{(#1)}{CreationDate}}
\define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
\define@key{PDF}{Producer}{\pdf@addtoks{(#1)}{Producer}}
\define@key{PDF}{Subject}{\pdf@addtoks{(#1)}{Subject}}
\define@key{PDF}{Keywords}{\pdf@addtoks{(#1)}{Keywords}}
\define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
```

```
\define@key{PDF}{Base}{\pdf@addtoks{(#1)}{Base}}
\define@key{PDF}{URI}{\pdf@addtoks{#1}{URI}}
\define@key{PDF}{Trapped}{%
  \edef\Hy@temp{#1}%
  \ifx\Hy@temp\@empty
  \else
    \pdf@addtoks{/#1}{Trapped}%
  \fi
}

⟨/pdfmarkbase⟩
⟨*pdfmark⟩
\def\Acrobatmenu#1#2{%
  \Hy@Acrobatmenu{#1}{#2}{%
    \pdfmark[{#2}]{%
      linktype=menu,%
      pdfmark=/ANN,%
      AcroHighlight=\@pdfhighlight,%
      Border=\@pdfborder,%
      BorderStyle=\@pdfborderstyle,%
      Action={<< /Subtype /Named /N /#1 >>},%
      Subtype=/Link,%
      PDFAFlags=4%
    }%
  }%
}
```

And now for some useful examples:

```
\def\PDFNextPage{\@ifnextchar[{\PDFNextPage@}{\PDFNextPage@[]}}
\def\PDFNextPage@[#1]#2{%
  \pdfmark[{#2}]{%
    #1,%
    Border=\@pdfborder,%
    BorderStyle=\@pdfborderstyle,%
    Color=.2 .1 .5,%
    pdfmark=/ANN,%
    Subtype=/Link,%
    PDFAFlags=4,%
    Page=/Next%
  }%
}
\def\PDFPreviousPage{%
  \@ifnextchar[{\PDFPreviousPage@}{\PDFPreviousPage@[]}%
}
\def\PDFPreviousPage@[#1]#2{%
  \pdfmark[{#2}]{%
    #1,%
    Border=\@pdfborder,%
    BorderStyle=\@pdfborderstyle,%
    Color=.4 .4 .1,%
    pdfmark=/ANN,%
    Subtype=/Link,%
    PDFAFlags=4,%
    Page=/Prev%
  }%
}
\def\PDFOpen#1{%
  \pdfmark{#1,pdfmark=/DOCVIEW}%
```

```
}
```

This will only work if you use Distiller 2.1 or higher.

```
\def\hyper@linkurl#1#2{%
  \begingroup
    \Hy@pstringdef\Hy@pstringURI{#2}%
    \hyper@chars
    \leavevmode
    \pdfmark[{#1}]{%
      pdfmark=/ANN,%
      linktype=url,%
      AcroHighlight=\@pdfhighlight,%
      Border=\@pdfborder,%
      BorderStyle=\@pdfborderstyle,%
      Color=\@urlbordercolor,%
      Action={<<%
        /Subtype/URI%
        /URI(\Hy@pstringURI)%
        \ifHy@href@ismap
          /IsMap true%
        \fi
      >>},%
      Subtype=/Link,%
      PDFAFlags=4%
    }%
  \endgroup
}
\def\hyper@linkfile#1#2#3{%
  \begingroup
    \def\Hy@pstringF{#2}%
    \Hy@CleanupFile\Hy@pstringF
    \Hy@pstringdef\Hy@pstringF\Hy@pstringF
    \Hy@pstringdef\Hy@pstringD{#3}%
    \Hy@MakeRemoteAction
    \leavevmode
    \pdfmark[{#1}]{%
      pdfmark=/ANN,%
      Subtype=/Link,%
      PDFAFlags=4,%
      AcroHighlight=\@pdfhighlight,%
      Border=\@pdfborder,%
      BorderStyle=\@pdfborderstyle,%
      linktype=file,%
      Color=\@filebordercolor,%
      Action={%
        <<%
          /S/GoToR%
          \Hy@SetNewWindow
          /F(\Hy@pstringF)%
          /D%
          \ifx\\#3\\%
            [\Hy@href@page\@pdfremotestartview]%
          \else
            (\Hy@pstringD)cvn%
          \fi
          \Hy@href@nextactionraw
        >>%
      }%
```

```
    }%
  \endgroup
}
\def\@hyper@launch run:#1\\#2#3{%
  \begingroup
    \Hy@pstringdef\Hy@pstringF{#1}%
    \Hy@pstringdef\Hy@pstringP{#3}%
    \leavevmode
    \pdfmark[{#2}]{%
      pdfmark=/ANN,%
      Subtype=/Link,%
      PDFAFlags=4,%
      AcroHighlight=\@pdfhighlight,%
      Border=\@pdfborder,%
      BorderStyle=\@pdfborderstyle,%
      linktype=run,%
      Color=\@runbordercolor,%
      Action={%
        <<%
          /S/Launch%
          \Hy@SetNewWindow
          /F(\Hy@pstringF)%
          \ifx\\#3\\%
          \else
            /Win<</P(\Hy@pstringP)/F(\Hy@pstringF)>>%
          \fi
          \Hy@href@nextactionraw
        >>%
      }%
    }%
  \endgroup
}
⟨/pdfmark⟩
```

Unfortunately, some parts of the pdfmark PostScript code depend on vagaries of the dvi driver. We isolate here all the problems.

46.9 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.

```
⟨*dvips⟩
\providecommand*{\XR@ext}{pdf}
\let\Hy@raisedlink\ltx@empty
\def\literalps@out#1{\special{ps:SDict begin #1 end}}%
\def\headerps@out#1{\special{! #1}}%
\input{pdfmark.def}%
\ifx\@pdfproducer\relax
  \def\@pdfproducer{dvips + Distiller}%
\fi
\providecommand*\@pdfborder{0 0 1}
\providecommand*\@pdfborderstyle{}
\providecommand*\@pdfview{XYZ}
\providecommand*\@pdfviewparams{ H.V}
\def\Hy@BorderArrayPatch{BorderArrayPatch}
```

```
\g@addto@macro\Hy@FirstPageHook{%
  \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.

```
    /DvipsToPDF{72.27 mul Resolution div} def%
    /PDFToDvips{72.27 div Resolution mul} def%
    /BPToDvips{72 div Resolution mul}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.

```
    /BorderArrayPatch{%
      [exch{%
        dup dup type/integertype eq exch type/realtype eq or%
        {BPToDvips}if%
      }forall]%
    }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.

```
    /HyperBorder {1 PDFToDvips} def%
    /H.V {pdf@hoff pdf@voff null} def%
    /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

```
    /H.S {%
      currentpoint %
      HyperBorder add /pdf@lly exch def %
      dup DvipsToPDF 72 add /pdf@hoff exch def %
      HyperBorder sub /pdf@llx exch def%
    } def%
```

The calculation of upper left y is done without raising the point in TEX, by simply adding on the current \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

```
    /H.L {%
      2 sub dup%
      /HyperBasePt exch def %
      PDFToDvips /HyperBaseDvips exch def %
      currentpoint %
      HyperBaseDvips sub /pdf@ury exch def%
```

```
    /pdf@urx exch def%
  } def%
  /H.A {%
    H.L %
% |/pdf@voff| = the distance from the top of the page to a point
% |\baselineskip| above the current point in PDF coordinates
    currentpoint exch pop %
    vsize 72 sub exch DvipsToPDF %
    HyperBasePt sub % baseline skip
    sub /pdf@voff exch def%
  } def%
  /H.R {%
    currentpoint %
    HyperBorder sub /pdf@ury exch def %
    HyperBorder add /pdf@urx exch def %
% |/pdf@voff| = the distance from the top of the page to the current point, in
% PDF coordinates
    currentpoint exch pop vsize 72 sub %
    exch DvipsToPDF sub /pdf@voff exch def%
  } def%
 }%
}
\AtBeginShipoutFirst{%
 \ifHy@setpagesize
  \begingroup
   \@ifundefined{stockwidth}{%
    \ifdim\paperwidth>\z@
     \ifdim\paperheight>\z@
      \special{papersize=\the\paperwidth,\the\paperheight}%
     \fi
    \fi
   }{%
    \ifdim\stockwidth>\z@
     \ifdim\stockheight>\z@
      \special{papersize=\the\stockwidth,\the\stockheight}%
     \fi
    \fi
   }%
  \endgroup
 \fi
 \Hy@DisableOption{setpagesize}%
}
⟨/dvips⟩
```

46.10 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.

```
⟨*vtexpdfmark⟩
\providecommand*{\XR@ext}{pdf}
\let\Hy@raisedlink\ltx@empty
\def\literalps@out#1{\special{pS:#1}}%
\def\headerps@out#1{\immediate\special{pS:#1}}%
\input{pdfmark.def}%
\ifx\@pdfproducer\relax
```

```
  \ifnum\OpMode=\@ne
    \def\@pdfproducer{VTeX}%
  \else
    \def\@pdfproducer{VTeX + Distiller}%
  \fi
\fi
\providecommand*\@pdfborder{0 0 1}
\providecommand*\@pdfborderstyle{}
\providecommand*\@pdfview{XYZ}
\providecommand*\@pdfviewparams{ H.V}
\g@addto@macro\Hy@FirstPageHook{%
  \headerps@out{%
    /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.

```
    /HyperBorder {1} def%
    /H.V {pdf@hoff pdf@voff null} def%
    /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: pdf@lly $= Y_c -$ HyperBorder, pdf@hoff $= X_c + 72$, pdf@llx $= X_c -$ HyperBorder

```
    /H.S {%
      currentpoint %
      HyperBorder sub%
      /pdf@lly exch def %
      dup 72 add /pdf@hoff exch def %
      HyperBorder sub%
      /pdf@llx exch def%
    } def%
```

The x and y coordinates of the current point, minus the \baselineskip: pdf@ury $=$ $Y_c +$ HyperBasePt + HyperBorder, pdf@urx $= X_c +$ HyperBorder

```
    /H.L {%
      2 sub%
      /HyperBasePt exch def %
      currentpoint %
      HyperBasePt add HyperBorder add%
      /pdf@ury exch def %
      HyperBorder add%
      /pdf@urx exch def%
    } def%
    /H.A {%
      H.L %
      currentpoint exch pop %
      vsize 72 sub exch %
      HyperBasePt add add%
      /pdf@voff exch def%
    } def%
```

pdf@ury $= Y_c +$ HyperBorder, pdf@urx $= X_c +$ HyperBorder

```
    /H.R {%
      currentpoint %
      HyperBorder add%
      /pdf@ury exch def %
      HyperBorder add%
      /pdf@urx exch def %
```

```
    currentpoint exch pop vsize 72 sub add%
    /pdf@voff exch def%
   } def%
  }%
}
⟨/vtexpdfmark⟩
```

46.11 Textures

```
⟨*textures⟩
\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.

```
\begingroup
  \obeylines %
  \gdef\Hy@ps@CR{\noexpand
  }%
\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`.

```
\def\literalps@out#1{%
  \special{postscript 0 0 transform}%
  \special{rawpostscript itransform moveto\Hy@ps@CR #1}%
}%
%
```

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.

```
\def\headerps@out#1{%
  \special{%
    prepostscript TeXdict begin\Hy@ps@CR
      #1\Hy@ps@CR
    end%
  }%
}%
%
```

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.

```
\g@addto@macro\Hy@FirstPageHook{%
 \headerps@out{%
  /betterpdfmark {%
   systemdict begin %
    dup /BP eq%
    {cleartomark gsave nulldevice []%
    {dup /EP eq%
     {cleartomark cleartomark grestore}%
     {cleartomark}%
     ifelse%
    }ifelse %
   end%
  }def\Hy@ps@CR
  ___pdfmark___ not{/pdfmark /betterpdfmark load def}if%
 }% end of \headerps@out
}% end of \AtBeginShipoutFirst
%
\input{pdfmark.def}%
%
\ifx\@pdfproducer\relax
 \def\@pdfproducer{Textures + Distiller}%
\fi
\providecommand*\@pdfborder{0 0 1}
\providecommand*\@pdfborderstyle{}
\providecommand*\@pdfview{XYZ}
\providecommand*\@pdfviewparams{ H.V}
%
```

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 TEX.

```
\Hy@AtBeginDocument{%
 \headerps@out{%
```

Textures lives in normal points, I think. So conversion from one coordinate system to another involves doing nothing.

```
  /vsize {\Hy@pageheight} def%
  /DvipsToPDF {} def%
  /PDFToDvips {} def%
  /BPToDvips {} def%
  /HyperBorder  { 1 PDFToDvips } def\Hy@ps@CR
  /H.V {pdf@hoff pdf@voff null} def\Hy@ps@CR
  /H.B {/Rect[pdf@llx pdf@lly pdf@urx pdf@ury]} def\Hy@ps@CR
  /H.S {%
   currentpoint %
   HyperBorder add /pdf@lly exch def %
   dup DvipsToPDF 72 add /pdf@hoff exch def %
   HyperBorder sub /pdf@llx exch def%
  } def\Hy@ps@CR
  /H.L {%
   2 sub %
   PDFToDvips /HyperBase exch def %
```

```
    currentpoint %
    HyperBase sub /pdf@ury exch def%
    /pdf@urx exch def%
   } def\Hy@ps@CR
   /H.A {%
    H.L %
    currentpoint exch pop %
    vsize 72 sub exch DvipsToPDF %
    HyperBase sub % baseline skip
    sub /pdf@voff exch def%
   } def\Hy@ps@CR
   /H.R {%
    currentpoint %
    HyperBorder sub /pdf@ury exch def %
    HyperBorder add /pdf@urx exch def %
    currentpoint exch pop vsize 72 sub %
    exch DvipsToPDF sub /pdf@voff exch def%
   } def\Hy@ps@CR
  }%
}
\Hy@AtBeginDocument{%
  \ifHy@colorlinks
    \headerps@out{/PDFBorder{/Border [0 0 0]}def}%
  \fi
}
```

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.

```
\expandafter\let\expandafter\keepPDF@SetupDoc
  \csname PDF@SetupDoc\endcsname
\def\PDF@SetupDoc{%
  \ifx\@baseurl\@empty
  \else
    \special{html:<base href="\@baseurl">}%
  \fi
  \keepPDF@SetupDoc
}
\Hy@WrapperDef\hyper@anchor#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \begingroup
    \let\protect=\string
    \special{html:<a name=%
       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
  \endgroup
  \Hy@activeanchortrue
  \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
  \special{html:</a>}%
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}
\Hy@WrapperDef\hyper@anchorstart#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \begingroup
    \hyper@chars
```

```
    \special{html:<a name=%
       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
  \endgroup
  \Hy@activeanchortrue
}
\def\hyper@anchorend{%
  \special{html:</a>}%
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}
\def\@urltype{url}
\def\hyper@linkstart#1#2{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \expandafter\Hy@colorlink\csname @#1color\endcsname
  \def\Hy@tempa{#1}%
  \ifx\Hy@tempa\@urltype
    \special{html:<a href=\hyper@quote#2\hyper@quote>}%
  \else
    \begingroup
      \hyper@chars
      \special{%
        html:<a href=%
        \hyper@quote\#\HyperDestNameFilter{#2}\hyper@quote>%
      }%
    \endgroup
  \fi
}
\def\hyper@linkend{%
  \special{html:</a>}%
  \Hy@endcolorlink
}
\def\hyper@linkfile#1#2#3{%
  \hyper@linkurl{#1}{%
    \Hy@linkfileprefix#2\ifx\\#3\\\else\##3\fi
  }%
}
\def\hyper@linkurl#1#2{%
  \leavevmode
  \ifHy@raiselinks
    \Hy@SaveSpaceFactor
    \Hy@SaveSavedSpaceFactor
    \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
    \Hy@RestoreSavedSpaceFactor
    \@linkdim\dp\@tempboxa
    \lower\@linkdim\hbox{%
      \hyper@chars
      \special{html:<a href=\hyper@quote#2\hyper@quote>}%
    }%
    \Hy@colorlink\@urlcolor
      \Hy@RestoreSpaceFactor
      #1\Hy@xspace@end
      \Hy@SaveSpaceFactor
      \@linkdim\ht\@tempboxa
      \advance\@linkdim by -6.5\p@
      \raise\@linkdim\hbox{\special{html:</a>}}%
    \Hy@endcolorlink
    \Hy@RestoreSpaceFactor
```

```
  \else
    \begingroup
      \hyper@chars
      \special{html:<a href=\hyper@quote#2\hyper@quote>}%
      \Hy@colorlink\@urlcolor#1\Hy@xspace@end
      \special{html:</a>}%
      \Hy@endcolorlink
    \endgroup
  \fi
}
```

Very poor implementation of `\hyper@link` without considering `#1`.

```
\def\hyper@link#1#2#3{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \hyper@linkurl{#3}{\#\HyperDestNameFilter{#2}}%
}
\def\hyper@image#1#2{%
  \begingroup
    \hyper@chars
    \special{html:<img src=\hyper@quote#1\hyper@quote>}%
  \endgroup
}
⟨/textures⟩
```

46.12 dvipsone

```
% \subsection{dvipsone driver}
% Over-ride the default setup macro in pdfmark driver to use Y\&Y
% |\special| commands.
⟨*dvipsone⟩
\providecommand*{\XR@ext}{pdf}
\let\Hy@raisedlink\ltx@empty
\providecommand*\@pdfborder{0 0 1}
\providecommand*\@pdfborderstyle{}
\def\literalps@out#1{\special{ps:#1}}%
\def\headerps@out#1{\special{headertext=#1}}%
\input{pdfmark.def}%
\ifx\@pdfproducer\relax
  \def\@pdfproducer{dvipsone + Distiller}%
\fi
\HyInfo@AddonUnsupportedtrue
\def\PDF@FinishDoc{%
  \Hy@UseMaketitleInfos
  \HyInfo@TrappedUnsupported
  \special{PDF: Keywords \@pdfkeywords}%
  \special{PDF: Title \@pdftitle}%
  \special{PDF: Creator \@pdfcreator}%
  \ifx\@pdfcreationdate\@empty
  \else
    \special{PDF: CreationDate \@pdfcreationdate}%
  \fi
  \ifx\@pdfmoddate\@empty
  \else
    \special{PDF: ModDate \@pdfmoddate}%
  \fi
  \special{PDF: Author \@pdfauthor}%
  \ifx\@pdfproducer\relax
  \else
```

```
    \special{PDF: Producer \@pdfproducer}%
  \fi
  \special{PDF: Subject \@pdfsubject}%
  \Hy@DisableOption{pdfauthor}%
  \Hy@DisableOption{pdftitle}%
  \Hy@DisableOption{pdfsubject}%
  \Hy@DisableOption{pdfcreator}%
  \Hy@DisableOption{pdfcreationdate}%
  \Hy@DisableOption{pdfmoddate}%
  \Hy@DisableOption{pdfproducer}%
  \Hy@DisableOption{pdfkeywords}%
  \Hy@DisableOption{pdftrapped}%
  \Hy@DisableOption{pdfinfo}%
}
\def\PDF@SetupDoc{%
  \def\Hy@temp{}%
  \ifx\@pdfstartpage\@empty
  \else
    \ifx\@pdfstartview\@empty
    \else
      \edef\Hy@temp{%
        ,Page=\@pdfstartpage
        ,View=\@pdfstartview
      }%
    \fi
  \fi
  \edef\Hy@temp{%
    \noexpand\pdfmark{%
      pdfmark=/DOCVIEW,%
      PageMode=/\@pdfpagemode
      \Hy@temp
    }%
  }%
  \Hy@temp
  \ifx\@pdfpagescrop\@empty
  \else
    \pdfmark{pdfmark=/PAGES,CropBox=\@pdfpagescrop}%
  \fi
  \edef\Hy@temp{%
    \ifHy@pdftoolbar\else /HideToolbar true\fi
    \ifHy@pdfmenubar\else /HideMenubar true\fi
    \ifHy@pdfwindowui\else /HideWindowUI true\fi
    \ifHy@pdffitwindow /FitWindow true\fi
    \ifHy@pdfcenterwindow /CenterWindow true\fi
    \ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi
    \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
    \Hy@UseNameKey{Direction}\@pdfdirection
    \Hy@UseNameKey{ViewArea}\@pdfviewarea
    \Hy@UseNameKey{ViewClip}\@pdfviewclip
    \Hy@UseNameKey{PrintArea}\@pdfprintarea
    \Hy@UseNameKey{PrintClip}\@pdfprintclip
    \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
    \Hy@UseNameKey{Duplex}\@pdfduplex
    \ifx\@pdfpicktraybypdfsize\@empty
    \else
      /PickTrayByPDFSize \@pdfpicktraybypdfsize
    \fi
```

```
    \ifx\@pdfprintpagerange\@empty
    \else
      /PrintPageRange[\@pdfprintpagerange]%
    \fi
    \ifx\@pdfnumcopies\@empty
    \else
      /NumCopies \@pdfnumcopies
    \fi
  }%
  \Hy@pstringdef\Hy@pstringB{\@baseurl}%
  \pdfmark{%
    pdfmark=/PUT,%
    Raw={%
      \string{Catalog\string}<<%
        \ifx\Hy@temp\@empty
        \else
          /ViewerPreferences<<\Hy@temp>>%
        \fi
        \Hy@UseNameKey{PageLayout}\@pdfpagelayout
        \ifx\@pdflang\@empty
        \else
          /Lang(\@pdflang)%
        \fi
        \ifx\@baseurl\@empty
        \else
          /URI<</Base(\Hy@pstringB)>>%
        \fi
      >>%
    }%
  }%
}
\providecommand*\@pdfview{XYZ}
\providecommand*\@pdfviewparams{ %
  gsave revscl currentpoint grestore %
  72 add exch pop null exch null%
}
\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 TEX.

```
\g@addto@macro\Hy@FirstPageHook{%
  \headerps@out{%
```

dvipsone lives in scaled points; does this mean 65536 or 65781?

```
    /DvipsToPDF { 65781 div  } def%
    /PDFToDvips { 65781 mul } def%
    /BPToDvips{65781 mul}def%
    /HyperBorder  { 1 PDFToDvips } def%
    /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.

```
    /BorderArrayPatch{%
      [exch{%
        dup dup type/integertype eq exch type/realtype eq or%
```

```
      {BPToDvips}if%
    }forall]%
  }def%
  /H.S {%
    currentpoint %
    HyperBorder add /pdf@lly exch def %
    dup DvipsToPDF 72 add /pdf@hoff exch def %
    HyperBorder sub /pdf@llx exch def%
  } def%
  /H.L {%
    2 sub %
    PDFToDvips /HyperBase exch def %
    currentpoint %
    HyperBase sub /pdf@ury exch def%
    /pdf@urx exch def%
  } def%
  /H.A {%
    H.L %
    currentpoint exch pop %
    HyperBase sub % baseline skip
    DvipsToPDF /pdf@voff exch def%
  } def%
  /H.R {%
    currentpoint %
    HyperBorder sub /pdf@ury exch def %
    HyperBorder add /pdf@urx exch def %
    currentpoint exch pop DvipsToPDF /pdf@voff exch def%
  } def%
 }%
}
⟨/dvipsone⟩
```

46.13 TeX4ht

```
⟨*tex4ht⟩
\providecommand*{\XR@ext}{html}
\let\Hy@raisedlink\ltx@empty
\@ifpackageloaded{tex4ht}{%
  \Hy@InfoNoLine{tex4ht is already loaded}%
}{%
  \RequirePackage[htex4ht]{tex4ht}%
}
\hyperlinkfileprefix{}
\let\PDF@FinishDoc\ltx@empty
\def\PDF@SetupDoc{%
  \ifx\@baseurl\@empty
  \else
    \special{t4ht=<base href="\@baseurl">}%
  \fi
}
\Hy@WrapperDef\hyper@anchor#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \begingroup
    \let\protect=\string
    \special{t4ht=<a name=%
       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
  \endgroup
```

```
  \Hy@activeanchortrue
  \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
  \special{t4ht=</a>}%
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}
\Hy@WrapperDef\hyper@anchorstart#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \begingroup
    \hyper@chars\special{t4ht=<a name=%
       \hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
  \endgroup
  \Hy@activeanchortrue
}
\def\hyper@anchorend{%
  \special{t4ht=</a>}%
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}
\def\@urltype{url}
\def\hyper@linkstart#1#2{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \expandafter\Hy@colorlink\csname @#1color\endcsname
  \def\Hy@tempa{#1}%
  \ifx\Hy@tempa\@urltype
    \special{t4ht=<a href=\hyper@quote#2\hyper@quote>}%
  \else
    \begingroup
      \hyper@chars
      \special{t4ht=<a href=%
         \hyper@quote\#\HyperDestNameFilter{#2}\hyper@quote>}%
    \endgroup
  \fi
}
\def\hyper@linkend{%
  \special{t4ht=</a>}%
  \Hy@endcolorlink
}
\def\hyper@linkfile#1#2#3{%
  \hyper@linkurl{#1}{\Hy@linkfileprefix#2\ifx\\#3\\\else\##3\fi}%
}
\def\hyper@linkurl#1#2{%
  \leavevmode
  \ifHy@raiselinks
    \Hy@SaveSpaceFactor
    \Hy@SaveSavedSpaceFactor
    \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
    \Hy@RestoreSavedSpaceFactor
    \@linkdim\dp\@tempboxa
    \lower\@linkdim\hbox{%
      \begingroup
        \hyper@chars
        \special{%
          t4ht=<a href=\hyper@quote#2\hyper@quote>%
        }%
      \endgroup
```

```
    }%
    \Hy@colorlink\@urlcolor
      \Hy@RestoreSpaceFactor
      #1\Hy@xspace@end
      \Hy@SaveSpaceFactor
    \Hy@endcolorlink
    \@linkdim\ht\@tempboxa
    \advance\@linkdim by -6.5\p@
    \raise\@linkdim\hbox{\special{t4ht=</a>}}%
    \Hy@RestoreSpaceFactor
  \else
    \begingroup
      \hyper@chars
      \special{t4ht=<a href=\hyper@quote#2\hyper@quote>}%
      \Hy@colorlink\@urlcolor
        #1\Hy@xspace@end
      \Hy@endcolorlink
      \special{t4ht=</a>}%
    \endgroup
  \fi
}
```

Poor implementation of `\hyper@link` without considering `#1`.

```
\def\hyper@link#1#2#3{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \hyper@linkurl{#3}{\#\HyperDestNameFilter{#2}}%
}
\def\hyper@image#1#2{%
  \begingroup
    \hyper@chars
    \special{t4ht=<img src=\hyper@quote#1\hyper@quote>}%
  \endgroup
}
\let\autoref\ref
\ifx \rEfLiNK \UnDef
  \def\rEfLiNK #1#2{#2}%
\fi
\let\backref\ltx@gobble
```

Fix for tex4ht.

```
\AtBeginDocument{%
    \expandafter\let\expandafter\Hy@OrgMakeLabel\csname  Make:Label\endcsname
  \expandafter\def\csname Make:Label\endcsname#1#2{%
    \ifhmode
      \Hy@SaveSpaceFactor
    \else
      \global\Hy@SavedSpaceFactor=1000 %
    \fi
    \Hy@OrgMakeLabel{#1}{%
      \Hy@RestoreSpaceFactor
      #2\Hy@xspace@end%
      \Hy@SaveSpaceFactor
    }%
    \Hy@RestoreSpaceFactor
  }%
}
⟨/tex4ht⟩
⟨*tex4htcfg⟩
```

```
\IfFileExists{\jobname.cfg}{\endinput}{}
\Preamble{html}
  \begin{document}%
\EndPreamble
\def\TeX{TeX}
\def\OMEGA{Omega}
\def\LaTeX{La\TeX}
\def\LaTeXe{\LaTeX2e}
\def\eTeX{e-\TeX}
\def\MF{Metafont}
\def\MP{MetaPost}
⟨/tex4htcfg⟩
```

47 Driver-specific form support

47.1 pdfmarks

```
⟨*pdfmark⟩
\long\def\@Form[#1]{%
\g@addto@macro\Hy@FirstPageHook{%
 \headerps@out{%
[%
 /__objdef{pdfDocEncoding}%
 /type/dict%
/OBJ pdfmark%
[%
 {pdfDocEncoding}%
 <<%
  /Type/Encoding%
  /Differences[%
   24/breve/caron/circumflex/dotaccent/hungarumlaut/ogonek/ring%
    /tilde %
   39/quotesingle %
   96/grave %
   128/bullet/dagger/daggerdbl/ellipsis/emdash/endash/florin%
     /fraction/guilsinglleft/guilsinglright/minus/perthousand%
     /quotedblbase/quotedblleft/quotedblright/quoteleft%
     /quoteright/quotesinglbase/trademark/fi/fl/Lslash/OE/Scaron%
     /Ydieresis/Zcaron/dotlessi/lslash/oe/scaron/zcaron %
   164/currency %
   166/brokenbar %
   168/dieresis/copyright/ordfeminine %
   172/logicalnot/.notdef/registered/macron/degree/plusminus%
     /twosuperior/threesuperior/acute/mu %
   183/periodcentered/cedilla/onesuperior/ordmasculine %
   188/onequarter/onehalf/threequarters %
   192/Agrave/Aacute/Acircumflex/Atilde/Adieresis/Aring/AE%
     /Ccedilla/Egrave/Eacute/Ecircumflex/Edieresis/Igrave%
     /Iacute/Icircumflex/Idieresis/Eth/Ntilde/Ograve/Oacute%
     /Ocircumflex/Otilde/Odieresis/multiply/Oslash/Ugrave%
     /Uacute/Ucircumflex/Udieresis/Yacute/Thorn/germandbls%
     /agrave/aacute/acircumflex/atilde/adieresis/aring/ae%
     /ccedilla/egrave/eacute/ecircumflex/edieresis/igrave%
     /iacute/icircumflex/idieresis/eth/ntilde/ograve/oacute%
     /ocircumflex/otilde/odieresis/divide/oslash/ugrave/uacute%
     /ucircumflex/udieresis/yacute/thorn/ydieresis%
  ]%
 >>%
```

```
12272 /PUT pdfmark%
12273 [%
12274   /_objdef{ZaDb}%
12275   /type/dict%
12276 /OBJ pdfmark%
12277 [%
12278  {ZaDb}%
12279  <<%
12280    /Type/Font%
12281    /Subtype/Type1%
12282    /Name/ZaDb%
12283    /BaseFont/ZapfDingbats%
12284  >>%
12285 /PUT pdfmark%
12286 [%
12287  /_objdef{Helv}%
12288  /type/dict%
12289 /OBJ pdfmark%
12290 [%
12291  {Helv}%
12292  <<%
12293    /Type/Font%
12294    /Subtype/Type1%
12295    /Name/Helv%
12296    /BaseFont/Helvetica%
12297    /Encoding{pdfDocEncoding}%
12298  >>%
12299 /PUT pdfmark%
12300 [%
12301  /_objdef{aform}%
12302  /type/dict%
12303 /OBJ pdfmark%
12304 [%
12305  /_objdef{afields}%
12306  /type/array%
12307 /OBJ pdfmark%
12308 {%
12309  [%
12310    /BBox[0 0 100 100]%
12311    /_objdef{Check}%
12312  /BP pdfmark %
12313  1 0 0 setrgbcolor%
12314  /ZapfDingbats 80 selectfont %
12315  20 20 moveto%
12316  (4)show%
12317  [/EP pdfmark%
12318  [%
12319    /BBox[0 0 100 100]%
12320    /_objdef{Cross}%
12321  /BP pdfmark %
12322  1 0 0 setrgbcolor%
12323  /ZapfDingbats 80 selectfont %
12324  20 20 moveto%
12325  (8)show%
12326  [/EP pdfmark%
12327  [%
12328    /BBox[0 0 250 100]%
```

```
  /__objdef{Submit}%
/BP pdfmark %
0.6 setgray %
0 0 250 100 rectfill %
1 setgray %
2 2 moveto %
2 98 lineto %
248 98 lineto %
246 96 lineto %
4 96 lineto %
4 4 lineto %
fill %
0.34 setgray %
248 98 moveto %
248 2 lineto %
2 2 lineto %
4 4 lineto %
246 4 lineto %
246 96 lineto %
fill%
/Helvetica 76 selectfont %
0 setgray %
8 22.5 moveto%
(Submit)show%
[/EP pdfmark%
[%
  /BBox[0 0 250 100]%
  /__objdef{SubmitP}%
/BP pdfmark %
0.6 setgray %
0 0 250 100 rectfill %
0.34 setgray %
2 2 moveto %
2 98 lineto %
248 98 lineto %
246 96 lineto %
4 96 lineto %
4 4 lineto %
fill %
1 setgray %
248 98 moveto %
248 2 lineto %
2 2 lineto %
4 4 lineto %
246 4 lineto %
246 96 lineto %
fill%
/Helvetica 76 selectfont %
0 setgray %
 10 20.5 moveto%
(Submit)show%
[/EP pdfmark%
} ?pdfmark%
[%
{aform}%
<<%
  /Fields{afields}%
```

```
    /DR<<%
      /Font<<%
        /ZaDb{ZaDb}%
        /Helv{Helv}%
      >>%
    >>%
    /DA(/Helv 10 Tf 0 g)%
    /CO{corder}%
    \ifHy@pdfa
    \else
      \ifHyField@NeedAppearances
        /NeedAppearances true%
      \fi
    \fi
  >>%
/PUT pdfmark%
[%
  {Catalog}%
  <<%
    /AcroForm{aform}%
  >>%
/PUT pdfmark%
[%
  /_objdef{corder}%
  /type/array%
/OBJ pdfmark% dps
}}%
  \kvsetkeys{Form}{#1}%
}
\let\@endForm\ltx@empty
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \Hy@Message{Sorry, pdfmark drivers do not support FORM gauges}%
}
\def\@TextField[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \let\Fld@default\ltx@empty
  \let\Fld@value\@empty
  \def\Fld@width{\DefaultWidthofText}%
  \def\Fld@height{%
    \ifFld@multiline
      \DefaultHeightofTextMultiline
    \else
      \DefaultHeightofText
    \fi
  }%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofText,#1%
    }%
    \HyField@FlagsText
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \ifx\Fld@value\@empty\def\Fld@value{\Fld@default}\fi
    \LayoutTextField{#2}{%
      \Hy@escapeform\PDFForm@Text
      \pdfmark[\MakeTextField{\Fld@width}{\Fld@height}]{%
        pdfmark=/ANN,Raw={\PDFForm@Text}%
      }%
```

```
    }%
  \endgroup
}
\def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
  \def\Fld@name{#2}%
  \let\Fld@default\relax
  \let\Fld@value\relax
  \def\Fld@width{\DefaultWidthofChoiceMenu}%
  \def\Fld@height{\DefaultHeightofChoiceMenu}%
  \begingroup
    \Fld@menulength=0 %
    \@tempdima\z@
    \@for\@curropt:=#3\do{%
      \expandafter\Fld@checkequals\@curropt==\\%
      \Hy@StepCount\Fld@menulength
      \settowidth{\@tempdimb}{\@currDisplay}%
      \ifdim\@tempdimb>\@tempdima\@tempdima\@tempdimb\fi
    }%
    \advance\@tempdima by 15\p@
    \begingroup
      \HyField@SetKeys{#1}%
    \edef\x{\endgroup
      \noexpand\expandafter
      \noexpand\HyField@SetKeys
      \noexpand\expandafter{%
        \expandafter\noexpand\csname DefaultOptionsof%
          \ifFld@radio
            Radio%
          \else
            \ifFld@combo
              \ifFld@popdown
                PopdownBox%
              \else
                ComboBox%
              \fi
            \else
              ListBox%
            \fi
          \fi
        \endcsname
      }%
    }\x
    \HyField@SetKeys{#1}%
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \ifx\Fld@value\relax
      \let\Fld@value\Fld@default
    \fi
    \LayoutChoiceField{#2}{%
      \ifFld@radio
        \HyField@FlagsRadioButton
        \@@Radio{#3}%
      \else
        \begingroup
          \HyField@FlagsChoice
          \ifdim\Fld@width<\@tempdima
            \ifdim\@tempdima<1cm\@tempdima1cm\fi
            \edef\Fld@width{\the\@tempdima}%
```

```
        \fi
        \ifFld@combo
        \else
          \@tempdima=\the\Fld@menulength\Fld@charsize
          \advance\@tempdima by \Fld@borderwidth bp %
          \advance\@tempdima by \Fld@borderwidth bp %
          \edef\Fld@height{\the\@tempdima}%
        \fi
        \@@Listbox{#3}%
      \endgroup
    \fi
  }%
 \endgroup
}
\def\@@Radio#1{%
 \Fld@listcount=0 %
 \EdefEscapeName\Fld@default{\Fld@default}%
 \@for\@curropt:=#1\do{%
  \expandafter\Fld@checkequals\@curropt==\\%
  \EdefEscapeName\@currValue{\@currValue}%
  \Hy@StepCount\Fld@listcount
  \@currDisplay\space
  \Hy@escapeform\PDFForm@Radio
  \pdfmark[\MakeRadioField{\Fld@width}{\Fld@height}]{%
    pdfmark=/ANN,%
    Raw={%
      \PDFForm@Radio /AP <</N <</\@currValue\space {Check}>> >>%
    }%
  } % deliberate space between radio buttons
 }%
}
\newcount\Fld@listcount
\def\@@Listbox#1{%
 \HyField@PDFChoices{#1}%
 \Hy@escapeform\PDFForm@List
 \pdfmark[\MakeChoiceField{\Fld@width}{\Fld@height}]{%
   pdfmark=/ANN,Raw={\PDFForm@List}%
 }%
}
\def\@PushButton[#1]#2{% parameters, label
 \def\Fld@name{#2}%
 \begingroup
  \expandafter\HyField@SetKeys\expandafter{%
    \DefaultOptionsofPushButton,#1%
  }%
  \ifHy@pdfa
    \Hy@Error{%
      PDF/A: Push button with JavaScript is prohibited%
    }\@ehc
    \LayoutPushButtonField{%
      \leavevmode
      \MakeButtonField{#2}%
    }%
  \else
    \HyField@FlagsPushButton
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \LayoutPushButtonField{%
```

```
      \leavevmode
      \Hy@escapeform\PDFForm@Push
      \pdfmark[\MakeButtonField{#2}]{%
        pdfmark=/ANN,Raw={\PDFForm@Push}%
      }%
    }%
  \fi
 \endgroup
}
\def\@Submit[#1]#2{%
 \def\Fld@width{\DefaultWidthofSubmit}%
 \def\Fld@height{\DefaultHeightofSubmit}%
 \begingroup
  \expandafter\HyField@SetKeys\expandafter{%
    \DefaultOptionsofSubmit,#1%
  }%
  \HyField@FlagsPushButton
  \HyField@FlagsSubmit
  \ifFld@hidden\def\Fld@width{1sp}\fi
  \Hy@escapeform\PDFForm@Submit
  \pdfmark[\MakeButtonField{#2}]{%
    pdfmark=/ANN,%
    Raw={\PDFForm@Submit /AP << /N {Submit} /D {SubmitP} >>}%
  }%
 \endgroup
}
\def\@Reset[#1]#2{%
 \def\Fld@width{\DefaultWidthofReset}%
 \def\Fld@height{\DefaultHeightofReset}%
 \begingroup
  \expandafter\HyField@SetKeys\expandafter{%
    \DefaultOptionsofReset,#1%
  }%
  \leavevmode
  \ifHy@pdfa
    \Hy@Error{%
      PDF/A: Reset action is prohibited%
    }\@ehc
    \MakeButtonField{#2}%
  \else
    \HyField@FlagsPushButton
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \Hy@escapeform\PDFForm@Reset
    \pdfmark[\MakeButtonField{#2}]{%
      pdfmark=/ANN,Raw={\PDFForm@Reset}%
    }%
  \fi
 \endgroup
}%
\def\@CheckBox[#1]#2{% parameters, label
 \def\Fld@name{#2}%
 \def\Fld@default{0}%
 \begingroup
  \def\Fld@width{\DefaultWidthofCheckBox}%
  \def\Fld@height{\DefaultHeightofCheckBox}%
  \expandafter\HyField@SetKeys\expandafter{%
    \DefaultOptionsofCheckBox,#1%
```

```
    }%
    \HyField@FlagsCheckBox
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \LayoutCheckField{#2}{%
      \Hy@escapeform\PDFForm@Check
      \pdfmark[\MakeCheckField{\Fld@width}{\Fld@height}]{%
        pdfmark=/ANN,Raw={\PDFForm@Check}%
      }%
    }%
  \endgroup
}
⟨/pdfmark⟩
```

47.2 HyperTeX

```
⟨*hypertex⟩
\def\@Form[#1]{\Hy@Message{Sorry, HyperTeX does not support FORMs}}
\let\@endForm\ltx@empty
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \Hy@Message{Sorry, HyperTeX does not support FORM gauges}%
}
\def\@TextField[#1]#2{% parameters, label
  \Hy@Message{Sorry, HyperTeX does not support FORM text fields}%
}
\def\@CheckBox[#1]#2{% parameters, label
  \Hy@Message{Sorry, HyperTeX does not support FORM checkboxes}%
}
\def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
  \Hy@Message{Sorry, HyperTeX does not support FORM choice menus}%
}
\def\@PushButton[#1]#2{% parameters, label
  \Hy@Message{Sorry, HyperTeX does not support FORM pushbuttons}%
}
\def\@Reset[#1]#2{\Hy@Message{Sorry, HyperTeX does not support FORMs}}
\def\@Submit[#1]#2{\Hy@Message{Sorry, HyperTeX does not support FORMs}}
⟨/hypertex⟩
```

47.3 TeX4ht

```
⟨*tex4ht⟩
\def\@Form[#1]{%
  \kvsetkeys{Form}{#1}%
  \HCode{<form action="\Form@action" method="\Form@method">}%
}
\def\@endForm{\HCode{</form>}}
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \Hy@Message{Sorry, TeX4ht does not support gauges}%
}
\def\@TextField[#1]#2{% parameters, label
  \let\Hy@reserved@a\@empty
  \def\Fld@name{#2}%
  \let\Fld@default\ltx@empty
  \bgroup
    \Field@toks={ }%
    \kvsetkeys{Field}{#1}%
    \HCode{<label for="\Fld@name">#2</label>}%
    \ifFld@password
      \@@PasswordField
    \else
```

```
      \@@TextField
    \fi
  \egroup
}
\def\@@PasswordField{%
  \HCode{%
    <input type="password" %
     id="\Fld@name" %
     name="\Fld@name" %
     \ifFld@hidden type="hidden" \fi
     value="\Fld@default" %
     \the\Field@toks
    >%
  }%
}
\def\@@TextField{%
  \ifFld@multiline
    \HCode{<textarea %
      \ifFld@readonly readonly \fi
      id="\Fld@name" %
      name="\Fld@name" %
      \ifFld@hidden type="hidden" \fi
      \the\Field@toks>%
    }%
    \Fld@default
    \HCode{</textarea>}%
  \else
    \HCode{<input type="textbox" %
      \ifFld@readonly readonly \fi
      id="\Fld@name" %
      name="\Fld@name" %
      \ifFld@hidden type="hidden" \fi
      value="\Fld@default" %
      \the\Field@toks>%
    }%
  \fi
}
\def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
  \def\Fld@name{#2}%
  \let\Fld@default\ltx@empty
  \let\Hy@reserved@a\relax
  \begingroup
    \expandafter\Fld@findlength#3\\%
    \Field@toks={ }%
    \kvsetkeys{Field}{#1}%
    #2%
    \ifFld@radio
      \expandafter\@@Radio#3\\%
    \else
      \expandafter\@@Menu#3\\%
    \fi
  \endgroup
}
\def\Fld@findlength#1\\{%
  \Fld@menulength=0 %
  \@for\@curropt:=#1\do{\Hy@StepCount\Fld@menulength}%
}
```

```
\def\@@Menu#1\\{%
  \HCode{<select size="\the\Fld@menulength" %
    name="\Fld@name" %
    \the\Field@toks>%
  }%
  \@for\@curropt:=#1\do{%
    \expandafter\Fld@checkequals\@curropt==\\%
    \HCode{<option %
      \ifx\@curropt\Fld@default selected \fi
      value="\@currValue">\@currDisplay</option>%
    }%
  }%
  \HCode{</select>}%
}
\def\@@Radio#1\\{%
  \@for\@curropt:=#1\do{%
    \expandafter\Fld@checkequals\@curropt==\\%
    \HCode{<input type="radio" %
      \ifx\@curropt\Fld@default checked \fi
      name="\Fld@name" %
      value="\@currValue" %
      \the\Field@toks>%
    }%
    \@currDisplay
  }%
}
\def\@PushButton[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \bgroup
    \Field@toks={ }%
    \kvsetkeys{Field}{#1}%
    \HCode{<input type="button" %
      name="\Fld@name" %
      value="#2" %
      \the\Field@toks>%
    }%
    \HCode{</button>}%
  \egroup
}
\def\@Submit[#1]#2{%
  \HCode{<button type="submit">#2</button>}%
}
\def\@Reset[#1]#2{%
  \HCode{<button type="reset">#2</button>}%
}
\def\@CheckBox[#1]#2{% parameters, label
  \let\Hy@reserved@a\@empty
  \def\Fld@name{#2}%
  \def\Fld@default{0}%
  \bgroup
    \Field@toks={ }%
    \kvsetkeys{Field}{#1}%
    \HCode{<input type="checkbox" %
      \ifFld@checked checked \fi
      \ifFld@disabled disabled \fi
      \ifFld@readonly readonly \fi
      name="\Fld@name" %
```

```
      \ifFld@hidden type="hidden" \fi
      value="\Fld@default" %
      \the\Field@toks>%
      #2%
    }%
  \egroup
}
⟨/tex4ht⟩
```

47.4 pdfTeX

```
⟨*pdftex⟩
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \Hy@Message{Sorry, pdftex does not support FORM gauges}%
}
\def\MakeFieldObject#1#2{\sbox0{#1}%
  \immediate\pdfxform0 %
  \expandafter\edef\csname #2Object\endcsname{%
    \the\pdflastxform\space 0 R%
  }%
% \hbox to 0pt{\hskip-\maxdimen{\pdfrefxform \the\pdflastxform}}%
}%
\let\HyField@afields\ltx@empty
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname pdflastlink\endcsname\relax
  \let\HyField@AddToFields\relax
  \PackageInfo{hyperref}{%
    You need pdfTeX 1.40.0 for setting the /Fields entry.%
    \MessageBreak
    Adobe Reader/Acrobat accepts an empty /Field array,%
    \MessageBreak
    but other PDF viewers might complain%
  }%
\else
  \let\HyField@AuxAddToFields\ltx@gobble
  \def\HyField@AfterAuxOpen{\Hy@AtBeginDocument}%
  \Hy@AtBeginDocument{%
    \if@filesw
      \immediate\write\@mainaux{%
        \string\providecommand\string\HyField@AuxAddToFields[1]{}%
      }%
    \fi
    \let\HyField@AfterAuxOpen\@firstofone
    \def\HyField@AuxAddToFields#1{%
      \xdef\HyField@afields{%
        \ifx\HyField@afields\@empty
        \else
          \HyField@afields
          \space
        \fi
        #1 0 R%
      }%
    }%
  }%
  \def\HyField@AddToFields{%
    \expandafter\HyField@@AddToFields\expandafter{%
      \the\pdflastlink
    }%
```

```
  }%
  \def\HyField@@AddToFields#1{%
    \HyField@AfterAuxOpen{%
      \if@filesw
        \write\@mainaux{%
          \string\HyField@AuxAddToFields{#1}%
        }%
      \fi
    }%
  }%
\fi
\def\@Form[#1]{%
  \@ifundefined{textcolor}{\let\textcolor\@gobble}{}%
  \kvsetkeys{Form}{#1}%
  \pdf@ifdraftmode{}{%
    \Hy@FormObjects
    \ifnum\pdftexversion>13 %
      \pdfrefobj\OBJ@pdfdocencoding
      \pdfrefobj\OBJ@ZaDb
      \pdfrefobj\OBJ@Helv
    \fi
    \AtVeryEndDocument{%
      \immediate\pdfobj{%
        <<%
          /Fields[\HyField@afields]%
          /DR<<%
            /Font<<%
              /ZaDb \OBJ@ZaDb\space 0 R%
              /Helv \OBJ@Helv\space 0 R%
            >>%
          >>%
          /DA(/Helv 10 Tf 0 g)%
          \ifHy@pdfa
          \else
            \ifHyField@NeedAppearances
              /NeedAppearances true%
            \fi
          \fi
        >>%
      }%
      \edef\OBJ@acroform{\the\pdflastobj}%
      \pdfcatalog{/AcroForm \OBJ@acroform\space 0 R}%
    }%
  }%
  \MakeFieldObject{%
```

Same as `\ding{123}` of package pifont.

```
    \begingroup
      \fontfamily{pzd}%
      \fontencoding{U}%
      \fontseries{m}%
      \fontshape{n}%
      \selectfont
      \char123 %
    \endgroup
  }{Ding}%
  \MakeFieldObject{%
    \fbox{\textcolor{yellow}{\textsf{Submit}}}%
```

```
  }{Submit}%
  \MakeFieldObject{%
    \fbox{\textcolor{yellow}{\textsf{SubmitP}}}%
  }{SubmitP}%
}
\let\@endForm\ltx@empty
\def\@TextField[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \let\Fld@default\ltx@empty
  \let\Fld@value\@empty
  \def\Fld@width{\DefaultWidthofText}%
  \def\Fld@height{%
    \ifFld@multiline
      \DefaultHeightofTextMultiline
    \else
      \DefaultHeightofText
    \fi
  }%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofText,#1%
    }%
    \PDFForm@Name
    \HyField@FlagsText
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \ifx\Fld@value\@empty\def\Fld@value{\Fld@default}\fi
    \LayoutTextField{#2}{%
      \Hy@escapeform\PDFForm@Text
      \pdfstartlink user {\PDFForm@Text}\relax
      \MakeTextField{\Fld@width}{\Fld@height}\pdfendlink
      \HyField@AddToFields
    }%
  \endgroup
}
\def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
  \def\Fld@name{#2}%
  \let\Fld@default\relax
  \let\Fld@value\relax
  \def\Fld@width{\DefaultWidthofChoiceMenu}%
  \def\Fld@height{\DefaultHeightofChoiceMenu}%
  \begingroup
    \Fld@menulength=0 %
    \@tempdima\z@
    \@for\@curropt:=#3\do{%
      \expandafter\Fld@checkequals\@curropt==\\%
      \Hy@StepCount\Fld@menulength
      \settowidth{\@tempdimb}{\@currDisplay}%
      \ifdim\@tempdimb>\@tempdima\@tempdima\@tempdimb\fi
    }%
    \advance\@tempdima by 15\p@
    \begingroup
      \HyField@SetKeys{#1}%
    \edef\x{\endgroup
      \noexpand\expandafter
      \noexpand\HyField@SetKeys
      \noexpand\expandafter{%
        \expandafter\noexpand\csname DefaultOptionsof%
```

```
      \ifFld@radio
        Radio%
      \else
        \ifFld@combo
          \ifFld@popdown
            PopdownBox%
          \else
            ComboBox%
          \fi
        \else
          ListBox%
        \fi
      \fi
    \endcsname
  }%
 }\x
 \HyField@SetKeys{#1}%
 \PDFForm@Name
 \ifFld@hidden\def\Fld@width{1sp}\fi
 \ifx\Fld@value\relax
  \let\Fld@value\Fld@default
 \fi
 \LayoutChoiceField{#2}{%
  \ifFld@radio
   \HyField@FlagsRadioButton
   \@@Radio{#3}%
  \else
   \begingroup
    \HyField@FlagsChoice
    \ifdim\Fld@width<\@tempdima
     \ifdim\@tempdima<1cm\@tempdima1cm\fi
     \edef\Fld@width{\the\@tempdima}%
    \fi
    \ifFld@combo
    \else
     \@tempdima=\the\Fld@menulength\Fld@charsize
     \advance\@tempdima by \Fld@borderwidth bp %
     \advance\@tempdima by \Fld@borderwidth bp %
     \edef\Fld@height{\the\@tempdima}%
    \fi
    \@@Listbox{#3}%
   \endgroup
  \fi
 }%
\endgroup
}
\def\@@Radio#1{%
 \Fld@listcount=0 %
 \EdefEscapeName\Fld@default{\Fld@default}%
 \@for\@curropt:=#1\do{%
  \expandafter\Fld@checkequals\@curropt==\\%
  \EdefEscapeName\@currValue{\@currValue}%
  \Hy@StepCount\Fld@listcount
  \@currDisplay\space
  \leavevmode
  \Hy@escapeform\PDFForm@Radio
  \pdfstartlink user {%
```

```
      \PDFForm@Radio
      /AP<<%
        /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.

```
          /\@currValue\space \DingObject
        >>%
      >>%
    }%
    \relax
    \MakeRadioField{\Fld@width}{\Fld@height}\pdfendlink
    \ifnum\Fld@listcount=1 %
      \HyField@AddToFields
    \fi
    \space % deliberate space between radio buttons
  }%
}
\newcount\Fld@listcount
\def\@@Listbox#1{%
  \HyField@PDFChoices{#1}%
  \leavevmode
  \Hy@escapeform\PDFForm@List
  \pdfstartlink user {\PDFForm@List}\relax
  \MakeChoiceField{\Fld@width}{\Fld@height}%
  \pdfendlink
  \HyField@AddToFields
}
\def\@PushButton[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofPushButton,#1%
    }%
    \PDFForm@Name
    \ifHy@pdfa
      \Hy@Error{%
        PDF/A: Push button with JavaScript is prohibited%
      }\@ehc
      \LayoutPushButtonField{%
        \leavevmode
        \MakeButtonField{#2}%
      }%
    \else
      \HyField@FlagsPushButton
      \ifFld@hidden\def\Fld@width{1sp}\fi
      \LayoutPushButtonField{%
        \leavevmode
        \Hy@escapeform\PDFForm@Push
        \pdfstartlink user {\PDFForm@Push}\relax
        \MakeButtonField{#2}%
        \pdfendlink
        \HyField@AddToFields
      }%
    \fi
  \endgroup
}
```

```
\def\@Submit[#1]#2{%
  \def\Fld@width{\DefaultWidthofSubmit}%
  \def\Fld@height{\DefaultHeightofSubmit}%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofSubmit,#1%
    }%
    \HyField@FlagsPushButton
    \HyField@FlagsSubmit
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \leavevmode
    \Hy@escapeform\PDFForm@Submit
    \pdfstartlink user {%
      \PDFForm@Submit
      /AP<</N \SubmitObject/D \SubmitPObject>>%
    }%
    \relax
    \MakeButtonField{#2}%
    \pdfendlink
    \HyField@AddToFields
  \endgroup
}
\def\@Reset[#1]#2{%
  \def\Fld@width{\DefaultWidthofReset}%
  \def\Fld@height{\DefaultHeightofReset}%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofReset,#1%
    }%
    \leavevmode
    \ifHy@pdfa
      \Hy@Error{%
        PDF/A: Reset action is prohibited%
      }\@ehc
      \MakeButtonField{#2}%
    \else
      \HyField@FlagsPushButton
      \ifFld@hidden\def\Fld@width{1sp}\fi
      \Hy@escapeform\PDFForm@Reset
      \pdfstartlink user {\PDFForm@Reset}\relax
      \MakeButtonField{#2}%
      \pdfendlink
      \HyField@AddToFields
    \fi
  \endgroup
}
\def\@CheckBox[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \def\Fld@default{0}%
  \begingroup
    \def\Fld@width{\DefaultWidthofCheckBox}%
    \def\Fld@height{\DefaultHeightofCheckBox}%
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofCheckBox,#1%
    }%
    \PDFForm@Name
    \HyField@FlagsCheckBox
```

```
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \LayoutCheckField{#2}{%
      \Hy@escapeform\PDFForm@Check
      \pdfstartlink user {\PDFForm@Check}\relax
      \MakeCheckField{\Fld@width}{\Fld@height}%
      \pdfendlink
      \HyField@AddToFields
    }%
  \endgroup
}
\def\Hy@FormObjects{%
  \pdfobj {%
    <<%
      /Type/Encoding%
      /Differences[%
        24/breve/caron/circumflex/dotaccent/hungarumlaut/ogonek%
          /ring/tilde %
        39/quotesingle %
        96/grave %
        128/bullet/dagger/daggerdbl/ellipsis/emdash/endash/florin%
          /fraction/guilsinglleft/guilsinglright/minus/perthousand%
          /quotedblbase/quotedblleft/quotedblright/quoteleft%
          /quoteright/quotesinglbase/trademark/fi/fl/Lslash/OE%
          /Scaron/Ydieresis/Zcaron/dotlessi/lslash/oe/scaron/zcaron %
        164/currency %
        166/brokenbar %
        168/dieresis/copyright/ordfeminine %
        172/logicalnot/.notdef/registered/macron/degree/plusminus%
          /twosuperior/threesuperior/acute/mu %
        183/periodcentered/cedilla/onesuperior/ordmasculine %
        188/onequarter/onehalf/threequarters %
        192/Agrave/Aacute/Acircumflex/Atilde/Adieresis/Aring/AE%
          /Ccedilla/Egrave/Eacute/Ecircumflex/Edieresis/Igrave%
          /Iacute/Icircumflex/Idieresis/Eth/Ntilde/Ograve/Oacute%
          /Ocircumflex/Otilde/Odieresis/multiply/Oslash/Ugrave%
          /Uacute/Ucircumflex/Udieresis/Yacute/Thorn/germandbls%
          /agrave/aacute/acircumflex/atilde/adieresis/aring/ae%
          /ccedilla/egrave/eacute/ecircumflex/edieresis/igrave%
          /iacute/icircumflex/idieresis/eth/ntilde/ograve/oacute%
          /ocircumflex/otilde/odieresis/divide/oslash/ugrave%
          /uacute/ucircumflex/udieresis/yacute/thorn/ydieresis%
      ]%
    >>%
  }%
  \xdef\OBJ@pdfdocencoding{\the\pdflastobj}%
  \pdfobj{%
    <<%
      /Type/Font%
      /Subtype/Type1%
      /Name/ZaDb%
      /BaseFont/ZapfDingbats%
    >>%
  }%
  \xdef\OBJ@ZaDb{\the\pdflastobj}%
  \pdfobj{%
    <<%
      /Type/Font%
```

```
    /Subtype/Type1%
    /Name/Helv%
    /BaseFont/Helvetica%
    /Encoding \OBJ@pdfdocencoding\space 0 R%
   >>%
  }%
  \xdef\OBJ@Helv{\the\pdflastobj}%
  \global\let\Hy@FormObjects\relax
}
⟨/pdftex⟩
```

47.5 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.

```
⟨*dvipdfm | xetex⟩
```

\@Gauge

```
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \Hy@Message{Sorry, dvipdfm/XeTeX does not support FORM gauges}%
}
```

\@Form

```
\def\@Form[#1]{%
  \@ifundefined{textcolor}{\let\textcolor\@gobble}{}%
  \kvsetkeys{Form}{#1}%
  \Hy@FormObjects
  \@pdfm@mark{obj @afields []}%
  \@pdfm@mark{obj @corder []}%
  \@pdfm@mark{%
    obj @aform <<%
      /Fields @afields%
      /DR<<%
        /Font<<%
          /ZaDb @OBJZaDb%
          /Helv @OBJHelv%
        >>%
      >>%
      /DA(/Helv 10 Tf 0 g)%
      /CO @corder%
      \ifHy@pdfa
      \else
        \ifHyField@NeedAppearances
          /NeedAppearances true%
        \fi
      \fi
    >>%
  }%
  \@pdfm@mark{put @catalog <</AcroForm @aform>>}%
}
```

\@endForm

```
\let\@endForm\ltx@empty
```

\dvipdfm@setdim

\dvipdfm@setdim sets dimensions for ann using \pdfm@box.

```
\def\dvipdfm@setdim{%
  height \the\ht\pdfm@box\space
```

```
13218   width  \the\wd\pdfm@box\space
13219   depth  \the\dp\pdfm@box\space
13220 }
```

\HyField@AnnotCount

```
13221 \newcount\HyField@AnnotCount
13222 \HyField@AnnotCount=\z@
```

\HyField@AdvanceAnnotCount

```
13223 \def\HyField@AdvanceAnnotCount{%
13224   \global\advance\HyField@AnnotCount\@ne
13225 }
```

\HyField@TheAnnotCount

```
13226 \def\HyField@TheAnnotCount{%
13227   \the\HyField@AnnotCount
13228 }
```

\@TextField

```
13229 \def\@TextField[#1]#2{% parameters, label
13230   \def\Fld@name{#2}%
13231   \let\Fld@default\ltx@empty
13232   \let\Fld@value\@empty
13233   \def\Fld@width{\DefaultWidthofText}%
13234   \def\Fld@height{%
13235     \ifFld@multiline
13236       \DefaultHeightofTextMultiline
13237     \else
13238       \DefaultHeightofText
13239     \fi
13240   }%
13241   \begingroup
13242     \expandafter\HyField@SetKeys\expandafter{%
13243       \DefaultOptionsofText,#1%
13244     }%
13245     \PDFForm@Name
13246     \HyField@FlagsText
13247     \ifFld@hidden\def\Fld@width{1sp}\fi
13248     \ifx\Fld@value\@empty\def\Fld@value{\Fld@default}\fi
13249     \setbox\pdfm@box=\hbox{%
13250       \MakeTextField{\Fld@width}{\Fld@height}%
13251     }%
13252     \HyField@AdvanceAnnotCount
13253     \LayoutTextField{#2}{%
13254       \Hy@escapeform\PDFForm@Text
13255       \@pdfm@mark{%
13256         ann @text\HyField@TheAnnotCount\space
13257         \dvipdfm@setdim << \PDFForm@Text >>%
13258       }%
13259     }%
13260     \unhbox\pdfm@box
13261     \@pdfm@mark{put @afields @text\HyField@TheAnnotCount}%
13262     % record in @afields array
13263   \endgroup
13264 }
```

\@ChoiceMenu

```
\def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
  \def\Fld@name{#2}%
  \let\Fld@default\relax
  \let\Fld@value\relax
  \def\Fld@width{\DefaultWidthofChoiceMenu}%
  \def\Fld@height{\DefaultHeightofChoiceMenu}%
  \begingroup
    \Fld@menulength=0 %
    \@tempdima\z@
    \@for\@curropt:=#3\do{%
      \expandafter\Fld@checkequals\@curropt==\\%
      \Hy@StepCount\Fld@menulength
      \settowidth{\@tempdimb}{\@currDisplay}%
      \ifdim\@tempdimb>\@tempdima\@tempdima\@tempdimb\fi
    }%
    \advance\@tempdima by 15\p@
    \begingroup
      \HyField@SetKeys{#1}%
    \edef\x{\endgroup
      \noexpand\expandafter
      \noexpand\HyField@SetKeys
      \noexpand\expandafter{%
        \expandafter\noexpand\csname DefaultOptionsof%
          \ifFld@radio
            Radio%
          \else
            \ifFld@combo
              \ifFld@popdown
                PopdownBox%
              \else
                ComboBox%
              \fi
            \else
              ListBox%
            \fi
          \fi
        \endcsname
      }%
    }\x
    \HyField@SetKeys{#1}%
    \PDFForm@Name
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \ifx\Fld@value\relax
      \let\Fld@value\Fld@default
    \fi
    \LayoutChoiceField{#2}{%
      \ifFld@radio
        \HyField@FlagsRadioButton
        \@@Radio{#3}%
      \else
        \begingroup
          \HyField@FlagsChoice
          \ifdim\Fld@width<\@tempdima
            \ifdim\@tempdima<1cm\@tempdima1cm\fi
            \edef\Fld@width{\the\@tempdima}%
          \fi
          \ifFld@combo
```

```
        \else
          \@tempdima=\the\Fld@menulength\Fld@charsize
          \advance\@tempdima by \Fld@borderwidth bp %
          \advance\@tempdima by \Fld@borderwidth bp %
          \edef\Fld@height{\the\@tempdima}%
        \fi
        \@@Listbox{#3}%
      \endgroup
    \fi
  }%
\endgroup
}
```

\@@Radio

```
\def\@@Radio#1{%
  \Fld@listcount=0 %
  \EdefEscapeName\Fld@default{\Fld@default}%
  \setbox\pdfm@box=\hbox{%
    \MakeRadioField{\Fld@width}{\Fld@height}%
  }%
  \@for\@curropt:=#1\do{%
    \expandafter\Fld@checkequals\@curropt==\\%
    \EdefEscapeName\@currValue{\@currValue}%
    \Hy@StepCount\Fld@listcount
    \@currDisplay\space
    \leavevmode
    \Hy@escapeform\PDFForm@Radio
    \ifnum\Fld@listcount=1 %
      \HyField@AdvanceAnnotCount
    \fi
    \@pdfm@mark{%
      ann %
      \ifnum\Fld@listcount=1 %
        @radio\HyField@TheAnnotCount%
        \space
      \fi
      \dvipdfm@setdim
      <<%
        \PDFForm@Radio
        /AP<</N<</\@currValue /null>>>>%
      >>%
    }%
    \unhcopy\pdfm@box\space% deliberate space between radio buttons
    \ifnum\Fld@listcount=1 %
      \@pdfm@mark{%
        put @afields @radio\HyField@TheAnnotCount
      }%
    \fi
  }%
}
```

\Fld@listcount

```
\newcount\Fld@listcount
```

\@@Listbox

```
\def\@@Listbox#1{%
  \HyField@PDFChoices{#1}%
```

```
  \setbox\pdfm@box=\hbox{%
    \MakeChoiceField{\Fld@width}{\Fld@height}%
  }%
  \leavevmode
  \Hy@escapeform\PDFForm@List
  \HyField@AdvanceAnnotCount
  \@pdfm@mark{%
    ann @list\HyField@TheAnnotCount\space
    \dvipdfm@setdim
    <<\PDFForm@List>>%
  }%
  \unhbox\pdfm@box
  \@pdfm@mark{put @afields @list\HyField@TheAnnotCount}%
}
```

\@PushButton

```
\def\@PushButton[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofPushButton,#1%
    }%
    \PDFForm@Name
    \ifHy@pdfa
      \Hy@Error{%
        PDF/A: Push button with JavaScript is prohibited%
      }\@ehc
      \LayoutPushButtonField{%
        \leavevmode
        \MakeButtonField{#2}%
      }%
    \else
      \setbox\pdfm@box=\hbox{\MakeButtonField{#2}}%
      \HyField@FlagsPushButton
      \ifFld@hidden\def\Fld@width{1sp}\fi
      \HyField@AdvanceAnnotCount
      \LayoutPushButtonField{%
        \leavevmode
        \Hy@escapeform\PDFForm@Push
        \@pdfm@mark{%
          ann @push\HyField@TheAnnotCount\space
          \dvipdfm@setdim
          <<\PDFForm@Push>>%
        }%
      }%
      \unhbox\pdfm@box
      \@pdfm@mark{put @afields @push\HyField@TheAnnotCount}%
    \fi
  \endgroup
}
```

\@Submit

```
\def\@Submit[#1]#2{%
  \def\Fld@width{\DefaultWidthofSubmit}%
  \def\Fld@height{\DefaultHeightofSubmit}%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
```

```
      \DefaultOptionsofSubmit,#1%
    }%
    \HyField@FlagsPushButton
    \HyField@FlagsSubmit
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \setbox\pdfm@box=\hbox{\MakeButtonField{#2}}%
    \leavevmode
    \Hy@escapeform\PDFForm@Submit
    \HyField@AdvanceAnnotCount
    \@pdfm@mark{%
      ann @submit\HyField@TheAnnotCount\space
      \dvipdfm@setdim
      <<\PDFForm@Submit>>%
    }%
    \unhbox\pdfm@box%
    \@pdfm@mark{put @afields @submit\HyField@TheAnnotCount}%
  \endgroup
}
```

\@Reset

```
\def\@Reset[#1]#2{%
  \def\Fld@width{\DefaultWidthofReset}%
  \def\Fld@height{\DefaultHeightofReset}%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofReset,#1%
    }%
    \leavevmode
    \ifHy@pdfa
      \Hy@Error{%
        PDF/A: Reset action is prohibited%
      }\@ehc
      \MakeButtonField{#2}%
    \else
      \HyField@FlagsPushButton
      \ifFld@hidden\def\Fld@width{1sp}\fi
      \setbox\pdfm@box=\hbox{\MakeButtonField{#2}}%
      \Hy@escapeform\PDFForm@Reset
      \HyField@AdvanceAnnotCount
      \@pdfm@mark{%
        ann @reset\HyField@TheAnnotCount\space
        \dvipdfm@setdim
        <<\PDFForm@Reset>>%
      }%
      \unhbox\pdfm@box
      \@pdfm@mark{put @afields @reset\HyField@TheAnnotCount}%
    \fi
  \endgroup
}
```

\@CheckBox

```
\def\@CheckBox[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \def\Fld@default{0}%
  \begingroup
    \def\Fld@width{\DefaultWidthofCheckBox}%
    \def\Fld@height{\DefaultHeightofCheckBox}%
```

```
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofCheckBox,#1%
    }%
    \PDFForm@Name
    \HyField@FlagsCheckBox
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \setbox\pdfm@box=\hbox{%
      \MakeCheckField{\Fld@width}{\Fld@height}%
    }%
    \HyField@AdvanceAnnotCount
    \LayoutCheckField{#2}{%
      \Hy@escapeform\PDFForm@Check
      \@pdfm@mark{%
        ann @check\HyField@TheAnnotCount\space
        \dvipdfm@setdim
        <<\PDFForm@Check>>%
      }%
      \unhbox\pdfm@box
      \@pdfm@mark{put @afields @check\HyField@TheAnnotCount}%
    }%
  \endgroup
}

\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding%
    <<%
      /Type/Encoding%
      /Differences[%
        24/breve/caron/circumflex/dotaccent/hungarumlaut/ogonek/ring/tilde %
        39/quotesingle %
        96/grave %
        128/bullet/dagger/daggerdbl/ellipsis/emdash/endash/florin%
          /fraction/guilsinglleft/guilsinglright/minus/perthousand%
          /quotedblbase/quotedblleft/quotedblright/quoteleft/quoteright%
          /quotesinglbase/trademark/fi/fl/Lslash/OE/Scaron/Ydieresis%
          /Zcaron/dotlessi/lslash/oe/scaron/zcaron %
        164/currency %
        166/brokenbar %
        168/dieresis/copyright/ordfeminine %
        172/logicalnot/.notdef/registered/macron/degree/plusminus%
          /twosuperior/threesuperior/acute/mu %
        183/periodcentered/cedilla/onesuperior/ordmasculine %
        188/onequarter/onehalf/threequarters %
        192/Agrave/Aacute/Acircumflex/Atilde/Adieresis/Aring/AE%
          /Ccedilla/Egrave/Eacute/Ecircumflex/Edieresis/Igrave/Iacute%
          /Icircumflex/Idieresis/Eth/Ntilde/Ograve/Oacute/Ocircumflex%
          /Otilde/Odieresis/multiply/Oslash/Ugrave/Uacute/Ucircumflex%
          /Udieresis/Yacute/Thorn/germandbls/agrave/aacute/acircumflex%
          /atilde/adieresis/aring/ae/ccedilla/egrave/eacute%
          /ecircumflex/edieresis/igrave/iacute/icircumflex/idieresis%
          /eth/ntilde/ograve/oacute/ocircumflex/otilde/odieresis%
          /divide/oslash/ugrave/uacute/ucircumflex/udieresis/yacute%
          /thorn/ydieresis%
      ]%
    >>%
  }%
  \@pdfm@mark{obj @OBJZaDb%
    <<%
```

```
    /Type/Font%
    /Subtype/Type1%
    /Name/ZaDb%
    /BaseFont/ZapfDingbats%
   >>%
  }%
  \@pdfm@mark{obj @OBJHelv%
   <<%
    /Type/Font%
    /Subtype/Type1%
    /Name/Helv%
    /BaseFont/Helvetica%
    /Encoding @OBJpdfdocencoding%
   >>%
  }%
  \global\let\Hy@FormObjects\relax
}
⟨/dvipdfm | xetex⟩
```

47.6 Common forms part

```
⟨*pdfform⟩
```

\Hy@escapestring

```
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname pdfescapestring\endcsname\relax
  \let\Hy@escapestring\@firstofone
  \def\Hy@escapeform#1{%
    \ifHy@pdfescapeform
      \def\Hy@escapestring##1{%
        \noexpand\Hy@escapestring{\noexpand##1}%
      }%
      \edef\Hy@temp{#1}%
      \expandafter\Hy@@escapeform\Hy@temp\Hy@escapestring{}\@nil
      \def\Hy@escapestring##1{%
        \@ifundefined{Hy@esc@\string##1}{%
          ##1%
          \ThisShouldNotHappen
        }{%
          \csname Hy@esc@\string##1\endcsname
        }%
      }%
    \else
      \let\Hy@escapestring\@firstofone
    \fi
  }%
  \def\Hy@@escapeform#1\Hy@escapestring#2#3\@nil{%
    \ifx\\#3\\%
    \else
      \expandafter
      \Hy@pstringdef\csname Hy@esc@\string#2\endcsname{#2}%
      \ltx@ReturnAfterFi{%
        \Hy@@escapeform#3\@nil
      }%
    \fi
  }%
\else
  \def\Hy@escapeform#1{%
```

```
    \ifHy@pdfescapeform
      \let\Hy@escapestring\pdfescapestring
    \else
      \let\Hy@escapestring\@firstofone
    \fi
  }%
  \Hy@escapeform{}%
\fi
```

\PDFForm@Name

```
\def\PDFForm@Name{%
  \PDFForm@@Name\Fld@name
  \ifx\Fld@altname\relax
  \else
    \PDFForm@@Name\Fld@altname
  \fi
  \ifx\Fld@mappingname\relax
  \else
    \PDFForm@@Name\Fld@mappingname
  \fi
}
```

\PDFForm@@Name

```
\def\PDFForm@@Name#1{%
  \begingroup
    \ifnum\Hy@pdfversion<5 % implementation note 117, PDF spec 1.7
      \ifHy@unicode
        \Hy@unicodefalse
      \fi
    \fi
    \HyPsd@XeTeXBigCharstrue
    \pdfstringdef\Hy@gtemp#1%
  \endgroup
  \let#1\Hy@gtemp
}
```

\Fld@additionalactions

```
\def\Fld@@additionalactions{%
```

K input (keystroke) format

```
  \ifx\Fld@keystroke@code\@empty
  \else
    /K<</S/JavaScript/JS(\Hy@escapestring{\Fld@keystroke@code})>>%
  \fi
```

F display format

```
  \ifx\Fld@format@code\@empty
  \else
    /F<</S/JavaScript/JS(\Hy@escapestring{\Fld@format@code})>>%
  \fi
```

V validation

```
  \ifx\Fld@validate@code\@empty
  \else
    /V<</S/JavaScript/JS(\Hy@escapestring{\Fld@validate@code})>>%
  \fi
```

C calculation

```
  \ifx\Fld@calculate@code\@empty
```

```
    \else
      /C<</S/JavaScript/JS(\Hy@escapestring{\Fld@calculate@code})>>%
    \fi
```
Fo receiving the input focus
```
    \ifx\Fld@onfocus@code\@empty
    \else
      /Fo<</S/JavaScript/JS(\Hy@escapestring{\Fld@onfocus@code})>>%
    \fi
```
Bl loosing the input focus (blurred)
```
    \ifx\Fld@onblur@code\@empty
    \else
      /Bl<</S/JavaScript/JS(\Hy@escapestring{\Fld@onblur@code})>>%
    \fi
```
D pressing the mouse button (down)
```
    \ifx\Fld@onmousedown@code\@empty
    \else
      /D<</S/JavaScript/JS(\Hy@escapestring{\Fld@onmousedown@code})>>%
    \fi
```
U releasing the mouse button (up)
```
    \ifx\Fld@onmouseup@code\@empty
    \else
      /U<</S/JavaScript/JS(\Hy@escapestring{\Fld@onmouseup@code})>>%
    \fi
```
E cursor enters the annotation's active area.
```
    \ifx\Fld@onenter@code\@empty
    \else
      /E<</S/JavaScript/JS(\Hy@escapestring{\Fld@onenter@code})>>%
    \fi
```
X cursor exits the annotation's active area.
```
    \ifx\Fld@onexit@code\@empty
    \else
      /X<</S/JavaScript/JS(\Hy@escapestring{\Fld@onexit@code})>>%
    \fi
  }
  \def\Fld@additionalactions{%
    \if-\Fld@@additionalactions-%
    \else
      \ifHy@pdfa
      \else
        /AA<<\Fld@@additionalactions>>%
      \fi
    \fi
  }
```
\Fld@annotnames
```
  \def\Fld@annotnames{%
    /T(\Fld@name)%
    \ifx\Fld@altname\relax
    \else
      /TU(\Fld@altname)%
    \fi
    \ifx\Fld@mappingname\relax
    \else
      /TM(\Fld@mappingname)%
```

```
  \fi
}
```

\PDFForm@Check

```
\def\PDFForm@Check{%
  /Subtype/Widget%
  \Fld@annotflags
  \Fld@annotnames
  /FT/Btn%
  \Fld@flags
  /Q \Fld@align
  /BS<</W \Fld@borderwidth /S/\Fld@borderstyle>>%
  /MK<<%
    \ifnum\Fld@rotation=\z@
    \else
      /R \Fld@rotation
    \fi
    \ifx\Fld@bordercolor\relax
    \else
      /BC[\Fld@bordercolor]%
    \fi
    \ifx\Fld@bcolor\relax
    \else
      /BG[\Fld@bcolor]%
    \fi
    /CA(\Hy@escapestring{\Fld@cbsymbol})%
  >>%
  /DA(/ZaDb \strip@pt\Fld@charsize\space Tf%
      \ifx\Fld@color\@empty\else\space\Fld@color\fi)%
  /H/P%
  \ifFld@checked /V/Yes\else /V/Off\fi
  \Fld@additionalactions
}
```

\PDFForm@Push

```
\ifHy@pdfa
\else
  \def\PDFForm@Push{%
    /Subtype/Widget%
    \Fld@annotflags
    \Fld@annotnames
    /FT/Btn%
    \Fld@flags
    /H/P%
    /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
    \ifcase0\ifnum\Fld@rotation=\z@   \else 1\fi
          \ifx\Fld@bordercolor\relax\else 1\fi
          \space
    \else
      /MK<<%
        \ifnum\Fld@rotation=\z@
        \else
          /R \Fld@rotation
        \fi
        \ifx\Fld@bordercolor\relax
        \else
          /BC[\Fld@bordercolor]%
```

```
      \fi
    >>%
  \fi
  /A<</S/JavaScript/JS(\Hy@escapestring{\Fld@onclick@code})>>%
  \Fld@additionalactions
 }%
\fi
```

\PDFForm@List

```
\def\PDFForm@List{%
 /Subtype/Widget%
 \Fld@annotflags
 \Fld@annotnames
 /FT/Ch%
 \Fld@flags
 /Q \Fld@align
 /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
 \ifcase0\ifnum\Fld@rotation=\z@   \else 1\fi
       \ifx\Fld@bordercolor\relax\else 1\fi
       \ifx\fld@bcolor\relax     \else 1\fi
       \space
 \else
  /MK<<%
   \ifnum\Fld@rotation=\z@
   \else
    /R \Fld@rotation
   \fi
   \ifx\Fld@bordercolor\relax
   \else
    /BC[\Fld@bordercolor]%
   \fi
   \ifx\Fld@bcolor\relax
   \else
    /BG[\Fld@bcolor]%
   \fi
  >>%
 \fi
 /DA(/Helv \strip@pt\Fld@charsize\space Tf%
    \ifx\Fld@color\@empty\else\space\Fld@color\fi)%
 \Fld@choices
 \Fld@additionalactions
}
```

\PDFForm@Radio

```
\def\PDFForm@Radio{%
 /Subtype/Widget%
 \Fld@annotflags
 \Fld@annotnames
 /FT/Btn%
 \Fld@flags
 /H/P%
 /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
 /MK<<%
  \ifnum\Fld@rotation=\z@
  \else
   /R \Fld@rotation
  \fi
```

```
    \ifx\Fld@bordercolor\relax
    \else
      /BC[\Fld@bordercolor]%
    \fi
    \ifx\Fld@bcolor\relax
    \else
      /BG[\Fld@bcolor]%
    \fi
    /CA(\Fld@radiosymbol)%
  >>%
  /DA(/ZaDb \strip@pt\Fld@charsize\space Tf%
      \ifx\Fld@color\@empty\else\space\Fld@color\fi)%
  \ifx\@currValue\Fld@default
    /V/\Fld@default
    /DV/\Fld@default
  \else
    /V/Off%
    /DV/Off%
  \fi
  \Fld@additionalactions
}
```

\PDFForm@Text

```
\def\PDFForm@Text{%
  /Subtype/Widget%
  \Fld@annotflags
  \Fld@annotnames
  /FT/Tx%
  \Fld@flags
  /Q \Fld@align
  /BS<</W \Fld@borderwidth\space /S /\Fld@borderstyle>>%
  \ifcase0\ifnum\Fld@rotation=\z@   \else 1\fi
        \ifx\Fld@bordercolor\relax\else 1\fi
        \ifx\Fld@bcolor\relax     \else 1\fi
        \space
  \else
    /MK<<%
      \ifnum\Fld@rotation=\z@
      \else
        /R \Fld@rotation
      \fi
      \ifx\Fld@bordercolor\relax
      \else
        /BC[\Fld@bordercolor]%
      \fi
      \ifx\Fld@bcolor\relax
      \else
        /BG[\Fld@bcolor]%
      \fi
    >>%
  \fi
  /DA(/Helv \strip@pt\Fld@charsize\space Tf%
      \ifx\Fld@color\@empty\else\space\Fld@color\fi)%
  /DV(\Hy@escapestring{\Fld@default})%
  /V(\Hy@escapestring{\Fld@value})%
  \Fld@additionalactions
  \ifnum\Fld@maxlen>\z@/MaxLen \Fld@maxlen \fi
}
```

\PDFForm@Submit

```
\def\PDFForm@Submit{%
  /Subtype/Widget%
  \Fld@annotflags
  \Fld@annotnames
  /FT/Btn%
  \Fld@flags
  /H/P%
  /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
  \ifcase0\ifnum\Fld@rotation=\z@   \else 1\fi
        \ifx\Fld@bordercolor\relax\else 1\fi
        \space
  \else
    /MK<<%
      \ifnum\Fld@rotation=\z@
      \else
        /R \Fld@rotation
      \fi
      \ifx\Fld@bordercolor\relax
      \else
        /BC[\Fld@bordercolor]%
      \fi
    >>%
  \fi
  /A<<%
    /S/SubmitForm%
    /F<<%
      /FS/URL%
      /F(\Hy@escapestring{\Form@action})%
    >>%
    \Fld@submitflags
  >>%
  \Fld@additionalactions
}
```

\PDFForm@Reset

```
\ifHy@pdfa
\else
  \def\PDFForm@Reset{%
    /Subtype/Widget%
    \Fld@annotflags
    \Fld@annotnames
    /FT/Btn%
    \Fld@flags
    /H/P%
    /DA(/Helv \strip@pt\Fld@charsize\space Tf 0 0 1 rg)%
    \ifcase0\ifnum\Fld@rotation=\z@   \else 1\fi
          \ifx\Fld@bordercolor\relax\else 1\fi
          \space
    \else
      /MK<<%
        \ifnum\Fld@rotation=\z@
        \else
          /R \Fld@rotation
        \fi
        \ifx\Fld@bordercolor\relax
        \else
```

```
      /BC[\Fld@bordercolor]%
    \fi
%   /CA (Clear)
%   /AC (Done)
  >>%
 \fi
 /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
 /A<</S/ResetForm>>%
 \Fld@additionalactions
}%
\fi
```

⟨/pdfform⟩
⟨*package⟩

48 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 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

```
\def\phantomsection{%
  \Hy@MakeCurrentHrefAuto{section*}%
  \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
}
```

⟨/package⟩

48.1 Bookmarks

⟨*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 meating in Heidelberg. See paper.pdf and slides.pdf in the doc directory of hyperref.

When using the right-to-left typesetting based on ε-TeX, the order of the \BOOKMARK commands written to the \@outlinefile could appear wrong, because of mis-feature of ε-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.

```
\def\Hy@writebookmark#1#2#3#4#5{%
  % section number, text, label, level, file
 \ifx\WriteBookmarks\relax%
 \else
```

```
    \ifnum#4>\Hy@bookmarksdepth\relax
    \else
      \@@writetorep{#1}{#2}{#3}{#4}{#5}%
    \fi
  \fi
}
\def\Hy@currentbookmarklevel{0}
\def\Hy@numberline#1{#1 }
\def\@@writetorep#1#2#3#4#5{%
  \begingroup
    \edef\Hy@tempa{#5}%
    \ifx\Hy@tempa\Hy@bookmarkstype
      \edef\Hy@level{#4}%
      \ifx\Hy@levelcheck Y%
        \@tempcnta\Hy@level\relax
        \advance\@tempcnta by -1 %
        \ifnum\Hy@currentbookmarklevel<\@tempcnta
          \advance\@tempcnta by -\Hy@currentbookmarklevel\relax
          \advance\@tempcnta by 1 %
          \Hy@Warning{%
            Difference (\the\@tempcnta) between bookmark levels is %
            greater \MessageBreak than one, level fixed%
          }%
          \@tempcnta\Hy@currentbookmarklevel
          \advance\@tempcnta by 1 %
          \edef\Hy@level{\the\@tempcnta}%
        \fi
      \else
        \global\let\Hy@levelcheck Y%
      \fi
      \global\let\Hy@currentbookmarklevel\Hy@level
      \@tempcnta\Hy@level\relax
      \expandafter\xdef\csname Parent\Hy@level\endcsname{#3}%
      \advance\@tempcnta by -1 %
      \edef\Hy@tempa{#3}%
      \edef\Hy@tempb{\csname Parent\the\@tempcnta\endcsname}%
      \ifx\Hy@tempa\Hy@tempb
        \Hy@Warning{%
          The anchor of a bookmark and its parent's must not%
          \MessageBreak be the same. Added a new anchor%
        }%
        \phantomsection
      \fi
      \ifHy@bookmarksnumbered
        \let\numberline\Hy@numberline
        \let\booknumberline\Hy@numberline
        \let\partnumberline\Hy@numberline
        \let\chapternumberline\Hy@numberline
      \else
        \let\numberline\@gobble
        \let\booknumberline\@gobble
        \let\partnumberline\@gobble
        \let\chapternumberline\@gobble
      \fi
      \HyPsd@XeTeXBigCharstrue
      \pdfstringdef\Hy@tempa{#2}%
      \HyPsd@SanitizeForOutFile\Hy@tempa
```

```
      \if@filesw
        \stepcounter{bookmark@seq@number}%
        \@ifundefined{@outlinefile}{%
        }{%
          \protected@write\@outlinefile{}{%
            \protect\BOOKMARK
              [\Hy@level][\@bookmarkopenstatus{\Hy@level}]{#3}%
              {\Hy@tempa}{\Hy@tempb}%
              \@percentchar\space\thebookmark@seq@number
          }%
        }%
      \fi
    \fi
  \endgroup
}
\newcounter{bookmark@seq@number}
\begingroup
  \lccode`(=`{%
  \lccode`)=`}%
  \lccode`1=\z@
  \lccode`2=\z@
  \lccode`3=\z@
  \lccode`5=\z@
  \lccode`7=\z@
  \lccode`\#=\z@
  \lccode`\`=\z@
  \lccode`\{=\z@
  \lccode`\}=\z@
\lowercase{%
  \endgroup
  \def\HyPsd@SanitizeForOutFile#1{%
    \@onelevel@sanitize\Hy@tempa
    \escapechar`\\%
    \edef\Hy@tempa{%
      \expandafter\HyPsd@SanitizeOut@BraceLeft\Hy@tempa(\@nil
    }%
    \edef\Hy@tempa{%
      \expandafter\HyPsd@SanitizeOut@BraceRight\Hy@tempa)\@nil
    }%
  }%
  \def\HyPsd@SanitizeOut@BraceLeft#1(#2\@nil{%
    #1%
    \ifx\\#2\\%
      \expandafter\ltx@gobble
    \else
      \expandafter\ltx@firstofone
    \fi
    {%
      \string\173%
      \HyPsd@SanitizeOut@BraceLeft#2\@nil
    }%
  }%
  \def\HyPsd@SanitizeOut@BraceRight#1)#2\@nil{%
    #1%
    \ifx\\#2\\%
      \expandafter\ltx@gobble
    \else
```

```
      \expandafter\ltx@firstofone
    \fi
    {%
      \string\175%
      \HyPsd@SanitizeOut@BraceRight#2\@nil
    }%
  }%
}
```

In the call of \BOOKMARK the braces around #4 are omitted, because it is not likely, that the level number contains].

```
\newcommand{\currentpdfbookmark}{%
  \pdfbookmark[\Hy@currentbookmarklevel]%
}
\newcommand{\subpdfbookmark}{%
  \@tempcnta\Hy@currentbookmarklevel
  \Hy@StepCount\@tempcnta
  \expandafter\pdfbookmark\expandafter[\the\@tempcnta]%
}
\newcommand{\belowpdfbookmark}[2]{%
  \@tempcnta\Hy@currentbookmarklevel
  \Hy@StepCount\@tempcnta
  \expandafter\pdfbookmark\expandafter[\the\@tempcnta]{#1}{#2}%
  \advance\@tempcnta by -1 %
  \xdef\Hy@currentbookmarklevel{\the\@tempcnta}%
}
```

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.

```
\renewcommand\pdfbookmark[3][0]{%
  \Hy@writebookmark{}{#2}{#3.#1}{#1}{toc}%
  \hyper@anchorstart{#3.#1}\hyper@anchorend
}
\def\BOOKMARK{%
  \@ifnextchar[{\@BOOKMARK}{\@@BOOKMARK[1][-]}%
}
\def\@BOOKMARK[#1]{%
  \@ifnextchar[{\@@BOOKMARK[{#1}]}{\@@BOOKMARK[{#1}][-]}%
}
```

The macros for calculating structure of outlines are derived from those by Petr Olsak used in the texinfopdf macros.

48.1.1 Rerun warning

\Hy@OutlineRerunCheck

```
\RequirePackage{rerunfilecheck}[2009/12/10]
\def\Hy@OutlineRerunCheck{%
  \RerunFileCheck{\jobname.out}{%
    \immediate\closeout\@outlinefile
  }{%
    Rerun to get outlines right\MessageBreak
    or use package 'bookmark'%
  }%
}
```

48.1.2 Driver stuff

The VTEX section was written originally by VTEX, but then amended by Denis Girou (denis.girou@idris.fr), then by by Taco Hoekwater (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.

```
14075 ⟨*vtex⟩
14076 \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.

```
14077 \begingroup
14078   \catcode`\'=12 %
14079   \ifnum\Hy@VTeXversion<650 %
14080     \catcode`\"=12 %
14081     \gdef\hv@pdf@char#1#2#3{%
14082       \char
14083       \ifcase'#1#2#3 %
14084         "00\or"01\or"02\or"03\or"04\or"05\or"06\or"07%
14085       \or"08\or"09\or"0A\or"0B\or"0C\or"0D\or"0E\or"0F%
14086       \or"10\or"11\or"12\or"13\or"14\or"15\or"16\or"17%
14087       \or"18\or"19\or"1A\or"1B\or"1C\or"1D\or"1E\or"1F%
14088       \or"20\or"21\or"22\or"23\or"24\or"25\or"26\or"27%
14089       \or"28\or"29\or"2A\or"2B\or"2C\or"2D\or"2E\or"2F%
14090       \or"30\or"31\or"32\or"33\or"34\or"35\or"36\or"37%
14091       \or"38\or"39\or"3A\or"3B\or"3C\or"3D\or"3E\or"3F%
14092       \or"40\or"41\or"42\or"43\or"44\or"45\or"46\or"47%
14093       \or"48\or"49\or"4A\or"4B\or"4C\or"4D\or"4E\or"4F%
14094       \or"50\or"51\or"52\or"53\or"54\or"55\or"56\or"57%
14095       \or"58\or"59\or"5A\or"5B\or"5C\or"5D\or"5E\or"5F%
14096       \or"60\or"61\or"62\or"63\or"64\or"65\or"66\or"67%
14097       \or"68\or"69\or"6A\or"6B\or"6C\or"6D\or"6E\or"6F%
14098       \or"70\or"71\or"72\or"73\or"74\or"75\or"76\or"77%
14099       \or"78\or"79\or"7A\or"7B\or"7C\or"7D\or"7E\or"7F%
14100       \or"80\or"81\or"82\or"83\or"84\or"85\or"86\or"87%
14101       \or"88\or"89\or"8A\or"8B\or"8C\or"8D\or"8E\or"8F%
14102       \or"90\or"91\or"92\or"93\or"94\or"95\or"96\or"97%
14103       \or"98\or"99\or"9A\or"9B\or"9C\or"9D\or"9E\or"9F%
14104       \or"A0\or"A1\or"A2\or"A3\or"A4\or"A5\or"A6\or"A7%
14105       \or"A8\or"A9\or"AA\or"AB\or"AC\or"AD\or"AE\or"AF%
14106       \or"B0\or"B1\or"B2\or"B3\or"B4\or"B5\or"B6\or"B7%
14107       \or"B8\or"B9\or"BA\or"BB\or"BC\or"BD\or"BE\or"BF%
14108       \or"C0\or"C1\or"C2\or"C3\or"C4\or"C5\or"C6\or"C7%
14109       \or"C8\or"C9\or"CA\or"CB\or"CC\or"CD\or"CE\or"CF%
14110       \or"D0\or"D1\or"D2\or"D3\or"D4\or"D5\or"D6\or"D7%
14111       \or"D8\or"D9\or"DA\or"DB\or"DC\or"DD\or"DE\or"DF%
14112       \or"E0\or"E1\or"E2\or"E3\or"E4\or"E5\or"E6\or"E7%
14113       \or"E8\or"E9\or"EA\or"EB\or"EC\or"ED\or"EE\or"EF%
14114       \or"F0\or"F1\or"F2\or"F3\or"F4\or"F5\or"F6\or"F7%
14115       \or"F8\or"F9\or"FA\or"FB\or"FC\or"FD\or"FE\or"FF%
14116       \fi
14117     }%
14118   \else
14119     \gdef\hv@pdf@char{\char'}%
14120   \fi
14121 \endgroup
```

\@@BOOKMARK

```
\def\@@BOOKMARK[#1][#2]#3#4#5{%
  \expandafter\edef\csname @count@#3\endcsname{%
    \the\@serial@counter
  }%
  \edef\@mycount{\the\@serial@counter}%
  \Hy@StepCount\@serial@counter
  \edef\@parcount{%
    \expandafter\ifx\csname @count@#5\endcsname\relax
      0%
    \else
      \csname @count@#5\endcsname
    \fi
  }%
  \immediate\special{%
    !outline \HyperDestNameFilter{#3};p=\@parcount,i=\@mycount,%
    s=\ifx#2-c\else o\fi,t=#4%
  }%
}%
```

\ReadBookmarks

```
\def\ReadBookmarks{%
  \begingroup
    \def\0{\hv@pdf@char 0}%
    \def\1{\hv@pdf@char 1}%
    \def\2{\hv@pdf@char 2}%
    \def\3{\hv@pdf@char 3}%
    \def\({{}%
    \def\){}}%
    \def\do##1{%
      \ifnum\catcode`##1=\active
        \@makeother##1%
      \else
        \ifnum\catcode`##1=6 %
          \@makeother##1%
        \fi
      \fi
    }%
    \dospecials
    \Hy@safe@activestrue
    \InputIfFileExists{\jobname.out}{}{}%
  \endgroup
  \ifx\WriteBookmarks\relax
  \else
    \if@filesw
      \newwrite\@outlinefile
      \Hy@OutlineRerunCheck
      \immediate\openout\@outlinefile=\jobname.out\relax
      \ifHy@typexml
        \immediate\write\@outlinefile{<relaxxml>\relax}%
      \fi
    \fi
  \fi
}
```

⟨/vtex⟩

⟨*!vtex⟩

```
\def\ReadBookmarks{%
  \pdf@ifdraftmode{}{%
    \begingroup
      \def\do##1{%
        \ifnum\catcode`##1=\active
          \@makeother##1%
        \else
          \ifnum\catcode`##1=6 %
            \@makeother##1%
          \fi
        \fi
      }%
      \dospecials
      \Hy@safe@activestrue
      \escapechar=`\\%
      \def\@@BOOKMARK[##1][##2]##3##4##5{%
        \calc@bm@number{##5}%
      }%
      \InputIfFileExists{\jobname.out}{}{}%
      \ifx\WriteBookmarks\relax
        \global\let\WriteBookmarks\relax
      \fi
      \def\@@BOOKMARK[##1][##2]##3##4##5{%
        \def\Hy@temp{##4}%
⟨*pdftex⟩
        \Hy@pstringdef\Hy@pstringName{\HyperDestNameFilter{##3}}%
        \Hy@OutlineName{}\Hy@pstringName{%
          ##2\check@bm@number{##3}%
        }{%
          \expandafter\strip@prefix\meaning\Hy@temp
        }%
⟨/pdftex⟩
⟨*pdfmark⟩
        \pdfmark{%
          pdfmark=/OUT,%
          Count={##2\check@bm@number{##3}},%
          Dest={##3},%
          Title=\expandafter\strip@prefix\meaning\Hy@temp
        }%
⟨/pdfmark⟩
⟨*dvipdfm | xetex⟩
        \Hy@pstringdef\Hy@pstringName{\HyperDestNameFilter{##3}}%
        \@pdfm@mark{%
          outline \ifHy@DvipdfmxOutlineOpen
                  [%
                  \ifnum##21>\z@
                  \else
                    -%
                  \fi
                  ] %
                \fi
                ##1<<%
            /Title(\expandafter\strip@prefix\meaning\Hy@temp)%
            /A<<%
              /S/GoTo%
              /D(\Hy@pstringName)%
            >>%
```

```
          >>%
        }%
⟨/dvipdfm | xetex⟩
      }%
      \begingroup
        \def\WriteBookmarks{0}%
        \InputIfFileExists{\jobname.out}{}{}%
      \endgroup
      %{\escapechar\m@ne\InputIfFileExists{\jobname.out}{}{}}%
    \endgroup
  }%
  \ifx\WriteBookmarks\relax
  \else
    \if@filesw
      \newwrite\@outlinefile
      \Hy@OutlineRerunCheck
      \immediate\openout\@outlinefile=\jobname.out\relax
      \ifHy@typexml
        \immediate\write\@outlinefile{<relaxxml>\relax}%
      \fi
    \fi
  \fi
}
⟨*pdftex⟩
\def\Hy@OutlineName#1#2#3#4{%
  \pdfoutline goto name{#2}count#3{#4}%
}
⟨/pdftex⟩
\def\check@bm@number#1{%
  \expandafter\ifx\csname B_#1\endcsname\relax
    0%
  \else
    \csname B_#1\endcsname
  \fi
}
\def\calc@bm@number#1{%
  \@tempcnta=\check@bm@number{#1}\relax
  \advance\@tempcnta by 1 %
  \expandafter\xdef\csname B_#1\endcsname{\the\@tempcnta}%
}
⟨/!vtex⟩
\ifHy@implicit
\else
  \expandafter\endinput
\fi
⟨/outlines⟩
⟨*outlines | hypertex⟩
\newlength\Hy@SectionHShift
\def\Hy@SectionAnchorHref#1{%
  \ifx\protect\@typeset@protect
    \Hy@@SectionAnchor{#1}%
  \fi
}
\DeclareRobustCommand*{\Hy@@SectionAnchor}[1]{%
  \leavevmode
  \hbox to 0pt{%
```

```
    \kern-\Hy@SectionHShift
    \Hy@raisedlink{%
      \hyper@anchorstart{#1}\hyper@anchorend
    }%
    \hss
  }%
}
\let\H@old@ssect\@ssect
\def\@ssect#1#2#3#4#5{%
  \Hy@MakeCurrentHrefAuto{section*}%
  \setlength{\Hy@SectionHShift}{#1}%
  \begingroup
    \toks@{\H@old@ssect{#1}{#2}{#3}{#4}}%
    \toks\tw@\expandafter{%
      \expandafter\Hy@SectionAnchorHref\expandafter{\@currentHref}%
      #5%
    }%
  \edef\x{\endgroup
    \the\toks@{\the\toks\tw@}%
  }\x
}
\let\H@old@schapter\@schapter
\def\@schapter#1{%
  \begingroup
    \let\@mkboth\@gobbletwo
    \Hy@MakeCurrentHrefAuto{\Hy@chapapp*}%
    \Hy@raisedlink{%
      \hyper@anchorstart{\@currentHref}\hyper@anchorend
    }%
  \endgroup
  \H@old@schapter{#1}%
}
```

If there is no chapter number (\frontmatter or \backmatter) then \refstepcounter{chapter} is not executed, so there will be no destination for \ddcontentsline. So \@chapter is overloaded to avoid this:

```
\ltx@IfUndefined{@chapter}{}{%
  \let\Hy@org@chapter\@chapter
  \def\@chapter{%
    \def\Hy@next{%
      \Hy@MakeCurrentHrefAuto{\Hy@chapapp*}%
      \Hy@raisedlink{%
        \hyper@anchorstart{\@currentHref}\hyper@anchorend
      }%
    }%
    \ifnum\c@secnumdepth>\m@ne
      \ltx@IfUndefined{if@mainmatter}%
      \iftrue{\csname if@mainmatter\endcsname}%
        \let\Hy@next\relax
      \fi
    \fi
    \Hy@next
    \Hy@org@chapter
  }%
}
\let\H@old@part\@part
\begingroup\expandafter\expandafter\expandafter\endgroup
```

```
\expandafter\ifx\csname chapter\endcsname\relax
  \let\Hy@secnum@part\z@
\else
  \let\Hy@secnum@part\m@ne
\fi
\def\@part{%
  \ifnum\Hy@secnum@part>\c@secnumdepth
    \phantomsection
  \fi
  \H@old@part
}
\let\H@old@spart\@spart
\def\@spart#1{%
  \Hy@MakeCurrentHrefAuto{part*}%
  \Hy@raisedlink{%
    \hyper@anchorstart{\@currentHref}\hyper@anchorend
  }%
  \H@old@spart{#1}%
}
\let\H@old@sect\@sect
\def\@sect#1#2#3#4#5#6[#7]#8{%
  \ifnum #2>\c@secnumdepth
    \expandafter\@firstoftwo
  \else
    \expandafter\@secondoftwo
  \fi
  {%
    \Hy@MakeCurrentHrefAuto{section*}%
    \setlength{\Hy@SectionHShift}{#3}%
    \begingroup
      \toks@{\H@old@sect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}]}%
      \toks\tw@\expandafter{%
        \expandafter\Hy@SectionAnchorHref\expandafter{\@currentHref}%
        #8%
      }%
    \edef\x{\endgroup
      \the\toks@{\the\toks\tw@}%
    }\x
  }{%
    \H@old@sect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}]{#8}%
  }%
}
```

⟨/outlines | hypertex⟩
⟨*outlines⟩

```
\expandafter\def\csname Parent-4\endcsname{}
\expandafter\def\csname Parent-3\endcsname{}
\expandafter\def\csname Parent-2\endcsname{}
\expandafter\def\csname Parent-1\endcsname{}
\expandafter\def\csname Parent0\endcsname{}
\expandafter\def\csname Parent1\endcsname{}
\expandafter\def\csname Parent2\endcsname{}
\expandafter\def\csname Parent3\endcsname{}
\expandafter\def\csname Parent4\endcsname{}
```

⟨/outlines⟩

49 Compatibility with koma-script classes

⟨*outlines | hypertex⟩

Hard-wire in an unpleasant over-ride of komascript 'scrbook' class for Tobias Isenberg (Tobias.Isenberg@gmx.de). With version 6.71b the hack is also applied to 'scrreprt' class and is removed for koma-script versions since 2001/01/01, because Markus Kohm supports hyperref in komascript.

```
\def\Hy@tempa{%
  \def\@addchap[##1]##2{%
    \typeout{##2}%
    \if@twoside
      \@mkboth{##1}{}%
    \else
      \@mkboth{}{##1}%
    \fi
    \addtocontents{lof}{\protect\addvspace{10\p@}}%
    \addtocontents{lot}{\protect\addvspace{10\p@}}%
    \Hy@MakeCurrentHrefAuto{\Hy@chapapp*}%
    \Hy@raisedlink{%
      \hyper@anchorstart{\@currentHref}\hyper@anchorend
    }%
    \if@twocolumn
      \@topnewpage[\@makeschapterhead{##2}]%
    \else
      \@makeschapterhead{##2}%
      \@afterheading
    \fi
    \addcontentsline{toc}{chapter}{##1}%
  }%
}
\@ifclassloaded{scrbook}{%
  \@ifclasslater{scrbook}{2001/01/01}{%
    \let\Hy@tempa\@empty
  }{}%
}{%
  \@ifclassloaded{scrreprt}{%
    \@ifclasslater{scrreprt}{2001/01/01}{%
      \let\Hy@tempa\@empty
    }{}%
  }{%
    \let\Hy@tempa\@empty
  }%
}%
\Hy@tempa
```

⟨/outlines | hypertex⟩

50 Encoding definition files for encodings of PDF strings

This was contributed by Heiko Oberdiek.

50.1 PD1 encoding

⟨*pd1enc⟩

```
\DeclareFontEncoding{PD1}{}{}
```

Accents

```
\DeclareTextAccent{\‘}{PD1}{\textasciigrave}
\DeclareTextAccent{\’}{PD1}{\textacute}
\DeclareTextAccent{\^}{PD1}{\textasciicircum}
\DeclareTextAccent{\~}{PD1}{\texttilde}
\DeclareTextAccent{\”}{PD1}{\textasciidieresis}
\DeclareTextAccent{\r}{PD1}{\textring}
\DeclareTextAccent{\v}{PD1}{\textasciicaron}
\DeclareTextAccent{\.}{PD1}{\textdotaccent}
\DeclareTextAccent{\c}{PD1}{\textcedilla}
\DeclareTextAccent{\=}{PD1}{\textasciimacron}
\DeclareTextAccent{\b}{PD1}{\textmacronbelow}
\DeclareTextAccent{\d}{PD1}{\textdotbelow}
\DeclareTextCompositeCommand{\‘}{PD1}{\@empty}{\textasciigrave}
\DeclareTextCompositeCommand{\’}{PD1}{\@empty}{\textacute}
\DeclareTextCompositeCommand{\^}{PD1}{\@empty}{\textasciicircum}
\DeclareTextCompositeCommand{\~}{PD1}{\@empty}{\texttilde}
\DeclareTextCompositeCommand{\”}{PD1}{\@empty}{\textasciidieresis}
\DeclareTextCompositeCommand{\r}{PD1}{\@empty}{\textring}
\DeclareTextCompositeCommand{\v}{PD1}{\@empty}{\textasciicaron}
\DeclareTextCompositeCommand{\.}{PD1}{\@empty}{\textdotaccent}
\DeclareTextCompositeCommand{\c}{PD1}{\@empty}{\textcedilla}
\DeclareTextCompositeCommand{\=}{PD1}{\@empty}{\textasciimacron}
\DeclareTextCompositeCommand{\b}{PD1}{\@empty}{\textmacronbelow}
\DeclareTextCompositeCommand{\d}{PD1}{\@empty}{\textdotbelow}
\DeclareTextCompositeCommand{\‘}{PD1}{\ }{\textasciigrave}
\DeclareTextCompositeCommand{\’}{PD1}{\ }{\textacute}
\DeclareTextCompositeCommand{\^}{PD1}{\ }{\textasciicircum}
\DeclareTextCompositeCommand{\~}{PD1}{\ }{\texttilde}
\DeclareTextCompositeCommand{\”}{PD1}{\ }{\textasciidieresis}
\DeclareTextCompositeCommand{\r}{PD1}{\ }{\textring}
\DeclareTextCompositeCommand{\v}{PD1}{\ }{\textasciicaron}
\DeclareTextCompositeCommand{\.}{PD1}{\ }{\textdotaccent}
\DeclareTextCompositeCommand{\c}{PD1}{\ }{\textcedilla}
\DeclareTextCompositeCommand{\=}{PD1}{\ }{\textasciimacron}
\DeclareTextCompositeCommand{\b}{PD1}{\ }{\textmacronbelow}
\DeclareTextCompositeCommand{\d}{PD1}{\ }{\textdotbelow}
\DeclareTextCommand{\k}{PD1}[1]{\TextSymbolUnavailable{\k{#1}}#1}
\DeclareTextCommand{\t}{PD1}[1]{\TextSymbolUnavailable{\t{#1}}#1}
\DeclareTextCommand{\newtie}{PD1}[1]{%
  \TextSymbolUnavailable{\newtie{#1}}#1%
}
```

Special white space escape characters not for use in bookmarks but for other PDF strings.

```
% U+0009 (CHARACTER TABULATION)
\DeclareTextCommand{\textHT}{PD1}{\011}% U+0009
% U+000A (LINE FEED)
\DeclareTextCommand{\textLF}{PD1}{\012}% U+000A
% U+000D (CARRIAGE RETURN)
\DeclareTextCommand{\textCR}{PD1}{\015}% U+000D
```

Accent glyph names

```
% U+02D8 BREVE; breve
\DeclareTextCommand{\textasciibreve}{PD1}{\030}% U+02D8
% U+02C7 CARON; caron
\DeclareTextCommand{\textasciicaron}{PD1}{\031}% U+02C7
% U+02C6 MODIFIER LETTER CIRCUMFLEX ACCENT; circumflex
\DeclareTextCommand{\textcircumflex}{PD1}{\032}% U+02C6
```

```
% U+02D9 DOT ABOVE; dotaccent
\DeclareTextCommand{\textdotaccent}{PD1}{\033}% U+02D9
% U+02DD DOUBLE ACUTE ACCENT; hungarumlaut
\DeclareTextCommand{\texthungarumlaut}{PD1}{\034}% U+02DD
% U+02DB OGONEK; ogonek
\DeclareTextCommand{\textogonek}{PD1}{\035}% U+02DB
% U+02DA RING ABOVE; ring
\DeclareTextCommand{\textring}{PD1}{\036}% U+02DA
% U+02DC SMALL TILDE; ilde, *tilde
\DeclareTextCommand{\texttilde}{PD1}{\037}% U+02DC
```

\040: U+0020 SPACE; *space, spacehackarabic
\041: U+0021 EXCLAMATION MARK; exclam

```
% U+0022 QUOTATION MARK; quotedbl
\DeclareTextCommand{\textquotedbl}{PD1}{\string"}% \042 U+0022
% U+0023 NUMBER SIGN; numbersign
\DeclareTextCommand{\textnumbersign}{PD1}{\043}% U+0023
% U+0024 DOLLAR SIGN; dollar
\DeclareTextCommand{\textdollar}{PD1}{\044}% U+0024
% U+0025 PERCENT SIGN; percent
\DeclareTextCommand{\textpercent}{PD1}{\045}% U+0025
% U+0026 AMPERSAND; ampersand
\DeclareTextCommand{\textampersand}{PD1}{\046}% U+0026
```

\047: U+0027 APOSTROPHE; quotesingle

```
% U+0028 LEFT PARENTHESIS; parenleft
\DeclareTextCommand{\textparenleft}{PD1}{\string\(}% \050 U+0028
% U+0029 RIGHT PARENTHESIS; parenright
\DeclareTextCommand{\textparenright}{PD1}{\string\)}% \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

```
% U+002E FULL STOP; period
\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

```
% U+003C LESS-THAN SIGN; less
\DeclareTextCommand{\textless}{PD1}{<}% \074 U+003C
```

\075: U+003D EQUALS SIGN; equal

```
% U+003E GREATER-THAN SIGN; greater
\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

```
% U+005C REVERSE SOLIDUS; backslash
\DeclareTextCommand{\textbackslash}{PD1}{\134}% U+005C
```

\135: U+005D RIGHT SQUARE BRACKET; bracketright
% U+005E CIRCUMFLEX ACCENT; asciicircum
\DeclareTextCommand{\textasciicircum}{PD1}{\136}% U+005E
% U+005F LOW LINE; underscore
\DeclareTextCommand{\textunderscore}{PD1}{\137}% U+005F
\DeclareTextCommand{\textmacronbelow}{PD1}{\137}% U+005F
% U+0060 GRAVE ACCENT; grave
\DeclareTextCommand{\textasciigrave}{PD1}{\140}% U+0060

\141: U+0061 LATIN SMALL LETTER A; a

...

\150: U+0068 LATIN SMALL LETTER H; h
% U+0069 LATIN SMALL LETTER I; i
\DeclareTextCompositeCommand{\.}{PD1}{i}{i}% \151 U+0069

\152: U+006A LATIN SMALL LETTER J; j

...

\172: U+007A LATIN SMALL LETTER Z; z
% U+007B LEFT CURLY BRACKET; braceleft
\DeclareTextCommand{\textbraceleft}{PD1}{\173}% U+007B
% U+007C VERTICAL LINE; *bar, verticalbar
\DeclareTextCommand{\textbar}{PD1}{|}% U+007C
% U+007D RIGHT CURLY BRACKET; braceright
\DeclareTextCommand{\textbraceright}{PD1}{\175}% U+007D
% U+007E TILDE; asciitilde
\DeclareTextCommand{\textasciitilde}{PD1}{\176}% U+007E

Slot \177 (0x7F) is undefined in PDFDocEncoding.
% U+2022 BULLET; bullet
\DeclareTextCommand{\textbullet}{PD1}{\200}% U+2022
% U+2020 DAGGER; dagger
\DeclareTextCommand{\textdagger}{PD1}{\201}% U+2020
% U+2021 DOUBLE DAGGER; daggerdbl
\DeclareTextCommand{\textdaggerdbl}{PD1}{\202}% U+2021
% U+2026 HORIZONTAL ELLIPSIS; ellipsis
\DeclareTextCommand{\textellipsis}{PD1}{\203}% U+2026
% U+2014 EM DASH; emdash
\DeclareTextCommand{\textemdash}{PD1}{\204}% U+2014
% U+2013 EN DASH; endash
\DeclareTextCommand{\textendash}{PD1}{\205}% U+2013
% U+0192 LATIN SMALL LETTER F WITH HOOK; florin
\DeclareTextCommand{\textflorin}{PD1}{\206}% U+0192
% U+2044 FRACTION SLASH; fraction
\DeclareTextCommand{\textfractionsolidus}{PD1}{\207}% U+2044
% U+2039 SINGLE LEFT-POINTING ANGLE QUOTATION MARK; guilsinglleft
\DeclareTextCommand{\guilsinglleft}{PD1}{\210}% U+2039
% U+203A SINGLE RIGHT-POINTING ANGLE QUOTATION MARK; guilsinglright
\DeclareTextCommand{\guilsinglright}{PD1}{\211}% U+203A
% U+2212 MINUS SIGN; minus
\DeclareTextCommand{\textminus}{PD1}{\212}% U+2212
% U+2030 PER MILLE SIGN; perthousand
\DeclareTextCommand{\textperthousand}{PD1}{\213}% U+2030
% U+201E DOUBLE LOW-9 QUOTATION MARK; quotedblbase
\DeclareTextCommand{\quotedblbase}{PD1}{\214}% U+201E
% U+201C LEFT DOUBLE QUOTATION MARK; quotedblleft
\DeclareTextCommand{\textquotedblleft}{PD1}{\215}% U+201C
% U+201D RIGHT DOUBLE QUOTATION MARK; quotedblright

```
\DeclareTextCommand{\textquotedblright}{PD1}{\216}% U+201D
% U+2018 LEFT SINGLE QUOTATION MARK; quoteleft
\DeclareTextCommand{\textquoteleft}{PD1}{\217}% U+2018
% U+2019 RIGHT SINGLE QUOTATION MARK; quoteright
\DeclareTextCommand{\textquoteright}{PD1}{\220}% U+2019
% U+201A SINGLE LOW-9 QUOTATION MARK; quotesinglbase
\DeclareTextCommand{\quotesinglbase}{PD1}{\221}% U+201A
% U+2122 TRADE MARK SIGN; trademark
\DeclareTextCommand{\texttrademark}{PD1}{\222}% U+2122
% U+FB01 LATIN SMALL LIGATURE FI; fi
\DeclareTextCommand{\textfi}{PD1}{\223}% U+FB01
% U+FB02 LATIN SMALL LIGATURE FL; fl
\DeclareTextCommand{\textfl}{PD1}{\224}% U+FB02
% U+0141 LATIN CAPITAL LETTER L WITH STROKE; Lslash
\DeclareTextCommand{\L}{PD1}{\225}% U+0141
% U+0152 LATIN CAPITAL LIGATURE OE; OE
\DeclareTextCommand{\OE}{PD1}{\226}% U+0152
% U+0160 LATIN CAPITAL LETTER S WITH CARON; Scaron
\DeclareTextCompositeCommand{\v}{PD1}{S}{\227}% U+0160
% U+0178 LATIN CAPITAL LETTER Y WITH DIAERESIS; Ydieresis
\DeclareTextCompositeCommand{\"}{PD1}{Y}{\230}% U+0178
\DeclareTextCommand{\IJ}{PD1}{\230}
% U+017D LATIN CAPITAL LETTER Z WITH CARON; Zcaron
\DeclareTextCompositeCommand{\v}{PD1}{Z}{\231}% U+017D
% U+0131 LATIN SMALL LETTER DOTLESS I; dotlessi
\DeclareTextCommand{\i}{PD1}{\232}% U+0131
% U+0142 LATIN SMALL LETTER L WITH STROKE; lslash
\DeclareTextCommand{\l}{PD1}{\233}% U+0142
% U+0153 LATIN SMALL LIGATURE OE; oe
\DeclareTextCommand{\oe}{PD1}{\234}% U+0153
% U+0161 LATIN SMALL LETTER S WITH CARON; scaron
\DeclareTextCompositeCommand{\v}{PD1}{s}{\235}% U+0161
% U+017E LATIN SMALL LETTER Z WITH CARON; zcaron
\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.

```
% U+20AC EURO SIGN; *Euro, euro
\DeclareTextCommand{\texteuro}{PD1}{\240}% U+20AC
% U+00A1 INVERTED EXCLAMATION MARK; exclamdown
\DeclareTextCommand{\textexclamdown}{PD1}{\241}% U+00A1
% U+00A2 CENT SIGN; cent
\DeclareTextCommand{\textcent}{PD1}{\242}% U+00A2
% U+00A3 POUND SIGN; sterling
\DeclareTextCommand{\textsterling}{PD1}{\243}% U+00A3
% U+00A4 CURRENCY SIGN; currency
\DeclareTextCommand{\textcurrency}{PD1}{\244}% U+00A4
% U+00A5 YEN SIGN; yen
\DeclareTextCommand{\textyen}{PD1}{\245}% U+00A5
% U+00A6 BROKEN BAR; brokenbar
\DeclareTextCommand{\textbrokenbar}{PD1}{\246}% U+00A6
% U+00A7 SECTION SIGN; section
\DeclareTextCommand{\textsection}{PD1}{\247}% U+00A7
% U+00A8 DIAERESIS; dieresis
\DeclareTextCommand{\textasciidieresis}{PD1}{\250}% U+00A8
% U+00A9 COPYRIGHT SIGN; copyright
\DeclareTextCommand{\textcopyright}{PD1}{\251}% U+00A9
% U+00AA FEMININE ORDINAL INDICATOR; ordfeminine
```

```
\DeclareTextCommand{\textordfeminine}{PD1}{\252}% U+00AA
% U+00AB LEFT-POINTING DOUBLE ANGLE QUOTATION MARK; guillemotleft
\DeclareTextCommand{\guillemotleft}{PD1}{\253}% U+00AB
% U+00AC NOT SIGN; logicalnot
\DeclareTextCommand{\textlogicalnot}{PD1}{\254}% U+00AC
\DeclareTextCommand{\textlnot}{PD1}{\254}% logical not
```

No glyph \255 in PDFDocEncoding.

```
% U+00AE REGISTERED SIGN; registered
\DeclareTextCommand{\textregistered}{PD1}{\256}% U+00AE
% U+00AF MACRON; *macron, overscore
\DeclareTextCommand{\textasciimacron}{PD1}{\257}% U+00AF
% U+00B0 DEGREE SIGN; degree
\DeclareTextCommand{\textdegree}{PD1}{\260}% U+00B0
% U+00B1 PLUS-MINUS SIGN; plusminus
\DeclareTextCommand{\textplusminus}{PD1}{\261}% U+00B1
% U+00B2 SUPERSCRIPT TWO; twosuperior
\DeclareTextCommand{\texttwosuperior}{PD1}{\262}% U+00B2
% U+00B3 SUPERSCRIPT THREE; threesuperior
\DeclareTextCommand{\textthreesuperior}{PD1}{\263}% U+00B3
% U+00B4 ACUTE ACCENT; acute
\DeclareTextCommand{\textacute}{PD1}{\264}% U+00B4
% U+00B5 MICRO SIGN; mu, mu1
\DeclareTextCommand{\textmu}{PD1}{\265}% U+00B5
% U+00B6 PILCROW SIGN; paragraph
\DeclareTextCommand{\textparagraph}{PD1}{\266}% U+00B6
% U+00B7 MIDDLE DOT; middot, *periodcentered
\DeclareTextCommand{\textperiodcentered}{PD1}{\267}% U+00B7
% U+00B8 CEDILLA; cedilla
\DeclareTextCommand{\textcedilla}{PD1}{\270}% U+00B8
% U+00B9 SUPERSCRIPT ONE; onesuperior
\DeclareTextCommand{\textonesuperior}{PD1}{\271}% U+00B9
% U+00BA MASCULINE ORDINAL INDICATOR; ordmasculine
\DeclareTextCommand{\textordmasculine}{PD1}{\272}% U+00BA
% U+00BB RIGHT-POINTING DOUBLE ANGLE QUOTATION MARK; guillemotright
\DeclareTextCommand{\guillemotright}{PD1}{\273}% U+00BB
% U+00BC VULGAR FRACTION ONE QUARTER; onequarter
\DeclareTextCommand{\textonequarter}{PD1}{\274}% U+00BC
% U+00BD VULGAR FRACTION ONE HALF; onehalf
\DeclareTextCommand{\textonehalf}{PD1}{\275}% U+00BD
% U+00BE VULGAR FRACTION THREE QUARTERS; threequarters
\DeclareTextCommand{\textthreequarters}{PD1}{\276}% U+00BE
% U+00BF INVERTED QUESTION MARK; questiondown
\DeclareTextCommand{\textquestiondown}{PD1}{\277}% U+00BF
% U+00C0 LATIN CAPITAL LETTER A WITH GRAVE; Agrave
\DeclareTextCompositeCommand{\`}{PD1}{A}{\300}% U+00C0
% U+00C1 LATIN CAPITAL LETTER A WITH ACUTE; Aacute
\DeclareTextCompositeCommand{\'}{PD1}{A}{\301}% U+00C1
% U+00C2 LATIN CAPITAL LETTER A WITH CIRCUMFLEX; Acircumflex
\DeclareTextCompositeCommand{\^}{PD1}{A}{\302}% U+00C2
% U+00C3 LATIN CAPITAL LETTER A WITH TILDE; Atilde
\DeclareTextCompositeCommand{\~}{PD1}{A}{\303}% U+00C3
% U+00C4 LATIN CAPITAL LETTER A WITH DIAERESIS; Adieresis
\DeclareTextCompositeCommand{\"}{PD1}{A}{\304}% U+00C4
% U+00C5 LATIN CAPITAL LETTER A WITH RING ABOVE; Aring
\DeclareTextCompositeCommand{\r}{PD1}{A}{\305}% U+00C5
```

```
% U+00C6 LATIN CAPITAL LETTER AE; AE
\DeclareTextCommand{\AE}{PD1}{\306}% U+00C6
% U+00C7 LATIN CAPITAL LETTER C WITH CEDILLA; Ccedilla
\DeclareTextCompositeCommand{\c}{PD1}{C}{\307}% U+00C7
% U+00C8 LATIN CAPITAL LETTER E WITH GRAVE; Egrave
\DeclareTextCompositeCommand{\‘}{PD1}{E}{\310}% U+00C8
% U+00C9 LATIN CAPITAL LETTER E WITH ACUTE; Eacute
\DeclareTextCompositeCommand{\’}{PD1}{E}{\311}% U+00C9
% U+00CA LATIN CAPITAL LETTER E WITH CIRCUMFLEX; Ecircumflex
\DeclareTextCompositeCommand{\^}{PD1}{E}{\312}% U+00CA
% U+00CB LATIN CAPITAL LETTER E WITH DIAERESIS; Edieresis
\DeclareTextCompositeCommand{\”}{PD1}{E}{\313}% U+00CB
% U+00CC LATIN CAPITAL LETTER I WITH GRAVE; Igrave
\DeclareTextCompositeCommand{\‘}{PD1}{I}{\314}% U+00CC
% U+00CD LATIN CAPITAL LETTER I WITH ACUTE; Iacute
\DeclareTextCompositeCommand{\’}{PD1}{I}{\315}% U+00CD
% U+00CE LATIN CAPITAL LETTER I WITH CIRCUMFLEX; Icircumflex
\DeclareTextCompositeCommand{\^}{PD1}{I}{\316}% U+00CE
% U+00CF LATIN CAPITAL LETTER I WITH DIAERESIS; Idieresis
\DeclareTextCompositeCommand{\”}{PD1}{I}{\317}% U+00CF
% U+00D0 LATIN CAPITAL LETTER ETH; Eth
\DeclareTextCommand{\DH}{PD1}{\320}% U+00D0
\DeclareTextCommand{\DJ}{PD1}{\320}% U+00D0
% U+00D1 LATIN CAPITAL LETTER N WITH TILDE; Ntilde
\DeclareTextCompositeCommand{\~}{PD1}{N}{\321}% U+00D1
% U+00D2 LATIN CAPITAL LETTER O WITH GRAVE; Ograve
\DeclareTextCompositeCommand{\‘}{PD1}{O}{\322}% U+00D2
% U+00D3 LATIN CAPITAL LETTER O WITH ACUTE; Oacute
\DeclareTextCompositeCommand{\’}{PD1}{O}{\323}% U+00D3
% U+00D4 LATIN CAPITAL LETTER O WITH CIRCUMFLEX; Ocircumflex
\DeclareTextCompositeCommand{\^}{PD1}{O}{\324}% U+00D4
% U+00D5 LATIN CAPITAL LETTER O WITH TILDE; Otilde
\DeclareTextCompositeCommand{\~}{PD1}{O}{\325}% U+00D5
% U+00D6 LATIN CAPITAL LETTER O WITH DIAERESIS; Odieresis
\DeclareTextCompositeCommand{\”}{PD1}{O}{\326}% U+00D6
% U+00D7 MULTIPLICATION SIGN; multiply
\DeclareTextCommand{\textmultiply}{PD1}{\327}% U+00D7
% U+00D8 LATIN CAPITAL LETTER O WITH STROKE; Oslash
\DeclareTextCommand{\O}{PD1}{\330}% U+00D8
% U+00D9 LATIN CAPITAL LETTER U WITH GRAVE; Ugrave
\DeclareTextCompositeCommand{\‘}{PD1}{U}{\331}% U+00D9
% U+00DA LATIN CAPITAL LETTER U WITH ACUTE; Uacute
\DeclareTextCompositeCommand{\’}{PD1}{U}{\332}% U+00DA
% U+00DB LATIN CAPITAL LETTER U WITH CIRCUMFLEX; Ucircumflex
\DeclareTextCompositeCommand{\^}{PD1}{U}{\333}% U+00DB
% U+00DC LATIN CAPITAL LETTER U WITH DIAERESIS; Udieresis
\DeclareTextCompositeCommand{\”}{PD1}{U}{\334}% U+00DC
% U+00DD LATIN CAPITAL LETTER Y WITH ACUTE; Yacute
\DeclareTextCompositeCommand{\’}{PD1}{Y}{\335}% U+00DD
% U+00DE LATIN CAPITAL LETTER THORN; Thorn
\DeclareTextCommand{\TH}{PD1}{\336}% U+00DE
% U+00DF LATIN SMALL LETTER SHARP S; germandbls
\DeclareTextCommand{\ss}{PD1}{\337}% U+00DF
% U+00E0 LATIN SMALL LETTER A WITH GRAVE; agrave
\DeclareTextCompositeCommand{\‘}{PD1}{a}{\340}% U+00E0
% U+00E1 LATIN SMALL LETTER A WITH ACUTE; aacute
\DeclareTextCompositeCommand{\’}{PD1}{a}{\341}% U+00E1
```

```
% U+00E2 LATIN SMALL LETTER A WITH CIRCUMFLEX; acircumflex
\DeclareTextCompositeCommand{\^}{PD1}{a}{\342}% U+00E2
% U+00E3 LATIN SMALL LETTER A WITH TILDE; atilde
\DeclareTextCompositeCommand{\~}{PD1}{a}{\343}% U+00E3
% U+00E4 LATIN SMALL LETTER A WITH DIAERESIS; adieresis
\DeclareTextCompositeCommand{\"}{PD1}{a}{\344}% U+00E4
% U+00E5 LATIN SMALL LETTER A WITH RING ABOVE; aring
\DeclareTextCompositeCommand{\r}{PD1}{a}{\345}% U+00E5
% U+00E6 LATIN SMALL LETTER AE; ae
\DeclareTextCommand{\ae}{PD1}{\346}% U+00E6
% U+00E7 LATIN SMALL LETTER C WITH CEDILLA; ccedilla
\DeclareTextCompositeCommand{\c}{PD1}{c}{\347}% U+00E7
% U+00E8 LATIN SMALL LETTER E WITH GRAVE; egrave
\DeclareTextCompositeCommand{\`}{PD1}{e}{\350}% U+00E8
% U+00E9 LATIN SMALL LETTER E WITH ACUTE; eacute
\DeclareTextCompositeCommand{\'}{PD1}{e}{\351}% U+00E9
% U+00EA LATIN SMALL LETTER E WITH CIRCUMFLEX; ecircumflex
\DeclareTextCompositeCommand{\^}{PD1}{e}{\352}% U+00EA
% U+00EB LATIN SMALL LETTER E WITH DIAERESIS; edieresis
\DeclareTextCompositeCommand{\"}{PD1}{e}{\353}% U+00EB
% U+00EC LATIN SMALL LETTER I WITH GRAVE; igrave
\DeclareTextCompositeCommand{\`}{PD1}{i}{\354}% U+00EC
\DeclareTextCompositeCommand{\`}{PD1}{\i}{\354}% U+00EC
% U+00ED LATIN SMALL LETTER I WITH ACUTE; iacute
\DeclareTextCompositeCommand{\'}{PD1}{i}{\355}% U+00ED
\DeclareTextCompositeCommand{\'}{PD1}{\i}{\355}% U+00ED
% U+00EE LATIN SMALL LETTER I WITH CIRCUMFLEX; icircumflex
\DeclareTextCompositeCommand{\^}{PD1}{i}{\356}% U+00EE
\DeclareTextCompositeCommand{\^}{PD1}{\i}{\356}% U+00EE
% U+00EF LATIN SMALL LETTER I WITH DIAERESIS; idieresis
\DeclareTextCompositeCommand{\"}{PD1}{i}{\357}% U+00EF
\DeclareTextCompositeCommand{\"}{PD1}{\i}{\357}% U+00EF
% U+00F0 LATIN SMALL LETTER ETH; eth
\DeclareTextCommand{\dh}{PD1}{\360}% U+00F0
% U+00F1 LATIN SMALL LETTER N WITH TILDE; ntilde
\DeclareTextCompositeCommand{\~}{PD1}{n}{\361}% U+00F1
% U+00F2 LATIN SMALL LETTER O WITH GRAVE; ograve
\DeclareTextCompositeCommand{\`}{PD1}{o}{\362}% U+00F2
% U+00F3 LATIN SMALL LETTER O WITH ACUTE; oacute
\DeclareTextCompositeCommand{\'}{PD1}{o}{\363}% U+00F3
% U+00F4 LATIN SMALL LETTER O WITH CIRCUMFLEX; ocircumflex
\DeclareTextCompositeCommand{\^}{PD1}{o}{\364}% U+00F4
% U+00F5 LATIN SMALL LETTER O WITH TILDE; otilde
\DeclareTextCompositeCommand{\~}{PD1}{o}{\365}% U+00F5
% U+00F6 LATIN SMALL LETTER O WITH DIAERESIS; odieresis
\DeclareTextCompositeCommand{\"}{PD1}{o}{\366}% U+00F6
% U+00F7 DIVISION SIGN; divide
\DeclareTextCommand{\textdivide}{PD1}{\367}% U+00F7
% U+00F8 LATIN SMALL LETTER O WITH STROKE; oslash
\DeclareTextCommand{\o}{PD1}{\370}% U+00F8
% U+00F9 LATIN SMALL LETTER U WITH GRAVE; ugrave
\DeclareTextCompositeCommand{\`}{PD1}{u}{\371}% U+00F9
% U+00FA LATIN SMALL LETTER U WITH ACUTE; uacute
\DeclareTextCompositeCommand{\'}{PD1}{u}{\372}% U+00FA
% U+00FB LATIN SMALL LETTER U WITH CIRCUMFLEX; ucircumflex
\DeclareTextCompositeCommand{\^}{PD1}{u}{\373}% U+00FB
% U+00FC LATIN SMALL LETTER U WITH DIAERESIS; udieresis
```

```
\DeclareTextCompositeCommand{\"}{PD1}{u}{\374}% U+00FC
% U+00FD LATIN SMALL LETTER Y WITH ACUTE; yacute
\DeclareTextCompositeCommand{\'}{PD1}{y}{\375}% U+00FD
% U+00FE LATIN SMALL LETTER THORN; thorn
\DeclareTextCommand{\th}{PD1}{\376}% U+00FE
% U+00FF LATIN SMALL LETTER Y WITH DIAERESIS; ydieresis
\DeclareTextCompositeCommand{\"}{PD1}{y}{\377}% U+00FF
\DeclareTextCommand{\ij}{PD1}{\377}% U+00FF
```

Glyphs that consist of several characters.

```
\DeclareTextCommand{\SS}{PD1}{SS}
\DeclareTextCommand{\textcelsius}{PD1}{\textdegree C}
```

Aliases (german.sty)

```
\DeclareTextCommand{\textglqq}{PD1}{\quotedblbase}
\DeclareTextCommand{\textgrqq}{PD1}{\textquotedblleft}
\DeclareTextCommand{\textglq}{PD1}{\quotesinglbase}
\DeclareTextCommand{\textgrq}{PD1}{\textquoteleft}
\DeclareTextCommand{\textflqq}{PD1}{\guillemotleft}
\DeclareTextCommand{\textfrqq}{PD1}{\guillemotright}
\DeclareTextCommand{\textflq}{PD1}{\guilsinglleft}
\DeclareTextCommand{\textfrq}{PD1}{\guilsinglright}
```

Aliases (math names)

```
\DeclareTextCommand{\textneg}{PD1}{\textlogicalnot}
\DeclareTextCommand{\texttimes}{PD1}{\textmultiply}
\DeclareTextCommand{\textdiv}{PD1}{\textdivide}
\DeclareTextCommand{\textpm}{PD1}{\textplusminus}
\DeclareTextCommand{\textcdot}{PD1}{\textperiodcentered}
\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).

```
\DeclareTextCompositeCommand{\k}{PD1}{a}{a}% aogonek
\DeclareTextCompositeCommand{\'}{PD1}{c}{c}% cacute
\DeclareTextCompositeCommand{\k}{PD1}{e}{e}% eogonek
\DeclareTextCompositeCommand{\'}{PD1}{n}{n}% nacute
\DeclareTextCompositeCommand{\'}{PD1}{s}{s}% sacute
\DeclareTextCompositeCommand{\'}{PD1}{z}{z}% zacute
\DeclareTextCompositeCommand{\.}{PD1}{z}{z}% zdot
\DeclareTextCompositeCommand{\k}{PD1}{A}{A}% Aogonek
\DeclareTextCompositeCommand{\'}{PD1}{C}{C}% Cacute
\DeclareTextCompositeCommand{\k}{PD1}{E}{E}% Eogonek
\DeclareTextCompositeCommand{\'}{PD1}{N}{N}% Nacute
\DeclareTextCompositeCommand{\'}{PD1}{S}{S}% Sacute
\DeclareTextCompositeCommand{\'}{PD1}{Z}{Z}% Zacute
\DeclareTextCompositeCommand{\.}{PD1}{Z}{Z}% Zdot
```

⟨/pd1enc⟩

50.2 PU encoding

⟨*puenc⟩

```
\DeclareFontEncoding{PU}{}{}
```

50.2.1 NFSS2 accents

```
% U+0300 COMBINING GRAVE ACCENT; gravecmb, *gravecomb
\DeclareTextCommand{\`}{PU}[1]{#1\83\000}% U+0300
% U+0301 COMBINING ACUTE ACCENT; acutecmb, *acutecomb
\DeclareTextCommand{\'}{PU}[1]{#1\83\001}% U+0301
```

```
% U+0302 COMBINING CIRCUMFLEX ACCENT; circumflexcmb
\DeclareTextCommand{\^}{PU}[1]{#1\83\002}% U+0302
% U+0303 COMBINING TILDE; tildecmb, *tildecomb
\DeclareTextCommand{\~}{PU}[1]{#1\83\003}% U+0303
% U+0304 COMBINING MACRON; macroncmb
\DeclareTextCommand{\=}{PU}[1]{#1\83\004}% U+0304
% U+0306 COMBINING BREVE; brevecmb
\DeclareTextCommand{\u}{PU}[1]{#1\83\006}% U+0306
\DeclareTextCommand{\U}{PU}[1]{#1\83\006}% U+0306
% U+0307 COMBINING DOT ABOVE; dotaccentcmb
\DeclareTextCommand{\.}{PU}[1]{#1\83\007}% U+0307
% U+0308 COMBINING DIAERESIS; dieresiscmb
\DeclareTextCommand{\"}{PU}[1]{#1\83\010}% U+0308
% U+030A COMBINING RING ABOVE; ringcmb
\DeclareTextCommand{\r}{PU}[1]{#1\83\012}% U+030A
% U+030B COMBINING DOUBLE ACUTE ACCENT; hungarumlautcmb
\DeclareTextCommand{\H}{PU}[1]{#1\83\013}% U+030B
% U+030C COMBINING CARON; caroncmb
\DeclareTextCommand{\v}{PU}[1]{#1\83\014}% U+030C
% U+030F COMBINING DOUBLE GRAVE ACCENT; dblgravecmb
\DeclareTextCommand{\G}{PU}[1]{#1\83\017}% U+030F
\DeclareTextCommand{\C}{PU}[1]{#1\83\017}% U+030F
% U+0311 COMBINING INVERTED BREVE; breveinvertedcmb
\DeclareTextCommand{\newtie}{PU}[1]{#1\83\021}% U+0311
% U+0323 COMBINING DOT BELOW; dotbelowcmb, *dotbelowcomb
\DeclareTextCommand{\d}{PU}[1]{#1\83\043}% U+0323
% U+0331 COMBINING MACRON BELOW; macronbelowcmb
\DeclareTextCommand{\b}{PU}[1]{#1\83\061}% U+0331
% U+0327 COMBINING CEDILLA; cedillacmb
\DeclareTextCommand{\c}{PU}[1]{#1\83\047}% U+0327
% U+0328 COMBINING OGONEK; ogonekcmb
\DeclareTextCommand{\k}{PU}[1]{#1\83\050}% U+0328
% U+0361 COMBINING DOUBLE INVERTED BREVE; breveinverteddoublecmb
\DeclareTextCommand{\t}{PU}[1]{#1\83\141}% U+0361
% U+20DD COMBINING ENCLOSING CIRCLE
\DeclareTextCommand{\textcircled}{PU}[1]{#1\9040\335}% U+20DD
```

`\@empty` is an artefact of the NFSS2 machinery, it gets inserted for empty arguments and spaces.

```
\DeclareTextCompositeCommand{\`}{PU}{\@empty}{\textasciigrave}
\DeclareTextCompositeCommand{\'}{PU}{\@empty}{\textacute}
\DeclareTextCompositeCommand{\^}{PU}{\@empty}{\textasciicircum}
\DeclareTextCompositeCommand{\~}{PU}{\@empty}{\texttilde}
\DeclareTextCompositeCommand{\"}{PU}{\@empty}{\textasciidieresis}
\DeclareTextCompositeCommand{\r}{PU}{\@empty}{\textring}
\DeclareTextCompositeCommand{\v}{PU}{\@empty}{\textasciicaron}
\DeclareTextCompositeCommand{\.}{PU}{\@empty}{\textdotaccent}
\DeclareTextCompositeCommand{\c}{PU}{\@empty}{\textcedilla}
\DeclareTextCompositeCommand{\u}{PU}{\@empty}{\textasciibreve}
\DeclareTextCompositeCommand{\G}{PU}{\@empty}{\textdoublegrave}
\DeclareTextCompositeCommand{\=}{PU}{\@empty}{\textasciimacron}
\DeclareTextCompositeCommand{\H}{PU}{\@empty}{\texthungarumlaut}
\DeclareTextCompositeCommand{\k}{PU}{\@empty}{\textogonek}
\DeclareTextCompositeCommand{\b}{PU}{\@empty}{\textmacronbelow}
\DeclareTextCompositeCommand{\d}{PU}{\@empty}{\textdotbelow}
\DeclareTextCompositeCommand{\t}{PU}{\@empty}{\texttie}
\DeclareTextCompositeCommand{\newtie}{PU}{\@empty}{\textnewtie}
```

```
\DeclareTextCompositeCommand{\textcircled}{PU}{\@empty}{\textbigcircle}
\DeclareTextCompositeCommand{\‘}{PU}{\ }{\textasciigrave}
\DeclareTextCompositeCommand{\’}{PU}{\ }{\textacute}
\DeclareTextCompositeCommand{\^}{PU}{\ }{\textasciicircum}
\DeclareTextCompositeCommand{\~}{PU}{\ }{\texttilde}
\DeclareTextCompositeCommand{\”}{PU}{\ }{\textasciidieresis}
\DeclareTextCompositeCommand{\r}{PU}{\ }{\textring}
\DeclareTextCompositeCommand{\v}{PU}{\ }{\textasciicaron}
\DeclareTextCompositeCommand{\.}{PU}{\ }{\textdotaccent}
\DeclareTextCompositeCommand{\c}{PU}{\ }{\textcedilla}
\DeclareTextCompositeCommand{\u}{PU}{\ }{\textasciibreve}
\DeclareTextCompositeCommand{\G}{PU}{\ }{\textdoublegrave}
\DeclareTextCompositeCommand{\=}{PU}{\ }{\textasciimacron}
\DeclareTextCompositeCommand{\H}{PU}{\ }{\texthungarumlaut}
\DeclareTextCompositeCommand{\k}{PU}{\ }{\textogonek}
\DeclareTextCompositeCommand{\b}{PU}{\ }{\textmacronbelow}
\DeclareTextCompositeCommand{\d}{PU}{\ }{\textdotbelow}
\DeclareTextCompositeCommand{\t}{PU}{\ }{\texttie}
\DeclareTextCompositeCommand{\newtie}{PU}{\ }{\textnewtie}
\DeclareTextCompositeCommand{\textcircled}{PU}{\ }{\textbigcircle}
```

Accents for capitals (see encoding TS1)

```
\DeclareTextCommand{\capitalcedilla}{PU}[1]{\c{#1}}
\DeclareTextCommand{\capitalogonek}{PU}[1]{\k{#1}}
\DeclareTextCommand{\capitalgrave}{PU}[1]{\‘{#1}}
\DeclareTextCommand{\capitalacute}{PU}[1]{\’{#1}}
\DeclareTextCommand{\capitalcircumflex}{PU}[1]{\^{#1}}
\DeclareTextCommand{\capitaltilde}{PU}[1]{\~{#1}}
\DeclareTextCommand{\capitaldieresis}{PU}[1]{\”{#1}}
\DeclareTextCommand{\capitalhungarumlaut}{PU}[1]{\H{#1}}
\DeclareTextCommand{\capitalring}{PU}[1]{\r{#1}}
\DeclareTextCommand{\capitalcaron}{PU}[1]{\v{#1}}
\DeclareTextCommand{\capitalbreve}{PU}[1]{\u{#1}}
\DeclareTextCommand{\capitalmacron}{PU}[1]{\={#1}}
\DeclareTextCommand{\capitaldotaccent}{PU}[1]{\.{#1}}
\DeclareTextCommand{\capitaltie}{PU}[1]{\t{#1}}
\DeclareTextCommand{\capitalnewtie}{PU}[1]{\newtie{#1}}
```

50.2.2 Basic Latin: U+0000 to U+007F

Special white space escape characters.

```
% U+0009 (CHARACTER TABULATION)
\DeclareTextCommand{\textHT}{PU}{\80\011}% U+0009
% U+000A (LINE FEED)
\DeclareTextCommand{\textLF}{PU}{\80\012}% U+000A
% U+000D (CARRIAGE RETURN)
\DeclareTextCommand{\textCR}{PU}{\80\015}% U+000D
```

\80\040: U+0020 SPACE; space, spacehackarabic
\80\041: U+0021 EXCLAMATION MARK; exclam

```
% U+0022 QUOTATION MARK; quotedbl
\DeclareTextCommand{\textquotedbl}{PU}{\string”}% \80\042 U+0022
% U+0023 NUMBER SIGN; numbersign
\DeclareTextCommand{\textnumbersign}{PU}{\80\043}% U+0023
% U+0024 DOLLAR SIGN; dollar
\DeclareTextCommand{\textdollar}{PU}{\80\044}% U+0024
% U+0025 PERCENT SIGN; percent
\DeclareTextCommand{\textpercent}{PU}{\80\045}% U+0025
% U+0026 AMPERSAND; ampersand
```

```
\DeclareTextCommand{\textampersand}{PU}{\80\046}% U+0026
% U+0027 APOSTROPHE; quotesingle
\DeclareTextCommand{\textquotesingle}{PU}{\80\047}% U+0027
% U+0028 LEFT PARENTHESIS; parenleft
\DeclareTextCommand{\textparenleft}{PU}{\80\050}% U+0028
% U+0029 RIGHT PARENTHESIS; parenright
\DeclareTextCommand{\textparenright}{PU}{\80\051}% U+0029
% U+002A ASTERISK; asterisk
\DeclareTextCommand{\textasteriskcentered}{PU}{\80\052}% U+002A (?)
```

\80\053: U+002B PLUS SIGN; plus
\80\054: U+002C COMMA; comma
\80\055: U+002D HYPHEN-MINUS; hyphen
\80\056: U+002E FULL STOP; period
\80\057: U+002F SOLIDUS; slash
\80\060: U+0030 DIGIT ZERO; zero
...
\80\071: U+0039 DIGIT NINE; nine
\80\072: U+003A COLON; colon
\80\073: U+003B SEMICOLON; semicolon

```
% U+003C LESS-THAN SIGN; less
\DeclareTextCommand{\textless}{PU}{<}% \80\074 U+003C
```

\80\075: U+003D EQUALS SIGN; equal

```
% U+003E GREATER-THAN SIGN; greater
\DeclareTextCommand{\textgreater}{PU}{>}% \80\076 U+003E
```

\80\077: U+003F QUESTION MARK; question
\80\100: U+0040 COMMERCIAL AT; at
\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

```
% U+005C REVERSE SOLIDUS; backslash
\DeclareTextCommand{\textbackslash}{PU}{\80\134}% U+005C
```

\80\135: U+005D RIGHT SQUARE BRACKET; bracketright

```
% U+005E CIRCUMFLEX ACCENT; asciicircum
\DeclareTextCommand{\textasciicircum}{PU}{\80\136}% U+005E
% U+005F LOW LINE; underscore
\DeclareTextCommand{\textunderscore}{PU}{\80\137}% U+005F
% U+0060 GRAVE ACCENT; grave
\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

```
% U+0069 LATIN SMALL LETTER I; i
\DeclareTextCompositeCommand{\.}{PU}{\i}{i} % \80\151 U+0069
\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

```
% U+007B LEFT CURLY BRACKET; braceleft
\DeclareTextCommand{\textbraceleft}{PU}{\80\173}% U+007B
% U+007C VERTICAL LINE; *bar, verticalbar
\DeclareTextCommand{\textbar}{PU}{|}% \80\174 U+007C
```

```
% U+007D RIGHT CURLY BRACKET; braceright
\DeclareTextCommand{\textbraceright}{PU}{\80\175}% U+007D
% U+007E TILDE; asciitilde
\DeclareTextCommand{\textasciitilde}{PU}{\80\176}% U+007E
```

50.2.3 Latin-1 Supplement: U+0080 to U+00FF

\80\240: U+00A0 NO-BREAK SPACE; nbspace, nonbreakingspace

```
% U+00A1 INVERTED EXCLAMATION MARK; exclamdown
\DeclareTextCommand{\textexclamdown}{PU}{\80\241}% U+00A1
% U+00A2 CENT SIGN; cent
\DeclareTextCommand{\textcent}{PU}{\80\242}% U+00A2
% U+00A3 POUND SIGN; sterling
\DeclareTextCommand{\textsterling}{PU}{\80\243}% U+00A3
% U+00A4 CURRENCY SIGN; currency
\DeclareTextCommand{\textcurrency}{PU}{\80\244}% U+00A4
% U+00A5 YEN SIGN; yen
\DeclareTextCommand{\textyen}{PU}{\80\245}% U+00A5
% U+00A6 BROKEN BAR; brokenbar
\DeclareTextCommand{\textbrokenbar}{PU}{\80\246}% U+00A6
% U+00A7 SECTION SIGN; section
\DeclareTextCommand{\textsection}{PU}{\80\247}% U+00A7
% U+00A8 DIAERESIS; dieresis
\DeclareTextCommand{\textasciidieresis}{PU}{\80\250}% U+00A8
% U+00A9 COPYRIGHT SIGN; copyright
\DeclareTextCommand{\textcopyright}{PU}{\80\251}% U+00A9
% U+00AA FEMININE ORDINAL INDICATOR; ordfeminine
\DeclareTextCommand{\textordfeminine}{PU}{\80\252}% U+00AA
% U+00AB LEFT-POINTING DOUBLE ANGLE QUOTATION MARK; guille-
    motleft
\DeclareTextCommand{\guillemotleft}{PU}{\80\253}% U+00AB
% U+00AC NOT SIGN; logicalnot
\DeclareTextCommand{\textlogicalnot}{PU}{\80\254}% U+00AC
\DeclareTextCommand{\textlnot}{PU}{\80\254}% U+00AC
```

\80\255: U+00AD SOFT HYPHEN; sfthyphen, softhyphen

```
% U+00AE REGISTERED SIGN; registered
\DeclareTextCommand{\textregistered}{PU}{\80\256}% U+00AE
% U+00AF MACRON; *macron, overscore
\DeclareTextCommand{\textasciimacron}{PU}{\80\257}% U+00AF
% U+00B0 DEGREE SIGN; degree
\DeclareTextCommand{\textdegree}{PU}{\80\260}% U+00B0
% U+00B1 PLUS-MINUS SIGN; plusminus
\DeclareTextCommand{\textplusminus}{PU}{\80\261}% U+00B1
% U+00B2 SUPERSCRIPT TWO; twosuperior
\DeclareTextCommand{\texttwosuperior}{PU}{\80\262}% U+00B2
% U+00B3 SUPERSCRIPT THREE; threesuperior
\DeclareTextCommand{\textthreesuperior}{PU}{\80\263}% U+00B3
% U+00B4 ACUTE ACCENT; acute
\DeclareTextCommand{\textacute}{PU}{\80\264}% U+00B4
\DeclareTextCommand{\textasciiacute}{PU}{\80\264}% U+00B4
% U+00B5 MICRO SIGN; mu, mu1
\DeclareTextCommand{\textmu}{PU}{\80\265}% U+00B5
% U+00B6 PILCROW SIGN; paragraph
\DeclareTextCommand{\textparagraph}{PU}{\80\266}% U+00B6
% U+00B7 MIDDLE DOT; middot, *periodcentered
\DeclareTextCommand{\textperiodcentered}{PU}{\80\267}% U+00B7
% U+00B8 CEDILLA; cedilla
```

```
\DeclareTextCommand{\textcedilla}{PU}{\80\270}% U+00B8
% U+00B9 SUPERSCRIPT ONE; onesuperior
\DeclareTextCommand{\textonesuperior}{PU}{\80\271}% U+00B9
% U+00BA MASCULINE ORDINAL INDICATOR; ordmasculine
\DeclareTextCommand{\textordmasculine}{PU}{\80\272}% U+00BA
% U+00BB RIGHT-POINTING DOUBLE ANGLE QUOTATION MARK; guillemotright
\DeclareTextCommand{\guillemotright}{PU}{\80\273}% U+00BB
% U+00BC VULGAR FRACTION ONE QUARTER; onequarter
\DeclareTextCommand{\textonequarter}{PU}{\80\274}% U+00BC
% U+00BD VULGAR FRACTION ONE HALF; onehalf
\DeclareTextCommand{\textonehalf}{PU}{\80\275}% U+00BD
% U+00BE VULGAR FRACTION THREE QUARTERS; threequarters
\DeclareTextCommand{\textthreequarters}{PU}{\80\276}% U+00BE
% U+00BF INVERTED QUESTION MARK; questiondown
\DeclareTextCommand{\textquestiondown}{PU}{\80\277}% U+00BF
% U+00C0 LATIN CAPITAL LETTER A WITH GRAVE; Agrave
\DeclareTextCompositeCommand{\`}{PU}{A}{\80\300}% U+00C0
% U+00C1 LATIN CAPITAL LETTER A WITH ACUTE; Aacute
\DeclareTextCompositeCommand{\'}{PU}{A}{\80\301}% U+00C1
% U+00C2 LATIN CAPITAL LETTER A WITH CIRCUMFLEX; Acircumflex
\DeclareTextCompositeCommand{\^}{PU}{A}{\80\302}% U+00C2
% U+00C3 LATIN CAPITAL LETTER A WITH TILDE; Atilde
\DeclareTextCompositeCommand{\~}{PU}{A}{\80\303}% U+00C3
% U+00C4 LATIN CAPITAL LETTER A WITH DIAERESIS; Adieresis
\DeclareTextCompositeCommand{\"}{PU}{A}{\80\304}% U+00C4
% U+00C5 LATIN CAPITAL LETTER A WITH RING ABOVE; Aring
\DeclareTextCompositeCommand{\r}{PU}{A}{\80\305}% U+00C5
% U+00C6 LATIN CAPITAL LETTER AE; AE
\DeclareTextCommand{\AE}{PU}{\80\306}% U+00C6
% U+00C7 LATIN CAPITAL LETTER C WITH CEDILLA; Ccedilla
\DeclareTextCompositeCommand{\c}{PU}{C}{\80\307}% U+00C7
% U+00C8 LATIN CAPITAL LETTER E WITH GRAVE; Egrave
\DeclareTextCompositeCommand{\`}{PU}{E}{\80\310}% U+00C8
% U+00C9 LATIN CAPITAL LETTER E WITH ACUTE; Eacute
\DeclareTextCompositeCommand{\'}{PU}{E}{\80\311}% U+00C9
% U+00CA LATIN CAPITAL LETTER E WITH CIRCUMFLEX; Ecircumflex
\DeclareTextCompositeCommand{\^}{PU}{E}{\80\312}% U+00CA
% U+00CB LATIN CAPITAL LETTER E WITH DIAERESIS; Edieresis
\DeclareTextCompositeCommand{\"}{PU}{E}{\80\313}% U+00CB
% U+00CC LATIN CAPITAL LETTER I WITH GRAVE; Igrave
\DeclareTextCompositeCommand{\`}{PU}{I}{\80\314}% U+00CC
% U+00CD LATIN CAPITAL LETTER I WITH ACUTE; Iacute
\DeclareTextCompositeCommand{\'}{PU}{I}{\80\315}% U+00CD
% U+00CE LATIN CAPITAL LETTER I WITH CIRCUMFLEX; Icircumflex
\DeclareTextCompositeCommand{\^}{PU}{I}{\80\316}% U+00CE
% U+00CF LATIN CAPITAL LETTER I WITH DIAERESIS; Idieresis
\DeclareTextCompositeCommand{\"}{PU}{I}{\80\317}% U+00CF
% U+00D0 LATIN CAPITAL LETTER ETH; Eth
\DeclareTextCommand{\DH}{PU}{\80\320}% U+00D0
% U+00D1 LATIN CAPITAL LETTER N WITH TILDE; Ntilde
\DeclareTextCompositeCommand{\~}{PU}{N}{\80\321}% U+00D1
% U+00D2 LATIN CAPITAL LETTER O WITH GRAVE; Ograve
\DeclareTextCompositeCommand{\`}{PU}{O}{\80\322}% U+00D2
% U+00D3 LATIN CAPITAL LETTER O WITH ACUTE; Oacute
\DeclareTextCompositeCommand{\'}{PU}{O}{\80\323}% U+00D3
% U+00D4 LATIN CAPITAL LETTER O WITH CIRCUMFLEX; Ocircumflex
```

```
\DeclareTextCompositeCommand{\^}{PU}{O}{\80\324}% U+00D4
% U+00D5 LATIN CAPITAL LETTER O WITH TILDE; Otilde
\DeclareTextCompositeCommand{\~}{PU}{O}{\80\325}% U+00D5
% U+00D6 LATIN CAPITAL LETTER O WITH DIAERESIS; Odieresis
\DeclareTextCompositeCommand{\"}{PU}{O}{\80\326}% U+00D6
% U+00D7 MULTIPLICATION SIGN; multiply
\DeclareTextCommand{\textmultiply}{PU}{\80\327}% U+00D7
% U+00D8 LATIN CAPITAL LETTER O WITH STROKE; Oslash
\DeclareTextCommand{\O}{PU}{\80\330}% U+00D8
% U+00D9 LATIN CAPITAL LETTER U WITH GRAVE; Ugrave
\DeclareTextCompositeCommand{\`}{PU}{U}{\80\331}% U+00D9
% U+00DA LATIN CAPITAL LETTER U WITH ACUTE; Uacute
\DeclareTextCompositeCommand{\'}{PU}{U}{\80\332}% U+00DA
% U+00DB LATIN CAPITAL LETTER U WITH CIRCUMFLEX; Ucircumflex
\DeclareTextCompositeCommand{\^}{PU}{U}{\80\333}% U+00DB
% U+00DC LATIN CAPITAL LETTER U WITH DIAERESIS; Udieresis
\DeclareTextCompositeCommand{\"}{PU}{U}{\80\334}% U+00DC
% U+00DD LATIN CAPITAL LETTER Y WITH ACUTE; Yacute
\DeclareTextCompositeCommand{\'}{PU}{Y}{\80\335}% U+00DD
% U+00DE LATIN CAPITAL LETTER THORN; Thorn
\DeclareTextCommand{\TH}{PU}{\80\336}% U+00DE
% U+00DF LATIN SMALL LETTER SHARP S; germandbls
\DeclareTextCommand{\ss}{PU}{\80\337}% U+00DF
% U+00E0 LATIN SMALL LETTER A WITH GRAVE; agrave
\DeclareTextCompositeCommand{\`}{PU}{a}{\80\340}% U+00E0
% U+00E1 LATIN SMALL LETTER A WITH ACUTE; aacute
\DeclareTextCompositeCommand{\'}{PU}{a}{\80\341}% U+00E1
% U+00E2 LATIN SMALL LETTER A WITH CIRCUMFLEX; acircumflex
\DeclareTextCompositeCommand{\^}{PU}{a}{\80\342}% U+00E2
% U+00E3 LATIN SMALL LETTER A WITH TILDE; atilde
\DeclareTextCompositeCommand{\~}{PU}{a}{\80\343}% U+00E3
% U+00E4 LATIN SMALL LETTER A WITH DIAERESIS; adieresis
\DeclareTextCompositeCommand{\"}{PU}{a}{\80\344}% U+00E4
% U+00E5 LATIN SMALL LETTER A WITH RING ABOVE; aring
\DeclareTextCompositeCommand{\r}{PU}{a}{\80\345}% U+00E5
% U+00E6 LATIN SMALL LETTER AE; ae
\DeclareTextCommand{\ae}{PU}{\80\346}% U+00E6
% U+00E7 LATIN SMALL LETTER C WITH CEDILLA; ccedilla
\DeclareTextCompositeCommand{\c}{PU}{c}{\80\347}% U+00E7
% U+00E8 LATIN SMALL LETTER E WITH GRAVE; egrave
\DeclareTextCompositeCommand{\`}{PU}{e}{\80\350}% U+00E8
% U+00E9 LATIN SMALL LETTER E WITH ACUTE; eacute
\DeclareTextCompositeCommand{\'}{PU}{e}{\80\351}% U+00E9
% U+00EA LATIN SMALL LETTER E WITH CIRCUMFLEX; ecircumflex
\DeclareTextCompositeCommand{\^}{PU}{e}{\80\352}% U+00EA
% U+00EB LATIN SMALL LETTER E WITH DIAERESIS; edieresis
\DeclareTextCompositeCommand{\"}{PU}{e}{\80\353}% U+00EB
% U+00EC LATIN SMALL LETTER I WITH GRAVE; igrave
\DeclareTextCompositeCommand{\`}{PU}{i}{\80\354}% U+00EC
\DeclareTextCompositeCommand{\`}{PU}{\i}{\80\354}% U+00EC
% U+00ED LATIN SMALL LETTER I WITH ACUTE; iacute
\DeclareTextCompositeCommand{\'}{PU}{i}{\80\355}% U+00ED
\DeclareTextCompositeCommand{\'}{PU}{\i}{\80\355}% U+00ED
% U+00EE LATIN SMALL LETTER I WITH CIRCUMFLEX; icircumflex
\DeclareTextCompositeCommand{\^}{PU}{i}{\80\356}% U+00EE
\DeclareTextCompositeCommand{\^}{PU}{\i}{\80\356}% U+00EE
% U+00EF LATIN SMALL LETTER I WITH DIAERESIS; idieresis
```

```
\DeclareTextCompositeCommand{\"}{PU}{i}{\80\357}% U+00EF
\DeclareTextCompositeCommand{\"}{PU}{\i}{\80\357}% U+00EF
% U+00F0 LATIN SMALL LETTER ETH; eth
\DeclareTextCommand{\dh}{PU}{\80\360}% U+00F0
% U+00F1 LATIN SMALL LETTER N WITH TILDE; ntilde
\DeclareTextCompositeCommand{\~}{PU}{n}{\80\361}% U+00F1
% U+00F2 LATIN SMALL LETTER O WITH GRAVE; ograve
\DeclareTextCompositeCommand{\`}{PU}{o}{\80\362}% U+00F2
% U+00F3 LATIN SMALL LETTER O WITH ACUTE; oacute
\DeclareTextCompositeCommand{\'}{PU}{o}{\80\363}% U+00F3
% U+00F4 LATIN SMALL LETTER O WITH CIRCUMFLEX; ocircumflex
\DeclareTextCompositeCommand{\^}{PU}{o}{\80\364}% U+00F4
% U+00F5 LATIN SMALL LETTER O WITH TILDE; otilde
\DeclareTextCompositeCommand{\~}{PU}{o}{\80\365}% U+00F5
% U+00F6 LATIN SMALL LETTER O WITH DIAERESIS; odieresis
\DeclareTextCompositeCommand{\"}{PU}{o}{\80\366}% U+00F6
% U+00F7 DIVISION SIGN; divide
\DeclareTextCommand{\textdivide}{PU}{\80\367}% U+00F7
% U+00F8 LATIN SMALL LETTER O WITH STROKE; oslash
\DeclareTextCommand{\o}{PU}{\80\370}% U+00F8
% U+00F9 LATIN SMALL LETTER U WITH GRAVE; ugrave
\DeclareTextCompositeCommand{\`}{PU}{u}{\80\371}% U+00F9
% U+00FA LATIN SMALL LETTER U WITH ACUTE; uacute
\DeclareTextCompositeCommand{\'}{PU}{u}{\80\372}% U+00FA
% U+00FB LATIN SMALL LETTER U WITH CIRCUMFLEX; ucircumflex
\DeclareTextCompositeCommand{\^}{PU}{u}{\80\373}% U+00FB
% U+00FC LATIN SMALL LETTER U WITH DIAERESIS; udieresis
\DeclareTextCompositeCommand{\"}{PU}{u}{\80\374}% U+00FC
% U+00FD LATIN SMALL LETTER Y WITH ACUTE; yacute
\DeclareTextCompositeCommand{\'}{PU}{y}{\80\375}% U+00FD
% U+00FE LATIN SMALL LETTER THORN; thorn
\DeclareTextCommand{\th}{PU}{\80\376}% U+00FE
% U+00FF LATIN SMALL LETTER Y WITH DIAERESIS; ydieresis
\DeclareTextCompositeCommand{\"}{PU}{y}{\80\377}% U+00FF
```

50.2.4 Latin Extended-A: U+0080 to U+017F

```
% U+0100 LATIN CAPITAL LETTER A WITH MACRON; Amacron
\DeclareTextCompositeCommand{\=}{PU}{A}{\81\000}% U+0100
% U+0101 LATIN SMALL LETTER A WITH MACRON; amacron
\DeclareTextCompositeCommand{\=}{PU}{a}{\81\001}% U+0101
% U+0102 LATIN CAPITAL LETTER A WITH BREVE; Abreve
\DeclareTextCompositeCommand{\u}{PU}{A}{\81\002}% U+0102
% U+0103 LATIN SMALL LETTER A WITH BREVE; abreve
\DeclareTextCompositeCommand{\u}{PU}{a}{\81\003}% U+0103
% U+0104 LATIN CAPITAL LETTER A WITH OGONEK; Aogonek
\DeclareTextCompositeCommand{\k}{PU}{A}{\81\004}% U+0104
% U+0105 LATIN SMALL LETTER A WITH OGONEK; aogonek
\DeclareTextCompositeCommand{\k}{PU}{a}{\81\005}% U+0105
% U+0106 LATIN CAPITAL LETTER C WITH ACUTE; Cacute
\DeclareTextCompositeCommand{\'}{PU}{C}{\81\006}% U+0106
% U+0107 LATIN SMALL LETTER C WITH ACUTE; cacute
\DeclareTextCompositeCommand{\'}{PU}{c}{\81\007}% U+0107
% U+0108 LATIN CAPITAL LETTER C WITH CIRCUMFLEX; Ccircumflex
\DeclareTextCompositeCommand{\^}{PU}{C}{\81\010}% U+0108
% U+0109 LATIN SMALL LETTER C WITH CIRCUMFLEX; ccircumflex
\DeclareTextCompositeCommand{\^}{PU}{c}{\81\011}% U+0109
```

```
% U+010A LATIN CAPITAL LETTER C WITH DOT ABOVE; Cdot, Cdotaccent
\DeclareTextCompositeCommand{\.}{PU}{C}{\81\012}% U+010A
% U+010B LATIN SMALL LETTER C WITH DOT ABOVE; cdot, cdotaccent
\DeclareTextCompositeCommand{\.}{PU}{c}{\81\013}% U+010B
% U+010C LATIN CAPITAL LETTER C WITH CARON; Ccaron
\DeclareTextCompositeCommand{\v}{PU}{C}{\81\014}% U+010C
% U+010D LATIN SMALL LETTER C WITH CARON; ccaron
\DeclareTextCompositeCommand{\v}{PU}{c}{\81\015}% U+010D
% U+010E LATIN CAPITAL LETTER D WITH CARON; Dcaron
\DeclareTextCompositeCommand{\v}{PU}{D}{\81\016}% U+010E
% U+010F LATIN SMALL LETTER D WITH CARON; dcaron
\DeclareTextCompositeCommand{\v}{PU}{d}{\81\017}% U+010F
% U+0110 LATIN CAPITAL LETTER D WITH STROKE; Dcroat, Dslash
\DeclareTextCommand{\DJ}{PU}{\81\020}% U+0110
% U+0111 LATIN SMALL LETTER D WITH STROKE; dcroat, dmacron
\DeclareTextCommand{\dj}{PU}{\81\021}% U+0111
% U+0112 LATIN CAPITAL LETTER E WITH MACRON; Emacron
\DeclareTextCompositeCommand{\=}{PU}{E}{\81\022}% U+0112
% U+0113 LATIN SMALL LETTER E WITH MACRON; emacron
\DeclareTextCompositeCommand{\=}{PU}{e}{\81\023}% U+0113
% U+0114 LATIN CAPITAL LETTER E WITH BREVE; Ebreve
\DeclareTextCompositeCommand{\u}{PU}{E}{\81\024}% U+0114
% U+0115 LATIN SMALL LETTER E WITH BREVE; ebreve
\DeclareTextCompositeCommand{\u}{PU}{e}{\81\025}% U+0115
% U+0116 LATIN CAPITAL LETTER E WITH DOT ABOVE; Edot, Edotaccent
\DeclareTextCompositeCommand{\.}{PU}{E}{\81\026}% U+0116
% U+0117 LATIN SMALL LETTER E WITH DOT ABOVE; edot, edotaccent
\DeclareTextCompositeCommand{\.}{PU}{e}{\81\027}% U+0117
% U+0118 LATIN CAPITAL LETTER E WITH OGONEK; Eogonek
\DeclareTextCompositeCommand{\k}{PU}{E}{\81\030}% U+0118
% U+0119 LATIN SMALL LETTER E WITH OGONEK; eogonek
\DeclareTextCompositeCommand{\k}{PU}{e}{\81\031}% U+0119
% U+011A LATIN CAPITAL LETTER E WITH CARON; Ecaron
\DeclareTextCompositeCommand{\v}{PU}{E}{\81\032}% U+011A
% U+011B LATIN SMALL LETTER E WITH CARON; ecaron
\DeclareTextCompositeCommand{\v}{PU}{e}{\81\033}% U+011B
% U+011C LATIN CAPITAL LETTER G WITH CIRCUMFLEX; Gcircumflex
\DeclareTextCompositeCommand{\^}{PU}{G}{\81\034}% U+011C
% U+011D LATIN SMALL LETTER G WITH CIRCUMFLEX; gcircumflex
\DeclareTextCompositeCommand{\^}{PU}{g}{\81\035}% U+011D
% U+011E LATIN CAPITAL LETTER G WITH BREVE; Gbreve
\DeclareTextCompositeCommand{\u}{PU}{G}{\81\036}% U+011E
% U+011F LATIN SMALL LETTER G WITH BREVE; gbreve
\DeclareTextCompositeCommand{\u}{PU}{g}{\81\037}% U+011F
% U+0120 LATIN CAPITAL LETTER G WITH DOT ABOVE; Gdot, Gdotaccent
\DeclareTextCompositeCommand{\.}{PU}{G}{\81\040}% U+0120
% U+0121 LATIN SMALL LETTER G WITH DOT ABOVE; gdot, gdotaccent
\DeclareTextCompositeCommand{\.}{PU}{g}{\81\041}% U+0121
% U+0122 LATIN CAPITAL LETTER G WITH CEDILLA; Gcedilla, Gcommaaccent
\DeclareTextCompositeCommand{\c}{PU}{G}{\81\042}% U+0122
% U+0123 LATIN SMALL LETTER G WITH CEDILLA; gcedilla, gcommaaccent
\DeclareTextCompositeCommand{\c}{PU}{g}{\81\043}% U+0123
% U+0124 LATIN CAPITAL LETTER H WITH CIRCUMFLEX; Hcircumflex
\DeclareTextCompositeCommand{\^}{PU}{H}{\81\044}% U+0124
```

```
% U+0125 LATIN SMALL LETTER H WITH CIRCUMFLEX; hcircumflex
\DeclareTextCompositeCommand{\^}{PU}{h}{\81\045}% U+0125
% U+0126 LATIN CAPITAL LETTER H WITH STROKE; Hbar
\DeclareTextCommand{\textHslash}{PU}{\81\046}% U+0126
% U+0127 LATIN SMALL LETTER H WITH STROKE; hbar
\DeclareTextCommand{\texthslash}{PU}{\81\047}% U+0127
% U+0128 LATIN CAPITAL LETTER I WITH TILDE; Itilde
\DeclareTextCompositeCommand{\~}{PU}{I}{\81\050}% U+0128
% U+0129 LATIN SMALL LETTER I WITH TILDE; itilde
\DeclareTextCompositeCommand{\~}{PU}{i}{\81\051}% U+0129
\DeclareTextCompositeCommand{\~}{PU}{\i}{\81\051}% U+0129
% U+012A LATIN CAPITAL LETTER I WITH MACRON; Imacron
\DeclareTextCompositeCommand{\=}{PU}{I}{\81\052}% U+012A
% U+012B LATIN SMALL LETTER I WITH MACRON; imacron
\DeclareTextCompositeCommand{\=}{PU}{i}{\81\053}% U+012B
\DeclareTextCompositeCommand{\=}{PU}{\i}{\81\053}% U+012B
% U+012C LATIN CAPITAL LETTER I WITH BREVE; Ibreve
\DeclareTextCompositeCommand{\u}{PU}{I}{\81\054}% U+012C
% U+012D LATIN SMALL LETTER I WITH BREVE; ibreve
\DeclareTextCompositeCommand{\u}{PU}{i}{\81\055}% U+012D
\DeclareTextCompositeCommand{\u}{PU}{\i}{\81\055}% U+012D
% U+012E LATIN CAPITAL LETTER I WITH OGONEK; Iogonek
\DeclareTextCompositeCommand{\k}{PU}{I}{\81\056}% U+012E
% U+012F LATIN SMALL LETTER I WITH OGONEK; iogonek
\DeclareTextCompositeCommand{\k}{PU}{i}{\81\057}% U+012F
\DeclareTextCompositeCommand{\k}{PU}{\i}{\81\057}% U+012F
% U+0130 LATIN CAPITAL LETTER I WITH DOT ABOVE; Idot, Idotaccent
\DeclareTextCompositeCommand{\.}{PU}{I}{\81\060}% U+0130
% U+0131 LATIN SMALL LETTER DOTLESS I; dotlessi
\DeclareTextCommand{\i}{PU}{\81\061}% U+0131
% U+0132 LATIN CAPITAL LIGATURE IJ; IJ
\DeclareTextCommand{\IJ}{PU}{\81\062}% U+0132
% U+0133 LATIN SMALL LIGATURE IJ; ij
\DeclareTextCommand{\ij}{PU}{\81\063}% U+0133
% U+0134 LATIN CAPITAL LETTER J WITH CIRCUMFLEX; Jcircumflex
\DeclareTextCompositeCommand{\^}{PU}{J}{\81\064}% U+0134
% U+0135 LATIN SMALL LETTER J WITH CIRCUMFLEX; jcircumflex
\DeclareTextCompositeCommand{\^}{PU}{j}{\81\065}% U+0135
\DeclareTextCompositeCommand{\^}{PU}{\j}{\81\065}% U+0135
% U+0136 LATIN CAPITAL LETTER K WITH CEDILLA; Kcedilla, Kcommaaccent
\DeclareTextCompositeCommand{\c}{PU}{K}{\81\066}% U+0136
% U+0137 LATIN SMALL LETTER K WITH CEDILLA; kcedilla, kcommaaccent
\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`.

```
% U+0138 LATIN SMALL LETTER KRA; kgreenlandic
\DeclareTextCommand{\textkra}{PU}{\81\070}% U+0138
% U+0139 LATIN CAPITAL LETTER L WITH ACUTE; Lacute
\DeclareTextCompositeCommand{\'}{PU}{L}{\81\071}% U+0139
% U+013A LATIN SMALL LETTER L WITH ACUTE; lacute
\DeclareTextCompositeCommand{\'}{PU}{l}{\81\072}% U+013A
% U+013B LATIN CAPITAL LETTER L WITH CEDILLA; Lcedilla, Lcommaaccent
\DeclareTextCompositeCommand{\c}{PU}{L}{\81\073}% U+013B
% U+013C LATIN SMALL LETTER L WITH CEDILLA; lcedilla, lcommaaccent
```

```
\DeclareTextCompositeCommand{\c}{PU}{l}{\81\074}% U+013C
% U+013D LATIN CAPITAL LETTER L WITH CARON; Lcaron
\DeclareTextCompositeCommand{\v}{PU}{L}{\81\075}% U+013D
% U+013E LATIN SMALL LETTER L WITH CARON; lcaron
\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.

```
% U+013F LATIN CAPITAL LETTER L WITH MIDDLE DOT; Ldot, Ldotaccent
\DeclareTextCompositeCommand{\.}{PU}{L}{\81\077}% U+013F
% U+0140 LATIN SMALL LETTER L WITH MIDDLE DOT; ldot, ldotaccent
\DeclareTextCompositeCommand{\.}{PU}{l}{\81\100}% U+0140
% U+0141 LATIN CAPITAL LETTER L WITH STROKE; Lslash
\DeclareTextCommand{\L}{PU}{\81\101}% U+0141
% U+0142 LATIN SMALL LETTER L WITH STROKE; lslash
\DeclareTextCommand{\l}{PU}{\81\102}% U+0142
% U+0143 LATIN CAPITAL LETTER N WITH ACUTE; Nacute
\DeclareTextCompositeCommand{\'}{PU}{N}{\81\103}% U+0143
% U+0144 LATIN SMALL LETTER N WITH ACUTE; nacute
\DeclareTextCompositeCommand{\'}{PU}{n}{\81\104}% U+0144
% U+0145 LATIN CAPITAL LETTER N WITH CEDILLA; Ncedilla, Ncommaaccent
\DeclareTextCompositeCommand{\c}{PU}{N}{\81\105}% U+0145
% U+0146 LATIN SMALL LETTER N WITH CEDILLA; ncedilla, ncommaaccent
\DeclareTextCompositeCommand{\c}{PU}{n}{\81\106}% U+0146
% U+0147 LATIN CAPITAL LETTER N WITH CARON; Ncaron
\DeclareTextCompositeCommand{\v}{PU}{N}{\81\107}% U+0147
% U+0148 LATIN SMALL LETTER N WITH CARON; ncaron
\DeclareTextCompositeCommand{\v}{PU}{n}{\81\110}% U+0148
% U+0149 LATIN SMALL LETTER N PRECEDED BY APOSTROPHE; napostrophe, quoterightn
\DeclareTextCommand{\textnapostrophe}{PU}{\81\111}% U+0149
% U+014A LATIN CAPITAL LETTER ENG; Eng
\DeclareTextCommand{\NG}{PU}{\81\112}% U+014A
% U+014B LATIN SMALL LETTER ENG; eng
\DeclareTextCommand{\ng}{PU}{\81\113}% U+014B
% U+014C LATIN CAPITAL LETTER O WITH MACRON; Omacron
\DeclareTextCompositeCommand{\=}{PU}{O}{\81\114}% U+014C
% U+014D LATIN SMALL LETTER O WITH MACRON; omacron
\DeclareTextCompositeCommand{\=}{PU}{o}{\81\115}% U+014D
% U+014E LATIN CAPITAL LETTER O WITH BREVE; Obreve
\DeclareTextCompositeCommand{\u}{PU}{O}{\81\116}% U+014E
% U+014F LATIN SMALL LETTER O WITH BREVE; obreve
\DeclareTextCompositeCommand{\u}{PU}{o}{\81\117}% U+014F
% U+0150 LATIN CAPITAL LETTER O WITH DOUBLE ACUTE; Odblacute, Ohungarumlaut
\DeclareTextCompositeCommand{\H}{PU}{O}{\81\120}% U+0150
% U+0151 LATIN SMALL LETTER O WITH DOUBLE ACUTE; odblacute, ohungarumlaut
\DeclareTextCompositeCommand{\H}{PU}{o}{\81\121}% U+0151
% U+0152 LATIN CAPITAL LIGATURE OE; OE
\DeclareTextCommand{\OE}{PU}{\81\122}% U+0152
% U+0153 LATIN SMALL LIGATURE OE; oe
\DeclareTextCommand{\oe}{PU}{\81\123}% U+0153
% U+0154 LATIN CAPITAL LETTER R WITH ACUTE; Racute
\DeclareTextCompositeCommand{\'}{PU}{R}{\81\124}% U+0154
```

```
% U+0155 LATIN SMALL LETTER R WITH ACUTE; racute
\DeclareTextCompositeCommand{\'}{PU}{r}{\81\125}% U+0155
% U+0156 LATIN CAPITAL LETTER R WITH CEDILLA; Rcedilla, Rcommaaccent
\DeclareTextCompositeCommand{\c}{PU}{R}{\81\126}% U+0156
% U+0157 LATIN SMALL LETTER R WITH CEDILLA; rcedilla, rcommaaccent
\DeclareTextCompositeCommand{\c}{PU}{r}{\81\127}% U+0157
% U+0158 LATIN CAPITAL LETTER R WITH CARON; Rcaron
\DeclareTextCompositeCommand{\v}{PU}{R}{\81\130}% U+0158
% U+0159 LATIN SMALL LETTER R WITH CARON; rcaron
\DeclareTextCompositeCommand{\v}{PU}{r}{\81\131}% U+0159
% U+015A LATIN CAPITAL LETTER S WITH ACUTE; Sacute
\DeclareTextCompositeCommand{\'}{PU}{S}{\81\132}% U+015A
% U+015B LATIN SMALL LETTER S WITH ACUTE; sacute
\DeclareTextCompositeCommand{\'}{PU}{s}{\81\133}% U+015B
% U+015C LATIN CAPITAL LETTER S WITH CIRCUMFLEX; Scircumflex
\DeclareTextCompositeCommand{\^}{PU}{S}{\81\134}% U+015C
% U+015D LATIN SMALL LETTER S WITH CIRCUMFLEX; scircumflex
\DeclareTextCompositeCommand{\^}{PU}{s}{\81\135}% U+015D
% U+015E LATIN CAPITAL LETTER S WITH CEDILLA; Scedilla
\DeclareTextCompositeCommand{\c}{PU}{S}{\81\136}% U+015E
% U+015F LATIN SMALL LETTER S WITH CEDILLA; scedilla
\DeclareTextCompositeCommand{\c}{PU}{s}{\81\137}% U+015F
% U+0160 LATIN CAPITAL LETTER S WITH CARON; Scaron
\DeclareTextCompositeCommand{\v}{PU}{S}{\81\140}% U+0160
% U+0161 LATIN SMALL LETTER S WITH CARON; scaron
\DeclareTextCompositeCommand{\v}{PU}{s}{\81\141}% U+0161
% U+0162 LATIN CAPITAL LETTER T WITH CEDILLA; Tcedilla, Tcommaaccent
\DeclareTextCompositeCommand{\c}{PU}{T}{\81\142}% U+0162
% U+0163 LATIN SMALL LETTER T WITH CEDILLA; tcedilla, tcommaaccent
\DeclareTextCompositeCommand{\c}{PU}{t}{\81\143}% U+0163
% U+0164 LATIN CAPITAL LETTER T WITH CARON; Tcaron
\DeclareTextCompositeCommand{\v}{PU}{T}{\81\144}% U+0164
% U+0165 LATIN SMALL LETTER T WITH CARON; tcaron
\DeclareTextCompositeCommand{\v}{PU}{t}{\81\145}% U+0165
% U+0166 LATIN CAPITAL LETTER T WITH STROKE; Tbar
\DeclareTextCommand{\textTslash}{PU}{\81\146}% U+0166
% U+0167 LATIN SMALL LETTER T WITH STROKE; tbar
\DeclareTextCommand{\texttslash}{PU}{\81\147}% U+0167
% U+0168 LATIN CAPITAL LETTER U WITH TILDE; Utilde
\DeclareTextCompositeCommand{\~}{PU}{U}{\81\150}% U+0168
% U+0169 LATIN SMALL LETTER U WITH TILDE; utilde
\DeclareTextCompositeCommand{\~}{PU}{u}{\81\151}% U+0169
% U+016A LATIN CAPITAL LETTER U WITH MACRON; Umacron
\DeclareTextCompositeCommand{\=}{PU}{U}{\81\152}% U+016A
% U+016B LATIN SMALL LETTER U WITH MACRON; umacron
\DeclareTextCompositeCommand{\=}{PU}{u}{\81\153}% U+016B
% U+016C LATIN CAPITAL LETTER U WITH BREVE; Ubreve
\DeclareTextCompositeCommand{\u}{PU}{U}{\81\154}% U+016C
% U+016D LATIN SMALL LETTER U WITH BREVE; ubreve
\DeclareTextCompositeCommand{\u}{PU}{u}{\81\155}% U+016D
% U+016E LATIN CAPITAL LETTER U WITH RING ABOVE; Uring
\DeclareTextCompositeCommand{\r}{PU}{U}{\81\156}% U+016E
% U+016F LATIN SMALL LETTER U WITH RING ABOVE; uring
\DeclareTextCompositeCommand{\r}{PU}{u}{\81\157}% U+016F
```

```
% U+0170 LATIN CAPITAL LETTER U WITH DOUBLE ACUTE; Udblacute, Uhungarumlaut
\DeclareTextCompositeCommand{\H}{PU}{U}{\81\160}% U+0170
% U+0171 LATIN SMALL LETTER U WITH DOUBLE ACUTE; udblacute, uhungarumlaut
\DeclareTextCompositeCommand{\H}{PU}{u}{\81\161}% U+0171
% U+0172 LATIN CAPITAL LETTER U WITH OGONEK; Uogonek
\DeclareTextCompositeCommand{\k}{PU}{U}{\81\162}% U+0172
% U+0173 LATIN SMALL LETTER U WITH OGONEK; uogonek
\DeclareTextCompositeCommand{\k}{PU}{u}{\81\163}% U+0173
% U+0174 LATIN CAPITAL LETTER W WITH CIRCUMFLEX; Wcircumflex
\DeclareTextCompositeCommand{\^}{PU}{W}{\81\164}% U+0174
% U+0175 LATIN SMALL LETTER W WITH CIRCUMFLEX; wcircumflex
\DeclareTextCompositeCommand{\^}{PU}{w}{\81\165}% U+0175
% U+0176 LATIN CAPITAL LETTER Y WITH CIRCUMFLEX; Ycircumflex
\DeclareTextCompositeCommand{\^}{PU}{Y}{\81\166}% U+0176
% U+0177 LATIN SMALL LETTER Y WITH CIRCUMFLEX; ycircumflex
\DeclareTextCompositeCommand{\^}{PU}{y}{\81\167}% U+0177
% U+0178 LATIN CAPITAL LETTER Y WITH DIAERESIS; Ydieresis
\DeclareTextCompositeCommand{\"}{PU}{Y}{\81\170}% U+0178
% U+0179 LATIN CAPITAL LETTER Z WITH ACUTE; Zacute
\DeclareTextCompositeCommand{\'}{PU}{Z}{\81\171}% U+0179
% U+017A LATIN SMALL LETTER Z WITH ACUTE; zacute
\DeclareTextCompositeCommand{\'}{PU}{z}{\81\172}% U+017A
% U+017B LATIN CAPITAL LETTER Z WITH DOT ABOVE; Zdot, Zdotaccent
\DeclareTextCompositeCommand{\.}{PU}{Z}{\81\173}% U+017B
% U+017C LATIN SMALL LETTER Z WITH DOT ABOVE; zdot, zdotaccent
\DeclareTextCompositeCommand{\.}{PU}{z}{\81\174}% U+017C
% U+017D LATIN CAPITAL LETTER Z WITH CARON; Zcaron
\DeclareTextCompositeCommand{\v}{PU}{Z}{\81\175}% U+017D
% U+017E LATIN SMALL LETTER Z WITH CARON; zcaron
\DeclareTextCompositeCommand{\v}{PU}{z}{\81\176}% U+017E
% U+017F LATIN SMALL LETTER LONG S; longs, slong
\DeclareTextCommand{\textlongs}{PU}{\81\177}% U+017F
```

50.2.5 Latin Extended-B: U+0180 to U+024F

```
% U+0192 LATIN SMALL LETTER F WITH HOOK; florin
\DeclareTextCommand{\textflorin}{PU}{\81\222}% U+0192
% U+01CD LATIN CAPITAL LETTER A WITH CARON; Acaron
\DeclareTextCompositeCommand{\v}{PU}{A}{\81\315}% U+01CD
% U+01CE LATIN SMALL LETTER A WITH CARON; acaron
\DeclareTextCompositeCommand{\v}{PU}{a}{\81\316}% U+01CE
% U+01CF LATIN CAPITAL LETTER I WITH CARON; Icaron
\DeclareTextCompositeCommand{\v}{PU}{I}{\81\317}% U+01CF
% U+01D0 LATIN SMALL LETTER I WITH CARON; icaron
\DeclareTextCompositeCommand{\v}{PU}{\i}{\81\320}% U+01D0
\DeclareTextCompositeCommand{\v}{PU}{i}{\81\320}% U+01D0
% U+01D1 LATIN CAPITAL LETTER O WITH CARON; Ocaron
\DeclareTextCompositeCommand{\v}{PU}{O}{\81\321}% U+01D1
% U+01D2 LATIN SMALL LETTER O WITH CARON; ocaron
\DeclareTextCompositeCommand{\v}{PU}{o}{\81\322}% U+01D2
% U+01D3 LATIN CAPITAL LETTER U WITH CARON; Ucaron
\DeclareTextCompositeCommand{\v}{PU}{U}{\81\323}% U+01D3
% U+01D4 LATIN SMALL LETTER U WITH CARON; ucaron
\DeclareTextCompositeCommand{\v}{PU}{u}{\81\324}% U+01D4
% U+01E4 LATIN CAPITAL LETTER G WITH STROKE; Gstroke
\DeclareTextCommand{\textGslash}{PU}{\81\344}% U+01E4
```

```
% U+01E5 LATIN SMALL LETTER G WITH STROKE; gstroke
\DeclareTextCommand{\textgslash}{PU}{\81\345}% U+01E5
% U+01E6 LATIN CAPITAL LETTER G WITH CARON; Gcaron
\DeclareTextCompositeCommand{\v}{PU}{G}{\81\346}% U+01E6
% U+01E7 LATIN SMALL LETTER G WITH CARON; gcaron
\DeclareTextCompositeCommand{\v}{PU}{g}{\81\347}% U+01E7
% U+01E8 LATIN CAPITAL LETTER K WITH CARON; Kcaron
\DeclareTextCompositeCommand{\v}{PU}{K}{\81\350}% U+01E8
% U+01E9 LATIN SMALL LETTER K WITH CARON; kcaron
\DeclareTextCompositeCommand{\v}{PU}{k}{\81\351}% U+01E9
% U+01EA LATIN CAPITAL LETTER O WITH OGONEK; Oogonek
\DeclareTextCompositeCommand{\k}{PU}{O}{\81\352}% U+01EA
% U+01EB LATIN SMALL LETTER O WITH OGONEK; oogonek
\DeclareTextCompositeCommand{\k}{PU}{o}{\81\353}% U+01EB
% U+01F0 LATIN SMALL LETTER J WITH CARON; jcaron
\DeclareTextCompositeCommand{\v}{PU}{\j}{\81\360}% U+01F0
\DeclareTextCompositeCommand{\v}{PU}{j}{\81\360}% U+01F0
% U+01F4 LATIN CAPITAL LETTER G WITH ACUTE; Gacute
\DeclareTextCompositeCommand{\'}{PU}{G}{\81\364}% U+01F4
% U+01F5 LATIN SMALL LETTER G WITH ACUTE; gacute
\DeclareTextCompositeCommand{\'}{PU}{g}{\81\365}% U+01F5
% U+01F8 LATIN CAPITAL LETTER N WITH GRAVE
\DeclareTextCompositeCommand{\`}{PU}{N}{\81\370}% U+01F8
% U+01F9 LATIN SMALL LETTER N WITH GRAVE
\DeclareTextCompositeCommand{\`}{PU}{n}{\81\371}% U+01F9
% U+01FC LATIN CAPITAL LETTER AE WITH ACUTE; AEacute
\DeclareTextCompositeCommand{\'}{PU}{\AE}{\81\374}% U+01FC
% U+01FD LATIN SMALL LETTER AE WITH ACUTE; aeacute
\DeclareTextCompositeCommand{\'}{PU}{\ae}{\81\375}% U+01FD
% U+01FE LATIN CAPITAL LETTER O WITH STROKE AND ACUTE; *Oslashacute, Ostrokeacut
\DeclareTextCompositeCommand{\'}{PU}{\O}{\81\376}% U+01FE
% U+01FF LATIN SMALL LETTER O WITH STROKE AND ACUTE; *oslashacute, ostrokeacute
\DeclareTextCompositeCommand{\'}{PU}{\o}{\81\377}% U+01FF
% U+0200 LATIN CAPITAL LETTER A WITH DOUBLE GRAVE; Adblgrave
\DeclareTextCompositeCommand{\G}{PU}{A}{\82\000}% U+0200
% U+0201 LATIN SMALL LETTER A WITH DOUBLE GRAVE; adblgrave
\DeclareTextCompositeCommand{\G}{PU}{a}{\82\001}% U+0201
% U+0204 LATIN CAPITAL LETTER E WITH DOUBLE GRAVE; Edblgrave
\DeclareTextCompositeCommand{\G}{PU}{E}{\82\004}% U+0204
% U+0205 LATIN SMALL LETTER E WITH DOUBLE GRAVE; edblgrave
\DeclareTextCompositeCommand{\G}{PU}{e}{\82\005}% U+0205
% U+0208 LATIN CAPITAL LETTER I WITH DOUBLE GRAVE; Idblgrave
\DeclareTextCompositeCommand{\G}{PU}{I}{\82\010}% U+0208
% U+0209 LATIN SMALL LETTER I WITH DOUBLE GRAVE; idblgrave
\DeclareTextCompositeCommand{\G}{PU}{\i}{\82\011}% U+0209
\DeclareTextCompositeCommand{\G}{PU}{i}{\82\011}% U+0209
% U+020C LATIN CAPITAL LETTER O WITH DOUBLE GRAVE; Odblgrave
\DeclareTextCompositeCommand{\G}{PU}{O}{\82\014}% U+020C
% U+020D LATIN SMALL LETTER O WITH DOUBLE GRAVE; odblgrave
\DeclareTextCompositeCommand{\G}{PU}{o}{\82\015}% U+020D
% U+0210 LATIN CAPITAL LETTER R WITH DOUBLE GRAVE; Rdblgrave
\DeclareTextCompositeCommand{\G}{PU}{R}{\82\020}% U+0210
% U+0211 LATIN SMALL LETTER R WITH DOUBLE GRAVE; rdblgrave
\DeclareTextCompositeCommand{\G}{PU}{r}{\82\021}% U+0211
% U+0214 LATIN CAPITAL LETTER U WITH DOUBLE GRAVE; Udblgrave
```

```
\DeclareTextCompositeCommand{\G}{PU}{U}{\82\024}% U+0214
% U+0215 LATIN SMALL LETTER U WITH DOUBLE GRAVE; udblgrave
\DeclareTextCompositeCommand{\G}{PU}{u}{\82\025}% U+0215
% U+021E LATIN CAPITAL LETTER H WITH CARON
\DeclareTextCompositeCommand{\v}{PU}{H}{\82\036}% U+021E
% U+021F LATIN SMALL LETTER H WITH CARON
\DeclareTextCompositeCommand{\v}{PU}{h}{\82\037}% U+021F
% U+0226 LATIN CAPITAL LETTER A WITH DOT ABOVE
\DeclareTextCompositeCommand{\.}{PU}{A}{\82\046}% U+0226
% U+0227 LATIN SMALL LETTER A WITH DOT ABOVE
\DeclareTextCompositeCommand{\.}{PU}{a}{\82\047}% U+0227
% U+0228 LATIN CAPITAL LETTER E WITH CEDILLA
\DeclareTextCompositeCommand{\c}{PU}{E}{\82\050}% U+0228
% U+0229 LATIN SMALL LETTER E WITH CEDILLA
\DeclareTextCompositeCommand{\c}{PU}{e}{\82\051}% U+0229
% U+022E LATIN CAPITAL LETTER O WITH DOT ABOVE
\DeclareTextCompositeCommand{\.}{PU}{O}{\82\056}% U+022E
% U+022F LATIN SMALL LETTER O WITH DOT ABOVE
\DeclareTextCompositeCommand{\.}{PU}{o}{\82\057}% U+022F
% U+0232 LATIN CAPITAL LETTER Y WITH MACRON
\DeclareTextCompositeCommand{\=}{PU}{Y}{\82\062}% U+0232
% U+0233 LATIN SMALL LETTER Y WITH MACRON
\DeclareTextCompositeCommand{\=}{PU}{y}{\82\063}% U+0233
% U+0237 LATIN SMALL LETTER DOTLESS J
\DeclareTextCommand{\j}{PU}{\82\067}% U+0237
```

50.2.6 Spacing Modifier Letters: U+02B0 to U+02FF

```
% U+02C7 CARON; caron
\DeclareTextCommand{\textasciicaron}{PU}{\82\307}% U+02C7
% U+02D8 BREVE; breve
\DeclareTextCommand{\textasciibreve}{PU}{\82\330}% U+02D8
% U+02D9 DOT ABOVE; dotaccent
\DeclareTextCommand{\textdotaccent}{PU}{\82\331}% U+02D9
% U+02DA RING ABOVE; ring
\DeclareTextCommand{\textring}{PU}{\82\332}% U+02DA
% U+02DB OGONEK; ogonek
\DeclareTextCommand{\textogonek}{PU}{\82\333}% U+02DB
% U+02DC SMALL TILDE; ilde, *tilde
\DeclareTextCommand{\texttilde}{PU}{\82\334}% U+02DC
% U+02DD DOUBLE ACUTE ACCENT; hungarumlaut
\DeclareTextCommand{\texthungarumlaut}{PU}{\82\335}% U+02DD
\DeclareTextCommand{\textacutedbl}{PU}{\texthungarumlaut}% U+02DD
% U+02F5 MODIFIER LETTER MIDDLE DOUBLE GRAVE ACCENT
\DeclareTextCommand{\textgravedbl}{PU}{\82\365}% U+02F5
% U+02F7 MODIFIER LETTER LOW TILDE
\DeclareTextCommand{\texttildelow}{PU}{\82\367}% U+02F7
```

50.2.7 Combining Diacritical Marks: U+0300 to U+036F

```
% U+030F COMBINING DOUBLE GRAVE ACCENT; dblgravecmb
\DeclareTextCommand{\textdoublegrave}{PU}{ \83\017}% U+030F
% U+0311 COMBINING INVERTED BREVE; breveinvertedcmb
\DeclareTextCommand{\textnewtie}{PU}{ \83\021}% U+0311
% U+0323 COMBINING DOT BELOW; dotbelowcmb, *dotbelowcomb
\DeclareTextCommand{\textdotbelow}{PU}{ \83\043}% U+0323
% U+0331 COMBINING MACRON BELOW; macronbelowcmb
\DeclareTextCommand{\textmacronbelow}{PU}{ \83\061}% U+0331
```

15554 % U+0361 COMBINING DOUBLE INVERTED BREVE; breveinverteddoublecmb
15555 \DeclareTextCommand{\texttie}{PU}{ \83\141}% U+0361

50.2.8 Greek and Coptic: U+0370 to U+03FF

15556 % U+0374 GREEK NUMERAL SIGN; numeralsigngreek
15557 \DeclareTextCommand{\textnumeralsigngreek}{PU}{\83\164}% U+0374
15558 % U+0375 GREEK LOWER NUMERAL SIGN; numeralsignlowergreek
15559 \DeclareTextCommand{\textnumeralsignlowergreek}{PU}{\83\165}% U+0375
15560 % U+0386 GREEK CAPITAL LETTER ALPHA WITH TONOS; Alphatonos
15561 \DeclareTextCompositeCommand{\'}{PU}{\textAlpha}{\83\206}% U+0386
15562 % U+0388 GREEK CAPITAL LETTER EPSILON WITH TONOS; Epsilontonos
15563 \DeclareTextCompositeCommand{\'}{PU}{\textEpsilon}{\83\210}% U+0388
15564 % U+0389 GREEK CAPITAL LETTER ETA WITH TONOS; Etatonos
15565 \DeclareTextCompositeCommand{\'}{PU}{\textEta}{\83\211}% U+0389
15566 % U+038A GREEK CAPITAL LETTER IOTA WITH TONOS; Iotatonos
15567 \DeclareTextCompositeCommand{\'}{PU}{\textIota}{\83\212}% U+038A
15568 % U+038C GREEK CAPITAL LETTER OMICRON WITH TONOS; Omicrontonos
15569 \DeclareTextCompositeCommand{\'}{PU}{\textOmicron}{\83\214}% U+038C
15570 % U+038E GREEK CAPITAL LETTER UPSILON WITH TONOS; Upsilontonos
15571 \DeclareTextCompositeCommand{\'}{PU}{\textUpsilon}{\83\216}% U+038E
15572 % U+038F GREEK CAPITAL LETTER OMEGA WITH TONOS; Omegatonos
15573 \DeclareTextCompositeCommand{\'}{PU}{\textOmega}{\83\217}% U+038F
15574 % U+0390 GREEK SMALL LETTER IOTA WITH DIALYTIKA AND TONOS; iotadieresistonos
15575 \DeclareTextCompositeCommand{\'}{PU}{\textIotadieresis}{\83\220}% U+0390
15576 % U+0391 GREEK CAPITAL LETTER ALPHA; Alpha
15577 \DeclareTextCommand{\textAlpha}{PU}{\83\221}% U+0391
15578 % U+0392 GREEK CAPITAL LETTER BETA; Beta
15579 \DeclareTextCommand{\textBeta}{PU}{\83\222}% U+0392
15580 % U+0393 GREEK CAPITAL LETTER GAMMA; Gamma
15581 \DeclareTextCommand{\textGamma}{PU}{\83\223}% U+0393
15582 % U+0394 GREEK CAPITAL LETTER DELTA; Deltagreek, *Delta
15583 \DeclareTextCommand{\textDelta}{PU}{\83\224}% U+0394
15584 % U+0395 GREEK CAPITAL LETTER EPSILON; Epsilon
15585 \DeclareTextCommand{\textEpsilon}{PU}{\83\225}% U+0395
15586 % U+0396 GREEK CAPITAL LETTER ZETA; Zeta
15587 \DeclareTextCommand{\textZeta}{PU}{\83\226}% U+0396
15588 % U+0397 GREEK CAPITAL LETTER ETA; Eta
15589 \DeclareTextCommand{\textEta}{PU}{\83\227}% U+0397
15590 % U+0398 GREEK CAPITAL LETTER THETA; Theta
15591 \DeclareTextCommand{\textTheta}{PU}{\83\230}% U+0398
15592 % U+0399 GREEK CAPITAL LETTER IOTA; Iota
15593 \DeclareTextCommand{\textIota}{PU}{\83\231}% U+0399
15594 % U+039A GREEK CAPITAL LETTER KAPPA; Kappa
15595 \DeclareTextCommand{\textKappa}{PU}{\83\232}% U+039A
15596 % U+039B GREEK CAPITAL LETTER LAMDA; Lambda
15597 \DeclareTextCommand{\textLambda}{PU}{\83\233}% U+039B
15598 % U+039C GREEK CAPITAL LETTER MU; Mu
15599 \DeclareTextCommand{\textMu}{PU}{\83\234}% U+039C
15600 % U+039D GREEK CAPITAL LETTER NU; Nu
15601 \DeclareTextCommand{\textNu}{PU}{\83\235}% U+039D
15602 % U+039E GREEK CAPITAL LETTER XI; Xi
15603 \DeclareTextCommand{\textXi}{PU}{\83\236}% U+039E
15604 % U+039F GREEK CAPITAL LETTER OMICRON; Omicron
15605 \DeclareTextCommand{\textOmicron}{PU}{\83\237}% U+039F

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% U+03A0 GREEK CAPITAL LETTER PI; Pi
\DeclareTextCommand{\textPi}{PU}{\83\240}% U+03A0
% U+03A1 GREEK CAPITAL LETTER RHO; Rho
\DeclareTextCommand{\textRho}{PU}{\83\241}% U+03A1
% U+03A3 GREEK CAPITAL LETTER SIGMA; Sigma
\DeclareTextCommand{\textSigma}{PU}{\83\243}% U+03A3
% U+03A4 GREEK CAPITAL LETTER TAU; Tau
\DeclareTextCommand{\textTau}{PU}{\83\244}% U+03A4
% U+03A5 GREEK CAPITAL LETTER UPSILON; Upsilon
\DeclareTextCommand{\textUpsilon}{PU}{\83\245}% U+03A5
% U+03A6 GREEK CAPITAL LETTER PHI; Phi
\DeclareTextCommand{\textPhi}{PU}{\83\246}% U+03A6
% U+03A7 GREEK CAPITAL LETTER CHI; Chi
\DeclareTextCommand{\textChi}{PU}{\83\247}% U+03A7
% U+03A8 GREEK CAPITAL LETTER PSI; Psi
\DeclareTextCommand{\textPsi}{PU}{\83\250}% U+03A8
% U+03A9 GREEK CAPITAL LETTER OMEGA; Omegagreek, *Omega
\DeclareTextCommand{\textOmega}{PU}{\83\251}% U+03A9
% U+03AA GREEK CAPITAL LETTER IOTA WITH DIALYTIKA; Iotadieresis
\DeclareTextCommand{\textIotadieresis}{PU}{\83\252}% U+03AA
\DeclareTextCompositeCommand{\"}{PU}{\textIota}{\83\252}% U+03AA
% U+03AB GREEK CAPITAL LETTER UPSILON WITH DIALYTIKA; Upsilondieresis
\DeclareTextCompositeCommand{\"}{PU}{\textUpsilon}{\83\253}% U+03AB
% U+03AC GREEK SMALL LETTER ALPHA WITH TONOS; alphatonos
\DeclareTextCompositeCommand{\'}{PU}{\textalpha}{\83\254}% U+03AC
% U+03AD GREEK SMALL LETTER EPSILON WITH TONOS; epsilontonos
\DeclareTextCompositeCommand{\'}{PU}{\textepsilon}{\83\255}% U+03AD
% U+03AE GREEK SMALL LETTER ETA WITH TONOS; etatonos
\DeclareTextCompositeCommand{\'}{PU}{\texteta}{\83\256}% U+03AE
% U+03AF GREEK SMALL LETTER IOTA WITH TONOS; iotatonos
\DeclareTextCompositeCommand{\'}{PU}{\textiota}{\83\257}% U+03AF
% U+03B0 GREEK SMALL LETTER UPSILON WITH DIALYTIKA AND TONOS; upsilondieresisto
\DeclareTextCompositeCommand{\"}{PU}{\textupsilonacute}{\83\260}% U+03B0
% U+03B1 GREEK SMALL LETTER ALPHA; alpha
\DeclareTextCommand{\textalpha}{PU}{\83\261}% U+03B1
% U+03B2 GREEK SMALL LETTER BETA; beta
\DeclareTextCommand{\textbeta}{PU}{\83\262}% U+03B2
% U+03B3 GREEK SMALL LETTER GAMMA; gamma
\DeclareTextCommand{\textgamma}{PU}{\83\263}% U+03B3
% U+03B4 GREEK SMALL LETTER DELTA; delta
\DeclareTextCommand{\textdelta}{PU}{\83\264}% U+03B4
% U+03B5 GREEK SMALL LETTER EPSILON; epsilon
\DeclareTextCommand{\textepsilon}{PU}{\83\265}% U+03B5
% U+03B6 GREEK SMALL LETTER ZETA; zeta
\DeclareTextCommand{\textzeta}{PU}{\83\266}% U+03B6
% U+03B7 GREEK SMALL LETTER ETA; eta
\DeclareTextCommand{\texteta}{PU}{\83\267}% U+03B7
% U+03B8 GREEK SMALL LETTER THETA; theta
\DeclareTextCommand{\texttheta}{PU}{\83\270}% U+03B8
% U+03B9 GREEK SMALL LETTER IOTA; iota
\DeclareTextCommand{\textiota}{PU}{\83\271}% U+03B9
% U+03BA GREEK SMALL LETTER KAPPA; kappa
\DeclareTextCommand{\textkappa}{PU}{\83\272}% U+03BA
% U+03BB GREEK SMALL LETTER LAMDA; lambda
\DeclareTextCommand{\textlambda}{PU}{\83\273}% U+03BB
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% U+03BC GREEK SMALL LETTER MU; mugreek, *mu
\DeclareTextCommand{\textmugreek}{PU}{\83\274}% U+03BC
% U+03BD GREEK SMALL LETTER NU; nu
\DeclareTextCommand{\textnu}{PU}{\83\275}% U+03BD
% U+03BE GREEK SMALL LETTER XI; xi
\DeclareTextCommand{\textxi}{PU}{\83\276}% U+03BE
% U+03BF GREEK SMALL LETTER OMICRON; omicron
\DeclareTextCommand{\textomicron}{PU}{\83\277}% U+03BF
% U+03C0 GREEK SMALL LETTER PI; pi
\DeclareTextCommand{\textpi}{PU}{\83\300}% U+03C0
% U+03C1 GREEK SMALL LETTER RHO; rho
\DeclareTextCommand{\textrho}{PU}{\83\301}% U+03C1
% U+03C2 GREEK SMALL LETTER FINAL SIGMA; *sigma1, sigmafinal
\DeclareTextCommand{\textvarsigma}{PU}{\83\302}% U+03C2
% U+03C3 GREEK SMALL LETTER SIGMA; sigma
\DeclareTextCommand{\textsigma}{PU}{\83\303}% U+03C3
% U+03C4 GREEK SMALL LETTER TAU; tau
\DeclareTextCommand{\texttau}{PU}{\83\304}% U+03C4
% U+03C5 GREEK SMALL LETTER UPSILON; upsilon
\DeclareTextCommand{\textupsilon}{PU}{\83\305}% U+03C5
% U+03C6 GREEK SMALL LETTER PHI; phi
\DeclareTextCommand{\textphi}{PU}{\83\306}% U+03C6
% U+03C7 GREEK SMALL LETTER CHI; chi
\DeclareTextCommand{\textchi}{PU}{\83\307}% U+03C7
% U+03C8 GREEK SMALL LETTER PSI; psi
\DeclareTextCommand{\textpsi}{PU}{\83\310}% U+03C8
% U+03C9 GREEK SMALL LETTER OMEGA; omega
\DeclareTextCommand{\textomega}{PU}{\83\311}% U+03C9
% U+03CA GREEK SMALL LETTER IOTA WITH DIALYTIKA; iotadieresis
\DeclareTextCompositeCommand{\"}{PU}{\textiota}{\83\312}% U+03CA
% U+03CB GREEK SMALL LETTER UPSILON WITH DIALYTIKA; upsilondieresis
\DeclareTextCompositeCommand{\"}{PU}{\textupsilon}{\83\313}% U+03CB
% U+03CC GREEK SMALL LETTER OMICRON WITH TONOS; omicrontonos
\DeclareTextCompositeCommand{\'}{PU}{\textomicron}{\83\314}% U+03CC
% U+03CD GREEK SMALL LETTER UPSILON WITH TONOS; upsilontonos
\DeclareTextCommand{\textupsilonacute}{PU}{\83\315}% U+03CD
\DeclareTextCompositeCommand{\'}{PU}{\textupsilon}{\83\315}% U+03CD
% U+03CE GREEK SMALL LETTER OMEGA WITH TONOS; omegatonos
\DeclareTextCompositeCommand{\'}{PU}{\textomega}{\83\316}% U+03CE
% U+03DA GREEK LETTER STIGMA; Stigmagreek
\DeclareTextCommand{\textStigmagreek}{PU}{\83\332}% U+03DA
% U+03DB GREEK SMALL LETTER STIGMA
\DeclareTextCommand{\textstigmagreek}{PU}{\83\333}% U+03DB
% U+03DC GREEK LETTER DIGAMMA; Digammagreek
\DeclareTextCommand{\textDigammagreek}{PU}{\83\334}% U+03DC
% U+03DD GREEK SMALL LETTER DIGAMMA
\DeclareTextCommand{\textdigammagreek}{PU}{\83\335}% U+03DD
% U+03DE GREEK LETTER KOPPA; Koppagreek
\DeclareTextCommand{\textKoppagreek}{PU}{\83\336}% U+03DE
% U+03DF GREEK SMALL LETTER KOPPA
\DeclareTextCommand{\textkoppagreek}{PU}{\83\337}% U+03DF
% U+03E0 GREEK LETTER SAMPI; Sampigreek
\DeclareTextCommand{\textSampigreek}{PU}{\83\340}% U+03E0
% U+03E1 GREEK SMALL LETTER SAMPI
\DeclareTextCommand{\textsampigreek}{PU}{\83\341}% U+03E1
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50.2.9 Cyrillic: U+0400 to U+04FF

Thanks to Vladimir Volovich (vvv@vvv.vsu.ru) for the help with the Cyrillic glyph names.

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% U+0400 CYRILLIC CAPITAL LETTER IE WITH GRAVE
\DeclareTextCompositeCommand{\‘}{PU}{\CYRE}{\84\000}% U+0400
% U+0401 CYRILLIC CAPITAL LETTER IO; Iocyrillic, *afii10023
\DeclareTextCommand{\CYRYO}{PU}{\84\001}% U+0401
\DeclareTextCompositeCommand{\”}{PU}{\CYRE}{\84\001}% ???
% U+0402 CYRILLIC CAPITAL LETTER DJE; Djecyrillic, *afii10051
\DeclareTextCommand{\CYRDJE}{PU}{\84\002}% U+0402
% U+0403 CYRILLIC CAPITAL LETTER GJE; Gjecyrillic, *afii10052
\DeclareTextCompositeCommand{\’}{PU}{\CYRG}{\84\003}% U+0403
% U+0404 CYRILLIC CAPITAL LETTER UKRAINIAN IE; Ecyrillic, *afii10053
\DeclareTextCommand{\CYRIE}{PU}{\84\004}% U+0404
% U+0405 CYRILLIC CAPITAL LETTER DZE; Dzecyrillic, *afii10054
\DeclareTextCommand{\CYRDZE}{PU}{\84\005}% U+0405
% U+0406 CYRILLIC CAPITAL LETTER BYELORUSSIAN-UKRAINIAN I; Icyrillic, *afii10055
\DeclareTextCommand{\CYRII}{PU}{\84\006}% U+0406
% U+0407 CYRILLIC CAPITAL LETTER YI; Yicyrillic, *afii10056
\DeclareTextCommand{\CYRYI}{PU}{\84\007}% U+0407
\DeclareTextCompositeCommand{\”}{PU}{\CYRII}{\84\007}% U+0407
% U+0408 CYRILLIC CAPITAL LETTER JE; Jecyrillic, *afii10057
\DeclareTextCommand{\CYRJE}{PU}{\84\010}% U+0408
% U+0409 CYRILLIC CAPITAL LETTER LJE; Ljecyrillic, *afii10058
\DeclareTextCommand{\CYRLJE}{PU}{\84\011}% U+0409
% U+040A CYRILLIC CAPITAL LETTER NJE; Njecyrillic, *afii10059
\DeclareTextCommand{\CYRNJE}{PU}{\84\012}% U+040A
% U+040B CYRILLIC CAPITAL LETTER TSHE; Tshecyrillic, *afii10060
\DeclareTextCommand{\CYRTSHE}{PU}{\84\013}% U+040B
% U+040C CYRILLIC CAPITAL LETTER KJE; Kjecyrillic, *afii10061
\DeclareTextCompositeCommand{\’}{PU}{\CYRK}{\84\014}% U+040C
% U+040D CYRILLIC CAPITAL LETTER I WITH GRAVE
\DeclareTextCompositeCommand{\‘}{PU}{\CYRI}{\84\015}% U+040D
% U+040E CYRILLIC CAPITAL LETTER SHORT U; Ushortcyrillic, *afii10062
\DeclareTextCommand{\CYRUSHRT}{PU}{\84\016}% U+040E
\DeclareTextCompositeCommand{\U}{PU}{\CYRU}{\84\016}% U+040E
% U+040F CYRILLIC CAPITAL LETTER DZHE; Dzhecyrillic, *afii10145
\DeclareTextCommand{\CYRDZHE}{PU}{\84\017}% U+040F
% U+0410 CYRILLIC CAPITAL LETTER A; Acyrillic, *afii10017
\DeclareTextCommand{\CYRA}{PU}{\84\020}% U+0410
% U+0411 CYRILLIC CAPITAL LETTER BE; Becyrillic, *afii10018
\DeclareTextCommand{\CYRB}{PU}{\84\021}% U+0411
% U+0412 CYRILLIC CAPITAL LETTER VE; Vecyrillic, *afii10019
\DeclareTextCommand{\CYRV}{PU}{\84\022}% U+0412
% U+0413 CYRILLIC CAPITAL LETTER GHE; Gecyrillic, *afii10020
\DeclareTextCommand{\CYRG}{PU}{\84\023}% U+0413
% U+0414 CYRILLIC CAPITAL LETTER DE; Decyrillic, *afii10021
\DeclareTextCommand{\CYRD}{PU}{\84\024}% U+0414
% U+0415 CYRILLIC CAPITAL LETTER IE; Iecyrillic, *afii10022
\DeclareTextCommand{\CYRE}{PU}{\84\025}% U+0415
% U+0416 CYRILLIC CAPITAL LETTER ZHE; Zhecyrillic, *afii10024
\DeclareTextCommand{\CYRZH}{PU}{\84\026}% U+0416
% U+0417 CYRILLIC CAPITAL LETTER ZE; Zecyrillic, *afii10025
\DeclareTextCommand{\CYRZ}{PU}{\84\027}% U+0417
% U+0418 CYRILLIC CAPITAL LETTER I; Iicyrillic, *afii10026
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\DeclareTextCommand{\CYRI}{PU}{\84\030}% U+0418
% U+0419 CYRILLIC CAPITAL LETTER SHORT I; Iishortcyrillic, *afii10027
\DeclareTextCommand{\CYRISHRT}{PU}{\84\031}% U+0419
\DeclareTextCompositeCommand{\U}{PU}{\CYRI}{\84\031}% U+0419
% U+041A CYRILLIC CAPITAL LETTER KA; Kacyrillic, *afii10028
\DeclareTextCommand{\CYRK}{PU}{\84\032}% U+041A
% U+041B CYRILLIC CAPITAL LETTER EL; Elcyrillic, *afii10029
\DeclareTextCommand{\CYRL}{PU}{\84\033}% U+041B
% U+041C CYRILLIC CAPITAL LETTER EM; Emcyrillic, *afii10030
\DeclareTextCommand{\CYRM}{PU}{\84\034}% U+041C
% U+041D CYRILLIC CAPITAL LETTER EN; Encyrillic, *afii10031
\DeclareTextCommand{\CYRN}{PU}{\84\035}% U+041D
% U+041E CYRILLIC CAPITAL LETTER O; Ocyrillic, *afii10032
\DeclareTextCommand{\CYRO}{PU}{\84\036}% U+041E
% U+041F CYRILLIC CAPITAL LETTER PE; Pecyrillic, *afii10033
\DeclareTextCommand{\CYRP}{PU}{\84\037}% U+041F
% U+0420 CYRILLIC CAPITAL LETTER ER; Ercyrillic, *afii10034
\DeclareTextCommand{\CYRR}{PU}{\84\040}% U+0420
% U+0421 CYRILLIC CAPITAL LETTER ES; Escyrillic, *afii10035
\DeclareTextCommand{\CYRS}{PU}{\84\041}% U+0421
% U+0422 CYRILLIC CAPITAL LETTER TE; Tecyrillic, *afii10036
\DeclareTextCommand{\CYRT}{PU}{\84\042}% U+0422
% U+0423 CYRILLIC CAPITAL LETTER U; Ucyrillic, *afii10037
\DeclareTextCommand{\CYRU}{PU}{\84\043}% U+0423
% U+0424 CYRILLIC CAPITAL LETTER EF; Efcyrillic, *afii10038
\DeclareTextCommand{\CYRF}{PU}{\84\044}% U+0424
% U+0425 CYRILLIC CAPITAL LETTER HA; Khacyrillic, *afii10039
\DeclareTextCommand{\CYRH}{PU}{\84\045}% U+0425
% U+0426 CYRILLIC CAPITAL LETTER TSE; Tsecyrillic, *afii10040
\DeclareTextCommand{\CYRC}{PU}{\84\046}% U+0426
% U+0427 CYRILLIC CAPITAL LETTER CHE; Checyrillic, *afii10041
\DeclareTextCommand{\CYRCH}{PU}{\84\047}% U+0427
% U+0428 CYRILLIC CAPITAL LETTER SHA; Shacyrillic, *afii10042
\DeclareTextCommand{\CYRSH}{PU}{\84\050}% U+0428
% U+0429 CYRILLIC CAPITAL LETTER SHCHA; Shchacyrillic, *afii10043
\DeclareTextCommand{\CYRSHCH}{PU}{\84\051}% U+0429
% U+042A CYRILLIC CAPITAL LETTER HARD SIGN; Hardsigncyrillic, *afii10044
\DeclareTextCommand{\CYRHRDSN}{PU}{\84\052}% U+042A
% U+042B CYRILLIC CAPITAL LETTER YERU; Yericyrillic, *afii10045
\DeclareTextCommand{\CYRERY}{PU}{\84\053}% U+042B
% U+042C CYRILLIC CAPITAL LETTER SOFT SIGN; Softsigncyrillic, *afii10046
\DeclareTextCommand{\CYRSFTSN}{PU}{\84\054}% U+042C
% U+042D CYRILLIC CAPITAL LETTER E; Ereversedcyrillic, *afii10047
\DeclareTextCommand{\CYREREV}{PU}{\84\055}% U+042D
% U+042E CYRILLIC CAPITAL LETTER YU; IUcyrillic, *afii10048
\DeclareTextCommand{\CYRYU}{PU}{\84\056}% U+042E
% U+042F CYRILLIC CAPITAL LETTER YA; IAcyrillic, *afii10049
\DeclareTextCommand{\CYRYA}{PU}{\84\057}% U+042F
% U+0430 CYRILLIC SMALL LETTER A; acyrillic, *afii10065
\DeclareTextCommand{\cyra}{PU}{\84\060}% U+0430
% U+0431 CYRILLIC SMALL LETTER BE; *afii10066, becyrillic
\DeclareTextCommand{\cyrb}{PU}{\84\061}% U+0431
% U+0432 CYRILLIC SMALL LETTER VE; *afii10067, vecyrillic
\DeclareTextCommand{\cyrv}{PU}{\84\062}% U+0432
% U+0433 CYRILLIC SMALL LETTER GHE; *afii10068, gecyrillic
\DeclareTextCommand{\cyrg}{PU}{\84\063}% U+0433
% U+0434 CYRILLIC SMALL LETTER DE; *afii10069, decyrillic
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\DeclareTextCommand{\cyrd}{PU}{\84\064}% U+0434
% U+0435 CYRILLIC SMALL LETTER IE; *afii10070, iecyrillic
\DeclareTextCommand{\cyre}{PU}{\84\065}% U+0435
% U+0436 CYRILLIC SMALL LETTER ZHE; *afii10072, zhecyrillic
\DeclareTextCommand{\cyrzh}{PU}{\84\066}% U+0436
% U+0437 CYRILLIC SMALL LETTER ZE; *afii10073, zecyrillic
\DeclareTextCommand{\cyrz}{PU}{\84\067}% U+0437
% U+0438 CYRILLIC SMALL LETTER I; *afii10074, iicyrillic
\DeclareTextCommand{\cyri}{PU}{\84\070}% U+0438
% U+0439 CYRILLIC SMALL LETTER SHORT I; *afii10075, iishortcyrillic
\DeclareTextCommand{\cyrishrt}{PU}{\84\071}% U+0439
\DeclareTextCompositeCommand{\U}{PU}{\cyri}{\84\071}% U+0439
% U+043A CYRILLIC SMALL LETTER KA; *afii10076, kacyrillic
\DeclareTextCommand{\cyrk}{PU}{\84\072}% U+043A
% U+043B CYRILLIC SMALL LETTER EL; *afii10077, elcyrillic
\DeclareTextCommand{\cyrl}{PU}{\84\073}% U+043B
% U+043C CYRILLIC SMALL LETTER EM; *afii10078, emcyrillic
\DeclareTextCommand{\cyrm}{PU}{\84\074}% U+043C
% U+043D CYRILLIC SMALL LETTER EN; *afii10079, encyrillic
\DeclareTextCommand{\cyrn}{PU}{\84\075}% U+043D
% U+043E CYRILLIC SMALL LETTER O; *afii10080, ocyrillic
\DeclareTextCommand{\cyro}{PU}{\84\076}% U+043E
% U+043F CYRILLIC SMALL LETTER PE; *afii10081, pecyrillic
\DeclareTextCommand{\cyrp}{PU}{\84\077}% U+043F
% U+0440 CYRILLIC SMALL LETTER ER; *afii10082, ercyrillic
\DeclareTextCommand{\cyrr}{PU}{\84\100}% U+0440
% U+0441 CYRILLIC SMALL LETTER ES; *afii10083, escyrillic
\DeclareTextCommand{\cyrs}{PU}{\84\101}% U+0441
% U+0442 CYRILLIC SMALL LETTER TE; *afii10084, tecyrillic
\DeclareTextCommand{\cyrt}{PU}{\84\102}% U+0442
% U+0443 CYRILLIC SMALL LETTER U; *afii10085, ucyrillic
\DeclareTextCommand{\cyru}{PU}{\84\103}% U+0443
% U+0444 CYRILLIC SMALL LETTER EF; *afii10086, efcyrillic
\DeclareTextCommand{\cyrf}{PU}{\84\104}% U+0444
% U+0445 CYRILLIC SMALL LETTER HA; *afii10087, khacyrillic
\DeclareTextCommand{\cyrh}{PU}{\84\105}% U+0445
% U+0446 CYRILLIC SMALL LETTER TSE; *afii10088, tsecyrillic
\DeclareTextCommand{\cyrc}{PU}{\84\106}% U+0446
% U+0447 CYRILLIC SMALL LETTER CHE; *afii10089, checyrillic
\DeclareTextCommand{\cyrch}{PU}{\84\107}% U+0447
% U+0448 CYRILLIC SMALL LETTER SHA; *afii10090, shacyrillic
\DeclareTextCommand{\cyrsh}{PU}{\84\110}% U+0448
% U+0449 CYRILLIC SMALL LETTER SHCHA; *afii10091, shchacyrillic
\DeclareTextCommand{\cyrshch}{PU}{\84\111}% U+0449
% U+044A CYRILLIC SMALL LETTER HARD SIGN; *afii10092, hardsigncyril-
    lic
\DeclareTextCommand{\cyrhrdsn}{PU}{\84\112}% U+044A
% U+044B CYRILLIC SMALL LETTER YERU; *afii10093, yericyrillic
\DeclareTextCommand{\cyrery}{PU}{\84\113}% U+044B
% U+044C CYRILLIC SMALL LETTER SOFT SIGN; *afii10094, softsigncyrillic
\DeclareTextCommand{\cyrsftsn}{PU}{\84\114}% U+044C
% U+044D CYRILLIC SMALL LETTER E; *afii10095, ereversedcyrillic
\DeclareTextCommand{\cyrerev}{PU}{\84\115}% U+044D
% U+044E CYRILLIC SMALL LETTER YU; *afii10096, iucyrillic
\DeclareTextCommand{\cyryu}{PU}{\84\116}% U+044E
% U+044F CYRILLIC SMALL LETTER YA; *afii10097, iacyrillic
\DeclareTextCommand{\cyrya}{PU}{\84\117}% U+044F
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% U+0450 CYRILLIC SMALL LETTER IE WITH GRAVE
\DeclareTextCompositeCommand{\‘}{PU}{\cyre}{\84\120}% U+0450
% U+0451 CYRILLIC SMALL LETTER IO; *afii10071, iocyrillic
\DeclareTextCommand{\cyryo}{PU}{\84\121}% U+0451
\DeclareTextCompositeCommand{\”}{PU}{\cyre}{\84\121}% U+0451
% U+0452 CYRILLIC SMALL LETTER DJE; *afii10099, djecyrillic
\DeclareTextCommand{\cyrdje}{PU}{\84\122}% U+0452
% U+0453 CYRILLIC SMALL LETTER GJE; *afii10100, gjecyrillic
\DeclareTextCompositeCommand{\’}{PU}{\cyrg}{\84\123}% U+0453
% U+0454 CYRILLIC SMALL LETTER UKRAINIAN IE; *afii10101, ecyrillic
\DeclareTextCommand{\cyrie}{PU}{\84\124}% U+0454
% U+0455 CYRILLIC SMALL LETTER DZE; *afii10102, dzecyrillic
\DeclareTextCommand{\cyrdze}{PU}{\84\125}% U+0455
% U+0456 CYRILLIC SMALL LETTER BYELORUSSIAN-UKRAINIAN I; *afii10103, icyrillic
\DeclareTextCommand{\cyrii}{PU}{\84\126}% U+0456
% U+0457 CYRILLIC SMALL LETTER YI; *afii10104, yicyrillic
\DeclareTextCommand{\cyryi}{PU}{\84\127}% U+0457
\DeclareTextCompositeCommand{\”}{PU}{\cyrii}{\84\127}% U+0457
% U+0458 CYRILLIC SMALL LETTER JE; *afii10105, jecyrillic
\DeclareTextCommand{\cyrje}{PU}{\84\130}% U+0458
% U+0459 CYRILLIC SMALL LETTER LJE; *afii10106, ljecyrillic
\DeclareTextCommand{\cyrlje}{PU}{\84\131}% U+0459
% U+045A CYRILLIC SMALL LETTER NJE; *afii10107, njecyrillic
\DeclareTextCommand{\cyrnje}{PU}{\84\132}% U+045A
% U+045B CYRILLIC SMALL LETTER TSHE; *afii10108, tshecyrillic
\DeclareTextCommand{\cyrtshe}{PU}{\84\133}% U+045B
% U+045C CYRILLIC SMALL LETTER KJE; *afii10109, kjecyrillic
\DeclareTextCompositeCommand{\’}{PU}{\cyrk}{\84\134}% U+045C
% U+045D CYRILLIC SMALL LETTER I WITH GRAVE
\DeclareTextCompositeCommand{\‘}{PU}{\cyri}{\84\135}% U+045D
% U+045E CYRILLIC SMALL LETTER SHORT U; *afii10110, ushortcyrillic
\DeclareTextCommand{\cyrushrt}{PU}{\84\136}% U+045E
\DeclareTextCompositeCommand{\U}{PU}{\curu}{\84\136}% U+045E
% U+045F CYRILLIC SMALL LETTER DZHE; *afii10193, dzhecyrillic
\DeclareTextCommand{\cyrdzhe}{PU}{\84\137}% U+045F
% U+0460 CYRILLIC CAPITAL LETTER OMEGA; Omegacyrillic
\DeclareTextCommand{\CYROMEGA}{PU}{\84\140}% U+0460
% U+0461 CYRILLIC SMALL LETTER OMEGA; omegacyrillic
\DeclareTextCommand{\cyromega}{PU}{\84\141}% U+0461
% U+0462 CYRILLIC CAPITAL LETTER YAT; Yatcyrillic, *afii10146
\DeclareTextCommand{\CYRYAT}{PU}{\84\142}% U+0462
% U+0463 CYRILLIC SMALL LETTER YAT; *afii10194, yatcyrillic
\DeclareTextCommand{\cyryat}{PU}{\84\143}% U+0463
% U+0464 CYRILLIC CAPITAL LETTER IOTIFIED E; Eiotifiedcyrillic
\DeclareTextCommand{\CYRIOTE}{PU}{\84\144}% U+0464
% U+0465 CYRILLIC SMALL LETTER IOTIFIED E; eiotifiedcyrillic
\DeclareTextCommand{\cyriote}{PU}{\84\145}% U+0465
% U+0466 CYRILLIC CAPITAL LETTER LITTLE YUS; Yuslittlecyrillic
\DeclareTextCommand{\CYRLYUS}{PU}{\84\146}% U+0466
% U+0467 CYRILLIC SMALL LETTER LITTLE YUS; yuslittlecyrillic
\DeclareTextCommand{\cyrlyus}{PU}{\84\147}% U+0467
% U+0468 CYRILLIC CAPITAL LETTER IOTIFIED LITTLE YUS; Yuslittleiotifiedcyrillic
\DeclareTextCommand{\CYRIOTLYUS}{PU}{\84\150}% U+0468
% U+0469 CYRILLIC SMALL LETTER IOTIFIED LITTLE YUS; yuslittleiotifiedcyrillic
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\DeclareTextCommand{\cyriotlyus}{PU}{\84\151}% U+0469
% U+046A CYRILLIC CAPITAL LETTER BIG YUS; Yusbigcyrillic
\DeclareTextCommand{\CYRBYUS}{PU}{\84\152}% U+046A
% U+046B CYRILLIC SMALL LETTER BIG YUS; yusbigcyrillic
\DeclareTextCommand{\cyrbyus}{PU}{\84\153}% U+046B
% U+046C CYRILLIC CAPITAL LETTER IOTIFIED BIG YUS; Yusbigiotified-
  cyrillic
\DeclareTextCommand{\CYRIOTBYUS}{PU}{\84\154}% U+046C
% U+046D CYRILLIC SMALL LETTER IOTIFIED BIG YUS; yusbigiotified-
  cyrillic
\DeclareTextCommand{\cyriotbyus}{PU}{\84\155}% U+046D
% U+046E CYRILLIC CAPITAL LETTER KSI; Ksicyrillic
\DeclareTextCommand{\CYRKSI}{PU}{\84\156}% U+046E
% U+046F CYRILLIC SMALL LETTER KSI; ksicyrillic
\DeclareTextCommand{\cyrksi}{PU}{\84\157}% U+046F
% U+0470 CYRILLIC CAPITAL LETTER PSI; Psicyrillic
\DeclareTextCommand{\CYRPSI}{PU}{\84\160}% U+0470
% U+0471 CYRILLIC SMALL LETTER PSI; psicyrillic
\DeclareTextCommand{\cyrpsi}{PU}{\84\161}% U+0471
% U+0472 CYRILLIC CAPITAL LETTER FITA; Fitacyrillic, *afii10147
\DeclareTextCommand{\CYRFITA}{PU}{\84\162}% U+0472
% U+0473 CYRILLIC SMALL LETTER FITA; *afii10195, fitacyrillic
\DeclareTextCommand{\cyrfita}{PU}{\84\163}% U+0473
% U+0474 CYRILLIC CAPITAL LETTER IZHITSA; Izhitsacyrillic, *afii10148
\DeclareTextCommand{\CYRIZH}{PU}{\84\164}% U+0474
% U+0475 CYRILLIC SMALL LETTER IZHITSA; *afii10196, izhitsacyrillic
\DeclareTextCommand{\cyrizh}{PU}{\84\165}% U+0475
% U+0476 CYRILLIC CAPITAL LETTER IZHITSA WITH DOUBLE GRAVE AC-
  CENT; Izhitsadblgravecyrillic
\DeclareTextCompositeCommand{\C}{PU}{\CYRIZH}{\84\166}% U+0476
% U+0477 CYRILLIC SMALL LETTER IZHITSA WITH DOUBLE GRAVE AC-
  CENT; izhitsadblgravecyrillic
\DeclareTextCompositeCommand{\C}{PU}{\cyrizh}{\84\167}% U+0477
% U+0478 CYRILLIC CAPITAL LETTER UK; Ukcyrillic
\DeclareTextCommand{\CYRUK}{PU}{\84\170}% U+0478
% U+0479 CYRILLIC SMALL LETTER UK; ukcyrillic
\DeclareTextCommand{\cyruk}{PU}{\84\171}% U+0479
% U+047A CYRILLIC CAPITAL LETTER ROUND OMEGA; Omegaroundcyril-
  lic
\DeclareTextCommand{\CYROMEGARND}{PU}{\84\172}% U+047A
% U+047B CYRILLIC SMALL LETTER ROUND OMEGA; omegaroundcyrillic
\DeclareTextCommand{\cyromegarnd}{PU}{\84\173}% U+047B
% U+047C CYRILLIC CAPITAL LETTER OMEGA WITH TITLO; Omegatit-
  locyrillic
\DeclareTextCommand{\CYROMEGATITLO}{PU}{\84\174}% U+047C
% U+047D CYRILLIC SMALL LETTER OMEGA WITH TITLO; omegatitlo-
  cyrillic
\DeclareTextCommand{\cyromegatitlo}{PU}{\84\175}% U+047D
% U+047E CYRILLIC CAPITAL LETTER OT; Otcyrillic
\DeclareTextCommand{\CYROT}{PU}{\84\176}% U+047E
% U+047F CYRILLIC SMALL LETTER OT; otcyrillic
\DeclareTextCommand{\cyrot}{PU}{\84\177}% U+047F
% U+0480 CYRILLIC CAPITAL LETTER KOPPA; Koppacyrillic
\DeclareTextCommand{\CYRKOPPA}{PU}{\84\200}% U+0480
% U+0481 CYRILLIC SMALL LETTER KOPPA; koppacyrillic
\DeclareTextCommand{\cyrkoppa}{PU}{\84\201}% U+0481
% U+0482 CYRILLIC THOUSANDS SIGN; thousandcyrillic
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\DeclareTextCommand{\cyrthousands}{PU}{\84\202}% U+0482
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\84\203: U+0483 COMBINING CYRILLIC TITLO; titlocyrilliccmb
\84\204: U+0484 COMBINING CYRILLIC PALATALIZATION; palatalizationcyrilliccmb
\84\205: U+0485 COMBINING CYRILLIC DASIA PNEUMATA; dasiapneumatacyrilliccmb
\84\206: U+0486 COMBINING CYRILLIC PSILI PNEUMATA; psilipneumatacyrilliccmb
\84\207: U+0487 COMBINING CYRILLIC POKRYTIE
\84\210: U+0488 COMBINING CYRILLIC HUNDRED THOUSANDS SIGN
\84\211: U+0489 COMBINING CYRILLIC MILLIONS SIGN
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% U+048A CYRILLIC CAPITAL LETTER SHORT I WITH TAIL
\DeclareTextCommand{\CYRISHRTDSC}{PU}{\84\212}% U+048A
% U+048B CYRILLIC SMALL LETTER SHORT I WITH TAIL
\DeclareTextCommand{\cyrishrtdsc}{PU}{\84\213}% U+048B
% U+048C CYRILLIC CAPITAL LETTER SEMISOFT SIGN
\DeclareTextCommand{\CYRSEMISFTSN}{PU}{\84\214}% U+048C
% U+048D CYRILLIC SMALL LETTER SEMISOFT SIGN
\DeclareTextCommand{\cyrsemisftsn}{PU}{\84\215}% U+048D
% U+048E CYRILLIC CAPITAL LETTER ER WITH TICK
\DeclareTextCommand{\CYRRTICK}{PU}{\84\216}% U+048E
% U+048F CYRILLIC SMALL LETTER ER WITH TICK
\DeclareTextCommand{\cyrrtick}{PU}{\84\217}% U+048F
% U+0490 CYRILLIC CAPITAL LETTER GHE WITH UPTURN; Gheupturncyrillic, *afii10050
\DeclareTextCommand{\CYRGUP}{PU}{\84\220}% U+0490
% U+0491 CYRILLIC SMALL LETTER GHE WITH UPTURN; *afii10098, gheupturncyrillic
\DeclareTextCommand{\cyrgup}{PU}{\84\221}% U+0491
% U+0492 CYRILLIC CAPITAL LETTER GHE WITH STROKE; Ghestrokecyrillic
\DeclareTextCommand{\CYRGHCRS}{PU}{\84\222}% U+0492
% U+0493 CYRILLIC SMALL LETTER GHE WITH STROKE; ghestrokecyrillic
\DeclareTextCommand{\cyrghcrs}{PU}{\84\223}% U+0493
% U+0494 CYRILLIC CAPITAL LETTER GHE WITH MIDDLE HOOK; Ghemiddlehookcyrillic
\DeclareTextCommand{\CYRGHK}{PU}{\84\224}% U+0494
% U+0495 CYRILLIC SMALL LETTER GHE WITH MIDDLE HOOK; ghemiddlehookcyrillic
\DeclareTextCommand{\cyrghk}{PU}{\84\225}% U+0495
% U+0496 CYRILLIC CAPITAL LETTER ZHE WITH DESCENDER; Zhedescendercyrillic
\DeclareTextCommand{\CYRZHDSC}{PU}{\84\226}% U+0496
% U+0497 CYRILLIC SMALL LETTER ZHE WITH DESCENDER; zhedescendercyrillic
\DeclareTextCommand{\cyrzhdsc}{PU}{\84\227}% U+0497
% U+0498 CYRILLIC CAPITAL LETTER ZE WITH DESCENDER; Zedescendercyrillic
\DeclareTextCommand{\CYRZDSC}{PU}{\84\230}% U+0498
\DeclareTextCompositeCommand{\c}{PU}{\CYRZ}{\84\230}% U+0498
% U+0499 CYRILLIC SMALL LETTER ZE WITH DESCENDER; zedescendercyrillic
\DeclareTextCommand{\cyrzdsc}{PU}{\84\231}% U+0499
\DeclareTextCompositeCommand{\c}{PU}{\cyrz}{\84\231}% U+0499
% U+049A CYRILLIC CAPITAL LETTER KA WITH DESCENDER; Kadescendercyrillic
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\DeclareTextCommand{\CYRKDSC}{PU}{\84\232}% U+049A
% U+049B CYRILLIC SMALL LETTER KA WITH DESCENDER; kadescendercyrillic
\DeclareTextCommand{\cyrkdsc}{PU}{\84\233}% U+049B
% U+049C CYRILLIC CAPITAL LETTER KA WITH VERTICAL STROKE; Kaverticalstrokecyrillic
\DeclareTextCommand{\CYRKVCRS}{PU}{\84\234}% U+049C
% U+049D CYRILLIC SMALL LETTER KA WITH VERTICAL STROKE; kaverticalstrokecyrillic
\DeclareTextCommand{\cyrkvcrs}{PU}{\84\235}% U+049D
% U+049E CYRILLIC CAPITAL LETTER KA WITH STROKE; Kastrokecyrillic
\DeclareTextCommand{\CYRKHCRS}{PU}{\84\236}% U+049E
% U+049F CYRILLIC SMALL LETTER KA WITH STROKE; kastrokecyrillic
\DeclareTextCommand{\cyrkhcrs}{PU}{\84\237}% U+049F
% U+04A0 CYRILLIC CAPITAL LETTER BASHKIR KA; Kabashkircyrillic
\DeclareTextCommand{\CYRKBEAK}{PU}{\84\240}% U+04A0
% U+04A1 CYRILLIC SMALL LETTER BASHKIR KA; kabashkircyrillic
\DeclareTextCommand{\cyrkbeak}{PU}{\84\241}% U+04A1
% U+04A2 CYRILLIC CAPITAL LETTER EN WITH DESCENDER; Endescendercyrillic
\DeclareTextCommand{\CYRNDSC}{PU}{\84\242}% U+04A2
% U+04A3 CYRILLIC SMALL LETTER EN WITH DESCENDER; endescendercyrillic
\DeclareTextCommand{\cyrndsc}{PU}{\84\243}% U+04A3
% U+04A4 CYRILLIC CAPITAL LIGATURE EN GHE; Enghecyrillic
\DeclareTextCommand{\CYRNG}{PU}{\84\244}% U+04A4
% U+04A5 CYRILLIC SMALL LIGATURE EN GHE; enghecyrillic
\DeclareTextCommand{\cyrng}{PU}{\84\245}% U+04A5
% U+04A6 CYRILLIC CAPITAL LETTER PE WITH MIDDLE HOOK; Pemiddlehookcyrillic
\DeclareTextCommand{\CYRPHK}{PU}{\84\246}% U+04A6
% U+04A7 CYRILLIC SMALL LETTER PE WITH MIDDLE HOOK; pemiddlehookcyrillic
\DeclareTextCommand{\cyrphk}{PU}{\84\247}% U+04A7
% U+04A8 CYRILLIC CAPITAL LETTER ABKHASIAN HA; Haabkhasiancyrillic
\DeclareTextCommand{\CYRABHHA}{PU}{\84\250}% U+04A8
% U+04A9 CYRILLIC SMALL LETTER ABKHASIAN HA; haabkhasiancyrillic
\DeclareTextCommand{\cyrabhha}{PU}{\84\251}% U+04A9
% U+04AA CYRILLIC CAPITAL LETTER ES WITH DESCENDER; Esdescendercyrillic
\DeclareTextCommand{\CYRSDSC}{PU}{\84\252}% U+04AA
\DeclareTextCompositeCommand{\CYRSDSC}{PU}{\CYRS}{\84\252}% U+04AA
% U+04AB CYRILLIC SMALL LETTER ES WITH DESCENDER; esdescendercyrillic
\DeclareTextCommand{\cyrsdsc}{PU}{\84\253}% U+04AB
\DeclareTextCompositeCommand{\k}{PU}{\cyrs}{\84\253}% U+04AB
% U+04AC CYRILLIC CAPITAL LETTER TE WITH DESCENDER; Tedescendercyrillic
\DeclareTextCommand{\CYRTDSC}{PU}{\84\254}% U+04AC
% U+04AD CYRILLIC SMALL LETTER TE WITH DESCENDER; tedescendercyrillic
\DeclareTextCommand{\cyrtdsc}{PU}{\84\255}% U+04AD
% U+04AE CYRILLIC CAPITAL LETTER STRAIGHT U; Ustraightcyrillic
\DeclareTextCommand{\CYRY}{PU}{\84\256}% U+04AE
% U+04AF CYRILLIC SMALL LETTER STRAIGHT U; ustraightcyrillic
\DeclareTextCommand{\cyry}{PU}{\84\257}% U+04AF
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% U+04B0 CYRILLIC CAPITAL LETTER STRAIGHT U WITH STROKE; Ustraightstrokecyrillic
\DeclareTextCommand{\CYRYHCRS}{PU}{\84\260}% U+04B0
% U+04B1 CYRILLIC SMALL LETTER STRAIGHT U WITH STROKE; ustraightstrokecyrillic
\DeclareTextCommand{\cyryhcrs}{PU}{\84\261}% U+04B1
% U+04B2 CYRILLIC CAPITAL LETTER HA WITH DESCENDER; Hadescendercyrillic
\DeclareTextCommand{\CYRHDSC}{PU}{\84\262}% U+04B2
% U+04B3 CYRILLIC SMALL LETTER HA WITH DESCENDER; hadescendercyrillic
\DeclareTextCommand{\cyrhdsc}{PU}{\84\263}% U+04B3
% U+04B4 CYRILLIC CAPITAL LIGATURE TE TSE; Tetsecyrillic
\DeclareTextCommand{\CYRTETSE}{PU}{\84\264}% U+04B4
% U+04B5 CYRILLIC SMALL LIGATURE TE TSE; tetsecyrillic
\DeclareTextCommand{\cyrtetse}{PU}{\84\265}% U+04B5
% U+04B6 CYRILLIC CAPITAL LETTER CHE WITH DESCENDER; Chedescendercyrillic
\DeclareTextCommand{\CYRCHRDSC}{PU}{\84\266}% U+04B6
% U+04B7 CYRILLIC SMALL LETTER CHE WITH DESCENDER; chedescendercyrillic
\DeclareTextCommand{\cyrchrdsc}{PU}{\84\267}% U+04B7
% U+04B8 CYRILLIC CAPITAL LETTER CHE WITH VERTICAL STROKE; Cheverticalstrokecyrillic
\DeclareTextCommand{\CYRCHVCRS}{PU}{\84\270}% U+04B8
% U+04B9 CYRILLIC SMALL LETTER CHE WITH VERTICAL STROKE; cheverticalstrokecyrillic
\DeclareTextCommand{\cyrchvcrs}{PU}{\84\271}% U+04B9
% U+04BA CYRILLIC CAPITAL LETTER SHHA; Shhacyrillic
\DeclareTextCommand{\CYRSHHA}{PU}{\84\272}% U+04BA
% U+04BB CYRILLIC SMALL LETTER SHHA; shhacyrillic
\DeclareTextCommand{\cyrshha}{PU}{\84\273}% U+04BB
% U+04BC CYRILLIC CAPITAL LETTER ABKHASIAN CHE; Cheabkhasiancyrillic
\DeclareTextCommand{\CYRABHCH}{PU}{\84\274}% U+04BC
% U+04BD CYRILLIC SMALL LETTER ABKHASIAN CHE; cheabkhasiancyrillic
\DeclareTextCommand{\cyrabhch}{PU}{\84\275}% U+04BD
% U+04BE CYRILLIC CAPITAL LETTER ABKHASIAN CHE WITH DESCENDER; Chedescenderabkhasiancyrillic
\DeclareTextCommand{\CYRABHCHDSC}{PU}{\84\276}% U+04BE
\DeclareTextCompositeCommand{\k}{PU}{\CYRABHCH}{\84\276}% U+04BE
% U+04BF CYRILLIC SMALL LETTER ABKHASIAN CHE WITH DESCENDER; chedescenderabkhasiancyrillic
\DeclareTextCommand{\cyrabhchdsc}{PU}{\84\277}% U+04BF
\DeclareTextCompositeCommand{\k}{PU}{\cyrabhch}{\84\277}% U+04BF
% U+04C0 CYRILLIC LETTER PALOCHKA; palochkacyrillic
\DeclareTextCommand{\CYRpalochka}{PU}{\84\300}% U+04C0
% U+04C1 CYRILLIC CAPITAL LETTER ZHE WITH BREVE; Zhebrevecyrillic
\DeclareTextCompositeCommand{\U}{PU}{\CYRZH}{\84\301}% U+04C1
% U+04C2 CYRILLIC SMALL LETTER ZHE WITH BREVE; zhebrevecyrillic
\DeclareTextCompositeCommand{\U}{PU}{\cyrzh}{\84\302}% U+04C2
% U+04C3 CYRILLIC CAPITAL LETTER KA WITH HOOK; Kahookcyrillic
\DeclareTextCommand{\CYRKHK}{PU}{\84\303}% U+04C3
% U+04C4 CYRILLIC SMALL LETTER KA WITH HOOK; kahookcyrillic
\DeclareTextCommand{\cyrkhk}{PU}{\84\304}% U+04C4
% U+04C5 CYRILLIC CAPITAL LETTER EL WITH TAIL
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\DeclareTextCommand{\CYRLDSC}{PU}{\84\305}% U+04C5
% U+04C6 CYRILLIC SMALL LETTER EL WITH TAIL
\DeclareTextCommand{\cyrldsc}{PU}{\84\306}% U+04C6
% U+04C7 CYRILLIC CAPITAL LETTER EN WITH HOOK; Enhookcyrillic
\DeclareTextCommand{\CYRNHK}{PU}{\84\307}% U+04C7
% U+04C8 CYRILLIC SMALL LETTER EN WITH HOOK; enhookcyrillic
\DeclareTextCommand{\cyrnhk}{PU}{\84\310}% U+04C8
% U+04CB CYRILLIC CAPITAL LETTER KHAKASSIAN CHE; Chekhakassiancyrillic
\DeclareTextCommand{\CYRCHLDSC}{PU}{\84\313}% U+04CB
% U+04CC CYRILLIC SMALL LETTER KHAKASSIAN CHE; chekhakassiancyrillic
\DeclareTextCommand{\cyrchldsc}{PU}{\84\314}% U+04CC
% U+04CD CYRILLIC CAPITAL LETTER EM WITH TAIL
\DeclareTextCommand{\CYRMDSC}{PU}{\84\315}% U+04CD
% U+04CE CYRILLIC SMALL LETTER EM WITH TAIL
\DeclareTextCommand{\cyrmdsc}{PU}{\84\316}% U+04CE
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\84\317: U+04CF CYRILLIC SMALL LETTER PALOCHKA

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% U+04D0 CYRILLIC CAPITAL LETTER A WITH BREVE; Abrevecyrillic
\DeclareTextCompositeCommand{\U}{PU}{\CYRA}{\84\320}% U+04D0
% U+04D1 CYRILLIC SMALL LETTER A WITH BREVE; abrevecyrillic
\DeclareTextCompositeCommand{\U}{PU}{\cyra}{\84\321}% U+04D1
% U+04D2 CYRILLIC CAPITAL LETTER A WITH DIAERESIS; Adieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\CYRA}{\84\322}% U+04D2
% U+04D3 CYRILLIC SMALL LETTER A WITH DIAERESIS; adieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\cyra}{\84\323}% U+04D3
% U+04D4 CYRILLIC CAPITAL LIGATURE A IE; Aiecyrillic
\DeclareTextCommand{\CYRAE}{PU}{\84\324}% U+04D4
% U+04D5 CYRILLIC SMALL LIGATURE A IE; aiecyrillic
\DeclareTextCommand{\cyrae}{PU}{\84\325}% U+04D5
% U+04D6 CYRILLIC CAPITAL LETTER IE WITH BREVE; Iebrevecyrillic
\DeclareTextCompositeCommand{\U}{PU}{\CYRE}{\84\326}% U+04D6
% U+04D7 CYRILLIC SMALL LETTER IE WITH BREVE; iebrevecyrillic
\DeclareTextCompositeCommand{\U}{PU}{\cyre}{\84\327}% U+04D7
% U+04D8 CYRILLIC CAPITAL LETTER SCHWA; Schwacyrillic
\DeclareTextCommand{\CYRSCHWA}{PU}{\84\330}% U+04D8
% U+04D9 CYRILLIC SMALL LETTER SCHWA; *afii10846, schwacyrillic
\DeclareTextCommand{\cyrschwa}{PU}{\84\331}% U+04D9
% U+04DA CYRILLIC CAPITAL LETTER SCHWA WITH DIAERESIS; Schwadieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\CYRSCHWA}{\84\332}% U+04DA
% U+04DB CYRILLIC SMALL LETTER SCHWA WITH DIAERESIS; schwadieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\cyrschwa}{\84\333}% U+04DB
% U+04DC CYRILLIC CAPITAL LETTER ZHE WITH DIAERESIS; Zhedieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\CYRZH}{\84\334}% U+04DC
% U+04DD CYRILLIC SMALL LETTER ZHE WITH DIAERESIS; zhedieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\cyrzh}{\84\335}% U+04DD
% U+04DE CYRILLIC CAPITAL LETTER ZE WITH DIAERESIS; Zedieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\CYRZ}{\84\336}% U+04DE
% U+04DF CYRILLIC SMALL LETTER ZE WITH DIAERESIS; zedieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\cyrz}{\84\337}% U+04DF
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% U+04E0 CYRILLIC CAPITAL LETTER ABKHASIAN DZE; Dzeabkhasiancyrillic
\DeclareTextCommand{\CYRABHDZE}{PU}{\84\340}% U+04E0
% U+04E1 CYRILLIC SMALL LETTER ABKHASIAN DZE; dzeabkhasiancyrillic
\DeclareTextCommand{\cyrabhdze}{PU}{\84\341}% U+04E1
% U+04E2 CYRILLIC CAPITAL LETTER I WITH MACRON; Imacroncyrillic
\DeclareTextCompositeCommand{\=}{PU}{\CYRI}{\84\342}% U+04E2
% U+04E3 CYRILLIC SMALL LETTER I WITH MACRON; imacroncyrillic
\DeclareTextCompositeCommand{\=}{PU}{\cyri}{\84\343}% U+04E3
% U+04E4 CYRILLIC CAPITAL LETTER I WITH DIAERESIS; Idieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\CYRI}{\84\344}% U+04E4
% U+04E5 CYRILLIC SMALL LETTER I WITH DIAERESIS; idieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\cyri}{\84\345}% U+04E5
% U+04E6 CYRILLIC CAPITAL LETTER O WITH DIAERESIS; Odieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\CYRO}{\84\346}% U+04E6
% U+04E7 CYRILLIC SMALL LETTER O WITH DIAERESIS; odieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\cyro}{\84\347}% U+04E7
% U+04E8 CYRILLIC CAPITAL LETTER BARRED O; Obarredcyrillic
\DeclareTextCommand{\CYROTLD}{PU}{\84\350}% U+04E8
% U+04E9 CYRILLIC SMALL LETTER BARRED O; obarredcyrillic
\DeclareTextCommand{\cyrotld}{PU}{\84\351}% U+04E9
% U+04EA CYRILLIC CAPITAL LETTER BARRED O WITH DIAERESIS; Obarreddieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\CYROTLD}{\84\352}% U+04EA
% U+04EB CYRILLIC SMALL LETTER BARRED O WITH DIAERESIS; obarreddieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\cyrotld}{\84\353}% U+04EB
% U+04EC CYRILLIC CAPITAL LETTER E WITH DIAERESIS
\DeclareTextCompositeCommand{\"}{PU}{\CYREREV}{\84\354}% U+04EC
% U+04ED CYRILLIC SMALL LETTER E WITH DIAERESIS
\DeclareTextCompositeCommand{\"}{PU}{\cyreref}{\84\355}% U+04ED
% U+04EE CYRILLIC CAPITAL LETTER U WITH MACRON; Umacroncyrillic
\DeclareTextCompositeCommand{\=}{PU}{\CYRU}{\84\356}% U+04EE
% U+04EF CYRILLIC SMALL LETTER U WITH MACRON; umacroncyrillic
\DeclareTextCompositeCommand{\=}{PU}{\cyru}{\84\357}% U+04EF
% U+04F0 CYRILLIC CAPITAL LETTER U WITH DIAERESIS; Udieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\CYRU}{\84\360}% U+04F0
% U+04F1 CYRILLIC SMALL LETTER U WITH DIAERESIS; udieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\cyru}{\84\361}% U+04F1
% U+04F2 CYRILLIC CAPITAL LETTER U WITH DOUBLE ACUTE; Uhungarumlautcyrillic
\DeclareTextCompositeCommand{\H}{PU}{\CYRU}{\84\362}% U+04F2
% U+04F3 CYRILLIC SMALL LETTER U WITH DOUBLE ACUTE; uhungarumlautcyrillic
\DeclareTextCompositeCommand{\H}{PU}{\cyru}{\84\363}% U+04F3
% U+04F4 CYRILLIC CAPITAL LETTER CHE WITH DIAERESIS; Chedieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\CYRCH}{\84\364}% U+04F4
% U+04F5 CYRILLIC SMALL LETTER CHE WITH DIAERESIS; chedieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\cyrch}{\84\365}% U+04F5
% U+04F6 CYRILLIC CAPITAL LETTER GHE WITH DESCENDER
\DeclareTextCommand{\CYRGDSC}{PU}{\84\366}% U+04F6
% U+04F7 CYRILLIC SMALL LETTER GHE WITH DESCENDER
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\DeclareTextCommand{\cyrgdsc}{PU}{\84\367}% U+04F7
% U+04F8 CYRILLIC CAPITAL LETTER YERU WITH DIAERESIS; Yerudieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\CYRERY}{\84\370}% U+04F8
% U+04F9 CYRILLIC SMALL LETTER YERU WITH DIAERESIS; yerudieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\cyrery}{\84\371}% U+04F9
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\84\372: U+04FA CYRILLIC CAPITAL LETTER GHE WITH STROKE AND HOOK
\84\373: U+04FB CYRILLIC SMALL LETTER GHE WITH STROKE AND HOOK

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% U+04FC CYRILLIC CAPITAL LETTER HA WITH HOOK
\DeclareTextCommand{\CYRHHK}{PU}{\84\374}% U+04FC
% U+04FD CYRILLIC SMALL LETTER HA WITH HOOK
\DeclareTextCommand{\cyrhhk}{PU}{\84\375}% U+04FD
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\84\376: U+04FE CYRILLIC CAPITAL LETTER HA WITH STROKE
\84\377: U+04FF CYRILLIC SMALL LETTER HA WITH STROKE

50.2.10 Thai: U+0E00 to U+0E7F

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% U+0E3F THAI CURRENCY SYMBOL BAHT; bahtthai
\DeclareTextCommand{\textbaht}{PU}{\9016\077}% U+0E3F
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50.2.11 Latin Extended Additional: U+1E00 to U+1EFF

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% U+1E02 LATIN CAPITAL LETTER B WITH DOT ABOVE; Bdotaccent
\DeclareTextCompositeCommand{\.}{PU}{B}{\9036\002}% U+1E02
% U+1E03 LATIN SMALL LETTER B WITH DOT ABOVE; bdotaccent
\DeclareTextCompositeCommand{\.}{PU}{b}{\9036\003}% U+1E03
% U+1E06 LATIN CAPITAL LETTER B WITH LINE BELOW; Blinebelow
\DeclareTextCompositeCommand{\b}{PU}{B}{\9036\006}% U+1E06
% U+1E07 LATIN SMALL LETTER B WITH LINE BELOW; blinebelow
\DeclareTextCompositeCommand{\b}{PU}{b}{\9036\007}% U+1E07
% U+1E0A LATIN CAPITAL LETTER D WITH DOT ABOVE; Ddotaccent
\DeclareTextCompositeCommand{\.}{PU}{D}{\9036\012}% U+1E0A
% U+1E0B LATIN SMALL LETTER D WITH DOT ABOVE; ddotaccent
\DeclareTextCompositeCommand{\.}{PU}{d}{\9036\013}% U+1E0B
% U+1E0E LATIN CAPITAL LETTER D WITH LINE BELOW; Dlinebelow
\DeclareTextCompositeCommand{\b}{PU}{D}{\9036\016}% U+1E0E
% U+1E0F LATIN SMALL LETTER D WITH LINE BELOW; dlinebelow
\DeclareTextCompositeCommand{\b}{PU}{d}{\9036\017}% U+1E0F
% U+1E10 LATIN CAPITAL LETTER D WITH CEDILLA; Dcedilla
\DeclareTextCompositeCommand{\c}{PU}{D}{\9036\020}% U+1E10
% U+1E11 LATIN SMALL LETTER D WITH CEDILLA; dcedilla
\DeclareTextCompositeCommand{\c}{PU}{d}{\9036\021}% U+1E11
% U+1E1E LATIN CAPITAL LETTER F WITH DOT ABOVE; Fdotaccent
\DeclareTextCompositeCommand{\.}{PU}{F}{\9036\036}% U+1E1E
% U+1E1F LATIN SMALL LETTER F WITH DOT ABOVE; fdotaccent
\DeclareTextCompositeCommand{\.}{PU}{f}{\9036\037}% U+1E1F
% U+1E20 LATIN CAPITAL LETTER G WITH MACRON; Gmacron
\DeclareTextCompositeCommand{\=}{PU}{G}{\9036\040}% U+1E20
% U+1E21 LATIN SMALL LETTER G WITH MACRON; gmacron
\DeclareTextCompositeCommand{\=}{PU}{g}{\9036\041}% U+1E21
% U+1E22 LATIN CAPITAL LETTER H WITH DOT ABOVE; Hdotaccent
\DeclareTextCompositeCommand{\.}{PU}{H}{\9036\042}% U+1E22
% U+1E23 LATIN SMALL LETTER H WITH DOT ABOVE; hdotaccent
\DeclareTextCompositeCommand{\.}{PU}{h}{\9036\043}% U+1E23
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% U+1E26 LATIN CAPITAL LETTER H WITH DIAERESIS; Hdieresis
\DeclareTextCompositeCommand{\"}{PU}{H}{\9036\046}% U+1E26
% U+1E27 LATIN SMALL LETTER H WITH DIAERESIS; hdieresis
\DeclareTextCompositeCommand{\"}{PU}{h}{\9036\047}% U+1E27
% U+1E28 LATIN CAPITAL LETTER H WITH CEDILLA; Hcedilla
\DeclareTextCompositeCommand{\c}{PU}{H}{\9036\050}% U+1E28
% U+1E29 LATIN SMALL LETTER H WITH CEDILLA; hcedilla
\DeclareTextCompositeCommand{\c}{PU}{h}{\9036\051}% U+1E29
% U+1E30 LATIN CAPITAL LETTER K WITH ACUTE; Kacute
\DeclareTextCompositeCommand{\'}{PU}{K}{\9036\060}% U+1E30
% U+1E31 LATIN SMALL LETTER K WITH ACUTE; kacute
\DeclareTextCompositeCommand{\'}{PU}{k}{\9036\061}% U+1E31
% U+1E34 LATIN CAPITAL LETTER K WITH LINE BELOW; Klinebelow
\DeclareTextCompositeCommand{\b}{PU}{K}{\9036\064}% U+1E34
% U+1E35 LATIN SMALL LETTER K WITH LINE BELOW; klinebelow
\DeclareTextCompositeCommand{\b}{PU}{k}{\9036\065}% U+1E35
% U+1E3A LATIN CAPITAL LETTER L WITH LINE BELOW; Llinebelow
\DeclareTextCompositeCommand{\b}{PU}{L}{\9036\072}% U+1E3A
% U+1E3B LATIN SMALL LETTER L WITH LINE BELOW; llinebelow
\DeclareTextCompositeCommand{\b}{PU}{l}{\9036\073}% U+1E3B
% U+1E3E LATIN CAPITAL LETTER M WITH ACUTE; Macute
\DeclareTextCompositeCommand{\'}{PU}{M}{\9036\076}% U+1E3E
% U+1E3F LATIN SMALL LETTER M WITH ACUTE; macute
\DeclareTextCompositeCommand{\'}{PU}{m}{\9036\077}% U+1E3F
% U+1E40 LATIN CAPITAL LETTER M WITH DOT ABOVE; Mdotaccent
\DeclareTextCompositeCommand{\.}{PU}{M}{\9036\100}% U+1E40
% U+1E41 LATIN SMALL LETTER M WITH DOT ABOVE; mdotaccent
\DeclareTextCompositeCommand{\.}{PU}{m}{\9036\101}% U+1E41
% U+1E44 LATIN CAPITAL LETTER N WITH DOT ABOVE; Ndotaccent
\DeclareTextCompositeCommand{\.}{PU}{N}{\9036\104}% U+1E44
% U+1E45 LATIN SMALL LETTER N WITH DOT ABOVE; ndotaccent
\DeclareTextCompositeCommand{\.}{PU}{n}{\9036\105}% U+1E45
% U+1E48 LATIN CAPITAL LETTER N WITH LINE BELOW; Nlinebelow
\DeclareTextCompositeCommand{\b}{PU}{N}{\9036\110}% U+1E48
% U+1E49 LATIN SMALL LETTER N WITH LINE BELOW; nlinebelow
\DeclareTextCompositeCommand{\b}{PU}{n}{\9036\111}% U+1E49
% U+1E54 LATIN CAPITAL LETTER P WITH ACUTE; Pacute
\DeclareTextCompositeCommand{\'}{PU}{P}{\9036\124}% U+1E54
% U+1E55 LATIN SMALL LETTER P WITH ACUTE; pacute
\DeclareTextCompositeCommand{\'}{PU}{p}{\9036\125}% U+1E55
% U+1E56 LATIN CAPITAL LETTER P WITH DOT ABOVE; Pdotaccent
\DeclareTextCompositeCommand{\.}{PU}{P}{\9036\126}% U+1E56
% U+1E57 LATIN SMALL LETTER P WITH DOT ABOVE; pdotaccent
\DeclareTextCompositeCommand{\.}{PU}{p}{\9036\127}% U+1E57
% U+1E58 LATIN CAPITAL LETTER R WITH DOT ABOVE; Rdotaccent
\DeclareTextCompositeCommand{\.}{PU}{R}{\9036\130}% U+1E58
% U+1E59 LATIN SMALL LETTER R WITH DOT ABOVE; rdotaccent
\DeclareTextCompositeCommand{\.}{PU}{r}{\9036\131}% U+1E59
% U+1E5E LATIN CAPITAL LETTER R WITH LINE BELOW; Rlinebelow
\DeclareTextCompositeCommand{\b}{PU}{R}{\9036\136}% U+1E5E
% U+1E5F LATIN SMALL LETTER R WITH LINE BELOW; rlinebelow
\DeclareTextCompositeCommand{\b}{PU}{r}{\9036\137}% U+1E5F
% U+1E60 LATIN CAPITAL LETTER S WITH DOT ABOVE; Sdotaccent
\DeclareTextCompositeCommand{\.}{PU}{S}{\9036\140}% U+1E60
% U+1E61 LATIN SMALL LETTER S WITH DOT ABOVE; sdotaccent
\DeclareTextCompositeCommand{\.}{PU}{s}{\9036\141}% U+1E61
% U+1E6E LATIN CAPITAL LETTER T WITH LINE BELOW; Tlinebelow
```

```
\DeclareTextCompositeCommand{\b}{PU}{T}{\9036\156}% U+1E6E
% U+1E6F LATIN SMALL LETTER T WITH LINE BELOW; tlinebelow
\DeclareTextCompositeCommand{\b}{PU}{t}{\9036\157}% U+1E6F
% U+1E7C LATIN CAPITAL LETTER V WITH TILDE; Vtilde
\DeclareTextCompositeCommand{\~}{PU}{V}{\9036\174}% U+1E7C
% U+1E7D LATIN SMALL LETTER V WITH TILDE; vtilde
\DeclareTextCompositeCommand{\~}{PU}{v}{\9036\175}% U+1E7D
% U+1E80 LATIN CAPITAL LETTER W WITH GRAVE; Wgrave
\DeclareTextCompositeCommand{\`}{PU}{W}{\9036\200}% U+1E80
% U+1E81 LATIN SMALL LETTER W WITH GRAVE; wgrave
\DeclareTextCompositeCommand{\`}{PU}{w}{\9036\201}% U+1E81
% U+1E82 LATIN CAPITAL LETTER W WITH ACUTE; Wacute
\DeclareTextCompositeCommand{\'}{PU}{W}{\9036\202}% U+1E82
% U+1E83 LATIN SMALL LETTER W WITH ACUTE; wacute
\DeclareTextCompositeCommand{\'}{PU}{w}{\9036\203}% U+1E83
% U+1E84 LATIN CAPITAL LETTER W WITH DIAERESIS; Wdieresis
\DeclareTextCompositeCommand{\"}{PU}{W}{\9036\204}% U+1E84
% U+1E85 LATIN SMALL LETTER W WITH DIAERESIS; wdieresis
\DeclareTextCompositeCommand{\"}{PU}{w}{\9036\205}% U+1E85
% U+1E86 LATIN CAPITAL LETTER W WITH DOT ABOVE; Wdotaccent
\DeclareTextCompositeCommand{\.}{PU}{W}{\9036\206}% U+1E86
% U+1E87 LATIN SMALL LETTER W WITH DOT ABOVE; wdotaccent
\DeclareTextCompositeCommand{\.}{PU}{w}{\9036\207}% U+1E87
% U+1E8A LATIN CAPITAL LETTER X WITH DOT ABOVE; Xdotaccent
\DeclareTextCompositeCommand{\.}{PU}{X}{\9036\212}% U+1E8A
% U+1E8B LATIN SMALL LETTER X WITH DOT ABOVE; xdotaccent
\DeclareTextCompositeCommand{\.}{PU}{x}{\9036\213}% U+1E8B
% U+1E8C LATIN CAPITAL LETTER X WITH DIAERESIS; Xdieresis
\DeclareTextCompositeCommand{\"}{PU}{X}{\9036\214}% U+1E8C
% U+1E8D LATIN SMALL LETTER X WITH DIAERESIS; xdieresis
\DeclareTextCompositeCommand{\"}{PU}{x}{\9036\215}% U+1E8D
% U+1E8E LATIN CAPITAL LETTER Y WITH DOT ABOVE; Ydotaccent
\DeclareTextCompositeCommand{\.}{PU}{Y}{\9036\216}% U+1E8E
% U+1E8F LATIN SMALL LETTER Y WITH DOT ABOVE; ydotaccent
\DeclareTextCompositeCommand{\.}{PU}{y}{\9036\217}% U+1E8F
% U+1E90 LATIN CAPITAL LETTER Z WITH CIRCUMFLEX; Zcircumflex
\DeclareTextCompositeCommand{\^}{PU}{Z}{\9036\220}% U+1E90
% U+1E91 LATIN SMALL LETTER Z WITH CIRCUMFLEX; zcircumflex
\DeclareTextCompositeCommand{\^}{PU}{z}{\9036\221}% U+1E91
% U+1E94 LATIN CAPITAL LETTER Z WITH LINE BELOW; Zlinebelow
\DeclareTextCompositeCommand{\b}{PU}{Z}{\9036\224}% U+1E94
% U+1E95 LATIN SMALL LETTER Z WITH LINE BELOW; zlinebelow
\DeclareTextCompositeCommand{\b}{PU}{z}{\9036\225}% U+1E95
% U+1E96 LATIN SMALL LETTER H WITH LINE BELOW; hlinebelow
\DeclareTextCompositeCommand{\b}{PU}{h}{\9036\226}% U+1E96
% U+1E97 LATIN SMALL LETTER T WITH DIAERESIS; tdieresis
\DeclareTextCompositeCommand{\"}{PU}{t}{\9036\227}% U+1E97
% U+1E98 LATIN SMALL LETTER W WITH RING ABOVE; wring
\DeclareTextCompositeCommand{\r}{PU}{w}{\9036\230}% U+1E98
% U+1E99 LATIN SMALL LETTER Y WITH RING ABOVE; yring
\DeclareTextCompositeCommand{\r}{PU}{y}{\9036\231}% U+1E99
% U+1E9B LATIN SMALL LETTER LONG S WITH DOT ABOVE; slongdo-
    taccent
\DeclareTextCompositeCommand{\.}{PU}{\textlongs}{\9036\233}% U+1E9B
% U+1EBC LATIN CAPITAL LETTER E WITH TILDE; Etilde
\DeclareTextCompositeCommand{\~}{PU}{E}{\9036\274}% U+1EBC
% U+1EBD LATIN SMALL LETTER E WITH TILDE; etilde
```

```
\DeclareTextCompositeCommand{\~}{PU}{e}{\9036\275}% U+1EBD
% U+1EF2 LATIN CAPITAL LETTER Y WITH GRAVE; Ygrave
\DeclareTextCompositeCommand{\`}{PU}{Y}{\9036\362}% U+1EF2
% U+1EF3 LATIN SMALL LETTER Y WITH GRAVE; ygrave
\DeclareTextCompositeCommand{\`}{PU}{y}{\9036\363}% U+1EF3
% U+1EF8 LATIN CAPITAL LETTER Y WITH TILDE; Ytilde
\DeclareTextCompositeCommand{\~}{PU}{Y}{\9036\370}% U+1EF8
% U+1EF9 LATIN SMALL LETTER Y WITH TILDE; ytilde
\DeclareTextCompositeCommand{\~}{PU}{y}{\9036\371}% U+1EF9
```

50.2.12 General Punctuation: U+2000 to U+206F

```
% U+200C ZERO WIDTH NON-JOINER; *afii61664, zerowidthnonjoiner
\DeclareTextCommand{\textcompwordmark}{PU}{\9040\014}% U+200C
% U+2013 EN DASH; endash
\DeclareTextCommand{\textendash}{PU}{\9040\023}% U+2013
% U+2014 EM DASH; emdash
\DeclareTextCommand{\textemdash}{PU}{\9040\024}% U+2014
% U+2016 DOUBLE VERTICAL LINE; dblverticalbar
\DeclareTextCommand{\textbardbl}{PU}{\9040\026}% U+2016
% U+2018 LEFT SINGLE QUOTATION MARK; quoteleft
\DeclareTextCommand{\textquoteleft}{PU}{\9040\030}% U+2018
% U+2019 RIGHT SINGLE QUOTATION MARK; quoteright
\DeclareTextCommand{\textquoteright}{PU}{\9040\031}% U+2019
% U+201A SINGLE LOW-9 QUOTATION MARK; quotesinglbase
\DeclareTextCommand{\quotesinglbase}{PU}{\9040\032}% U+201A
% U+201C LEFT DOUBLE QUOTATION MARK; quotedblleft
\DeclareTextCommand{\textquotedblleft}{PU}{\9040\034}% U+201C
% U+201D RIGHT DOUBLE QUOTATION MARK; quotedblright
\DeclareTextCommand{\textquotedblright}{PU}{\9040\035}% U+201D
% U+201E DOUBLE LOW-9 QUOTATION MARK; quotedblbase
\DeclareTextCommand{\quotedblbase}{PU}{\9040\036}% U+201E
% U+2020 DAGGER; dagger
\DeclareTextCommand{\textdagger}{PU}{\9040\040}% U+2020
% U+2021 DOUBLE DAGGER; daggerdbl
\DeclareTextCommand{\textdaggerdbl}{PU}{\9040\041}% U+2021
% U+2022 BULLET; bullet
\DeclareTextCommand{\textbullet}{PU}{\9040\042}% U+2022
% U+2026 HORIZONTAL ELLIPSIS; ellipsis
\DeclareTextCommand{\textellipsis}{PU}{\9040\046}% U+2026
% U+2030 PER MILLE SIGN; perthousand
\DeclareTextCommand{\textperthousand}{PU}{\9040\060}% U+2030
% U+2031 PER TEN THOUSAND SIGN
\DeclareTextCommand{\textpertenthousand}{PU}{\9040\061}% U+2031
% U+2039 SINGLE LEFT-POINTING ANGLE QUOTATION MARK; guilsinglleft
\DeclareTextCommand{\guilsinglleft}{PU}{\9040\071}% U+2039
% U+203A SINGLE RIGHT-POINTING ANGLE QUOTATION MARK; guilsinglright
\DeclareTextCommand{\guilsinglright}{PU}{\9040\072}% U+203A
% U+203B REFERENCE MARK; referencemark
\DeclareTextCommand{\textreferencemark}{PU}{\9040\073}% U+203B
% U+203D INTERROBANG
\DeclareTextCommand{\textinterrobang}{PU}{\9040\075}% U+203D
% U+2044 FRACTION SLASH; fraction
\DeclareTextCommand{\textfractionsolidus}{PU}{\9040\104}% U+2044
% U+2045 LEFT SQUARE BRACKET WITH QUILL
\DeclareTextCommand{\textlquill}{PU}{\9040\105}% U+2045
```

```
% U+2046 RIGHT SQUARE BRACKET WITH QUILL
\DeclareTextCommand{\textrquill}{PU}{\9040\106}% U+2046
% U+2052 COMMERCIAL MINUS SIGN
\DeclareTextCommand{\textdiscount}{PU}{\9040\122}% U+2052
```

50.2.13 Superscripts and Subscripts: U+2070 to U+209F

```
% U+2070 SUPERSCRIPT ZERO; zerosuperior
\DeclareTextCommand{\textzerosuperior}{PU}{\9040\160}% U+2070
% U+2074 SUPERSCRIPT FOUR; foursuperior
\DeclareTextCommand{\textfoursuperior}{PU}{\9040\164}% U+2074
% U+2075 SUPERSCRIPT FIVE; fivesuperior
\DeclareTextCommand{\textfivesuperior}{PU}{\9040\165}% U+2075
% U+2076 SUPERSCRIPT SIX; sixsuperior
\DeclareTextCommand{\textsixsuperior}{PU}{\9040\166}% U+2076
% U+2077 SUPERSCRIPT SEVEN; sevensuperior
\DeclareTextCommand{\textsevensuperior}{PU}{\9040\167}% U+2077
% U+2078 SUPERSCRIPT EIGHT; eightsuperior
\DeclareTextCommand{\texteightsuperior}{PU}{\9040\170}% U+2078
% U+2079 SUPERSCRIPT NINE; ninesuperior
\DeclareTextCommand{\textninesuperior}{PU}{\9040\171}% U+2079
% U+207A SUPERSCRIPT PLUS SIGN; plussuperior
\DeclareTextCommand{\textplussuperior}{PU}{\9040\172}% U+207A
% U+207B SUPERSCRIPT MINUS
\DeclareTextCommand{\textminussuperior}{PU}{\9040\173}
% U+207C SUPERSCRIPT EQUALS SIGN; equalsuperior
\DeclareTextCommand{\textequalsuperior}{PU}{\9040\174}
% U+207D SUPERSCRIPT LEFT PARENTHESIS; parenleftsuperior
\DeclareTextCommand{\textparenleftsuperior}{PU}{\9040\175}
% U+207E SUPERSCRIPT RIGHT PARENTHESIS; parenrightsuperior
\DeclareTextCommand{\textparenrightsuperior}{PU}{\9040\176}
% U+207F SUPERSCRIPT LATIN SMALL LETTER N; nsuperior
\DeclareTextCommand{\textnsuperior}{PU}{\9040\177}
% U+2080 SUBSCRIPT ZERO; zeroinferior
\DeclareTextCommand{\textzeroinferior}{PU}{\9040\200}% U+2080
% U+2081 SUBSCRIPT ONE; oneinferior
\DeclareTextCommand{\textoneinferior}{PU}{\9040\201}% U+2081
% U+2082 SUBSCRIPT TWO; twoinferior
\DeclareTextCommand{\texttwoinferior}{PU}{\9040\202}% U+2082
% U+2083 SUBSCRIPT THREE; threeinferior
\DeclareTextCommand{\textthreeinferior}{PU}{\9040\203}% U+2083
% U+2084 SUBSCRIPT FOUR; fourinferior
\DeclareTextCommand{\textfourinferior}{PU}{\9040\204}% U+2084
% U+2085 SUBSCRIPT FIVE; fiveinferior
\DeclareTextCommand{\textfiveinferior}{PU}{\9040\205}% U+2085
% U+2086 SUBSCRIPT SIX; sixinferior
\DeclareTextCommand{\textsixinferior}{PU}{\9040\206}% U+2086
% U+2087 SUBSCRIPT SEVEN; seveninferior
\DeclareTextCommand{\textseveninferior}{PU}{\9040\207}% U+2087
% U+2088 SUBSCRIPT EIGHT; eightinferior
\DeclareTextCommand{\texteightinferior}{PU}{\9040\210}% U+2088
% U+2089 SUBSCRIPT NINE; nineinferior
\DeclareTextCommand{\textnineinferior}{PU}{\9040\211}% U+2089
% U+208D SUBSCRIPT LEFT PARENTHESIS; parenleftinferior
\DeclareTextCommand{\textparenleftinferior}{PU}{\9040\215}% U+208D
% U+208E SUBSCRIPT RIGHT PARENTHESIS; parenrightinferior
\DeclareTextCommand{\textparenrightinferior}{PU}{\9040\216}% U+208E
```

50.2.14 Currency Symbols: U+20A0 to U+20CF

```
% U+20A1 COLON SIGN; *colonmonetary, colonsign
\DeclareTextCommand{\textcolonmonetary}{PU}{\9040\241}% U+20A1
% U+20A4 LIRA SIGN; afii08941, *lira
\DeclareTextCommand{\textlira}{PU}{\9040\244}% U+20A4
% U+20A6 NAIRA SIGN
\DeclareTextCommand{\textnaira}{PU}{\9040\246}% U+20A6
% U+20A7 PESETA SIGN; peseta
\DeclareTextCommand{\textpeseta}{PU}{\9040\247}% U+20A7
% U+20A9 WON SIGN; won
\DeclareTextCommand{\textwon}{PU}{\9040\251}% U+20A9
% U+20AB DONG SIGN; dong
\DeclareTextCommand{\textdong}{PU}{\9040\253}% U+20AB
% U+20AC EURO SIGN; *Euro, euro
\DeclareTextCommand{\texteuro}{PU}{\9040\254}% U+20AC
% U+20B1 PESO SIGN
\DeclareTextCommand{\textpeso}{PU}{\9040\261}% U+20B1
% U+20B2 GUARANI SIGN
\DeclareTextCommand{\textguarani}{PU}{\9040\262}% U+20B2
```

50.2.15 Letterlike Symbols: U+2100 to U+214F

```
% U+2103 DEGREE CELSIUS; centigrade
\DeclareTextCommand{\textcelsius}{PU}{\9041\003}% U+2103
% U+2116 NUMERO SIGN; *afii61352, numero
\DeclareTextCommand{\textnumero}{PU}{\9041\026}% U+2116
% U+2117 SOUND RECORDING COPYRIGHT
\DeclareTextCommand{\textcircledP}{PU}{\9041\027}% U+2117
% U+211E PRESCRIPTION TAKE; prescription
\DeclareTextCommand{\textrecipe}{PU}{\9041\036}% U+211E
% U+2120 SERVICE MARK
\DeclareTextCommand{\textservicemark}{PU}{\9041\040}% U+2120
% U+2122 TRADE MARK SIGN; trademark
\DeclareTextCommand{\texttrademark}{PU}{\9041\042}% U+2122
% U+2126 OHM SIGN; Ohm, Omega
\DeclareTextCommand{\textohm}{PU}{\9041\046}% U+2126
% U+2127 INVERTED OHM SIGN
\DeclareTextCommand{\textmho}{PU}{\9041\047}% U+2127
% U+212B ANGSTROM SIGN; angstrom
\DeclareTextCommand{\textangstrom}{PU}{\9041\053}% U+212B
% U+212E ESTIMATED SYMBOL; estimated
\DeclareTextCommand{\textestimated}{PU}{\9041\056}% U+212E
% U+2135 ALEF SYMBOL; aleph
\DeclareTextCommand{\textaleph}{PU}{\9041\065}% U+2135
```

50.2.16 Arrows: U+2190 to U+21FF

```
% U+2190 LEFTWARDS ARROW; arrowleft
\DeclareTextCommand{\textleftarrow}{PU}{\9041\220}% U+2190
% U+2191 UPWARDS ARROW; arrowup
\DeclareTextCommand{\textuparrow}{PU}{\9041\221}% U+2191
% U+2192 RIGHTWARDS ARROW; arrowright
\DeclareTextCommand{\textrightarrow}{PU}{\9041\222}% U+2192
% U+2193 DOWNWARDS ARROW; arrowdown
\DeclareTextCommand{\textdownarrow}{PU}{\9041\223}% U+2193
```

50.2.17 Mathematical Operators: U+2200 to U+22FF

```
% U+2212 MINUS SIGN; minus
\DeclareTextCommand{\textminus}{PU}{\9042\022}% U+2212
```

```
% U+221A SQUARE ROOT; radical
\DeclareTextCommand{\textsurd}{PU}{\9042\032}% U+221A
```

50.2.18 Miscellaneous Technical: U+2300 to U+23FF

```
% U+2329 LEFT-POINTING ANGLE BRACKET; angleleft
\DeclareTextCommand{\textlangle}{PU}{\9043\051}% U+2329
% U+232A RIGHT-POINTING ANGLE BRACKET; angleright
\DeclareTextCommand{\textrangle}{PU}{\9043\052}% U+232A
```

50.2.19 Control Pictures: U+2400 to U+243F

```
% U+2422 BLANK SYMBOL
\DeclareTextCommand{\textblank}{PU}{\9044\042}% U+2422
% U+2423 OPEN BOX; blank
\DeclareTextCommand{\textvisiblespace}{PU}{\9044\043}% U+2423
```

50.2.20 Enclosed Alphanumerics: U+2460 to U+24FF

```
% U+2460 CIRCLED DIGIT ONE; onecircle
\DeclareTextCompositeCommand{\textcircled}{PU}{1}{\9044\140}% U+2460
% U+2461 CIRCLED DIGIT TWO; twocircle
\DeclareTextCompositeCommand{\textcircled}{PU}{2}{\9044\141}% U+2461
% U+2462 CIRCLED DIGIT THREE; threecircle
\DeclareTextCompositeCommand{\textcircled}{PU}{3}{\9044\142}% U+2462
% U+2463 CIRCLED DIGIT FOUR; fourcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{4}{\9044\143}% U+2463
% U+2464 CIRCLED DIGIT FIVE; fivecircle
\DeclareTextCompositeCommand{\textcircled}{PU}{5}{\9044\144}% U+2464
% U+2465 CIRCLED DIGIT SIX; sixcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{6}{\9044\145}% U+2465
% U+2466 CIRCLED DIGIT SEVEN; sevencircle
\DeclareTextCompositeCommand{\textcircled}{PU}{7}{\9044\146}% U+2466
% U+2467 CIRCLED DIGIT EIGHT; eightcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{8}{\9044\147}% U+2467
% U+2468 CIRCLED DIGIT NINE; ninecircle
\DeclareTextCompositeCommand{\textcircled}{PU}{9}{\9044\150}% U+2468
% U+2469 CIRCLED NUMBER TEN; tencircle
\DeclareTextCompositeCommand{\textcircled}{PU}{10}{\9044\151}% U+2469
% U+246A CIRCLED NUMBER ELEVEN; elevencircle
\DeclareTextCompositeCommand{\textcircled}{PU}{11}{\9044\152}% U+246A
% U+246B CIRCLED NUMBER TWELVE; twelvecircle
\DeclareTextCompositeCommand{\textcircled}{PU}{12}{\9044\153}% U+246B
% U+246C CIRCLED NUMBER THIRTEEN; thirteencircle
\DeclareTextCompositeCommand{\textcircled}{PU}{13}{\9044\154}% U+246C
% U+246D CIRCLED NUMBER FOURTEEN; fourteencircle
\DeclareTextCompositeCommand{\textcircled}{PU}{14}{\9044\155}% U+246D
% U+246E CIRCLED NUMBER FIFTEEN; fifteencircle
\DeclareTextCompositeCommand{\textcircled}{PU}{15}{\9044\156}% U+246E
% U+246F CIRCLED NUMBER SIXTEEN; sixteencircle
\DeclareTextCompositeCommand{\textcircled}{PU}{16}{\9044\157}% U+246F
% U+2470 CIRCLED NUMBER SEVENTEEN; seventeencircle
\DeclareTextCompositeCommand{\textcircled}{PU}{17}{\9044\160}% U+2470
% U+2471 CIRCLED NUMBER EIGHTEEN; eighteencircle
\DeclareTextCompositeCommand{\textcircled}{PU}{18}{\9044\161}% U+2471
% U+2472 CIRCLED NUMBER NINETEEN; nineteencircle
\DeclareTextCompositeCommand{\textcircled}{PU}{19}{\9044\162}% U+2472
% U+2473 CIRCLED NUMBER TWENTY; twentycircle
\DeclareTextCompositeCommand{\textcircled}{PU}{20}{\9044\163}% U+2473
% U+24B6 CIRCLED LATIN CAPITAL LETTER A; Acircle
```

```
\DeclareTextCompositeCommand{\textcircled}{PU}{A}{\9044\266}% U+24B6
% U+24B7 CIRCLED LATIN CAPITAL LETTER B; Bcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{B}{\9044\267}% U+24B7
% U+24B8 CIRCLED LATIN CAPITAL LETTER C; Ccircle
\DeclareTextCompositeCommand{\textcircled}{PU}{C}{\9044\270}% U+24B8
% U+24B9 CIRCLED LATIN CAPITAL LETTER D; Dcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{D}{\9044\271}% U+24B9
% U+24BA CIRCLED LATIN CAPITAL LETTER E; Ecircle
\DeclareTextCompositeCommand{\textcircled}{PU}{E}{\9044\272}% U+24BA
% U+24BB CIRCLED LATIN CAPITAL LETTER F; Fcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{F}{\9044\273}% U+24BB
% U+24BC CIRCLED LATIN CAPITAL LETTER G; Gcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{G}{\9044\274}% U+24BC
% U+24BD CIRCLED LATIN CAPITAL LETTER H; Hcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{H}{\9044\275}% U+24BD
% U+24BE CIRCLED LATIN CAPITAL LETTER I; Icircle
\DeclareTextCompositeCommand{\textcircled}{PU}{I}{\9044\276}% U+24BE
% U+24BF CIRCLED LATIN CAPITAL LETTER J; Jcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{J}{\9044\277}% U+24BF
% U+24C0 CIRCLED LATIN CAPITAL LETTER K; Kcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{K}{\9044\300}% U+24C0
% U+24C1 CIRCLED LATIN CAPITAL LETTER L; Lcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{L}{\9044\301}% U+24C1
% U+24C2 CIRCLED LATIN CAPITAL LETTER M; Mcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{M}{\9044\302}% U+24C2
% U+24C3 CIRCLED LATIN CAPITAL LETTER N; Ncircle
\DeclareTextCompositeCommand{\textcircled}{PU}{N}{\9044\303}% U+24C3
% U+24C4 CIRCLED LATIN CAPITAL LETTER O; Ocircle
\DeclareTextCompositeCommand{\textcircled}{PU}{O}{\9044\304}% U+24C4
% U+24C5 CIRCLED LATIN CAPITAL LETTER P; Pcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{P}{\9044\305}% U+24C5
% U+24C6 CIRCLED LATIN CAPITAL LETTER Q; Qcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{Q}{\9044\306}% U+24C6
% U+24C7 CIRCLED LATIN CAPITAL LETTER R; Rcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{R}{\9044\307}% U+24C7
% U+24C8 CIRCLED LATIN CAPITAL LETTER S; Scircle
\DeclareTextCompositeCommand{\textcircled}{PU}{S}{\9044\310}% U+24C8
% U+24C9 CIRCLED LATIN CAPITAL LETTER T; Tcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{T}{\9044\311}% U+24C9
% U+24CA CIRCLED LATIN CAPITAL LETTER U; Ucircle
\DeclareTextCompositeCommand{\textcircled}{PU}{U}{\9044\312}% U+24CA
% U+24CB CIRCLED LATIN CAPITAL LETTER V; Vcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{V}{\9044\313}% U+24CB
% U+24CC CIRCLED LATIN CAPITAL LETTER W; Wcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{W}{\9044\314}% U+24CC
% U+24CD CIRCLED LATIN CAPITAL LETTER X; Xcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{X}{\9044\315}% U+24CD
% U+24CE CIRCLED LATIN CAPITAL LETTER Y; Ycircle
\DeclareTextCompositeCommand{\textcircled}{PU}{Y}{\9044\316}% U+24CE
% U+24CF CIRCLED LATIN CAPITAL LETTER Z; Zcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{Z}{\9044\317}% U+24CF
% U+24D0 CIRCLED LATIN SMALL LETTER A; acircle
\DeclareTextCompositeCommand{\textcircled}{PU}{a}{\9044\320}% U+24D0
% U+24D1 CIRCLED LATIN SMALL LETTER B; bcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{b}{\9044\321}% U+24D1
% U+24D2 CIRCLED LATIN SMALL LETTER C; ccircle
\DeclareTextCompositeCommand{\textcircled}{PU}{c}{\9044\322}% U+24D2
```

```
% U+24D3 CIRCLED LATIN SMALL LETTER D; dcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{d}{\9044\323}% U+24D3
% U+24D4 CIRCLED LATIN SMALL LETTER E; ecircle
\DeclareTextCompositeCommand{\textcircled}{PU}{e}{\9044\324}% U+24D4
% U+24D5 CIRCLED LATIN SMALL LETTER F; fcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{f}{\9044\325}% U+24D5
% U+24D6 CIRCLED LATIN SMALL LETTER G; gcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{g}{\9044\326}% U+24D6
% U+24D7 CIRCLED LATIN SMALL LETTER H; hcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{h}{\9044\327}% U+24D7
% U+24D8 CIRCLED LATIN SMALL LETTER I; icircle
\DeclareTextCompositeCommand{\textcircled}{PU}{i}{\9044\330}% U+24D8
% U+24D9 CIRCLED LATIN SMALL LETTER J; jcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{j}{\9044\331}% U+24D9
% U+24DA CIRCLED LATIN SMALL LETTER K; kcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{k}{\9044\332}% U+24DA
% U+24DB CIRCLED LATIN SMALL LETTER L; lcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{l}{\9044\333}% U+24DB
% U+24DC CIRCLED LATIN SMALL LETTER M; mcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{m}{\9044\334}% U+24DC
% U+24DD CIRCLED LATIN SMALL LETTER N; ncircle
\DeclareTextCompositeCommand{\textcircled}{PU}{n}{\9044\335}% U+24DD
% U+24DE CIRCLED LATIN SMALL LETTER O; ocircle
\DeclareTextCompositeCommand{\textcircled}{PU}{o}{\9044\336}% U+24DE
% U+24DF CIRCLED LATIN SMALL LETTER P; pcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{p}{\9044\337}% U+24DF
% U+24E0 CIRCLED LATIN SMALL LETTER Q; qcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{q}{\9044\340}% U+24E0
% U+24E1 CIRCLED LATIN SMALL LETTER R; rcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{r}{\9044\341}% U+24E1
% U+24E2 CIRCLED LATIN SMALL LETTER S; scircle
\DeclareTextCompositeCommand{\textcircled}{PU}{s}{\9044\342}% U+24E2
% U+24E3 CIRCLED LATIN SMALL LETTER T; tcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{t}{\9044\343}% U+24E3
% U+24E4 CIRCLED LATIN SMALL LETTER U; ucircle
\DeclareTextCompositeCommand{\textcircled}{PU}{u}{\9044\344}% U+24E4
% U+24E5 CIRCLED LATIN SMALL LETTER V; vcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{v}{\9044\345}% U+24E5
% U+24E6 CIRCLED LATIN SMALL LETTER W; wcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{w}{\9044\346}% U+24E6
% U+24E7 CIRCLED LATIN SMALL LETTER X; xcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{x}{\9044\347}% U+24E7
% U+24E8 CIRCLED LATIN SMALL LETTER Y; ycircle
\DeclareTextCompositeCommand{\textcircled}{PU}{y}{\9044\350}% U+24E8
% U+24E9 CIRCLED LATIN SMALL LETTER Z; zcircle
\DeclareTextCompositeCommand{\textcircled}{PU}{z}{\9044\351}% U+24E9
% U+24EA CIRCLED DIGIT ZERO
\DeclareTextCompositeCommand{\textcircled}{PU}{0}{\9044\352}% U+24EA
```

50.2.21 Box Drawing: U+2500 to U+257F

```
% U+25E6 WHITE BULLET; *openbullet, whitebullet
\DeclareTextCommand{\textopenbullet}{PU}{\9045\346}% U+25E6
% U+25EF LARGE CIRCLE; largecircle
\DeclareTextCommand{\textbigcircle}{PU}{\9045\357}% U+25EF
```

50.2.22 Miscellaneous Symbols: U+2600 to U+26FF

```
% U+266A EIGHTH NOTE; musicalnote
```

```
\DeclareTextCommand{\textmusicalnote}{PU}{\9046\152}% U+266A
% U+26AD MARRIAGE SYMBOL
\DeclareTextCommand{\textmarried}{PU}{\9046\255}% U+26AD
% U+26AE DIVORCE SYMBOL
\DeclareTextCommand{\textdivorced}{PU}{\9046\256}% U+26AE
```

50.2.23 Miscellaneous Mathematical Symbols-A: U+27C0 to U+27EF

```
% U+27E6 MATHEMATICAL LEFT WHITE SQUARE BRACKET
\DeclareTextCommand{\textlbrackdbl}{PU}{\9047\346}% U+27E6
% U+27E7 MATHEMATICAL RIGHT WHITE SQUARE BRACKET
\DeclareTextCommand{\textrbrackdbl}{PU}{\9047\347}% U+27E7
```

50.2.24 Alphabetic Presentation Forms: U+FB00 to U+FB4F

```
% U+FB01 LATIN SMALL LIGATURE FI; fi
\DeclareTextCommand{\textfi}{PU}{\9373\001}% U+FB01
% U+FB02 LATIN SMALL LIGATURE FL; fl
\DeclareTextCommand{\textfl}{PU}{\9373\002}% U+FB02
```

50.2.25 Miscellaneous

```
\DeclareTextCommand{\SS}{PU}{SS}
```

50.2.26 Aliases

Aliases (german.sty)

```
\DeclareTextCommand{\textglqq}{PU}{\quotedblbase}
\DeclareTextCommand{\textgrqq}{PU}{\textquotedblleft}
\DeclareTextCommand{\textglq}{PU}{\quotesinglbase}
\DeclareTextCommand{\textgrq}{PU}{\textquoteleft}
\DeclareTextCommand{\textflqq}{PU}{\guillemotleft}
\DeclareTextCommand{\textfrqq}{PU}{\guillemotright}
\DeclareTextCommand{\textflq}{PU}{\guilsinglleft}
\DeclareTextCommand{\textfrq}{PU}{\guilsinglright}
```

Aliases (math names)

```
\DeclareTextCommand{\textneg}{PU}{\textlogicalnot}
\DeclareTextCommand{\texttimes}{PU}{\textmultiply}
\DeclareTextCommand{\textdiv}{PU}{\textdivide}
\DeclareTextCommand{\textpm}{PU}{\textplusminus}
\DeclareTextCommand{\textcdot}{PU}{\textperiodcentered}
```

⟨/puenc⟩

50.3 PU encoding, additions for VnTEX

This file is provided by Han The Thanh.

⟨*puvnenc⟩

```
\DeclareTextCommand{\abreve}{PU}{\81\003}
\DeclareTextCommand{\acircumflex}{PU}{\80\342}
\DeclareTextCommand{\dj}{PU}{\81\021}
\DeclareTextCommand{\ecircumflex}{PU}{\80\352}
\DeclareTextCommand{\ocircumflex}{PU}{\80\364}
\DeclareTextCommand{\ohorn}{PU}{\81\241}
\DeclareTextCommand{\uhorn}{PU}{\81\260}
\DeclareTextCommand{\ABREVE}{PU}{\81\002}
\DeclareTextCommand{\ACIRCUMFLEX}{PU}{\80\302}
\DeclareTextCommand{\DJ}{PU}{\81\020}
\DeclareTextCommand{\ECIRCUMFLEX}{PU}{\80\312}
\DeclareTextCommand{\OCIRCUMFLEX}{PU}{\80\324}
```

```
\DeclareTextCommand{\OHORN}{PU}{\81\240}
\DeclareTextCommand{\UHORN}{PU}{\81\257}

\DeclareTextCompositeCommand{\'}{PU}{a}{\80\341}
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\DeclareTextCompositeCommand{\`}{PU}{a}{\80\340}
\DeclareTextCompositeCommand{\h}{PU}{a}{\9036\243}
\DeclareTextCompositeCommand{\~}{PU}{a}{\80\343}
\DeclareTextCompositeCommand{\'}{PU}{\abreve}{\9036\257}
\DeclareTextCompositeCommand{\d}{PU}{\abreve}{\9036\267}
\DeclareTextCompositeCommand{\`}{PU}{\abreve}{\9036\261}
\DeclareTextCompositeCommand{\h}{PU}{\abreve}{\9036\263}
\DeclareTextCompositeCommand{\~}{PU}{\abreve}{\9036\265}
\DeclareTextCompositeCommand{\'}{PU}{\acircumflex}{\9036\245}
\DeclareTextCompositeCommand{\d}{PU}{\acircumflex}{\9036\255}
\DeclareTextCompositeCommand{\`}{PU}{\acircumflex}{\9036\247}
\DeclareTextCompositeCommand{\h}{PU}{\acircumflex}{\9036\251}
\DeclareTextCompositeCommand{\~}{PU}{\acircumflex}{\9036\253}
\DeclareTextCompositeCommand{\'}{PU}{e}{\80\351}
\DeclareTextCompositeCommand{\d}{PU}{e}{\9036\271}
\DeclareTextCompositeCommand{\`}{PU}{e}{\80\350}
\DeclareTextCompositeCommand{\h}{PU}{e}{\9036\273}
\DeclareTextCompositeCommand{\~}{PU}{e}{\9036\275}
\DeclareTextCompositeCommand{\'}{PU}{\ecircumflex}{\9036\277}
\DeclareTextCompositeCommand{\d}{PU}{\ecircumflex}{\9036\307}
\DeclareTextCompositeCommand{\`}{PU}{\ecircumflex}{\9036\301}
\DeclareTextCompositeCommand{\h}{PU}{\ecircumflex}{\9036\303}
\DeclareTextCompositeCommand{\~}{PU}{\ecircumflex}{\9036\305}
\DeclareTextCompositeCommand{\'}{PU}{i}{\80\355}
\DeclareTextCompositeCommand{\d}{PU}{i}{\9036\313}
\DeclareTextCompositeCommand{\`}{PU}{i}{\80\354}
\DeclareTextCompositeCommand{\h}{PU}{i}{\9036\311}
\DeclareTextCompositeCommand{\~}{PU}{i}{\81\051}
\DeclareTextCompositeCommand{\'}{PU}{o}{\80\363}
\DeclareTextCompositeCommand{\d}{PU}{o}{\9036\315}
\DeclareTextCompositeCommand{\`}{PU}{o}{\80\362}
\DeclareTextCompositeCommand{\h}{PU}{o}{\9036\317}
\DeclareTextCompositeCommand{\~}{PU}{o}{\80\365}
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\DeclareTextCompositeCommand{\~}{PU}{\ocircumflex}{\9036\327}
\DeclareTextCompositeCommand{\'}{PU}{\ohorn}{\9036\333}
\DeclareTextCompositeCommand{\d}{PU}{\ohorn}{\9036\343}
\DeclareTextCompositeCommand{\`}{PU}{\ohorn}{\9036\335}
\DeclareTextCompositeCommand{\h}{PU}{\ohorn}{\9036\337}
\DeclareTextCompositeCommand{\~}{PU}{\ohorn}{\9036\341}
\DeclareTextCompositeCommand{\'}{PU}{u}{\80\372}
\DeclareTextCompositeCommand{\d}{PU}{u}{\9036\345}
\DeclareTextCompositeCommand{\`}{PU}{u}{\80\371}
\DeclareTextCompositeCommand{\h}{PU}{u}{\9036\347}
\DeclareTextCompositeCommand{\~}{PU}{u}{\81\151}
\DeclareTextCompositeCommand{\'}{PU}{\uhorn}{\9036\351}
\DeclareTextCompositeCommand{\d}{PU}{\uhorn}{\9036\361}
\DeclareTextCompositeCommand{\`}{PU}{\uhorn}{\9036\353}
\DeclareTextCompositeCommand{\h}{PU}{\uhorn}{\9036\355}
\DeclareTextCompositeCommand{\~}{PU}{\uhorn}{\9036\357}
```

```
\DeclareTextCompositeCommand{\'}{PU}{y}{\80\375}
\DeclareTextCompositeCommand{\d}{PU}{y}{\9036\365}
\DeclareTextCompositeCommand{\`}{PU}{y}{\9036\363}
\DeclareTextCompositeCommand{\h}{PU}{y}{\9036\367}
\DeclareTextCompositeCommand{\~}{PU}{y}{\9036\371}
\DeclareTextCompositeCommand{\'}{PU}{A}{\80\301}
\DeclareTextCompositeCommand{\d}{PU}{A}{\9036\240}
\DeclareTextCompositeCommand{\`}{PU}{A}{\80\300}
\DeclareTextCompositeCommand{\h}{PU}{A}{\9036\242}
\DeclareTextCompositeCommand{\~}{PU}{A}{\80\303}
\DeclareTextCompositeCommand{\'}{PU}{\ABREVE}{\9036\256}
\DeclareTextCompositeCommand{\d}{PU}{\ABREVE}{\9036\266}
\DeclareTextCompositeCommand{\`}{PU}{\ABREVE}{\9036\260}
\DeclareTextCompositeCommand{\h}{PU}{\ABREVE}{\9036\262}
\DeclareTextCompositeCommand{\~}{PU}{\ABREVE}{\9036\264}
\DeclareTextCompositeCommand{\'}{PU}{\ACIRCUMFLEX}{\9036\244}
\DeclareTextCompositeCommand{\d}{PU}{\ACIRCUMFLEX}{\9036\254}
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\DeclareTextCompositeCommand{\`}{PU}{E}{\80\310}
\DeclareTextCompositeCommand{\h}{PU}{E}{\9036\272}
\DeclareTextCompositeCommand{\~}{PU}{E}{\9036\274}
\DeclareTextCompositeCommand{\'}{PU}{\ECIRCUMFLEX}{\9036\276}
\DeclareTextCompositeCommand{\d}{PU}{\ECIRCUMFLEX}{\9036\306}
\DeclareTextCompositeCommand{\`}{PU}{\ECIRCUMFLEX}{\9036\300}
\DeclareTextCompositeCommand{\h}{PU}{\ECIRCUMFLEX}{\9036\302}
\DeclareTextCompositeCommand{\~}{PU}{\ECIRCUMFLEX}{\9036\304}
\DeclareTextCompositeCommand{\'}{PU}{I}{\80\315}
\DeclareTextCompositeCommand{\d}{PU}{I}{\9036\312}
\DeclareTextCompositeCommand{\`}{PU}{I}{\80\314}
\DeclareTextCompositeCommand{\h}{PU}{I}{\9036\310}
\DeclareTextCompositeCommand{\~}{PU}{I}{\81\050}
\DeclareTextCompositeCommand{\'}{PU}{O}{\80\323}
\DeclareTextCompositeCommand{\d}{PU}{O}{\9036\314}
\DeclareTextCompositeCommand{\`}{PU}{O}{\80\322}
\DeclareTextCompositeCommand{\h}{PU}{O}{\9036\316}
\DeclareTextCompositeCommand{\~}{PU}{O}{\80\325}
\DeclareTextCompositeCommand{\'}{PU}{\OCIRCUMFLEX}{\9036\320}
\DeclareTextCompositeCommand{\d}{PU}{\OCIRCUMFLEX}{\9036\330}
\DeclareTextCompositeCommand{\`}{PU}{\OCIRCUMFLEX}{\9036\322}
\DeclareTextCompositeCommand{\h}{PU}{\OCIRCUMFLEX}{\9036\324}
\DeclareTextCompositeCommand{\~}{PU}{\OCIRCUMFLEX}{\9036\326}
\DeclareTextCompositeCommand{\'}{PU}{\OHORN}{\9036\332}
\DeclareTextCompositeCommand{\d}{PU}{\OHORN}{\9036\342}
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\DeclareTextCompositeCommand{\~}{PU}{\OHORN}{\9036\340}
\DeclareTextCompositeCommand{\'}{PU}{U}{\80\332}
\DeclareTextCompositeCommand{\d}{PU}{U}{\9036\344}
\DeclareTextCompositeCommand{\`}{PU}{U}{\80\331}
\DeclareTextCompositeCommand{\h}{PU}{U}{\9036\346}
\DeclareTextCompositeCommand{\~}{PU}{U}{\81\150}
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\DeclareTextCompositeCommand{\d}{PU}{\UHORN}{\9036\360}
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```
\DeclareTextCompositeCommand{\‘}{PU}{\UHORN}{\9036\352}
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\DeclareTextCompositeCommand{\~}{PU}{\UHORN}{\9036\356}
\DeclareTextCompositeCommand{\’}{PU}{Y}{\80\335}
\DeclareTextCompositeCommand{\d}{PU}{Y}{\9036\364}
\DeclareTextCompositeCommand{\‘}{PU}{Y}{\9036\362}
\DeclareTextCompositeCommand{\h}{PU}{Y}{\9036\366}
\DeclareTextCompositeCommand{\~}{PU}{Y}{\9036\370}
```

⟨/puvnenc⟩

50.4 PU encoding, additions for Arabi

This file is provided and maintained by Youssef Jabri.

⟨*puarenc⟩

```
\DeclareTextCommand{\hamza}{PU}{\86\041}% 0621;afii57409;ARABIC LETTER HAMZA
\DeclareTextCommand{\alefmadda}{PU}{\86\042}% 0622;afii57410;ARABIC LETTER ALEF WITH MADDA ABOVE
\DeclareTextCommand{\alefhamza}{PU}{\86\043}% 0623;afii57411;ARABIC LETTER ALEF WITH HAMZA ABOVE
\DeclareTextCommand{\wawhamza}{PU}{\86\044} % 0624;afii57412;ARABIC LETTER WAW WITH HAMZA ABOVE
\DeclareTextCommand{\aleflowerhamza}{PU}{\86\045}% 0625;afii57413;ARABIC LETTER ALEF WITH HAMZA BELOW
\DeclareTextCommand{\yahamza}{PU}{\86\046}% 0626;afii57414;ARABIC LETTER YEH WITH HAMZA ABOVE
\DeclareTextCommand{\alef}{PU}{\86\047}% 0627;afii57415;ARABIC LETTER ALEF
\DeclareTextCommand{\baa}{PU}{\86\050}% 0628;afii57416;ARABIC LETTER BEH
\DeclareTextCommand{\T}{PU}{\86\051}% 0629;afii57417;ARABIC LETTER TEH MARBUTA
\DeclareTextCommand{\taa}{PU}{\86\052}% 062A;afii57418;ARABIC LETTER TEH
\DeclareTextCommand{\thaa}{PU}{\86\053}% 062B;afii57419;ARABIC LETTER THEH
\DeclareTextCommand{\jeem}{PU}{\86\054}% 062C;afii57420;ARABIC LETTER JEEM
\DeclareTextCommand{\Haa}{PU}{\86\055}% 062D;afii57421;ARABIC LETTER HAH
\DeclareTextCommand{\kha}{PU}{\86\056}% 062E;afii57422;ARABIC LETTER KHAH
\DeclareTextCommand{\dal}{PU}{\86\057}% 062F;afii57423;ARABIC LETTER DAL
\DeclareTextCommand{\dhal}{PU}{\86\060}% 0630;afii57424;ARABIC LETTER THAL
\DeclareTextCommand{\ra}{PU}{\86\061}% 0631;afii57425;ARABIC LETTER REH
\DeclareTextCommand{\zay}{PU}{\86\062}% 0632;afii57426;ARABIC LETTER ZAIN
\DeclareTextCommand{\seen}{PU}{\86\063}% 0633;afii57427;ARABIC LETTER SEEN
\DeclareTextCommand{\sheen}{PU}{\86\064}% 0634;afii57428;ARABIC LETTER SHEEN
\DeclareTextCommand{\sad}{PU}{\86\065}% 0635;afii57429;ARABIC LETTER SAD
\DeclareTextCommand{\dad}{PU}{\86\066}% 0636;afii57430;ARABIC LETTER DAD
\DeclareTextCommand{\Ta}{PU}{\86\067}% 0637;afii57431;ARABIC LETTER TAH
\DeclareTextCommand{\za}{PU}{\86\070}% 0638;afii57432;ARABIC LETTER ZAH
\DeclareTextCommand{\ayn}{PU}{\86\071}% 0639;afii57433;ARABIC LETTER AIN
\DeclareTextCommand{\ghayn}{PU}{\86\072}% 063A;afii57434;ARABIC LETTER GHAIN
\DeclareTextCommand{\tatweel}{PU}{\86\100}% 0640;afii57440;ARABIC TATWEEL
\DeclareTextCommand{\fa}{PU}{\86\101}% 0641;afii57441;ARABIC LETTER FEH
```

```
\DeclareTextCommand{\qaf}{PU}{\86\102}% 0642;afii57442;ARABIC LETTER QAF
\DeclareTextCommand{\kaf}{PU}{\86\103}% 0643;afii57443;ARABIC LETTER KAF
\DeclareTextCommand{\lam}{PU}{\86\104}% 0644;afii57444;ARABIC LETTER LAM
\DeclareTextCommand{\meem}{PU}{\86\105}% 0645;afii57445;ARABIC LETTER MEEM
\DeclareTextCommand{\nun}{PU}{\86\106}% 0646;afii57446;ARABIC LETTER NOON
\DeclareTextCommand{\ha}{PU}{\86\107}% 0647;afii57470;ARABIC LETTER HEH
\DeclareTextCommand{\waw}{PU}{\86\110}% 0648;afii57448;ARABIC LETTER WAW
\DeclareTextCommand{\alefmaqsura}{PU}{\86\111}% 0649;afii57449;ARABIC LETTER ALEF MAKSURA
\DeclareTextCommand{\ya}{PU}{\86\112}% 064A;afii57450;ARABIC LETTER YEH

\DeclareTextCommand{\nasb}{PU}{\86\113}% 064B;afii57451;ARABIC FATHATAN
\DeclareTextCommand{\raff}{PU}{\86\114}% 064C;afii57452;ARABIC DAMMATAN
\DeclareTextCommand{\jarr}{PU}{\86\115}% 064D;afii57453;ARABIC KASRATAN
\DeclareTextCommand{\fatha}{PU}{\86\116}% 064E;afii57454;ARABIC FATHA
\DeclareTextCommand{\damma}{PU}{\86\117}% 064F;afii57455;ARABIC DAMMA
\DeclareTextCommand{\kasra}{PU}{\86\120}% 0650;afii57456;ARABIC KASRA
\DeclareTextCommand{\shadda}{PU}{\86\121}% 0651;afii57457;ARABIC SHADDA
\DeclareTextCommand{\sukun}{PU}{\86\122}% 0652;afii57458;ARABIC SUKUN
```

Farsi

```
\DeclareTextCommand{\peh}{PU}{\86\176}% 067E;afii57506;ARABIC LETTER PEH
\DeclareTextCommand{\tcheh}{PU}{\86\206}% 0686;afii57507;ARABIC LETTER TCHEH
\DeclareTextCommand{\jeh}{PU}{\86\230}% 0698;afii57508;ARABIC LETTER JEH
\DeclareTextCommand{\farsikaf}{PU}{\86\251}% 06A9???;afii?????;FARSI LETTER KAF
\DeclareTextCommand{\gaf}{PU}{\86\257}% 06AF;afii57509;ARABIC LETTER GAF
\DeclareTextCommand{\farsiya}{PU}{\86\314}% 06CC;afii?????;FARSI LETTER YEH

\DeclareTextCommand{\ZWNJ}{PU}{\9040\014}% 200C;ZWNJ%
\DeclareTextCommand{\noboundary}{PU}{\86\325}% 200D;ZWJ

⟨/puarenc⟩
```

51 End of file hycheck.tex

```
⟨*check⟩
\typeout{}
\begin{document}
\end{document}
⟨/check⟩
```

52 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, 2061
\" 202, 227, 3173, 14080, 14440, 14452, 14464, 14587, 14673, 14687, 14695, 14710, 14722, 14738, 14752, 14763, 14764, 14778, 14790, 14796, 14847, 14875, 14894, 14915, 15042, 15056, 15064, 15078, 15090, 15106, 15120, 15131, 15132, 15146, 15158, 15164, 15411, 15626, 15628, 15638, 15690, 15692, 15720, 15733, 15885, 15898, 16131, 16133, 16147, 16149, 16151, 16153, 16155, 16157, 16167, 16169, 16171, 16173, 16179, 16181, 16183, 16185, 16191, 16193, 16199, 16201, 16207, 16209, 16249, 16251, 16321, 16323, 16333, 16335, 16351
\# . 547, 2146, 2147, 4602, 4613, 4615, 4631, 4663, 4723, 8607, 8609, 9388, 9397, 9432, 10272, 11861, 11872, 11908, 12139, 12148, 12188, 14000
\$ 184, 209, 321, 548, 4604, 4722
\% . 549, 2061, 2121, 2122, 4601, 4610, 4612, 4664, 8609
\& . . . 185, 210, 550, 4605, 4616, 4618, 11918
\' . . . 203, 228, 3113, 3127, 3168, 3170, 3171, 3172, 3173, 3178, 3179, 3181, 3186, 3192, 3196, 3197, 3200, 3243, 3244, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3258, 3262, 3275, 14078, 14437, 14449, 14461, 14667, 14683, 14691, 14704, 14718, 14724, 14732, 14748, 14757, 14758, 14772, 14786, 14792, 14815, 14817, 14818, 14819, 14822, 14824, 14825, 14826, 14834, 14872, 14891, 14912, 15036, 15052, 15060, 15072, 15086, 15092, 15100, 15116, 15125, 15126, 15140, 15154, 15160, 15178, 15180, 15285, 15287, 15305, 15307, 15339, 15341, 15351, 15353, 15413, 15415, 15465, 15467, 15473, 15475, 15477, 15479, 15561, 15563, 15565, 15567, 15569, 15571, 15573, 15575, 15630, 15632, 15634, 15636, 15694, 15697, 15699, 15724, 15743, 15889, 15908, 16257, 16259, 16269, 16271, 16285, 16287, 16317, 16319, 16722, 16727, 16732, 16737, 16742, 16747, 16752, 16757, 16762, 16767, 16772, 16777, 16782, 16787, 16792, 16797, 16802, 16807, 16812, 16817, 16822, 16827, 16832, 16837
\(. 190, 215, 322, 756, 759, 761, 2063, 14146, 14510
\) . 191, 216, 323, 728, 734, 737, 2064, 14147, 14512
* 325
\+ 200, 225, 326
\- 201, 226
\. 198, 223, 319, 1222, 3515, 3926, 14443, 14455, 14467, 14529, 14820, 14827, 14845, 14878, 14897, 14921, 14961, 14962, 15186, 15188, 15210, 15212, 15230, 15232, 15266, 15297, 15299, 15417, 15419, 15510, 15512, 15518, 15520, 16217, 16219, 16225, 16227, 16237, 16239, 16245, 16247, 16273, 16275, 16277, 16279, 16289, 16291, 16293, 16295, 16301, 16303, 16325, 16327, 16329, 16331, 16337, 16339, 16357
\/ . 194, 219, 670, 671, 672, 739, 1846, 8005
\: 189, 214
\; 199, 224, 8301
\< 196, 221
\= . . . 167, 173, 180, 183, 14445, 14457, 14469, 14840, 14882, 14901, 14920, 15166, 15168, 15202, 15204, 15251, 15253, 15254, 15323, 15325, 15383, 15385, 15522, 15524, 16163, 16165, 16187, 16189, 16241, 16243
\> 197, 222
\? 327
\@ 3164
\@@@ 2377
\@@BOOKMARK 14061, 14064, 14122, 14190, 14197
\@@Listbox 12508, 12532, 12989, 13022, 13328, 13371
\@@Menu 12716, 12724
\@@PasswordField . 12665, 12671
\@@Radio . 12493, 12514, 12714, 12738, 12974, 12995, 13313, 13334
\@@TextField 12667, 12682
\@@commahyperpage 8112, 8113
\@@hyper@@readexternallink 4914, 4916
\@@hyperref 4825, 4826
\@@latextohtmlX . . . 2992, 5062
\@@wrindex 8040, 8041
\@@writetorep 13921, 13927
\@Alph 6660, 6662
\@BIBLABEL . 7477, 7483, 7489
\@BOOKMARK . . 14061, 14063
\@CITE 7554, 7562
\@CITEX 7556
\@CheckBox 5825, 10337, 12606, 12635, 12769, 13106, 13473
\@ChoiceMenu 5822, 10340, 12446, 12638, 12704, 12926, 13265
\@Form 5520, 10327, 12232, 12627, 12648, 12847, 13188
\@Gauge . . . 5831, 10331, 12416, 12629, 12653, 12790, 13185
\@Localurlfalse 10280
\@Localurltrue 10277
\@M . . . 1128, 2434, 4709, 7100
\@MM 7240
\@PackageError 263
\@PackageInfo 266
\@PackageInfoNoLine 267
\@PackageWarning 264
\@PackageWarningNoLine . . 265
\@PushButton 5828, 10343, 12539, 12641, 12750, 13031, 13387
\@Refstar 8416, 8423
\@Reset 5837, 10346, 12583, 12644, 12766, 13082, 13444
\@Roman 632
\@SCTR 8160, 8212
\@SetMaxRnhefLabel 7551
\@Submit . . 5834, 10349, 12566, 12645, 12763, 13060, 13421

\@TextField . 5819, 10334, 12419, 12632, 12656, 12898, 13229
\@addchap 14397
\@addtoreset . 7934, 7935, 7949, 8157
\@afterheading 14414
\@alph 6656, 6658
\@anchorcolor 3494, 9357, 9452, 10394, 11829, 12109
\@arabic 1098, 1103, 1107, 6655
\@auxout 2371, 4872, 6045, 6047, 6745, 6773, 7497, 7512, 7528, 7538, 7568, 7591, 7617, 7623, 7647
\@backslashchar 852, 855, 858, 1352, 2023, 2027, 2030, 2168, 2185, 2191, 2195, 2203, 4626, 8622, 8632
\@baseurl 3501, 3503, 4972, 9074, 9077, 9342, 9344, 9630, 9632, 10149, 10159, 10245, 10247, 10782, 10784, 11162, 11176, 11814, 11816, 12015, 12029, 12095, 12097
\@begintheorem 7004, 7007, 7032, 7039, 7063, 7070
\@bibitem 7504, 7535
\@biblabel 7477, 7524
\@bookmarkopenstatus . . 4426, 4443, 13982
\@bookmarksopenlevel . . 3455, 3457, 4429
\@bsphack 2364, 4865, 7621
\@capstartfalse 7371
\@caption 7336, 7348, 7391, 7427, 7429
\@captype 2373, 7331, 7335, 7339, 7346, 7353, 7395, 7420, 7424, 7427
\@car . . . 1634, 1650, 1668, 1688, 3434, 5138, 9026, 9037
\@cdr 9027, 9038
\@chapter 14321, 14322
\@cite . . 7554, 7585, 7682, 7688
\@cite@opt 7683, 7689, 7693, 7703
\@citea . 7557, 7564, 7565, 7584, 7587, 7588
\@citeb . 7563, 7566, 7568, 7570, 7574, 7577, 7586, 7589, 7591, 7593, 7597, 7600
\@citebordercolor . . 3557, 4017
\@citecolor 3495
\@citedata@opt 7684, 7690, 7692
\@citedatax 7699, 7704
\@citedatax@opt . . . 7696, 7702
\@citeseppen 7681, 7687
\@citex 7583
\@clubpenalty 7102
\@commahyperpage . 8107, 8112
\@ctrerr 6634, 6643
\@currDisplay 5608, 12458, 12521, 12733, 12747, 12938, 13002, 13277, 13344
\@currValue . . 5610, 5612, 12519, 12526, 12733, 12744, 13000, 13009, 13342, 13359, 13798
\@currentHlabel 6706
\@currentHref 2379, 5927, 6605, 6686, 6688, 6697, 6699, 6706, 6787, 6789, 6799, 6850, 6861, 6863, 6901, 6912, 6916, 6923, 6947, 7037, 7068, 7093, 7156, 7166, 7168, 7169, 7225, 7253, 7351, 7377, 7381, 7396, 7398, 7626, 7810, 7833, 7846, 7853, 7904, 7928, 7930, 13911, 14302, 14315, 14326, 14356, 14373, 14408
\@currentlabel 6829, 7243, 7619, 7626, 7909, 7916, 8166, 8218
\@currentlabelname . 2369, 7157, 7226, 7254, 7356
\@currentlabstr 2368, 2376
\@curropt . 12455, 12456, 12517, 12518, 12722, 12729, 12730, 12732, 12739, 12740, 12742, 12935, 12936, 12998, 12999, 13274, 13275, 13340, 13341
\@dblarg 7346, 7427
\@definecounter 7889, 7890
\@ehc . . 2739, 2850, 2875, 2908, 2946, 2953, 2964, 2970, 4151, 4771, 4936, 5232, 5356, 5552, 5585, 5761, 5810, 12548, 12594, 13041, 13093, 13397, 13455
\@ehd . . 63, 282, 288, 303, 7332, 7421
\@endForm . 5521, 10330, 12415, 12628, 12652, 12897, 13215
\@endparenv . . 7002, 7028, 7059
\@eqncr 6931
\@eqnstarfalse 6907, 6934
\@eqnstartrue 6931
\@eqnswtrue 6877, 6886
\@esphack 2385, 4876, 7631, 8052
\@extra@b@citeb 7462, 7465, 7482, 7487, 7507, 7555, 7577, 7593, 7600
\@extra@binfo . 7461, 7464, 7468
\@fifthoffive . . 4111, 4541, 4859, 8367, 8486
\@filebordercolor 3558, 4015, 8941, 8943, 9962, 9964, 10480, 10482, 11531
\@filecolor 3484, 3496, 8962, 9571, 9588, 9980, 10486
\@firstoffive . . 4537, 4546, 8406, 8491
\@firstofone 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 621, 812, 964, 975, 1208, 1212, 1216, 1554, 3904, 4428, 5486, 5492, 5724, 6518, 6653, 6665, 6732, 7344, 7425, 7566, 7589, 7771, 7995, 9250, 12820, 13557, 13574, 13592
\@firstoftwo 641, 922, 1090, 1762, 6015, 14363
\@fnsymbol 6654
\@footnotemark 7109, 7162, 7180, 7262, 7274, 7276, 7288, 7289, 7319, 7321
\@footnotetext 7108, 7115, 7144, 7179, 7275, 7277, 7291, 7292, 7312
\@for . . . 3534, 5128, 7563, 7586, 12455, 12517, 12722, 12729, 12739, 12935, 12998, 13274, 13340
\@fourthoffive 4540, 4860, 8481, 8488
\@gobble 49, 56, 117, 571, 572, 573, 574, 611, 612, 613, 614, 644, 645, 646, 655, 657, 816, 929, 962, 973, 1114, 1118, 1121, 1491, 1552, 1571, 1584, 1588, 1651, 1714, 1715, 1722, 1727, 1741, 1746, 2349, 2406, 2679, 2691, 3892, 4099, 4153, 4592, 5471, 5714, 5980, 5984, 6001, 6003, 6019, 6020, 6023, 6024, 6026, 6492, 6512, 6516, 6993, 7019, 7052, 7333, 7422, 7809, 8546, 9252, 10662, 10665, 12848, 13189, 13968, 13969, 13970, 13971
\@gobblefour . . . 577, 680, 1248, 1249, 1250, 3711, 8281
\@gobbleopt 6026, 6028
\@gobbletwo 575, 648, 673, 681, 682, 829, 1247, 1669, 1746, 1750, 2564, 3709, 3710,

4103, 5417, 6005, 6014, 6022, 6026, 8469, 14312
\@harvarditem 7636, 7638
\@hyper@@anchor . . 5022, 5023
\@hyper@itemfalse . . 6548, 6566, 6580
\@hyper@itemtrue 6549
\@hyper@launch . . . 4942, 4951, 8966, 9985, 10555, 11549
\@hyper@linkfile . . . 4923, 4926, 4930, 4962
\@hyper@readexternallink 4917, 4921
\@hyperdef 4833, 4834
\@hyperpage 8104, 8105
\@hyperref 4814, 4825
\@ifclasslater 14420, 14425
\@ifclassloaded 2356, 4568, 6717, 6754, 7546, 8140, 8144, 9255, 14419, 14424
\@ifnextchar . . 12, 88, 103, 123, 674, 4716, 4814, 4833, 4884, 5520, 5819, 5822, 5825, 5828, 5831, 5834, 5837, 6026, 6098, 6107, 7278, 7296, 7636, 7694, 11187, 11460, 11474, 14061, 14064
\@ifpackagelater 238, 984, 2387, 6708, 7959
\@ifpackageloaded 500, 882, 983, 2359, 2791, 3411, 3415, 4073, 4256, 6589, 6707, 6720, 6782, 6815, 6819, 6839, 6873, 6987, 7176, 7192, 7232, 7392, 7606, 7679, 7901, 7958, 8000, 8001, 8002, 8150, 8415, 8559, 8563, 12087
\@ifpackagewith 3293, 4074, 7924
\@ifstar . . . 66, 4563, 4566, 4575, 4579, 5962, 5966, 6032, 6036, 8423, 8449, 8469
\@ifundefined 34, 361, 901, 909, 925, 928, 2653, 2721, 2805, 3311, 3347, 3355, 3362, 3384, 3432, 4041, 5227, 5547, 6445, 6558, 6593, 6598, 6821, 6842, 6843, 6896, 6918, 6942, 6979, 7337, 7355, 7471, 7554, 7570, 7593, 7898, 7939, 7947, 7948, 7961, 7962, 7969, 8665, 10221, 10850, 10851, 11644, 12848, 13189, 13566, 13978
\@indexfile . . . 8044, 8059, 8067, 8071, 8076
\@inlabelfalse 7081
\@inmathwarn 541, 542
\@inpenc@undefined@ 2223
\@labels 7097
\@latex@ 6129, 6130
\@latex@error 7332, 7421
\@latex@warning . . . 4852, 7573, 7596, 8342, 8362, 8379, 8497
\@lbibitem 7478, 7523
\@linkbordercolor . . 3559, 4012, 8890, 10384
\@linkcolor 3493, 11209
\@linkdim 469, 9406, 9407, 9415, 9416, 9417, 9486, 9487, 9499, 9500, 9501, 9523, 9524, 9537, 9538, 9539, 9563, 9564, 9577, 9578, 9579, 11882, 11883, 11891, 11892, 11893, 12157, 12158, 12171, 12172, 12173
\@listctr 7513, 7539
\@m . . . 1111, 7565, 7588, 10709
\@mainaux . . 6043, 6044, 6475, 6483, 12816, 12840
\@makecaption 7372, 7374, 7440
\@makefnmark 7171, 7324
\@makefntext 7244
\@makeother 166, 167, 179, 180, 182, 183, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 4616, 8594, 14150, 14153, 14180, 14183
\@makeschapterhead 14411, 14413
\@mem@titleref 4575
\@mem@titlerefnolink 4575
\@menubordercolor . 3560, 4014, 9310, 9312, 10060, 10062, 10592, 10594
\@menucolor . 3498, 9325, 10066, 10598
\@minipagefalse 7077
\@mkboth . . . 648, 8263, 14312, 14400, 14402
\@mpfn 7112, 7297, 7309
\@mpfootnotetext . . 7115, 7128, 7129, 7181
\@mycount 14126, 14136
\@namedef 1228, 2501, 2815, 2816, 2817, 2818, 2819, 2820, 2821, 2822, 3302, 3314, 5238, 5239, 5240, 5241, 5563, 5564, 6718, 6930, 6933, 7611, 7612, 7613, 7614
\@namerefstar 4579, 8411
\@nameuse 2373, 2812, 5244, 5555
\@ne 1097, 2758, 2896, 4414, 4741, 9894, 9899, 10761, 11669, 13224
\@newctr 7894, 7895
\@newl@bel 6092, 7464
\@newlistfalse 7078
\@nil 293, 310, 486, 490, 495, 499, 514, 1546, 1549, 1557, 1634, 1652, 1670, 1686, 1688, 1691, 1694, 1697, 2232, 2234, 2250, 2252, 3434, 4648, 4652, 4657, 4989, 4997, 5003, 5005, 5138, 5705, 5708, 5727, 6117, 6120, 6127, 6129, 6130, 6235, 6283, 6284, 6286, 6309, 6326, 6380, 6382, 6845, 6854, 6856, 6868, 8091, 8093, 8100, 8123, 8126, 8136, 8346, 8349, 8505, 8536, 8618, 8624, 8628, 8634, 9026, 9027, 9037, 9038, 10627, 10629, 13564, 13577, 13583, 14010, 14013, 14016, 14025, 14028, 14037
\@nobreakfalse 6089, 7100
\@nocnterr 7948, 7962
\@nocounterr 7947, 7961
\@noparitemfalse 7079
\@number 6653, 6732, 7771
\@nx . . . 7951, 7965, 7968, 7970
\@onelevel@sanitize . 2557, 2561, 2773, 3433, 4128, 4158, 4179, 4682, 4984, 4987, 5000, 5014, 5228, 5464, 5548, 6336, 6338, 6693, 7839, 8392, 9751, 14007
\@oparg . 7004, 7007, 7032, 7039, 7063, 7070
\@outlinefile 13980, 14069, 14164, 14166, 14168, 14246, 14248, 14250
\@pagerefstar . . 4566, 8408, 8439
\@pagesetref 8358
\@parboxrestore 7242, 7364, 7435
\@parcount 14128, 14136
\@part 14339, 14346
\@pdfauthor . 3727, 4020, 9134, 9612, 10096, 10823, 11088, 11946
\@pdfborder 3376, 3572, 3573, 3574, 3581, 3585, 3608, 3610, 4509, 8820, 9769, 10382, 10954, 11049, 11452, 11464,

11479, 11500, 11528, 11559, 11588, 11675, 11763, 11923
\@pdfborderstyle . . . 3377, 3589, 3590, 3591, 3600, 3604, 3612, 3614, 4510, 5676, 8821, 9770, 10383, 10955, 11050, 11453, 11465, 11480, 11501, 11529, 11560, 11589, 11676, 11764, 11924
\@pdfcreationdate 3744, 4023, 9138, 9140, 9604, 9606, 10088, 10090, 11063, 11065, 11938, 11940
\@pdfcreator . 3739, 4022, 9137, 9603, 10087, 10826, 11087, 11937
\@pdfdirection 9097, 9668, 10129, 10794, 11142, 11995
\@pdfduplex . 9103, 9674, 10135, 10800, 11148, 12001
\@pdfhighlight 3564, 4018, 8840, 8842, 8901, 8937, 8939, 8974, 8976, 9306, 9308, 10953, 11048, 11451, 11499, 11527, 11558
\@pdfhightlight 8899
\@pdfkeywords 3763, 4026, 9150, 9601, 10101, 10831, 11089, 11935
\@pdflang 4004, 4033, 9123, 9125, 9696, 9698, 10169, 10171, 11172, 11174, 12025, 12027
\@pdfm@dest . . 9713, 9772, 9776
\@pdfm@mark 6463, 9712, 9764, 9784, 9798, 9800, 9814, 9816, 9821, 9822, 9852, 9876, 9878, 9883, 9901, 9924, 9956, 9990, 10021, 10049, 10083, 10150, 10177, 13192, 13193, 13194, 13213, 13255, 13261, 13350, 13364, 13379, 13385, 13410, 13417, 13435, 13441, 13463, 13469, 13491, 13497, 13502, 13534, 13542, 14217
\@pdfmoddate 3750, 4024, 9142, 9144, 9608, 9610, 10092, 10094, 11067, 11071, 11942, 11944
\@pdfnonfullscreenpagemode 9096, 9667, 10128, 10793, 11141, 11994
\@pdfnumcopies 9112, 9114, 9683, 9685, 10144, 10146, 10809, 10811, 11157, 11159, 12010, 12012
\@pdfpageduration . 3511, 9194, 9198, 9203, 10194, 10196, 10199, 10718, 10720, 10723, 10993, 10995, 11003
\@pdfpagelayout . . . 9122, 9695, 10168, 10814, 10816, 11171, 12024
\@pdfpagemode 4244, 4245, 4439, 4440, 4449, 4450, 9076, 9651, 10163, 10781, 11125, 11978
\@pdfpagescrop 3958, 4028, 9061, 9065, 9634, 9635, 9656, 9658, 10175, 10177, 10770, 10772, 11130, 11132, 11983, 11985
\@pdfpagetransition . 3507, 9170, 9174, 9179, 10183, 10185, 10188, 10607, 10609, 10611, 10976, 10978, 10986
\@pdfpicktraybypdfsize 9104, 9106, 9675, 9677, 10136, 10138, 10801, 10803, 11149, 11151, 12002, 12004
\@pdfprintarea 9100, 9671, 10132, 10797, 11145, 11998
\@pdfprintclip 9101, 9672, 10133, 10798, 11146, 11999
\@pdfprintpagerange 3679, 4032, 9108, 9110, 9679, 9681, 10140, 10142, 10805, 10807, 11153, 11155, 12006, 12008
\@pdfprintscaling . . 9102, 9673, 10134, 10799, 11147, 12000
\@pdfproducer 3733, 4021, 9002, 9146, 9148, 9594, 9595, 9613, 9615, 10072, 10073, 10077, 10097, 10099, 10738, 10739, 10743, 10746, 10747, 10827, 10829, 11074, 11078, 11585, 11586, 11668, 11670, 11672, 11760, 11761, 11928, 11929, 11947, 11949
\@pdfremotestartview 3930, 3932, 3933, 3934, 3945, 3949, 3951, 3952, 3954, 4030, 8954, 9971, 11539
\@pdfstartpage 3913, 3915, 4031, 9082, 9086, 9638, 9643, 10152, 10156, 10774, 10778, 11112, 11117, 11965, 11970
\@pdfstartview 3920, 3922, 4029, 9084, 9086, 9640, 9644, 10154, 10156, 10776, 11114, 11118, 11967, 11971
\@pdfsubject . 3757, 4025, 9136, 9617, 10086, 10825, 11086, 11951
\@pdftempa . . . 4928, 4929, 4932
\@pdftempwordfile . 4919, 4929
\@pdftempwordrun . 4920, 4932
\@pdftitle 3721, 4019, 9135, 9602, 10085, 10824, 11085, 11936
\@pdftrapped 3768, 3771, 3774, 3783, 3792, 4027, 9151, 9153, 10102, 10104, 11090
\@pdfview . . . 3894, 8802, 8810, 9719, 9723, 9727, 9731, 9735, 9739, 9740, 9743, 9744, 9747, 9751, 9753, 9768, 10381, 10391, 10403, 10891, 10911, 11590, 11677, 11765, 12037
\@pdfviewarea 9098, 9669, 10130, 10795, 11143, 11996
\@pdfviewclip 9099, 9670, 10131, 10796, 11144, 11997
\@pdfviewparams . . 3896, 3898, 10891, 10911, 11591, 11678, 11766, 12038
\@percentchar 4611, 4612, 4664, 13984
\@processme . 5596, 5597, 9176, 9182, 9200, 9206, 9222, 9228, 11190, 11191, 11302, 11303, 11306, 11307
\@protected@testopt 677
\@protected@testopt@xargs . 678
\@refstar 4563, 8405
\@runbordercolor 3561, 4016, 8978, 8980, 9996, 9998, 10574, 10576, 11562
\@runcolor . . . 3499, 8998, 10012, 10580
\@safe@activesfalse . . 630, 4543
\@safe@activestrue . . . 629, 4542
\@savsf 8805, 8813
\@schapter 14309, 14310
\@secondoffive 4112, 4538, 4551, 8368, 8369, 8409
\@secondoftwo 617, 620, 920, 1093, 1620, 1760, 4111, 4112, 14365
\@sect 14360, 14361
\@seqncr 6931
\@serial@counter . 14076, 14124, 14126, 14127
\@seteqlabel 7925, 7926
\@setminipage 7366, 7437

\@setref . 4546, 4551, 8337, 8338, 8375
\@sharp 6845, 6851
\@skiphyperreffalse . 6567, 7493, 7505
\@skiphyperreftrue . 7479, 7505
\@spaces 270
\@spart 14352, 14353
\@ssect 14295, 14296
\@startlos 8275, 8282, 8331
\@starttoc 6077
\@tempa 7003, 7004, 7007, 7009, 7031, 7038, 7042, 7062, 7069, 7073, 7194, 7198, 7201, 7213
\@tempb 6959, 6963
\@tempboxa . 9404, 9406, 9415, 9484, 9486, 9489, 9490, 9499, 9505, 9506, 9521, 9523, 9526, 9527, 9537, 9543, 9544, 9561, 9563, 9566, 9567, 9577, 9583, 9584, 11880, 11882, 11891, 12155, 12157, 12171
\@tempcnta 13933, 13934, 13935, 13936, 13937, 13939, 13942, 13943, 13944, 13950, 13952, 13954, 14045, 14046, 14047, 14050, 14051, 14052, 14053, 14054, 14268, 14269, 14270
\@tempdima 2437, 5859, 5860, 5861, 5862, 5863, 5864, 5865, 5866, 8795, 12454, 12459, 12461, 12497, 12498, 12499, 12503, 12504, 12505, 12506, 12934, 12939, 12941, 12978, 12979, 12980, 12984, 12985, 12986, 12987, 13273, 13278, 13280, 13317, 13318, 13319, 13323, 13324, 13325, 13326
\@tempdimb 12458, 12459, 12938, 12939, 13277, 13278
\@tempswafalse 7698
\@tempswatrue 7668, 7671, 7674, 7695
\@temptokena 3280, 3285, 3288, 3290
\@tfor 6960
\@the@H@page 7738, 7774, 7776, 7777
\@thefnmark 7113, 7124, 7205, 7243, 7260, 7267, 7298, 7310, 7317
\@thirdoffive 4539, 8412
\@thm 7011, 7012, 7045
\@topnewpage 14411
\@topsep 7001, 7027, 7058
\@topsepadd . . 7002, 7028, 7059
\@typeset@protect 14281
\@undefined 374, 377, 683, 3284, 6016, 6051, 6064, 6076, 6298, 6316, 6361, 7331, 7394, 7406, 7411, 7420, 8400, 8793, 9006, 9015, 10354, 10749, 10763
\@undottedtocline 8327
\@unprocessedoptions 4389
\@urlbordercolor 3562, 4013, 8903, 8905, 10027, 10029, 10506, 10508, 11502
\@urlcolor 3497, 8922, 9411, 9424, 9531, 9548, 10041, 10512, 11887, 11900, 12166, 12179
\@urltype . . . 9377, 9382, 10250, 10276, 10411, 10425, 11849, 11854, 12128, 12133
\@vpageref 8433
\@whilenum 1264
\@wrindex 8008, 8009, 8040
\@writefile 7624
\@x@sf . . 7164, 7173, 7323, 7325
\@xfootnote 7296
\@xfootnotemark . . . 7121, 7314
\@xfootnotenext . . . 7110, 7307
\@xp . . . 7915, 7950, 7951, 7964, 7965, 7967, 7968
\[192, 217, 320, 3578, 3596, 4783
\{ . . 328, 350, 544, 2063, 10882, 14002
\} . . 329, 355, 545, 2064, 10882, 14003
\] 193, 218
\^ 186, 211, 318, 2161, 2162, 3191, 4599, 4600, 4608, 14438, 14450, 14462, 14669, 14685, 14693, 14706, 14720, 14734, 14750, 14760, 14761, 14774, 14788, 14836, 14873, 14892, 14913, 15038, 15054, 15062, 15074, 15088, 15102, 15118, 15128, 15129, 15142, 15156, 15182, 15184, 15222, 15224, 15238, 15240, 15274, 15276, 15277, 15355, 15357, 15403, 15405, 15407, 15409, 16341, 16343
_ 187, 212, 552, 4603, 4620, 4621
\` 166, 172, 179, 182, 3127, 3261, 3264, 3266, 3274, 14001, 14436, 14448, 14460, 14665, 14681, 14689, 14702, 14716, 14730, 14746, 14754, 14755, 14770, 14784, 14832, 14871, 14890, 14911, 15034, 15050, 15058, 15070, 15084, 15098, 15114, 15122, 15123, 15138, 15152, 15469, 15471, 15717, 15745, 15882, 15910, 16313, 16315, 16363, 16365, 16724, 16729, 16734, 16739, 16744, 16749, 16754, 16759, 16764, 16769, 16774, 16779, 16784, 16789, 16794, 16799, 16804, 16809, 16814, 16819, 16824, 16829, 16834, 16839
\| 188, 213, 324, 1969, 2062, 2103, 3073, 4056, 8004, 8593, 8603
\~ 551, 1266, 2211, 3185, 3193, 3194, 3195, 4172, 4624, 14439, 14451, 14463, 14671, 14700, 14708, 14736, 14768, 14776, 14838, 14874, 14893, 14914, 15040, 15068, 15076, 15104, 15136, 15144, 15246, 15248, 15249, 15379, 15381, 16309, 16311, 16359, 16361, 16367, 16369, 16726, 16731, 16736, 16741, 16746, 16751, 16756, 16761, 16766, 16771, 16776, 16781, 16786, 16791, 16796, 16801, 16806, 16811, 16816, 16821, 16826, 16831, 16836, 16841

Numbers

\3 . 528, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1426, 1427, 1428, 1429, 1430, 1431, 1432, 1433, 2325, 14145, 14665, 14667, 14669, 14671, 14673, 14675, 14677, 14679, 14681, 14683, 14685, 14687, 14689, 14691, 14693, 14695, 14697, 14698, 14700, 14702, 14704, 14706, 14708, 14710, 14712, 14714, 14716, 14718, 14720, 14722, 14724, 14726, 14728, 14730, 14732, 14734, 14736, 14738, 14740, 14742, 14744, 14746, 14748, 14750, 14752, 14754, 14755, 14757, 14758, 14760, 14761, 14763, 14764, 14766, 14768, 14770, 14772, 14774, 14776, 14778, 14780, 14782, 14784, 14786, 14788, 14790, 14792, 14794, 14796, 14797, 14870, 15034, 15036, 15038, 15040, 15042, 15044, 15046,

15048, 15050, 15052, 15054, 15056, 15058, 15060, 15062, 15064, 15066, 15068, 15070, 15072, 15074, 15076, 15078, 15080, 15082, 15084, 15086, 15088, 15090, 15092, 15094, 15096, 15098, 15100, 15102, 15104, 15106, 15108, 15110, 15112, 15114, 15116, 15118, 15120, 15122, 15123, 15125, 15126, 15128, 15129, 15131, 15132, 15134, 15136, 15138, 15140, 15142, 15144, 15146, 15148, 15150, 15152, 15154, 15156, 15158, 15160, 15162, 15164, 15429, 15431, 15433, 15435, 15436, 15438, 15440, 15442, 15444, 15446, 15448, 15450, 15452, 15454, 15456, 15458, 15460, 15462, 15463, 15465, 15467, 15469, 15471, 15473, 15475, 15477, 15479, 15528, 15530, 15532, 15534, 15536, 15538, 15540, 15543, 15545, 15670, 15672, 15674, 15676, 15678, 15680, 15682, 15684, 15686, 15688, 15690, 15692, 15694, 15696, 15697, 15699, 15701, 15703, 15705, 15707, 15709, 15711, 15713, 15715, 16101, 16103, 16105, 16107, 16109, 16111, 16113, 16115, 16117, 16119, 16121, 16123, 16125, 16127, 16129, 16131, 16133, 16135, 16137, 16139, 16141, 16143, 16145, 16147, 16149, 16151, 16153, 16155, 16157, 16159, 16161, 16163, 16165, 16167, 16169, 16171, 16173, 16175, 16177, 16179, 16181, 16183, 16185, 16187, 16189, 16191, 16193, 16195, 16197, 16199, 16201, 16203, 16205, 16207, 16209, 16211, 16213, 16363, 16365, 16367, 16369, 16589, 16591, 16593, 16595, 16597, 16599, 16601, 16603, 16605, 16607, 16609, 16611, 16613, 16615, 16617, 16619, 16621, 16623, 16625, 16627, 16629, 16631, 16633, 16635, 16637, 16639, 16641, 16643, 16645, 16647, 16649, 16651, 16653, 16655, 16657, 16659, 16661, 16663, 16665, 16667, 16669, 16671, 16673, 16675, 16677, 16685, 16687, 16709, 16711, 16712, 16716, 16718, 16719, 16722, 16724, 16726, 16737, 16739, 16743, 16744, 16745, 16746, 16747, 16748, 16749, 16750, 16752, 16753, 16754, 16755, 16756, 16757, 16758, 16759, 16760, 16761, 16762, 16763, 16764, 16765, 16766, 16767, 16768, 16769, 16770, 16772, 16773, 16774, 16775, 16776, 16777, 16778, 16779, 16780, 16781, 16782, 16784, 16786, 16797, 16799, 16803, 16804, 16805, 16806, 16807, 16808, 16809, 16810, 16812, 16813, 16814, 16815, 16816, 16817, 16818, 16819, 16820, 16821, 16822, 16823, 16824, 16825, 16826, 16827, 16828, 16829, 16830, 16832, 16833, 16834, 16835, 16836, 16837, 16838, 16839, 16840, 16841, 16894, 16896

\9 . . . . . 531, 1330, 1333, 1364, 2253, 2268, 2277, 2305, 2325, 14870, 16215, 16217, 16219, 16221, 16223, 16225, 16227, 16229, 16231, 16233, 16235, 16237, 16239, 16241, 16243, 16245, 16247, 16249, 16251, 16253, 16255, 16257, 16259, 16261, 16263, 16265, 16267, 16269, 16271, 16273, 16275, 16277, 16279, 16281, 16283, 16285, 16287, 16289, 16291, 16293, 16295, 16297, 16299, 16301, 16303, 16305, 16307, 16309, 16311, 16313, 16315, 16317, 16319, 16321, 16323, 16325, 16327, 16329, 16331, 16333, 16335, 16337, 16339, 16341, 16343, 16345, 16347, 16349, 16351, 16353, 16355, 16357, 16359, 16361, 16363, 16365, 16367, 16369, 16371, 16373, 16375, 16377, 16379, 16381, 16383, 16385, 16387, 16389, 16391, 16393, 16395, 16397, 16399, 16401, 16403, 16405, 16407, 16409, 16411, 16413, 16415, 16417, 16419, 16421, 16423, 16425, 16427, 16429, 16431, 16433, 16435, 16437, 16439, 16441, 16443, 16445, 16447, 16449, 16451, 16453, 16455, 16457, 16459, 16461, 16463, 16465, 16467, 16469, 16471, 16473, 16475, 16477, 16479, 16481, 16483, 16485, 16487, 16489, 16491, 16493, 16495, 16497, 16499, 16501, 16503, 16505, 16507, 16509, 16511, 16513, 16515, 16517, 16519, 16521, 16523, 16525, 16527, 16529, 16531, 16533, 16535, 16537, 16539, 16541, 16543, 16545, 16547, 16549, 16551, 16553, 16555, 16557, 16559, 16561, 16563, 16565, 16567, 16569, 16571, 16573, 16575, 16577, 16579, 16581, 16583, 16585, 16587, 16589, 16591, 16593, 16595, 16597, 16599, 16601, 16603, 16605, 16607, 16609, 16611, 16613, 16615, 16617, 16619, 16621, 16623, 16625, 16627, 16629, 16631, 16633, 16635, 16637, 16639, 16641, 16643, 16645, 16647, 16649, 16651, 16653, 16655, 16657, 16659, 16661, 16663, 16665, 16667, 16669, 16671, 16673, 16675, 16677, 16679, 16681, 16683, 16685, 16687, 16689, 16691, 16723, 16725, 16727, 16728, 16729, 16730, 16731, 16732, 16733, 16734, 16735, 16736, 16738, 16740, 16741, 16742, 16743, 16744, 16745, 16746, 16748, 16750, 16753, 16755, 16757, 16758, 16759, 16760, 16761, 16762, 16763, 16764, 16765, 16766, 16768, 16770, 16772, 16773, 16774, 16775, 16776, 16778, 16779, 16780, 16781, 16783, 16785, 16787, 16788, 16789, 16790, 16791, 16792, 16793, 16794, 16795, 16796, 16798, 16800, 16801, 16802, 16803, 16804, 16805, 16806, 16808, 16810, 16813, 16815, 16817, 16818, 16819, 16820, 16821, 16822, 16823, 16824, 16825, 16826, 16828, 16830, 16832, 16833, 16834, 16835, 16836, 16838, 16839, 16840, 16841, 16895

\␣ 331, 662, 3208, 3211, 3926, 7565, 7588, 14460, 14461, 14462, 14463, 14464, 14465, 14466,

14467, 14468, 14469, 14470, 14471, 14890, 14891, 14892, 14893, 14894, 14895, 14896, 14897, 14898, 14899, 14900, 14901, 14902, 14903, 14904, 14905, 14906, 14907, 14908

A

\ABREVE . 16715, 16787, 16788, 16789, 16790, 16791
\abreve . . . 16708, 16727, 16728, 16729, 16730, 16731
\AccFancyVerbLineautorefname 3235
\Accfootnoteautorefname . . 3215
\Acctheoremautorefname . . 3239
\ACIRCUMFLEX 16716, 16792, 16793, 16794, 16795, 16796
\acircumflex 3266, 16709, 16732, 16733, 16734, 16735, 16736
\Acrobatmenu 2408, 4108, 6013, 9301, 10046, 10585, 11446
\active . . 1244, 1251, 4600, 4601, 4602, 4603, 4604, 4605, 4608, 4610, 4613, 4621, 14149, 14179
\add@accent 543
\addcontentsline . . . 7360, 7431, 7807, 7812, 7883, 14416
\addtocontents 7852, 7884, 8158, 8210, 14404, 14405
\addtocounter 6729, 6752, 6761, 6772, 6776, 6981, 9903
\addvspace 14404, 14405
\adl@LT@array 6843
\advance 467, 468, 1265, 4749, 5088, 5416, 5462, 5860, 5861, 5864, 5865, 6208, 6216, 6253, 7710, 7720, 7723, 7737, 9051, 9416, 9500, 9538, 9578, 10745, 11892, 12172, 12461, 12504, 12505, 12941, 12985, 12986, 13224, 13280, 13324, 13325, 13934, 13936, 13937, 13943, 13952, 14053, 14269
\AE 14677, 15046, 15473
\ae 14742, 15110, 15475
\afterassignment 1858, 1864, 1870
\AfterBeginDocument . 361, 375
\aftergroup 7247
\alef 16850
\alefhamza 16846
\aleflowerhamza 16848
\alefmadda 16845
\alefmaqsura 16879
\Alph 6302, 6622, 6623
\alph 6303, 6952, 6983
\AMSautorefname 8568
\anchor@spot . 5027, 5040, 5047, 5053, 5055, 8860, 9357, 9452, 10322, 10394, 10888, 11234, 11237, 11829, 12109
\appendix 6619, 6620
\appendixautorefname 3083, 3101, 3119, 3137, 3155, 3173, 3191, 3223, 3224, 3249, 3267, 8578
\arabic . 6299, 6523, 6526, 6529, 6530, 6531, 6533, 6534, 6535, 6536, 6538, 6539, 6540, 6541, 6542, 6543, 6546, 6556, 6557, 6599, 6736, 7892, 7898, 7946, 7960, 8146, 8151, 8153
\AtBeginDocument . . 362, 6049, 6833, 12201
\AtBeginShipout 6161, 9336, 9849
\AtBeginShipoutBox 6165, 6168, 9331, 9332, 9850, 9851
\AtBeginShipoutFirst . . . 6172, 10218, 11641, 11756
\AtEndDocument 6063
\AtEndOfPackage 372
\AtVeryEndDocument . . . 6401, 12857
\author 6097, 6107
\autopageref 4243, 8448
\autoref . 652, 4242, 8467, 12196
\ayn 16868

B

\b . 883, 887, 893, 14446, 14458, 14470, 14862, 14885, 14904, 16221, 16223, 16229, 16231, 16261, 16263, 16265, 16267, 16281, 16283, 16297, 16299, 16305, 16307, 16345, 16347, 16349
\baa 16851
\back@none . . . 3018, 3028, 3041
\back@page 3020, 3033
\back@section 3019, 3025, 3031, 3037
\back@slide 3021, 3030
\backcite 7625
\backref 7656, 12200
\baselineskip . 2411, 5873, 5874, 5875, 5876, 5877, 5878, 9471, 10907, 10939, 11624
\bbl@cite@choice 7472
\BeforeTeXIVht 2857
\begin 615, 12221, 16900
\belowpdfbookmark 14049
\bfseries . 593, 7571, 7594, 8341, 8361, 8378, 8496
\bgroup . . 671, 4716, 7234, 7246, 8767, 9867, 10322, 10928, 12660, 12752, 12773
\bibcite . 7463, 7469, 7473, 7498, 7513, 7529, 7539
\bitsetGetDec 5140, 5273, 5291, 5305, 5318, 5334, 5366, 5391
\bitsetGetHex 5141
\bitsetGetSetBitList 5129
\bitsetIsEmpty 5270, 5288, 5302, 5315, 5331, 5363, 5388
\bitsetReset . . 5243, 5277, 5296, 5310, 5323, 5339, 5371
\bitsetSetValue 5109, 5119
\BOOKMARK . . . 13981, 14060
\booknumberline . . 13964, 13969
\box . . . 5867, 6168, 8781, 9881, 11281, 11284
\bullet . . 8293, 8301, 8311, 8319

C

\C 14856, 15961, 15963
\c 884, 888, 894, 3185, 3193, 3194, 3195, 6120, 6127, 14444, 14456, 14468, 14679, 14744, 14864, 14879, 14898, 14909, 15048, 15112, 15234, 15236, 15279, 15281, 15289, 15291, 15309, 15311, 15343, 15345, 15359, 15361, 15367, 15369, 15514, 15516, 16016, 16019, 16233, 16235, 16253, 16255
\c@footnote . . 7123, 7196, 7204, 7316
\c@Hy@tempcnt . . . 4734, 4735, 4741, 4749
\c@note 7713
\c@overlay 7713
\c@page . 6208, 6216, 6233, 6253, 6254, 6258, 6270, 6272, 6277, 6284, 6286, 6288, 6317, 7710, 7714, 7716, 7720, 7723, 7724, 7737, 7767
\c@secnumdepth . 14329, 14347, 14362
\c@slide 7713
\c@slidesection 8159, 8287, 8288
\c@slidesubsection 8211
\c@tocdepth 3425, 3430
\calc@bm@number . 14191, 14267
\calculate@pdfview . 3890, 3893
\capitalacute 14912
\capitalbreve 14919
\capitalcaron 14918

\capitalcedilla 14909
\capitalcircumflex 14913
\capitaldieresis 14915
\capitaldotaccent 14921
\capitalgrave 14911
\capitalhungarumlaut . . . 14916
\capitalmacron 14920
\capitalnewtie 14923
\capitalogonek 14910
\capitalring 14917
\capitaltie 14922
\capitaltilde 14914
\caption 7330, 7332, 7419, 7421
\catcode 172, 173, 184, 185, 186, 187, 206, 809, 810, 944, 1244, 1251, 1969, 1970, 2103, 2104, 2160, 2161, 2162, 4459, 4461, 4599, 4600, 4601, 4602, 4603, 4604, 4605, 4608, 4610, 4613, 4621, 4631, 4722, 4723, 8593, 10969, 10970, 14078, 14080, 14149, 14152, 14179, 14182
\cf@encoding 1569
\chapterautorefname 3084, 3102, 3120, 3138, 3156, 3174, 3192, 3221, 3250, 3268, 8579
\chapternumberline 13966, 13971
\char 12887, 14082, 14119
\chardef 275, 308, 2643, 2644, 2645, 2646, 2896, 2898, 4384, 4414, 11229, 11232, 11238
\check@bm@number 14202, 14210, 14260, 14268
\CheckBox 5824
\CheckCommand 7193
\checkcommand 42, 6771, 7307, 7314, 7321, 7419, 7429, 7523, 7535, 7883, 7886, 7946, 8375
\checklatex . 4, 7306, 7418, 7522, 7882, 8374
\checkpackage . . . 9, 6770, 7945
\ChoiceBox 5466
\ChoiceMenu 5821
\citation 7568, 7591, 7617
\citeauthoryear 7683, 7689
\citeN 7680
\CJK@char 1247
\CJK@charx 1248
\CJK@CJK 1236
\CJK@eight . . . 1447, 1450, 1564
\CJK@five 1447, 1449, 1564
\CJK@four . . . 1446, 1449, 1563
\CJK@hundred 1513
\CJK@hundredmillion 1476
\CJK@ignorespaces 1246
\CJK@kern 1234
\CJK@minus 1438
\CJK@nine . . . 1447, 1451, 1564
\CJK@null 1540
\CJK@one 1446, 1448, 1563
\CJK@punctchar 1249
\CJK@punctcharx 1250
\CJK@seven . . 1447, 1450, 1564
\CJK@six 1447, 1450, 1564
\CJK@ten 1448, 1449, 1450, 1451, 1528
\CJK@tenthousand . 1461, 1482
\CJK@thousand 1498
\CJK@three . . . 1446, 1449, 1563
\CJK@two 1446, 1448, 1563
\CJK@zero . . 1446, 1464, 1481, 1485, 1501, 1516, 1538
\CJKdigits 1323
\CJKkern 1235
\CJKnumber 1322
\close@pdflink 8854, 8879, 8888, 8923, 8963, 8999, 9326
\closeout 6043, 14069
\clubpenalty 7100, 7102
\codeof 7647
\color@begingroup . . 8767, 9867
\color@endgroup . . . 8774, 9874
\columnwidth 7241
\comma@entry 5457, 5464, 5466
\comma@parse 5456
\contentsline . 6052, 6053, 6065, 7853, 7857, 7884, 7886
\copy . . . 8777, 9332, 9851, 9877
\count@ . 848, 850, 851, 854, 857, 860, 863, 1263, 1264, 1265, 1266, 1859, 3441, 3442, 3447, 3448, 5087, 5088, 5103, 5399, 5414, 5416, 5440, 5462, 5478, 9046, 9047, 9048, 9049, 9050, 9051, 9054, 10741, 10742, 10743, 10744, 10745, 10748
\CurrentBorderColor 8844, 8846, 8873, 8875, 8883, 8885, 8890, 10384, 10418, 10420, 10436, 10438, 10457, 10459, 10521, 10523, 10540, 10542
\currentpdfbookmark . . . 14041
\curu 15913
\cyr 631, 3203, 3205, 3208, 3211, 3214, 3215, 3216, 3217, 3218, 3219, 3220, 3221, 3222, 3223, 3225, 3227, 3228, 3229, 3230, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 3240
\CYRA . . . 15752, 16127, 16131
\cyra . . . 3205, 3212, 3214, 3219, 3222, 3227, 3228, 3234, 3238, 15817, 16129, 16133
\CYRABHCH 16091, 16096
\cyrabhch 16093, 16099
\CYRABHCHDSC 16095
\cyrabhchdsc 16098
\CYRABHDZE 16159
\cyrabhdze 16161
\CYRABHHA 16049
\cyrabhha 16051
\CYRAE 16135
\cyrae 16137
\CYRB 15754
\cyrb 3219, 15819
\CYRBYUS 15937
\cyrbyus 15939
\CYRC 15797
\cyrc 15862
\CYRCH 15799, 16199
\cyrch . 3211, 3212, 3220, 15864, 16201
\CYRCHLDSC 16119
\cyrchldsc 16121
\CYRCHRDSC 16079
\cyrchrdsc 16081
\CYRCHVCRS 16083
\cyrchvcrs 16085
\CYRD 15760
\cyrd . . . 3208, 3211, 3222, 3227, 3228, 15825
\CYRDJE 15722
\cyrdje 15887
\CYRDZE 15728
\cyrdze 15893
\CYRDZHE 15750
\cyrdzhe 15915
\CYRE . . . 15717, 15720, 15762, 16139
\cyre 3205, 3211, 3212, 3225, 3237, 3238, 3239, 15827, 15882, 15885, 16141
\cyreref 16185
\CYREREV 15811, 16183
\cyrerev 15876
\CYRERY 15807, 16207
\cyrery 3203, 3205, 15872, 16209
\CYRF 15793
\cyrf 15858
\CYRFITA 15953
\cyrfita 15955
\CYRG 15724, 15758
\cyrg 3221, 15823, 15889
\CYRGDSC 16203

\cyrgdsc 16205
\CYRGHCRS 16003
\cyrghcrs 16005
\CYRGHK 16007
\cyrghk 16009
\CYRGUP 15999
\cyrgup 16001
\CYRH 15795
\cyrh 15860
\CYRHDSC 16071
\cyrhdsc 16073
\CYRHHK 16211
\cyrhhk 16213
\CYRHRDSN 15805
\cyrhrdsn 15870
\CYRI 15745, 15768, 15771, 16163, 16167
\cyri 3205, 3208, 3212, 3218, 3223, 3225, 15833, 15836, 15910, 16165, 16169
\CYRIE 15726
\cyrie 15891
\CYRII 15730, 15733
\cyrii 15895, 15898
\CYRIOTBYUS 15941
\cyriotbyus 15943
\CYRIOTE 15925
\cyriote 15927
\CYRIOTLYUS 15933
\cyriotlyus 15935
\CYRISHRT 15770
\cyrishrt 15835
\CYRISHRTDSC 15987
\cyrishrtdsc 15989
\CYRIZH 15957, 15961
\cyrizh 15959, 15963
\CYRJE 15735
\cyrje 15900
\CYRK 15743, 15773
\cyrk 3214, 3215, 3217, 3231, 3232, 3234, 3235, 3236, 15838, 15908
\CYRKBEAK 16033
\cyrkbeak 16035
\CYRKDSC 16021
\cyrkdsc 16023
\CYRKHCRS 16029
\cyrkhcrs 16031
\CYRKHK 16107
\cyrkhk 16109
\CYRKOPPA 15981
\cyrkoppa 15983
\CYRKSI 15945
\cyrksi 15947
\CYRKVCRS 16025
\cyrkvcrs 16027
\CYRL 15775
\cyrl . . . 3219, 3221, 3223, 3225, 15840
\CYRLDSC 16111
\cyrldsc 16113
\CYRLJE 15737
\cyrlje 15902
\CYRLYUS 15929
\cyrlyus 15931
\CYRM 15777
\cyrm . . 3208, 3212, 3238, 3239, 15842
\CYRMDSC 16123
\cyrmdsc 16125
\CYRN 15779
\cyrn . . . 3205, 3211, 3212, 3214, 3215, 3217, 3225, 3231, 3232, 15844
\CYRNDSC 16037
\cyrndsc 16039
\CYRNG 16041
\cyrng 16043
\CYRNHK 16115
\cyrnhk 16117
\CYRNJE 15739
\cyrnje 15904
\CYRO 15781, 16171
\cyro . . . 3208, 3211, 3214, 3215, 3225, 3234, 3235, 3237, 3238, 3239, 15846, 16173
\CYROMEGA 15917
\cyromega 15919
\CYROMEGARND 15969
\cyromegarnd 15971
\CYROMEGATITLO . . . 15973
\cyromegatitlo 15975
\CYROT 15977
\cyrot 15979
\CYROTLD 16175, 16179
\cyrotld 16177, 16181
\CYRP 15783
\cyrp . . . 3208, 3211, 3212, 3216, 3217, 3223, 3225, 3229, 3230, 3231, 3232, 15848
\CYRpalochka 16101
\CYRPHK 16045
\cyrphk 16047
\CYRPSI 15949
\cyrpsi 15951
\CYRR 15785
\cyrr . . . 3203, 3205, 3208, 3211, 3212, 3218, 3222, 3223, 3225, 3227, 3228, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 15850
\CYRRTICK 15995
\cyrrtick 15997
\CYRS 15787, 16054
\cyrs . . . 3208, 3211, 3214, 3215, 3218, 3233, 3234, 3235, 3236, 3240, 15852, 16057
\CYRSCHWA 16143, 16147
\cyrschwa 16145, 16149
\CYRSDSC 16053, 16054
\cyrsdsc 16056
\CYRSEMISFTSN 15991
\cyrsemisftsn 15993
\CYRSFTSN 15809
\cyrsftsn 15874
\CYRSH 15801
\cyrsh 15866
\CYRSHCH 15803
\cyrshch 15868
\CYRSHHA 16087
\cyrshha 16089
\CYRT 15789
\cyrt . . . 3208, 3211, 3217, 3219, 3231, 3232, 3233, 3234, 3235, 3236, 3237, 3238, 3239, 15854
\CYRTDSC 16059
\cyrtdsc 16061
\CYRTETSE 16075
\cyrtetse 16077
\cyrthousands 15985
\CYRTSHE 15741
\cyrtshe 15906
\CYRU . . . 15748, 15791, 16187, 16191, 16195
\cyru 3215, 3217, 3231, 3232, 3235, 3239, 15856, 16189, 16193, 16197
\CYRUK 15965
\cyruk 15967
\CYRUSHRT 15747
\cyrushrt 15912
\CYRV 15756
\cyrv 3203, 3205, 15821
\CYRY 16063
\cyry 16065
\CYRYA 15815
\cyrya 15880
\CYRYAT 15921
\cyryat 15923
\CYRYHCRS 16067
\cyryhcrs 16069
\CYRYI 15732
\cyryi 15897
\CYRYO 15719
\cyryo 15884
\CYRYU 15813
\cyryu 15878
\CYRZ . . . 15766, 16016, 16155
\cyrz . . 3222, 3227, 3228, 15831, 16019, 16157

\CYRZDSC 16015
\cyrzdsc 16018
\CYRZH . . 15764, 16103, 16151
\cyrzh 3205, 3225, 15829, 16105, 16153
\CYRZHDSC 16011
\cyrzhdsc 16013

D

\d 885, 889, 895, 3263, 3267, 3269, 3270, 3271, 3272, 3273, 3275, 14447, 14459, 14471, 14860, 14886, 14905, 16723, 16728, 16733, 16738, 16743, 16748, 16753, 16758, 16763, 16768, 16773, 16778, 16783, 16788, 16793, 16798, 16803, 16808, 16813, 16818, 16823, 16828, 16833, 16838
\dad 16865
\dal 16858
\damma 16885
\declare@shorthand 998, 999, 1004, 1005, 1010, 1020, 1021, 1022, 1027, 1028, 1033, 1034, 1039, 1044, 1045, 1050, 1055, 1056, 1057, 1058, 1059, 1060, 1065, 1066, 1071, 1072, 1077, 1078
\DeclareFontEncoding . . . 14435, 14830
\DeclareFontFamily . . . 905, 913, 2725
\DeclareFontShape 906, 914, 2726
\DeclareFontSubstitution . . 907, 915, 2727
\DeclareLocalOptions 4070
\DeclareRobustCommand 4562, 4565, 4574, 4578, 4713, 4800, 4802, 4804, 4813, 5818, 5821, 5824, 5827, 5830, 5833, 5836, 5961, 5965, 6031, 6035, 8422, 8448, 8467, 14285
\DeclareTextAccent 14436, 14437, 14438, 14439, 14440, 14441, 14442, 14443, 14444, 14445, 14446, 14447
\DeclareVoidOption 2854, 2868, 2878, 2883, 2888, 2901, 2911, 2916, 2921, 2927, 2956, 2973, 2980, 2985, 2990, 2995, 3344, 3352, 3360, 3370
\DefaultHeightofCheckBox 5873, 12611, 13111, 13478
\DefaultHeightofChoiceMenu . . . 5875, 12451, 12931, 13270
\DefaultHeightofReset . . . 5871, 12585, 13084, 13446
\DefaultHeightofSubmit . 5869, 12568, 13062, 13423
\DefaultHeightofText 5877, 12428, 12907, 13238
\DefaultHeightofTextMultiline . . 5878, 12426, 12905, 13236
\DefaultOptionsofCheckBox 5883, 12613, 13113, 13480
\DefaultOptionsofComboBox 5886
\DefaultOptionsofListBox . 5885
\DefaultOptionsofPopdownBox 5887
\DefaultOptionsofPushButton . . 5882, 12543, 13035, 13391
\DefaultOptionsofRadio . . . 5888
\DefaultOptionsofReset . . 5881, 12588, 13087, 13449
\DefaultOptionsofSubmit 5880, 12571, 13065, 13426
\DefaultOptionsofText . . 5884, 12433, 12912, 13243
\DefaultWidthofCheckBox 5874, 12610, 13110, 13477
\DefaultWidthofChoiceMenu . . . 5876, 12450, 12930, 13269
\DefaultWidthofReset . . . 5872, 12584, 13083, 13445
\DefaultWidthofSubmit . . 5870, 12567, 13061, 13422
\DefaultWidthofText 5879, 12423, 12902, 13233
\define@key . . 2542, 2544, 2587, 2602, 2605, 2608, 2616, 2619, 2629, 2632, 2635, 2652, 2664, 2666, 2669, 2672, 2689, 2693, 2696, 2699, 2702, 2705, 2708, 2711, 2746, 2804, 2893, 3001, 3012, 3015, 3022, 3051, 3070, 3073, 3310, 3367, 3379, 3394, 3419, 3422, 3426, 3454, 3459, 3463, 3466, 3473, 3485, 3492, 3502, 3505, 3508, 3512, 3527, 3536, 3546, 3553, 3564, 3571, 3588, 3678, 3687, 3717, 3723, 3729, 3735, 3741, 3747, 3753, 3759, 3765, 3798, 3805, 3839, 3890, 3891, 3911, 3918, 3928, 3958, 3959, 3962, 3965, 3968, 3971, 3974, 3977, 3980, 4003, 4006, 4009, 4730, 4759, 4765, 4777, 5081, 5169, 5225, 5527, 5532, 5545, 5573, 5615, 5618, 5621, 5625, 5628, 5632, 5635, 5639, 5643, 5647, 5650, 5654, 5657, 5660, 5663, 5666, 5669, 5685, 5688, 5691, 5694, 5697, 5700, 5730, 5733, 5736, 5739, 5758, 5764, 5779, 5785, 5802, 5807, 5813, 6414, 6425, 11313, 11315, 11318, 11320, 11322, 11331, 11339, 11346, 11348, 11350, 11352, 11354, 11356, 11365, 11375, 11377, 11379, 11380, 11386, 11395, 11397, 11399, 11401, 11403, 11405, 11407, 11409, 11411, 11413, 11415, 11417, 11419, 11421, 11423, 11425, 11426, 11427, 11428, 11429, 11430, 11431, 11432, 11433, 11434, 11435, 11436
\df@tag 7907, 7913
\DH 14697, 15066
\dh 14766, 15134
\dhal 16859
\dimen@ 506, 507, 511, 1865, 1933, 1934, 1937, 1939, 4042, 4043, 4045, 4052, 4053, 10708, 10709, 10711, 11271, 11286, 11289
\dimexpr . 518, 2229, 2231, 2239, 2244, 2247, 2249, 2263, 2265, 2268, 2269, 2276, 2279, 2282, 2283, 2284, 2285, 2295, 2300, 2308, 2312, 2317, 2327, 2330, 2335, 2338, 2343, 2344
\ding 5705, 5708
\DingObject 13009
\discretionary 673
\divide 9047, 10742
\DJ . . 3275, 14698, 15198, 16717
\dj 3272, 3273, 15200, 16710
\do 1264, 2559, 2564, 2569, 3534, 3566, 3567, 3568, 3569, 3618, 3619, 3620, 3621, 3622, 3623, 3626, 3627, 3628, 3629, 3630, 3631, 3634, 3635, 3638, 3639, 3640, 3641, 3642, 3645, 3646, 3647, 3648, 3649, 3652, 3653, 3654, 3655, 3656, 3659, 3660, 3661,

3662, 3663, 3666, 3667, 3670, 3671, 3672, 3675, 3676, 3682, 3683, 3684, 3685, 3996, 3997, 3998, 3999, 4000, 4001, 5129, 6963, 7563, 7586, 12455, 12517, 12722, 12729, 12739, 12935, 12998, 13274, 13340, 14148, 14178
\documentclass 2
\dospecials 14157, 14187
\dots 555
\dp 5863, 5866, 7239, 9406, 9486, 9523, 9563, 11272, 11275, 11882, 12157, 13219
\dth@counter . 7029, 7030, 7060, 7061, 7088
\dth@everypar 7076
\dvipdfm@setdim 13216, 13257, 13356, 13381, 13412, 13437, 13465, 13493

E

\ECIRCUMFLEX 16718, 16802, 16803, 16804, 16805, 16806
\ecircumflex 16711, 16742, 16743, 16744, 16745, 16746
\EdefEscapeHex 828
\EdefEscapeName . . 3829, 3873, 12516, 12519, 12997, 13000, 13336, 13342
\EdefEscapeString 782, 792
\EdefUnescapeName 3830
\EdefUnescapeString . 777, 7776
\egroup . 672, 8774, 9874, 10322, 10964, 12669, 12761, 12786
\em 599
\emph 578
\empty 1246, 3429
\enc@@html 5531, 5534
\enc@update 540
\END . . 1594, 1595, 1621, 1622, 1637, 1638, 1655, 1656, 1673, 1674, 2042, 2048, 2053, 2155, 2157, 9173, 9186, 9190, 9197, 9210, 9214, 9220, 9232, 9236
\end 616, 16901
\endeqnarray . . 6909, 6927, 6934
\endequation 6872, 6904
\endForm 5521
\endinput . 64, 2865, 2940, 4239, 4344, 8335, 10897, 12219, 14275
\endlinechar 4598
\endNoHyper 5995
\EndPreamble 12222
\endsubeqnarray . . . 6938, 6949
\eqnarray 6908, 6910, 6931
\equal 7644
\equation 6871, 6880, 6884, 6893
\equationautorefname 3077, 3095, 3113, 3131, 3149, 3167, 3185, 3203, 3204, 3243, 3261, 8568, 8572
\errmessage 3307
\es@roman 632
\es@save@dot 1222
\escapechar 524, 833, 4186, 6956, 14008, 14189, 14240
\eTeX 564, 12227
\etex@unexpanded . . 1797, 1804
\eTeXversion . . 9006, 9008, 9010
\evensidemargin 7794
\everypar 7102
\ExecuteOptions 4057, 4058, 4062
\ext@figure 8142
\ext@table 8141
\extra@b@citeb 7570
\extrasvietnam 3353
\extrasvietnamese 3345

F

\fa 16871
\FancyVerbLineautorefname 3090, 3108, 3126, 3144, 3162, 3180, 3198, 3233, 3236, 3256, 3274, 8585
\farsikaf 16892
\farsiya 16894
\fatha 16884
\fbox 12891, 12894
\Field@addtoks 5595, 5626, 5629, 5780, 5803
\Field@boolkey 5082, 5170, 5589, 5619, 5622
\Field@toks . . 5593, 5594, 5596, 12661, 12678, 12689, 12700, 12710, 12727, 12745, 12753, 12758, 12774, 12783
\Field@Width 5506, 5652
\figureautorefname . 3080, 3098, 3116, 3134, 3152, 3170, 3188, 3218, 3246, 3264, 8575
\filename@area 4968
\filename@base 4968
\filename@ext 4965, 4966, 4968, 4969
\filename@parse 4964
\find@pdflink . . 8823, 8877, 8887
\Fld@@additionalactions . 13620, 13663, 13667
\Fld@@DingDef 5705, 5708, 5727
\Fld@additionalactions . . 13620, 13709, 13737, 13771, 13805, 13839, 13873, 13904
\Fld@align . . . 5510, 5692, 13688, 13746, 13813
\Fld@altname 5642, 5644, 13599, 13601, 13673, 13675
\Fld@annotflags 5289, 5291, 13684, 13715, 13742, 13775, 13809, 13844, 13879
\Fld@annotnames 13671, 13685, 13716, 13743, 13776, 13810, 13845, 13880
\Fld@bcolor . . 5512, 5734, 13699, 13701, 13762, 13764, 13790, 13792, 13817, 13829, 13831
\fld@bcolor 13750
\Fld@bordercolor . . . 5513, 5737, 13695, 13697, 13722, 13730, 13732, 13749, 13758, 13760, 13786, 13788, 13816, 13825, 13827, 13851, 13859, 13861, 13886, 13894, 13896
\Fld@bordersep 5514, 5686
\Fld@borderstyle 5516, 5670, 5671, 5672, 5682, 13689, 13720, 13747, 13780, 13814, 13849, 13902
\Fld@borderwidth 5515, 5667, 5857, 5860, 5861, 5864, 5865, 12504, 12505, 12985, 12986, 13324, 13325, 13689, 13720, 13747, 13780, 13814, 13849, 13902
\Fld@calculate@code 5745, 13633, 13635
\Fld@cbsymbol 5517, 5698, 13703
\Fld@charsize 5507, 5508, 5664, 12503, 12984, 13323, 13705, 13768, 13796, 13835, 13884
\Fld@checkedfalse 5503
\Fld@checkequals . 5607, 12456, 12518, 12730, 12740, 12936, 12999, 13275, 13341
\Fld@choices 5396, 5404, 5406, 5410, 5419, 5427, 5432, 5480, 5482, 5490, 5491, 13770
\Fld@color . . . 5511, 5740, 13706, 13769, 13797, 13836
\Fld@default . 5421, 5424, 5426, 5689, 12421, 12437, 12448, 12488, 12516, 12608, 12659, 12677, 12691, 12699, 12706, 12732, 12742, 12772, 12782, 12900, 12917, 12928, 12969, 12997, 13108, 13231, 13248,

13267, 13308, 13336, 13475, 13798, 13799, 13800, 13837
\Fld@DingDef . 5698, 5701, 5703
\Fld@disabledfalse 5504
\Fld@export . 5234, 5237, 5244, 5536
\Fld@findlength . . . 12709, 12720
\Fld@flags 5303, 5305, 5316, 5318, 5332, 5334, 5364, 5366, 5389, 5391, 13687, 13718, 13745, 13778, 13812, 13847, 13882
\Fld@format@code . 5743, 13625, 13627
\Fld@getmethodfalse 5556
\Fld@getmethodtrue 5558
\Fld@height . 5661, 12424, 12440, 12451, 12506, 12523, 12535, 12568, 12585, 12611, 12619, 12903, 12921, 12931, 12987, 13014, 13027, 13062, 13084, 13111, 13121, 13234, 13250, 13270, 13326, 13338, 13374, 13423, 13446, 13478, 13486
\Fld@hiddenfalse 5192
\Fld@hiddentrue 5193
\Fld@invisiblefalse 5188
\Fld@invisibletrue 5189
\Fld@keystroke@code 5746, 13621, 13623
\Fld@listcount . . . 12515, 12520, 12531, 12996, 13001, 13015, 13021, 13335, 13343, 13347, 13352, 13363, 13370
\Fld@loc 5616
\Fld@mappingname . 5646, 5648, 13603, 13605, 13677, 13679
\Fld@maxlen . 5509, 5655, 13840
\Fld@menulength . . 5505, 5658, 12453, 12457, 12503, 12721, 12722, 12725, 12933, 12937, 12984, 13272, 13276, 13323
\Fld@name . 5640, 12420, 12447, 12540, 12607, 12658, 12663, 12674, 12675, 12686, 12687, 12696, 12697, 12705, 12726, 12743, 12751, 12756, 12771, 12780, 12899, 12927, 13032, 13107, 13230, 13266, 13388, 13474, 13598, 13672
\Fld@norotatefalse 5205
\Fld@norotatetrue 5204
\Fld@noviewfalse 5208
\Fld@noviewtrue 5209
\Fld@nozoomfalse 5201
\Fld@nozoomtrue 5200
\Fld@onblur@code . 5748, 13641, 13643
\Fld@onclick@code . 5742, 5814, 13736
\Fld@onenter@code 5751, 13653, 13655
\Fld@onexit@code . 5752, 13657, 13659
\Fld@onfocus@code 5747, 13637, 13639
\Fld@onmousedown@code 5749, 13645, 13647
\Fld@onmouseup@code . . 5750, 13649, 13651
\Fld@printfalse 5197
\Fld@printtrue 5196
\Fld@radiosymbol . . 5518, 5701, 13794
\Fld@rotation 5519, 5731, 13691, 13693, 13721, 13726, 13728, 13748, 13754, 13756, 13782, 13784, 13815, 13821, 13823, 13850, 13855, 13857, 13885, 13890, 13892
\Fld@submitflags . . . 5271, 5273, 13871
\Fld@temp . . 5704, 5706, 5709, 5710, 5719, 5720
\Fld@validate@code 5744, 13629, 13631
\Fld@value 5422, 5429, 5431, 5695, 12422, 12437, 12449, 12487, 12488, 12901, 12917, 12929, 12968, 12969, 13232, 13248, 13268, 13307, 13308, 13838
\Fld@width . 5651, 12423, 12436, 12440, 12450, 12486, 12497, 12499, 12523, 12535, 12555, 12567, 12575, 12584, 12598, 12610, 12616, 12619, 12902, 12916, 12921, 12930, 12967, 12978, 12980, 13014, 13027, 13048, 13061, 13069, 13083, 13097, 13110, 13117, 13121, 13233, 13247, 13250, 13269, 13306, 13317, 13319, 13338, 13374, 13405, 13422, 13430, 13445, 13459, 13477, 13484, 13486
\float@caption 7340, 7400
\float@makebox 7402, 7403
\floatingpenalty 7240
\flq 639
\flqq 637
\fmtname 7
\fmtversion 7
\fontencoding . . . 532, 536, 571, 12883
\fontfamily 572, 12882
\fontseries 573, 6996, 7022, 7053, 12884
\fontshape 574, 4525, 12885
\fontsize 575
\footins 7234
\footnote 5058
\footnoteautorefname 3078, 3096, 3114, 3132, 3150, 3168, 3186, 3207, 3210, 3244, 3262, 8569, 8573
\footnotesep 7238, 7245
\footnotesize 604, 7236
\footnotetext 7196
\footref 7264, 7265
\foreignlanguage 620
\Form 5520
\Form@action 5530, 12650, 13869
\Form@boolkey 5524
\Form@htmlfalse . . . 5523, 5542
\Form@htmltrue 5535
\Form@method 5554, 5562, 12650
\frq 640
\frqq 638
\futurelet 692, 1588
\FV@SetLineNo 6710
\FV@StepLineNo . . . 6709, 6711, 6712

G

\G . . 14855, 14881, 14900, 15481, 15483, 15485, 15487, 15489, 15491, 15492, 15494, 15496, 15498, 15500, 15502, 15504
\g@addto@macro . . . 6175, 6347, 7472, 7749, 7752, 7755, 7804, 9240, 10211, 10732, 11020, 11593, 11679, 11741, 12043, 12233
\G@refundefinedtrue 4851, 7572, 7595, 8340, 8360, 8377, 8495
\gaf 16893
\Gauge 5830
\GenericError 680, 3711
\GenericInfo 682, 3709
\GenericWarning . 269, 681, 3710
\getpagerefnumber 6824
\getrefbykeydefault . 6780, 6781
\gexmode . 10763, 10764, 10852
\ghayn 16869
\Gin@setfile 7984, 7985
\glossary 646
\glq 635
\glqq 633
\Greeknumeral 1086

\greeknumeral 1085
\grq 636
\grqq 634
\guill@spacing 1015
\guillemotleft 1055, 14624, 14804, 14992, 16697
\guillemotright . . . 1056, 14655, 14805, 15024, 16698
\guilsinglleft 14555, 14806, 16403, 16699
\guilsinglright . . . 14557, 14807, 16405, 16700

H

\H . . 14851, 14883, 14902, 14916, 15331, 15333, 15395, 15397, 16195, 16197
\h . . 3265, 16725, 16730, 16735, 16740, 16745, 16750, 16755, 16760, 16765, 16770, 16775, 16780, 16785, 16790, 16795, 16800, 16805, 16810, 16815, 16820, 16825, 16830, 16835, 16840
\H@@footnotemark . 7109, 7126, 7180, 7269, 7276, 7288, 7299
\H@@footnotetext 7108, 7118, 7145, 7179, 7218, 7277, 7291, 7299
\H@@mpfootnotetext 7116, 7128, 7130, 7181
\H@definecounter . . 7889, 7891
\H@endeqnarray . . . 6909, 6928
\H@endequation . . . 6872, 6904
\H@endsubeqnarray . 6938, 6950
\H@eqnarray 6908, 6913
\H@equation 6871, 6895
\H@item 6544, 6550, 7480, 7505
\H@newctr 7894, 7896
\H@old@part 14339, 14350
\H@old@schapter . . 14309, 14318
\H@old@sect 14360, 14371, 14380
\H@old@spart 14352, 14358
\H@old@ssect 14295, 14300
\H@refstepcounter . . 6561, 6571, 6711, 6835, 6848, 6894, 7035, 7066, 7335, 8156, 8209
\H@seteqlabel 7925, 7927
\H@subeqnarray . . . 6937, 6941
\ha 16877
\Haa 16856
\halign 655
\hamza 16844
\HAR@checkcitations 7660
\HAR@citetoaux 7616
\HAR@tempa 7661, 7662, 7663, 7664, 7665, 7666
\harvardcite 7610, 7647
\harvarditem 7635
\hbox . . 1857, 1863, 1869, 2441, 3440, 3446, 5003, 5005, 5652, 5851, 5852, 5853, 5854, 7600, 7789, 8767, 9331, 9407, 9417, 9487, 9501, 9524, 9539, 9564, 9579, 9850, 9867, 10928, 11275, 11289, 11883, 11893, 12158, 12173, 12798, 13249, 13337, 13373, 13403, 13431, 13460, 13485, 14287
\hc@currentHref 7351
\HCode . . . 12650, 12652, 12663, 12672, 12684, 12692, 12694, 12725, 12731, 12736, 12741, 12755, 12760, 12764, 12767, 12776
\headerps@out 6448, 11583, 11594, 11666, 11680, 11733, 11742, 11755, 11769, 11808, 11926, 12044, 12234
\hfill . . . 5851, 5852, 5853, 5854, 7491, 7524
\Hfootnoteautorefname . . . 8569
\hhyperref 5063
\hoffset 7790
\hphantom 614
\href 647, 4713, 5057, 5058, 6021
\href@ 4716, 4719, 4724
\href@split 4724, 4725
\hsize 7241
\hskip . . 1868, 1946, 2482, 2483, 4710, 5857, 12798
\hspace 643, 7650, 7651
\hss 7798, 14292
\ht 5859, 5862, 9415, 9490, 9499, 9506, 9527, 9537, 9544, 9567, 9577, 9584, 11271, 11891, 12171, 13217
\htmladdimg 5056
\htmladdnormallink 5057
\htmladdnormallinkfoot . . . 5058
\htmlref 5059
\Huge 601
\huge 605
\Hurl 4799, 4801, 4803
\hv@pdf@char . . . 14077, 14142, 14143, 14144, 14145
\hvtex@buffer . . . 10627, 10631, 10639, 10642, 10651, 10655, 10671
\hvtex@gettoken . 10626, 10640, 10644, 10653, 10657
\hvtex@gettoken@ . 10627, 10629
\hvtex@par@dimension . . 10622, 10663
\hvtex@par@direction . . . 10623, 10666
\hvtex@par@duration 10624, 10658
\hvtex@par@motion 10625, 10660
\hvtex@param@dimension 10635, 10664, 10682, 10685
\hvtex@param@direction . 10636, 10667, 10693, 10701
\hvtex@param@duration . 10637, 10659, 10706, 10708
\hvtex@param@motion . . 10638, 10661, 10682, 10689
\hvtex@parse@trans 10611, 10633
\hvtex@produce@trans . . . 10672, 10678
\hvtex@token . . . 10630, 10641, 10647, 10654, 10659, 10662, 10665, 10667
\hvtex@trans@code 10615, 10616, 10617, 10618, 10619, 10620, 10621, 10634, 10680, 10681, 10683, 10685, 10687, 10689, 10691, 10693, 10695, 10696, 10697, 10698, 10699, 10701
\hvtex@trans@effect@Blinds 10615
\hvtex@trans@effect@Box 10616
\hvtex@trans@effect@Dissolve 10617
\hvtex@trans@effect@Glitter 10618
\hvtex@trans@effect@R . . 10621
\hvtex@trans@effect@Split 10619
\hvtex@trans@effect@Wipe 10620
\hvtex@trans@par 10654, 10658, 10660, 10663, 10666
\hvtex@trans@params . . . 10648, 10650, 10674
\Hy@@CleanupFile . 5003, 5005
\Hy@@DefNameKey . 2584, 2586
\Hy@@escapeform 13564, 13577, 13583
\Hy@@SectionAnchor 14282, 14285
\Hy@@temp . . 3470, 3472, 5754, 5756
\Hy@@VersionCheck . . 291, 310
\Hy@abspage . 6195, 6281, 6397, 6474
\Hy@Acrobatmenu . . 4124, 4165, 9302, 10047, 10586, 11447
\Hy@activeanchorfalse 4596, 8868, 9359, 9374, 9453, 9463, 9779, 10307,

10324, 10395, 10408, 10914, 11831, 11846, 12111, 12125
\Hy@activeanchortrue 8864, 9356, 9370, 9451, 9460, 9775, 10303, 10321, 10393, 10405, 10904, 11828, 11842, 12108, 12121
\Hy@ActiveCarriageReturn 4632, 4635
\Hy@AllowHyphens 4706, 10902, 10934, 11258
\Hy@AnchorName 4836, 4838, 4841, 4843, 4867, 4869, 4873, 4878, 4880
\Hy@appendixstring 6615, 6624
\Hy@AtBeginDocument . . . 364, 994, 2730, 2790, 2861, 2936, 2992, 3382, 4039, 4082, 4097, 4235, 4241, 4340, 4493, 4583, 5929, 6040, 6481, 6716, 7607, 8414, 8562, 8762, 9248, 9862, 10376, 11768, 11806, 12813, 12814
\Hy@AtBeginDocumentHook 365, 370, 376, 377
\Hy@AtEndOfPackage 367, 891, 2357, 3346, 3354, 3361, 4223, 4249, 4255, 4445
\Hy@AtEndOfPackageHook 368, 371, 373, 374
\Hy@author 6109, 6113
\Hy@babelnormalise 4814, 4816
\Hy@backout . 4592, 5980, 5984, 7446
\Hy@backreffalse 430, 3042, 3064, 4247
\Hy@backreftrue 3035, 3039, 3061
\Hy@BeginAnnot . . . 9892, 9909, 9950, 9987, 10019, 10048
\Hy@bibcite 7469, 7473
\Hy@bookmarksdepth . . . 3425, 3430, 3442, 3448, 13919
\Hy@bookmarksnumberedfalse 431
\Hy@bookmarksopenfalse . . 432
\Hy@bookmarkstrue 433
\Hy@bookmarkstype 3460, 3462, 7820, 13930
\Hy@boolkey 2511, 2603, 2606, 2609, 2630, 2633, 2636, 2667, 2670, 2673, 2690, 2694, 2697, 2700, 2703, 2706, 2709, 2712, 3013, 3016, 3071, 3368, 3380, 3395, 3420, 3423, 3464, 3467, 3528, 3688, 3960, 3963, 3966, 3969, 3972, 3975, 3978, 3986, 4007, 4010, 6415
\Hy@BorderArrayPatch . . 11326, 11329, 11592, 12042
\Hy@breaklinks@unsupported 2678, 10880
\Hy@breaklinksfalse 434
\Hy@breaklinksunhbox . . 11225, 11279
\Hy@CatcodeWrapper . . . 4454, 4513, 4557, 4586
\Hy@chapapp 6616, 6624, 6650, 14313, 14324, 14406
\Hy@chapterstring . . 6611, 6613, 6616, 6649
\Hy@CheckOptionValue . 2554, 2591
\Hy@CJKbookmarksfalse . . . 436
\Hy@cjkpu 1257, 1259, 1280
\Hy@CleanupFile . . . 5001, 8929, 9952, 10472, 11518
\Hy@colorlink 3374, 4517, 4525, 4529, 8763, 8849, 8922, 8962, 8998, 9325, 9357, 9380, 9411, 9424, 9452, 9468, 9493, 9509, 9531, 9548, 9571, 9588, 9863, 9941, 9980, 10012, 10041, 10066, 10394, 10416, 10486, 10512, 10547, 10580, 10598, 10932, 11209, 11211, 11829, 11852, 11887, 11900, 12109, 12131, 12166, 12179
\Hy@colorlinksfalse 3371
\Hy@ColorList 3533, 3534
\Hy@CounterExists . 6509, 6522, 6525
\Hy@currentbookmarklevel 13925, 13935, 13936, 13942, 13949, 14042, 14045, 14050, 14054
\Hy@debugfalse 426
\Hy@debugtrue 425
\Hy@defaultdriver . . 4329, 4354, 4364, 4375
\Hy@DefFormAction 5528, 5530
\Hy@DefNameKey . . 2583, 3565, 3617, 3625, 3633, 3637, 3644, 3651, 3658, 3665, 3669, 3674, 3681, 3995
\Hy@DEST 11226, 11293
\Hy@DestName 8810, 8817
\Hy@DisableOption 2540, 4117, 4118, 4119, 4121, 4228, 4254, 4391, 4392, 4393, 4394, 4395, 4396, 4397, 4398, 4399, 4400, 4401, 4402, 4403, 4404, 4405, 4406, 4407, 4408, 4453, 4506, 4534, 4535, 4594, 4595, 5933, 5934, 5935, 5936, 5937, 5938, 5939, 5940, 5941, 5942, 5943, 5944, 5945, 5946, 5947, 5948, 5949, 5950, 5951, 5952, 5953, 5954, 5955, 5956, 6133, 6349, 7303, 7989, 8087, 8088, 8687, 8790, 9158, 9159, 9160, 9161, 9162, 9163, 9164, 9165, 9166, 9167, 9297, 9618, 9619, 9620, 9621, 9622, 9623, 9624, 9625, 9626, 9627, 9890, 10109, 10110, 10111, 10112, 10113, 10114, 10115, 10116, 10117, 10118, 10236, 10378, 10832, 10833, 10834, 10835, 10836, 10837, 10838, 10839, 10840, 10841, 11099, 11100, 11101, 11102, 11103, 11104, 11105, 11106, 11107, 11108, 11659, 11952, 11953, 11954, 11955, 11956, 11957, 11958, 11959, 11960, 11961
\Hy@DistillerDestFix 7763, 10845, 10847
\Hy@draftfalse 393
\Hy@drafttrue 394
\Hy@driver 470, 2683, 2858, 2870, 2880, 2885, 2890, 2903, 2913, 2918, 2923, 2930, 2933, 2959, 2975, 2982, 2987, 2997, 4257, 4260, 4264, 4267, 4271, 4274, 4276, 4280, 4286, 4290, 4293, 4297, 4302, 4306, 4309, 4313, 4316, 4318, 4322, 4327, 4331, 4334, 4337, 4348, 4351, 4354, 4363, 4364, 4375, 4377, 4383, 4385, 4387
\Hy@dth@currentHref 7037, 7068, 7093
\Hy@DviErrMsg . . . 2825, 2827, 2830, 2836, 2849
\Hy@DviModetrue . . 2834, 2839
\Hy@DvipdfmxOutlineOpentrue 4415, 4422
\Hy@EndAnnot 9898, 9944, 9983, 10015, 10044, 10069
\Hy@endcolorlink . . 3375, 4521, 4526, 4530, 8772, 8855, 9357, 9394, 9418, 9426,

9452, 9476, 9497, 9511, 9535, 9550, 9575, 9590, 9872, 9900, 10394, 10467, 10488, 10514, 10549, 10582, 10600, 10959, 11218, 11829, 11868, 11894, 11902, 12109, 12145, 12170, 12181
\Hy@EndWrap 4455, 4457, 4458, 4491
\Hy@Error 263, 279, 285, 299, 2734, 2847, 2872, 2905, 2943, 2950, 2961, 2967, 4149, 4767, 4934, 5229, 5353, 5549, 5581, 5759, 5808, 12546, 12592, 13039, 13091, 13395, 13453
\Hy@escapeform . 12439, 12522, 12534, 12558, 12576, 12599, 12618, 12919, 13004, 13025, 13051, 13071, 13098, 13119, 13254, 13346, 13377, 13409, 13433, 13461, 13490, 13558, 13588, 13595
\Hy@escapestring 13555, 13623, 13627, 13631, 13635, 13639, 13643, 13647, 13651, 13655, 13659, 13703, 13736, 13837, 13838, 13869
\Hy@EveryPageAnchor . . 7762, 7805
\Hy@EveryPageBoxHook 6159, 6163, 6167, 7804, 10211, 10732, 11020
\Hy@EveryPageHook 6158, 6162, 6347, 9240
\Hy@ExchangeLeftParenthesis 8618, 8624
\Hy@ExchangeRightParenthesis 8628, 8634
\Hy@false 2405, 2521, 3027, 3063, 5578
\Hy@finalfalse 394
\Hy@finaltrue 393
\Hy@FirstPage 4135
\Hy@FirstPageHook 6160, 6173, 6175, 6446, 6447, 11593, 11679, 11741, 12043, 12233
\Hy@FixNotFirstPage 9329, 9330, 9336
\Hy@float@caption . . 7341, 7391, 7393
\Hy@float@currentHref . . 7394, 7396, 7398, 7406, 7409, 7411
\Hy@footnote@currentHref 5928, 7133, 7138, 7148, 7153, 7156, 7168, 7170, 7209, 7250, 7253
\Hy@FormObjects 12851, 13127, 13181, 13191, 13501, 13551
\Hy@frenchlinksfalse 3373
\Hy@Gin@setfile . . . 7984, 7986
\Hy@GlobalStepCount 468, 6281, 6680, 6703, 7780, 8198, 8249
\Hy@gtemp 806, 807, 4187, 4193, 4195, 5426, 5427, 5431, 5432, 5443, 5457, 7185, 7190, 8642, 8644, 13616, 13618
\Hy@href 4716, 4718
\Hy@href@nextactionraw 4753, 4776, 4778, 4779, 4781, 4786, 4790, 4792, 8918, 8958, 8994, 9321, 9937, 9976, 10008, 10037, 10057, 10431, 10501, 10569, 11543, 11572
\Hy@href@page 4731, 4733, 4737, 4738, 4740, 4747, 4750, 8954, 9971, 11539
\Hy@hyperfiguresfalse 438
\Hy@hyperfootnotestrue . . . 440
\Hy@hyperindextrue 441
\Hy@hypertexnamesfalse . . 2361
\Hy@hypertexnamestrue . . . 442
\Hy@IfStringEndsWith . . 4969, 4981
\Hy@implicittrue 443
\Hy@Info 266, 2529, 4198, 4200, 4203, 4205, 4208, 4210, 4213, 4215, 4218, 4220, 4438, 4444, 4522, 4527, 4531, 4675, 4702, 5136, 5890, 5892, 5895, 5897, 5900, 5902, 5905, 5907, 5910, 5912, 5915, 5917, 5920, 5922, 7547, 7608, 7825, 7842
\Hy@InfoNoLine 267, 4230, 4232, 12088
\Hy@LastPage 4138
\Hy@level . 13931, 13933, 13944, 13949, 13950, 13951, 13982
\Hy@levelcheck . . . 13932, 13947
\Hy@linkcounter 472, 474, 6680, 6681, 6703, 6704, 7928, 8198, 8199, 8203, 8249, 8250, 8254
\Hy@linkfileprefix . . 3504, 4953, 9397, 10272, 11872, 12148
\Hy@LinkMath . . 10923, 10925, 10930, 10962, 11250, 11252, 11257, 11259, 11265, 11267
\Hy@linktoc . 2638, 2640, 2648, 2650, 2660, 7861
\Hy@linktoc@all 2646
\Hy@linktoc@none 2643
\Hy@linktoc@page . . 2638, 2645, 2648
\Hy@linktoc@section 2640, 2644, 2650
\Hy@linktocpagefalse 444
\Hy@localanchornamefalse . . 445
\Hy@LT@currentHref 6850, 6861
\Hy@LT@footnotetext 7208, 7217
\Hy@make@anchor . 7902, 7908, 7914
\Hy@make@df@tag@@ 7906, 7921
\Hy@make@df@tag@@@ . . 7912, 7922
\Hy@MakeCurrentHref . . 6691, 6704
\Hy@MakeCurrentHrefAuto 6702, 6784, 7903, 13910, 14297, 14313, 14324, 14354, 14368, 14406
\Hy@MakeRemoteAction . 4736, 8932, 9955, 11521
\Hy@maketitle@end . 7280, 7285, 7287
\Hy@maketitle@optarg 7278, 7283
\Hy@Match 314, 316, 3004, 3514, 3574, 3591, 3934, 4781, 5672
\Hy@MaybeStopNow 2926, 4063, 4066
\Hy@Message 268, 2860, 2935, 4234, 4339, 4383, 10328, 10332, 10335, 10338, 10341, 10344, 10347, 10350, 12417, 12627, 12630, 12633, 12636, 12639, 12642, 12644, 12645, 12654, 12791, 13186
\Hy@naturalnamesfalse 447
\Hy@nestingfalse 448
\Hy@newline@author 6152
\Hy@newline@title 6151
\Hy@next . . . 6297, 6307, 6312, 14323, 14332, 14335
\Hy@nextfalse 4167, 7999
\Hy@NextPage 4129
\Hy@nexttrue 4168, 4169, 4170, 8000, 8001, 8002
\Hy@number . . 3903, 3907, 3915
\Hy@numberline . 13926, 13963, 13964, 13965, 13966
\Hy@ObsoletePaperOption 2612, 2620

\Hy@ocgcolor 8766, 8780, 9866, 9880
\Hy@ocgcolorlinksfalse 3372, 4501
\Hy@org@chapter . 14321, 14336
\Hy@OrgMakeLabel 12202, 12209
\Hy@OutlineName . 14201, 14256
\Hy@OutlineRerunCheck . 14066, 14165, 14247
\Hy@PageAnchorSlide ... 7722, 7760, 7773
\Hy@PageAnchorSlidesPlain 7709, 7759, 7768
\Hy@pageanchortrue 451
\Hy@pagecounter 473, 475, 6742, 7780, 7782
\Hy@pageheight ... 4053, 11681, 11770
\Hy@param .. 6648, 6649, 6650, 6677, 6681
\Hy@pdfafalse 466
\Hy@pdfcenterwindowfalse . 435
\Hy@pdfdisplaydoctitlefalse . 465
\Hy@pdfencoding@pdfdoc . 2785
\Hy@pdfescapeformfalse ... 437
\Hy@pdffitwindowfalse 439
\Hy@pdfmarkerrorfalse .. 11189
\Hy@pdfmarkerrortrue .. 11359, 11368
\Hy@pdfmenubartrue 446
\Hy@pdfminorversion 8654, 8660, 8663, 8671, 8676, 8678, 8681, 8685
\Hy@pdfnewwindowfalse ... 450
\Hy@pdfnewwindowsetfalse 449, 3983
\Hy@pdfnewwindowsettrue 3985, 4755
\Hy@pdfnewwindowtrue .. 4756
\Hy@pdfpagehiddenfalse ... 453
\Hy@pdfpagelabelsfalse ... 6182
\Hy@pdfpagelabelstrue 452
\Hy@pdfstringdef 805, 5401, 5409
\Hy@pdfstringfalse .. 454, 5958
\Hy@pdfstringtrue ... 659, 5930
\Hy@pdftoolbartrue 459
\Hy@pdfusetitlefalse 462
\Hy@pdfversion 2812, 2823, 5403, 8676, 8678, 8682, 8685, 13610
\Hy@pdfwindowuitrue 464
\Hy@plainpagesfalse 455
\Hy@PrevPage 4132
\Hy@ps@CR 11723, 11730, 11735, 11736, 11753, 11774, 11775, 11776, 11782, 11789, 11796, 11803
\Hy@pstringB 9074, 9079, 10149, 10161, 11162, 11178, 12015, 12031
\Hy@pstringD 8931, 8956, 9954, 9973, 11520, 11541
\Hy@pstringdef 8589, 8809, 8833, 8893, 8930, 8931, 8968, 8969, 9074, 9717, 9918, 9953, 9954, 9988, 9989, 10020, 10149, 10415, 10493, 10556, 10557, 11162, 11357, 11366, 11493, 11519, 11520, 11551, 11552, 12015, 13581, 14200, 14216
\Hy@pstringDest 8809, 8810, 9717, 9764, 11357, 11358, 11362, 11366, 11367, 11371
\Hy@pstringF 8928, 8929, 8930, 8950, 8968, 8987, 8992, 9951, 9952, 9953, 9968, 9988, 10001, 10006, 10471, 10472, 10476, 10556, 10563, 10567, 11517, 11518, 11519, 11536, 11551, 11567, 11570
\Hy@pstringName 14200, 14201, 14216, 14230
\Hy@pstringP 8969, 8992, 9989, 10006, 10557, 10567, 11552, 11570
\Hy@pstringURI ... 8893, 8914, 10020, 10033, 10415, 10427, 10493, 10497, 11493, 11505
\Hy@PutCatalog 6343, 6351, 6463
\Hy@raisedlink 2429, 6604, 6786, 6807, 6808, 6809, 6812, 6862, 6901, 6904, 7090, 7136, 7151, 7222, 7248, 7379, 7457, 7481, 7486, 7506, 7904, 7929, 11581, 11664, 11922, 12086, 13911, 14289, 14314, 14325, 14355, 14407
\Hy@raiselinksfalse .. 456, 7609
\Hy@RemoveDurPageAttr 9197, 9210
\Hy@RemoveHidPageAttr 9220, 9232
\Hy@RemovePercentCr .. 4648, 4652, 4657
\Hy@RemoveTransPageAttr 9172, 9186
\Hy@reserved@a 4883, 6911, 6940, 12657, 12707, 12770
\Hy@RestoreCatcodes 205, 4059, 4390
\Hy@RestoreLastskip 2450, 8811, 9360, 9375, 9454, 9464, 9766, 10308, 10325, 10396, 10409, 10895, 10915, 11832, 11847, 12112, 12126
\Hy@RestoreSavedSpaceFactor . .. 2425, 9405, 9485, 9522, 9562, 11881, 12156
\Hy@RestoreSpaceFactor 2416, 2442, 2447, 9404, 9412, 9419, 9484, 9494, 9502, 9521, 9532, 9540, 9561, 9572, 9580, 10929, 10965, 11256, 11264, 11291, 11880, 11888, 11895, 12155, 12167, 12174, 12210, 12214
\Hy@ReturnAfterElseFiFiEnd 478, 1831
\Hy@ReturnAfterFiFiEnd . 477, 1823, 1837, 1915, 1922
\Hy@ReturnEnd . 476, 477, 478, 1843, 1927
\Hy@safe@activesfalse 479, 4547, 4552, 4897, 8484
\Hy@safe@activestrue 479, 4176, 4545, 4550, 4628, 4665, 4673, 4701, 4818, 4889, 8390, 8473, 14158, 14188
\Hy@saved@currentHref .. 7166, 7169
\Hy@saved@footnotemark 7274, 7289
\Hy@saved@footnotetext . 7275, 7292
\Hy@saved@hook ... 6137, 6147
\Hy@saved@refstepcounter 6588, 6836
\Hy@SavedSpaceFactor 2412, 2414, 2419, 2420, 2426, 12207
\Hy@SaveLastskip 2450, 8807, 9348, 9363, 9445, 9457, 9714, 10295, 10311, 10386, 10399, 10885, 10899, 11821, 11835, 12101, 12115
\Hy@SaveSavedSpaceFactor 2424, 9403, 9483, 9520, 9560, 11879, 12154
\Hy@SaveSpaceFactor 2413, 2433, 2444, 9402, 9414, 9482, 9496, 9519, 9534, 9559, 9574, 10927, 10963, 11248, 11260, 11268, 11878, 11890, 12153, 12169, 12205, 12212

\Hy@scanauthor . . . 6107, 6112
\Hy@scanoptauthor . 6107, 6108
\Hy@scanopttitle . . . 6098, 6099
\Hy@scantitle 6098, 6103
\Hy@secnum@part 14342, 14344, 14347
\Hy@SectionAnchorHref . . 657, 14280, 14302, 14373
\Hy@SectionHShift 14279, 14288, 14298, 14369
\Hy@seminarslidesfalse . . . 8148
\Hy@seminarslidestrue 8145
\Hy@setbreaklinks . . 2675, 2679, 2691, 8650, 9707
\Hy@SetCatcodes 181, 231, 4061
\Hy@SetNewWindow 3989, 8952, 8989, 9975, 10003, 10564, 11535, 11566
\Hy@setouterhbox . 11224, 11255
\Hy@setpagesizetrue 457
\Hy@setpdfborder 3607, 8839, 8898, 8936, 8973, 9305, 9929, 9961, 9995, 10026, 10059, 10435, 10456, 10479, 10505, 10539, 10573, 10591
\Hy@setpdfversiontrue 2811
\Hy@setref@link 8346, 8349
\Hy@SlidesFormatOptionalPage . 6211, 7708, 7727, 7731
\Hy@SlidesPage 6218, 7741, 7742, 7748, 7750, 7753, 7756
\Hy@slidetitle 8175, 8177, 8184, 8192, 8202, 8226, 8228, 8235, 8243, 8253
\Hy@StartlinkName . 8837, 8851
\Hy@StepCount 467, 6258, 12457, 12520, 12722, 12937, 13001, 13276, 13343, 14046, 14051, 14127
\Hy@stoppedearlyfalse 4068, 6508
\Hy@stoppedearlytrue 4065, 6505
\Hy@StringLocalhost 4999, 5000, 5015
\Hy@tabularx@hook 7178, 7186
\Hy@temp 687, 694, 809, 881, 982, 985, 993, 994, 2618, 2623, 2624, 2625, 2626, 2627, 2628, 3469, 3478, 3479, 3480, 3481, 3482, 3483, 3484, 3534, 3535, 3536, 3539, 3541, 3544, 3554, 3557, 3558, 3559, 3560, 3561, 3562, 3572, 3585, 3589, 3604, 3766, 3767, 3770, 3773, 3776, 3801, 3809, 3810, 3811, 3812, 3813, 3814, 3815, 3816, 3817, 3981, 3982, 4156, 4160, 4161, 4162, 4163, 4262, 4264, 4269, 4271, 4274, 4288, 4290, 4295, 4297, 4304, 4306, 4311, 4313, 4316, 4376, 4377, 5126, 5130, 5131, 5142, 5226, 5227, 5228, 5230, 5234, 5546, 5547, 5548, 5550, 5554, 5555, 5670, 5682, 5753, 5769, 5770, 5771, 5772, 5773, 5774, 5775, 5776, 5778, 5784, 5790, 5791, 5792, 5793, 5794, 5795, 5796, 5797, 5798, 5799, 5800, 6238, 6241, 6250, 6252, 6256, 6260, 6304, 6306, 6736, 6739, 6742, 6748, 6874, 6880, 6988, 7011, 7258, 7264, 8096, 8097, 9089, 9118, 9120, 9637, 9642, 9648, 9652, 9655, 9660, 9691, 9693, 10121, 10164, 10166, 11062, 11065, 11069, 11070, 11076, 11077, 11083, 11111, 11116, 11122, 11126, 11129, 11134, 11167, 11169, 11230, 11231, 11235, 11323, 11324, 11332, 11333, 11437, 11438, 11964, 11969, 11975, 11979, 11982, 11987, 12020, 12022, 13563, 13564, 14198, 14204, 14212, 14227
\Hy@temp@A 718, 719, 1815, 1817, 1828, 1830, 1835, 1836, 1839, 3802, 3804, 8018, 8019, 8020, 8027, 8055, 8056, 8057, 8066
\Hy@temp@B 1816, 1817
\Hy@tempa . . 2512, 2514, 2516, 2517, 2519, 2521, 2523, 2526, 2529, 2530, 3023, 3024, 3025, 3027, 3028, 3030, 3031, 3033, 3037, 3041, 3052, 3054, 3056, 3057, 3059, 3063, 4634, 4635, 4646, 4650, 4819, 4823, 4888, 4891, 4900, 4902, 5533, 5534, 5574, 5575, 5578, 5582, 6287, 6289, 6327, 6329, 6474, 6476, 6958, 6960, 6961, 6964, 6965, 6966, 7336, 7341, 7346, 7819, 7820, 7838, 7839, 7845, 8162, 8163, 8214, 8215, 9381, 9382, 10276, 10424, 10425, 11853, 11854, 12132, 12133, 13929, 13930, 13953, 13955, 13974, 13975, 13983, 14007, 14009, 14010, 14012, 14013, 14396, 14421, 14426, 14429, 14432
\Hy@tempb . . 6288, 6289, 6328, 6329, 13954, 13955, 13983
\Hy@tempcolor . . 10941, 10943, 10956, 11032, 11034, 11046
\Hy@TempPageAnchor . . 7711, 7767, 7777, 7781, 7797
\Hy@Test@Alph 6637, 6660
\Hy@Test@alph 6628, 6656
\Hy@testname 8825, 8826, 8831, 8833, 8834, 8848, 9910, 9911, 9916, 9918, 9920, 9936, 10443, 10444, 10449, 10453, 10526, 10527, 10532, 10536, 11037, 11038, 11043, 11054
\Hy@texhtfalse 458
\Hy@texhttrue 2855, 4258
\Hy@TheSlideOptionalPage 7726, 7730, 7735, 7744
\Hy@title 6100, 6104
\Hy@toclevel . . 7830, 7834, 7847
\Hy@true 2404, 2517, 2519, 3057, 3059, 5575
\Hy@typexmlfalse 460
\Hy@undefinedname 8822, 8829, 8831, 9905, 9914, 9916, 10412, 10447, 10449, 10530, 10532, 11028, 11041, 11043
\Hy@unicodefalse 461, 785, 795, 2741, 2742, 2750, 3743, 3749, 6738, 7772, 13612
\Hy@unicodetrue . . . 2742, 6408, 6422
\Hy@useHidKeyfalse 3526
\Hy@useHidKeytrue 3530
\Hy@UseMaketitleInfos . . 6153, 9131, 9599, 10081, 10821, 11060, 11933
\Hy@UseMaketitleString . 6134, 6154, 6155
\Hy@UseNameKey 2596, 9096, 9097, 9098, 9099, 9100, 9101, 9102, 9103, 9122, 9667, 9668, 9669, 9670, 9671, 9672, 9673, 9674, 9695, 10128, 10129, 10130, 10131, 10132,

10133, 10134, 10135, 10168, 10793, 10794, 10795, 10796, 10797, 10798, 10799, 10800, 11141, 11142, 11143, 11144, 11145, 11146, 11147, 11148, 11171, 11994, 11995, 11996, 11997, 11998, 11999, 12000, 12001, 12024
\Hy@varioref@refstepcounter 6827, 6834
\Hy@varioref@undefined . 6818, 6822, 8479
\Hy@VerboseAnchor 4698, 8808, 9349, 9364, 9446, 9458, 9715, 10296, 10312, 10387, 10400, 10886, 10900, 11822, 11836, 12102, 12116
\Hy@verbosefalse 426, 463
\Hy@VerboseGlobalTemp 4674, 4675, 4676, 4677, 4681
\Hy@VerboseLinkInfo 4681, 4682, 4685, 4692
\Hy@VerboseLinkStart 4670, 8871, 8881, 9379, 9431, 9467, 9479, 9907, 10252, 10275, 10414, 10519, 10918, 11030, 11851, 11907, 12130, 12187
\Hy@VerboseLinkStop 4686, 8856
\Hy@verbosetrue 425
\Hy@VersionCheck . . 276, 4387
\Hy@VersionChecked . . 275, 308, 4384, 4386
\Hy@vt@PutCatalog 6380, 6382
\Hy@VTeXversion . . 6360, 6372, 10475, 10604, 10740, 14079
\Hy@WarnHTMLFieldOption . . . 5600, 5633, 5636, 5786
\Hy@Warning 264, 339, 501, 1755, 2534, 2549, 2574, 2654, 2769, 2774, 3386, 3438, 3517, 3580, 3599, 3778, 3825, 3833, 3944, 4497, 4742, 4785, 4903, 5025, 5183, 5538, 5601, 5675, 6418, 6433, 7811, 8459, 8509, 8827, 9748, 9752, 9912, 10445, 10528, 11039, 11360, 11369, 13938, 13956
\Hy@WarningNoLine 265, 2613, 2681, 2795, 3489, 3550, 3694, 3794, 4046, 4115, 4266, 4275, 4292, 4308, 4317, 6081, 6183, 6374, 6488, 6723, 7821, 7976, 11197
\Hy@WarningPageBorderColor 3547, 3549, 3551
\Hy@WarningPageColor . 3486, 3488, 3490
\Hy@WarnOptionDisabled 2546, 2548
\Hy@WarnOptionValue . . 2527, 2533, 3044, 3066
\Hy@wrapper@babel 4174, 4192
\Hy@WrapperDef 4184, 8803, 9347, 9362, 9444, 9456, 9713, 10294, 10310, 10385, 10398, 10884, 10898, 11820, 11834, 12100, 12114
\Hy@writebookmark 2409, 7831, 8182, 8190, 8200, 8233, 8241, 8251, 13915, 14057
\Hy@xspace@end 4080, 4085, 4088, 4092, 4095, 4100, 4101, 4102, 4104, 4105, 4106, 4107, 4108, 5969, 5970, 5972, 5975, 5977, 5978, 5979, 5983, 5986, 5989, 5991, 5992, 5993, 8887, 8922, 8962, 8998, 9424, 9495, 9510, 9533, 9549, 9573, 9589, 9946, 9982, 10014, 10043, 10068, 10256, 10266, 10487, 10513, 10548, 10581, 10599, 11258, 11266, 11889, 11900, 12168, 12180, 12211
\HyC@@cmd 87, 109, 122
\HyC@check 68, 71, 74
\HyC@checkcommand 50, 57, 59
\HyC@checkFailed 146, 157
\HyC@checkItem . 132, 133, 134, 135, 138
\HyC@checklong 45, 53
\HyC@checkOk 144, 154
\HyC@checkPackage . 12, 16, 18
\HyC@cmd . 62, 75, 87, 95, 118, 131
\HyC@date . . . 11, 15, 23, 29, 31
\HyC@DeclareRobustCommand 114
\HyC@def 125
\HyC@defcmd 47, 54, 93
\HyC@doCheck 99, 130
\HyC@edef 125
\HyC@getDate 12, 14
\HyC@meaning 152, 160
\HyC@nc@default 103, 105
\HyC@nc@noopt 88, 91, 103, 112, 123, 127
\HyC@nc@opt 88, 101, 123
\HyC@newcommand 86
\HyC@next 48, 55, 60, 83
\HyC@noValue 80, 81, 82, 85, 139
\HyC@optcmd 107, 111
\HyC@org@cmd 76
\HyC@org@optcmd 80, 111
\HyC@org@robustcmd . . 81, 120
\HyC@org@robustoptcmd . . . 82
\HyC@package 10, 22, 28, 34, 37, 38
\HyC@param 78, 96, 102
\HyC@robustcmd 115, 120, 121, 122
\HyC@star 67, 70, 94
\HyC@string . 131, 152, 155, 158
\HyC@Toks . 79, 90, 96, 106, 126
\HyCal@do 495, 499
\HyCal@scan 486, 490, 514
\HyColor@FieldBColor . . 5734, 5737
\HyColor@FieldColor 5740
\HyColor@HyperrefBorderColor 3537, 3555
\HyColor@HyperrefColor 3474, 3493, 3494, 3495, 3496, 3497, 3498, 3499
\HyColor@UseColor . 4519, 8769, 8780, 9869, 9880
\HyField@@AddToFields . 12833, 12837
\HyField@@PDFChoices . 5421, 5422, 5437
\HyField@@SetFlag . 5116, 5118
\HyField@@UseFlag . 5106, 5108
\HyField@AddToFields . . 12803, 12832, 12922, 13016, 13029, 13055, 13079, 13102, 13123
\HyField@AdvanceAnnotCount 13223, 13252, 13348, 13378, 13406, 13434, 13462, 13488
\HyField@afields . 12800, 12822, 12823, 12825, 12860
\HyField@AfterAuxOpen . 12813, 12820, 12838
\HyField@AnnotCount . . 13221, 13224, 13227
\HyField@AuxAddToFields 12812, 12817, 12821, 12841
\HyField@FlagsAnnot 5276, 5295, 5309, 5322, 5338, 5370
\HyField@FlagsCheckBox 5308, 12615, 13116, 13483
\HyField@FlagsChoice . . . 5369, 12496, 12977, 13316

\HyField@FlagsPushButton 5294, 12554, 12573, 12597, 13047, 13067, 13096, 13404, 13428, 13458
\HyField@FlagsRadioButton . . . 5321, 12492, 12973, 13312
\HyField@FlagsSubmit . . 5242, 12574, 13068, 13429
\HyField@FlagsText 5337, 12435, 12915, 13246
\HyField@NeedAppearancesfalse 5566, 5579
\HyField@NeedAppearancestrue . . . 5569, 5572, 5576
\HyField@NewBitsetFlag . 5074, 5077, 5085
\HyField@NewFlag . 5072, 5148, 5149, 5150, 5151, 5152, 5153, 5154, 5155, 5156, 5157, 5158, 5159, 5160, 5161, 5162, 5163, 5164, 5165, 5166, 5167, 5172, 5173, 5174, 5175, 5176, 5177, 5178, 5179, 5180, 5213, 5215, 5216, 5218, 5219, 5221, 5222, 5223, 5224
\HyField@NewFlagOnly . 5076, 5214, 5217, 5220
\HyField@NewOption 5073, 5079
\HyField@PDFAFlagWarning 5182, 5190, 5194, 5198, 5202, 5206, 5210
\HyField@PDFChoices . . 5394, 12533, 13023, 13372
\HyField@PrintFlags 5123, 5269, 5287, 5301, 5314, 5330, 5362, 5387
\HyField@SetFlag . . 5115, 5255, 5261, 5266, 5300, 5328
\HyField@SetKeys . 5498, 12432, 12463, 12466, 12485, 12542, 12570, 12587, 12612, 12911, 12943, 12946, 12965, 13034, 13064, 13086, 13112, 13242, 13282, 13285, 13304, 13390, 13425, 13448, 13479
\HyField@TheAnnotCount 13226, 13256, 13261, 13353, 13365, 13380, 13385, 13411, 13417, 13436, 13441, 13464, 13469, 13492, 13497
\HyField@UseFlag 5105, 5246, 5247, 5248, 5249, 5250, 5251, 5252, 5253, 5256, 5257, 5258, 5259, 5262, 5263, 5264, 5267, 5278, 5279, 5280, 5281, 5282, 5283, 5284, 5285, 5286, 5297, 5298, 5299, 5311, 5312, 5313, 5324, 5325, 5326, 5327, 5329, 5340, 5341, 5342, 5343, 5344, 5345, 5346, 5347, 5358, 5361, 5372, 5373, 5374, 5375, 5377, 5379, 5380, 5383, 5386
\HyInd@@@wrindex . 8014, 8017, 8048, 8054
\HyInd@@hyperpage 8094, 8104
\HyInd@@wrindex . . 8009, 8010
\HyInd@EncapChar . 3074, 4056, 8004
\HyInd@hyperpage . 8091, 8093, 8100
\HyInd@org@wrindex 8008, 8012, 8022, 8028, 8030, 8033
\HyInd@pagelink . . . 8109, 8115, 8117, 8120
\HyInd@ParenLeft . . 7991, 8019, 8056
\HyInd@ParenRight . 7992, 8020, 8027, 8057, 8066
\HyInd@removespaces 8123, 8126, 8136
\HyInfo@AddonHandler . . 3820, 3823
\HyInfo@AddonList . 3847, 3848, 3882, 3889
\HyInfo@Addons . . . 3868, 3884, 9155, 10106, 11092, 11096
\HyInfo@AddonUnsupportedtrue . . . 9597, 10819, 11931
\HyInfo@do . . . 3822, 3849, 3872
\HyInfo@GenerateAddons 3866, 9132, 10082, 11061
\HyInfo@Key 3830, 3831, 3839, 3844, 3849, 3852, 3859, 3873, 3877
\HyInfo@KeyEscaped 3829, 3830
\HyInfo@trapped@false . . 3770, 3789
\HyInfo@trapped@true 3767, 3788
\HyInfo@trapped@unknown 3773, 3790
\HyInfo@TrappedUnsupported . . . 3791, 3795, 9600, 10822, 11934
\HyInfo@Value 3843, 3845
\HyLang@addto 3278, 3294, 3312, 3345, 3353
\HyLang@afrikaans 3076
\HyLang@DeclareLang 3292, 3321, 3322, 3323, 3324, 3325, 3326, 3327, 3328, 3329, 3330, 3331, 3332, 3333, 3334, 3335, 3336, 3337, 3338, 3339, 3340, 3341, 3342, 3343
\HyLang@english 3094
\HyLang@french 3112
\HyLang@german 3130
\HyLang@italian 3148
\HyLang@magyar 3166
\HyLang@portuges 3184
\HyLang@russian 3202
\HyLang@spanish 3242
\HyLang@vietnamese 3260, 3345, 3353
\HyLinguex@OrgB . . . 883, 887
\HyLinguex@OrgC . . . 884, 888
\HyLinguex@OrgD . . . 885, 889
\HyLinguex@Restore . . 886, 899, 903, 911, 2723
\HyOpt@CheckDvi 2843, 2879, 2884, 2889, 2912, 2917, 2922, 2974, 2981, 2986, 2991, 2996
\HyOpt@DriverFallback . . 3000, 3003, 3004, 3008, 4353, 4358
\HyOpt@DriverType 4326, 4328, 4355, 4365, 4367, 4383
\HyOrg@addtoreset . 7934, 7936, 7963
\HyOrg@appendix . . 6619, 6625
\HyOrg@author 6097, 6110, 6114
\HyOrg@float@makebox . . 7402, 7404
\HyOrg@hyperpage . 7994, 7996, 7997
\HyOrg@languageshorthands 953, 967, 978, 988
\HyOrg@make@df@tag@@ . 7919
\HyOrg@make@df@tag@@@ 7920
\HyOrg@maketitle . . 7272, 7279, 7284
\HyOrg@subequations 6975, 6982
\HyOrg@title . . 6096, 6101, 6105
\HyOrg@TX@endtabularx . 7177
\HyOrg@url 4798
\HyPat@NonNegativeReal 3575, 3576, 3577, 3578, 3594, 3596, 3925, 3935, 3936, 3937, 3939, 3940, 3941
\HyPat@ObjRef 4782, 4783, 4796, 8651, 9708, 10881
\hyper@@anchor 4099, 4808, 4810, 4841, 4843, 4878, 4880, 5022, 5970, 5985, 6001, 7132, 7137, 7147, 7152, 7220, 7223, 7249, 7377, 7380, 7408, 7712, 7767,

7777, 7782, 8181, 8189, 8199, 8232, 8240, 8250
\hyper@@link . 4668, 4726, 4831, 4859, 4883, 7465, 7611, 7612, 7613, 7661, 7663, 7665, 8351, 8366, 8469
\hyper@@normalise . 4637, 4641, 4645
\hyper@anchor 5049, 5973, 5987, 6051, 6064, 8859, 9347, 9444, 9771, 10310, 10385, 10884, 11820, 12100
\hyper@anchorend 4088, 4095, 4102, 5957, 5975, 5989, 6004, 6605, 6788, 6863, 6904, 6923, 6947, 7094, 7459, 7484, 7487, 7507, 7640, 7904, 7930, 8866, 9372, 9462, 9778, 10305, 10407, 10906, 11844, 12123, 13911, 14058, 14290, 14315, 14326, 14356, 14408
\hyper@anchorstart 4101, 5957, 5974, 5988, 6003, 6605, 6787, 6863, 6901, 6923, 6947, 7091, 7457, 7482, 7487, 7507, 7640, 7904, 7930, 8862, 9362, 9456, 9774, 10294, 10398, 10898, 11834, 12114, 13911, 14058, 14290, 14315, 14326, 14356, 14408
\hyper@chars 4662, 8894, 9352, 9366, 9386, 9408, 9422, 9436, 9516, 9556, 10261, 10282, 10298, 10315, 10390, 10402, 10494, 11494, 11838, 11858, 11884, 11898, 11912, 12118, 12137, 12160, 12177, 12192
\hyper@currentanchor . . . 10903, 10912, 10935, 10952
\hyper@currentlinktype . . 10936, 10940, 10944
\hyper@hash . 4614, 4615, 4663, 4945, 4957, 4974, 4977, 5924, 10255
\hyper@image 4804, 4805, 9434, 10552, 11025, 11910, 12190
\hyper@last 6071, 6076
\hyper@link 4100, 4892, 5971, 5972, 5986, 5996, 6002, 8880, 9430, 9478, 9945, 10251, 10518, 11029, 11906, 12186
\hyper@link@ . 4107, 4884, 4886, 5969, 5983, 6009
\hyper@linkend 4088, 4095, 4104, 5977, 5991, 6006, 7172, 7451, 7454, 7865, 7869, 7873, 7875, 8879, 9392, 9475, 9944, 9946, 10287, 10465, 10938, 11866, 12143
\hyper@linkfile 4106, 4970, 5979, 5993, 6008, 8926, 9396, 9554, 9948, 10271, 10469, 11515, 11870, 12147
\hyper@linkstart 4103, 5976, 5990, 6005, 7170, 7447, 7454, 7865, 7869, 7873, 7875, 8870, 9378, 9466, 9906, 9946, 10274, 10413, 10917, 11850, 12129
\hyper@linkurl 4105, 4803, 4945, 4952, 4973, 4977, 5978, 5992, 6007, 8891, 9397, 9399, 9432, 9514, 10017, 10259, 10272, 10491, 10553, 11026, 11491, 11871, 11875, 11908, 12148, 12150, 12188
\hyper@livelink 5971, 5996
\hyper@makecurrent 6601, 6646, 6849, 6900, 6922, 6946, 7036, 7067, 7167, 7353, 7395
\hyper@n@rmalise . . 4629, 4633
\hyper@nat@current 7448
\hyper@natanchorend 7459
\hyper@natanchorstart . . . 7456
\hyper@natlinkbreak 7453
\hyper@natlinkend 7450
\hyper@natlinkstart 7445
\hyper@normalise . . 4057, 4062, 4606, 4716, 4719, 4800, 4802, 4804, 4825, 5528
\hyper@pageduration 9193, 9242, 10193, 10213, 10717, 10734, 10992, 11022
\hyper@pagehidden . 9217, 9243, 10204, 10214, 10727, 10735, 11009, 11023
\hyper@pagetransition 9169, 9241, 10182, 10212, 10606, 10733, 10975, 11021
\hyper@quote 5926, 9354, 9368, 9383, 9388, 9409, 9423, 9437, 10255, 10265, 10278, 10301, 10319, 11826, 11840, 11855, 11861, 11885, 11899, 11913, 12106, 12119, 12134, 12139, 12162, 12178, 12193
\hyper@readexternallink . 4894, 4910
\hyper@refstepcounter . . . 6579, 6582, 6590
\hyper@tilde . 4623, 4624, 4625, 5925
\hyperbaseurl . 3501, 3502, 6020
\hypercalcbp 481, 481
\hypercalcbpdef . 483, 520, 3922, 3932
\hyperdef 4833, 6022
\HyperDestNameFilter 4038, 4702, 8809, 8834, 9354, 9368, 9388, 9432, 9717, 9919, 10255, 10265, 10283, 10301, 10319, 10391, 10403, 10452, 10535, 11357, 11366, 11826, 11840, 11861, 11908, 12106, 12119, 12139, 12188, 14136, 14200, 14216
\HyperFirstAtBeginDocument . . 6048, 6050, 6072, 6075
\hypergetpageref 6781
\hypergetref 6780
\HyperGlobalCurrentHref 6666, 6668, 6676, 6677, 6681, 6684, 6688, 6694, 6695, 6699
\hyperimage . . 4804, 5056, 7986
\hyperindexformat 7993
\hyperlink . . . 4667, 6023, 8132, 8271, 8279, 8294, 8302, 8312, 8320, 8327
\hyperlinkfileprefix . 3504, 3505, 3506, 12092
\HyperLocalCurrentHref 6684, 6686, 6692, 6693, 6694, 6695, 6697
\hyperpage . . 6029, 7994, 7995, 7997, 8090
\HyperRaiseLinkDefault . 2411, 2438
\HyperRaiseLinkHook 2410, 2439
\HyperRaiseLinkLength . . 2437, 2438, 2441
\hyperref 4813, 5063, 5064, 6025, 8426, 8430, 8440, 8454
\hypersetup . . 2762, 2802, 3330, 3806, 4058, 6019
\hypertarget 4806, 6024
\HyPL@@@CheckThePage 6308, 6326
\HyPL@@CheckThePage . 6284, 6286
\HyPL@Alph 6203
\HyPL@alph 6204
\HyPL@arabic 6200

\HyPL@CheckThePage . . 6235, 6283
\HyPL@Entry 6476, 6484, 6492, 6494
\HyPL@EveryPage . 6223, 6347
\HyPL@Format 6299, 6300, 6301, 6302, 6303, 6315
\HyPL@found 6298, 6305, 6309, 6316, 6326, 6328
\HyPL@Labels 6194, 6338, 6339, 6341, 6343, 6394, 6395, 6487, 6495, 6496
\HyPL@LastNumber 6198, 6254, 6277
\HyPL@LastPrefix . . 6199, 6248, 6279
\HyPL@LastType . . 6197, 6239, 6278
\HyPL@page . 6217, 6226, 6229, 6235, 6244
\HyPL@Prefix 6244, 6246, 6248, 6262, 6265, 6267, 6279, 6293, 6331
\HyPL@Roman 6201
\HyPL@roman 6202
\HyPL@SetPageLabels . . . 6337, 6402, 6490
\HyPL@SlidesOptionalPage 6210, 6214, 6219
\HyPL@SlidesSetPage 6205, 6207, 6227
\HyPL@StorePageLabel . . 6262, 6264, 6334, 6392, 6471
\HyPL@thisLabel . . 6191, 6193, 6225, 6229, 6230
\HyPL@Type . 6232, 6239, 6243, 6261, 6269, 6278, 6292, 6330
\HyPL@Useless 6335, 6341
\HyPLSlidesSetPage 6234
\HyPsd@@@autoref . 1676, 1678, 1681
\HyPsd@@@CJKdigits . . . 1546, 1549, 1557
\HyPsd@@@nameref 1658, 1660, 1663
\HyPsd@@@pageref . 1640, 1642, 1645
\HyPsd@@@ref . 1624, 1626, 1629
\HyPsd@@@UTFviii@four 2278, 2281
\HyPsd@@AppendItalcorr . 1845
\HyPsd@@autoref . . 1673, 1674
\HyPsd@@autorefname . . 1694, 1697
\HyPsd@@CJKdigits 1538, 1540, 1543
\HyPsd@@CJKnumber 1439, 1441, 1444, 1497, 1512, 1525, 1527, 1531
\HyPsd@@ConvertToUnicode 2157
\HyPsd@@GetNextTwoTokens 2155
\HyPsd@@GlyphProcessWarning 2015, 2018
\HyPsd@@GreekNum 1101, 1110, 1209, 1213, 1217
\HyPsd@@hspace . . . 1594, 1595
\HyPsd@@LetCommand . 1718, 1739
\HyPsd@@nameref . . 1655, 1656
\HyPsd@@pageref . . 1637, 1638
\HyPsd@@ProtectSpacesFi 1767, 1771, 1789, 1795, 1800
\HyPsd@@ref 1621, 1622
\HyPsd@@RemoveBraces . . 1813
\HyPsd@@RemoveBracesFi 1810, 1813
\HyPsd@@RemoveCmdPrefix 1972, 1975
\HyPsd@@ReplaceFi 2042, 2048, 2053
\HyPsd@@UTFviii@four . . 2262, 2267
\HyPsd@add@accent . 543, 1583
\HyPsd@AfterCountRemove 1858, 1929
\HyPsd@AfterDimenRemove 1864, 1932
\HyPsd@AfterSkipRemove 1870, 1944
\HyPsd@AMSclassfix . 642, 1604, 1606
\HyPsd@AppendItalcorr . 1829, 1836, 1845
\HyPsd@autoref 652, 1673
\HyPsd@autorefname 1685, 1691
\HyPsd@babel@danish 997
\HyPsd@babel@dutch 1003
\HyPsd@babel@finnish 1009
\HyPsd@babel@frenchb . . . 1014
\HyPsd@babel@german . . . 1019
\HyPsd@babel@macedonian 1026
\HyPsd@babel@ngerman . . 1032
\HyPsd@babel@portuges . . 1038
\HyPsd@babel@russian . . . 1043
\HyPsd@babel@slovene . . . 1049
\HyPsd@babel@spanish . . . 1054
\HyPsd@babel@swedish . . . 1064
\HyPsd@babel@ukrainian . 1070
\HyPsd@babel@usorbian . . 1076
\HyPsd@BabelPatch . . 628, 952, 987
\HyPsd@CatcodeWarning 1874, 1891, 1894, 1897, 1900, 1956
\HyPsd@Char 2159
\HyPsd@CharOctByte . . . 2179, 2181, 2184, 2193, 2198
\HyPsd@CharSurrogate . . 2173, 2190
\HyPsd@CharTwoByte . . 2171, 2178
\HyPsd@CheckCatcodes . . 705, 1851
\HyPsd@CJK@Unicode . . 1321, 1325
\HyPsd@CJKActiveChars 1261, 1276
\HyPsd@CJKdigit . . 1550, 1560
\HyPsd@CJKdigits . 1323, 1536
\HyPsd@CJKhook . . . 658, 1232, 1243
\HyPsd@CJKhook@bookmarks 1238, 1272
\HyPsd@CJKhook@unicode 1240, 1320
\HyPsd@CJKnumber 1322, 1436
\HyPsd@CJKnumberFour 1454, 1458, 1462, 1475, 1479, 1483, 1489
\HyPsd@CJKnumberLarge 1467, 1474
\HyPsd@CJKnumberThree 1495, 1499, 1505
\HyPsd@CJKnumberTwo 1510, 1514, 1520
\HyPsd@ConvertToUnicode 773, 2105
\HyPsd@DecimalToOctal . 1253, 1284
\HyPsd@DecimalToOctalFirst 1327, 1363
\HyPsd@DecimalToOctalSecond . . . 1328, 1337, 1400
\HyPsd@DefCommand 688, 689, 690, 691, 1707
\HyPsd@DisableCommands 934, 936
\HyPsd@DoConvert . 2107, 2117
\HyPsd@DoEscape 2131
\HyPsd@doxspace . . . 745, 2078
\HyPsd@empty . . 730, 732, 736, 737, 739, 747, 754
\HyPsd@End 705, 709, 1768, 1771, 1774, 1777, 1780, 1793, 1803, 1810, 1813, 1851, 1859, 1865, 1871, 1916, 1923, 1929, 1932, 1944
\HyPsd@EndWithElse 1573, 1582

\HyPsd@EscapeTeX . . 784, 794, 2060
\HyPsd@fi 1785, 1791, 1795, 1801
\HyPsd@GetNextTwoTokens 2155
\HyPsd@GetOneBye 2150
\HyPsd@GetTwoBytes 2146
\HyPsd@GLYPHERR 710, 1570, 1584, 1591
\HyPsd@GlyphProcess 712, 2003, 2016
\HyPsd@GlyphProcessWarning 2010, 2014
\HyPsd@GobbleFiFi 1575, 1581
\HyPsd@GreekNum . 1090, 1093, 1095
\HyPsd@Greeknumeral . . 1086, 1092
\HyPsd@greeknumeral 1085, 1089
\HyPsd@GreekNumI 1113, 1139, 1182, 1208
\HyPsd@GreekNumII 1117, 1161, 1205, 1212
\HyPsd@GreekNumIII . . . 1120, 1184, 1216
\HyPsd@GreekNumIV 1129, 1207
\HyPsd@GreekNumV 1132, 1211
\HyPsd@GreekNumVI 1134, 1215
\HyPsd@GreekPatch . 625, 1082, 1084
\HyPsd@HighA 1331, 1340
\HyPsd@HighB 1341, 1346
\HyPsd@HighC 1347, 1350
\HyPsd@HighD 1343, 1355
\HyPsd@href 647, 1620
\HyPsd@hspace 643, 1594
\HyPsd@hspacetest . 1597, 1599, 1602
\HyPsd@ifnextchar 674, 675, 676, 1744
\HyPsd@ignorespaces . 656, 943
\HyPsd@InitUnicode 908
\HyPsd@inmathwarn . 542, 1567
\HyPsd@ITALCORR . . 666, 670, 1591
\HyPsd@langshort@system 958, 961
\HyPsd@LanguageShorthands 954, 959, 971
\HyPsd@LetCommand 692, 693, 1707
\HyPsd@LetUnexpandableSpace . 661, 662, 663, 664, 1587, 1590
\HyPsd@LoadStringEnc . . 2766, 2786, 2788, 2792, 2794, 6413
\HyPsd@LoadUnicode 2715, 2720, 2728, 2731, 2733, 2740, 6407
\HyPsd@nameref 651, 1655
\HyPsd@pageref 650, 1637
\HyPsd@pdfencoding 774, 2714, 2717, 2749, 2761, 2764, 2765, 2770, 2785, 6409, 6411, 6428, 6431
\HyPsd@pdfencoding@auto 774, 2755, 2765, 2782, 6411, 6430
\HyPsd@pdfencoding@pdfdoc 2748, 2770, 2783
\HyPsd@pdfencoding@unicode . . . 2752, 2784, 6409, 6427
\HyPsd@PrerenderUnicode 3704, 3720, 3726, 3732, 3738, 3756, 3762, 3842
\HyPsd@protected@testopt 677, 678, 1748
\HyPsd@ProtectSpaces 698, 1765, 1786, 1835
\HyPsd@ref 649, 1621
\HyPsd@RemoveBraces . . . 700, 1807, 1824, 1832, 1838
\HyPsd@RemoveCmdPrefix 1965, 1971
\HyPsd@RemoveMask 708, 1774, 1780, 1793, 1803
\HyPsd@RemoveSpaceWarning . . . 1939, 1951, 1977
\HyPsd@ReplaceSpaceWarning . . . 1934, 1946, 1990
\HyPsd@Rest 1852, 1912, 1920, 1923, 1930, 1935, 1941, 1947, 1953
\HyPsd@RussianPatch 627, 1225
\HyPsd@SanitizeForOutFile 13975, 14006
\HyPsd@SanitizeOut@BraceLeft . . 14010, 14016, 14025
\HyPsd@SanitizeOut@BraceRight . . 14013, 14028, 14037
\HyPsd@SPACEOPTI . 702, 717, 718, 720, 722, 724, 725, 764, 766, 1887, 2089
\HyPsd@spaceopti . . . 766, 2034
\HyPsd@SpanishPatch 626, 1219
\HyPsd@String 699, 701, 704, 706, 711, 713, 1818, 1819, 1829, 1881, 1882, 1886, 1887, 1902, 1903, 1933, 1945, 2004, 2005
\HyPsd@StringSubst . . 714, 716, 722, 728, 731, 734, 737, 756, 759, 761, 2057
\HyPsd@Subst 710, 719, 723, 729, 735, 739, 743, 748, 749, 750, 751, 752, 753, 757, 760, 2041, 2058, 2073, 2074, 2075
\HyPsd@temp 777, 779, 780, 782, 783, 790, 792, 793, 2747, 2748, 2749, 2752, 2755, 2761, 2773, 2777, 6426, 6427, 6428, 6430, 6431, 6436
\HyPsd@ToBigChar 834, 835, 844
\HyPsd@ToBigChars . . 787, 826
\HyPsd@tocsection 1607, 1608, 1609, 1610, 1611, 1612, 1613, 1615
\HyPsd@UnescapedString . 779, 828, 829, 835
\HyPsd@UnexpandableSpace 1590, 1776, 1800, 1935, 1947
\HyPsd@unichar . . . 2220, 2287, 2293, 2298
\HyPsd@unichar@first@byte 2306, 2326
\HyPsd@unichar@octtwo . 2328, 2336, 2342
\HyPsd@unichar@second@byte 2314, 2334
\HyPsd@UnicodeReplacementCharacter 2290, 2325
\HyPsd@utf@viii@undeferr . 539, 2348
\HyPsd@UTFviii 533, 2208, 2213
\HyPsd@UTFviii@@three . 2243, 2252
\HyPsd@UTFviii@@two . . 2228, 2234
\HyPsd@UTFviii@ccxliv@def 2218, 2224
\HyPsd@UTFviii@ccxliv@undef 2217, 2223
\HyPsd@UTFviii@four 2216, 2261
\HyPsd@UTFviii@three . . 2215, 2242
\HyPsd@UTFviii@two 2214, 2227
\HyPsd@Warning . . 1752, 1957, 1978, 1991, 2020, 2026
\HyPsd@XeTeXBigCharsfalse 801, 815, 820
\HyPsd@XeTeXBigCharstrue 814, 823, 3719, 3725, 3731, 3737, 3755, 3761, 3841, 13615, 13973
\HyPsd@XSPACE 668, 744, 1591
\HyPsd@xspace . . 742, 744, 745
\HyRef@@StarSetRef 8394, 8399
\HyRef@autopageref 8451, 8453

\HyRef@autopagerefname 8450, 8454, 8456
\HyRef@autoref 8469, 8471
\HyRef@autosetref .. 8474, 8477
\HyRef@CaseStar .. 8538, 8544
\HyRef@currentHtag 8490, 8508, 8511, 8517, 8524, 8530, 8545
\HyRef@MakeUppercaseFirstOfFive 8417, 8419
\HyRef@name 8506, 8507, 8512, 8519, 8537, 8538, 8539, 8541
\HyRef@Ref 8423, 8425
\HyRef@ShowKeysInit ... 8547, 8560, 8564
\HyRef@ShowKeysRef 8478, 8546
\HyRef@StarSetRef . 8388, 8406, 8409, 8412, 8417
\HyRef@StripStar .. 8505, 8536
\HyRef@testreftype . 8483, 8502
\HyRef@thisref 8480, 8483
\HyTmp@found 5448, 5458, 5461
\HyTmp@key 5442, 5443
\HyTmp@optitem .. 5398, 5414, 5441, 5446, 5452, 5473, 5484
\HyTmp@optlist 5397, 5412, 5413, 5444, 5445, 5450, 5451, 5459, 5460, 5480, 5482, 5489, 5492
\HyXeTeX@CheckUnicode 3690, 3701, 3718, 3724, 3730, 3736, 3754, 3760, 3840, 6441

I

\i ... 14592, 14755, 14758, 14761, 14764, 14961, 15123, 15126, 15129, 15132, 15249, 15254, 15259, 15264, 15268, 15435, 15491
\if 1616, 2398, 6252, 6260, 6964, 6965, 10680, 10683, 10687, 10691, 10695, 10697, 10699, 13663
\if@eqnstar 6906, 6914
\if@filesw 2366, 4871, 6041, 6085, 6472, 6482, 6730, 7494, 7509, 7525, 7537, 7567, 7590, 7617, 7622, 7641, 8042, 12815, 12839, 13976, 14163, 14245
\if@hyper@item 6564, 6577
\if@inlabel 7080
\if@Localurl 10242, 10288
\if@mid@expandable 641
\if@minipage 7365, 7436
\if@nmbrlist 6549
\if@nobreak 7099
\if@skiphyperref ... 6565, 6575
\if@twocolumn 14410
\if@twoside 14399
\ifcase 332, 1146, 1168, 1191, 1285, 1334, 1356, 1359, 1365, 1401, 1445, 1561, 2256, 2752, 3435, 4386, 5244, 5349, 5478, 5555, 6629, 6638, 7861, 8019, 8056, 8286, 8479, 10753, 11243, 13721, 13748, 13815, 13850, 13885, 14083
\ifcat 1853, 1880, 1885, 1890, 1893, 1896, 1899, 5033, 5035
\ifdim .. 1602, 1933, 1937, 1945, 1949, 2453, 2472, 4043, 4412, 9261, 9265, 9270, 9274, 9281, 9284, 9288, 9291, 10222, 10223, 10228, 10229, 10361, 10364, 10368, 10371, 11272, 11286, 11645, 11646, 11651, 11652, 12459, 12497, 12498, 12939, 12978, 12979, 13278, 13317, 13318
\ifetex@unexpanded 1759
\iffalse 821, 5567
\IfFileExists .. 232, 6080, 12219
\ifFld@checked ... 5501, 12777, 13708
\ifFld@comb 5348
\ifFld@combo 5376, 5381, 12472, 12501, 12952, 12982, 13291, 13321
\ifFld@disabled 5502, 12778
\ifFld@edit 5382
\ifFld@fileselect 5351
\ifFld@hidden ... 12436, 12486, 12555, 12575, 12598, 12616, 12676, 12688, 12698, 12781, 12916, 12967, 13048, 13069, 13097, 13117, 13247, 13306, 13405, 13430, 13459, 13484
\ifFld@multiline ... 5349, 12425, 12683, 12904, 13235
\ifFld@multiselect 5420
\ifFld@password ... 5350, 12664
\ifFld@popdown .. 5168, 12473, 12953, 13292
\ifFld@radio 12469, 12491, 12713, 12949, 12972, 13288, 13311
\ifFld@readonly .. 12685, 12695, 12779
\ifForm@html 5522
\ifhmode 2414, 2418, 2471, 2480, 4708, 6989, 7013, 7046, 7164, 7173, 7323, 7325, 8804, 8812, 11278, 12204
\ifHy@activeanchor .. 383, 5046
\ifHy@backref . 384, 4217, 4589, 5904, 7618, 7654
\ifHy@bookmarks ... 385, 4437
\ifHy@bookmarksnumbered 386, 8174, 8225, 13962
\ifHy@bookmarksopen 387, 4427
\ifHy@breaklinks 388, 2680, 10919, 10960, 11254, 11277
\ifHy@CJKbookmarks 390, 1237
\ifHy@colorlinks 391, 4508, 5909, 11807
\ifHy@draft 392, 4098
\ifHy@DviMode 2824, 2844, 3002
\ifHy@DvipdfmxOutlineOpen 4410, 14218
\ifHy@frenchlinks ... 398, 4524
\ifHy@href@ismap .. 4764, 8915, 10034, 10428, 10498, 11506
\ifHy@hyperfigures .. 396, 4197, 5889, 7983
\ifHy@hyperfootnotes 399, 7106
\ifHy@hyperindex ... 400, 4207, 5899, 7990
\ifHy@hypertexnames 401, 6652, 6734, 7765, 8179, 8230
\ifHy@implicit . 402, 4229, 14273
\ifHy@linktocpage ... 403, 2637, 2647
\ifHy@localanchorname ... 404, 6685, 6696
\ifHy@naturalnames . 406, 6664, 8180, 8231
\ifHy@nesting . 407, 4202, 4807, 4840, 4877, 5031, 5894, 7131, 7146, 7219, 7376
\ifHy@next 995, 4171, 8007
\ifHy@ocgcolorlinks 410, 3385, 4494, 4504, 5914, 8670, 8688, 8765, 8773, 9782, 9865, 9873
\ifHy@pageanchor ... 411, 6721, 6733, 6748, 7764
\ifHy@pdfa 429, 4122, 4496, 4933, 5181, 5757, 5806, 5919, 8838, 8910, 8948, 8985, 9317, 9928, 9960, 9994, 10025, 10053, 10434, 10455, 10478, 10504, 10538, 10572, 10590, 11381, 12394, 12545, 12591, 12868, 13038, 13090, 13205, 13394, 13452, 13665, 13711, 13875
\ifHy@pdfcenterwindow ... 389, 9094, 9665, 10126, 10791, 11139, 11992

\ifHy@pdfdisplaydoctitle . . 428, 9095, 9666, 10127, 10792, 11140, 11993
\ifHy@pdfescapeform 395, 13559, 13589
\ifHy@pdffitwindow . . 397, 9093, 9664, 10125, 10790, 11138, 11991
\ifHy@pdfmarkerror 11186, 11194
\ifHy@pdfmenubar . . . 405, 9091, 9662, 10123, 10788, 11136, 11989
\ifHy@pdfnewwindow 409, 3992, 10475
\ifHy@pdfnewwindowset . . 408, 3990
\ifHy@pdfpagehidden . 413, 3529, 9221, 10207, 10729, 11015
\ifHy@pdfpagelabels . 412, 6179, 6392, 6470
\ifHy@pdfstring . . 414, 919, 6569
\ifHy@pdftoolbar 421, 9090, 9661, 10122, 10787, 11135, 11988
\ifHy@pdfusetitle 423, 6095
\ifHy@pdfwindowui . . 427, 9092, 9663, 10124, 10789, 11137, 11990
\ifHy@plainpages 415, 4212, 6735, 7766
\ifHy@psize 416
\ifHy@raiselinks 417, 9401, 9481, 9518, 9558, 11877, 12152
\ifHy@seminarslides 418
\ifHy@setpagesize . . . 419, 9249, 10219, 10358, 11642
\ifHy@setpdfversion . 2803, 8675
\ifHy@stoppedearly 381
\ifHy@texht 420, 4284, 4536, 4584, 5592, 5624, 5777, 5801, 5957, 8334
\ifHy@typexml 382, 4222, 4511, 4555, 6042, 14167, 14249
\ifHy@unicode 422, 529, 562, 565, 715, 727, 755, 763, 772, 1096, 1256, 1959, 1980, 1993, 2022, 2028, 2288, 2713, 2763, 3692, 6416, 13611
\ifHy@useHidKey . . . 3525, 9218, 10205, 10728, 11010
\ifHy@verbose . 424, 4671, 4687, 4699, 5124, 7836
\ifHyField@NeedAppearances 5565, 5567, 5570, 12396, 12870, 13207
\ifHyInfo@AddonUnsupported 3818, 3832, 3867
\IfHyperBoolean 2502
\IfHyperBooleanExists 2496, 2503
\ifHyPsd@XeTeXBigChars . 819, 821, 824, 827
\ifmeasuring@ 6589, 6602
\ifmmode 10922, 11249
\ifnum 244, 851, 854, 857, 860, 863, 972, 1097, 1100, 1111, 1112, 1116, 1124, 1128, 1131, 1141, 1163, 1186, 1326, 1437, 1453, 1457, 1477, 1490, 1493, 1506, 1508, 1521, 1523, 1529, 2167, 2170, 2246, 2289, 2292, 2304, 2419, 2929, 2932, 2958, 3436, 3437, 4421, 4428, 4741, 5403, 5474, 5485, 6209, 6233, 6254, 6270, 6372, 7714, 7724, 8288, 8326, 8671, 8676, 9010, 9017, 9023, 9031, 9894, 9899, 10475, 10604, 10740, 10748, 10750, 10751, 10761, 10764, 10850, 10852, 10972, 11669, 12852, 13015, 13347, 13352, 13363, 13610, 13691, 13721, 13726, 13748, 13754, 13782, 13815, 13821, 13840, 13850, 13855, 13885, 13890, 13919, 13935, 14079, 14149, 14152, 14179, 14182, 14220, 14329, 14347, 14362
\ifodd 2270, 2275, 7791
\ifpdf 242, 2826, 2869, 4263, 4330
\ifpdfstringunicode . . . 534, 537
\ifportrait 9260
\ifthenelse 7644
\iftrue . . . 824, 1766, 1788, 2052, 5570, 14331
\ifvmode 2430, 2452, 2461
\ifvoid 6856, 6860, 7084
\ifvtex 2832, 2928, 2957
\ifvtexdvi 2833
\ifvtexhtml 4305, 4336
\ifvtexpdf 4347
\ifvtexps 4350
\ifxetex . . . 778, 811, 2829, 2902, 3691, 4289, 4333, 4411
\ignorespaces . . 656, 6816, 6984, 7255, 7361, 7372, 7375, 7432, 7440, 7502, 7517, 7533, 7542, 7652, 8159, 8211
\IJ 14588, 15270
\ij 14797, 15272
\immediate . . 6043, 6044, 6045, 6047, 6087, 6385, 6475, 6483, 6745, 6773, 7497, 7512, 7528, 7538, 7568, 7591, 7617, 7647, 8690, 8705, 8720, 10855, 11666, 12794, 12816, 12858, 14069, 14135, 14166, 14168, 14248, 14250
\incr@eqnum 6875, 6888
\indent 6994, 7020
\index 645
\indexentry . . 8045, 8060, 8068, 8072, 8077
\input 902, 910, 2722, 3348, 3356, 3363, 4385, 11584, 11667, 11758, 11927
\InputIfFileExists . 4060, 14159, 14193, 14238, 14240
\inputlineno 4678, 5038
\insert 7234
\IntCalcAdd 2196
\IntCalcDec 1348
\IntCalcDiv . . 1342, 1351, 1356, 1459, 1468, 1480, 1497, 1512, 1527, 2180, 2186, 2192
\intcalcDiv 1332, 2187, 2194, 2197
\IntCalcMod . 1344, 1353, 1359, 1463, 1469, 1484, 1500, 1515, 1529, 1531, 2182, 2187, 2188, 2194, 2197, 2199
\intcalcMod 1334
\intcalcSub 2174
\interfootnotelinepenalty . . 7237
\interlinepenalty 7237
\item . . . 6544, 6547, 7524, 7536, 7639
\Itemautorefname 8570
\itemautorefname . . 3079, 3097, 3115, 3133, 3151, 3169, 3187, 3216, 3217, 3245, 3263, 8570, 8571, 8574
\itemindent 7085
\itshape 595

J

\j 15277, 15462, 15526
\jarr 16883
\jeem 16855
\jeh 16891
\jobname 6044, 6080, 6087, 12219, 14068, 14159, 14166, 14193, 14238, 14240, 14248

K

\k . . 14472, 14814, 14816, 14821, 14823, 14866, 14884, 14903, 14910, 15174, 15176, 15214, 15216, 15261, 15263, 15264,

15399, 15401, 15458, 15460, 16057, 16096, 16099
\kaf 16873
\kasra 16886
\keepPDF@SetupDoc . . . 11811, 11818
\kern . . . 1862, 1934, 1939, 1951, 7085, 7786, 7787, 7788, 7790, 7791, 7796, 14288
\kernel@ifnextchar 675
\kha 16857
\KV@href@pdfnewwindow . 4762
\KV@href@pdfnewwindow@default 4763
\KV@Hyp@draft 2611
\KV@Hyp@nolinks 2611
\KV@Hyp@pdfnewwindow . 4762
\KV@Hyp@pdfnewwindow@default 4763
\kv@key 3826, 3829, 3836, 5401, 5404, 5406, 5410, 5414
\kv@parse 5400
\kv@parse@normalized 3851, 3858
\kv@processor@default 3854, 3861
\kv@set@family@handler . . 3819
\kv@value 3824, 5402, 5409, 5410
\kvsetkeys 2802, 2856, 2976, 3698, 3799, 4123, 4360, 4378, 4495, 5499, 8672, 11193, 12413, 12649, 12662, 12711, 12754, 12775, 12849, 13190

L

\L 14581, 15301
\l 14594, 15303
\l@slide . 8159, 8269, 8274, 8278, 8285
\l@subslide 8211, 8274, 8281, 8325
\label 644, 7809
\label@@hyperref . . . 4847, 4849
\label@hyperdef 4833, 4863
\label@hyperref 4814, 4846, 5060
\labelsep 7651
\labelwidth 7650
\lam 16874
\language@group 623
\languageshorthands . . 953, 954, 988
\LARGE 602
\Large 603
\large 606, 8291, 8299, 8309, 8317
\lastbox 7083
\lastpage@putlabel 6716
\lastskip 2453, 2457, 2464, 2472, 2476, 2483
\LaTeX . 559, 561, 12225, 12226
\LaTeXe 560, 12226
\LayoutCheckField 5845, 12617, 13118, 13489
\LayoutChoiceField 5842, 12490, 12971, 13310
\LayoutPushButtonField . 5848, 12549, 12556, 13042, 13049, 13398, 13407
\LayoutTextField . 5839, 12438, 12918, 13253
\lccode 350, 355, 850, 1266, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2211, 5717, 8004, 8005, 13993, 13994, 13995, 13996, 13997, 13998, 13999, 14000, 14001, 14002, 14003
\ldots 554
\leavevmode 653, 2408, 4108, 4125, 4165, 4938, 6013, 7163, 7322, 7558, 8429, 8437, 8468, 8824, 8895, 8933, 8970, 9400, 9480, 9517, 9557, 9908, 9949, 9986, 10018, 10253, 10262, 10316, 10470, 10495, 10525, 10558, 10921, 11247, 11495, 11522, 11553, 11876, 12151, 12550, 12557, 12590, 13003, 13024, 13043, 13050, 13070, 13089, 13345, 13376, 13399, 13408, 13432, 13451, 14286
\LetLtxMacro 5960, 5964, 6030, 6034
\limits 4654
\listofslides 8260
\listslidename 8259, 8262, 8264, 8266
\literalps@out 2406, 10844, 10849, 10901, 10907, 10933, 10939, 11204, 11215, 11244, 11245, 11273, 11275, 11287, 11289, 11582, 11665, 11728, 11925
\lower . . 9407, 9487, 9524, 9564, 11275, 11883, 12158
\lowercase 351, 356, 870, 1267, 2071, 2212, 2513, 3023, 3053, 3766, 3802, 5073, 5074, 5077, 5082, 5106, 5116, 5170, 5226, 5546, 5619, 5622, 5718, 8006, 10971, 14004
\lslide@flag . . 8286, 8289, 8307, 8326, 8330
\LT@array 6841
\LT@foot 6856, 6860
\LT@p@ftn 7195, 7198, 7202, 7212
\LT@p@ftntext 7193, 7200
\LT@start 6858, 6868
\ltx@backslashchar 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 330
\ltx@empty 370, 371, 470, 2825, 3000, 3008, 3377, 3522, 3889, 3913, 3920, 4019, 4020, 4023, 4024, 4025, 4026, 4027, 4028, 4032, 4033, 4353, 4363, 4455, 5055, 5271, 5289, 5303, 5316, 5332, 5364, 5389, 5396, 5397, 5704, 5742, 5743, 5744, 5745, 5746, 5747, 5748, 5749, 5750, 5751, 5752, 6158, 6159, 6160, 6163, 6177, 6194, 6199, 6205, 6214, 6234, 9340, 10243, 10330, 10925, 11231, 11252, 11581, 11664, 11922, 12086, 12093, 12415, 12421, 12628, 12659, 12706, 12800, 12897, 12900, 13215, 13231
\ltx@firstofone 2845, 6075, 14021, 14033
\ltx@firstoftwo . . . 245, 337, 345, 2498, 2505, 4570, 4994
\ltx@GlobalAppendToMacro 937
\ltx@gobble 272, 2851, 4086, 4093, 4443, 5973, 5974, 5985, 5987, 5988, 6353, 12200, 12812, 14019, 14031
\ltx@gobblefour 314
\ltx@gobblethree 7746
\ltx@gobbletwo 5976, 5990
\ltx@ifclassloaded . . 6206, 7707
\ltx@ifpackagelater 348
\ltx@ifpackageloaded 1233
\ltx@IfUndefined 239, 278, 284, 313, 622, 665, 740, 775, 893, 894, 895, 996, 1002, 1008, 1013, 1018, 1025, 1031, 1037, 1042, 1048, 1053, 1063, 1069, 1075, 1081, 1220, 1226, 1603, 1698, 1699, 2360, 2393, 4081, 4083, 4168, 4169, 4170, 4569, 4570, 4766, 6135, 6528, 6617, 6621, 6936, 7460, 7725, 8457, 8458, 8503, 8504, 8506, 8507, 8872, 8882, 9280, 10360, 10417, 10520,

10897, 10940, 11031, 11208, 14320, 14330
\ltx@ifundefined . . . 2497, 2498, 2541, 7092, 7741
\ltx@leftbracechar 328, 352
\ltx@LocalAppendToMacro 365, 368
\ltx@one 244, 6208, 6209, 6216, 7710, 7714, 7720, 7723, 7724, 7737
\ltx@ReturnAfterElseFi . . . 4636
\ltx@ReturnAfterFi 494, 2009, 4640, 4656, 8099, 8135, 8623, 8633, 13582
\ltx@rightbracechar . . . 329, 357
\ltx@secondoftwo . 240, 247, 251, 334, 2497, 2498, 2507, 2509, 4569, 4570, 4572, 4992
\ltx@space 331, 1754
\ltx@zero 2065, 2066, 2067, 2068, 2069, 2070
\luatexrevision 9054
\luatexversion 9046, 9051

M

\m@ne . . 4186, 4690, 4749, 5088, 6761, 6956, 9903, 14240, 14329, 14344
\make@df@tag@@ . . . 7919, 7921
\make@df@tag@@@ . 7920, 7922
\make@stripped@name . . 6594, 6897, 6919, 6943, 6954
\makeatletter 3, 933, 6079
\MakeButtonField . 5855, 12551, 12559, 12577, 12595, 12600, 13044, 13053, 13077, 13094, 13100, 13400, 13403, 13431, 13456, 13460
\MakeCheckField . 5852, 12619, 13121, 13486
\MakeChoiceField . 5854, 12535, 13027, 13374
\MakeFieldObject 12793, 12880, 12890, 12893
\MakeLowercase 619
\MakeLowercaseUnsupportedIn-PdfStrings 619
\MakeRadioField . . 5851, 12523, 13014, 13338
\makeslideheading 8169
\makeslidesubheading 8221
\maketag@@@ 7908
\MakeTextField . . . 5853, 12440, 12921, 13250
\maketitle 7272, 7273
\MakeUppercase 618, 8264, 8266, 8420
\MakeUppercaseUnsupportedIn-PdfStrings 618
\MathBSuppress . . 10263, 10267
\mathdisplay 6878, 6887
\mathdisplay@push . 6876, 6885
\mathversion 611
\maxdimen 3457, 12798
\MaybeStopEarly 471, 2859, 2934, 4233, 4338, 6503, 6506
\mbox 654, 7571, 7594, 8775, 9875
\mddefault . . . 6996, 7022, 7053
\mdseries 594
\meaning 62, 153, 159, 2369, 6119, 6677, 6961, 14204, 14212, 14227
\measuring@false 6589
\mediaheight 10354, 10356, 10362, 10369
\mediawidth 10365, 10372
\meem 16875
\message 8287
\MessageBreak 280, 286, 300, 301, 340, 341, 502, 1965, 1986, 1999, 2022, 2027, 2029, 2535, 2536, 2550, 2572, 2575, 2577, 2655, 2656, 2682, 2683, 2735, 2736, 2737, 2775, 2776, 2796, 2807, 2848, 2873, 2906, 2944, 2951, 2962, 2968, 3045, 3387, 3518, 3519, 3581, 3582, 3600, 3601, 3695, 3779, 3834, 3835, 3945, 3946, 4048, 4267, 4268, 4276, 4277, 4293, 4294, 4309, 4310, 4318, 4319, 4498, 4743, 4744, 4768, 4769, 4785, 4786, 5127, 5132, 5141, 5184, 5230, 5354, 5467, 5539, 5550, 5582, 5583, 5602, 5676, 5677, 5678, 5679, 6184, 6419, 6434, 6435, 6724, 7813, 7843, 7844, 7845, 7846, 7847, 7978, 8828, 9913, 10446, 10529, 11040, 12806, 12808, 13940, 13958, 14071
\MF 569, 12228
\MP 570, 12229
\multiply . . . 9050, 10709, 10744

N

\n 861
\name@of@eq 6562, 6592
\name@of@slide 6563, 6573
\nameref 651, 4574, 4578
\nasb 16881
\netscape 9443
\new@ifnextchar 676
\new@pdflink . . 8803, 8860, 8863
\new@refstepcounter 6870, 6902
\newblock 7655
\newcommand 4, 9, 42, 2407, 6017, 6021, 7946, 14041, 14044, 14049
\newcount 472, 473, 2412, 4734, 5505, 6195, 12531, 13021, 13221, 13370, 14076
\newcounter . 6545, 7107, 9781, 13991
\newdimen 469, 5506, 5507
\newif 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 427, 428, 429, 819, 995, 2803, 2824, 3525, 3818, 4410, 4764, 5080, 5168, 5501, 5502, 5522, 5565, 6564, 6565, 6589, 6906, 10242, 11186
\newlabel 2372, 4873, 6057, 6058, 6066, 6092, 6746, 6774
\newlabelxx 6059, 6060
\newlength 14279
\newline 557, 6140
\newname 6595, 6898, 6920, 6944, 6957, 6966
\newsavebox 9711, 11223
\newtie . . . 14474, 14475, 14858, 14888, 14907, 14923
\newtoks 90, 5593, 11058, 11298, 11299
\newwrite . . 6086, 14164, 14246
\next . . 7645, 7646, 7647, 10672, 10674, 10676
\nfss@text 8341, 8361, 8378, 8496
\NG 15319
\ng 15321
\noboundary 16896
\nobreak 2454, 2462, 2473, 2481, 7164, 7323
\nobreakspace . 664, 8432, 8461, 8464
\noexpand 22, 93, 95, 108, 116, 169, 171, 172, 173, 176, 206, 839, 941, 1280, 1713, 1730, 1853, 2225, 2460, 2461, 2462, 2465, 2479, 2480, 2481,

2484, 3306, 3308, 3310, 3311, 3312, 3314, 3330, 3536, 3537, 3539, 3884, 4188, 4192, 4193, 4360, 4648, 4821, 4903, 5033, 5035, 5136, 6308, 6309, 6318, 6320, 6323, 6448, 6758, 6759, 6761, 6786, 6787, 6788, 6789, 6790, 6798, 6799, 6800, 6960, 7186, 7196, 7204, 7205, 7206, 7208, 7332, 7421, 7496, 7511, 7527, 7712, 7938, 7940, 8394, 8395, 8512, 8513, 8518, 8520, 8525, 8526, 8531, 8532, 9053, 9649, 11123, 11190, 11725, 11976, 12465, 12466, 12467, 12468, 12945, 12946, 12947, 12948, 13284, 13285, 13286, 13287, 13561

\nofrenchguillemets . . . 683, 685
\NoHy@OrgPageRef 5964, 5966, 6034, 6036
\NoHy@OrgRef 5960, 5962, 6030, 6032
\NoHyper 5968
\nohyperpage 6012, 8089, 8091, 8093
\nolinkurl 4800
\nolinkurl@ 4800, 4801
\NomFancyVerbLineautorefname 3234
\Nomfootnoteautorefname . 3214
\Nomtheoremautorefname . 3238
\nonumber 6931, 6934
\normalfont 589, 6990, 7016, 7049
\normalsize 607, 7368, 7439
\note 7755
\NR@gettitle 7358
\null . . . 7636, 7644, 8383, 8492
\number 1114, 1118, 1121, 1129, 1132, 1134, 1439, 1441, 1468, 1469, 2171, 2229, 2230, 2231, 2232, 2236, 2237, 2238, 2239, 2240, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2254, 2255, 2256, 2257, 2258, 2259, 2262, 2264, 2268, 2269, 2271, 2273, 2275, 2278, 2282, 2283, 2284, 2285, 2294, 2295, 2299, 2300, 2307, 2308, 2312, 2315, 2316, 2317, 2327, 2329, 2330, 2335, 2337, 2338, 2343, 2344, 3904, 4412, 4429, 5094, 6654, 6655, 6658, 6662, 8682, 8685, 9471, 9489, 9490, 9505, 9506, 9526, 9527, 9543, 9544, 9566, 9567, 9583, 9584
\numberline . 7361, 7432, 13963, 13968
\numberwithin 7943
\numexpr 2236, 2237, 2238, 2240, 2246, 2254, 2255, 2256, 2257, 2258, 2259, 2263, 2265, 2269, 2271, 2273, 2275, 2279, 2282, 2283, 2285, 2294, 2299, 2316, 2330, 2338, 2344, 3908
\nun 16876

O

\O 14714, 15082, 15477
\o 14782, 15150, 15479
\obeylines 11724
\OBJ@acroform . . . 12876, 12877
\OBJ@Helv 12855, 12864, 13180
\OBJ@OCG@print . . 8719, 8722, 8730, 8756, 9799, 9801, 9814, 9818, 9827, 9856
\OBJ@OCG@view 8704, 8722, 8755, 9783, 9785, 9798, 9818, 9855
\OBJ@OCGs . 8725, 8728, 8734, 8739, 8744, 9815, 9817, 9821, 9825, 9831, 9836, 9841
\OBJ@pdfdocencoding . . . 12853, 13161, 13177
\OBJ@ZaDb 12854, 12863, 13170
\OCIRCUMFLEX 16719, 16817, 16818, 16819, 16820, 16821
\ocircumflex 16712, 16757, 16758, 16759, 16760, 16761
\oddsidemargin 7792
\OE 14583, 15335
\oe 14596, 15337
\offinterlineskip 6166
\OHORN . . 16720, 16822, 16823, 16824, 16825, 16826
\ohorn 3261, 3268, 16713, 16762, 16763, 16764, 16765, 16766
\oldb 893
\oldc 894
\oldcontentsline 6052, 6055, 6065
\oldd 895
\oldnewlabel . . 6057, 6062, 6066
\OMEGA 12224
\on@line 7840, 7841
\openout 6044, 6087, 14166, 14248
\OpMode 2929, 2932, 2945, 2958, 2963, 10761, 10852, 11669
\or 335, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1286, 1287, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1335, 1357, 1360, 1366, 1367, 1368, 1369, 1370, 1371, 1372, 1373, 1374, 1375, 1376, 1377, 1378, 1379, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1387, 1388, 1389, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1414, 1415, 1416, 1417, 1418, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1429, 1430, 1431, 1432, 1433, 1446, 1447, 1448, 1449, 1450, 1562, 1563, 1564, 5254, 5260, 5265, 5479, 6629, 6630, 6631, 6632, 6638, 6639, 6640, 6641, 7863, 7867, 8306, 8315, 10754, 14084, 14085, 14086, 14087, 14088, 14089, 14090, 14091, 14092, 14093, 14094, 14095, 14096, 14097, 14098, 14099, 14100, 14101, 14102, 14103, 14104, 14105, 14106, 14107, 14108, 14109, 14110, 14111, 14112, 14113, 14114, 14115
\overlay 7752

P

\P 553
\p@ 2295, 2300, 5508, 5514, 6998, 7024, 7055, 9416, 9500, 9538, 9578, 10708, 11892, 12172, 12461, 12941, 13280, 14404, 14405
\p@equation 7915

\PackageError 61
\PackageInfo . 8666, 8680, 12804
\PackageWarning . . 2806, 5465
\pageautorefname 3092, 3110, 3128, 3146, 3164, 3182, 3200, 3240, 3258, 3276, 8464, 8587
\pagename 8461
\pageref 650, 4243, 4565, 5964, 5965, 6034, 6035, 6724, 8450, 8454
\paperheight 4041, 9265, 9267, 9270, 9272, 9284, 9285, 10223, 10224, 10361, 10362, 10364, 11646, 11647
\paperwidth 9261, 9263, 9274, 9276, 9281, 9282, 10222, 10224, 10365, 11645, 11647
\par 6989, 7014, 7047, 7360, 7388, 7430, 7440, 7638, 7658
\paragraphautorefname 3088, 3106, 3124, 3142, 3160, 3178, 3196, 3229, 3231, 3254, 3272, 8583
\partautorefname . . 3082, 3100, 3118, 3136, 3154, 3172, 3190, 3220, 3248, 3266, 8577
\partnumberline . . 13965, 13970
\PassOptionsToPackage . . 2977, 3034, 3038, 3060, 4075, 4379
\pdf@addtoks . . . 11301, 11320, 11326, 11335, 11342, 11346, 11348, 11350, 11352, 11354, 11362, 11371, 11375, 11377, 11379, 11382, 11391, 11395, 11397, 11399, 11401, 11403, 11405, 11407, 11409, 11411, 11413, 11415, 11417, 11419, 11421, 11423, 11425, 11426, 11427, 11428, 11429, 11430, 11431, 11432, 11433, 11434, 11435, 11440
\pdf@addtoksx . . 11295, 11305, 11318
\pdf@box . . 11223, 11255, 11263, 11271, 11272, 11275, 11279, 11281, 11284
\pdf@defaulttoks . 11190, 11299, 11300, 11310
\pdf@docset 11058
\pdf@endanchor 8816, 8860, 8867
\pdf@escapestring 8642
\PDF@FinishDoc . . . 2862, 2863, 2937, 2938, 4035, 4110, 4236, 4237, 4341, 4342, 6011, 6176, 6177, 9129, 9340, 9598, 10080, 10243, 10820, 11059, 11932, 12093
\pdf@ifdraftmode 240, 243, 251, 6352, 8689, 9130, 9239, 12850, 14176
\pdf@linktype . . . 11208, 11212, 11315, 11316
\pdf@rect . 11200, 11214, 11227
\PDF@SetupDoc 4034, 4109, 5931, 5932, 6010, 9060, 9341, 9629, 10120, 10244, 10769, 11110, 11813, 11963, 12094
\PDF@SetupDox 9060
\pdf@strcmp 972
\pdf@toks . 11190, 11205, 11216, 11298, 11302, 11306
\pdf@type . 11192, 11196, 11205, 11216, 11293, 11313
\pdfannotlink 8794
\pdfbookmark 2407, 6016, 6017, 14042, 14047, 14052, 14056
\pdfcatalog . . 6355, 8726, 9075, 9117, 12877
\PDFdefaults 11309
\pdfdest 8818
\pdfdraftmode 244
\pdfendlink . 8857, 12921, 13014, 13028, 13054, 13078, 13101, 13122
\pdfescapestring 13590
\pdfform 8796
\PDFForm@@Name 13598, 13601, 13605, 13608
\PDFForm@Check 12618, 12620, 13119, 13120, 13490, 13494, 13682
\PDFForm@List . 12534, 12536, 13025, 13026, 13377, 13382, 13740
\PDFForm@Name 12914, 12966, 13037, 13115, 13245, 13305, 13393, 13482, 13597
\PDFForm@Push . 12558, 12560, 13051, 13052, 13409, 13413, 13711
\PDFForm@Radio 12522, 12526, 13004, 13006, 13346, 13358, 13773
\PDFForm@Reset 12599, 12601, 13098, 13099, 13461, 13466, 13875
\PDFForm@Submit 12576, 12579, 13071, 13073, 13433, 13438, 13842
\PDFForm@Text . 12439, 12441, 12919, 12920, 13254, 13257, 13807
\pdfhorigin 9257
\pdfinfo 9133
\pdflastform 8797
\pdflastlink 12834
\pdflastobj . . 8704, 8719, 8725, 12876, 13161, 13170, 13180
\pdflastxform 8797, 12796, 12798
\pdflinkmargin 8792, 8795, 8800
\pdfliteral 8776, 8778, 8783
\pdfm@box . 9711, 13217, 13218, 13219, 13249, 13260, 13337, 13362, 13373, 13384, 13403, 13416, 13431, 13440, 13460, 13468, 13485, 13496
\pdfmark 6466, 9649, 9658, 9688, 10888, 10908, 10947, 10982, 10999, 11011, 11045, 11082, 11094, 11123, 11132, 11163, 11187, 11448, 11462, 11477, 11489, 11496, 11523, 11554, 11976, 11985, 12016, 12440, 12523, 12535, 12559, 12577, 12600, 12619, 14208
\pdfmark@ 11187, 11188
\pdfmatch 332
\pdfminorversion 8663
\PDFNextPage 11460
\PDFNextPage@ . . 11460, 11461
\pdfobj 8690, 8705, 8720, 12858, 13128, 13162, 13171
\PDFOpen 11488
\pdfoptionpdfminorversion 8660
\pdfoutline 14257
\pdfpageattr . 9173, 9177, 9178, 9188, 9197, 9201, 9202, 9212, 9220, 9223, 9224, 9234
\pdfpageheight 9267, 9276, 9285, 9292
\pdfpageresources 8753
\pdfpagesattr . 9064, 9066, 9068
\pdfpagewidth 9263, 9272, 9282, 9289
\PDFPreviousPage 11473
\PDFPreviousPage@ 11474, 11476
\pdfrefform 8798
\pdfrefobj . 12853, 12854, 12855
\pdfrefxform 8798, 12798
\pdfstartlink 8793, 8794, 8852, 8896, 8934, 8971, 9303, 12920, 13005, 13026, 13052, 13072, 13099, 13120
\pdfstringdef 522, 806, 3721, 3727, 3733, 3739, 3744, 3750, 3757, 3763,

3843, 5426, 5431, 5457, 6143, 6244, 6246, 6739, 7738, 7774, 13616, 13974
\pdfstringdefDisableCommands . . . 892, 931, 6014, 6138
\pdfstringdefPostHook . 802, 925
\pdfstringdefPreHook . 660, 925, 937, 6137, 6147
\pdfstringdefWarn 556, 557, 655, 940, 1721, 1726, 1745, 1749
\pdftexrevision 9020, 9028, 9039
\pdftexversion 9015, 9017, 9020, 9023, 9026, 9027, 9031, 9037, 9038, 12852
\pdfvorigin 9258
\pdfxform 8796, 12794
\peh 16889
\penalty 1856, 2434, 4709, 7565, 7588
\phantom 612
\phantomsection . . . 4036, 6018, 7815, 13909, 13960, 14348
\Preamble 12220
\PrerenderUnicode 3712
\process@me . 6117, 6129, 6130, 9063, 9072
\ProcessKeyvalOptions . . . 4079
\protect . 1854, 4851, 7361, 7432, 7496, 7511, 7527, 7643, 7650, 7651, 7853, 7884, 8159, 8211, 8340, 8360, 8366, 8377, 8495, 9351, 9448, 10314, 10389, 11824, 12104, 13981, 14281, 14404, 14405
\protected@edef 4888, 6210, 6304, 6829, 6958, 6978, 7726, 7730, 8825, 9910, 10443, 10526, 11037
\protected@write . . . 2371, 4872, 7623, 8044, 8059, 8067, 8071, 8076, 13980
\protected@xdef . . . 7205, 7298
\providecommand 2388, 2389, 3412, 3413, 3416, 3417, 4329, 4542, 4543, 4662, 4805, 6048, 6334, 6359, 6484, 6523, 6526, 6529, 6530, 6531, 6533, 6534, 6535, 6536, 6538, 6539, 6540, 6541, 6542, 6543, 6552, 6553, 6554, 6555, 6556, 6557, 6952, 7461, 7462, 7477, 7555, 8141, 8142, 8146, 8151, 8152, 8259, 8568, 8569, 8570, 8571, 8572, 8573, 8574, 8575, 8576, 8577, 8578, 8579, 8580, 8581, 8582, 8583, 8584, 8585, 8586, 8587, 8649, 8802, 8820, 8821, 9339, 9442, 9443, 9706, 9768, 9769, 9770, 10240, 10359, 10381, 10382, 10383, 10845, 11224, 11225, 11580, 11588, 11589, 11590, 11591, 11663, 11675, 11676, 11677, 11678, 11722, 11763, 11764, 11765, 11766, 11921, 11923, 11924, 12037, 12038, 12085, 12817
\PushButton 5827
\put@me@back 5028, 5041, 5051

Q

\qaf 16872
\quotedblbase . . . 14563, 14800, 16389, 16693
\quotesinglbase . . 14573, 14802, 16383, 16695

R

\r . . . 864, 14441, 14453, 14465, 14675, 14740, 14849, 14876, 14895, 14917, 15044, 15108, 15391, 15393, 16353, 16355
\ra 16860
\raff 16882
\raise . . . 2441, 9417, 9501, 9539, 9579, 11289, 11893, 12173
\ReadBookmarks 4078, 4113, 4250, 4446, 4586, 14140, 14175
\real@setref 8337, 8403
\realfootnote 7295
\Ref 8422, 8426, 8431
\ref 649, 4242, 4562, 5068, 5960, 5961, 6030, 6031, 7260, 7267, 8441, 12196
\ref@one 4827, 4828
\rEfLiNK 12197, 12198
\refstepcounter 6561, 6568, 6588, 6811, 6834, 6835, 6836, 6845, 6870, 6894, 6902, 7006, 7424
\rem@ptetc 10972, 10974
\renewcommand . . . 2363, 7403, 7960, 14056
\RequirePackage 22, 233, 235, 236, 237, 255, 256, 257, 258, 259, 260, 261, 262, 380, 1231, 1758, 2357, 2787, 2857, 4224, 4225, 4514, 4558, 4590, 4797, 5071, 6000, 6157, 6400, 10241, 12090, 14066
\RerunFileCheck 14068
\Reset 5836
\reset@font . . 7571, 7594, 8341, 8361, 8378, 8496
\revtex@checking 7548
\Rightarrow 8293
\rlap 8777, 9877
\rm 600
\rmfamily 590
\Roman 6300
\roman 6301
\romannumeral 947, 948
\rule 7245

S

\sad 16864
\sbox 3708, 5856, 9404, 9484, 9521, 9561, 11224, 11263, 11880, 12155, 12793
\scr@LT@array 6844
\scriptsize 608
\scriptstyle 7561
\scrollmode . . 1773, 1798, 1808, 1821, 1913, 2045
\scshape 596, 6995, 7021
\section 8261
\sectionautorefname 3085, 3103, 3121, 3139, 3157, 3175, 3193, 3222, 3251, 3269, 8580
\seen 16862
\selectfont 576, 4525, 12886
\set@display@protect 4177
\setbox 1857, 1863, 1869, 3440, 3446, 5652, 6165, 7083, 8767, 9331, 9850, 9867, 13249, 13337, 13373, 13403, 13431, 13460, 13485
\setcounter 4740
\setkeys 4715, 4760
\setlength 506, 507, 2438, 9257, 9258, 9263, 9267, 9272, 9276, 9282, 9285, 9289, 9292, 10362, 10365, 10369, 10372, 10708, 14298, 14369
\setpdflinkmargin . . 3891, 3892, 8792
\settowidth 12458, 12938, 13277
\SetupKeyvalOptions 2492, 4069
\sffamily 591
\shadda 16887
\sheen 16863
\shortciteN 7686
\SK@ 8554
\SK@@ref 8554

\SK@ref 8551
\skip@ . . 1871, 1945, 1946, 1949, 1951, 2457, 2463, 2476, 2482
\slide 7749
\slide@cline . . 8279, 8292, 8300, 8310, 8318
\Slide@contents 8284
\slide@contents 8277
\slide@heading 8155
\slide@subheading 8208
\slide@undottedcline 8270
\slidenumberline . . . 8271, 8279, 8293, 8301, 8311, 8319
\SliTeX 568
\slshape 597
\small 609
\smash 2435
\spacefactor . . 2414, 2420, 7164, 7173, 7323, 7325, 8805, 8813
\special@paper 4037
\SpecialDvipdfmxOutlineOpen . . 2896, 2898, 4414, 4421
\splitmaxdepth 7239
\splittopskip 7238
\SS 14798, 16692
\ss . . . 3132, 14728, 14813, 15096
\st@rredfalse 6877, 6886
\stepcounter 6578, 6759, 6828, 6977, 7165, 7297, 9893, 13977
\stockheight . 4041, 9291, 9292, 10229, 10230, 10368, 10369, 11652, 11653
\stockwidth . . 9288, 9289, 10228, 10230, 10371, 10372, 11651, 11653
\stop@hyper 5982
\StringEncodingConvertTest 780, 790
\strip@period 2376
\strip@prefix 62, 2369, 6119, 6677, 6961, 14204, 14212, 14227
\strip@pt 511, 518, 4053, 9263, 9267, 9272, 9276, 10711, 13705, 13768, 13796, 13835, 13884
\strip@pt@and@otherjunk 10907, 10939, 10974
\strutbox 7239
\sub@label 2363
\subeqnarray 6937, 6939
\subequations 6975, 6976
\subfig@oldlabel 2365
\Submit 5833
\SubmitObject 13074
\SubmitPObject 13074
\subparagraphautorefname 3089, 3107, 3125, 3143, 3161, 3179, 3197, 3230, 3232, 3255, 3273, 8584
\subpdfbookmark 14044
\subsection 11917
\subsectionautorefname 3086, 3104, 3122, 3140, 3158, 3176, 3194, 3227, 3252, 3270, 8581
\subsubsectionautorefname 3087, 3105, 3123, 3141, 3159, 3177, 3195, 3228, 3253, 3271, 8582
\sukun 16888
\surd 8301

T

\T 16852
\t . . 14473, 14868, 14887, 14906, 14922
\T@nameref 4579
\T@pageref . . . 4549, 4566, 8439
\T@ref 4544, 4563
\T@temp 7549, 7552
\Ta 16866
\taa 16853
\tableautorefname . . 3081, 3099, 3117, 3135, 3153, 3171, 3189, 3219, 3247, 3265, 8576
\tagform@ 7914
\tatweel 16870
\tcheh 16890
\temp@online 7840, 7843
\TeX . 558, 559, 566, 568, 12223, 12225, 12227
\texorpdfstring 918, 6015
\textacute . 14437, 14449, 14461, 14641, 14872, 14891, 15009
\textacutedbl 15541
\textaleph 16507
\textAlpha . 1148, 15561, 15577
\textalpha . . 1148, 15630, 15640
\textampersand 550, 14508, 14939
\textangstrom 16503
\textasciiacute 15010
\textasciibreve . . . 14484, 14880, 14899, 15530
\textasciicaron . . . 14442, 14454, 14466, 14486, 14877, 14896, 15528
\textasciicircum . . 14438, 14450, 14462, 14522, 14873, 14892, 14955
\textasciidieresis . 14440, 14452, 14464, 14618, 14875, 14894, 14986
\textasciigrave . . . 14436, 14448, 14460, 14527, 14871, 14890, 14959
\textasciimacron . 14445, 14457, 14469, 14631, 14882, 14901, 14999
\textasciitilde 551, 4625, 14537, 14970
\textasteriskcentered 14947
\textbackslash . . 546, 714, 2351, 14520, 14953
\textbaht 16215
\textbar 14533, 14966
\textbardbl 16377
\textBeta 1149, 15579
\textbeta . . . 1149, 14813, 15642
\textbf 583
\textbigcircle 14889, 14908, 16677
\textblank 16525
\textbraceleft 544, 2352, 14531, 14964
\textbraceright 545, 2352, 14535, 14968
\textbrokenbar . . . 14614, 14982
\textbullet 14539, 16395
\textcdot 14812, 16705
\textcedilla 14444, 14456, 14468, 14649, 14879, 14898, 15018
\textcelsius 14799, 16487
\textcent 14606, 14974
\textChi 1198, 15619
\textchi 1198, 15684
\textcircled 14870, 14889, 14908, 16529, 16531, 16533, 16535, 16537, 16539, 16541, 16543, 16545, 16547, 16549, 16551, 16553, 16555, 16557, 16559, 16561, 16563, 16565, 16567, 16569, 16571, 16573, 16575, 16577, 16579, 16581, 16583, 16585, 16587, 16589, 16591, 16593, 16595, 16597, 16599, 16601, 16603, 16605, 16607, 16609, 16611, 16613, 16615, 16617, 16619, 16621, 16623, 16625, 16627, 16629, 16631, 16633, 16635, 16637, 16639, 16641, 16643, 16645, 16647, 16649, 16651, 16653, 16655, 16657, 16659, 16661, 16663, 16665, 16667, 16669, 16671, 16673
\textcircledP 16491
\textcircumflex 14488
\textcolonmonetary 16469
\textcolor . . . 617, 12848, 12891, 12894, 13189

\textcompwordmark 16371
\textcopyright 14620, 14988
\textCR 14482, 14929
\textcurrency 14610, 14978
\textdagger 14541, 16391
\textdaggerdbl 14543, 16393
\textdegree 14633, 14799, 15001
\textDelta 1151, 15583
\textdelta 1151, 15646
\textDigammagreek 15705
\textdigammagreek 15707
\textdiscount 16417
\textdiv 14810, 16703
\textdivide 14780, 14810, 15148, 16703
\textdivorced 16683
\textdollar ... 548, 14504, 14935
\textdong 16479
\textdotaccent ... 14443, 14455, 14467, 14490, 14878, 14897, 15532
\textdotbelow ... 14447, 14459, 14471, 14514, 14886, 14905, 15551
\textdoublegrave . 14881, 14900, 15547
\textdownarrow 16515
\texteightinferior 16461
\texteightsuperior 16429
\textellipsis ... 554, 555, 14545, 16397
\textemdash . 748, 14547, 16375
\textendash .. 749, 14549, 16373
\textEpsilon 1152, 15563, 15585
\textepsilon 562, 565, 1152, 15632, 15648
\textequalsuperior 16437
\textestimated 16505
\textEta ... 1155, 15565, 15589
\texteta 1155, 15634, 15652
\texteuro 14602, 16481
\textexclamdown 752, 1059, 14604, 14972
\textfi 750, 14577, 16689
\TextField 5818
\textfiveinferior 16455
\textfivesuperior 16423
\textfl 751, 14579, 16691
\textflorin 14551, 15427
\textflq 639, 14806, 16699
\textflqq 637, 14804, 16697
\textfourinferior 16453
\textfoursuperior 16421
\textfractionsolidus 14553, 16411
\textfrq 640, 14807, 16700
\textfrqq 638, 14805, 16698
\textGamma 1150, 15581
\textgamma 1150, 15644
\textglq 635, 14802, 16695
\textglqq 633, 14800, 16693
\textgravedbl 15543
\textgreater 14518, 14951
\textgrq 636, 14803, 16696
\textgrqq 634, 14801, 16694
\textGslash 15446
\textgslash 15448
\textguarani 16485
\textHslash 15242
\texthslash 15244
\textHT 14478, 14925
\texthungarumlaut 14492, 14883, 14902, 15540, 15541
\textinterrobang 16409
\textIota ... 1170, 15567, 15593, 15626
\textiota ... 1170, 15636, 15656, 15690
\textIotadieresis .. 15575, 15625
\textit 585
\textKappa 1171, 15595
\textkappa 1171, 15658
\textKoppagreek ... 1178, 15709
\textkoppagreek ... 1178, 15711
\textkra 15283
\textLambda 1172, 15597
\textlambda 1172, 15660
\textlangle 16521
\textlatin 621, 6665
\textlbrackdbl 16685
\textleftarrow 16509
\textless 14516, 14949
\textLF 14480, 14927
\textlira 16471
\textlnot 14627, 14995
\textlogicalnot ... 14626, 14808, 14994, 16701
\textlongs 15425, 16357
\textlquill 16413
\textmacronbelow 14446, 14458, 14470, 14525, 14885, 14904, 15553
\textmarried 16681
\textmd 584
\textmho 16501
\textminus 14559, 16517
\textminussuperior 16435
\textMu 1173, 15599
\textmu 1173, 14643, 15012
\textmugreek 15662
\textmultiply 14712, 14809, 15080, 16702
\textmusicalnote 16679
\textnaira 16473
\textnapostrophe 15317
\textneg 14808, 16701
\textnewtie 14888, 14907, 15549
\textnineinferior 16463
\textninesuperior 16431
\textnormal 579
\textnsuperior 16443
\textNu 1174, 15601
\textnu 1174, 15664
\textnumbersign ... 547, 14502, 14933
\textnumeralsigngreek ... 1125, 15557
\textnumeralsignlowergreek 1142, 1164, 1187, 15559
\textnumero 16489
\textogonek 14494, 14884, 14903, 15536
\textohm 16499
\textOmega . 1200, 15573, 15623
\textomega . 1200, 15688, 15699
\textOmicron 1176, 15569, 15605
\textomicron 1176, 15668, 15694
\textonehalf 14659, 15028
\textoneinferior 16447
\textonequarter ... 14657, 15026
\textonesuperior .. 14651, 15020
\textopenbullet 16675
\textordfeminine .. 14622, 14990
\textordmasculine . 14653, 15022
\textparagraph 553, 14645, 15014
\textparenleft . 756, 757, 14510, 14943
\textparenleftinferior 16465
\textparenleftsuperior ... 16439
\textparenright ... 14512, 14945
\textparenrightinferior ... 16467
\textparenrightsuperior .. 16441
\textpercent . 549, 14506, 14937
\textperiodcentered 14647, 14812, 15016, 16705
\textpertenthousand 16401
\textperthousand .. 14561, 16399
\textpeseta 16475
\textpeso 16483
\textPhi 1197, 15617
\textphi 1197, 15682
\textPi 1177, 15607
\textpi 1177, 15670
\textplusminus .. 14635, 14811, 15003, 16704
\textplussuperior 16433
\textpm 14811, 16704
\textPsi 1199, 15621
\textpsi 1199, 15686
\textquestiondown ... 753, 1060, 14663, 15032
\textquotedbl 14500, 14931

\textquotedblleft . 14565, 14801, 16385, 16694
\textquotedblright . 14567, 16387
\textquoteleft ... 14569, 14803, 16379, 16696
\textquoteright ... 14571, 16381
\textquotesingle 14941
\textrangle 16523
\textrbrackdbl 16687
\textrecipe 16493
\textreferencemark 16407
\textregistered 14629, 14997
\textRho 1193, 15609
\textrho 1193, 15672
\textrightarrow 16513
\textring .. 14441, 14453, 14465, 14496, 14876, 14895, 15534
\textrm 580
\textrquill 16415
\textSampigreek ... 1201, 15713
\textsampigreek 1201, 15715
\textsc 586
\textsection 14616, 14984
\textservicemark 16495
\textseveninferior 16459
\textsevensuperior 16427
\textsf 581, 12891, 12894
\textSigma 1194, 15611
\textsigma 1194, 15676
\textsixinferior 16457
\textsixsuperior 16425
\textsl 587
\textsterling 14608, 14976
\textStigmagreek ... 1153, 15701
\textstigmagreek ... 1153, 15703
\textsurd 16519
\TextSymbolUnavailable . 14472, 14473, 14475
\textTau 1195, 15613
\texttau 1195, 15678
\textTheta 1156, 15591
\texttheta 1156, 15654
\textthreeinferior 16451
\textthreequarters . 14661, 15030
\textthreesuperior . 14639, 15007
\texttie ... 14887, 14906, 15555
\texttilde ... 4172, 14439, 14451, 14463, 14498, 14874, 14893, 15538
\texttildelow 15545
\texttimes 14809, 16702
\texttrademark ... 14575, 16497
\textTslash 15375
\texttslash 15377
\texttt 582
\texttwoinferior 16449
\texttwosuperior .. 14637, 15005
\textunderscore 552, 4619, 4620, 4622, 14524, 14957
\textup 588
\textuparrow 16511
\textUpsilon 1196, 15571, 15615, 15628
\textupsilon . 1196, 15680, 15692, 15697
\textupsilonacute . 15638, 15696
\textvarsigma 15674
\textvisiblespace 16527
\textwon 16477
\textXi 1175, 15603
\textxi 1175, 15666
\textyen 14612, 14980
\textzeroinferior 16445
\textzerosuperior 16419
\textZeta 1154, 15587
\textzeta 1154, 15650
\TH 14726, 15094
\th 14794, 15162
\thaa 16854
\thebookmark@seq@number 13984
\theequation . 6594, 6897, 6919, 6943, 6979
\thefootnote 7124, 7317
\theHchapter . 6533, 6534, 6535, 6536, 6623
\theHenumi 6552
\theHenumii 6553
\theHenumiii 6554
\theHenumiv 6555
\theHequation 6523, 6595, 6898, 6920, 6944, 6952, 6979, 6983
\theHfigure 6530, 6534
\theHHfootnote 6556, 6559
\theHHmpfootnote 6559
\theHItem ... 6546, 6552, 6553, 6554, 6555
\theHlisting 3416
\theHlstlisting 3412
\theHmpfootnote 6557
\theHpage 7731
\theHparagraph 6540, 6541
\theHparentequation 6978, 6983
\theHpart 6526
\theHsection . 6523, 6529, 6536, 6538, 6542, 6543, 6622
\theHslide 8146
\theHslidesection ... 8151, 8153, 8189, 8193
\theHslidesubsection 8152, 8240, 8244
\theHsubequation 6952
\theHsubparagraph 6541
\theHsubsection ... 6538, 6539
\theHsubsubsection . 6539, 6540
\theHtable 6531, 6535
\theHtheorem 6542
\theHthm 6543
\theHy@tempcnt 4735, 4743, 4750
\thelisting 3416
\thelstlisting 3412
\thempfn 7113, 7206, 7298, 7310
\theoremautorefname 3091, 3109, 3127, 3145, 3163, 3181, 3199, 3237, 3257, 3275, 8586
\thepage 2374, 4853, 6185, 6211, 6226, 6739, 6747, 6774, 7574, 7597, 7626, 7727, 7774, 7853, 7884, 8045, 8062, 8068, 8072, 8079, 8343, 8363, 8380, 8498
\theslideheading 8172
\theslidesection 8160, 8167, 8175, 8181, 8183, 8185, 8191, 8201
\theslidesubheading . 8173, 8224
\theslidesubsection 8212, 8219, 8226, 8232, 8234, 8236, 8242, 8252
\This@name . 6572, 6573, 6591, 6592
\thispdfpagelabel 6190
\ThisShouldNotHappen .. 13568
\thm@headfont 6995, 7021
\thm@headpunct ... 6997, 7023, 7054
\thm@headsep . 6998, 7024, 7055
\thm@indent 6994, 7020
\thm@notefont 6996, 7022, 7053
\thm@postskip 7002, 7028, 7059
\thm@preskip . 7001, 7027, 7058
\thm@space@setup . 6999, 7025, 7056
\thm@swap ... 6993, 7019, 7052
\thmheadnl ... 6992, 7018, 7051
\tiny 610
\title 6096, 6098
\TMP@EnsureCode 4456, 4463, 4464, 4465, 4466, 4467, 4468, 4469, 4470, 4471, 4472, 4473, 4474, 4475, 4476, 4477, 4478, 4479, 4480, 4481, 4482, 4483, 4484, 4485, 4486, 4487, 4488, 4489
\tocappendix 1609
\tocchapter 1608
\toclevel@chapter 3403
\toclevel@figure 3409
\toclevel@listing 3417
\toclevel@lstlisting 3413
\toclevel@paragraph 3407

\toclevel@part 3399, 3401
\toclevel@section 3404
\toclevel@subfigure 2388
\toclevel@subparagraph . . . 3408
\toclevel@subsection 3405
\toclevel@subsubsection . . . 3406
\toclevel@subtable 2389
\toclevel@table 3410
\tocparagraph 1613
\tocpart 1607
\tocsection 1610
\tocsubsection 1611
\tocsubsubsection 1612
\toks 4892, 4894, 4896, 4900, 4905, 8351, 8352, 8354, 14301, 14306, 14372, 14377
\toks@ 171, 208, 485, 488, 491, 509, 510, 832, 839, 871, 872, 1245, 1268, 1271, 1273, 1781, 1782, 3287, 3288, 3290, 3871, 3875, 3876, 3884, 4180, 4181, 4358, 4360, 5007, 5012, 5016, 5020, 6306, 6308, 6394, 6396, 6446, 6458, 6756, 6760, 6796, 6801, 7184, 7187, 7915, 7916, 8122, 8127, 8129, 8132, 14300, 14306, 14371, 14377
\topmargin 7787
\trivlist 6991, 7017, 7050
\tryhyper@link 4828, 4830
\ttfamily 592
\ttl@b 6807, 6812
\ttl@gobblecontents 6816
\ttl@Hy@PatchSaveWrite . 6790, 6794
\ttl@Hy@refstepcounter . . . 6806
\ttl@Hy@saveanchor 6785, 6809
\ttl@Hy@SavedCurrentHref 6789, 6800
\ttl@Hy@steplink 6783
\ttl@savewrite 6796, 6798
\tw@ 14301, 14306, 14372, 14377
\TX@endtabularx . . 7177, 7184, 7190
\typeout 5, 6, 7, 19, 26, 27, 36, 131, 155, 158, 159, 160, 5037, 14398, 16899

U

\U . . 14843, 15748, 15771, 15836, 15913, 16103, 16105, 16127, 16129, 16139, 16141
\u . . 14842, 14880, 14899, 14919, 15170, 15172, 15206, 15208, 15226, 15228, 15256, 15258, 15259, 15327, 15329, 15387, 15389
\UHORN . . 16721, 16832, 16833, 16834, 16835, 16836
\uhorn 3261, 3268, 16714, 16772, 16773, 16774, 16775, 16776
\UnDef 12197
\unhbox . . . 7097, 11225, 13260, 13384, 13416, 13440, 13468, 13496
\unhcopy 13362
\unichar 2220
\Unicode 1321
\unrestored@protected@xdef 7113, 7124, 7260, 7267, 7310, 7317
\unskip . 6989, 7014, 7047, 7559, 8429, 8433, 8437, 8442
\upshape . 598, 6996, 7022, 7053
\Url 4799
\url 4798, 4802
\url@ 4802, 4803
\use@file 4968, 4970, 4977
\usefont 577
\utf@viii@undeferr 539
\UTFviii@four@octets 2216, 2225
\UTFviii@three@octets . . . 2215
\UTFviii@two@octets 2214

V

\v . . 14442, 14454, 14466, 14585, 14590, 14598, 14600, 14853, 14877, 14896, 14918, 15190, 15192, 15194, 15196, 15218, 15220, 15293, 15295, 15313, 15315, 15347, 15349, 15363, 15365, 15371, 15373, 15421, 15423, 15429, 15431, 15433, 15435, 15436, 15438, 15440, 15442, 15444, 15450, 15452, 15454, 15456, 15462, 15463, 15506, 15508
\V@@@footnotetext 7247
\V@@footnotetext 7233
\value . . 6209, 7513, 7539, 7791, 7940, 9894, 9899
\vbox . . 5851, 5852, 5853, 5854, 6165, 7785
\vfill . . . 5851, 5852, 5853, 5854
\voffset 7786
\vpageref 8442
\vphantom 613
\Vr@f 8428
\vr@f 8436
\vref@pagenum 6820
\vref@space . . . 8429, 8432, 8437
\vskip 2463, 2464
\vss 7800
\vtex@trans@special 10679, 10681, 10684, 10688, 10692, 10696, 10698, 10700, 10704, 10710, 10711, 10714
\VTeXInitMediaSize 10359, 10376
\VTeXOS . 10749, 10750, 10751, 10753
\VTeXversion 6361, 6364, 6367, 10741, 10745

W

\waw 16878
\wawhamza 16847
\wd 9489, 9505, 9526, 9543, 9566, 9583, 13218
\write . . 4690, 6045, 6047, 6475, 6483, 6745, 6773, 7497, 7512, 7528, 7538, 7568, 7591, 7617, 7647, 12816, 12840, 14168, 14250
\WriteBookmarks . . 4114, 4251, 4425, 4447, 13917, 14161, 14194, 14195, 14237, 14243
\wwwbrowser . 9443, 9528, 9545

X

\x 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, 290, 295, 296, 508, 513, 834, 837, 841, 846, 878, 945, 951, 1708, 1736, 2163, 2165, 2458, 2468, 2477, 2487, 2556, 2557, 2562, 2578, 3298, 3301, 3305, 3318, 3428, 3429, 3432, 3433, 3434, 3438, 3441, 3447, 3874, 3880, 3883, 3886, 4041, 4042, 4047, 4048, 4127, 4128, 4129, 4132, 4135, 4138, 4178, 4179, 4181, 4182, 4359, 4362, 4689, 4695, 4890, 4901, 4905, 4908, 4983, 4984, 4985, 4997, 5008, 5009, 5010, 5011, 5014, 5015, 5089, 5103, 5128, 5132, 5135, 5145, 6118, 6119, 6124, 6757, 6764, 6797, 6804, 6845, 6854, 6856, 6868, 8129, 8130, 8353, 8356, 8391, 8392, 8393, 8395, 8397, 8752, 8760, 9048, 9049, 9052, 9054, 9057, 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, 10849, 10854, 10858, 11229, 11232, 11238, 11243, 11388, 11389, 12464, 12484, 12944, 12964, 13283, 13303, 14305, 14307, 14376, 14378
\XeTeXrevision 4412, 10077
\XeTeXversion 4412, 10077
\XR@@dURL 2395, 2396
\XR@addURL 2395
\XR@ext 2664, 2665, 4966, 4969, 6359, 8649, 9339, 9442, 9706, 10240, 11580, 11663, 11722, 11921, 12085
\XR@URL 2400
\xspace 666, 668
\xspaceaddexceptions 4088, 4095

Y

\y 295, 297, 301, 849, 852, 855, 858, 861, 864, 873, 2558, 2563, 2568, 3434, 3435, 3436, 3437, 4130, 4133, 4136, 4139, 4141, 4147, 4986, 4987, 4988, 4989, 4997, 6119, 6127, 6841, 6843, 6844, 6847, 6854, 11234, 11235, 11236, 11237
\ya 16880
\yahamza 16849

Z

\z 296, 297, 302, 2560, 2561, 2562, 4989, 4997
\z@ 810, 850, 972, 1124, 1141, 1163, 1186, 1437, 1477, 1490, 1506, 1521, 1529, 1602, 1857, 1863, 1869, 1933, 1937, 1945, 1949, 2414, 2453, 2472, 2753, 2898, 3440, 3446, 4421, 6362, 6365, 7084, 7245, 9261, 9270, 9274, 9281, 9288, 9291, 10222, 10228, 10229, 10740, 10972, 11272, 11286, 11646, 11651, 11652, 12934, 13222, 13273, 13721, 13726, 13748, 13782, 13815, 13821, 13850, 13855, 13885, 13995, 13996, 13997, 13999, 14000, 14001, 14003, 14220, 14342
\z@skip .....
\za .....
\zay .....
\ZWNJ .....