Hypertext marks in LaTeX

Sebastian Rahtz
Email: sebastian.rahtz at oucs.ox.ac.uk

Heiko Oberdiek
Email: heiko.oberdiek at googlemail.com

2010/04/30 v6.80y

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 **10**
4.1 Save catcodes . . . 10
4.2 Compatibility with format dumps . . . 12
4.3 Switches . . . 13

5 Common help macros **14**
5.1 Macros for recursions . . . 15
5.2 Babel's protection of shorthand characters . . . 15
5.3 Coordinate transformations . . . 15

6 Dealing with PDF strings **16**
6.1 Description of PDF strings . . . 16
6.2 Definition of \pdfstringdef . . . 17
6.2.1 Preprocessing . . . 17
6.2.2 Expansion . . . 22
6.2.3 Postprocessing . . . 24
6.3 Encodings . . . 28
6.3.1 XeTeX . . . 28
6.3.2 Workaround for package linguex . . . 29
6.3.3 PD1 encoding . . . 29
6.3.4 PU encoding . . . 30
6.4 Additional user commands . . . 30
6.4.1 \texorpdfstring . . . 30
6.4.2 Hooks for \pdfstringdef . . . 30
6.5 Help macros for expansion . . . 31
6.5.1 \ignorespaces . . . 31
6.5.2 Babel languages . . . 32
6.5.3 CJK patch . . . 37
6.5.4 CJK bookmarks . . . 37
6.5.5 CJK unicode . . . 39
6.5.6 \@inmathwarn-Patch . . . 43
6.5.7 Unexpandable spaces . . . 45
6.5.8 Marker for commands . . . 45
6.5.9 \hspace fix . . . 45
6.5.10 Fix for AMS classes . . . 45
6.5.11 Reference commands . . . 46
6.5.12 Redefining the defining commands . . . 48
6.5.13 \ifnextchar . . . 49
6.5.14 \@protected@testoptifnextchar . . . 49
6.6 Help macros for postprocessing . . . 50
6.6.1 Generic warning. . . . 50
6.6.2 Protecting spaces . . . 50
6.6.3 Remove grouping braces . . . 51
6.6.4 Catcode check . . . 52
6.6.5 Check for wrong glyphs . . . 55
6.6.6 Replacing tokens . . . 56

6.6.7 Support for package xspace . . . 57
6.6.8 Converting to Unicode . . . 58
6.6.9 Support for UTF-8 input encoding . . . 60

7 Support of other packages 63
7.1 Class memoir . . . 63
7.2 Package subfigure . . . 63
7.3 Package xr and xr-hyper . . . 64

8 Help macros for links 65

9 Options 66
9.1 Help macros . . . 66
9.2 Defining the options . . . 68

10 Options for different drivers 72

11 Options to add extra features 74

12 Language options 76

13 Options to change appearance of links 82

14 Bookmarking 82

15 PDF-specific options 84
15.1 PDF/A . . . 94
15.2 Patch for babel's \texttilde . . . 95
15.2.1 Driver loading . . . 96
15.2.2 Bookmarks . . . 99

16 User hypertext macros 102

17 Underlying basic hypertext macros 106

18 Compatibility with the *LaTeX2html* package 110

19 Forms creation 110
19.1 Field flags . . . 110
19.1.1 Declarations of field flags . . . 112
19.1.2 Set submit flags . . . 114
19.1.3 Set annot flags in fields . . . 115
19.1.4 Pushbutton field . . . 115
19.1.5 Check box field . . . 116
19.1.6 Radio button field . . . 116
19.1.7 Text fields . . . 116
19.1.8 Choice fields . . . 117
19.2 Choice field . . . 117
19.3 Forms . . . 119

20 Setup 125

21 Low-level utility macros 126

22 Localized nullifying of package 127

23 Package nohyperref **127**

24 The Mangling Of Aux and Toc Files **128**

25 Title strings **130**

26 Page numbers **131**

27 Every page **131**
27.1 PDF /PageLabels 132
27.1.1 pdfTeX and VTeX 135
27.1.2 xetex 136
27.1.3 pdfmarkbase, dvipdfm, xetex 137

28 Automated LaTeX hypertext cross-references **138**

29 Package lastpage support **142**

30 Package ifthen support **144**

31 Package titlesec and titletoc support **144**

32 Package varioref support **145**

33 Package longtable support **145**

34 Equations **146**

35 Footnotes **149**

36 Float captions **153**

37 Bibliographic references **156**
37.1 Package harvard 159
37.2 Package chicago 160

38 Page numbers **161**

39 Table of contents **162**

40 New counters **164**

41 AMSLaTeX compatibility **164**
41.1 \@addtoreset and \numberwithin patches 165

42 Included figures **166**

43 hyperindex entries **166**

44 Compatibility with foiltex **169**

45 Compatibility with seminar slide package **169**

46 Configuration files **178**
46.1 PS/PDF strings . . . 178
46.2 pdftex . . . 179
46.2.1 Fix for problem with different nesting levels . . . 192
46.3 hypertex . . . 192
46.4 dviwindo . . . 194
46.5 dvipdfm/xetex dvi to PDF converter . . . 199
46.6 VTeX typesetting system . . . 207
46.7 Fix for Adobe bug number 466320 . . . 219
46.8 Direct pdfmark support . . . 219
46.9 Rokicki's dvips . . . 232
46.10 VTeX's vtexpdfmark driver . . . 234
46.11 Textures . . . 235
46.12 dvipsone . . . 239
46.13 TeX4ht . . . 242

47 Driver-specific form support **244**
47.1 pdfmarks . . . 244
47.2 HyperTeX . . . 251
47.3 TeX4ht . . . 252
47.4 pdfTeX . . . 254
47.5 dvipdfm, xetex . . . 261
47.6 Common forms part . . . 269

48 Bookmarks in the PDF file **275**
48.1 Bookmarks . . . 275
48.1.1 Rerun warning . . . 278
48.1.2 Driver stuff . . . 279

49 Compatibility with koma-script classes **285**

50 Encoding definition files for encodings of PDF strings **285**
50.1 PD1 encoding . . . 286
50.2 PU encoding . . . 293
50.2.1 NFSS2 accents . . . 293
50.2.2 Basic Latin: U+0000 to U+007F . . . 295
50.2.3 Latin-1 Supplement: U+0080 to U+00FF . . . 297
50.2.4 Latin Extended-A: U+0080 to U+017F . . . 300
50.2.5 Latin Extended-B: U+0180 to U+024F . . . 305
50.2.6 Spacing Modifier Letters: U+02B0 to U+02FF . . . 307
50.2.7 Combining Diacritical Marks: U+0300 to U+036F . . . 307
50.2.8 Greek and Coptic: U+0370 to U+03FF . . . 308
50.2.9 Cyrillic: U+0400 to U+04FF . . . 310
50.2.10 Thai: U+0E00 to U+0E7F . . . 321
50.2.11 Latin Extended Additional: U+1E00 to U+1EFF . . . 321
50.2.12 General Punctuation: U+2000 to U+206F . . . 323
50.2.13 Superscripts and Subscripts: U+2070 to U+209F . . . 324
50.2.14 Currency Symbols: U+20A0 to U+20CF . . . 325
50.2.15 Letterlike Symbols: U+2100 to U+214F . . . 326
50.2.16 Arrows: U+2190 to U+21FF . . . 326
50.2.17 Mathematical Operators: U+2200 to U+22FF . . . 326
50.2.18 Miscellaneous Technical: U+2300 to U+23FF . . . 326
50.2.19 Control Pictures: U+2400 to U+243F . . . 326

50.2.20 Enclosed Alphanumerics: U+2460 to U+24FF 327
50.2.21 Box Drawing: U+2500 to U+257F 329
50.2.22 Miscellaneous Symbols: U+2600 to U+26FF 329
50.2.23 Miscellaneous Mathematical Symbols-A: U+27C0 to U+27EF . . 329
50.2.24 Alphabetic Presentation Forms: U+FB00 to U+FB4F 330
50.2.25 Miscellaneous 330
50.2.26 Aliases 330
50.3 PU encoding, additions for VnTEX 330
50.4 PU encoding, additions for Arabi 333

51 End of file hycheck.tex **334**

52 Index **335**

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

`\HyC@edef`

```
\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!

```
\RequirePackage{ltxcmds}[2010/03/09]
\RequirePackage{keyval}[1997/11/10]
\RequirePackage{kvsetkeys}[2007/09/29]
\RequirePackage{pdfescape}[2007/11/11]
\RequirePackage{ifpdf}[2006/02/20]
\RequirePackage{ifvtex}
\RequirePackage{ifxetex}[2006/08/21]
\RequirePackage{hycolor}
\RequirePackage{letltxmacro}[2008/06/13]
\def\Hy@Warning#1{\PackageWarning{hyperref}{#1}}
\def\Hy@WarningNoLine#1{\PackageWarningNoLine{hyperref}{#1}}
\def\Hy@Info#1{\PackageInfo{hyperref}{#1}}
```

4.2 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

```
\def\Hy@AtBeginDocumentHook{}
```

\Hy@AtEndOfPackageHook

```
\def\Hy@AtEndOfPackageHook{}
```

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

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

4.3 Switches

```
\newif\ifHy@typexml
\newif\ifHy@activeanchor
\newif\ifHy@backref
\newif\ifHy@bookmarks
\newif\ifHy@bookmarksnumbered
\newif\ifHy@bookmarksopen
\newif\ifHy@breaklinks
\newif\ifHy@centerwindow
\newif\ifHy@CJKbookmarks
\newif\ifHy@colorlinks
\newif\ifHy@draft
\let\Hy@finaltrue\Hy@draftfalse
\let\Hy@finalfalse\Hy@drafttrue
\newif\ifHy@escapeform
\newif\ifHy@figures
\newif\ifHy@fitwindow
\newif\ifHy@frenchlinks
\newif\ifHy@hyperfootnotes
\newif\ifHy@hyperindex
\newif\ifHy@hypertexnames
\newif\ifHy@implicit
\newif\ifHy@linktocpage
\newif\ifHy@localanchorname
\newif\ifHy@menubar
\newif\ifHy@naturalnames
\newif\ifHy@nesting
\newif\ifHy@newwindowset
\newif\ifHy@newwindow
\newif\ifHy@ocgcolorlinks
\newif\ifHy@pageanchor
\newif\ifHy@pagelabels
\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@toolbar
\newif\ifHy@unicode
\newif\ifHy@usetitle
\newif\ifHy@verbose
\newif\ifHy@windowui
\newif\ifHy@displaydoctitle
\newif\ifHy@pdfa
```

Defaults for the switches are now set.

```
\Hy@backreffalse
\Hy@bookmarksnumberedfalse
\Hy@bookmarksopenfalse
\Hy@bookmarkstrue
\Hy@breaklinksfalse
\Hy@centerwindowfalse
\Hy@CJKbookmarksfalse
\Hy@escapeformfalse
\Hy@figuresfalse
\Hy@fitwindowfalse
\Hy@hyperfootnotestrue
\Hy@hyperindextrue
\Hy@hypertexnamestrue
\Hy@implicittrue
\Hy@linktocpagefalse
\Hy@localanchornamefalse
\Hy@menubartrue
\Hy@naturalnamesfalse
\Hy@nestingfalse
\Hy@newwindowsetfalse
\Hy@newwindowfalse
\Hy@pageanchortrue
\Hy@pagelabelstrue
\Hy@pdfpagehiddenfalse
\Hy@pdfstringfalse
\Hy@plainpagesfalse
\Hy@raiselinksfalse
\Hy@setpagesizetrue
\Hy@texhtfalse
\Hy@toolbartrue
\Hy@typexmlfalse
\Hy@unicodefalse
\Hy@usetitlefalse
\Hy@verbosefalse
\Hy@windowuitrue
\Hy@displaydoctitlefalse
\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\@empty
\let\MaybeStopEarly\relax
\newcount\Hy@linkcounter
\newcount\Hy@pagecounter
\Hy@linkcounter0
\Hy@pagecounter0
```

5.1 Macros for recursions

\Hy@ReturnAfterElseFi
\Hy@ReturnAfterFi

The commands \Hy@ReturnAfterElseFi and \Hy@ReturnAfterFi avoid a too deep \if-nesting especially for recursive macros.

```
\long\def\Hy@ReturnAfterElseFi#1\else#2\fi{\fi#1}
\long\def\Hy@ReturnAfterFi#1\fi{\fi#1}

\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
      \Hy@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 ISOLatin1 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
\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{\LaTeX2e}%
\def\eTeX{e-\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
```

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\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\@secondoftwo
\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 post-process 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 inter-

preting 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{%
    \toks0=\expandafter{\pdfstringdefPreHook}%
    \toks1={#1}%
    \xdef\pdfstringdefPreHook{\the\toks0 \the\toks1}%
  \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
}
\RequirePackage{pdftexcmds}[2009/04/10]
\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 `\@typesetprotect` (=`\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}
```

```
\def\HyPsd@inmathwarn#1#2{%
  \ifx#2\expandafter
    \expandafter\ifx\csname\cf@encoding\string#1\endcsname\relax
      \HyPsd@GLYPHERR
      \expandafter\@gobble\string#1%
      >%
      \expandafter\expandafter\expandafter\HyPsd@EndWithElse
    \else
      \expandafter\expandafter\expandafter\HyPsd@GobbleFiFi
    \fi
  \else
    \expandafter#2%
  \fi
}
\def\HyPsd@GobbleFiFi#1\fi#2\fi{}
\def\HyPsd@EndWithElse#1\else{\else}
```

\HyPsd@add@accent

```
\def\HyPsd@add@accent#1#2{%
  \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@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
    \def\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 \Hy@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
\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
  \Hy@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
 \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
    |Hy@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
    |Hy@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.

$$a := A/4 - 48 \tag{1}$$

$$b := A - 4 * (A/4) \tag{2}$$
$$c := B/8 - 8 * ((8 * (B/8))/8) \tag{3}$$
$$d := B - 8 * (B/8) \tag{4}$$
$$\tag{5}$$

```
\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:

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

```
\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
```

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`.

```
\def\Hy@raisedlink#1{%
  \ifvmode
    #1%
  \else
    \penalty\@M
    \smash{%
      \begingroup
        \let\HyperRaiseLinkLength\@tempdima
        \setlength\HyperRaiseLinkLength\HyperRaiseLinkDefault
        \HyperRaiseLinkHook
      \expandafter\endgroup
      \expandafter\raise\the\HyperRaiseLinkLength\hbox{#1}%
    }%
  \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

9.1 Help macros

\Hy@boolkey

```
\def\Hy@boolkey{\@dblarg\Hy@@boolkey}
\def\Hy@@boolkey[#1]#2#3{%
  \edef\Hy@tempa{#3}%
  \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{#3}{#1}{'true' or 'false'}%
  \else
    \Hy@Info{Option '#1' set '\Hy@tempa'}%
    \csname Hy@#2\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{%
  \@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]{verbose}{#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{%
      \PackageError{hyperref}{%
        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%
      }%
    }%
  }%
}
\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

```
\define@key{Hyp}{hyperref}[true]{}
\define@key{Hyp}{tex4ht}[true]{%
  \Hy@texhttrue
  \setkeys{Hyp}{colorlinks=true}%
  \def\BeforeTeXIVht{\usepackage{color}}%
  \def\Hy@driver{htex4ht}%
  \def\MaybeStopEarly{%
    \typeout{Hyperref stopped early}%
    \Hy@AtBeginDocument{%
      \PDF@FinishDoc
      \gdef\PDF@FinishDoc{}%
    }%
    \endinput
  }%
}
\define@key{Hyp}{pdftex}[true]{%
```

```
  \def\Hy@driver{hpdftex}%
}
\define@key{Hyp}{nativepdf}[true]{%
  \def\Hy@driver{hdvips}%
}
\define@key{Hyp}{dvipdfm}[true]{%
  \def\Hy@driver{hdvipdfm}%
}
\define@key{Hyp}{dvipdfmx}[true]{%
  \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
}
\define@key{Hyp}{xetex}[true]{%
  \def\Hy@driver{hxetex}%
}
\define@key{Hyp}{pdfmark}[true]{%
  \def\Hy@driver{hdvips}%
}
\define@key{Hyp}{dvips}[true]{%
  \def\Hy@driver{hdvips}%
}
\define@key{Hyp}{hypertex}[true]{%
  \def\Hy@driver{hypertex}%
}
\let\Hy@MaybeStopNow\relax
\define@key{Hyp}{vtex}[true]{%
  \begingroup\expandafter\expandafter\expandafter\endgroup
  \expandafter\ifx\csname OpMode\endcsname\relax
    \@latex@error{Non-VTeX processor}{}%
    \global\let\Hy@MaybeStopNow\endinput
    \endinput
  \else
    \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{%
          \typeout{Hyperref stopped early}%
          \Hy@AtBeginDocument{%
            \PDF@FinishDoc
            \gdef\PDF@FinishDoc{}%
          }%
          \endinput
        }%
      \else
        \@latex@error{Mode (\the\OpMode) has no hyperref driver}{}%
        \global\let\Hy@MaybeStopNow\endinput
        \endinput
      \fi
```

```
    \fi
  \fi
}
\define@key{Hyp}{vtexpdfmark}[true]{%
  \begingroup\expandafter\expandafter\expandafter\endgroup
  \expandafter\ifx\csname OpMode\endcsname\relax
    \@latex@error{Non-VTeX processor}{}%
    \let\Hy@MaybeStopNow\endinput
    \endinput
  \else
    \ifnum 0\ifnum\OpMode<1 1\fi \ifnum\OpMode>3 1\fi =0 %
      \def\Hy@driver{hvtexmrk}%
    \else
      \@latex@error{Mode (\the\OpMode) has no hyperref driver}{}%
      \let\Hy@MaybeStopNow\endinput
      \endinput
    \fi
  \fi
}
\define@key{Hyp}{dviwindo}[true]{%
  \def\Hy@driver{hdviwind}%
  \setkeys{Hyp}{colorlinks}%
  \ifpdf
  \else
    \ifxetex
    \else
      \PassOptionsToPackage{dviwindo}{color}%
    \fi
  \fi
}
\define@key{Hyp}{dvipsone}[true]{%
  \def\Hy@driver{hdvipson}%
}
\define@key{Hyp}{textures}[true]{%
  \def\Hy@driver{htexture}%
}
\define@key{Hyp}{latex2html}[true]{%
  \Hy@AtBeginDocument{\@@latextohtmlX}%
}
```

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

```
\define@key{Hyp}{ps2pdf}[true]{%
  \def\Hy@driver{hdvips}%
  \providecommand*\@pdfborder{0 0 1}%
}
```

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]{figures}{#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{%
  \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\HyLang@addto{\noexpand##1}{\noexpand##2}%
       #3%
     }%
   }%
  \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.

```
\define@key{Hyp}{vietnamese}[]{%
  \HyLang@addto\extrasvietnamese\HyLang@vietnamese
  \Hy@AtEndOfPackage{%
    \@ifundefined{T@PU}{}{%
      \input{puvnenc.def}%
    }%
  }%
}
\define@key{Hyp}{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.

```
\define@key{Hyp}{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}%
}
\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
}
\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}}
```

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}{pdfhighlight}{\def\@pdfhighlight{#1}}
\Hy@DefNameKey{pdfhighlight}{%
  \do{/I}{Invert}%
  \do{/N}{None}%
  \do{/O}{Outline}%
  \do{/P}{Push}%
}
\define@key{Hyp}{pdfborder}{\def\@pdfborder{#1}}
```

```
\define@key{Hyp}{pdfborderstyle}{\def\@pdfborderstyle{#1}}
\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]{usetitle}{#1}%
}
\def\HyXeTeX@CheckUnicode{%
  \ifxetex
    \ifHy@unicode
    \else
      \Hy@WarningNoLine{%
        XeTeX driver only supports unicode.\MessageBreak
        Enabling option 'unicode'%
      }%
      \setkeys{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
}
\def\HyInfo@AddonList{}
\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\\%
    \def\@pdfstartpage{}%
  \else
    \edef\@pdfstartpage{\Hy@number{#1}}%
  \fi
}%
\define@key{Hyp}{pdfstartview}{%
  \ifx\\#1\\%
    \def\@pdfstartview{}%
  \else
    \hypercalcbpdef\@pdfstartview{ /#1 }%
  \fi
}
\define@key{Hyp}{pdfpagescrop}{\edef\@pdfpagescrop{#1}}
\define@key{Hyp}{pdftoolbar}[true]{%
  \Hy@boolkey[pdftoolbar]{toolbar}{#1}%
}
\define@key{Hyp}{pdfmenubar}[true]{%
  \Hy@boolkey[pdfmenubar]{menubar}{#1}%
}
\define@key{Hyp}{pdfwindowui}[true]{%
  \Hy@boolkey[pdfwindowui]{windowui}{#1}%
}
\define@key{Hyp}{pdffitwindow}[true]{%
  \Hy@boolkey[pdffitwindow]{fitwindow}{#1}%
}
\define@key{Hyp}{pdfcenterwindow}[true]{%
  \Hy@boolkey[pdfcenterwindow]{centerwindow}{#1}%
}
\define@key{Hyp}{pdfdisplaydoctitle}[true]{%
  \Hy@boolkey[pdfdisplaydoctitle]{displaydoctitle}{#1}%
}
\define@key{Hyp}{pdfa}[true]{%
  \Hy@boolkey{pdfa}{#1}%
}
\define@key{Hyp}{pdfnewwindow}[true]{%
```

```
  \def\Hy@temp{#1}%
  \ifx\Hy@temp\@empty
    \Hy@newwindowsetfalse
  \else
    \Hy@newwindowsettrue
    \Hy@boolkey[pdfnewwindow]{newwindow}{#1}%
  \fi
}
\def\Hy@SetNewWindow{%
  \ifHy@newwindowset
    /NewWindow %
    \ifHy@newwindow 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]{pagelabels}{#1}%
}
\define@key{Hyp}{pdfescapeform}[true]{%
  \Hy@boolkey[pdfescapeform]{escapeform}{#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}
\def\@pdftitle{}
\def\@pdfauthor{}
\let\@pdfproducer\relax
\def\@pdfcreator{LaTeX with hyperref package}
\def\@pdfcreationdate{}
\def\@pdfmoddate{}
\def\@pdfsubject{}
\def\@pdfkeywords{}
\def\@pdftrapped{}
\def\@pdfpagescrop{}
\def\@pdfstartview{ /Fit }
\def\@pdfstartpage{1}
\def\@pdfprintpagerange{}
\def\@pdflang{}
\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{\|}

\def\hypersetup{\setkeys{Hyp}}
```

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
\Hy@MaybeStopNow
```

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.

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]

\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.

```
\Hy@AtBeginDocument{%
  \ifHy@draft
    \let\hyper@@anchor\@gobble
    \gdef\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{}%
    \def\Acrobatmenu#1#2{\leavevmode#2}%
    \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}%
}
```

15.1 PDF/A

```
\Hy@DisableOption{pdfa}
\ifHy@pdfa
  \setkeys{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
      \PackageError{hyperref}{%
        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
```

15.2 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
```

```
\ifHy@figures
  \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
  \typeout{Implicit mode ON; LaTeX internals redefined}%
```

```
\else
  \typeout{Implicit mode OFF; no redefinition of LaTeX internals}%
  \def\MaybeStopEarly{%
    \typeout{Hyperref 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}
```

15.2.1 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
\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
\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.

```
\ifx\Hy@driver\@empty
  \providecommand*{\Hy@defaultdriver}{hypertex}%
  \ifpdf
    \def\Hy@driver{hpdftex}%
  \else
    \ifxetex
      \def\Hy@driver{hxetex}%
    \else
      \ifvtexhtml
        \def\Hy@driver{hvtexhtm}%
        \def\MaybeStopEarly{%
          \typeout{Hyperref stopped early}%
          \Hy@AtBeginDocument{%
            \PDF@FinishDoc
            \gdef\PDF@FinishDoc{}%
          }%
```

```
        \endinput
      }%
    \else
      \ifvtexpdf
        \def\Hy@driver{hvtex}%
      \else
        \ifvtexps
          \def\Hy@driver{hvtex}%
        \else
          \let\Hy@driver\Hy@defaultdriver
        \fi
      \fi
    \fi
  \fi
  \ifx\Hy@driver\Hy@defaultdriver
    \def\Hy@temp{hdviwind}%
    \ifx\Hy@temp\Hy@driver
      \setkeys{Hyp}{colorlinks}%
      \PassOptionsToPackage{dviwindo}{color}%
    \fi
  \fi
  \typeout{* hyperref using default driver \Hy@driver\ltx@space*}%
\else
  \typeout{* hyperref using driver \Hy@driver\ltx@space*}%
\fi
\input{\Hy@driver.def}%
\let\@unprocessedoptions\relax
\Hy@RestoreCatcodes
}
```

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
    \Hy@DvipdfmxOutlineOpentrue
  \fi
\fi
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname SpecialDvipdfmxOutlineOpen\endcsname\relax
\else
  \ifnum\SpecialDvipdfmxOutlineOpen>\z@
    \Hy@DvipdfmxOutlineOpentrue
  \fi
\fi
\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@AtEndOfPackage{%
  \Hy@DisableOption{pdfversion}%
}
```

15.2.2 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
  \def\@bookmarkopenstatus#1{}%
  \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{%
  \def\Hy@EndWrap{}%
  \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
    \setkeys{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
   \Hy@ReturnAfterElseFi{^^A
    \hyper@@normalise{#1}^^A
   }^^A
  \else
   \Hy@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
   \Hy@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}{%
  \@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\\{%
    \hyper@@link{$1}{$2}%
  }%
\endgroup
```

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%
    }%
    \hyper@@link{}{??}{#3}%
  \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{%
```

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.

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

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

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

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

```
        \ifx\@pdftempa\@pdftempwordrun
          \ifHy@pdfa
            \PackageError{hyperref}{%
              PDF/A: Launch action is prohibited%
            }\@ehc
```

```
          \begingroup
            \leavevmode
            #2%
          \endgroup
        \else
          \expandafter\@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{%
    %file url,link string, name
  \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}{%
        \Hy@linkfileprefix\use@file\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
}
```

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
}
```

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
    \PackageError{hyperref}{%
      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}{%
    \def\Fld@submitflags{}%
  }{%
    \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}{%
    \def\Fld@annotflags{}%
  }{%
    \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}{%
    \def\Fld@flags{}%
  }{%
    \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}{%
    \def\Fld@flags{}%
  }{%
    \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}{%
    \def\Fld@flags{}%
  }{%
    \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
```

```
      \PackageError{hyperref}{%
        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}{%
    \def\Fld@flags{}%
  }{%
    \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}{%
    \def\Fld@flags{}%
  }{%
    \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
    \gdef\Fld@choices{}%
    \def\HyTmp@optlist{}%
    \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{%
  \setkeys{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
    \PackageError{hyperref}{%
      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}
\def\Field@boolkey#1#2{%
  \csname Fld@#2\ifx\relax#1\relax true\else#1\fi\endcsname
}
\newtoks\Field@toks
\Field@toks={ }%
\def\Field@addtoks#1#2{%
  \edef\@processme{\Field@toks{\the\Field@toks\space #1="#2"}}%
  \@processme
}
\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}%
}
\define@key{Field}{accesskey}{%
  \Field@addtoks{accesskey}{#1}%
}
\define@key{Field}{tabkey}{%
  \Field@addtoks{tabkey}{#1}%
}
\define@key{Field}{name}{%
  \def\Fld@name{#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}{%
```

```
  \def\Fld@borderstyle{#1}%
}
\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{%
  \def\Fld@temp{}%
  \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}%
}
\def\Fld@onclick@code{}
\def\Fld@format@code{}
\def\Fld@validate@code{}
\def\Fld@calculate@code{}
\def\Fld@keystroke@code{}
\def\Fld@onfocus@code{}
\def\Fld@onblur@code{}
\def\Fld@onmousedown@code{}
\def\Fld@onmouseup@code{}
\def\Fld@onenter@code{}
\def\Fld@onexit@code{}
\def\Hy@temp#1{%
  \expandafter\Hy@@temp\csname Fld@#1@code\endcsname{#1}%
}
\def\Hy@@temp#1#2{%
  \ifHy@pdfa
    \define@key{Field}{#2}{%
      \PackageError{hyperref}{%
        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}
\def\Hy@temp#1{%
  \define@key{Field}{#1}{%
    \Field@addtoks{#1}{##1}%
  }%
}
\Hy@temp{onselect}
\Hy@temp{onchange}
\Hy@temp{ondblclick}
\Hy@temp{onmousedown}
\Hy@temp{onmouseup}
\Hy@temp{onmouseover}
\Hy@temp{onmousemove}
\Hy@temp{onmouseout}
\Hy@temp{onkeypress}
\Hy@temp{onkeydown}
\Hy@temp{onkeyup}
\ifHy@pdfa
  \define@key{Field}{onclick}{%
    \PackageError{hyperref}{%
      PDF/A: Action 'onclick' is prohibited%
```

```
    }\@ehc
  }%
\else
  \define@key{Field}{onclick}{%
    \def\Fld@onclick@code{#1}%
    \Field@addtoks{onclick}{#1}%
  }%
\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@figures
  \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}%
  \def\hyper@@anchor##1{}%
  \global\let\hyper@livelink\hyper@link
  \gdef\hyper@link##1##2##3{##3}%
  \def\hyper@anchor##1{}%
  \def\hyper@anchorstart##1{}%
  \let\hyper@anchorend\@empty
  \def\hyper@linkstart##1##2{}%
  \let\hyper@linkend\@empty
  \def\hyper@linkurl##1##2{##1}%
  \def\hyper@linkfile##1##2##3{##1}%
  \def\hyper@link@[##1]##2##3{}%
  \let\Hy@backout\@gobble
}
\def\stop@hyper{%
  \def\hyper@link@[##1]##2##3##4{##4}%
  \let\Hy@backout\@gobble
  \def\hyper@@anchor##1{}%
  \def\hyper@link##1##2##3{##3}%
  \def\hyper@anchor##1{}%
  \def\hyper@anchorstart##1{}%
  \let\hyper@anchorend\@empty
  \def\hyper@linkstart##1##2{}%
  \let\hyper@linkend\@empty
  \def\hyper@linkurl##1##2{##1}%
  \def\hyper@linkfile##1##2##3{##1}%
  \def\hyper@link@[##1]##2##3{}%
}
\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
\let\href\@gobble
\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
\def\HyperFirstAtBeginDocument#1{#1}%
```

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@usetitle
  \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]
\def\Hy@EveryPageHook{}
\def\Hy@EveryPageBoxHook{}
\def\Hy@FirstPageHook{}
\AtBeginShipout{%
  \Hy@EveryPageHook
  \ifx\Hy@EveryPageBoxHook\@empty
  \else
    \setbox\AtBeginShipoutBox=\vbox{%
      \offinterlineskip
      \Hy@EveryPageBoxHook
      \box\AtBeginShipoutBox
    }%
  \fi
}
\AtBeginShipoutFirst{%
  \Hy@FirstPageHook
}
\g@addto@macro\Hy@FirstPageHook{%
  \PDF@FinishDoc
  \gdef\PDF@FinishDoc{}%
```

```
}
```

27.1 PDF /PageLabels

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

```
\ifHy@pagelabels
  \begingroup\expandafter\expandafter\expandafter\endgroup
  \expandafter\ifx\csname thepage\endcsname\relax
    \Hy@pagelabelsfalse
    \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.

```
\def\HyPL@Labels{}%
```

\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}%
\def\HyPL@LastPrefix{}%
```

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}%
```

\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
    \else
      \let\HyPL@page\HyPL@thisLabel
      \global\let\HyPL@thisLabel\relax
    \fi
    \let\HyPL@Type\relax
    \ifnum\the\c@page>0 %
      \expandafter\HyPL@CheckThePage\HyPL@page\@nil
    \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⟩\let\Hy@PutCatalog\pdfcatalog
```

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@pagelabels
  \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'.\MessageBreak
      Ignoring 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@pagelabels
```

\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⟩
\MaybeStopEarly
```

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}{%
  \newcommand\theHequation{\theHsection.\arabic{equation}}%
}
\Hy@CounterExists{part}{%
  \newcommand\theHpart{\arabic{part}}%
}
\ltx@IfUndefined{thechapter}{%
  \newcommand\theHsection    {\arabic{section}}%
  \newcommand\theHfigure     {\arabic{figure}}%
  \newcommand\theHtable      {\arabic{table}}%
}{%
  \newcommand\theHchapter    {\arabic{chapter}}%
  \newcommand\theHfigure     {\theHchapter.\arabic{figure}}%
  \newcommand\theHtable      {\theHchapter.\arabic{table}}%
  \newcommand\theHsection    {\theHchapter.\arabic{section}}%
}
\newcommand\theHsubsection   {\theHsection.\arabic{subsection}}
\newcommand\theHsubsubsection{\theHsubsection.\arabic{subsubsection}}
\newcommand\theHparagraph    {\theHsubsubsection.\arabic{paragraph}}
\newcommand\theHsubparagraph {\theHparagraph.\arabic{subparagraph}}
\newcommand\theHtheorem      {\theHsection.\arabic{theorem}}
\newcommand\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
}
\newcommand\theHenumi     {\theHItem}
\newcommand\theHenumii    {\theHItem}
\newcommand\theHenumiii   {\theHItem}
\newcommand\theHenumiv    {\theHItem}
\newcommand\theHHfootnote {\arabic{Hfootnote}}
\newcommand\theHmpfootnote{\arabic{mpfootnote}}
\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
}
```

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}
\let\HyOrg@appendix\appendix
\def\appendix{%
  \ltx@IfUndefined{chapter}%
    {\gdef\theHsection{\Alph{section}}}%
    {\gdef\theHchapter{\Alph{chapter}}}%
  \xdef\Hy@chapapp{\Hy@appendixstring}%
  \HyOrg@appendix
}
```

\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
      \@ifundefined{latin@Alph}{}{%
        \ifx\@Alph\greek@Alph
          \def\@Alph{Alph\@arabic}%
        \fi
      }%
      \ifx\@Alph\@Alph@bul
        \def\@Alph{Alph\@arabic}%
      \fi
      \ifx\@alph\@alph@bul
        \def\@alph{alph\@arabic}%
      \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}}%
  }%
}{}
```

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}{}{\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@firsthead\copy#2\@nil{%
      \endgroup
      \def\LT@start{%
        #1%
        \let\@currentHref\Hy@LT@currentHref
        \Hy@raisedlink{%
          \hyper@anchorstart{\@currentHref}\hyper@anchorend
        }%
        \ifvoid\LT@firsthead\copy
        #2%
      }%
```

```
  }%
 \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
  }%
  \newcommand\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}{%
  \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
}%
\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.

Tabularx causes footnote problems, disable the linking if that is loaded.

```
\@ifpackageloaded{tabularx}{\Hy@hyperfootnotesfalse}{}
\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
}%
```

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\protected@xdef\noexpand\@thefnmark{%
          \noexpand\thempfn
        }%
        \expandafter\noexpand\expandafter\Hy@LT@footnotetext
        \expandafter{%
          \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.

```
\def\Hy@EveryPageAnchor{%
  \Hy@DistillerDestFix
  \ifHy@pageanchor
    \ifHy@hypertexnames
      \ifHy@plainpages
        \def\Hy@TempPageAnchor{\hyper@@anchor{page.\the\c@page}}%
      \else
        \begingroup
          \let\@number\@firstofone
```

```
        \Hy@unicodefalse
        \pdfstringdef\@the@H@page{\thepage}%
      \endgroup
      \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
      \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@figures
  \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
  \Hy@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
    \Hy@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\newcommand\theHslide{\arabic{slide}}%
```

```
}{%
  \Hy@seminarslidesfalse
}
\@ifpackageloaded{slidesec}{%
  \newcommand\theHslidesection    {\arabic{slidesection}}%
  \newcommand\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
  }%
}
\DeclareRobustCommand*{\autoref}{%
  \@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⟩
\RequirePackage{pdftexcmds}[2009/04/10]
\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
        \\%
        |Hy@ReturnAfterFi{%
          |Hy@ExchangeBackslash#2|@nil
        }%
      |fi
    }%
  }%
  \def\Hy@ExchangeLeftParenthesis#1(#2\@nil{%
    #1%
    \ifx\\#2\\%
    \else
      \@backslashchar(%
      \Hy@ReturnAfterFi{%
        \Hy@ExchangeLeftParenthesis#2\@nil
      }%
    \fi
  }%
  \def\Hy@ExchangeRightParenthesis#1)#2\@nil{%
    #1%
    \ifx\\#2\\%
    \else
      \@backslashchar)%
      \Hy@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}
```

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 %
   \setkeys{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
  \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=\color@hbox
   \else
    \HyColor@UseColor#1%
   \fi
 }%
 \def\Hy@endcolorlink{%
  \ifHy@ocgcolorlinks
   \color@endbox
   \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:

```
\def\new@pdflink#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}%
  \Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}%
  \Hy@DestName\Hy@pstringDest\@pdfview
  \Hy@RestoreLastskip
}
\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%
  \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)%
     >>%
    }%
    \relax
  \Hy@colorlink\@urlcolor#1%
  \close@pdflink
 \endgroup
}
\def\hyper@linkfile#1#2#3{% anchor text, filename, linkname
 \begingroup
  \Hy@pstringdef\Hy@pstringF{#2}%
  \Hy@pstringdef\Hy@pstringD{#3}%
  \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[0 \@pdfstartview]%
       \else
         /D(\Hy@pstringD)%
       \fi
     >>%
   }%
```

```
      \relax
    \Hy@colorlink\@filecolor#1%
    \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
        >>%
      }%
      \relax
    \Hy@colorlink\@runcolor#2%
    \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@toolbar\else /HideToolbar true\fi
    \ifHy@menubar\else /HideMenubar true\fi
    \ifHy@windowui\else /HideWindowUI true\fi
    \ifHy@fitwindow /FitWindow true\fi
    \ifHy@centerwindow /CenterWindow true\fi
    \ifHy@displaydoctitle /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{%
  \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
}

\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%
    >>%
   }%
   \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 \specials need to be inserted. However it's easier to add an additional box level for the pages after the first one. Also \AtBeginShipoutFirst could be invoked independently from hyperref.

```
\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}
\def\PDF@FinishDoc{}
\def\PDF@SetupDoc{%
```

```
  \ifx\@baseurl\@empty
  \else
    \special{html:<base href="\@baseurl">}%
  \fi
}
\def\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
}
\def\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
    \setbox\@tempboxa=\color@hbox #1\color@endbox
    \@linkdim\dp\@tempboxa
    \lower\@linkdim\hbox{%
      \hyper@chars
      \special{html:<a href=\hyper@quote#2\hyper@quote>}%
    }%
    \Hy@colorlink\@urlcolor#1%
    \@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
  \else
    \begingroup
      \hyper@chars
      \special{html:<a href=\hyper@quote#2\hyper@quote>}%
      \Hy@colorlink\@urlcolor#1%
      \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}
\def\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
}
\def\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}%
  \setbox\@tempboxa=\color@hbox #3\color@endbox
  \leavevmode
  \ifHy@raiselinks
    \@linkdim\dp\@tempboxa
    \lower\@linkdim\hbox{%
      \special{button: %
        \number\wd\@tempboxa\space
        \number\ht\@tempboxa\space
        #2%
      }%
      \expandafter\Hy@colorlink\csname @#1color\endcsname#3%
      \Hy@endcolorlink
    }%
    \@linkdim\ht\@tempboxa
    \advance\@linkdim by -6.5\p@
    \raise\@linkdim\hbox{}%
  \else
```

```
    \special{button: %
      \number\wd\@tempboxa\space
      \number\ht\@tempboxa\space
      #2%
    }%
    \expandafter\Hy@colorlink\csname @#1color\endcsname#3%
    \Hy@endcolorlink
  \fi
}
\def\hyper@linkurl#1#2{%
  \begingroup
    \hyper@chars
    \leavevmode
    \setbox\@tempboxa=\color@hbox #1\color@endbox
    \ifHy@raiselinks
      \@linkdim\dp\@tempboxa
      \lower\@linkdim\hbox{%
        \special{button: %
          \number\wd\@tempboxa\space
          \number\ht\@tempboxa\space
          launch: \wwwbrowser\space
          #2%
        }%
        \Hy@colorlink\@urlcolor#1\Hy@endcolorlink
      }%
      \@linkdim\ht\@tempboxa
      \advance\@linkdim by -6.5\p@
      \raise\@linkdim\hbox{}%
    \else
      \special{button: %
        \number\wd\@tempboxa\space
        \number\ht\@tempboxa\space
        launch: \wwwbrowser\space
        #2%
      }%
      \Hy@colorlink\@urlcolor#1\Hy@endcolorlink
    \fi
  \endgroup
}
\def\hyper@linkfile#1#2#3{%
  \begingroup
    \hyper@chars
    \leavevmode
    \setbox\@tempboxa=\color@hbox #1\color@endbox
    \ifHy@raiselinks
      \@linkdim\dp\@tempboxa
      \lower\@linkdim\hbox{%
        \special{button: %
          \number\wd\@tempboxa\space
          \number\ht\@tempboxa\space
          #3,%
          file: #2%
        }%
        \Hy@colorlink\@filecolor#1\Hy@endcolorlink
      }%
      \@linkdim\ht\@tempboxa
      \advance\@linkdim by -6.5\p@
```

```
      \raise\@linkdim\hbox{}%
    \else
      \special{button: %
        \number\wd\@tempboxa\space
        \number\ht\@tempboxa\space
        #3,%
        file: #2%
      }%
      \Hy@colorlink\@filecolor#1\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@toolbar\else /HideToolbar true\fi
  \ifHy@menubar\else /HideMenubar true\fi
  \ifHy@windowui\else /HideWindowUI true\fi
  \ifHy@fitwindow /FitWindow true\fi
  \ifHy@centerwindow /CenterWindow true\fi
  \ifHy@displaydoctitle /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}
\newsavebox{\pdfm@box}
\def\@pdfm@mark#1{\special{pdf:#1}}
\def\@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
  \@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=\color@hbox
      \else
        \HyColor@UseColor#1%
      \fi
    }%
    \def\Hy@endcolorlink{%
      \ifHy@ocgcolorlinks
        \color@endbox
        \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}%
  \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)%
        >>%
      >>%
    }%
    \expandafter\Hy@colorlink\csname @#1color\endcsname
  }%
}
\def\hyper@linkend{\Hy@EndAnnot}%
\def\hyper@link#1#2#3{%
  \hyper@linkstart{#1}{#2}#3\hyper@linkend
}
\def\hyper@linkfile#1#2#3{%
  \leavevmode
  \Hy@BeginAnnot{%
    \Hy@pstringdef\Hy@pstringF{#2}%
    \Hy@pstringdef\Hy@pstringD{#3}%
    \@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\\[0 \@pdfstartview]\else(\Hy@pstringD)\fi
          \Hy@SetNewWindow
        >>%
      >>%
    }%
    \Hy@colorlink\@filecolor
  }%
  #1%
  \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)%
      >>%
    >>%
  }%
  \Hy@colorlink\@urlcolor
 }%
 #1%
 \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@setpdfborder
     \ifx\@menubordercolor\relax
     \relax
       /C[\@menubordercolor]%
     \fi
    >>%
   }%
   \Hy@colorlink\@menucolor
  }%
  #2%
  \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@toolbar\else /HideToolbar true\fi
    \ifHy@menubar\else /HideMenubar true\fi
    \ifHy@windowui\else /HideWindowUI true\fi
    \ifHy@fitwindow /FitWindow true\fi
    \ifHy@centerwindow /CenterWindow true\fi
    \ifHy@displaydoctitle /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⟩
```

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
\def\PDF@FinishDoc{}
\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%
 \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%
  \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
}
\def\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
}
\def\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]{%
  \typeout{Sorry, TeXpider does not yet support FORMs}%
}
\def\@endForm{}
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \typeout{Sorry, TeXpider does not yet support FORM gauges}%
}
\def\@TextField[#1]#2{% parameters, label
  \typeout{Sorry, TeXpider does not yet support FORM text fields}%
}
\def\@CheckBox[#1]#2{% parameters, label
  \typeout{Sorry, TeXpider does not yet support FORM checkboxes}%
}
\def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
```

```
  \typeout{Sorry, TeXpider does not yet support FORM choice menus}%
}
\def\@PushButton[#1]#2{% parameters, label
  \typeout{Sorry, TeXpider does not yet support FORM pushbuttons}%
}
\def\@Reset[#1]#2{%
  \typeout{Sorry, TeXpider does not yet support FORMs}%
}
\def\@Submit[#1]#2{%
  \typeout{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
\def\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
}
\def\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)>;%
      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
 \special{!%
  aref <%
  \ifnum\Hy@VTeXversion>753 \ifHy@newwindow n\fi\fi
  f=#2>#3;%
  a=<%
    \ifHy@pdfa /F 4\fi
    \Hy@setpdfborder
    \ifx\@filebordercolor\relax
    \else
      /C [\@filebordercolor]%
    \fi
  >%
 }%
 \Hy@colorlink\@filecolor#1\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)>;%
    a=<%
      \ifHy@pdfa /F 4\fi
      \Hy@setpdfborder
      \ifx\@urlbordercolor\relax
      \else
        /C [\@urlbordercolor]%
      \fi
    >%
  }%
  \Hy@colorlink\@urlcolor#1\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@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%
    >;%
    a=<%
      \ifHy@pdfa /F 4\fi
      \Hy@setpdfborder
      \ifx\@runbordercolor\relax
      \else
        /C[\@runbordercolor]%
      \fi
    >%
  }%
  \Hy@colorlink\@runcolor#2\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@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	Pr**o**ducer	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@toolbar\else /HideToolbar true\fi
    \ifHy@menubar\else /HideMenubar true\fi
    \ifHy@windowui\else /HideWindowUI true\fi
    \ifHy@fitwindow /FitWindow true\fi
    \ifHy@centerwindow /CenterWindow true\fi
```

```
    \ifHy@displaydoctitle /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\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}
\def\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\hbox\bgroup
  \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
    \egroup
  \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@toolbar\else /HideToolbar true\fi
    \ifHy@menubar\else /HideMenubar true\fi
    \ifHy@windowui\else /HideWindowUI true\fi
    \ifHy@fitwindow /FitWindow true\fi
    \ifHy@centerwindow /CenterWindow true\fi
    \ifHy@displaydoctitle /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
  \setkeys{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{%
  \leavevmode
  \ifHy@breaklinks
    \Hy@setouterhbox\pdf@box{\Hy@AllowHyphens#1}%
  \else
    \sbox\pdf@box{#1}%
  \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
    \expandafter\Hy@breaklinksunhbox
  \else
    \expandafter\box
  \fi
  \pdf@box
```

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
  \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) >>},%
      Subtype=/Link,%
      PDFAFlags=4%
    }%
  \endgroup
}
\def\hyper@linkfile#1#2#3{%
  \begingroup
```

```
    \Hy@pstringdef\Hy@pstringF{#2}%
    \Hy@pstringdef\Hy@pstringD{#3}%
    \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\\[0 \@pdfstartview]\else(\Hy@pstringD)cvn\fi
        >>%
      }%
    }%
  \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
        >>%
      }%
    }%
  \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}
\def\Hy@raisedlink{}
\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}
\def\Hy@raisedlink{}
\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
}
\def\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
}
\def\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
    \setbox\@tempboxa=\color@hbox #1\color@endbox
    \@linkdim\dp\@tempboxa
    \lower\@linkdim\hbox{%
      \hyper@chars
```

```
    \special{html:<a href=\hyper@quote#2\hyper@quote>}%
  }%
  \Hy@colorlink\@urlcolor#1%
  \@linkdim\ht\@tempboxa
  \advance\@linkdim by -6.5\p@
  \raise\@linkdim\hbox{\special{html:</a>}}%
  \Hy@endcolorlink
 \else
  \begingroup
   \hyper@chars
   \special{html:<a href=\hyper@quote#2\hyper@quote>}%
   \Hy@colorlink\@urlcolor#1%
   \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}
\def\Hy@raisedlink{}
\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@toolbar\else /HideToolbar true\fi
    \ifHy@menubar\else /HideMenubar true\fi
    \ifHy@windowui\else /HideWindowUI true\fi
    \ifHy@fitwindow /FitWindow true\fi
    \ifHy@centerwindow /CenterWindow true\fi
    \ifHy@displaydoctitle /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}
\def\Hy@raisedlink{}
\@ifpackageloaded{tex4ht}{%
  \typeout{hyperref tex4ht: tex4ht already loaded}%
}{%
  \RequirePackage[htex4ht]{tex4ht}%
}
\hyperlinkfileprefix{}
\def\PDF@FinishDoc{}
\def\PDF@SetupDoc{%
  \ifx\@baseurl\@empty
  \else
    \special{t4ht=<base href="\@baseurl">}%
  \fi
}
```

```
\def\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
}
\def\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
    \setbox\@tempboxa=\color@hbox #1\color@endbox
    \@linkdim\dp\@tempboxa
    \lower\@linkdim\hbox{%
      \begingroup
```

```
      \hyper@chars
      \special{%
        t4ht=<a href=\hyper@quote#2\hyper@quote>%
      }%
    \endgroup
  }%
  \Hy@colorlink\@urlcolor#1\Hy@endcolorlink
  \@linkdim\ht\@tempboxa
  \advance\@linkdim by -6.5\p@
  \raise\@linkdim\hbox{\special{t4ht=</a>}}%
 \else
  \begingroup
    \hyper@chars
    \special{t4ht=<a href=\hyper@quote#2\hyper@quote>}%
    \Hy@colorlink\@urlcolor#1\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
\def\backref#1{}
⟨/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%
    ]%
  >>%
/PUT pdfmark%
[%
   /__objdef{ZaDb}%
   /type/dict%
/OBJ pdfmark%
[%
  {ZaDb}%
  <<%
    /Type/Font%
    /Subtype/Type1%
    /Name/ZaDb%
    /BaseFont/ZapfDingbats%
  >>%
/PUT pdfmark%
[%
  /__objdef{Helv}%
  /type/dict%
/OBJ pdfmark%
[%
```

```
  {Helv}%
  <<%
    /Type/Font%
    /Subtype/Type1%
    /Name/Helv%
    /BaseFont/Helvetica%
    /Encoding{pdfDocEncoding}%
  >>%
/PUT pdfmark%
[%
  /__objdef{aform}%
  /type/dict%
/OBJ pdfmark%
[%
  /__objdef{afields}%
  /type/array%
/OBJ pdfmark%
{%
  [%
    /BBox[0 0 100 100]%
    /__objdef{Check}%
  /BP pdfmark %
  1 0 0 setrgbcolor%
  /ZapfDingbats 80 selectfont %
  20 20 moveto%
  (4)show%
  [/EP pdfmark%
  [%
    /BBox[0 0 100 100]%
    /__objdef{Cross}%
  /BP pdfmark %
  1 0 0 setrgbcolor%
  /ZapfDingbats 80 selectfont %
  20 20 moveto%
  (8)show%
  [/EP pdfmark%
  [%
    /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
      /NeedAppearances true%
    \fi
  >>%
/PUT pdfmark%
[%
  {Catalog}%
  <<%
    /AcroForm{aform}%
  >>%
```

```
/PUT pdfmark%
[%
  /_objdef{corder}%
  /type/array%
/OBJ pdfmark% dps
}}%
  \setkeys{Form}{#1}%
}
\def\@endForm{}
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \typeout{Sorry, pdfmark drivers do not support FORM gauges}%
}
\def\@TextField[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \def\Fld@default{}%
  \let\Fld@value\@empty
  \def\Fld@width{\DefaultWidthofText}%
  \def\Fld@height{%
    \ifFld@multiline
      \DefaultHeightofTextMultiline
    \else
      \DefaultHeightofText
    \fi
  }%
  \begingroup
    \Field@toks={ }%
    \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@
    \Field@toks={ }%
```

```
  \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 %
 \@for\@curropt:=#1\do{%
  \expandafter\Fld@checkequals\@curropt==\\%
  \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
    \Field@toks={ }%
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofPushButton,#1%
    }%
    \ifHy@pdfa
      \PackageError{hyperref}{%
        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{%
  \Field@toks={ }%
  \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{%
  \Field@toks={ }%
  \def\Fld@width{\DefaultWidthofReset}%
  \def\Fld@height{\DefaultHeightofReset}%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofReset,#1%
    }%
    \leavevmode
    \ifHy@pdfa
      \PackageError{hyperref}{%
        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}%
    \Field@toks={ }%
    \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]{\typeout{Sorry, HyperTeX does not support FORMs}}
\def\@endForm{}
```

```
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \typeout{Sorry, HyperTeX does not support FORM gauges}%
}
\def\@TextField[#1]#2{% parameters, label
  \typeout{Sorry, HyperTeX does not support FORM text fields}%
}
\def\@CheckBox[#1]#2{% parameters, label
  \typeout{Sorry, HyperTeX does not support FORM checkboxes}%
}
\def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
  \typeout{Sorry, HyperTeX does not support FORM choice menus}%
}
\def\@PushButton[#1]#2{% parameters, label
  \typeout{Sorry, HyperTeX does not support FORM pushbuttons}%
}
\def\@Reset[#1]#2{\typeout{Sorry, HyperTeX does not support FORMs}}
\def\@Submit[#1]#2{\typeout{Sorry, HyperTeX does not support FORMs}}
⟨/hypertex⟩
```

47.3 TeX4ht

```
⟨*tex4ht⟩
\def\@Form[#1]{%
  \setkeys{Form}{#1}%
  \HCode{<form action="\Form@action" method="\Form@method">}%
}
\def\@endForm{\HCode{</form>}}
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \typeout{Sorry, TeX4ht does not support gauges}%
}
\def\@TextField[#1]#2{% parameters, label
  \let\Hy@reserved@a\@empty
  \def\Fld@name{#2}%
  \def\Fld@default{}%
  \bgroup
    \Field@toks={ }%
    \setkeys{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}%
  \def\Fld@default{}%
  \let\Hy@reserved@a\relax
  \begingroup
    \expandafter\Fld@findlength#3\\%
    \Field@toks={ }%
    \setkeys{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={ }%
    \setkeys{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={ }%
    \setkeys{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
  \typeout{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}}%
}%
\def\HyField@afields{}
\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
  \def\HyField@AuxAddToFields#1{}%
  \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}{}%
  \setkeys{Form}{#1}%
  \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
          /NeedAppearances true%
        \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}%
}
\def\@endForm{}
\def\@TextField[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \def\Fld@default{}%
  \let\Fld@value\@empty
  \def\Fld@width{\DefaultWidthofText}%
  \def\Fld@height{%
    \ifFld@multiline
      \DefaultHeightofTextMultiline
    \else
      \DefaultHeightofText
    \fi
  }%
  \begingroup
    \Field@toks={ }%
    \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@
  \Field@toks={ }%
  \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 %
  \@for\@curropt:=#1\do{%
    \expandafter\Fld@checkequals\@curropt==\\%
    \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
    \Field@toks={ }%
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofPushButton,#1%
    }%
    \PDFForm@Name
    \ifHy@pdfa
      \PackageError{hyperref}{%
        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{%
  \Field@toks={ }%
  \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{%
  \Field@toks={ }%
  \def\Fld@width{\DefaultWidthofReset}%
  \def\Fld@height{\DefaultHeightofReset}%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofReset,#1%
    }%
    \leavevmode
    \ifHy@pdfa
      \PackageError{hyperref}{%
        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}%
    \Field@toks={ }%
    \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
  \typeout{Sorry, dvipdfm/XeTeX does not support FORM gauges}%
}
```

\@Form

```
\def\@Form[#1]{%
  \@ifundefined{textcolor}{\let\textcolor\@gobble}{}%
  \setkeys{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
        /NeedAppearances true%
      \fi
    >>%
  }%
  \@pdfm@mark{put @catalog <</AcroForm @aform>>}%
}
```

\@endForm

```
\def\@endForm{}
```

\dvipdfm@setdim \dvipdfm@setdim sets dimensions for ann using \pdfm@box.

```
\def\dvipdfm@setdim{%
  height \the\ht\pdfm@box\space
  width  \the\wd\pdfm@box\space
  depth  \the\dp\pdfm@box\space
}
```

\HyField@AnnotCount

```
\newcount\HyField@AnnotCount
\HyField@AnnotCount=\z@
```

\HyField@AdvanceAnnotCount

```
\def\HyField@AdvanceAnnotCount{%
  \global\advance\HyField@AnnotCount\@ne
}
```

\HyField@TheAnnotCount

```
\def\HyField@TheAnnotCount{%
  \the\HyField@AnnotCount
}
```

\@TextField

```
\def\@TextField[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \def\Fld@default{}%
  \let\Fld@value\@empty
  \def\Fld@width{\DefaultWidthofText}%
  \def\Fld@height{%
    \ifFld@multiline
      \DefaultHeightofTextMultiline
    \else
      \DefaultHeightofText
    \fi
  }%
  \begingroup
    \Field@toks={ }%
    \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
    \setbox\pdfm@box=\hbox{%
      \MakeTextField{\Fld@width}{\Fld@height}%
    }%
    \HyField@AdvanceAnnotCount
    \LayoutTextField{#2}{%
      \Hy@escapeform\PDFForm@Text
      \@pdfm@mark{%
        ann @text\HyField@TheAnnotCount\space
        \dvipdfm@setdim << \PDFForm@Text >>%
      }%
    }%
    \unhbox\pdfm@box
    \@pdfm@mark{put @afields @text\HyField@TheAnnotCount}%
    % record in @afields array
  \endgroup
}
```

\@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@
    \Field@toks={ }%
```

```
    \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 %
```

```
  \setbox\pdfm@box=\hbox{%
    \MakeRadioField{\Fld@width}{\Fld@height}%
  }%
  \@for\@curropt:=#1\do{%
    \expandafter\Fld@checkequals\@curropt==\\%
    \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
    \Field@toks={ }%
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofPushButton,#1%
    }%
    \PDFForm@Name
    \ifHy@pdfa
      \PackageError{hyperref}{%
        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{%
  \Field@toks={ }%
  \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{%
  \Field@toks={ }%
  \def\Fld@width{\DefaultWidthofReset}%
  \def\Fld@height{\DefaultHeightofReset}%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofReset,#1%
    }%
    \leavevmode
    \ifHy@pdfa
      \PackageError{hyperref}{%
        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}%
    \Field@toks={ }%
    \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@escapeform
      \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}%
      \Hy@ReturnAfterFi{%
        \Hy@@escapeform#3\@nil
      }%
    \fi
  }%
\else
  \def\Hy@escapeform#1{%
    \ifHy@escapeform
      \let\Hy@escapestring\pdfescapestring
    \else
      \let\Hy@escapestring\@firstofone
    \fi
  }%
  \Hy@escapeform{}%
\fi
```

\PDFForm@Name

```
\def\PDFForm@Name{%
  \begingroup
    \ifnum\Hy@pdfversion<5 % implementation note 117, PDF spec 1.7
```

```
      \ifHy@unicode
        \Hy@unicodefalse
      \fi
    \fi
    \HyPsd@XeTeXBigCharstrue
    \pdfstringdef\Hy@gtemp\Fld@name
  \endgroup
  \let\Fld@name\Hy@gtemp
}
```

\PDFForm@Check

```
\def\PDFForm@Check{%
  /Subtype/Widget%
  \Fld@annotflags
  /T(\Fld@name)%
  /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
}
```

\PDFForm@Push

```
\ifHy@pdfa
\else
  \def\PDFForm@Push{%
    /Subtype/Widget%
    \Fld@annotflags
    /T(\Fld@name)%
    /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})>>%
 }%
\fi
```

\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
}
```

\PDFForm@List

```
\def\PDFForm@List{%
  /Subtype/Widget%
  \Fld@annotflags
  /T(\Fld@name)%
  /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
  /T(\Fld@name)%
  /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
  \else
    /V/Off%
  \fi
  \Fld@additionalactions
}
```

\PDFForm@Text

```
\def\PDFForm@Text{%
  /Subtype/Widget%
  \Fld@annotflags
  /T(\Fld@name)%
  /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
 /T(\Fld@name)%
 /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
 >>%
}
```

\PDFForm@Reset

```
\ifHy@pdfa
\else
 \def\PDFForm@Reset{%
  /Subtype/Widget%
  \Fld@annotflags
```

```
    /T(\Fld@name)%
    /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>>%
  }%
\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\partnumberline\Hy@numberline
```

```
      \let\chapternumberline\Hy@numberline
    \else
      \let\numberline\@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.

```
⟨*vtex⟩
\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.

```
\begingroup
  \catcode`\'=12 %
  \ifnum\Hy@VTeXversion<650 %
    \catcode`\"=12 %
    \gdef\hv@pdf@char#1#2#3{%
      \char
      \ifcase'#1#2#3 %
         "00\or"01\or"02\or"03\or"04\or"05\or"06\or"07%
      \or"08\or"09\or"0A\or"0B\or"0C\or"0D\or"0E\or"0F%
      \or"10\or"11\or"12\or"13\or"14\or"15\or"16\or"17%
      \or"18\or"19\or"1A\or"1B\or"1C\or"1D\or"1E\or"1F%
      \or"20\or"21\or"22\or"23\or"24\or"25\or"26\or"27%
      \or"28\or"29\or"2A\or"2B\or"2C\or"2D\or"2E\or"2F%
      \or"30\or"31\or"32\or"33\or"34\or"35\or"36\or"37%
      \or"38\or"39\or"3A\or"3B\or"3C\or"3D\or"3E\or"3F%
      \or"40\or"41\or"42\or"43\or"44\or"45\or"46\or"47%
      \or"48\or"49\or"4A\or"4B\or"4C\or"4D\or"4E\or"4F%
      \or"50\or"51\or"52\or"53\or"54\or"55\or"56\or"57%
      \or"58\or"59\or"5A\or"5B\or"5C\or"5D\or"5E\or"5F%
      \or"60\or"61\or"62\or"63\or"64\or"65\or"66\or"67%
      \or"68\or"69\or"6A\or"6B\or"6C\or"6D\or"6E\or"6F%
      \or"70\or"71\or"72\or"73\or"74\or"75\or"76\or"77%
      \or"78\or"79\or"7A\or"7B\or"7C\or"7D\or"7E\or"7F%
      \or"80\or"81\or"82\or"83\or"84\or"85\or"86\or"87%
      \or"88\or"89\or"8A\or"8B\or"8C\or"8D\or"8E\or"8F%
      \or"90\or"91\or"92\or"93\or"94\or"95\or"96\or"97%
      \or"98\or"99\or"9A\or"9B\or"9C\or"9D\or"9E\or"9F%
      \or"A0\or"A1\or"A2\or"A3\or"A4\or"A5\or"A6\or"A7%
      \or"A8\or"A9\or"AA\or"AB\or"AC\or"AD\or"AE\or"AF%
      \or"B0\or"B1\or"B2\or"B3\or"B4\or"B5\or"B6\or"B7%
      \or"B8\or"B9\or"BA\or"BB\or"BC\or"BD\or"BE\or"BF%
      \or"C0\or"C1\or"C2\or"C3\or"C4\or"C5\or"C6\or"C7%
      \or"C8\or"C9\or"CA\or"CB\or"CC\or"CD\or"CE\or"CF%
      \or"D0\or"D1\or"D2\or"D3\or"D4\or"D5\or"D6\or"D7%
      \or"D8\or"D9\or"DA\or"DB\or"DC\or"DD\or"DE\or"DF%
      \or"E0\or"E1\or"E2\or"E3\or"E4\or"E5\or"E6\or"E7%
      \or"E8\or"E9\or"EA\or"EB\or"EC\or"ED\or"EE\or"EF%
      \or"F0\or"F1\or"F2\or"F3\or"F4\or"F5\or"F6\or"F7%
```

```
      \or"F8\or"F9\or"FA\or"FB\or"FC\or"FD\or"FE\or"FF%
      \fi
    }%
  \else
    \gdef\hv@pdf@char{\char'}%
  \fi
\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{%
  \begingroup
    \def\do##1{%
      \ifnum\catcode`##1=\active
        \@makeother##1%
      \else
        \ifnum\catcode`##1=6 %
          \@makeother##1%
        \fi
      \fi
    }%
    \dospecials
    \Hy@safe@activestrue
    \escapechar=`\\%
    \let\escapechar\@gobble %
    \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⟩
    }%
    {%
      \def\WriteBookmarks{0}%
      \InputIfFileExists{\jobname.out}{}{}%
    }%
    %{\escapechar\m@ne\InputIfFileExists{\jobname.out}{}{}}%
    \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
    \endgroup
}
⟨*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

```
13319 ⟨*pd1enc⟩
13320 \DeclareFontEncoding{PD1}{}{}
```

Accents

```
13321 \DeclareTextAccent{\‘}{PD1}{\textasciigrave}
13322 \DeclareTextAccent{\’}{PD1}{\textacute}
13323 \DeclareTextAccent{\^}{PD1}{\textasciicircum}
13324 \DeclareTextAccent{\~}{PD1}{\texttilde}
13325 \DeclareTextAccent{\"}{PD1}{\textasciidieresis}
13326 \DeclareTextAccent{\r}{PD1}{\textring}
13327 \DeclareTextAccent{\v}{PD1}{\textasciicaron}
13328 \DeclareTextAccent{\.}{PD1}{\textdotaccent}
13329 \DeclareTextAccent{\c}{PD1}{\textcedilla}
13330 \DeclareTextAccent{\=}{PD1}{\textasciimacron}
13331 \DeclareTextAccent{\b}{PD1}{\textmacronbelow}
13332 \DeclareTextAccent{\d}{PD1}{\textdotbelow}
13333 \DeclareTextCompositeCommand{\‘}{PD1}{\@empty}{\textasciigrave}
13334 \DeclareTextCompositeCommand{\’}{PD1}{\@empty}{\textacute}
13335 \DeclareTextCompositeCommand{\^}{PD1}{\@empty}{\textasciicircum}
13336 \DeclareTextCompositeCommand{\~}{PD1}{\@empty}{\texttilde}
13337 \DeclareTextCompositeCommand{\"}{PD1}{\@empty}{\textasciidieresis}
13338 \DeclareTextCompositeCommand{\r}{PD1}{\@empty}{\textring}
13339 \DeclareTextCompositeCommand{\v}{PD1}{\@empty}{\textasciicaron}
13340 \DeclareTextCompositeCommand{\.}{PD1}{\@empty}{\textdotaccent}
13341 \DeclareTextCompositeCommand{\c}{PD1}{\@empty}{\textcedilla}
13342 \DeclareTextCompositeCommand{\=}{PD1}{\@empty}{\textasciimacron}
13343 \DeclareTextCompositeCommand{\b}{PD1}{\@empty}{\textmacronbelow}
13344 \DeclareTextCompositeCommand{\d}{PD1}{\@empty}{\textdotbelow}
13345 \DeclareTextCompositeCommand{\‘}{PD1}{\ }{\textasciigrave}
13346 \DeclareTextCompositeCommand{\’}{PD1}{\ }{\textacute}
13347 \DeclareTextCompositeCommand{\^}{PD1}{\ }{\textasciicircum}
13348 \DeclareTextCompositeCommand{\~}{PD1}{\ }{\texttilde}
13349 \DeclareTextCompositeCommand{\"}{PD1}{\ }{\textasciidieresis}
13350 \DeclareTextCompositeCommand{\r}{PD1}{\ }{\textring}
13351 \DeclareTextCompositeCommand{\v}{PD1}{\ }{\textasciicaron}
13352 \DeclareTextCompositeCommand{\.}{PD1}{\ }{\textdotaccent}
13353 \DeclareTextCompositeCommand{\c}{PD1}{\ }{\textcedilla}
13354 \DeclareTextCompositeCommand{\=}{PD1}{\ }{\textasciimacron}
13355 \DeclareTextCompositeCommand{\b}{PD1}{\ }{\textmacronbelow}
13356 \DeclareTextCompositeCommand{\d}{PD1}{\ }{\textdotbelow}
13357 \DeclareTextCommand{\k}{PD1}[1]{\TextSymbolUnavailable{\k{#1}}#1}
13358 \DeclareTextCommand{\t}{PD1}[1]{\TextSymbolUnavailable{\t{#1}}#1}
13359 \DeclareTextCommand{\newtie}{PD1}[1]{%
13360   \TextSymbolUnavailable{\newtie{#1}}#1%
13361 }
```

Special white space escape characters not for use in bookmarks but for other PDF strings.

```
13362 % U+0009 (CHARACTER TABULATION)
13363 \DeclareTextCommand{\textHT}{PD1}{\011}% U+0009
13364 % U+000A (LINE FEED)
13365 \DeclareTextCommand{\textLF}{PD1}{\012}% U+000A
13366 % U+000D (CARRIAGE RETURN)
13367 \DeclareTextCommand{\textCR}{PD1}{\015}% U+000D
```

Accent glyph names

```
13368 % U+02D8 BREVE; breve
13369 \DeclareTextCommand{\textasciibreve}{PD1}{\030}% U+02D8
13370 % 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, Gcommaac-
    cent
\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
% U+0361 COMBINING DOUBLE INVERTED BREVE; breveinverteddoublecmb
\DeclareTextCommand{\texttie}{PU}{ \83\141}% U+0361
```

50.2.8 Greek and Coptic: U+0370 to U+03FF

```
% U+0374 GREEK NUMERAL SIGN; numeralsigngreek
\DeclareTextCommand{\textnumeralsigngreek}{PU}{\83\164}% U+0374
% U+0375 GREEK LOWER NUMERAL SIGN; numeralsignlowergreek
\DeclareTextCommand{\textnumeralsignlowergreek}{PU}{\83\165}% U+0375
% U+0386 GREEK CAPITAL LETTER ALPHA WITH TONOS; Alphatonos
\DeclareTextCompositeCommand{\'}{PU}{\textAlpha}{\83\206}% U+0386
% U+0388 GREEK CAPITAL LETTER EPSILON WITH TONOS; Epsilontonos
\DeclareTextCompositeCommand{\'}{PU}{\textEpsilon}{\83\210}% U+0388
% U+0389 GREEK CAPITAL LETTER ETA WITH TONOS; Etatonos
\DeclareTextCompositeCommand{\'}{PU}{\textEta}{\83\211}% U+0389
% U+038A GREEK CAPITAL LETTER IOTA WITH TONOS; Iotatonos
\DeclareTextCompositeCommand{\'}{PU}{\textIota}{\83\212}% U+038A
% U+038C GREEK CAPITAL LETTER OMICRON WITH TONOS; Omicrontonos
\DeclareTextCompositeCommand{\'}{PU}{\textOmicron}{\83\214}% U+038C
% U+038E GREEK CAPITAL LETTER UPSILON WITH TONOS; Upsilontonos
\DeclareTextCompositeCommand{\'}{PU}{\textUpsilon}{\83\216}% U+038E
% U+038F GREEK CAPITAL LETTER OMEGA WITH TONOS; Omegatonos
\DeclareTextCompositeCommand{\'}{PU}{\textOmega}{\83\217}% U+038F
% U+0390 GREEK SMALL LETTER IOTA WITH DIALYTIKA AND TONOS; iotadieresistonos
\DeclareTextCompositeCommand{\'}{PU}{\textIotadieresis}{\83\220}% U+0390
% U+0391 GREEK CAPITAL LETTER ALPHA; Alpha
\DeclareTextCommand{\textAlpha}{PU}{\83\221}% U+0391
% U+0392 GREEK CAPITAL LETTER BETA; Beta
\DeclareTextCommand{\textBeta}{PU}{\83\222}% U+0392
% U+0393 GREEK CAPITAL LETTER GAMMA; Gamma
\DeclareTextCommand{\textGamma}{PU}{\83\223}% U+0393
% U+0394 GREEK CAPITAL LETTER DELTA; Deltagreek, *Delta
\DeclareTextCommand{\textDelta}{PU}{\83\224}% U+0394
% U+0395 GREEK CAPITAL LETTER EPSILON; Epsilon
\DeclareTextCommand{\textEpsilon}{PU}{\83\225}% U+0395
% U+0396 GREEK CAPITAL LETTER ZETA; Zeta
\DeclareTextCommand{\textZeta}{PU}{\83\226}% U+0396
% U+0397 GREEK CAPITAL LETTER ETA; Eta
\DeclareTextCommand{\textEta}{PU}{\83\227}% U+0397
% U+0398 GREEK CAPITAL LETTER THETA; Theta
\DeclareTextCommand{\textTheta}{PU}{\83\230}% U+0398
% U+0399 GREEK CAPITAL LETTER IOTA; Iota
\DeclareTextCommand{\textIota}{PU}{\83\231}% U+0399
% U+039A GREEK CAPITAL LETTER KAPPA; Kappa
\DeclareTextCommand{\textKappa}{PU}{\83\232}% U+039A
% U+039B GREEK CAPITAL LETTER LAMDA; Lambda
\DeclareTextCommand{\textLambda}{PU}{\83\233}% U+039B
% U+039C GREEK CAPITAL LETTER MU; Mu
\DeclareTextCommand{\textMu}{PU}{\83\234}% U+039C
% U+039D GREEK CAPITAL LETTER NU; Nu
\DeclareTextCommand{\textNu}{PU}{\83\235}% U+039D
% U+039E GREEK CAPITAL LETTER XI; Xi
\DeclareTextCommand{\textXi}{PU}{\83\236}% U+039E
% U+039F GREEK CAPITAL LETTER OMICRON; Omicron
\DeclareTextCommand{\textOmicron}{PU}{\83\237}% U+039F
% 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
% 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
```

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.

```
% 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
\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
\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, hardsigncyrillic
\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
% 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
\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; yusbigiotifiedcyril-
    lic
\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; Omegatitlo-
    cyrillic
\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
\DeclareTextCommand{\cyrthousands}{PU}{\84\202}% U+0482
```

\84\203: U+0483 COMBINING CYRILLIC TITLO; titlocyrilliccmb

\84\204: U+0484 COMBINING CYRILLIC PALATALIZATION; palatalizationcyrilliccmb

\84\205: U+0485 COMBINING CYRILLIC DASIA PNEUMATA; dasiapneumata-

cyrilliccmb
\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

```
% 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
\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
% 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
\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
```

\84\317: U+04CF CYRILLIC SMALL LETTER PALOCHKA

```
% 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
% 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
\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
```

\84\372: U+04FA CYRILLIC CAPITAL LETTER GHE WITH STROKE AND HOOK
\84\373: U+04FB CYRILLIC SMALL LETTER GHE WITH STROKE AND HOOK

```
% 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
```

\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

```
% U+0E3F THAI CURRENCY SYMBOL BAHT; bahtthai
\DeclareTextCommand{\textbaht}{PU}{\9016\077}% U+0E3F
```

50.2.11 Latin Extended Additional: U+1E00 to U+1EFF

```
% 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
% 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; slongdotac-
    cent
\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}
\DeclareTextCompositeCommand{\d}{PU}{a}{\9036\241}
\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}
\DeclareTextCompositeCommand{\'}{PU}{\ocircumflex}{\9036\321}
\DeclareTextCompositeCommand{\d}{PU}{\ocircumflex}{\9036\331}
\DeclareTextCompositeCommand{\`}{PU}{\ocircumflex}{\9036\323}
\DeclareTextCompositeCommand{\h}{PU}{\ocircumflex}{\9036\325}
\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}
\DeclareTextCompositeCommand{\‘}{PU}{\ACIRCUMFLEX}{\9036\246}
\DeclareTextCompositeCommand{\h}{PU}{\ACIRCUMFLEX}{\9036\250}
\DeclareTextCompositeCommand{\~}{PU}{\ACIRCUMFLEX}{\9036\252}
\DeclareTextCompositeCommand{\’}{PU}{E}{\80\311}
\DeclareTextCompositeCommand{\d}{PU}{E}{\9036\270}
\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}
\DeclareTextCompositeCommand{\‘}{PU}{\OHORN}{\9036\334}
\DeclareTextCompositeCommand{\h}{PU}{\OHORN}{\9036\336}
\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}
\DeclareTextCompositeCommand{\’}{PU}{\UHORN}{\9036\350}
\DeclareTextCompositeCommand{\d}{PU}{\UHORN}{\9036\360}
\DeclareTextCompositeCommand{\‘}{PU}{\UHORN}{\9036\352}
\DeclareTextCompositeCommand{\h}{PU}{\UHORN}{\9036\354}
\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, 1934
\" . . 202, 227, 2924, 12966, 13325, 13337, 13349, 13472, 13558, 13572, 13580, 13595, 13607, 13623, 13637, 13648, 13649, 13663, 13675, 13681, 13732, 13760, 13779, 13800, 13927, 13941, 13949, 13963, 13975, 13991, 14005, 14016, 14017, 14031, 14043, 14049, 14296, 14511, 14513, 14523, 14575, 14577, 14605, 14618, 14770, 14783, 15016, 15018, 15032, 15034, 15036, 15038, 15040, 15042, 15052, 15054, 15056, 15058, 15064, 15066, 15068, 15070, 15076, 15078, 15084, 15086, 15092, 15094, 15134, 15136, 15206, 15208, 15218, 15220, 15236
\# . . . 427, 2019, 2020, 4165, 4176, 4178, 4194, 4226, 4284, 7796, 7798, 8551, 8560, 8588, 9313, 10806, 10817, 10846, 11077, 11086, 11116, 12886
\$ 184, 209, 428, 4167, 4283
\% . . . 429, 1934, 1994, 1995, 4164, 4173, 4175, 4227, 7798
\& 185, 210, 430, 4168, 4179, 4181, 10856
\' 203, 228, 2864, 2878, 2919, 2921, 2922, 2923, 2924, 2929, 2930, 2932, 2937, 2943, 2947, 2948, 2951, 2994, 2995, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3009, 3013, 3026, 12964, 13322, 13334, 13346, 13552, 13568, 13576, 13589, 13603, 13609, 13617, 13633, 13642, 13643, 13657, 13671, 13677, 13700, 13702, 13703, 13704, 13707, 13709, 13710, 13711, 13719, 13757, 13776, 13797, 13921, 13937, 13945, 13957, 13971, 13977, 13985, 14001, 14010, 14011, 14025, 14039, 14045, 14063, 14065, 14170, 14172, 14190, 14192, 14224, 14226, 14236, 14238, 14298, 14300, 14350, 14352, 14358, 14360, 14362, 14364, 14446, 14448, 14450, 14452, 14454, 14456, 14458, 14460, 14515, 14517, 14519, 14521, 14579, 14582, 14584, 14609, 14628, 14774, 14793, 15142, 15144, 15154, 15156, 15170, 15172, 15202, 15204, 15607, 15612, 15617, 15622, 15627, 15632, 15637, 15642, 15647, 15652, 15657, 15662, 15667, 15672, 15677, 15682, 15687, 15692, 15697, 15702, 15707, 15712, 15717, 15722
\(. . . 190, 215, 627, 630, 632, 1936, 13032, 13395
\) . . . 191, 216, 599, 605, 608, 1937, 13033, 13397
\+ 200, 225
\- 201, 226
\. . . . 198, 223, 1096, 13328, 13340, 13352, 13414, 13705, 13712, 13730, 13763, 13782, 13806, 13846, 13847, 14071, 14073, 14095, 14097, 14115, 14117, 14151, 14182, 14184, 14302, 14304, 14395, 14397, 14403, 14405, 15102, 15104, 15110, 15112, 15122, 15124, 15130, 15132, 15158, 15160, 15162, 15164, 15174, 15176, 15178, 15180, 15186, 15188, 15210, 15212, 15214, 15216, 15222, 15224, 15242
\/ 194, 219, 541, 542, 543, 610, 1719, 7195
\: 189, 214
\; 199, 224, 7490
\< 196, 221
\= 167, 173, 180, 183, 13330, 13342, 13354, 13725, 13767, 13786, 13805, 14051, 14053, 14087, 14089, 14136, 14138, 14139, 14208, 14210, 14268, 14270, 14407, 14409, 15048, 15050, 15072, 15074, 15126, 15128
\> 197, 222
\@ 2915
\@@@ 2242
\@@BOOKMARK . 12947, 12950, 13008, 13076, 13083
\@@Listbox . 11420, 11442, 11901, 11932, 12242, 12283
\@@Menu 11630, 11638
\@@PasswordField . 11579, 11585
\@@Radio . . 11405, 11426, 11628, 11652, 11886, 11907, 12227, 12248
\@@TextField 11581, 11596
\@@commahyperpage . 7302, 7303
\@@hyperref 4318, 4319
\@@latextohtmlX 2757, 4523
\@@wrindex 7230, 7231
\@@writetorep 12809, 12815
\@Alph . . . 5986, 5987, 5990, 5991
\@Alph@bul 5990
\@BIBLABEL . . 6725, 6731, 6737
\@BOOKMARK . . 12947, 12949
\@CITE 6802, 6810
\@CITEX 6804
\@CheckBox . . 5210, 9378, 11519, 11549, 11683, 12019, 12388
\@ChoiceMenu . 5207, 9381, 11357, 11552, 11618, 11837, 12178
\@Form . 4981, 9368, 11144, 11541, 11562, 11761, 12102
\@Gauge 5216, 9372, 11326, 11543, 11567, 11704, 12099
\@Localurlfalse 9321
\@Localurltrue 9318
\@M 1002, 2281, 4272, 6360
\@MM 6488
\@PushButton . 5213, 9384, 11449, 11555, 11664, 11941, 12299
\@Refstar 7605, 7612
\@Reset . 5222, 9387, 11495, 11558, 11680, 11994, 12358
\@Roman 503
\@SCTR 7349, 7401
\@SetMaxRnhefLabel 6799
\@Submit 5219, 9390, 11477, 11559, 11677, 11971, 12334
\@TextField . . . 5204, 9375, 11329, 11546, 11570, 11808, 12141
\@addchap 13282
\@addtoreset . . 7124, 7125, 7139, 7346
\@afterheading 13299
\@alph 5993, 5994
\@alph@bul 5993
\@anchorcolor . 8520, 8608, 9435, 10774, 11047
\@arabic 972, 977, 981, 5987, 5991, 5994

\@auxout . 2236, 4363, 5432, 5434, 6077, 6105, 6745, 6760, 6776, 6786, 6816, 6839, 6865, 6871, 6895
\@backslashchar . . . 723, 726, 729, 1226, 1896, 1900, 1903, 2041, 2058, 2064, 2068, 2076, 4189, 7811, 7821
\@baseurl 3220, 3222, 4457, 8243, 8246, 8505, 8507, 8758, 8760, 9226, 9236, 9286, 9288, 9800, 9802, 10165, 10179, 10759, 10761, 10953, 10967, 11033, 11035
\@begintheorem 6324, 6331
\@bibitem 6752, 6783
\@biblabel 6725, 6772
\@bookmarkopenstatus . . . 3987, 4004, 12868
\@bookmarksopenlevel 3183, 3185, 3990
\@bsphack 2229, 4356, 6869
\@capstartfalse 6619
\@caption 6584, 6596, 6639, 6675, 6677
\@captype 2238, 6579, 6583, 6587, 6594, 6601, 6643, 6668, 6672, 6675
\@car 1507, 1523, 1541, 1561, 3162, 4599, 8195, 8206
\@cdr 8196, 8207
\@chapter 13206, 13207
\@cite 6802, 6833, 6930, 6936
\@cite@opt . 6931, 6937, 6941, 6951
\@citea . . 6805, 6812, 6813, 6832, 6835, 6836
\@citeb . . 6811, 6814, 6816, 6818, 6822, 6825, 6834, 6837, 6839, 6841, 6845, 6848
\@citebordercolor 3644
\@citedata@opt . 6932, 6938, 6940
\@citedatax 6947, 6952
\@citedatax@opt 6944, 6950
\@citeseppen 6929, 6935
\@citex 6831
\@clubpenalty 6362
\@commahyperpage . . 7297, 7302
\@currDisplay 5036, 11369, 11431, 11647, 11661, 11849, 11912, 12190, 12256
\@currValue . . . 5038, 5040, 11436, 11647, 11658, 11919, 12271, 12690
\@currentHlabel 6038
\@currentHref 2244, 5312, 5957, 6018, 6020, 6029, 6031, 6038, 6119, 6121, 6131, 6168, 6178, 6180, 6219, 6230, 6234, 6241, 6265, 6329, 6353, 6417, 6427, 6429, 6430, 6473, 6501, 6599, 6625, 6629, 6644, 6646, 6874, 7000, 7023, 7036, 7043, 7094, 7118, 7120, 12799, 13187, 13200, 13211, 13241, 13258, 13293
\@currentlabel . 6491, 6867, 6874, 7099, 7106, 7355, 7407
\@currentlabelname . . 2234, 6418, 6474, 6502, 6604
\@currentlabstr 2233, 2241
\@curropt . . 11366, 11367, 11428, 11429, 11636, 11643, 11644, 11646, 11653, 11654, 11656, 11846, 11847, 11909, 11910, 12187, 12188, 12253, 12254
\@dblarg 2334, 6594, 6675
\@definecounter 7079, 7080
\@ehc 2563, 3757, 4421, 4693, 4817, 5013, 5159, 5195, 11459, 11507, 11952, 12006, 12310, 12370
\@ehd 63, 6580, 6669
\@endForm . . . 4982, 9371, 11325, 11542, 11566, 11807, 12127
\@endparenv 6320
\@eqncr 6249
\@eqnstarfalse 6225, 6252
\@eqnstartrue 6249
\@eqnswtrue 6195, 6204
\@esphack . 2250, 4367, 6879, 7242
\@extra@b@citeb 6710, 6713, 6730, 6735, 6755, 6803, 6825, 6841, 6848
\@extra@binfo . . 6709, 6712, 6716
\@fifthoffive 3717, 4102, 4350, 7556, 7674
\@filebordercolor 3642, 8112, 8114, 9082, 9084, 9514, 9516, 10483
\@filecolor 3212, 8132, 8706, 8718, 9094, 9520
\@firstoffive 4098, 4107, 7595, 7679
\@firstofone 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 492, 683, 838, 849, 1082, 1086, 1090, 1428, 3564, 3989, 4947, 4953, 5122, 5873, 5984, 5997, 6064, 6592, 6673, 6814, 6837, 6963, 7185, 8415, 11734, 12473, 12490, 12508
\@firstoftwo . . 512, 793, 964, 1635, 5402, 13248
\@footnotemark 6370, 6423, 6510, 6522, 6524, 6536, 6537, 6567, 6569
\@footnotetext . 6369, 6376, 6405, 6523, 6525, 6539, 6540, 6560
\@for 3239, 4589, 6811, 6834, 11366, 11428, 11636, 11643, 11653, 11846, 11909, 12187, 12253
\@fourthoffive . 4101, 4351, 7669, 7676
\@gobble 49, 56, 117, 445, 446, 447, 448, 485, 486, 487, 488, 515, 516, 517, 526, 528, 687, 800, 836, 847, 988, 992, 995, 1365, 1426, 1445, 1458, 1462, 1524, 1587, 1588, 1595, 1600, 1614, 1619, 2271, 2503, 2515, 3552, 3705, 3707, 3759, 4155, 4932, 5112, 5366, 5370, 5388, 5390, 5406, 5407, 5408, 5410, 5411, 5413, 5852, 5867, 5871, 6313, 6581, 6670, 6999, 7734, 8417, 9680, 9683, 11762, 12103, 12855, 12856, 12857, 13075
\@gobblefour 451, 551, 1122, 1123, 1124, 3371, 7470
\@gobbleopt 5413, 5415
\@gobbletwo 449, 519, 544, 552, 553, 700, 1121, 1542, 1619, 1623, 2388, 3369, 3370, 3709, 4878, 5392, 5401, 5409, 5413, 7657, 13197
\@harvarditem 6884, 6886
\@hyper@@anchor . . . 4484, 4485
\@hyper@itemfalse . . . 5903, 5919, 5933
\@hyper@itemtrue 5904
\@hyper@launch 4427, 4436, 8136, 9578, 10495
\@hyper@linkfile 4408, 4411, 4415, 4447
\@hyper@readexternallink . 4402, 4406
\@hyperdef 4326, 4327
\@hyperpage 7294, 7295
\@hyperref 4307, 4318
\@ifclasslater 13305, 13310
\@ifclassloaded . 2221, 4129, 6049, 6086, 6794, 7330, 7334, 8420, 13304, 13309
\@ifnextchar . . . 12, 88, 103, 123, 545, 4277, 4307, 4326, 4375, 4981, 5204, 5207, 5210, 5213, 5216, 5219, 5222, 5413, 5485, 5494, 6526, 6544, 6884, 6942, 10190, 10421, 10435, 12947, 12950
\@ifpackagelater . 858, 2252, 6040, 7149

\@ifpackageloaded . 381, 753, 857, 2224, 2615, 3139, 3143, 3696, 3839, 5941, 6039, 6052, 6114, 6147, 6151, 6159, 6191, 6305, 6366, 6437, 6480, 6640, 6854, 6927, 7091, 7148, 7190, 7191, 7192, 7339, 7604, 7747, 7751, 11025
\@ifpackagewith 3697, 7114
\@ifstar 66, 4124, 4127, 4136, 4140, 5347, 5351, 5419, 5423, 7612, 7638, 7657
\@ifundefined 34, 244, 772, 780, 796, 799, 2365, 2477, 2545, 2628, 3084, 3092, 3099, 3112, 3160, 3667, 4688, 5008, 5805, 5945, 5950, 5985, 6153, 6162, 6214, 6236, 6260, 6297, 6585, 6603, 6719, 6802, 6818, 6841, 7088, 7129, 7137, 7138, 7151, 7152, 7159, 7851, 9262, 9868, 9869, 10589, 11762, 12103, 12482, 12864
\@indexfile 7234, 7249, 7257, 7261, 7266
\@inlabelfalse 6341
\@inmathwarn 421, 422
\@inpenc@undefined@ 2096
\@labels 6357
\@latex@ 5516, 5517
\@latex@error . 2698, 2716, 2726, 2733, 6580, 6669
\@latex@warning 4345, 6821, 6844, 7531, 7551, 7568, 7685
\@lbibitem 6726, 6771
\@linkbordercolor 3639, 8068, 9425
\@linkcolor 10212
\@linkdim 348, 8566, 8567, 8572, 8573, 8574, 8639, 8640, 8649, 8650, 8651, 8668, 8669, 8678, 8679, 8680, 8698, 8699, 8708, 8709, 8710, 10824, 10825, 10830, 10831, 10832, 11092, 11093, 11102, 11103, 11104
\@listctr 6761, 6787
\@m 985, 6813, 6836, 9727
\@mainaux 5430, 5431, 5835, 5843, 11730, 11754
\@makecaption . 6620, 6622, 6688
\@makefnmark 6432, 6572
\@makefntext 6492
\@makeother 166, 167, 179, 180, 182, 183, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 4179, 7783, 13036, 13039, 13065, 13068
\@makeschapterhead 13296, 13298
\@mem@titleref 4136
\@mem@titlerefnolink 4136
\@menubordercolor . . 3641, 8475, 8477, 9137, 9139, 9612, 9614
\@menucolor . . . 8488, 9143, 9618
\@minipagefalse 6337
\@mkboth 519, 7452, 13197, 13285, 13287
\@mpfn 6373, 6545, 6557
\@mpfootnotetext 6376, 6389, 6390
\@mycount 13012, 13022
\@namedef 1102, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 4699, 4700, 4701, 4702, 5024, 5025, 6050, 6248, 6251, 6859, 6860, 6861, 6862
\@namerefstar 4140, 7600
\@nameuse . 2238, 2635, 4705, 5016
\@ne . 971, 2582, 2677, 9019, 9024, 9779, 10614, 12136
\@newctr 7084, 7085
\@newl@bel 5479, 6712
\@newlistfalse 6338
\@nil 367, 371, 376, 380, 395, 1420, 1423, 1431, 1507, 1525, 1543, 1559, 1561, 1564, 1567, 1570, 2105, 2107, 2123, 2125, 3162, 4211, 4215, 4220, 4474, 4482, 4599, 5103, 5106, 5125, 5504, 5507, 5514, 5516, 5517, 5602, 5649, 5650, 5652, 5675, 5692, 5740, 5742, 6163, 6172, 6174, 6186, 7281, 7283, 7290, 7313, 7316, 7326, 7535, 7538, 7693, 7724, 7807, 7813, 7817, 7823, 8195, 8196, 8206, 8207, 9645, 9647, 12480, 12493, 12499, 12896, 12899, 12902, 12911, 12914, 12923
\@nobreakfalse 5476, 6360
\@nocnterr 7138, 7152
\@nocounterr 7137, 7151
\@noparitemfalse 6339
\@number 5984, 6064, 6963
\@nx 7141, 7155, 7158, 7160
\@onelevel@sanitize . . 2381, 2385, 2597, 3161, 3734, 3764, 4245, 4469, 4472, 4689, 4925, 5009, 5702, 5704, 6025, 7029, 7581, 8876, 12893
\@oparg 6324, 6331
\@outlinefile . 12866, 12955, 13050, 13052, 13054, 13130, 13132, 13134
\@pagerefstar . . . 4127, 7597, 7628
\@pagesetref 7547
\@parboxrestore . 6490, 6612, 6683
\@parcount 13014, 13022
\@part 13224, 13231
\@pdfauthor 3387, 3647, 8302, 8740, 9173, 9841, 10091, 10884
\@pdfborder 2761, 3265, 3268, 3270, 4070, 7998, 8894, 9423, 9960, 10052, 10413, 10425, 10440, 10461, 10480, 10505, 10533, 10620, 10708, 10861
\@pdfborderstyle 3266, 3272, 3274, 4071, 7999, 8895, 9424, 9961, 10053, 10414, 10426, 10441, 10462, 10481, 10506, 10534, 10621, 10709, 10862
\@pdfcreationdate 3404, 3650, 8306, 8308, 8732, 8734, 9165, 9167, 10066, 10068, 10876, 10878
\@pdfcreator 3399, 3649, 8305, 8731, 9164, 9844, 10090, 10875
\@pdfdirection . 8266, 8796, 9206, 9812, 10145, 10933
\@pdfduplex . . 8272, 8802, 9212, 9818, 10151, 10939
\@pdfhighlight 3258, 3645, 8018, 8020, 8079, 8108, 8110, 8144, 8146, 8471, 8473, 9959, 10051, 10412, 10460, 10479, 10504
\@pdfhightlight 8077
\@pdfkeywords 3423, 3653, 8318, 8729, 9178, 9849, 10092, 10873
\@pdflang 3631, 3659, 8292, 8294, 8824, 8826, 9246, 9248, 10175, 10177, 10963, 10965
\@pdfm@dest . . . 8838, 8897, 8901
\@pdfm@mark 5823, 8837, 8889, 8909, 8923, 8925, 8939, 8941, 8946, 8947, 8977, 9001, 9003, 9008, 9026, 9048, 9076, 9103, 9127, 9160, 9227, 9254, 12106, 12107, 12108, 12125, 12168, 12174, 12262, 12276, 12291, 12297, 12323, 12330, 12349, 12355, 12378, 12384, 12407, 12413, 12418, 12450, 12458, 13103
\@pdfmoddate . 3410, 3651, 8310, 8312, 8736, 8738, 9169, 9171, 10070, 10074, 10880, 10882

\@pdfnonfullscreenpagemode 8265, 8795, 9205, 9811, 10144, 10932
\@pdfnumcopies 8281, 8283, 8811, 8813, 9221, 9223, 9827, 9829, 10160, 10162, 10948, 10950
\@pdfpageduration . . . 3228, 8361, 8365, 8370, 9736, 9738, 9741, 9996, 9998, 10006
\@pdfpagelayout 8291, 8823, 9245, 9832, 9834, 10174, 10962
\@pdfpagemode 3827, 3828, 4000, 4001, 4010, 4011, 8245, 8779, 9240, 9799, 10128, 10916
\@pdfpagescrop 3585, 3655, 8230, 8234, 8762, 8763, 8784, 8786, 9252, 9254, 9788, 9790, 10133, 10135, 10921, 10923
\@pdfpagetransition . . 3226, 8337, 8341, 8346, 9625, 9627, 9629, 9979, 9981, 9989
\@pdfpicktraybypdfsize 8273, 8275, 8803, 8805, 9213, 9215, 9819, 9821, 10152, 10154, 10940, 10942
\@pdfprintarea . 8269, 8799, 9209, 9815, 10148, 10936
\@pdfprintclip . 8270, 8800, 9210, 9816, 10149, 10937
\@pdfprintpagerange 3339, 3658, 8277, 8279, 8807, 8809, 9217, 9219, 9823, 9825, 10156, 10158, 10944, 10946
\@pdfprintscaling 8271, 8801, 9211, 9817, 10150, 10938
\@pdfproducer 3393, 3648, 8171, 8314, 8316, 8722, 8723, 8741, 8743, 9149, 9150, 9154, 9174, 9176, 9756, 9757, 9761, 9764, 9765, 9845, 9847, 10077, 10081, 10530, 10531, 10613, 10615, 10617, 10705, 10706, 10866, 10867, 10885, 10887
\@pdfstartpage 3573, 3575, 3657, 8251, 8255, 8766, 8771, 9229, 9233, 9792, 9796, 10115, 10120, 10903, 10908
\@pdfstartview 3580, 3582, 3656, 8125, 8253, 8255, 8768, 8772, 9089, 9231, 9233, 9794, 10117, 10121, 10489, 10905, 10909
\@pdfsubject 3417, 3652, 8304, 8745, 9163, 9843, 10089, 10889
\@pdftempa 4413, 4414, 4417
\@pdftempwordfile . . . 4404, 4414
\@pdftempwordrun . . 4405, 4417
\@pdftitle 3381, 3646, 8303, 8730, 9162, 9842, 10088, 10874
\@pdftrapped . . 3428, 3431, 3434, 3443, 3452, 3654, 8319, 8321, 9179, 9181, 10093
\@pdfview 3554, 7986, 7991, 8844, 8848, 8852, 8856, 8860, 8864, 8865, 8868, 8869, 8872, 8876, 8878, 8893, 9422, 9432, 9444, 9906, 9926, 10535, 10622, 10710, 10975
\@pdfviewarea . 8267, 8797, 9207, 9813, 10146, 10934
\@pdfviewclip . 8268, 8798, 9208, 9814, 10147, 10935
\@pdfviewparams 3556, 3558, 9906, 9926, 10536, 10623, 10711, 10976
\@percentchar . 4174, 4175, 4227, 12870
\@processme . . 5032, 5033, 8343, 8349, 8367, 8373, 8389, 8395, 10193, 10194, 10263, 10264, 10267, 10268
\@protected@testopt 548
\@protected@testopt@xargs . 549
\@refstar 4124, 7594
\@runbordercolor 3643, 8148, 8150, 9596, 9598, 10508
\@runcolor 8167, 9602
\@safe@activesfalse 501, 4104
\@safe@activestrue 500, 4103
\@schapter 13194, 13195
\@secondoffive . 3718, 4099, 4112, 7557, 7558, 7598
\@secondoftwo . 489, 518, 791, 967, 1633, 3717, 3718, 13250
\@sect 13245, 13246
\@seqncr 6249
\@serial@counter . . 12962, 13010, 13012, 13013
\@seteqlabel 7115, 7116
\@setminipage 6614, 6685
\@setref . . 4107, 4112, 7526, 7527, 7564
\@sharp 6163, 6169
\@skiphyperreffalse . . 5920, 6741, 6753
\@skiphyperreftrue . . . 6727, 6753
\@spart 13237, 13238
\@ssect 13180, 13181
\@startlos 7464, 7471, 7520
\@starttoc 5464
\@tempa . 6323, 6330, 6334, 6439, 6443, 6446, 6461
\@tempb 6277, 6281
\@tempboxa 8565, 8566, 8572, 8636, 8639, 8642, 8643, 8649, 8654, 8655, 8666, 8668, 8671, 8672, 8678, 8683, 8684, 8696, 8698, 8701, 8702, 8708, 8713, 8714, 10823, 10824, 10830, 11091, 11092, 11102
\@tempcnta . 12821, 12822, 12823, 12824, 12825, 12827, 12830, 12831, 12832, 12838, 12840, 12842, 12931, 12932, 12933, 12936, 12937, 12938, 12939, 12940, 13153, 13154, 13155
\@tempdima 2284, 5244, 5245, 5246, 5247, 5248, 5249, 5250, 5251, 7979, 11365, 11370, 11372, 11409, 11410, 11411, 11415, 11416, 11417, 11418, 11845, 11850, 11852, 11890, 11891, 11892, 11896, 11897, 11898, 11899, 12186, 12191, 12193, 12231, 12232, 12233, 12237, 12238, 12239, 12240
\@tempdimb 11369, 11370, 11849, 11850, 12190, 12191
\@tempswafalse 6946
\@tempswatrue 6916, 6919, 6922, 6943
\@temptokena . 3031, 3036, 3039, 3041
\@tfor 6278
\@the@H@page 6965, 6967
\@thefnmark . . 6374, 6385, 6451, 6452, 6491, 6508, 6515, 6546, 6558, 6565
\@thirdoffive 4100, 7601
\@thm 6306
\@topnewpage 13296
\@topsep 6319
\@topsepadd 6320
\@typeset@protect 13166
\@undefined . . 257, 260, 554, 3035, 5403, 5438, 5451, 5463, 5664, 5682, 5721, 6579, 6642, 6654, 6659, 6668, 7589, 7977, 8175, 8184, 9395, 9767, 9781
\@undottedtocline 7516
\@unprocessedoptions 3949
\@urlbordercolor 3640, 8081, 8083, 9109, 9111, 9533, 9535, 10463
\@urlcolor 8096, 8571, 8580, 8676, 8688, 9119, 9539, 10829, 10838, 11101, 11109
\@urltype 8540, 8545, 9291, 9317, 9452, 9466,

10794, 10799, 11066, 11071
\@vpageref 7622
\@whilenum 1138
\@wrindex 7198, 7199, 7230
\@writefile 6872
\@x@sf 6425, 6434, 6571, 6573
\@xfootnote 6544
\@xfootnotemark 6382, 6562
\@xfootnotenext 6371, 6555
\@xp 7105, 7140, 7141, 7154, 7155, 7157, 7158
\[. 192, 217
\{ 424, 1936, 12888
\} 425, 1937, 12889
\] 193, 218
\^ 186, 211, 2034, 2035, 2942, 4162, 4163, 4171, 13323, 13335, 13347, 13554, 13570, 13578, 13591, 13605, 13619, 13635, 13645, 13646, 13659, 13673, 13721, 13758, 13777, 13798, 13923, 13939, 13947, 13959, 13973, 13987, 14003, 14013, 14014, 14027, 14041, 14067, 14069, 14107, 14109, 14123, 14125, 14159, 14161, 14162, 14240, 14242, 14288, 14290, 14292, 14294, 15226, 15228
_ . 187, 212, 432, 4166, 4183, 4184
\‘ 166, 172, 179, 182, 2878, 3012, 3015, 3017, 3025, 12887, 13321, 13333, 13345, 13550, 13566, 13574, 13587, 13601, 13615, 13631, 13639, 13640, 13655, 13669, 13717, 13756, 13775, 13796, 13919, 13935, 13943, 13955, 13969, 13983, 13999, 14007, 14008, 14023, 14037, 14354, 14356, 14602, 14630, 14767, 14795, 15198, 15200, 15248, 15250, 15609, 15614, 15619, 15624, 15629, 15634, 15639, 15644, 15649, 15654, 15659, 15664, 15669, 15674, 15679, 15684, 15689, 15694, 15699, 15704, 15709, 15714, 15719, 15724
\| 188, 213, 1842, 1935, 1976, 2824, 3682, 7194, 7782, 7792
\~ 431, 1140, 2084, 2936, 2944, 2945, 2946, 3778, 4187, 13324, 13336, 13348, 13556, 13585, 13593, 13621, 13653, 13661, 13723, 13759, 13778, 13799, 13925, 13953, 13961, 13989, 14021, 14029, 14131, 14133, 14134, 14264, 14266, 15194, 15196, 15244, 15246, 15252, 15254, 15611, 15616, 15621, 15626, 15631, 15636, 15641, 15646, 15651, 15656, 15661, 15666, 15671, 15676, 15681, 15686, 15691, 15696, 15701, 15706, 15711, 15716, 15721, 15726

Numbers

\3 . . . . . 409, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 2198, 13031, 13550, 13552, 13554, 13556, 13558, 13560, 13562, 13564, 13566, 13568, 13570, 13572, 13574, 13576, 13578, 13580, 13582, 13583, 13585, 13587, 13589, 13591, 13593, 13595, 13597, 13599, 13601, 13603, 13605, 13607, 13609, 13611, 13613, 13615, 13617, 13619, 13621, 13623, 13625, 13627, 13629, 13631, 13633, 13635, 13637, 13639, 13640, 13642, 13643, 13645, 13646, 13648, 13649, 13651, 13653, 13655, 13657, 13659, 13661, 13663, 13665, 13667, 13669, 13671, 13673, 13675, 13677, 13679, 13681, 13682, 13755, 13919, 13921, 13923, 13925, 13927, 13929, 13931, 13933, 13935, 13937, 13939, 13941, 13943, 13945, 13947, 13949, 13951, 13953, 13955, 13957, 13959, 13961, 13963, 13965, 13967, 13969, 13971, 13973, 13975, 13977, 13979, 13981, 13983, 13985, 13987, 13989, 13991, 13993, 13995, 13997, 13999, 14001, 14003, 14005, 14007, 14008, 14010, 14011, 14013, 14014, 14016, 14017, 14019, 14021, 14023, 14025, 14027, 14029, 14031, 14033, 14035, 14037, 14039, 14041, 14043, 14045, 14047, 14049, 14314, 14316, 14318, 14320, 14321, 14323, 14325, 14327, 14329, 14331, 14333, 14335, 14337, 14339, 14341, 14343, 14345, 14347, 14348, 14350, 14352, 14354, 14356, 14358, 14360, 14362, 14364, 14413, 14415, 14417, 14419, 14421, 14423, 14425, 14428, 14430, 14555, 14557, 14559, 14561, 14563, 14565, 14567, 14569, 14571, 14573, 14575, 14577, 14579, 14581, 14582, 14584, 14586, 14588, 14590, 14592, 14594, 14596, 14598, 14600, 14986, 14988, 14990, 14992, 14994, 14996, 14998, 15000, 15002, 15004, 15006, 15008, 15010, 15012, 15014, 15016, 15018, 15020, 15022, 15024, 15026, 15028, 15030, 15032, 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, 15248, 15250, 15252, 15254, 15474, 15476, 15478, 15480, 15482, 15484, 15486, 15488, 15490, 15492, 15494, 15496, 15498, 15500, 15502, 15504, 15506, 15508, 15510, 15512, 15514, 15516, 15518, 15520, 15522, 15524, 15526, 15528, 15530, 15532, 15534, 15536, 15538, 15540, 15542, 15544, 15546, 15548, 15550, 15552, 15554, 15556, 15558, 15560, 15562, 15570, 15572, 15594, 15596, 15597, 15601, 15603, 15604, 15607, 15609, 15611, 15622, 15624, 15628, 15629, 15630, 15631, 15632, 15633, 15634, 15635, 15637, 15638, 15639, 15640, 15641, 15642, 15643, 15644, 15645, 15646, 15647, 15648, 15649, 15650, 15651, 15652, 15653, 15654, 15655, 15657, 15658, 15659, 15660, 15661, 15662, 15663, 15664, 15665, 15666, 15667, 15669, 15671, 15682, 15684, 15688, 15689, 15690, 15691, 15692, 15693, 15694, 15695, 15697, 15698, 15699, 15700, 15701, 15702, 15703, 15704, 15705, 15706, 15707, 15708, 15709, 15710, 15711, 15712, 15713, 15714, 15715, 15717, 15718, 15719, 15720, 15721, 15722, 15723, 15724, 15725, 15726, 15779, 15781

\9 . . . . . 412, 1204, 1207, 1238, 2126, 2141, 2150, 2178, 2198, 13755, 15100, 15102, 15104, 15106, 15108, 15110, 15112, 15114, 15116, 15118, 15120, 15122, 15124, 15126, 15128, 15130, 15132, 15134, 15136, 15138, 15140, 15142, 15144, 15146, 15148, 15150, 15152, 15154, 15156, 15158, 15160, 15162, 15164, 15166, 15168, 15170, 15172, 15174, 15176, 15178, 15180, 15182, 15184, 15186, 15188, 15190, 15192, 15194, 15196, 15198, 15200, 15202, 15204, 15206, 15208, 15210, 15212, 15214, 15216, 15218, 15220, 15222, 15224, 15226, 15228, 15230, 15232, 15234, 15236, 15238, 15240, 15242, 15244, 15246, 15248, 15250, 15252, 15254, 15256, 15258, 15260, 15262, 15264, 15266, 15268, 15270, 15272, 15274, 15276, 15278, 15280, 15282, 15284, 15286, 15288, 15290, 15292, 15294, 15296, 15298, 15300, 15302, 15304, 15306, 15308, 15310, 15312, 15314, 15316, 15318, 15320, 15322, 15324, 15326, 15328, 15330, 15332, 15334, 15336, 15338, 15340, 15342, 15344, 15346, 15348, 15350, 15352, 15354, 15356, 15358, 15360, 15362, 15364, 15366, 15368, 15370, 15372, 15374, 15376, 15378, 15380, 15382, 15384, 15386, 15388, 15390, 15392, 15394, 15396, 15398, 15400, 15402, 15404, 15406, 15408, 15410, 15412, 15414, 15416, 15418, 15420, 15422, 15424, 15426, 15428, 15430, 15432, 15434, 15436, 15438, 15440, 15442, 15444, 15446, 15448, 15450, 15452, 15454, 15456, 15458, 15460, 15462, 15464, 15466, 15468, 15470, 15472, 15474, 15476, 15478, 15480, 15482, 15484, 15486, 15488, 15490, 15492, 15494, 15496, 15498, 15500, 15502, 15504, 15506, 15508, 15510, 15512, 15514, 15516, 15518, 15520, 15522, 15524, 15526, 15528, 15530, 15532, 15534, 15536, 15538, 15540, 15542, 15544, 15546, 15548, 15550, 15552, 15554, 15556, 15558, 15560, 15562, 15564, 15566, 15568, 15570, 15572, 15574, 15576, 15608, 15610, 15612, 15613, 15614, 15615, 15616, 15617, 15618, 15619, 15620, 15621, 15623, 15625, 15626, 15627, 15628, 15629, 15630, 15631, 15633, 15635, 15638, 15640, 15642, 15643, 15644, 15645, 15646, 15647, 15648, 15649, 15650, 15651, 15653, 15655, 15657, 15658, 15659, 15660, 15661, 15663, 15664, 15665, 15666, 15668, 15670, 15672, 15673, 15674, 15675, 15676, 15677, 15678, 15679, 15680, 15681, 15683, 15685, 15686, 15687, 15688, 15689, 15690, 15691, 15693, 15695, 15698, 15700, 15702, 15703, 15704, 15705, 15706, 15707, 15708, 15709, 15710, 15711, 15713, 15715, 15717, 15718, 15719, 15720, 15721, 15723, 15724, 15725, 15726, 15780

\␣ . . . 533, 2959, 2962, 6813, 6836, 13345, 13346, 13347, 13348, 13349, 13350, 13351, 13352, 13353, 13354, 13355, 13356, 13775, 13776, 13777, 13778, 13779, 13780, 13781, 13782, 13783, 13784, 13785, 13786, 13787, 13788, 13789, 13790, 13791, 13792, 13793

A

\ABREVE . . 15600, 15672, 15673, 15674, 15675, 15676
\abreve 15593, 15612, 15613, 15614, 15615, 15616
\AccFancyVerbLineautorefname 2986
\Accfootnoteautorefname . . 2966
\Acctheoremautorefname . . 2990
\ACIRCUMFLEX . 15601, 15677, 15678, 15679, 15680, 15681
\acircumflex . . 3017, 15594, 15617, 15618, 15619, 15620, 15621
\Acrobatmenu . 2273, 3714, 5400, 8466, 9124, 9605, 10407
\active 1118, 1125, 4163, 4164, 4165, 4166, 4167, 4168, 4171, 4173, 4176, 4184, 13035, 13064
\add@accent 423
\addcontentsline 6608, 6679, 6997, 7002, 7073, 13301
\addtocontents 7042, 7074, 7347, 7399, 13289, 13290
\addtocounter . 6061, 6084, 6093, 6104, 6108, 6299, 9028
\addvspace 13289, 13290
\advance 346, 347, 1139, 4549, 4877, 4923, 5245, 5246, 5249, 5250, 5619, 8220, 8573, 8650, 8679, 8709, 9763, 10831, 11103, 11372, 11416, 11417, 11852, 11897, 11898, 12136, 12193, 12238, 12239, 12822, 12824, 12825, 12831, 12840, 12939, 13154
\AE 13562, 13931, 14358
\ae 13627, 13995, 14360
\afterassignment 1731, 1737, 1743
\AfterBeginDocument . . 244, 258
\aftergroup 6495
\alef 15735
\alefhamza 15731
\aleflowerhamza 15733
\alefmadda 15730
\alefmaqsura 15764
\Alph 5668, 5972, 5973
\alph 5669, 6270, 6301
\AMSautorefname 7756
\anchor@spot . . 4489, 4502, 4509, 4515, 8038, 8520, 8608, 9363, 9435, 9903, 10774, 11047
\appendix 5969, 5970
\appendixautorefname 2834, 2852, 2870, 2888, 2906, 2924, 2942, 2974, 2975, 3000, 3018, 7766
\arabic . . . 5665, 5878, 5881, 5884, 5885, 5886, 5888, 5889, 5890, 5891, 5893, 5894, 5895, 5896, 5897, 5898, 5901, 5911, 5912, 5951, 6068, 7082, 7088, 7136, 7150, 7335, 7340, 7342
\AtBeginDocument . . . 245, 5436
\AtBeginShipout 5548, 8499, 8974
\AtBeginShipoutBox . 5552, 5555, 8494, 8495, 8975, 8976
\AtBeginShipoutFirst 5559, 9259, 10586, 10701
\AtEndDocument 5450
\AtEndOfPackage 255
\AtVeryEndDocument 5761, 11770
\author 5484, 5494
\autopageref 3826, 7637
\autoref . . . 523, 3825, 7656, 11124

\ayn 15753

B

\b . . . 754, 758, 764, 13331, 13343, 13355, 13747, 13770, 13789, 15106, 15108, 15114, 15116, 15146, 15148, 15150, 15152, 15166, 15168, 15182, 15184, 15190, 15192, 15230, 15232, 15234
\baa 15736
\back@none 2769, 2779, 2792
\back@page 2771, 2784
\back@section . 2770, 2776, 2782, 2788
\back@slide 2772, 2781
\backcite 6873
\backref 6904, 11128
\baselineskip . . 2276, 5258, 5259, 5260, 5261, 5262, 5263, 8627, 9922, 9945, 10569
\bbl@cite@choice 6720
\BeforeTeXIVht 2651
\begin 11133, 15785
\belowpdfbookmark 12935
\bfseries . . . 467, 6819, 6842, 7530, 7550, 7567, 7684
\bgroup 542, 4277, 6482, 6494, 9363, 9936, 11574, 11666, 11687
\bibcite . . 6711, 6717, 6721, 6746, 6761, 6777, 6787
\bitsetGetDec . 4601, 4734, 4752, 4766, 4779, 4795, 4827, 4852
\bitsetGetHex 4602
\bitsetGetSetBitList 4590
\bitsetIsEmpty 4731, 4749, 4763, 4776, 4792, 4824, 4849
\bitsetReset . . . 4704, 4738, 4757, 4771, 4784, 4800, 4832
\bitsetSetValue 4570, 4580
\BOOKMARK 12867, 12946
\box 5252, 5555, 7965, 9006, 10246
\bullet 7482, 7490, 7500, 7508

C

\C 13741, 14846, 14848
\c 755, 759, 765, 2936, 2944, 2945, 2946, 5507, 5514, 13329, 13341, 13353, 13564, 13629, 13749, 13764, 13783, 13794, 13933, 13997, 14119, 14121, 14164, 14166, 14174, 14176, 14194, 14196, 14228, 14230, 14244, 14246, 14252, 14254, 14399, 14401, 14901, 14904, 15118, 15120, 15138, 15140
\c@footnote 6384, 6441, 6449, 6564
\c@page . . 5601, 5619, 5620, 5624, 5636, 5638, 5643, 5650, 5652, 5654, 5683, 6960
\c@secnumdepth . . 13214, 13232, 13247
\c@slidesection . . 7348, 7476, 7477
\c@slidesubsection 7400
\c@tocdepth 3153, 3158
\calc@bm@number . 13077, 13152
\calculate@pdfview . . 3550, 3553
\capitalacute 13797
\capitalbreve 13804
\capitalcaron 13803
\capitalcedilla 13794
\capitalcircumflex 13798
\capitaldieresis 13800
\capitaldotaccent 13806
\capitalgrave 13796
\capitalhungarumlaut . . . 13801
\capitalmacron 13805
\capitalnewtie 13808
\capitalogonek 13795
\capitalring 13802
\capitaltie 13807
\capitaltilde 13799
\caption . . . 6578, 6580, 6667, 6669
\catcode 172, 173, 184, 185, 186, 187, 206, 680, 681, 817, 1118, 1125, 1842, 1843, 1976, 1977, 2033, 2034, 2035, 4020, 4022, 4162, 4163, 4164, 4165, 4166, 4167, 4168, 4171, 4173, 4176, 4184, 4194, 4283, 4284, 7782, 9972, 9973, 12964, 12966, 13035, 13038, 13064, 13067
\cf@encoding 1443
\chapterautorefname . 2835, 2853, 2871, 2889, 2907, 2925, 2943, 2972, 3001, 3019, 7767
\chapternumberline 12853, 12857
\char 11797, 12968, 13005
\chardef . . 2467, 2468, 2469, 2470, 2677, 2679
\check@bm@number 13088, 13096, 13145, 13153
\CheckBox 5209
\CheckCommand 6438
\checkcommand . . 42, 6103, 6555, 6562, 6569, 6667, 6677, 6771, 6783, 7073, 7076, 7136, 7564
\checklatex . . 4, 6554, 6666, 6770, 7072, 7563
\checkpackage 9, 6102, 7135
\ChoiceBox 4927
\ChoiceMenu 5206
\citation 6816, 6839, 6865
\citeauthoryear 6931, 6937
\citeN 6928
\CJK@char 1121
\CJK@charx 1122
\CJK@CJK 1110
\CJK@eight 1321, 1324, 1438
\CJK@five 1321, 1323, 1438
\CJK@four 1320, 1323, 1437
\CJK@hundred 1387
\CJK@hundredmillion 1350
\CJK@ignorespaces 1120
\CJK@kern 1108
\CJK@minus 1312
\CJK@nine 1321, 1325, 1438
\CJK@null 1414
\CJK@one 1320, 1322, 1437
\CJK@punctchar 1123
\CJK@punctcharx 1124
\CJK@seven . . . 1321, 1324, 1438
\CJK@six 1321, 1324, 1438
\CJK@ten 1322, 1323, 1324, 1325, 1402
\CJK@tenthousand . . 1335, 1356
\CJK@thousand 1372
\CJK@three 1320, 1323, 1437
\CJK@two 1320, 1322, 1437
\CJK@zero 1320, 1338, 1355, 1359, 1375, 1390, 1412
\CJKdigits 1197
\CJKkern 1109
\CJKnumber 1196
\close@pdflink . 8032, 8057, 8066, 8097, 8133, 8168, 8489
\closeout 5430, 12955
\clubpenalty 6360, 6362
\codeof 6895
\color@endbox 7958, 8565, 8636, 8666, 8696, 8999, 10823, 11091
\color@hbox 7951, 8565, 8636, 8666, 8696, 8992, 10823, 11091
\columnwidth 6489
\comma@entry . . 4918, 4925, 4927
\comma@parse 4917
\contentsline . . 5439, 5440, 5452, 7043, 7047, 7074, 7076
\copy 6174, 6182, 7961, 8495, 8976, 9002
\count@ 719, 721, 722, 725, 728, 731, 734, 1137, 1138, 1139, 1140, 1732, 3169, 3170, 3175, 3176, 4548, 4549, 4564, 4860, 4875, 4877, 4901, 4923, 4939, 8215, 8216, 8217, 8218, 8219, 8220, 8223, 9759, 9760, 9761, 9762, 9763, 9766

\CurrentBorderColor . 8022, 8024, 8051, 8053, 8061, 8063, 8068, 9425, 9459, 9461, 9472, 9474, 9493, 9495, 9546, 9548, 9565, 9567
\currentpdfbookmark 12927
\curu 14798
\cyr .. 502, 2954, 2956, 2959, 2962, 2965, 2966, 2967, 2968, 2969, 2970, 2971, 2972, 2973, 2974, 2976, 2978, 2979, 2980, 2981, 2982, 2983, 2984, 2985, 2986, 2987, 2988, 2989, 2990, 2991
\CYRA 14637, 15012, 15016
\cyra 2956, 2963, 2965, 2970, 2973, 2978, 2979, 2985, 2989, 14702, 15014, 15018
\CYRABHCH 14976, 14981
\cyrabhch 14978, 14984
\CYRABHCHDSC 14980
\cyrabhchdsc 14983
\CYRABHDZE 15044
\cyrabhdze 15046
\CYRABHHA 14934
\cyrabhha 14936
\CYRAE 15020
\cyrae 15022
\CYRB 14639
\cyrb 2970, 14704
\CYRBYUS 14822
\cyrbyus 14824
\CYRC 14682
\cyrc 14747
\CYRCH 14684, 15084
\cyrch .. 2962, 2963, 2971, 14749, 15086
\CYRCHLDSC 15004
\cyrchldsc 15006
\CYRCHRDSC 14964
\cyrchrdsc 14966
\CYRCHVCRS 14968
\cyrchvcrs 14970
\CYRD 14645
\cyrd 2959, 2962, 2973, 2978, 2979, 14710
\CYRDJE 14607
\cyrdje 14772
\CYRDZE 14613
\cyrdze 14778
\CYRDZHE 14635
\cyrdzhe 14800
\CYRE 14602, 14605, 14647, 15024
\cyre 2956, 2962, 2963, 2976, 2988, 2989, 2990, 14712, 14767, 14770, 15026
\cyreref 15070
\CYREREV 14696, 15068
\cyrerev 14761
\CYRERY 14692, 15092
\cyrery . 2954, 2956, 14757, 15094
\CYRF 14678
\cyrf 14743
\CYRFITA 14838
\cyrfita 14840
\CYRG 14609, 14643
\cyrg 2972, 14708, 14774
\CYRGDSC 15088
\cyrgdsc 15090
\CYRGHCRS 14888
\cyrghcrs 14890
\CYRGHK 14892
\cyrghk 14894
\CYRGUP 14884
\cyrgup 14886
\CYRH 14680
\cyrh 14745
\CYRHDSC 14956
\cyrhdsc 14958
\CYRHHK 15096
\cyrhhk 15098
\CYRHRDSN 14690
\cyrhrdsn 14755
\CYRI 14630, 14653, 14656, 15048, 15052
\cyri 2956, 2959, 2963, 2969, 2974, 2976, 14718, 14721, 14795, 15050, 15054
\CYRIE 14611
\cyrie 14776
\CYRII 14615, 14618
\cyrii 14780, 14783
\CYRIOTBYUS 14826
\cyriotbyus 14828
\CYRIOTE 14810
\cyriote 14812
\CYRIOTLYUS 14818
\cyriotlyus 14820
\CYRISHRT 14655
\cyrishrt 14720
\CYRISHRTDSC 14872
\cyrishrtdsc 14874
\CYRIZH 14842, 14846
\cyrizh 14844, 14848
\CYRJE 14620
\cyrje 14785
\CYRK 14628, 14658
\cyrk 2965, 2966, 2968, 2982, 2983, 2985, 2986, 2987, 14723, 14793
\CYRKBEAK 14918
\cyrkbeak 14920
\CYRKDSC 14906
\cyrkdsc 14908
\CYRKHCRS 14914
\cyrkhcrs 14916
\CYRKHK 14992
\cyrkhk 14994
\CYRKOPPA 14866
\cyrkoppa 14868
\CYRKSI 14830
\cyrksi 14832
\CYRKVCRS 14910
\cyrkvcrs 14912
\CYRL 14660
\cyrl 2970, 2972, 2974, 2976, 14725
\CYRLDSC 14996
\cyrldsc 14998
\CYRLJE 14622
\cyrlje 14787
\CYRLYUS 14814
\cyrlyus 14816
\CYRM 14662
\cyrm 2959, 2963, 2989, 2990, 14727
\CYRMDSC 15008
\cyrmdsc 15010
\CYRN 14664
\cyrn 2956, 2962, 2963, 2965, 2966, 2968, 2976, 2982, 2983, 14729
\CYRNDSC 14922
\cyrndsc 14924
\CYRNG 14926
\cyrng 14928
\CYRNHK 15000
\cyrnhk 15002
\CYRNJE 14624
\cyrnje 14789
\CYRO 14666, 15056
\cyro 2959, 2962, 2965, 2966, 2976, 2985, 2986, 2988, 2989, 2990, 14731, 15058
\CYROMEGA 14802
\cyromega 14804
\CYROMEGARND 14854
\cyromegarnd 14856
\CYROMEGATITLO ... 14858
\cyromegatitlo 14860
\CYROT 14862
\cyrot 14864
\CYROTLD 15060, 15064
\cyrotld 15062, 15066
\CYRP 14668
\cyrp 2959, 2962, 2963, 2967, 2968, 2974, 2976, 2980, 2981, 2982, 2983, 14733
\CYRpalochka 14986
\CYRPHK 14930
\cyrphk 14932
\CYRPSI 14834
\cyrpsi 14836
\CYRR 14670

\cyrr 2954, 2956, 2959, 2962, 2963, 2969, 2973, 2974, 2976, 2978, 2979, 2984, 2985, 2986, 2987, 2988, 2989, 2990, 14735
\CYRRTICK 14880
\cyrrtick 14882
\CYRS 14672, 14939
\cyrs 2959, 2962, 2965, 2966, 2969, 2984, 2985, 2986, 2987, 2991, 14737, 14942
\CYRSCHWA 15028, 15032
\cyrschwa 15030, 15034
\CYRSDSC 14938, 14939
\cyrsdsc 14941
\CYRSEMISFTSN 14876
\cyrsemisftsn 14878
\CYRSFTSN 14694
\cyrsftsn 14759
\CYRSH 14686
\cyrsh 14751
\CYRSHCH 14688
\cyrshch 14753
\CYRSHHA 14972
\cyrshha 14974
\CYRT 14674
\cyrt 2959, 2962, 2968, 2970, 2982, 2983, 2984, 2985, 2986, 2987, 2988, 2989, 2990, 14739
\CYRTDSC 14944
\cyrtdsc 14946
\CYRTETSE 14960
\cyrtetse 14962
\cyrthousands 14870
\CYRTSHE 14626
\cyrtshe 14791
\CYRU 14633, 14676, 15072, 15076, 15080
\cyru 2966, 2968, 2982, 2983, 2986, 2990, 14741, 15074, 15078, 15082
\CYRUK 14850
\cyruk 14852
\CYRUSHRT 14632
\cyrushrt 14797
\CYRV 14641
\cyrv 2954, 2956, 14706
\CYRY 14948
\cyry 14950
\CYRYA 14700
\cyrya 14765
\CYRYAT 14806
\cyryat 14808
\CYRYHCRS 14952
\cyryhcrs 14954
\CYRYI 14617
\cyryi 14782
\CYRYO 14604
\cyryo 14769
\CYRYU 14698
\cyryu 14763
\CYRZ 14651, 14901, 15040
\cyrz . . . 2973, 2978, 2979, 14716, 14904, 15042
\CYRZDSC 14900
\cyrzdsc 14903
\CYRZH . . . 14649, 14988, 15036
\cyrzh . . 2956, 2976, 14714, 14990, 15038
\CYRZHDSC 14896
\cyrzhdsc 14898

D

\d 756, 760, 766, 3014, 3018, 3020, 3021, 3022, 3023, 3024, 3026, 13332, 13344, 13356, 13745, 13771, 13790, 15608, 15613, 15618, 15623, 15628, 15633, 15638, 15643, 15648, 15653, 15658, 15663, 15668, 15673, 15678, 15683, 15688, 15693, 15698, 15703, 15708, 15713, 15718, 15723
\dad 15750
\dal 15743
\damma 15770
\declare@shorthand 872, 873, 878, 879, 884, 894, 895, 896, 901, 902, 907, 908, 913, 918, 919, 924, 929, 930, 931, 932, 933, 934, 939, 940, 945, 946, 951, 952
\DeclareFontEncoding . . . 13320, 13715
\DeclareFontFamily 776, 784, 2549
\DeclareFontShape 777, 785, 2550
\DeclareFontSubstitution . . . 778, 786, 2551
\DeclareLocalOptions 3693
\DeclareRobustCommand . 4123, 4126, 4135, 4139, 4276, 4293, 4295, 4297, 4306, 5203, 5206, 5209, 5212, 5215, 5218, 5221, 5346, 5350, 5418, 5422, 7611, 7637, 7656, 13170
\DeclareTextAccent 13321, 13322, 13323, 13324, 13325, 13326, 13327, 13328, 13329, 13330, 13331, 13332
\DefaultHeightofCheckBox . 5258, 11524, 12024, 12393
\DefaultHeightofChoiceMenu 5260, 11362, 11842, 12183
\DefaultHeightofReset 5256, 11498, 11997, 12361
\DefaultHeightofSubmit . . . 5254, 11480, 11974, 12337
\DefaultHeightofText 5262, 11338, 11817, 12150
\DefaultHeightofTextMultiline . . . 5263, 11336, 11815, 12148
\DefaultOptionsofCheckBox 5268, 11527, 12027, 12396
\DefaultOptionsofComboBox 5271
\DefaultOptionsofListBox . 5270
\DefaultOptionsofPopdownBox 5272
\DefaultOptionsofPushButton . . . 5267, 11454, 11946, 12304
\DefaultOptionsofRadio . . . 5273
\DefaultOptionsofReset . . . 5266, 11501, 12000, 12364
\DefaultOptionsofSubmit . . 5265, 11483, 11977, 12340
\DefaultOptionsofText 5269, 11344, 11823, 12156
\DefaultWidthofCheckBox . 5259, 11523, 12023, 12392
\DefaultWidthofChoiceMenu . . . 5261, 11361, 11841, 12182
\DefaultWidthofReset 5257, 11497, 11996, 12360
\DefaultWidthofSubmit . . . 5255, 11479, 11973, 12336
\DefaultWidthofText 5264, 11333, 11812, 12145
\define@key 2366, 2368, 2411, 2426, 2429, 2432, 2440, 2443, 2453, 2456, 2459, 2476, 2488, 2490, 2493, 2496, 2513, 2517, 2520, 2523, 2526, 2529, 2532, 2535, 2570, 2627, 2647, 2648, 2662, 2665, 2668, 2671, 2674, 2682, 2685, 2688, 2691, 2695, 2723, 2739, 2750, 2753, 2756, 2759, 2763, 2766, 2773, 2802, 2821, 2824, 3050, 3081, 3089, 3097, 3104, 3107, 3122, 3147, 3150, 3154, 3182, 3187, 3191, 3194, 3201, 3213, 3221, 3224, 3227, 3229, 3232, 3241, 3251, 3258, 3265, 3266, 3338, 3347, 3377, 3383, 3389, 3395, 3401, 3407, 3413, 3419, 3425, 3458, 3465, 3499, 3550, 3551, 3571, 3578, 3585, 3586, 3589, 3592, 3595, 3598, 3601, 3604, 3607, 3630, 3633, 3636, 4542, 4630, 4686, 4988, 4993, 5006, 5043, 5046, 5049, 5052, 5055, 5058, 5061, 5065, 5068, 5071, 5074, 5077, 5080, 5083, 5086,

5089, 5092, 5095, 5098, 5128, 5131, 5134, 5137, 5156, 5162, 5176, 5192, 5198, 5774, 5785, 10274, 10276, 10279, 10281, 10283, 10292, 10300, 10307, 10309, 10311, 10313, 10315, 10317, 10326, 10336, 10338, 10340, 10341, 10347, 10356, 10358, 10360, 10362, 10364, 10366, 10368, 10370, 10372, 10374, 10376, 10378, 10380, 10382, 10384, 10386, 10387, 10388, 10389, 10390, 10391, 10392, 10393, 10394, 10395, 10396, 10397
\df@tag 7097, 7103
\DH 13582, 13951
\dh 13651, 14019
\dhal 15744
\dimen@ 387, 388, 392, 1738, 1806, 1807, 1810, 1812, 3668, 3669, 3671, 3678, 3679, 9726, 9727, 9729, 10237, 10249, 10252
\dimexpr . . 399, 2102, 2104, 2112, 2117, 2120, 2122, 2136, 2138, 2141, 2142, 2149, 2152, 2155, 2156, 2157, 2158, 2168, 2173, 2181, 2185, 2190, 2200, 2203, 2208, 2211, 2216, 2217
\ding 5103, 5106
\DingObject 11919
\discretionary 544
\divide 8216, 9760
\DJ . . . 3026, 13583, 14083, 15602
\dj 3023, 3024, 14085, 15595
\do 1138, 2383, 2388, 2393, 3239, 3260, 3261, 3262, 3263, 3278, 3279, 3280, 3281, 3282, 3283, 3286, 3287, 3288, 3289, 3290, 3291, 3294, 3295, 3298, 3299, 3300, 3301, 3302, 3305, 3306, 3307, 3308, 3309, 3312, 3313, 3314, 3315, 3316, 3319, 3320, 3321, 3322, 3323, 3326, 3327, 3330, 3331, 3332, 3335, 3336, 3342, 3343, 3344, 3345, 3623, 3624, 3625, 3626, 3627, 3628, 4590, 6281, 6811, 6834, 11366, 11428, 11636, 11643, 11653, 11846, 11909, 12187, 12253, 13034, 13063
\documentclass 2
\dospecials 13043, 13072
\dots 435
\dp 5248, 5251, 6487, 8566, 8639, 8668, 8698, 10238, 10241, 10824, 11092, 12131
\dth@counter . . . 6321, 6322, 6348
\dth@everypar 6336
\dvipdfm@setdim . . 12128, 12170, 12268, 12293, 12325, 12351, 12380, 12409

E

\ECIRCUMFLEX . 15603, 15687, 15688, 15689, 15690, 15691
\ecircumflex . 15596, 15627, 15628, 15629, 15630, 15631
\EdefEscapeHex 699
\EdefEscapeName . . . 3489, 3533
\EdefEscapeString 653, 663
\EdefUnescapeName 3490
\EdefUnescapeString 648
\egroup . . 543, 9363, 9968, 11583, 11675, 11700
\em 473
\emph 452
\empty 1120, 3157
\enc@@html 4992, 4995
\enc@update 420
\END 1468, 1469, 1494, 1495, 1510, 1511, 1528, 1529, 1546, 1547, 1915, 1921, 1926, 2028, 2030, 8340, 8353, 8357, 8364, 8377, 8381, 8387, 8399, 8403
\end 15786
\endeqnarray . . . 6227, 6245, 6252
\endequation 6190, 6222
\endForm 4982
\endinput . . 64, 2659, 2699, 2700, 2713, 2717, 2718, 2727, 2728, 2734, 2735, 3822, 3922, 7524, 9912, 11131, 13160
\endlinechar 4161
\endNoHyper 5382
\EndPreamble 11134
\endsubeqnarray 6256, 6267
\eqnarray 6226, 6228, 6249
\equal 6892
\equation . . 6189, 6198, 6202, 6211
\equationautorefname 2828, 2846, 2864, 2882, 2900, 2918, 2936, 2954, 2955, 2994, 3012, 7756, 7760
\errmessage 3047
\es@roman 503
\es@save@dot 1096
\escapechar 405, 704, 6274, 12894, 13074, 13075, 13126
\eTeX 441, 11139
\etex@unexpanded . . . 1670, 1677
\eTeXversion . . . 8175, 8177, 8179
\evensidemargin 6984
\everypar 6362
\ExecuteOptions 3684, 3685, 3689
\ext@figure 7332
\ext@table 7331
\extra@b@citeb 6818
\extrasvietnam 3090
\extrasvietnamese 3082

F

\fa 15756
\FancyVerbLineautorefname 2841, 2859, 2877, 2895, 2913, 2931, 2949, 2984, 2987, 3007, 3025, 7773
\farsikaf 15777
\farsiya 15779
\fatha 15769
\fbox 11801, 11804
\Field@addtoks 5031, 5053, 5056, 5177, 5200
\Field@boolkey 4543, 4631, 5026, 5047, 5050
\Field@toks . . . 5029, 5030, 5032, 11342, 11373, 11452, 11478, 11496, 11525, 11575, 11592, 11603, 11614, 11624, 11641, 11659, 11667, 11672, 11688, 11697, 11821, 11853, 11944, 11972, 11995, 12025, 12154, 12194, 12302, 12335, 12359, 12394
\Field@Width 4967, 5063
\figureautorefname . . . 2831, 2849, 2867, 2885, 2903, 2921, 2939, 2969, 2997, 3015, 7763
\filename@area 4453
\filename@base 4453
\filename@ext . 4450, 4451, 4453, 4454
\filename@parse 4449
\find@pdflink . . . 8001, 8055, 8065
\Fld@@additionalactions . 12581, 12624, 12628
\Fld@@DingDef . 5103, 5106, 5125
\Fld@additionalactions . . . 12581, 12663, 12695, 12729
\Fld@align 4971, 5090, 12531, 12638, 12703
\Fld@annotflags 4750, 4752, 12527, 12557, 12634, 12667, 12699, 12734, 12768
\Fld@bcolor . . . 4973, 5132, 12542, 12544, 12654, 12656, 12682, 12684, 12707, 12719, 12721
\fld@bcolor 12642
\Fld@bordercolor 4974, 5135, 12538, 12540, 12564, 12572,

12574, 12641, 12650, 12652, 12678, 12680, 12706, 12715, 12717, 12741, 12749, 12751, 12775, 12783, 12785
\Fld@bordersep 4975, 5084
\Fld@borderstyle 4977, 5081, 12532, 12562, 12639, 12672, 12704, 12739, 12791
\Fld@borderwidth ... 4976, 5078, 5242, 5245, 5246, 5249, 5250, 11416, 11417, 11897, 11898, 12238, 12239, 12532, 12562, 12639, 12672, 12704, 12739, 12791
\Fld@calculate@code 5143, 12594, 12596
\Fld@cbsymbol 4978, 5096, 12546
\Fld@charsize .. 4968, 4969, 5075, 11415, 11896, 12237, 12548, 12660, 12688, 12725, 12773
\Fld@checkedfalse 4964
\Fld@checkequals ... 5035, 11367, 11429, 11644, 11654, 11847, 11910, 12188, 12254
\Fld@choices .. 4857, 4865, 4867, 4871, 4880, 4888, 4893, 4941, 4943, 4951, 4952, 12662
\Fld@color 4972, 5138, 12549, 12661, 12689, 12726
\Fld@default 4882, 4885, 4887, 5087, 11331, 11348, 11359, 11400, 11521, 11573, 11591, 11605, 11613, 11620, 11646, 11656, 11686, 11696, 11810, 11828, 11839, 11881, 12021, 12143, 12161, 12180, 12222, 12390, 12690, 12691, 12727
\Fld@DingDef .. 5096, 5099, 5101
\Fld@disabledfalse 4965
\Fld@export 4695, 4698, 4705, 4997
\Fld@findlength ... 11623, 11634
\Fld@flags 4764, 4766, 4777, 4779, 4793, 4795, 4825, 4827, 4850, 4852, 12530, 12560, 12637, 12670, 12702, 12737, 12771
\Fld@format@code .. 5141, 12586, 12588
\Fld@getmethodfalse 5017
\Fld@getmethodtrue 5019
\Fld@height .. 5072, 11334, 11351, 11362, 11418, 11433, 11445, 11480, 11498, 11524, 11533, 11813, 11832, 11842, 11899, 11924, 11937, 11974, 11997, 12024, 12035, 12146, 12163, 12183, 12240, 12251, 12286, 12337, 12361, 12393, 12402
\Fld@hiddenfalse 4653
\Fld@hiddentrue 4654
\Fld@invisiblefalse 4649
\Fld@invisibletrue 4650
\Fld@keystroke@code 5144, 12582, 12584
\Fld@listcount 11427, 11430, 11441, 11908, 11911, 11925, 11931, 12249, 12255, 12259, 12264, 12275, 12282
\Fld@loc 5044
\Fld@maxlen .. 4970, 5066, 12730
\Fld@menulength 4966, 5069, 11364, 11368, 11415, 11635, 11636, 11639, 11844, 11848, 11896, 12185, 12189, 12237
\Fld@name .. 5059, 11330, 11358, 11450, 11520, 11572, 11577, 11588, 11589, 11600, 11601, 11610, 11611, 11619, 11640, 11657, 11665, 11670, 11685, 11694, 11809, 11838, 11942, 12020, 12142, 12179, 12300, 12389, 12521, 12523, 12528, 12558, 12635, 12668, 12700, 12735, 12769
\Fld@norotatefalse 4666
\Fld@norotatetrue 4665
\Fld@noviewfalse 4669
\Fld@noviewtrue 4670
\Fld@nozoomfalse 4662
\Fld@nozoomtrue 4661
\Fld@onblur@code .. 5146, 12602, 12604
\Fld@onclick@code ... 5140, 5199, 12578
\Fld@onenter@code . 5149, 12614, 12616
\Fld@onexit@code .. 5150, 12618, 12620
\Fld@onfocus@code . 5145, 12598, 12600
\Fld@onmousedown@code . 5147, 12606, 12608
\Fld@onmouseup@code ... 5148, 12610, 12612
\Fld@printfalse 4658
\Fld@printtrue 4657
\Fld@radiosymbol ... 4979, 5099, 12686
\Fld@rotation . 4980, 5129, 12534, 12536, 12563, 12568, 12570, 12640, 12646, 12648, 12674, 12676, 12705, 12711, 12713, 12740, 12745, 12747, 12774, 12779, 12781
\Fld@submitflags 4732, 4734, 12761
\Fld@temp 5102, 5104, 5107, 5108, 5117, 5118
\Fld@validate@code . 5142, 12590, 12592
\Fld@value 4883, 4890, 4892, 5093, 11332, 11348, 11360, 11399, 11400, 11811, 11828, 11840, 11880, 11881, 12144, 12161, 12181, 12221, 12222, 12728
\Fld@width .. 5062, 11333, 11347, 11351, 11361, 11398, 11409, 11411, 11433, 11445, 11466, 11479, 11487, 11497, 11511, 11523, 11530, 11533, 11812, 11827, 11832, 11841, 11879, 11890, 11892, 11924, 11937, 11959, 11973, 11981, 11996, 12010, 12023, 12031, 12035, 12145, 12160, 12163, 12182, 12220, 12231, 12233, 12251, 12286, 12318, 12336, 12344, 12360, 12374, 12392, 12400, 12402
\float@caption 6588, 6648
\float@makebox 6650, 6651
\floatingpenalty 6488
\flq 510
\flqq 508
\fmtname 7
\fmtversion 7
\fontencoding 413, 417, 445, 11793
\fontfamily 446, 11792
\fontseries 447, 6314, 11794
\fontshape 448, 4086, 11795
\fontsize 449
\footins 6482
\footnote 4519
\footnoteautorefname 2829, 2847, 2865, 2883, 2901, 2919, 2937, 2958, 2961, 2995, 3013, 7757, 7761
\footnotesep 6486, 6493
\footnotesize 478, 6484
\footnotetext 6441
\footref 6512, 6513
\Form 4981
\Form@action 4991, 11564, 12759
\Form@boolkey 4985
\Form@htmlfalse 4984, 5003
\Form@htmltrue 4996
\Form@method 5015, 5023, 11564
\frq 511
\frqq 509

\futurelet 563, 1462
\FV@SetLineNo 6042
\FV@StepLineNo 6041, 6043, 6044

G

\G . . . 13740, 13766, 13785, 14366, 14368, 14370, 14372, 14374, 14376, 14377, 14379, 14381, 14383, 14385, 14387, 14389
\g@addto@macro 5562, 5713, 6720, 6994, 8406, 9750, 10023, 10538, 10624, 10686, 10981, 11145
\G@refundefinedtrue . 4344, 6820, 6843, 7529, 7549, 7566, 7683
\gaf 15778
\Gauge 5215
\GenericError 551, 3371
\GenericInfo 553, 3369
\GenericWarning 552, 3370
\getpagerefnumber 6156
\getrefbykeydefault . . 6112, 6113
\gexmode 9781, 9782, 9870
\ghayn 15754
\Gin@setfile 7174, 7175
\glossary 517
\glq 506
\glqq 504
\greek@Alph 5986
\Greeknumeral 960
\greeknumeral 959
\grq 507
\grqq 505
\guill@spacing 889
\guillemotleft . . 929, 13509, 13689, 13877, 15582
\guillemotright 930, 13540, 13690, 13909, 15583
\guilsinglleft 13440, 13691, 15288, 15584
\guilsinglright 13442, 13692, 15290, 15585

H

\H . . . 13736, 13768, 13787, 13801, 14216, 14218, 14280, 14282, 15080, 15082
\h 3016, 15610, 15615, 15620, 15625, 15630, 15635, 15640, 15645, 15650, 15655, 15660, 15665, 15670, 15675, 15680, 15685, 15690, 15695, 15700, 15705, 15710, 15715, 15720, 15725
\H@@footnotemark . . 6370, 6387, 6517, 6524, 6536, 6547
\H@@footnotetext . . . 6369, 6379, 6406, 6466, 6525, 6539, 6547
\H@@mpfootnotetext . 6377, 6389, 6391
\H@definecounter 7079, 7081
\H@endeqnarray 6227, 6246
\H@endequation 6190, 6222
\H@endsubeqnarray . . 6256, 6268
\H@eqnarray 6226, 6231
\H@equation 6189, 6213
\H@item . . 5899, 5905, 6728, 6753
\H@newctr 7084, 7086
\H@old@part 13224, 13235
\H@old@schapter . . 13194, 13203
\H@old@sect 13245, 13256, 13265
\H@old@spart 13237, 13243
\H@old@ssect 13180, 13185
\H@refstepcounter . . . 5914, 5924, 6043, 6166, 6212, 6327, 6583, 7345, 7398
\H@seteqlabel 7115, 7117
\H@subeqnarray 6255, 6259
\ha 15762
\Haa 15741
\halign 526
\hamza 15729
\HAR@checkcitations 6908
\HAR@citetoaux 6864
\HAR@tempa . . 6909, 6910, 6911, 6912, 6913, 6914
\harvardcite 6858, 6895
\harvarditem 6883
\hbox 1730, 1736, 1742, 2288, 3168, 3174, 5063, 5236, 5237, 5238, 5239, 6848, 6979, 8494, 8567, 8574, 8640, 8651, 8669, 8680, 8699, 8710, 8975, 9936, 10241, 10252, 10825, 10832, 11093, 11104, 11712, 12162, 12250, 12285, 12316, 12345, 12375, 12401, 13172
\hc@currentHref 6599
\HCode 11564, 11566, 11577, 11586, 11598, 11606, 11608, 11639, 11645, 11650, 11655, 11669, 11674, 11678, 11681, 11690
\headerps@out 5808, 10528, 10539, 10611, 10625, 10678, 10687, 10700, 10714, 10753, 10864, 10982, 11146
\hfill 5236, 5237, 5238, 5239, 6739, 6772
\Hfootnoteautorefname . . . 7757
\hhyperref 4524
\hoffset 6980
\hphantom 488
\href . 518, 4276, 4518, 4519, 5408
\href@ 4277, 4280, 4285
\href@split 4285, 4286
\hsize 6489
\hskip 1741, 1819, 2324, 2325, 4273, 5242, 11712
\hspace 514, 6898, 6899
\hss 6988, 13177
\ht 5244, 5247, 8572, 8643, 8649, 8655, 8672, 8678, 8684, 8702, 8708, 8714, 10237, 10830, 11102, 12129
\htmladdimg 4517
\htmladdnormallink 4518
\htmladdnormallinkfoot . . . 4519
\htmlref 4520
\Huge 475
\huge 479
\Hurl 4292, 4294, 4296
\hv@pdf@char 12963, 13028, 13029, 13030, 13031
\hvtex@buffer . 9645, 9649, 9657, 9660, 9669, 9673, 9689
\hvtex@gettoken 9644, 9658, 9662, 9671, 9675
\hvtex@gettoken@ . . . 9645, 9647
\hvtex@par@dimension 9640, 9681
\hvtex@par@direction 9641, 9684
\hvtex@par@duration . 9642, 9676
\hvtex@par@motion . . 9643, 9678
\hvtex@param@dimension . 9653, 9682, 9700, 9703
\hvtex@param@direction . . 9654, 9685, 9711, 9719
\hvtex@param@duration . . 9655, 9677, 9724, 9726
\hvtex@param@motion 9656, 9679, 9700, 9707
\hvtex@parse@trans . . 9629, 9651
\hvtex@produce@trans 9690, 9696
\hvtex@token . . 9648, 9659, 9665, 9672, 9677, 9680, 9683, 9685
\hvtex@trans@code . . 9633, 9634, 9635, 9636, 9637, 9638, 9639, 9652, 9698, 9699, 9701, 9703, 9705, 9707, 9709, 9711, 9713, 9714, 9715, 9716, 9717, 9719
\hvtex@trans@effect@Blinds 9633
\hvtex@trans@effect@Box . . 9634
\hvtex@trans@effect@Dissolve 9635
\hvtex@trans@effect@Glitter 9636
\hvtex@trans@effect@R . . . 9639
\hvtex@trans@effect@Split . 9637
\hvtex@trans@effect@Wipe . 9638
\hvtex@trans@par . . . 9672, 9676, 9678, 9681, 9684
\hvtex@trans@params 9666, 9668, 9692
\Hy@@boolkey 2334, 2335

\Hy@@DefNameKey . . 2408, 2410
\Hy@@escapeform . 12480, 12493, 12499
\Hy@@SectionAnchor 13167, 13170
\Hy@@temp 3198, 3200, 5152, 5154
\Hy@abspage . . 5582, 5647, 5757, 5834
\Hy@Acrobatmenu . . . 3730, 3771, 8467, 9125, 9606, 10408
\Hy@activeanchorfalse 4159, 8046, 8522, 8537, 8609, 8619, 8904, 9348, 9365, 9436, 9449, 9929, 10776, 10791, 11049, 11063
\Hy@activeanchortrue 8042, 8519, 8533, 8607, 8616, 8900, 9344, 9362, 9434, 9446, 9919, 10773, 10787, 11046, 11059
\Hy@ActiveCarriageReturn 4195, 4198
\Hy@AllowHyphens . . 4269, 9917, 9940, 10233
\Hy@AnchorName . . . 4329, 4331, 4334, 4336, 4358, 4360, 4364, 4369, 4371
\Hy@appendixstring . 5967, 5974
\Hy@AtBeginDocument 247, 868, 2554, 2614, 2655, 2709, 2757, 3110, 3665, 3703, 3818, 3824, 3918, 4054, 4144, 5314, 5427, 5841, 6048, 6855, 7603, 7750, 7946, 8413, 8987, 9417, 10713, 10751, 11727, 11728
\Hy@AtBeginDocumentHook 248, 253, 259, 260
\Hy@AtEndOfPackage . 250, 762, 2222, 3083, 3091, 3098, 3806, 3832, 3838, 3983, 4006
\Hy@AtEndOfPackageHook . 251, 254, 256, 257
\Hy@author 5496, 5500
\Hy@babelnormalise . 4307, 4309
\Hy@backout . . 4155, 5366, 5370, 6694
\Hy@backreffalse 309, 2793, 2815, 3830
\Hy@backreftrue 2786, 2790, 2812
\Hy@BeginAnnot 9017, 9033, 9073, 9101, 9126
\Hy@bibcite 6717, 6721
\Hy@bookmarksdepth 3153, 3158, 3170, 3176, 12807
\Hy@bookmarksnumberedfalse 310
\Hy@bookmarksopenfalse . . . 311
\Hy@bookmarkstrue 312
\Hy@bookmarkstype . 3188, 3190, 7010, 12818
\Hy@boolkey . . 2334, 2427, 2430, 2433, 2454, 2457, 2460, 2491, 2494, 2497, 2514, 2518, 2521, 2524, 2527, 2530, 2533, 2536, 2764, 2767, 2822, 3105, 3108, 3123, 3148, 3151, 3192, 3195, 3233, 3348, 3587, 3590, 3593, 3596, 3599, 3602, 3605, 3613, 3634, 3637, 5775
\Hy@BorderArrayPatch . . 10287, 10290, 10537, 10980
\Hy@breaklinks@unsupported 2502, 9898
\Hy@breaklinksfalse 313
\Hy@breaklinksunhbox . . 10228, 10244
\Hy@CatcodeWrapper 4015, 4074, 4118, 4147
\Hy@centerwindowfalse 314
\Hy@chapapp . . 5968, 5974, 5981, 13198, 13209, 13291
\Hy@chapterstring . . . 5963, 5965, 5968, 5980
\Hy@CheckOptionValue . . . 2378, 2415
\Hy@CJKbookmarksfalse . . . 315
\Hy@cjkpu 1131, 1133, 1154
\Hy@colorlink 4078, 4086, 4090, 7947, 8027, 8096, 8132, 8167, 8488, 8520, 8543, 8571, 8580, 8608, 8624, 8646, 8658, 8676, 8688, 8706, 8718, 8988, 9064, 9094, 9119, 9143, 9435, 9457, 9520, 9539, 9572, 9602, 9618, 9938, 10212, 10214, 10774, 10797, 10829, 10838, 11047, 11069, 11101, 11109
\Hy@ColorList 3238, 3239
\Hy@CounterExists . . 5864, 5877, 5880
\Hy@currentbookmarklevel 12813, 12823, 12824, 12830, 12837, 12928, 12931, 12936, 12940
\Hy@defaultdriver 3907, 3931, 3937
\Hy@DefFormAction . 4989, 4991
\Hy@DefNameKey . . . 2407, 3259, 3277, 3285, 3293, 3297, 3304, 3311, 3318, 3325, 3329, 3334, 3341, 3622
\Hy@DEST 10229, 10254
\Hy@DestName 7991, 7995
\Hy@DisableOption . . 2364, 3723, 3724, 3725, 3727, 3811, 3837, 3966, 3967, 3968, 3969, 3970, 3971, 3972, 3973, 3974, 3975, 3976, 3977, 3978, 3979, 3980, 3981, 3982, 3984, 4014, 4067, 4095, 4096, 4157, 4158, 5318, 5319, 5320, 5321, 5322, 5323, 5324, 5325, 5326, 5327, 5328, 5329, 5330, 5331, 5332, 5333, 5334, 5335, 5336, 5337, 5338, 5339, 5340, 5341, 5520, 5715, 6551, 7179, 7277, 7278, 7873, 7974, 8325, 8326, 8327, 8328, 8329, 8330, 8331, 8332, 8333, 8334, 8462, 8746, 8747, 8748, 8749, 8750, 8751, 8752, 8753, 8754, 8755, 9015, 9186, 9187, 9188, 9189, 9190, 9191, 9192, 9193, 9194, 9195, 9277, 9419, 9850, 9851, 9852, 9853, 9854, 9855, 9856, 9857, 9858, 9859, 10102, 10103, 10104, 10105, 10106, 10107, 10108, 10109, 10110, 10111, 10604, 10890, 10891, 10892, 10893, 10894, 10895, 10896, 10897, 10898, 10899
\Hy@displaydoctitlefalse . . . 344
\Hy@DistillerDestFix . 6956, 9863, 9865
\Hy@draftfalse 274
\Hy@drafttrue 275
\Hy@driver 349, 2507, 2652, 2663, 2666, 2669, 2672, 2683, 2686, 2689, 2692, 2703, 2706, 2731, 2740, 2751, 2754, 2760, 3840, 3843, 3847, 3850, 3854, 3857, 3859, 3863, 3867, 3871, 3874, 3878, 3882, 3886, 3889, 3893, 3896, 3898, 3902, 3906, 3909, 3912, 3915, 3926, 3929, 3931, 3937, 3939, 3944, 3946, 3948
\Hy@dth@currentHref 6329, 6353
\Hy@DvipdfmxOutlineOpentrue 3956, 3963
\Hy@EndAnnot 9023, 9067, 9097, 9122, 9146
\Hy@endcolorlink 4082, 4087, 4091, 7956, 8033, 8520, 8557, 8575, 8582, 8608, 8632, 8647, 8659, 8676, 8688, 8706, 8718, 8997, 9025, 9435, 9503, 9520, 9539, 9572, 9602, 9618, 9965, 10221, 10774, 10813, 10833, 10840, 11047, 11083, 11101, 11109
\Hy@EndWrap . 4016, 4018, 4019, 4052
\Hy@escapeform . . 11350, 11432, 11444, 11469, 11488, 11512, 11532, 11830, 11914, 11935,

11962, 11983, 12011, 12033, 12167, 12258, 12289, 12322, 12347, 12376, 12406, 12474, 12504, 12511
\Hy@escapeformfalse 316
\Hy@escapestring . . 12471, 12546, 12578, 12584, 12588, 12592, 12596, 12600, 12604, 12608, 12612, 12616, 12620, 12727, 12728, 12759
\Hy@EveryPageAnchor 6955, 6995
\Hy@EveryPageBoxHook . . 5546, 5550, 5554, 6994, 9750, 10023
\Hy@EveryPageHook . 5545, 5549, 5713, 8406
\Hy@ExchangeLeftParenthesis 7807, 7813
\Hy@ExchangeRightParenthesis 7817, 7823
\Hy@false . . 2270, 2345, 2778, 2814
\Hy@figuresfalse 317
\Hy@finalfalse 275
\Hy@finaltrue 274
\Hy@FirstPage 3741
\Hy@FirstPageHook 5547, 5560, 5562, 5806, 5807, 10538, 10624, 10686, 10981, 11145
\Hy@fitwindowfalse 318
\Hy@FixNotFirstPage 8492, 8493, 8499
\Hy@float@caption . . . 6589, 6639, 6641
\Hy@float@currentHref 6642, 6644, 6646, 6654, 6657, 6659
\Hy@footnote@currentHref . 5313, 6394, 6399, 6409, 6414, 6417, 6429, 6431, 6457, 6498, 6501
\Hy@FormObjects . 11764, 12041, 12095, 12105, 12417, 12467
\Hy@Gin@setfile 7174, 7176
\Hy@GlobalStepCount 347, 5647, 6012, 6035, 6970, 7387, 7438
\Hy@gtemp . 677, 678, 4887, 4888, 4892, 4893, 4904, 4918, 7831, 7833, 12521, 12523
\Hy@href 4277, 4279
\Hy@hyperfootnotesfalse . . 6366
\Hy@hyperfootnotestrue . . . 319
\Hy@hyperindextrue 320
\Hy@hypertexnamesfalse . . 2226
\Hy@hypertexnamestrue . . . 321
\Hy@IfStringEndsWith 4454, 4466
\Hy@implicittrue 322
\Hy@Info . . 243, 2353, 3781, 3783, 3786, 3788, 3791, 3793, 3796, 3798, 3801, 3803, 3999, 4005, 4083, 4088, 4092, 4238, 4265, 4597, 5275, 5277, 5280, 5282, 5285, 5287, 5290, 5292, 5295, 5297, 5300, 5302, 5305, 5307, 6795, 6856, 7015, 7032
\Hy@LastPage 3744
\Hy@level . . 12819, 12821, 12832, 12837, 12838, 12839, 12868
\Hy@levelcheck . . . 12820, 12835
\Hy@linkcounter . 351, 353, 6012, 6013, 6035, 6036, 7118, 7387, 7388, 7392, 7438, 7439, 7443
\Hy@linkfileprefix 3223, 4438, 4459, 8560, 9313, 10817, 11086
\Hy@linktoc . . . 2462, 2464, 2472, 2474, 2484, 7051
\Hy@linktoc@all 2470
\Hy@linktoc@none 2467
\Hy@linktoc@page . . . 2462, 2469, 2472
\Hy@linktoc@section . 2464, 2468, 2474
\Hy@linktocpagefalse 323
\Hy@localanchornamefalse . . 324
\Hy@LT@currentHref . 6168, 6178
\Hy@LT@footnotetext 6455, 6465
\Hy@make@anchor . . . 7092, 7098, 7104
\Hy@make@df@tag@@ 7096, 7111
\Hy@make@df@tag@@@ 7102, 7112
\Hy@MakeCurrentHref 6023, 6036
\Hy@MakeCurrentHrefAuto 6034, 6116, 7093, 12798, 13182, 13198, 13209, 13239, 13253, 13291
\Hy@maketitle@end . . 6528, 6533, 6535
\Hy@maketitle@optarg 6526, 6531
\Hy@MaybeStopNow . 2694, 2699, 2717, 2727, 2734, 3690
\Hy@menubartrue 325
\Hy@naturalnamesfalse 326
\Hy@nestingfalse 327
\Hy@newline@author 5539
\Hy@newline@title 5538
\Hy@newwindowfalse 329
\Hy@newwindowsetfalse 328, 3610
\Hy@newwindowsettrue . . . 3612
\Hy@next 5663, 5673, 5678, 13208, 13217, 13220
\Hy@nextfalse 3773, 7189
\Hy@NextPage 3735
\Hy@nexttrue . 3774, 3775, 3776, 7190, 7191, 7192
\Hy@number . . . 3563, 3567, 3575
\Hy@numberline . . 12814, 12851, 12852, 12853
\Hy@ObsoletePaperOption 2436, 2444
\Hy@ocgcolor . . 7950, 7964, 8991, 9005
\Hy@ocgcolorlinksfalse 4062
\Hy@org@chapter . . 13206, 13221
\Hy@OutlineName . 13087, 13141
\Hy@OutlineRerunCheck . 12952, 13051, 13131
\Hy@pageanchortrue 330
\Hy@pagecounter . 352, 354, 6074, 6970, 6972
\Hy@pageheight 3679, 10626, 10715
\Hy@pagelabelsfalse 5569
\Hy@pagelabelstrue 331
\Hy@param 5979, 5980, 5981, 6009, 6013
\Hy@pdfafalse 345
\Hy@pdfencoding@pdfdoc . 2609
\Hy@pdfmarkerrorfalse . . 10192
\Hy@pdfmarkerrortrue . . . 10320, 10329
\Hy@pdfminorversion 7840, 7846, 7849, 7857, 7862, 7864, 7867, 7871
\Hy@pdfpagehiddenfalse . . . 332
\Hy@pdfstringdef . 676, 4862, 4870
\Hy@pdfstringfalse 333, 5343
\Hy@pdfstringtrue 530, 5315
\Hy@pdfversion 2635, 2646, 4864, 7862, 7864, 7868, 7871, 12515
\Hy@plainpagesfalse 334
\Hy@PrevPage 3738
\Hy@ps@CR 10668, 10675, 10680, 10681, 10698, 10719, 10720, 10721, 10727, 10734, 10741, 10748
\Hy@pstringB 8243, 8248, 9226, 9238, 10165, 10181, 10953, 10969
\Hy@pstringD . 8103, 8127, 9075, 9089, 10473, 10489
\Hy@pstringdef 7777, 7990, 8011, 8071, 8102, 8103, 8138, 8139, 8243, 8842, 9042, 9074, 9075, 9102, 9226, 9456, 9525, 9579, 9580, 10165, 10318, 10327, 10454, 10472, 10473, 10497, 10498, 10953, 12497, 13086, 13102
\Hy@pstringDest 7990, 7991, 8842, 8889, 10318, 10319, 10323, 10327, 10328, 10332
\Hy@pstringF 8102, 8121, 8138, 8157, 8162,

9074, 9088, 9579, 9586, 9590, 10472, 10488, 10497, 10513, 10516
\Hy@pstringName . 13086, 13087, 13102, 13116
\Hy@pstringP . 8139, 8162, 9580, 9590, 10498, 10516
\Hy@pstringURI 8071, 8092, 9102, 9115, 9456, 9468, 9525, 9529, 10454, 10464
\Hy@PutCatalog 5709, 5717, 5823
\Hy@raisedlink 2277, 5956, 6118, 6139, 6140, 6141, 6144, 6179, 6219, 6222, 6350, 6397, 6412, 6470, 6496, 6627, 6705, 6729, 6734, 6754, 7094, 7119, 10526, 10609, 10860, 11024, 12799, 13174, 13199, 13210, 13240, 13292
\Hy@raiselinksfalse . . . 335, 6857
\Hy@RemoveDurPageAttr . 8364, 8377
\Hy@RemoveHidPageAttr . 8387, 8399
\Hy@RemovePercentCr . . . 4211, 4215, 4220
\Hy@RemoveTransPageAttr 8339, 8353
\Hy@reserved@a 4374, 6229, 6258, 11571, 11621, 11684
\Hy@RestoreCatcodes 205, 3686, 3950
\Hy@RestoreLastskip 2292, 7992, 8523, 8538, 8610, 8620, 8891, 9349, 9366, 9437, 9450, 9910, 9930, 10777, 10792, 11050, 11064
\Hy@ReturnAfterElseFi 355, 4199
\Hy@ReturnAfterElseFiFiEnd 359, 1704
\Hy@ReturnAfterFi 355, 375, 1882, 4203, 4219, 7289, 7325, 7812, 7822, 12498
\Hy@ReturnAfterFiFiEnd . . 358, 1696, 1710, 1788, 1795
\Hy@ReturnEnd . . 357, 358, 359, 1716, 1800
\Hy@safe@activesfalse 360, 4108, 4113, 4388, 7672
\Hy@safe@activestrue 360, 4106, 4111, 4191, 4228, 4236, 4264, 4311, 4380, 7579, 7661, 13044, 13073
\Hy@saved@currentHref . . . 6427, 6430
\Hy@saved@footnotemark . 6522, 6537
\Hy@saved@footnotetext . . 6523, 6540
\Hy@saved@hook 5524, 5534
\Hy@SaveLastskip 2292, 7988, 8511, 8526, 8601, 8613, 8839, 9336, 9352, 9427, 9440, 9900, 9914, 10766, 10780, 11039, 11053
\Hy@scanauthor 5494, 5499
\Hy@scanoptauthor . . 5494, 5495
\Hy@scanopttitle 5485, 5486
\Hy@scantitle 5485, 5490
\Hy@secnum@part . 13227, 13229, 13232
\Hy@SectionAnchorHref 528, 13165, 13187, 13258
\Hy@SectionHShift 13164, 13173, 13183, 13254
\Hy@seminarslidesfalse . . . 7337
\Hy@seminarslidestrue 7335
\Hy@setbreaklinks . . . 2499, 2503, 2515, 7839, 8835
\Hy@SetCatcodes 181, 231, 3688
\Hy@SetNewWindow 3616, 8123, 8159, 9090, 9587, 10487, 10512
\Hy@setouterhbox . 10227, 10233
\Hy@setpagesizetrue 336
\Hy@setpdfborder . . . 3267, 8017, 8076, 8107, 8143, 8470, 9053, 9081, 9108, 9136, 9471, 9492, 9513, 9532, 9564, 9595, 9611
\Hy@setpdfversiontrue 2634
\Hy@setref@link 7535, 7538
\Hy@slidetitle . 7364, 7366, 7373, 7381, 7391, 7415, 7417, 7424, 7432, 7442
\Hy@StartlinkName . . 8015, 8029
\Hy@StepCount 346, 5624, 11368, 11430, 11636, 11848, 11911, 12189, 12255, 12932, 12937, 13013
\Hy@temp 558, 565, 680, 752, 856, 859, 867, 868, 2442, 2447, 2448, 2449, 2450, 2451, 2452, 3197, 3206, 3207, 3208, 3209, 3210, 3211, 3212, 3239, 3240, 3241, 3244, 3246, 3249, 3426, 3427, 3430, 3433, 3436, 3461, 3469, 3470, 3471, 3472, 3473, 3474, 3475, 3476, 3477, 3608, 3609, 3762, 3766, 3767, 3768, 3769, 3845, 3847, 3852, 3854, 3857, 3869, 3871, 3876, 3878, 3884, 3886, 3891, 3893, 3896, 3938, 3939, 4587, 4591, 4592, 4603, 4687, 4688, 4689, 4691, 4695, 5007, 5008, 5009, 5011, 5015, 5016, 5151, 5167, 5168, 5169, 5170, 5171, 5172, 5173, 5174, 5175, 5180, 5181, 5182, 5183, 5184, 5185, 5186, 5187, 5188, 5189, 5190, 5604, 5607, 5616, 5618, 5622, 5626, 5670, 5672, 6068, 6071, 6074, 6080, 6192, 6198, 6506, 6512, 7286, 7287, 8258, 8287, 8289, 8765, 8770, 8776, 8780, 8783, 8788, 8819, 8821, 9198, 9241, 9243, 10065, 10068, 10072, 10073, 10079, 10080, 10086, 10114, 10119, 10125, 10129, 10132, 10137, 10170, 10172, 10284, 10285, 10293, 10294, 10398, 10399, 10902, 10907, 10913, 10917, 10920, 10925, 10958, 10960, 12479, 12480, 13084, 13090, 13098, 13113
\Hy@temp@A 589, 590, 1688, 1690, 1701, 1703, 1708, 1709, 1712, 3462, 3464, 7208, 7209, 7210, 7217, 7245, 7246, 7247, 7256
\Hy@temp@B 1689, 1690
\Hy@tempa 2336, 2338, 2340, 2341, 2343, 2345, 2347, 2350, 2353, 2354, 2774, 2775, 2776, 2778, 2779, 2781, 2782, 2784, 2788, 2792, 2803, 2805, 2807, 2808, 2810, 2814, 4197, 4198, 4209, 4213, 4312, 4316, 4379, 4382, 4391, 4393, 4994, 4995, 5653, 5655, 5693, 5695, 5834, 5836, 6276, 6278, 6279, 6282, 6283, 6284, 6584, 6589, 6594, 7009, 7010, 7028, 7029, 7035, 7351, 7352, 7403, 7404, 8544, 8545, 9317, 9465, 9466, 10798, 10799, 11070, 11071, 12817, 12818, 12841, 12843, 12860, 12861, 12869, 12893, 12895, 12896, 12898, 12899, 13281, 13306, 13311, 13314, 13317
\Hy@tempb 5654, 5655, 5694, 5695, 12842, 12843, 12869
\Hy@tempcolor 9947, 9949, 9962, 10035, 10037, 10049
\Hy@TempPageAnchor . . . 6960, 6967, 6971, 6987
\Hy@testname 8003, 8004, 8009, 8011, 8012, 8026, 9034, 9035, 9040, 9042, 9044, 9060, 9479, 9480, 9485, 9489, 9551, 9552, 9557, 9561,

10040, 10041, 10046, 10057
\Hy@texhtfalse 337
\Hy@texhttrue 2649, 3841
\Hy@title 5487, 5491
\Hy@toclevel . . . 7020, 7024, 7037
\Hy@toolbartrue 338
\Hy@true . 2269, 2341, 2343, 2808, 2810
\Hy@typexmlfalse 339
\Hy@undefinedname 8000, 8007, 8009, 9030, 9038, 9040, 9453, 9483, 9485, 9555, 9557, 10031, 10044, 10046
\Hy@unicodefalse . . 340, 656, 666, 2565, 2566, 2574, 3403, 3409, 6070, 6964, 12517
\Hy@unicodetrue 2566, 5768, 5782
\Hy@useHidKeyfalse 3231
\Hy@useHidKeytrue 3235
\Hy@UseMaketitleInfos 5540, 8299, 8727, 9158, 9839, 10063, 10871
\Hy@UseMaketitleString . . 5521, 5541, 5542
\Hy@UseNameKey 2420, 8265, 8266, 8267, 8268, 8269, 8270, 8271, 8272, 8291, 8795, 8796, 8797, 8798, 8799, 8800, 8801, 8802, 8823, 9205, 9206, 9207, 9208, 9209, 9210, 9211, 9212, 9245, 9811, 9812, 9813, 9814, 9815, 9816, 9817, 9818, 10144, 10145, 10146, 10147, 10148, 10149, 10150, 10151, 10174, 10932, 10933, 10934, 10935, 10936, 10937, 10938, 10939, 10962
\Hy@usetitlefalse 341
\Hy@varioref@undefined . . . 6150, 6154, 7667
\Hy@VerboseAnchor 4261, 7989, 8512, 8527, 8602, 8614, 8840, 9337, 9353, 9428, 9441, 9901, 9915, 10767, 10781, 11040, 11054
\Hy@verbosefalse 342
\Hy@VerboseGlobalTemp . . 4237, 4238, 4239, 4240, 4244
\Hy@VerboseLinkInfo 4244, 4245, 4248, 4255
\Hy@VerboseLinkStart 4233, 8049, 8059, 8542, 8587, 8623, 8635, 9032, 9293, 9316, 9455, 9544, 9933, 10033, 10796, 10845, 11068, 11115
\Hy@VerboseLinkStop 4249, 8034
\Hy@vt@PutCatalog . 5740, 5742
\Hy@VTeXversion . . . 5720, 5732, 9509, 9622, 9758, 12965
\Hy@Warning 241, 382, 1628, 2358, 2373, 2398, 2478, 2593, 2598, 3114, 3166, 3438, 3485, 3493, 4058, 4394, 4487, 4644, 4999, 5778, 5793, 7001, 7648, 7697, 8005, 8873, 8877, 9036, 9481, 9553, 10042, 10321, 10330, 12826, 12844
\Hy@WarningNoLine . 242, 2437, 2505, 2619, 3217, 3255, 3354, 3454, 3672, 3721, 3849, 3858, 3873, 3888, 3897, 5468, 5570, 5734, 5848, 6055, 7011, 7166, 10200
\Hy@WarningPageBorderColor 3252, 3254, 3256
\Hy@WarningPageColor . . . 3214, 3216, 3218
\Hy@WarnOptionDisabled . 2370, 2372
\Hy@WarnOptionValue . . . 2351, 2357, 2795, 2817
\Hy@windowuitrue 343
\Hy@writebookmark . 2274, 7021, 7371, 7379, 7389, 7422, 7430, 7440, 12803, 12943
\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 376, 380
\HyCal@scan 367, 371, 395
\HyColor@FieldBColor 5132, 5135
\HyColor@FieldColor 5138
\HyColor@HyperrefBorderColor 3242
\HyColor@HyperrefColor . . 3202
\HyColor@UseColor . . 4080, 7953, 7964, 8994, 9005
\HyField@@AddToFields . 11747, 11751
\HyField@@PDFChoices . . 4882, 4883, 4898
\HyField@@SetFlag . . 4577, 4579
\HyField@@UseFlag . . 4567, 4569
\HyField@AddToFields . . 11717, 11746, 11833, 11926, 11939, 11966, 11991, 12015, 12037
\HyField@AdvanceAnnotCount . 12135, 12165, 12260, 12290, 12319, 12348, 12377, 12404
\HyField@afields . . 11714, 11736, 11737, 11739, 11773
\HyField@AfterAuxOpen . 11727, 11734, 11752
\HyField@AnnotCount . . . 12133, 12136, 12139
\HyField@AuxAddToFields 11726, 11731, 11735, 11755
\HyField@FlagsAnnot 4737, 4756, 4770, 4783, 4799, 4831
\HyField@FlagsCheckBox . 4769, 11529, 12030, 12399
\HyField@FlagsChoice 4830, 11408, 11889, 12230
\HyField@FlagsPushButton 4755, 11465, 11485, 11510, 11958, 11979, 12009, 12317, 12342, 12373
\HyField@FlagsRadioButton 4782, 11404, 11885, 12226
\HyField@FlagsSubmit . . . 4703, 11486, 11980, 12343
\HyField@FlagsText 4798, 11346, 11826, 12159

\HyField@NewBitsetFlag . . 4535, 4538, 4546
\HyField@NewFlag . . 4533, 4609, 4610, 4611, 4612, 4613, 4614, 4615, 4616, 4617, 4618, 4619, 4620, 4621, 4622, 4623, 4624, 4625, 4626, 4627, 4628, 4633, 4634, 4635, 4636, 4637, 4638, 4639, 4640, 4641, 4674, 4676, 4677, 4679, 4680, 4682, 4683, 4684, 4685
\HyField@NewFlagOnly . . . 4537, 4675, 4678, 4681
\HyField@NewOption 4534, 4540
\HyField@PDFAFlagWarning . . . 4643, 4651, 4655, 4659, 4663, 4667, 4671
\HyField@PDFChoices 4855, 11443, 11933, 12284
\HyField@PrintFlags . 4584, 4730, 4748, 4762, 4775, 4791, 4823, 4848
\HyField@SetFlag . . . 4576, 4716, 4722, 4727, 4761, 4789
\HyField@SetKeys . . 4959, 11343, 11375, 11378, 11397, 11453, 11482, 11500, 11526, 11822, 11855, 11858, 11877, 11945, 11976, 11999, 12026, 12155, 12196, 12199, 12218, 12303, 12339, 12363, 12395
\HyField@TheAnnotCount 12138, 12169, 12174, 12265, 12277, 12292, 12297, 12324, 12330, 12350, 12355, 12379, 12384, 12408, 12413
\HyField@UseFlag . . . 4566, 4707, 4708, 4709, 4710, 4711, 4712, 4713, 4714, 4717, 4718, 4719, 4720, 4723, 4724, 4725, 4728, 4739, 4740, 4741, 4742, 4743, 4744, 4745, 4746, 4747, 4758, 4759, 4760, 4772, 4773, 4774, 4785, 4786, 4787, 4788, 4790, 4801, 4802, 4803, 4804, 4805, 4806, 4807, 4808, 4819, 4822, 4833, 4834, 4835, 4836, 4838, 4840, 4841, 4844, 4847
\HyInd@@@wrindex . . 7204, 7207, 7238, 7244
\HyInd@@hyperpage . 7284, 7294
\HyInd@@wrindex . . . 7199, 7200
\HyInd@EncapChar . . 2825, 3682, 7194
\HyInd@hyperpage . . . 7281, 7283, 7290
\HyInd@org@wrindex . 7198, 7202, 7212, 7218, 7220, 7223
\HyInd@pagelink 7299, 7305, 7307, 7310
\HyInd@ParenLeft . . . 7181, 7209, 7246
\HyInd@ParenRight . . 7182, 7210, 7217, 7247, 7256
\HyInd@removespaces 7313, 7316, 7326
\HyInfo@AddonHandler . . . 3480, 3483
\HyInfo@AddonList . . 3507, 3508, 3542, 3549
\HyInfo@Addons 3528, 3544, 8323, 9183, 10095, 10099
\HyInfo@AddonUnsupportedtrue . . . 8725, 9837, 10869
\HyInfo@do 3482, 3509, 3532
\HyInfo@GenerateAddons . 3526, 8300, 9159, 10064
\HyInfo@Key . . 3490, 3491, 3499, 3504, 3509, 3512, 3519, 3533, 3537
\HyInfo@KeyEscaped . 3489, 3490
\HyInfo@trapped@false 3430, 3449
\HyInfo@trapped@true 3427, 3448
\HyInfo@trapped@unknown 3433, 3450
\HyInfo@TrappedUnsupported 3451, 3455, 8728, 9840, 10872
\HyInfo@Value 3503, 3505
\HyLang@addto 3029, 3051, 3082, 3090
\HyLang@afrikaans 2827
\HyLang@DeclareLang 3043, 3058, 3059, 3060, 3061, 3062, 3063, 3064, 3065, 3066, 3067, 3068, 3069, 3070, 3071, 3072, 3073, 3074, 3075, 3076, 3077, 3078, 3079, 3080
\HyLang@english 2845
\HyLang@french 2863
\HyLang@german 2881
\HyLang@italian 2899
\HyLang@magyar 2917
\HyLang@portuges 2935
\HyLang@russian 2953
\HyLang@spanish 2993
\HyLang@vietnamese . 3011, 3082, 3090
\HyLinguex@OrgB 754, 758
\HyLinguex@OrgC 755, 759
\HyLinguex@OrgD 756, 760
\HyLinguex@Restore . . 757, 770, 774, 782, 2547
\HyOrg@addtoreset . . 7124, 7126, 7153
\HyOrg@appendix . . . 5969, 5975
\HyOrg@author . 5484, 5497, 5501
\HyOrg@float@makebox . . . 6650, 6652
\HyOrg@hyperpage . . 7184, 7186, 7187
\HyOrg@languageshorthands 826, 841, 852, 862
\HyOrg@make@df@tag@@ . 7109
\HyOrg@make@df@tag@@@ 7110
\HyOrg@maketitle . . . 6520, 6527, 6532
\HyOrg@subequations 6293, 6300
\HyOrg@title . . . 5483, 5488, 5492
\HyOrg@url 4291
\hyper@@anchor 3705, 4301, 4303, 4334, 4336, 4369, 4371, 4484, 5355, 5371, 5388, 6393, 6398, 6408, 6413, 6468, 6471, 6497, 6625, 6628, 6656, 6960, 6967, 6972, 7370, 7378, 7388, 7421, 7429, 7439
\hyper@@link . . 4231, 4287, 4324, 4348, 4350, 4374, 6713, 6859, 6860, 6861, 6909, 6911, 6913, 7540, 7555, 7657
\hyper@@normalise . . 4200, 4204, 4208
\hyper@anchor 4511, 5358, 5373, 5438, 5451, 8037, 8510, 8600, 8896, 9351, 9426, 9899, 10765, 11038
\hyper@anchorend 3708, 5342, 5360, 5375, 5391, 5957, 6120, 6180, 6222, 6241, 6265, 6354, 6707, 6732, 6735, 6755, 6888, 7094, 7120, 8044, 8535, 8618, 8903, 9346, 9448, 9921, 10789, 11061, 12799, 12944, 13175, 13200, 13211, 13241, 13293
\hyper@anchorstart 3707, 5342, 5359, 5374, 5390, 5957, 6119, 6180, 6219, 6241, 6265, 6351, 6705, 6730, 6735, 6755, 6888, 7094, 7120, 8040, 8525, 8612, 8899, 9335, 9439, 9913, 10779, 11052, 12799, 12944, 13175, 13200, 13211, 13241, 13293
\hyper@chars 4225, 8072, 8515, 8529, 8549, 8568, 8578, 8592, 8664, 8694, 9302, 9323, 9339, 9356, 9431, 9443, 9526, 10455, 10783, 10803, 10826,

10836, 10850, 11056, 11075, 11095, 11107, 11120
\hyper@currentanchor 9918, 9927, 9941, 9958
\hyper@currentlinktype . . . 9942, 9946, 9950
\hyper@hash . . 4177, 4178, 4226, 4430, 4442, 4459, 4462, 5309, 9296
\hyper@image . 4297, 4298, 8590, 9575, 10028, 10848, 11118
\hyper@last 5458, 5463
\hyper@link . . . 3706, 4383, 5356, 5357, 5372, 5383, 5389, 8058, 8586, 8634, 9068, 9292, 9543, 10032, 10844, 11114
\hyper@link@ . . 3713, 4375, 4377, 5354, 5365, 5369, 5380, 5396
\hyper@linkend 3710, 5362, 5377, 5393, 6433, 6699, 6702, 7055, 7059, 7063, 7065, 8057, 8555, 8631, 9067, 9069, 9328, 9501, 9944, 10811, 11081
\hyper@linkfile 3712, 4455, 5364, 5379, 5395, 8100, 8559, 8692, 9071, 9312, 9505, 10470, 10815, 11085
\hyper@linkstart 3709, 5361, 5376, 5392, 6431, 6695, 6702, 7055, 7059, 7063, 7065, 8048, 8541, 8622, 9031, 9069, 9315, 9454, 9932, 10795, 11067
\hyper@linkurl 3711, 4296, 4430, 4437, 4458, 4462, 5363, 5378, 5394, 8069, 8560, 8562, 8588, 8662, 9099, 9300, 9313, 9523, 9576, 10029, 10452, 10816, 10820, 10846, 11086, 11088, 11116
\hyper@livelink 5356, 5383
\hyper@makecurrent . 5953, 5977, 6167, 6218, 6240, 6264, 6328, 6428, 6601, 6643
\hyper@n@rmalise . . . 4192, 4196
\hyper@nat@current 6696
\hyper@natanchorend 6707
\hyper@natanchorstart 6704
\hyper@natlinkbreak 6701
\hyper@natlinkend 6698
\hyper@natlinkstart 6693
\hyper@normalise . . . 3684, 3689, 4169, 4277, 4280, 4293, 4295, 4297, 4318, 4989
\hyper@pageduration . 8360, 8408, 9735, 9752, 9995, 10025
\hyper@pagehidden . . 8384, 8409, 9745, 9753, 10012, 10026
\hyper@pagetransition 8336, 8407, 9624, 9751, 9978, 10024
\hyper@quote . 5311, 8517, 8531, 8546, 8551, 8569, 8579, 8593, 9296, 9306, 9319, 9342, 9360, 10771, 10785, 10800, 10806, 10827, 10837, 10851, 11044, 11057, 11072, 11077, 11097, 11108, 11121
\hyper@readexternallink . . 4385, 4401
\hyper@refstepcounter 5932, 5935, 5942
\hyper@tilde 4186, 4187, 4188, 5310
\hyperbaseurl . . 3220, 3221, 5407
\hypercalcbp 362, 362
\hypercalcbpdef . . 364, 401, 3582
\hyperdef 4326, 5409
\HyperDestNameFilter 3664, 4265, 7990, 8012, 8517, 8531, 8551, 8588, 8842, 9043, 9296, 9306, 9324, 9342, 9360, 9432, 9444, 9488, 9560, 10318, 10327, 10771, 10785, 10806, 10846, 11044, 11057, 11077, 11116, 13022, 13086, 13102
\HyperFirstAtBeginDocument 5435, 5437, 5459, 5462
\hypergetpageref 6113
\hypergetref 6112
\HyperGlobalCurrentHref . 5998, 6000, 6008, 6009, 6013, 6016, 6020, 6026, 6027, 6031
\hyperimage . . . 4297, 4517, 7176
\hyperindexformat 7183
\hyperlink 4230, 5410, 7322, 7460, 7468, 7483, 7491, 7501, 7509, 7516
\hyperlinkfileprefix . . 3223, 3224, 3225, 11030
\HyperLocalCurrentHref . . 6016, 6018, 6024, 6025, 6026, 6027, 6029
\hyperpage 5416, 7184, 7185, 7187, 7280
\HyperRaiseLinkDefault . . 2276, 2285
\HyperRaiseLinkHook 2275, 2286
\HyperRaiseLinkLength . . . 2284, 2285, 2288
\hyperref . 4306, 4524, 4525, 5412, 7615, 7619, 7629, 7643
\hypersetup 2586, 3067, 3466, 3683, 3685, 5406
\hypertarget 4299, 5411
\HyPL@@@CheckThePage . 5674, 5692
\HyPL@@CheckThePage . . 5650, 5652
\HyPL@Alph 5590
\HyPL@alph 5591
\HyPL@arabic 5587
\HyPL@CheckThePage 5602, 5649
\HyPL@Entry . 5836, 5844, 5852, 5854
\HyPL@EveryPage . . . 5592, 5713
\HyPL@Format 5665, 5666, 5667, 5668, 5669, 5681
\HyPL@found . 5664, 5671, 5675, 5682, 5692, 5694
\HyPL@Labels . 5581, 5704, 5705, 5707, 5709, 5754, 5755, 5847, 5855, 5856
\HyPL@LastNumber . 5585, 5620, 5643
\HyPL@LastPrefix . . . 5586, 5614, 5645
\HyPL@LastType 5584, 5605, 5644
\HyPL@page . . 5595, 5597, 5602, 5610
\HyPL@Prefix . 5610, 5612, 5614, 5628, 5631, 5633, 5645, 5659, 5697
\HyPL@Roman 5588
\HyPL@roman 5589
\HyPL@SetPageLabels 5703, 5762, 5850
\HyPL@StorePageLabel . . . 5628, 5630, 5700, 5752, 5831
\HyPL@thisLabel 5578, 5580, 5594, 5597, 5598
\HyPL@Type . . 5600, 5605, 5609, 5627, 5635, 5644, 5658, 5696
\HyPL@Useless 5701, 5707
\HyPsd@@@autoref . . 1549, 1551, 1554
\HyPsd@@@CJKdigits 1420, 1423, 1431
\HyPsd@@@nameref . . 1531, 1533, 1536
\HyPsd@@@pageref . . 1513, 1515, 1518
\HyPsd@@@ref . . 1497, 1499, 1502
\HyPsd@@@UTFviii@four . . 2151, 2154
\HyPsd@@AppendItalcorr . 1718
\HyPsd@@autoref . . . 1546, 1547
\HyPsd@@autorefname 1567, 1570
\HyPsd@@CJKdigits . 1412, 1414, 1417

\HyPsd@@CJKnumber 1313, 1315, 1318, 1371, 1386, 1399, 1401, 1405
\HyPsd@@ConvertToUnicode 2030
\HyPsd@@GetNextTwoTokens 2028
\HyPsd@@GlyphProcessWarning 1888, 1891
\HyPsd@@GreekNum . . 975, 984, 1083, 1087, 1091
\HyPsd@@hspace 1468, 1469
\HyPsd@@LetCommand . . 1591, 1612
\HyPsd@@nameref . . . 1528, 1529
\HyPsd@@pageref . . . 1510, 1511
\HyPsd@@ProtectSpacesFi . 1640, 1644, 1662, 1668, 1673
\HyPsd@@ref 1494, 1495
\HyPsd@@RemoveBraces . . 1686
\HyPsd@@RemoveBracesFi 1683, 1686
\HyPsd@@RemoveCmdPrefix 1845, 1848
\HyPsd@@ReplaceFi . 1915, 1921, 1926
\HyPsd@@UTFviii@four . . . 2135, 2140
\HyPsd@add@accent . . 423, 1457
\HyPsd@AfterCountRemove 1731, 1802
\HyPsd@AfterDimenRemove 1737, 1805
\HyPsd@AfterSkipRemove . 1743, 1817
\HyPsd@AMSclassfix . 513, 1478, 1480
\HyPsd@AppendItalcorr . . 1702, 1709, 1718
\HyPsd@autoref 523, 1546
\HyPsd@autorefname . 1558, 1564
\HyPsd@babel@danish 871
\HyPsd@babel@dutch 877
\HyPsd@babel@finnish 883
\HyPsd@babel@frenchb 888
\HyPsd@babel@german 893
\HyPsd@babel@macedonian . 900
\HyPsd@babel@ngerman . . . 906
\HyPsd@babel@portuges . . . 912
\HyPsd@babel@russian 917
\HyPsd@babel@slovene 923
\HyPsd@babel@spanish 928
\HyPsd@babel@swedish 938
\HyPsd@babel@ukrainian . . . 944
\HyPsd@babel@usorbian . . . 950
\HyPsd@BabelPatch 499, 825, 861
\HyPsd@CatcodeWarning . 1747, 1764, 1767, 1770, 1773, 1829
\HyPsd@Char 2032
\HyPsd@CharOctByte 2052, 2054, 2057, 2066, 2071
\HyPsd@CharSurrogate . . . 2046, 2063
\HyPsd@CharTwoByte 2044, 2051
\HyPsd@CheckCatcodes 576, 1724
\HyPsd@CJK@Unicode 1195, 1199
\HyPsd@CJKActiveChars . 1135, 1150
\HyPsd@CJKdigit . . . 1424, 1434
\HyPsd@CJKdigits . . 1197, 1410
\HyPsd@CJKhook 529, 1106, 1117
\HyPsd@CJKhook@bookmarks 1112, 1146
\HyPsd@CJKhook@unicode 1114, 1194
\HyPsd@CJKnumber . 1196, 1310
\HyPsd@CJKnumberFour . 1328, 1332, 1336, 1349, 1353, 1357, 1363
\HyPsd@CJKnumberLarge . 1341, 1348
\HyPsd@CJKnumberThree 1369, 1373, 1379
\HyPsd@CJKnumberTwo . . 1384, 1388, 1394
\HyPsd@ConvertToUnicode . 644, 1978
\HyPsd@DecimalToOctal . . 1127, 1158
\HyPsd@DecimalToOctalFirst 1201, 1237
\HyPsd@DecimalToOctalSecond 1202, 1211, 1274
\HyPsd@DefCommand . 559, 560, 561, 562, 1580
\HyPsd@DisableCommands . 805, 807
\HyPsd@DoConvert . . 1980, 1990
\HyPsd@DoEscape 2004
\HyPsd@doxspace 616, 1951
\HyPsd@empty 601, 603, 607, 608, 610, 618, 625
\HyPsd@End 576, 580, 1641, 1644, 1647, 1650, 1653, 1666, 1676, 1683, 1686, 1724, 1732, 1738, 1744, 1789, 1796, 1802, 1805, 1817
\HyPsd@EndWithElse 1447, 1456
\HyPsd@EscapeTeX 655, 665, 1933
\HyPsd@fi . 1658, 1664, 1668, 1674
\HyPsd@GetNextTwoTokens 2028
\HyPsd@GetOneBye 2023
\HyPsd@GetTwoBytes 2019
\HyPsd@GLYPHERR 581, 1444, 1458, 1465
\HyPsd@GlyphProcess 583, 1876, 1889
\HyPsd@GlyphProcessWarning 1883, 1887
\HyPsd@GobbleFiFi . 1449, 1455
\HyPsd@GreekNum 964, 967, 969
\HyPsd@Greeknumeral . 960, 966
\HyPsd@greeknumeral . . 959, 963
\HyPsd@GreekNumI . 987, 1013, 1056, 1082
\HyPsd@GreekNumII . 991, 1035, 1079, 1086
\HyPsd@GreekNumIII 994, 1058, 1090
\HyPsd@GreekNumIV 1003, 1081
\HyPsd@GreekNumV . 1006, 1085
\HyPsd@GreekNumVI 1008, 1089
\HyPsd@GreekPatch 496, 956, 958
\HyPsd@HighA 1205, 1214
\HyPsd@HighB 1215, 1220
\HyPsd@HighC 1221, 1224
\HyPsd@HighD 1217, 1229
\HyPsd@hspace 514, 1468
\HyPsd@hspacetest . . 1471, 1473, 1476
\HyPsd@ifnextchar 545, 546, 547, 1617
\HyPsd@ignorespaces . . . 527, 816
\HyPsd@InitUnicode 779
\HyPsd@inmathwarn . . 422, 1441
\HyPsd@ITALCORR . . 537, 541, 1465
\HyPsd@langshort@system . . 832, 835
\HyPsd@LanguageShorthands 827, 833, 845
\HyPsd@LetCommand . 563, 564, 1580
\HyPsd@LetUnexpandableSpace . . . 532, 533, 534, 535, 1461, 1464
\HyPsd@LoadStringEnc . . . 2590, 2610, 2612, 2616, 2618, 5773
\HyPsd@LoadUnicode 2539, 2544, 2552, 2555, 2557, 2564, 5767
\HyPsd@nameref 522, 1528
\HyPsd@pageref 521, 1510
\HyPsd@pdfencoding . 645, 2538, 2541, 2573, 2585, 2588, 2589, 2594, 2609, 5769, 5771, 5788, 5791
\HyPsd@pdfencoding@auto . 645, 2579, 2589, 2606, 5771, 5790
\HyPsd@pdfencoding@pdfdoc 2572, 2594, 2607

\HyPsd@pdfencoding@unicode 2576, 2608, 5769, 5787
\HyPsd@PrerenderUnicode 3364, 3380, 3386, 3392, 3398, 3416, 3422, 3502
\HyPsd@protected@testopt . 548, 549, 1621
\HyPsd@ProtectSpaces 569, 1638, 1659, 1708
\HyPsd@ref 520, 1494
\HyPsd@RemoveBraces 571, 1680, 1697, 1705, 1711
\HyPsd@RemoveCmdPrefix 1838, 1844
\HyPsd@RemoveMask 579, 1647, 1653, 1666, 1676
\HyPsd@RemoveSpaceWarning 1812, 1824, 1850
\HyPsd@ReplaceSpaceWarning 1807, 1819, 1863
\HyPsd@Rest . . 1725, 1785, 1793, 1796, 1803, 1808, 1814, 1820, 1826
\HyPsd@RussianPatch . 498, 1099
\HyPsd@SanitizeForOutFile 12861, 12892
\HyPsd@SanitizeOut@BraceLeft . . . 12896, 12902, 12911
\HyPsd@SanitizeOut@BraceRight . . . 12899, 12914, 12923
\HyPsd@SPACEOPTI . 573, 588, 589, 591, 593, 595, 596, 635, 637, 1760, 1962
\HyPsd@spaceopti 637, 1907
\HyPsd@SpanishPatch . 497, 1093
\HyPsd@String 570, 572, 575, 577, 582, 584, 1691, 1692, 1702, 1754, 1755, 1759, 1760, 1775, 1776, 1806, 1818, 1877, 1878
\HyPsd@StringSubst . . 585, 587, 593, 599, 602, 605, 608, 627, 630, 632, 1930
\HyPsd@Subst . 581, 590, 594, 600, 606, 610, 614, 619, 620, 621, 622, 623, 624, 628, 631, 1914, 1931, 1946, 1947, 1948
\HyPsd@temp 648, 650, 651, 653, 654, 661, 663, 664, 2571, 2572, 2573, 2576, 2579, 2585, 2597, 2601, 5786, 5787, 5788, 5790, 5791, 5796
\HyPsd@ToBigChar 705, 706, 715
\HyPsd@ToBigChars . . . 658, 697
\HyPsd@tocsection . . 1481, 1482, 1483, 1484, 1485, 1486, 1487, 1489
\HyPsd@UnescapedString . . 650, 699, 700, 706
\HyPsd@UnexpandableSpace . . . 1464, 1649, 1673, 1808, 1820
\HyPsd@unichar 2093, 2160, 2166, 2171
\HyPsd@unichar@first@byte 2179, 2199
\HyPsd@unichar@octtwo . . 2201, 2209, 2215
\HyPsd@unichar@second@byte 2187, 2207
\HyPsd@UnicodeReplacementCharacter 2163, 2198
\HyPsd@UTFviii . 414, 2081, 2086
\HyPsd@UTFviii@@three . . 2116, 2125
\HyPsd@UTFviii@@two 2101, 2107
\HyPsd@UTFviii@ccxliv@def 2091, 2097
\HyPsd@UTFviii@ccxliv@undef 2090, 2096
\HyPsd@UTFviii@four 2089, 2134
\HyPsd@UTFviii@three 2088, 2115
\HyPsd@UTFviii@two 2087, 2100
\HyPsd@Warning 1625, 1830, 1851, 1864, 1893, 1899
\HyPsd@XeTeXBigCharsfalse 672, 686, 691
\HyPsd@XeTeXBigCharstrue 685, 694, 3379, 3385, 3391, 3397, 3415, 3421, 3501, 12520, 12859
\HyPsd@XSPACE 539, 615, 1465
\HyPsd@xspace . . . 613, 615, 616
\HyRef@@StarSetRef . 7583, 7588
\HyRef@autopageref . 7640, 7642
\HyRef@autopagerefname . 7639, 7643, 7645
\HyRef@autoref 7657, 7659
\HyRef@autosetref . . . 7662, 7665
\HyRef@CaseStar 7726, 7732
\HyRef@currentHtag . 7678, 7696, 7699, 7705, 7712, 7718, 7733
\HyRef@MakeUppercaseFirstOfFive 7606, 7608
\HyRef@name . 7694, 7695, 7700, 7707, 7725, 7726, 7727, 7729
\HyRef@Ref 7612, 7614
\HyRef@ShowKeysInit 7735, 7748, 7752
\HyRef@ShowKeysRef 7666, 7734
\HyRef@StarSetRef . . 7577, 7595, 7598, 7601, 7606
\HyRef@StripStar . . . 7693, 7724
\HyRef@testreftype . . 7671, 7690
\HyRef@thisref 7668, 7671
\HyTmp@found . 4909, 4919, 4922
\HyTmp@key 4903, 4904
\HyTmp@optitem . . . 4859, 4875, 4902, 4907, 4913, 4934, 4945
\HyTmp@optlist 4858, 4873, 4874, 4905, 4906, 4911, 4912, 4920, 4921, 4941, 4943, 4950, 4953
\HyXeTeX@CheckUnicode . 3350, 3361, 3378, 3384, 3390, 3396, 3414, 3420, 3500, 5801

I

\i 13477, 13640, 13643, 13646, 13649, 13846, 14008, 14011, 14014, 14017, 14134, 14139, 14144, 14149, 14153, 14320, 14376
\if . . 1490, 2263, 5618, 5626, 6282, 6283, 9698, 9701, 9705, 9709, 9713, 9715, 9717, 12624
\if@eqnstar 6224, 6232
\if@filesw 2231, 4362, 5428, 5472, 5832, 5842, 6062, 6742, 6757, 6773, 6785, 6815, 6838, 6865, 6870, 6889, 7232, 11729, 11753, 12862, 13049, 13129
\if@hyper@item 5917, 5930
\if@inlabel 6340
\if@Localurl 9283, 9329
\if@mid@expandable 512
\if@minipage 6613, 6684
\if@nmbrlist 5904
\if@nobreak 6359
\if@skiphyperref 5918, 5928
\if@twocolumn 13295
\if@twoside 13284
\ifcase . . . 1020, 1042, 1065, 1159, 1208, 1230, 1233, 1239, 1275, 1319, 1435, 2129, 2576, 3163, 4705, 4810, 4939, 5016, 7051, 7209, 7246, 7475, 7667, 9771, 12563, 12640, 12705, 12740, 12774, 12969
\ifcat 1726, 1753, 1758, 1763, 1766, 1769, 1772, 4495, 4497
\ifdim 1476, 1806, 1810, 1818, 1822, 2295, 2314, 3669, 3954, 8426, 8430, 8435, 8439, 8446, 8449, 8453, 8456, 9263, 9264, 9269, 9270, 9402, 9405, 9409, 9412, 10238, 10249, 10590, 10591, 10596, 10597, 11370, 11409, 11410, 11850, 11890, 11891, 12191, 12231, 12232
\ifetex@unexpanded 1632
\iffalse 692
\IfFileExists 5467, 11131
\ifFld@checked 4962, 11691, 12551

\ifFld@comb 4809
\ifFld@combo . 4837, 4842, 11384, 11413, 11864, 11894, 12205, 12235
\ifFld@disabled 4963, 11692
\ifFld@edit 4843
\ifFld@fileselect 4812
\ifFld@hidden 11347, 11398, 11466, 11487, 11511, 11530, 11590, 11602, 11612, 11695, 11827, 11879, 11959, 11981, 12010, 12031, 12160, 12220, 12318, 12344, 12374, 12400
\ifFld@multiline 4810, 11335, 11597, 11814, 12147
\ifFld@multiselect 4881
\ifFld@password . . . 4811, 11578
\ifFld@popdown . . . 4629, 11385, 11865, 12206
\ifFld@radio . 11381, 11403, 11627, 11861, 11884, 12202, 12225
\ifFld@readonly . . . 11599, 11609, 11693
\ifForm@html 4983
\ifhmode . 2313, 2322, 4271, 6307, 6425, 6434, 6571, 6573
\ifHy@activeanchor . . . 264, 4508
\ifHy@backref . . 265, 3800, 4152, 5289, 6866, 6902
\ifHy@bookmarks 266, 3998
\ifHy@bookmarksnumbered . 267, 7363, 7414, 12850
\ifHy@bookmarksopen . 268, 3988
\ifHy@breaklinks 269, 2504, 9934, 9966, 10232, 10243
\ifHy@centerwindow 270, 8263, 8793, 9203, 9809, 10142, 10930
\ifHy@CJKbookmarks . 271, 1111
\ifHy@colorlinks . 272, 4069, 5294, 10752
\ifHy@displaydoctitle 307, 8264, 8794, 9204, 9810, 10143, 10931
\ifHy@draft 273, 3704
\ifHy@DvipdfmxOutlineOpen 3952, 13104
\ifHy@escapeform . . . 276, 12475, 12505
\ifHy@figures 277, 3780, 5274, 7173
\ifHy@fitwindow 278, 8262, 8792, 9202, 9808, 10141, 10929
\ifHy@frenchlinks 279, 4085
\ifHy@hyperfootnotes . 280, 6367
\ifHy@hyperindex 281, 3790, 5284, 7180
\ifHy@hypertexnames 282, 5983, 6066, 6958, 7368, 7419
\ifHy@implicit . . 283, 3812, 13158
\ifHy@linktocpage 284, 2461, 2471
\ifHy@localanchorname 285, 6017, 6028
\ifHy@menubar . 286, 8260, 8790, 9200, 9806, 10139, 10927
\ifHy@naturalnames . . 287, 5996, 7369, 7420
\ifHy@nesting . . 288, 3785, 4300, 4333, 4368, 4493, 5279, 6392, 6407, 6467, 6624
\ifHy@newwindow 290, 3619, 9509
\ifHy@newwindowset . . 289, 3617
\ifHy@next 869, 3777, 7197
\ifHy@ocgcolorlinks . . 291, 3113, 4055, 4065, 5299, 7856, 7874, 7949, 7957, 8907, 8990, 8998
\ifHy@pageanchor 292, 6053, 6065, 6080, 6957
\ifHy@pagelabels 293, 5566, 5752, 5830
\ifHy@pdfa 308, 3728, 4057, 4418, 4642, 5155, 5191, 5304, 8016, 8088, 8119, 8155, 8482, 9052, 9080, 9107, 9131, 9470, 9491, 9512, 9531, 9563, 9594, 9610, 10342, 11306, 11456, 11504, 11781, 11949, 12003, 12119, 12307, 12367, 12553, 12626, 12764
\ifHy@pdfmarkerror 10189, 10197
\ifHy@pdfpagehidden . 294, 3234, 8388, 9747, 10018
\ifHy@pdfstring . . 295, 790, 5922
\ifHy@plainpages 296, 3795, 6067, 6959
\ifHy@psize 297
\ifHy@raiselinks . 298, 8564, 8638, 8667, 8697, 10822, 11090
\ifHy@seminarslides 299
\ifHy@setpagesize 300, 8414, 9260, 9399, 10587
\ifHy@setpdfversion . . 2626, 7861
\ifHy@texht 301, 4097, 4145, 5342, 7523
\ifHy@toolbar . . 302, 8259, 8789, 9199, 9805, 10138, 10926
\ifHy@typexml . . 263, 3805, 4072, 4116, 5429, 13053, 13133
\ifHy@unicode 303, 410, 586, 598, 626, 634, 643, 970, 1130, 1832, 1853, 1866, 1895, 1901, 2161, 2537, 2587, 3352, 5776, 12516
\ifHy@useHidKey 3230, 8385, 9746, 10013
\ifHy@usetitle 304, 5482
\ifHy@verbose . . 305, 4234, 4250, 4262, 4585, 7026
\ifHy@windowui . 306, 8261, 8791, 9201, 9807, 10140, 10928
\ifHyInfo@AddonUnsupported 3478, 3492, 3527
\ifHyPsd@XeTeXBigChars . . 690, 692, 695, 698
\ifmeasuring@ 5941, 5954
\ifnum 722, 725, 728, 731, 734, 846, 971, 974, 985, 986, 990, 998, 1002, 1005, 1015, 1037, 1060, 1200, 1311, 1327, 1331, 1351, 1364, 1367, 1380, 1382, 1395, 1397, 1403, 2040, 2043, 2119, 2162, 2165, 2177, 2702, 2705, 2730, 3164, 3165, 3962, 3989, 4864, 4935, 4946, 5601, 5620, 5636, 5732, 7477, 7515, 7857, 7862, 8179, 8186, 8192, 8200, 9019, 9024, 9509, 9622, 9758, 9766, 9768, 9769, 9779, 9782, 9868, 9870, 9975, 10614, 11765, 11925, 12259, 12264, 12275, 12515, 12534, 12563, 12568, 12640, 12646, 12674, 12705, 12711, 12730, 12740, 12745, 12774, 12779, 12807, 12823, 12965, 13035, 13038, 13064, 13067, 13106, 13214, 13232, 13247
\ifodd 2143, 2148, 6981
\ifpdf 2742, 3846, 3908
\ifpdfstringunicode 415, 418
\ifportrait 8425
\ifthenelse 6892
\iftrue 695, 1639, 1661, 1925, 13216
\ifvmode 2278, 2294, 2303
\ifvoid 6174, 6182, 6344
\ifvtexhtml 3885, 3914
\ifvtexpdf 3925
\ifvtexps 3928
\ifxetex 649, 682, 2744, 3351, 3870, 3911, 3953
\ignorespaces . . . 527, 6148, 6302, 6503, 6609, 6620, 6623, 6680, 6688, 6750, 6765, 6781, 6790, 6900, 7348, 7400
\IJ 13473, 14155
\ij 13682, 14157
\immediate 5430, 5431, 5432, 5434, 5474, 5745, 5835, 5843, 6077, 6105, 6745, 6760, 6776, 6786, 6816, 6839, 6865,

6895, 7875, 7890, 7905, 9873, 10611, 11708, 11730, 11771, 12955, 13021, 13052, 13054, 13132, 13134
\incr@eqnum 6193, 6206
\index 516
\indexentry 7235, 7250, 7258, 7262, 7267
\input 773, 781, 2546, 3085, 3093, 3100, 3948, 10529, 10612, 10703, 10865
\InputIfFileExists . . 3687, 13045, 13079, 13124, 13126
\inputlineno 4241, 4500
\insert 6482
\IntCalcAdd 2069
\IntCalcDec 1222
\IntCalcDiv 1216, 1225, 1230, 1333, 1342, 1354, 1371, 1386, 1401, 2053, 2059, 2065
\intcalcDiv . 1206, 2060, 2067, 2070
\IntCalcMod . . 1218, 1227, 1233, 1337, 1343, 1358, 1374, 1389, 1403, 1405, 2055, 2060, 2061, 2067, 2070, 2072
\intcalcMod 1208
\intcalcSub 2047
\interfootnotelinepenalty . . 6485
\interlinepenalty 6485
\item 5899, 5902, 6772, 6784, 6887
\Itemautorefname 7758
\itemautorefname . . . 2830, 2848, 2866, 2884, 2902, 2920, 2938, 2967, 2968, 2996, 3014, 7758, 7759, 7762
\itemindent 6345
\itshape 469

J

\j 14162, 14347, 14411
\jarr 15768
\jeem 15740
\jeh 15776
\jobname 5431, 5467, 5474, 11131, 12954, 13045, 13052, 13079, 13124, 13126, 13132

K

\k . . . 13357, 13699, 13701, 13706, 13708, 13751, 13769, 13788, 13795, 14059, 14061, 14099, 14101, 14146, 14148, 14149, 14284, 14286, 14343, 14345, 14942, 14981, 14984
\kaf 15758
\kasra 15771
\keepPDF@SetupDoc 10756, 10763
\kern 1735, 1807, 1812, 1824, 6345, 6976, 6977, 6978, 6980, 6981, 6986, 13173
\kernel@ifnextchar 546
\kha 15742
\KV@Hyp@draft 2435
\KV@Hyp@nolinks 2435
\kv@key . . 3486, 3489, 3496, 4862, 4865, 4867, 4871, 4875
\kv@parse 4861
\kv@parse@normalized 3511, 3518
\kv@processor@default 3514, 3521
\kv@set@family@handler . . 3479
\kv@value . 3484, 4863, 4870, 4871
\kvsetkeys 3459

L

\L 13466, 14186
\l 13479, 14188
\l@slide . . 7348, 7458, 7463, 7467, 7474
\l@subslide . 7400, 7463, 7470, 7514
\label 515, 6999
\label@@hyperref 4340, 4342
\label@hyperdef 4326, 4354
\label@hyperref . 4307, 4339, 4521
\labelsep 6899
\labelwidth 6898
\lam 15759
\language@group 494
\languageshorthands 826, 827, 862
\LARGE 476
\Large 477
\large . 480, 7480, 7488, 7498, 7506
\lastbox 6343
\lastpage@putlabel 6048
\lastskip . 2295, 2299, 2306, 2314, 2318, 2325
\LaTeX . . . 439, 440, 11137, 11138
\LaTeXe 440, 11138
\LayoutCheckField . 5230, 11531, 12032, 12405
\LayoutChoiceField . 5227, 11402, 11883, 12224
\LayoutPushButtonField . . 5233, 11460, 11467, 11953, 11960, 12311, 12320
\LayoutTextField . . . 5224, 11349, 11829, 12166
\lccode 721, 1140, 1934, 1935, 1936, 1937, 1938, 1939, 1940, 1941, 1942, 1943, 2084, 5115, 7194, 7195, 12879, 12880, 12881, 12882, 12883, 12884, 12885, 12886, 12887, 12888, 12889
\ldots 434
\leavevmode 524, 2273, 3714, 3731, 3771, 4423, 5400, 6424, 6570, 6806, 7618, 7626, 8002, 8073, 8104, 8140, 8563, 8637, 8665, 8695, 9072, 9100, 9294, 9303, 9357, 9506, 9527, 9550, 9581, 9936, 10231, 10456, 10474, 10499, 10821, 11089, 11461, 11468, 11503, 11913, 11934, 11954, 11961, 11982, 12002, 12257, 12288, 12312, 12321, 12346, 12366, 13171
\LetLtxMacro . 5345, 5349, 5417, 5421
\limits 4217
\listofslides 7449
\listslidename . 7448, 7451, 7453, 7455
\literalps@out 2271, 9862, 9867, 9916, 9922, 9939, 9945, 10207, 10218, 10239, 10241, 10250, 10252, 10527, 10610, 10673, 10863
\lower . . . 8567, 8640, 8669, 8699, 10241, 10825, 11093
\lowercase . 741, 1141, 1944, 2085, 2337, 2774, 2804, 3426, 3462, 4534, 4535, 4538, 4543, 4567, 4577, 4631, 4687, 5007, 5047, 5050, 5116, 7196, 9974, 12890
\lslide@flag 7475, 7478, 7496, 7515, 7519
\LT@array 6161
\LT@firsthead 6174, 6182
\LT@p@ftn . 6440, 6443, 6447, 6460
\LT@p@ftntext 6438, 6445
\LT@start 6176, 6186
\ltx@firstofone 12907, 12919
\ltx@firstoftwo 4131, 4479
\ltx@gobble 12905, 12917
\ltx@ifpackageloaded 1107
\ltx@IfUndefined 493, 536, 611, 646, 764, 765, 766, 870, 876, 882, 887, 892, 899, 905, 911, 916, 922, 927, 937, 943, 949, 955, 1094, 1100, 1477, 1571, 1572, 2225, 2258, 3774, 3775, 3776, 4130, 4131, 5522, 5883, 5971, 6254, 6708, 7646, 7647, 7691, 7692, 7694, 7695, 8050, 8060, 8445, 9401, 9458, 9545, 9912, 9946, 10034, 10211, 13205, 13215
\ltx@ifundefined 6352
\ltx@LocalAppendToMacro . 248, 251

\ltx@secondoftwo 4130, 4131, 4133, 4477
\ltx@space 3944, 3946
\ltx@zero . 1938, 1939, 1940, 1941, 1942, 1943
\luatexrevision 8223
\luatexversion 8215, 8220

M

\m@ne . . . 4253, 4549, 6093, 6274, 9028, 13126, 13214, 13229
\make@df@tag@@ 7109, 7111
\make@df@tag@@@ . . . 7110, 7112
\make@stripped@name 5946, 6215, 6237, 6261, 6272
\makeatletter 3, 804, 5466
\MakeButtonField . . 5240, 11462, 11470, 11489, 11508, 11513, 11955, 11964, 11989, 12007, 12013, 12313, 12316, 12345, 12371, 12375
\MakeCheckField . . . 5237, 11533, 12035, 12402
\MakeChoiceField . . 5239, 11445, 11937, 12286
\MakeFieldObject . 11707, 11790, 11800, 11803
\MakeLowercase 491
\MakeLowercaseUnsupportedInPdfStrings 491
\MakeRadioField . . . 5236, 11433, 11924, 12251
\makeslideheading 7358
\makeslidesubheading 7410
\maketag@@@ 7098
\MakeTextField 5238, 11351, 11832, 12163
\maketitle 6520, 6521
\MakeUppercase 490, 7453, 7455, 7609
\MakeUppercaseUnsupportedInPdfStrings 490
\MathBSuppress 9304, 9308
\mathdisplay 6196, 6205
\mathdisplay@push . . 6194, 6203
\mathversion 485
\maxdimen 3185, 11712
\MaybeStopEarly 350, 2653, 2707, 3816, 3916, 5863
\mbox 525, 6819, 6842, 7959, 9000
\mddefault 6314
\mdseries 468
\meaning 62, 153, 159, 2234, 5506, 6009, 6279, 13090, 13098, 13113
\measuring@false 5941
\mediaheight . . 9395, 9397, 9403, 9410
\mediawidth 9406, 9413
\meem 15760
\message 7476
\MessageBreak 383, 1838, 1859, 1872, 1895, 1900, 1902, 2359, 2360, 2374, 2396, 2399, 2401, 2479, 2480, 2506, 2507, 2559, 2560, 2561, 2599, 2600, 2620, 2630, 2796, 3115, 3355, 3439, 3494, 3495, 3674, 3850, 3851, 3859, 3860, 3874, 3875, 3889, 3890, 3898, 3899, 4059, 4588, 4593, 4602, 4645, 4691, 4815, 4928, 5000, 5011, 5571, 5779, 5794, 5795, 6056, 7003, 7033, 7034, 7035, 7036, 7037, 7168, 8006, 9037, 9482, 9554, 10043, 11720, 11722, 12828, 12846, 12957
\MF 443, 11140
\MP 444, 11141
\multiply 8219, 9727, 9762

N

\n 732
\name@of@eq 5915, 5944
\name@of@slide 5916, 5926
\nameref 522, 4135, 4139
\nasb 15766
\netscape 8599
\new@ifnextchar 547
\new@pdflink . . . 7987, 8038, 8041
\new@refstepcounter . 6188, 6220
\newblock 6903
\newcommand 4, 9, 42, 2272, 5404, 5878, 5881, 5884, 5885, 5886, 5888, 5889, 5890, 5891, 5893, 5894, 5895, 5896, 5897, 5898, 5907, 5908, 5909, 5910, 5911, 5912, 6270, 7136, 7335, 7340, 7341, 12927, 12930, 12935
\newcount . . 351, 352, 4966, 5582, 11441, 11931, 12133, 12282, 12962
\newcounter . . . 5900, 6368, 8906, 12877
\newdimen 348, 4967, 4968
\newif . . . 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 690, 869, 2626, 3230, 3478, 3952, 4541, 4629, 4962, 4963, 4983, 5917, 5918, 5941, 6224, 9283, 10189
\newlabel . 2237, 4364, 5444, 5445, 5453, 5479, 6078, 6106
\newlabelxx 5446, 5447
\newlength 13164
\newline 437, 5527
\newname 5947, 6216, 6238, 6262, 6275, 6284
\newsavebox 8836, 10226
\newtie 13359, 13360, 13743, 13773, 13792, 13808
\newtoks . 90, 5029, 10061, 10259, 10260
\newwrite . . . 5473, 13050, 13130
\next 6893, 6894, 6895, 9690, 9692, 9694
\nfss@text . 7530, 7550, 7567, 7684
\NG 14204
\ng 14206
\noboundary 15781
\nobreak . 2296, 2304, 2315, 2323, 6425, 6571
\nobreakspace . . 535, 7621, 7650, 7653
\noexpand 22, 93, 95, 108, 116, 169, 171, 172, 173, 176, 206, 710, 814, 1154, 1586, 1603, 1726, 2098, 2302, 2303, 2304, 2307, 2321, 2322, 2323, 2326, 3046, 3048, 3050, 3051, 3067, 3241, 3242, 3244, 3544, 4211, 4314, 4394, 4495, 4497, 4597, 5674, 5675, 5684, 5686, 5689, 5808, 6090, 6091, 6093, 6118, 6119, 6120, 6121, 6122, 6130, 6131, 6132, 6278, 6441, 6449, 6450, 6451, 6452, 6453, 6455, 6580, 6669, 6744, 6759, 6775, 7128, 7130, 7583, 7584, 7700, 7701, 7706, 7708, 7713, 7714, 7719, 7720, 8222, 8777, 10126, 10193, 10670, 10914, 11377, 11378, 11379, 11380, 11857, 11858, 11859, 11860, 12198, 12199, 12200, 12201, 12477
\nofrenchguillemets 554, 556
\NoHy@OrgPageRef . . 5349, 5351, 5421, 5423
\NoHy@OrgRef 5345, 5347, 5417, 5419
\NoHyper 5353
\nohyperpage . . 5399, 7279, 7281, 7283
\nolinkurl 4293
\nolinkurl@ 4293, 4294
\NomFancyVerbLineautorefname 2985

\Nomfootnoteautorefname . 2965
\Nomtheoremautorefname . 2989
\nonumber 6249, 6252
\normalfont 463, 6310
\normalsize 481, 6616, 6687
\NR@gettitle 6606
\null 6884, 6892, 7572, 7680
\number 988, 992, 995, 1003, 1006, 1008, 1313, 1315, 1342, 1343, 2044, 2102, 2103, 2104, 2105, 2109, 2110, 2111, 2112, 2113, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2127, 2128, 2129, 2130, 2131, 2132, 2135, 2137, 2141, 2142, 2144, 2146, 2148, 2151, 2155, 2156, 2157, 2158, 2167, 2168, 2172, 2173, 2180, 2181, 2185, 2188, 2189, 2190, 2200, 2202, 2203, 2208, 2210, 2211, 2216, 2217, 3564, 3954, 3990, 4555, 7868, 7871, 8627, 8642, 8643, 8654, 8655, 8671, 8672, 8683, 8684, 8701, 8702, 8713, 8714
\numberline . . . 6609, 6680, 12851, 12855
\numberwithin 7133
\numexpr . 2109, 2110, 2111, 2113, 2119, 2127, 2128, 2129, 2130, 2131, 2132, 2136, 2138, 2142, 2144, 2146, 2148, 2152, 2155, 2156, 2158, 2167, 2172, 2189, 2203, 2211, 2217, 3568
\nun 15761

O

\O 13599, 13967, 14362
\o 13667, 14035, 14364
\obeylines 10669
\OBJ@acroform . . . 11787, 11788
\OBJ@Helv . 11768, 11777, 12094
\OBJ@OCG@print . . . 7904, 7907, 7915, 7941, 8924, 8926, 8939, 8943, 8952, 8981
\OBJ@OCG@view . . . 7889, 7907, 7940, 8908, 8910, 8923, 8943, 8980
\OBJ@OCGs . . 7910, 7913, 7919, 7924, 7929, 8940, 8942, 8946, 8950, 8956, 8961, 8966
\OBJ@pdfdocencoding . . . 11766, 12075, 12091
\OBJ@ZaDb 11767, 11776, 12084
\OCIRCUMFLEX . 15604, 15702, 15703, 15704, 15705, 15706
\ocircumflex 15597, 15642, 15643, 15644, 15645, 15646
\oddsidemargin 6982
\OE 13468, 14220
\oe 13481, 14222
\offinterlineskip 5553
\OHORN . . . 15605, 15707, 15708, 15709, 15710, 15711
\ohorn . . 3012, 3019, 15598, 15647, 15648, 15649, 15650, 15651
\oldb 764
\oldc 765
\oldcontentsline . 5439, 5442, 5452
\oldd 766
\oldnewlabel . . . 5444, 5449, 5453
\OMEGA 11136
\on@line 7030, 7031
\openout 5431, 5474, 13052, 13132
\OpMode . 2702, 2705, 2716, 2730, 2733, 9779, 9870, 10614
\or 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1209, 1231, 1234, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1276, 1277, 1278, 1279, 1280, 1281, 1282, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1320, 1321, 1322, 1323, 1324, 1436, 1437, 1438, 4715, 4721, 4726, 4940, 7053, 7057, 7495, 7504, 9772, 12970, 12971, 12972, 12973, 12974, 12975, 12976, 12977, 12978, 12979, 12980, 12981, 12982, 12983, 12984, 12985, 12986, 12987, 12988, 12989, 12990, 12991, 12992, 12993, 12994, 12995, 12996, 12997, 12998, 12999, 13000, 13001

P

\P 433
\p@ . 2168, 2173, 4969, 4975, 6316, 8573, 8650, 8679, 8709, 9726, 10831, 11103, 11372, 11852, 12193, 13289, 13290
\p@equation 7105
\PackageError 61, 2558, 3755, 4419, 4690, 4814, 5010, 5157, 5193, 11457, 11505, 11950, 12004, 12308, 12368
\PackageInfo . . . 243, 7852, 7866, 11718
\PackageWarning . 241, 2629, 4926
\PackageWarningNoLine . . . 242
\pageautorefname . . . 2843, 2861, 2879, 2897, 2915, 2933, 2951, 2991, 3009, 3027, 7653, 7775
\pagename 7650
\pageref . . . 521, 3826, 4126, 5349, 5350, 5421, 5422, 6056, 7639, 7643
\paperheight 3667, 8430, 8432, 8435, 8437, 8449, 8450, 9264, 9265, 9402, 9403, 9405, 10591, 10592
\paperwidth . . . 8426, 8428, 8439, 8441, 8446, 8447, 9263, 9265, 9406, 10590, 10592
\par . 6308, 6608, 6636, 6678, 6688, 6886, 6906
\paragraphautorefname . . . 2839, 2857, 2875, 2893, 2911, 2929, 2947, 2980, 2982, 3005, 3023, 7771
\partautorefname 2833, 2851, 2869, 2887, 2905, 2923, 2941, 2971, 2999, 3017, 7765
\partnumberline . . . 12852, 12856
\PassOptionsToPackage . . . 2746, 2785, 2789, 2811, 3698, 3941
\pdf@addtoks 10262, 10281, 10287, 10296, 10303, 10307, 10309, 10311, 10313, 10315, 10323, 10332, 10336, 10338, 10340, 10343, 10352, 10356, 10358, 10360, 10362, 10364, 10366, 10368, 10370, 10372, 10374, 10376, 10378, 10380, 10382, 10384, 10386, 10387, 10388, 10389, 10390, 10391, 10392, 10393, 10394, 10395, 10396, 10401
\pdf@addtoksx 10256, 10266, 10279
\pdf@box . . . 10226, 10233, 10235, 10237, 10238, 10241, 10248
\pdf@defaulttoks . . 10193, 10260, 10261, 10271
\pdf@docset 10061

\pdf@endanchor . 7994, 8038, 8045
\pdf@escapestring 7831
\PDF@FinishDoc 2656, 2657, 2710, 2711, 3661, 3716, 3819, 3820, 3919, 3920, 5398, 5563, 5564, 8298, 8503, 8726, 9157, 9284, 9838, 10062, 10870, 11031
\pdf@linktype 10211, 10215, 10276, 10277
\pdf@rect . . . 10203, 10217, 10230
\PDF@SetupDoc 3660, 3715, 5316, 5317, 5397, 8229, 8504, 8757, 9197, 9285, 9787, 10113, 10758, 10901, 11032
\PDF@SetupDox 8229
\pdf@strcmp 846
\pdf@toks . . 10193, 10208, 10219, 10259, 10263, 10267
\pdf@type . . 10195, 10199, 10208, 10219, 10254, 10274
\pdfannotlink 7978
\pdfbookmark . 2272, 5403, 5404, 12928, 12933, 12938, 12942
\pdfcatalog 5717, 7911, 8244, 8286, 11788
\PDFdefaults 10270
\pdfdest 7996
\pdfendlink . . 8035, 11832, 11924, 11938, 11965, 11990, 12014, 12036
\pdfescapestring 12506
\pdfform 7980
\PDFForm@Check . 11532, 11534, 12033, 12034, 12406, 12410, 12525
\PDFForm@List . . . 11444, 11446, 11935, 11936, 12289, 12294, 12632
\PDFForm@Name . 11825, 11878, 11948, 12029, 12158, 12219, 12306, 12398, 12513
\PDFForm@Push . . 11469, 11471, 11962, 11963, 12322, 12326, 12553
\PDFForm@Radio . 11432, 11436, 11914, 11916, 12258, 12270, 12665
\PDFForm@Reset . 11512, 11514, 12011, 12012, 12376, 12381, 12764
\PDFForm@Submit 11488, 11491, 11983, 11985, 12347, 12352, 12732
\PDFForm@Text . . 11350, 11352, 11830, 11831, 12167, 12170, 12697
\pdfhorigin 8422
\pdfinfo 8301
\pdflastform 7981
\pdflastlink 11748
\pdflastobj 7889, 7904, 7910, 11787, 12075, 12084, 12094
\pdflastxform . 7981, 11710, 11712
\pdflinkmargin . . 7976, 7979, 7984
\pdfliteral 7960, 7962, 7967
\pdfm@box . . 8836, 12129, 12130, 12131, 12162, 12173, 12250, 12274, 12285, 12296, 12316, 12329, 12345, 12354, 12375, 12383, 12401, 12412
\pdfmark 5826, 8777, 8786, 8816, 9903, 9923, 9953, 9985, 10002, 10014, 10048, 10085, 10097, 10126, 10135, 10166, 10190, 10409, 10423, 10438, 10450, 10457, 10475, 10500, 10914, 10923, 10954, 11351, 11433, 11445, 11470, 11489, 11513, 11533, 13094
\pdfmark@ 10190, 10191
\pdfminorversion 7849
\PDFNextPage 10421
\PDFNextPage@ . . 10421, 10422
\pdfobj . 7875, 7890, 7905, 11771, 12042, 12076, 12085
\PDFOpen 10449
\pdfoptionpdfminorversion 7846
\pdfoutline 13142
\pdfpageattr . . 8340, 8344, 8345, 8355, 8364, 8368, 8369, 8379, 8387, 8390, 8391, 8401
\pdfpageheight 8432, 8441, 8450, 8457
\pdfpageresources 7938
\pdfpagesattr . . . 8233, 8235, 8237
\pdfpagewidth . 8428, 8437, 8447, 8454
\PDFPreviousPage 10434
\PDFPreviousPage@ 10435, 10437
\pdfrefform 7982
\pdfrefobj . . 11766, 11767, 11768
\pdfrefxform 7982, 11712
\pdfstartlink 7977, 7978, 8030, 8074, 8105, 8141, 8468, 11831, 11915, 11936, 11963, 11984, 12012, 12034
\pdfstringdef 403, 677, 3381, 3387, 3393, 3399, 3404, 3410, 3417, 3423, 3503, 4887, 4892, 4918, 5530, 5610, 5612, 6071, 6965, 12521, 12860
\pdfstringdefDisableCommands 763, 802, 5401, 5525
\pdfstringdefPostHook . . 673, 796
\pdfstringdefPreHook . 531, 796, 808, 810, 5524, 5534
\pdfstringdefWarn . 436, 437, 526, 813, 1594, 1599, 1618, 1622
\pdftexrevision . 8189, 8197, 8208
\pdftexversion . 8184, 8186, 8189, 8192, 8195, 8196, 8200, 8206, 8207, 11765
\pdfvorigin 8423
\pdfxform 7980, 11708
\peh 15774
\penalty . . 1729, 2281, 4272, 6813, 6836
\phantom 486
\phantomsection 3662, 5405, 7005, 12797, 12848, 13233
\Preamble 11132
\PrerenderUnicode 3372
\process@me . . 5504, 5516, 5517, 8232, 8241
\ProcessKeyvalOptions . . . 3702
\protect 1727, 4344, 6609, 6680, 6744, 6759, 6775, 6891, 6898, 6899, 7043, 7074, 7348, 7400, 7529, 7549, 7555, 7566, 7683, 8514, 8604, 9355, 9430, 10769, 11042, 12867, 13166, 13289, 13290
\protected@edef 4379, 5670, 6276, 6296, 8003, 9034, 9479, 9551, 10040
\protected@write 2236, 4363, 6871, 7234, 7249, 7257, 7261, 7266, 12866
\protected@xdef . 6450, 6452, 6546
\providecommand 2253, 2254, 2761, 3140, 3141, 3144, 3145, 3907, 4103, 4104, 4225, 4298, 5435, 5700, 5719, 5844, 6709, 6710, 6725, 6803, 7331, 7332, 7448, 7756, 7757, 7758, 7759, 7760, 7761, 7762, 7763, 7764, 7765, 7766, 7767, 7768, 7769, 7770, 7771, 7772, 7773, 7774, 7775, 7838, 7986, 7998, 7999, 8502, 8598, 8599, 8834, 8893, 8894, 8895, 9281, 9400, 9422, 9423, 9424, 9863, 10227, 10228, 10525, 10533, 10534, 10535, 10536, 10608, 10620, 10621, 10622, 10623, 10667, 10708, 10709, 10710, 10711, 10859, 10861, 10862, 10975, 10976, 11023, 11731
\PushButton 5212
\put@me@back . . 4490, 4503, 4513

Q

\qaf 15757
\quotedblbase 13448, 13685, 15274, 15578
\quotesinglbase . . . 13458, 13687, 15268, 15580

R

\r . 735, 13326, 13338, 13350, 13560, 13625, 13734, 13761, 13780, 13802, 13929, 13993, 14276, 14278, 15238, 15240
\ra 15745
\raff 15767
\raise 2288, 8574, 8651, 8680, 8710, 10252, 10832, 11104
\ReadBookmarks 3701, 3719, 3833, 4007, 4148, 13026, 13061
\real@setref 7526, 7592
\realfootnote 6543
\Ref 7611, 7615, 7620
\ref . . 520, 3825, 4123, 4529, 5345, 5346, 5417, 5418, 6508, 6515, 7630, 11124
\ref@one 4320, 4321
\rEfLiNK 11125, 11126
\refstepcounter 5914, 5921, 6143, 6163, 6188, 6212, 6220, 6672
\rem@ptetc 9975, 9977
\renewcommand 2228, 6651, 7150, 12942
\RequirePackage 22, 232, 233, 234, 235, 236, 237, 238, 239, 240, 829, 1105, 1631, 2222, 2611, 3691, 3807, 3808, 4075, 4119, 4153, 4290, 4532, 5387, 5544, 5760, 7778, 9282, 11028, 12952
\RerunFileCheck 12954
\Reset 5221
\reset@font 6819, 6842, 7530, 7550, 7567, 7684
\revtex@checking 6796
\Rightarrow 7482
\rlap 7961, 9002
\rm 474
\rmfamily 464
\Roman 5666
\roman 5667
\romannumeral 820, 821
\rule 6493

S

\sad 15749
\sbox . . . 3368, 5241, 10227, 10235, 11707
\scr@LT@array 6162
\scriptsize 482
\scriptstyle 6809
\scrollmode 1646, 1671, 1681, 1694, 1786, 1918
\scshape 470
\section 7450
\sectionautorefname . . 2836, 2854, 2872, 2890, 2908, 2926, 2944, 2973, 3002, 3020, 7768
\seen 15747
\selectfont 450, 4086, 11796
\setbox 1730, 1736, 1742, 3168, 3174, 5063, 5552, 6343, 7951, 8494, 8565, 8636, 8666, 8696, 8975, 8992, 10823, 11091, 12162, 12250, 12285, 12316, 12345, 12375, 12401
\setkeys . . 2650, 2741, 3358, 3683, 3729, 3940, 4056, 4960, 7858, 10196, 11323, 11563, 11576, 11625, 11668, 11689, 11763, 12104
\setlength 387, 388, 2285, 8422, 8423, 8428, 8432, 8437, 8441, 8447, 8450, 8454, 8457, 9403, 9406, 9410, 9413, 9726, 13183, 13254
\setpdflinkmargin 3551, 3552, 7976
\settowidth . 11369, 11849, 12190
\SetupKeyvalOptions 3692
\sffamily 465
\shadda 15772
\sheen 15748
\shortciteN 6934
\SK@ 7742
\SK@@ref 7742
\SK@ref 7739
\skip@ 1744, 1818, 1819, 1822, 1824, 2299, 2305, 2318, 2324
\slide@cline 7468, 7481, 7489, 7499, 7507
\Slide@contents 7473
\slide@contents 7466
\slide@heading 7344
\slide@subheading 7397
\slide@undottedcline 7459
\slidenumberline 7460, 7468, 7482, 7490, 7500, 7508
\SliTeX 442
\slshape 471
\small 483
\smash 2282
\spacefactor 6425, 6434, 6571, 6573
\special@paper 3663
\SpecialDvipdfmxOutlineOpen 2677, 2679, 3962
\splitmaxdepth 6487
\splittopskip 6486
\SS 13683, 15577
\ss 2883, 13613, 13698, 13981
\st@rredfalse 6195, 6204
\stepcounter . . 5931, 6091, 6295, 6426, 6545, 9018, 12863
\stockheight 3667, 8456, 8457, 9270, 9271, 9409, 9410, 10597, 10598
\stockwidth 8453, 8454, 9269, 9271, 9412, 9413, 10596, 10598
\stop@hyper 5368
\StringEncodingConvertTest 651, 661
\strip@period 2241
\strip@prefix 62, 2234, 5506, 6009, 6279, 13090, 13098, 13113
\strip@pt 392, 399, 3679, 8428, 8432, 8437, 8441, 9729, 12548, 12660, 12688, 12725, 12773
\strip@pt@and@otherjunk . 9922, 9945, 9977
\strutbox 6487
\sub@label 2228
\subeqnarray 6255, 6257
\subequations 6293, 6294
\subfig@oldlabel 2230
\Submit 5218
\SubmitObject 11986
\SubmitPObject 11986
\subparagraphautorefname 2840, 2858, 2876, 2894, 2912, 2930, 2948, 2981, 2983, 3006, 3024, 7772
\subpdfbookmark 12930
\subsection 10855
\subsectionautorefname . . . 2837, 2855, 2873, 2891, 2909, 2927, 2945, 2978, 3003, 3021, 7769
\subsubsectionautorefname 2838, 2856, 2874, 2892, 2910, 2928, 2946, 2979, 3004, 3022, 7770
\sukun 15773
\surd 7490

T

\T 15737
\t 13358, 13753, 13772, 13791, 13807
\T@nameref 4140
\T@pageref 4110, 4127, 7628
\T@ref 4105, 4124
\T@temp 6797, 6800
\Ta 15751
\taa 15738

\tableautorefname . . . 2832, 2850, 2868, 2886, 2904, 2922, 2940, 2970, 2998, 3016, 7764
\tagform@ 7104
\tatweel 15755
\tcheh 15775
\temp@online 7030, 7033
\TeX . . . 438, 439, 441, 442, 11135, 11137, 11139
\texorpdfstring 789, 5402
\textacute . . 13322, 13334, 13346, 13526, 13757, 13776, 13894
\textacutedbl 14426
\textaleph 15392
\textAlpha . . . 1022, 14446, 14462
\textalpha . . . 1022, 14515, 14525
\textampersand 430, 13393, 13824
\textangstrom 15388
\textasciiacute 13895
\textasciibreve 13369, 13765, 13784, 14415
\textasciicaron 13327, 13339, 13351, 13371, 13762, 13781, 14413
\textasciicircum . . . 13323, 13335, 13347, 13407, 13758, 13777, 13840
\textasciidieresis . . 13325, 13337, 13349, 13503, 13760, 13779, 13871
\textasciigrave 13321, 13333, 13345, 13412, 13756, 13775, 13844
\textasciimacron . . 13330, 13342, 13354, 13516, 13767, 13786, 13884
\textasciitilde . 431, 4188, 13422, 13855
\textasteriskcentered 13832
\textbackslash . . 426, 585, 13405, 13838
\textbaht 15100
\textbar 13418, 13851
\textbardbl 15262
\textBeta 1023, 14464
\textbeta 1023, 13698, 14527
\textbf 457
\textbigcircle 13774, 13793, 15562
\textblank 15410
\textbraceleft . . 424, 13416, 13849
\textbraceright 425, 13420, 13853
\textbrokenbar 13499, 13867
\textbullet 13424, 15280
\textcdot 13697, 15590
\textcedilla . 13329, 13341, 13353, 13534, 13764, 13783, 13903
\textcelsius 13684, 15372
\textcent 13491, 13859
\textChi 1072, 14504
\textchi 1072, 14569
\textcircled . 13755, 13774, 13793, 15414, 15416, 15418, 15420, 15422, 15424, 15426, 15428, 15430, 15432, 15434, 15436, 15438, 15440, 15442, 15444, 15446, 15448, 15450, 15452, 15454, 15456, 15458, 15460, 15462, 15464, 15466, 15468, 15470, 15472, 15474, 15476, 15478, 15480, 15482, 15484, 15486, 15488, 15490, 15492, 15494, 15496, 15498, 15500, 15502, 15504, 15506, 15508, 15510, 15512, 15514, 15516, 15518, 15520, 15522, 15524, 15526, 15528, 15530, 15532, 15534, 15536, 15538, 15540, 15542, 15544, 15546, 15548, 15550, 15552, 15554, 15556, 15558
\textcircledP 15376
\textcircumflex 13373
\textcolonmonetary 15354
\textcolor 489, 11762, 11801, 11804, 12103
\textcompwordmark 15256
\textcopyright 13505, 13873
\textCR 13367, 13814
\textcurrency 13495, 13863
\textdagger 13426, 15276
\textdaggerdbl 13428, 15278
\textdegree . 13518, 13684, 13886
\textDelta 1025, 14468
\textdelta 1025, 14531
\textDigammagreek 14590
\textdigammagreek 14592
\textdiscount 15302
\textdiv 13695, 15588
\textdivide . . 13665, 13695, 14033, 15588
\textdivorced 15568
\textdollar 428, 13389, 13820
\textdong 15364
\textdotaccent 13328, 13340, 13352, 13375, 13763, 13782, 14417
\textdotbelow 13332, 13344, 13356, 13399, 13771, 13790, 14436
\textdoublegrave . . 13766, 13785, 14432
\textdownarrow 15400
\texteightinferior 15346
\texteightsuperior 15314
\textellipsis 434, 435, 13430, 15282
\textemdash . . 619, 13432, 15260
\textendash . . . 620, 13434, 15258
\textEpsilon . 1026, 14448, 14470
\textepsilon . . 1026, 14517, 14533
\textequalsuperior 15322
\textestimated 15390
\textEta 1029, 14450, 14474
\texteta 1029, 14519, 14537
\texteuro 13487, 15366
\textexclamdown 623, 933, 13489, 13857
\textfi 621, 13462, 15574
\TextField 5203
\textfiveinferior 15340
\textfivesuperior 15308
\textfl 622, 13464, 15576
\textflorin 13436, 14312
\textflq 510, 13691, 15584
\textflqq 508, 13689, 15582
\textfourinferior 15338
\textfoursuperior 15306
\textfractionsolidus 13438, 15296
\textfrq 511, 13692, 15585
\textfrqq 509, 13690, 15583
\textGamma 1024, 14466
\textgamma 1024, 14529
\textglq 506, 13687, 15580
\textglqq 504, 13685, 15578
\textgravedbl 14428
\textgreater 13403, 13836
\textgrq 507, 13688, 15581
\textgrqq 505, 13686, 15579
\textGslash 14331
\textgslash 14333
\textguarani 15370
\textHslash 14127
\texthslash 14129
\textHT 13363, 13810
\texthungarumlaut 13377, 13768, 13787, 14425, 14426
\textinterrobang 15294
\textIota 1044, 14452, 14478, 14511
\textiota 1044, 14521, 14541, 14575
\textIotadieresis . . . 14460, 14510
\textit 459
\textKappa 1045, 14480
\textkappa 1045, 14543
\textKoppagreek . . . 1052, 14594
\textkoppagreek 1052, 14596
\textkra 14168
\textLambda 1046, 14482
\textlambda 1046, 14545
\textlangle 15406
\textlatin 492, 5997
\textlbrackdbl 15570
\textleftarrow 15394
\textless 13401, 13834
\textLF 13365, 13812
\textlira 15356

\textlnot 13512, 13880
\textlogicalnot 13511, 13693, 13879, 15586
\textlongs 14310, 15242
\textlquill 15298
\textmacronbelow . 13331, 13343, 13355, 13410, 13770, 13789, 14438
\textmarried 15566
\textmd 458
\textmho 15386
\textminus 13444, 15402
\textminussuperior 15320
\textMu 1047, 14484
\textmu 1047, 13528, 13897
\textmugreek 14547
\textmultiply 13597, 13694, 13965, 15587
\textmusicalnote 15564
\textnaira 15358
\textnapostrophe 14202
\textneg 13693, 15586
\textnewtie . 13773, 13792, 14434
\textnineinferior 15348
\textninesuperior 15316
\textnormal 453
\textnsuperior 15328
\textNu 1048, 14486
\textnu 1048, 14549
\textnumbersign 427, 13387, 13818
\textnumeralsigngreek 999, 14442
\textnumeralsignlowergreek 1016, 1038, 1061, 14444
\textnumero 15374
\textogonek . 13379, 13769, 13788, 14421
\textohm 15384
\textOmega . . 1074, 14458, 14508
\textomega . . 1074, 14573, 14584
\textOmicron . 1050, 14454, 14490
\textomicron . 1050, 14553, 14579
\textonehalf 13544, 13913
\textoneinferior 15332
\textonequarter . . . 13542, 13911
\textonesuperior . . 13536, 13905
\textopenbullet 15560
\textordfeminine . . 13507, 13875
\textordmasculine . 13538, 13907
\textparagraph 433, 13530, 13899
\textparenleft . . 627, 628, 13395, 13828
\textparenleftinferior 15350
\textparenleftsuperior . . . 15324
\textparenright . . . 13397, 13830
\textparenrightinferior . . . 15352
\textparenrightsuperior . . 15326
\textpercent . . . 429, 13391, 13822
\textperiodcentered 13532, 13697, 13901, 15590
\textpertenthousand 15286
\textperthousand . . 13446, 15284
\textpeseta 15360
\textpeso 15368
\textPhi 1071, 14502
\textphi 1071, 14567
\textPi 1051, 14492
\textpi 1051, 14555
\textplusminus . . . 13520, 13696, 13888, 15589
\textplussuperior 15318
\textpm 13696, 15589
\textPsi 1073, 14506
\textpsi 1073, 14571
\textquestiondown 624, 934, 13548, 13917
\textquotedbl 13385, 13816
\textquotedblleft . . 13450, 13686, 15270, 15579
\textquotedblright . 13452, 15272
\textquoteleft 13454, 13688, 15264, 15581
\textquoteright . . . 13456, 15266
\textquotesingle 13826
\textrangle 15408
\textrbrackdbl 15572
\textrecipe 15378
\textreferencemark 15292
\textregistered 13514, 13882
\textRho 1067, 14494
\textrho 1067, 14557
\textrightarrow 15398
\textring . . . 13326, 13338, 13350, 13381, 13761, 13780, 14419
\textrm 454
\textrquill 15300
\textSampigreek . . . 1075, 14598
\textsampigreek 1075, 14600
\textsc 460
\textsection 13501, 13869
\textservicemark 15380
\textseveninferior 15344
\textsevensuperior 15312
\textsf 455, 11801, 11804
\textSigma 1068, 14496
\textsigma 1068, 14561
\textsixinferior 15342
\textsixsuperior 15310
\textsl 461
\textsterling 13493, 13861
\textStigmagreek . . . 1027, 14586
\textstigmagreek . . . 1027, 14588
\textsurd 15404
\TextSymbolUnavailable . 13357, 13358, 13360
\textTau 1069, 14498
\texttau 1069, 14563
\textTheta 1030, 14476
\texttheta 1030, 14539
\textthreeinferior 15336
\textthreequarters . 13546, 13915
\textthreesuperior . 13524, 13892
\texttie 13772, 13791, 14440
\texttilde 3778, 13324, 13336, 13348, 13383, 13759, 13778, 14423
\texttildelow 14430
\texttimes 13694, 15587
\texttrademark . . . 13460, 15382
\textTslash 14260
\texttslash 14262
\texttt 456
\texttwoinferior 15334
\texttwosuperior . . 13522, 13890
\textunderscore . 432, 4182, 4183, 4185, 13409, 13842
\textup 462
\textuparrow 15396
\textUpsilon . 1070, 14456, 14500, 14513
\textupsilon . . 1070, 14565, 14577, 14582
\textupsilonacute . . 14523, 14581
\textvarsigma 14559
\textvisiblespace 15412
\textwon 15362
\textXi 1049, 14488
\textxi 1049, 14551
\textyen 13497, 13865
\textzeroinferior 15330
\textzerosuperior 15304
\textZeta 1028, 14472
\textzeta 1028, 14535
\TH 13611, 13979
\th 13679, 14047
\thaa 15739
\thebookmark@seq@number 12870
\theequation . . 5946, 6215, 6237, 6261, 6297
\thefootnote 6385, 6565
\theHchapter . . 5888, 5889, 5890, 5891, 5973
\theHenumi 5907
\theHenumii 5908
\theHenumiii 5909
\theHenumiv 5910
\theHequation . 5878, 5947, 6216, 6238, 6262, 6270, 6297, 6301
\theHfigure 5885, 5889
\theHHfootnote 5911, 5913
\theHHmpfootnote 5913

\theHItem 5901, 5907, 5908, 5909, 5910
\theHlisting 3144
\theHlstlisting 3140
\theHmpfootnote 5912
\theHparagraph 5895, 5896
\theHparentequation . 6296, 6301
\theHpart 5881
\theHsection . . 5878, 5884, 5891, 5893, 5897, 5898, 5972
\theHslide 7335
\theHslidesection 7340, 7342, 7378, 7382
\theHslidesubsection . 7341, 7429, 7433
\theHsubequation 6270
\theHsubparagraph 5896
\theHsubsection 5893, 5894
\theHsubsubsection . . 5894, 5895
\theHtable 5886, 5890
\theHtheorem 5897
\theHthm 5898
\thelisting 3144
\thelstlisting 3140
\thempfn . 6374, 6451, 6453, 6546, 6558
\theoremautorefname . 2842, 2860, 2878, 2896, 2914, 2932, 2950, 2988, 3008, 3026, 7774
\thepage . 2239, 4346, 5572, 5595, 6071, 6079, 6106, 6822, 6845, 6874, 6965, 7043, 7074, 7235, 7252, 7258, 7262, 7269, 7532, 7552, 7569, 7686
\theslideheading 7361
\theslidesection 7349, 7356, 7364, 7370, 7372, 7374, 7380, 7390
\theslidesubheading . . 7362, 7413
\theslidesubsection . . 7401, 7408, 7415, 7421, 7423, 7425, 7431, 7441
\This@name 5925, 5926, 5943, 5944
\thispdfpagelabel 5577
\ThisShouldNotHappen . . 12484
\thm@headpunct 6315
\thm@headsep 6316
\thm@notefont 6314
\thm@postskip 6320
\thm@preskip 6319
\thm@space@setup 6317
\thm@swap 6313
\thmheadnl 6312
\tiny 484
\title 5483, 5485
\TMP@EnsureCode . . 4017, 4024, 4025, 4026, 4027, 4028, 4029, 4030, 4031, 4032, 4033, 4034, 4035, 4036, 4037, 4038, 4039, 4040, 4041, 4042, 4043, 4044, 4045, 4046, 4047, 4048, 4049, 4050
\tocappendix 1483
\tocchapter 1482
\toclevel@chapter 3131
\toclevel@figure 3137
\toclevel@listing 3145
\toclevel@lstlisting 3141
\toclevel@paragraph 3135
\toclevel@part 3127, 3129
\toclevel@section 3132
\toclevel@subfigure 2253
\toclevel@subparagraph . . . 3136
\toclevel@subsection 3133
\toclevel@subsubsection . . . 3134
\toclevel@subtable 2254
\toclevel@table 3138
\tocparagraph 1487
\tocpart 1481
\tocsection 1484
\tocsubsection 1485
\tocsubsubsection 1486
\toks 808, 809, 810, 4383, 4385, 4387, 4391, 4396, 7540, 7541, 7543, 13186, 13191, 13257, 13262
\toks@ 171, 208, 366, 369, 372, 390, 391, 703, 710, 742, 743, 1119, 1142, 1145, 1147, 1654, 1655, 3038, 3039, 3041, 3531, 3535, 3536, 3544, 5672, 5674, 5754, 5756, 5806, 5818, 6088, 6092, 6128, 6133, 7105, 7106, 7312, 7317, 7319, 7322, 13185, 13191, 13256, 13262
\topmargin 6977
\trivlist 6311
\tryhyper@link 4321, 4323
\ttfamily 466
\ttl@b 6139, 6144
\ttl@gobblecontents 6148
\ttl@Hy@PatchSaveWrite . . 6122, 6126
\ttl@Hy@refstepcounter . . . 6138
\ttl@Hy@saveanchor . . 6117, 6141
\ttl@Hy@SavedCurrentHref 6121, 6132
\ttl@Hy@steplink 6115
\ttl@savewrite 6128, 6130
\tw@ . 13186, 13191, 13257, 13262
\typeout . . . 5, 6, 7, 19, 26, 27, 36, 131, 155, 158, 159, 160, 2654, 2708, 3813, 3815, 3817, 3917, 3944, 3946, 4499, 9369, 9373, 9376, 9379, 9382, 9385, 9388, 9391, 11026, 11327, 11541, 11544, 11547, 11550, 11553, 11556, 11558, 11559, 11568, 11705, 12100, 13283, 15784

U

\U . . . 13728, 14633, 14656, 14721, 14798, 14988, 14990, 15012, 15014, 15024, 15026
\u . . . 13727, 13765, 13784, 13804, 14055, 14057, 14091, 14093, 14111, 14113, 14141, 14143, 14144, 14212, 14214, 14272, 14274
\UHORN . . . 15606, 15717, 15718, 15719, 15720, 15721
\uhorn . . 3012, 3019, 15599, 15657, 15658, 15659, 15660, 15661
\UnDef 11125
\unhbox 6357, 10228, 12173, 12296, 12329, 12354, 12383, 12412
\unhcopy 12274
\unichar 2093
\Unicode 1195
\unrestored@protected@xdef 6374, 6385, 6508, 6515, 6558, 6565
\unskip . . 6308, 6807, 7618, 7622, 7626, 7631
\upshape 472, 6314
\Url 4292
\url 4291, 4295
\url@ 4295, 4296
\use@file . . 4453, 4455, 4459, 4462
\usefont 451
\usepackage 2651
\UTFviii@four@octets 2089, 2098
\UTFviii@three@octets 2088
\UTFviii@two@octets 2087

V

\v . . . 13327, 13339, 13351, 13470, 13475, 13483, 13485, 13738, 13762, 13781, 13803, 14075, 14077, 14079, 14081, 14103, 14105, 14178, 14180, 14198, 14200, 14232, 14234, 14248, 14250, 14256, 14258, 14306, 14308, 14314, 14316, 14318, 14320, 14321, 14323, 14325, 14327, 14329, 14335, 14337, 14339, 14341, 14347, 14348, 14391, 14393
\V@@@footnotetext 6495
\V@@footnotetext 6481
\value 6761, 6787, 6981, 7130, 9019, 9024
\vbox 5236, 5237, 5238, 5239, 5552, 6975

\vfill 5236, 5237, 5238, 5239
\voffset 6976
\vpageref 7631
\vphantom 487
\Vr@f 7617
\vr@f 7625
\vref@pagenum 6152
\vref@space 7618, 7621, 7626
\vskip 2305, 2306
\vss 6990
\vtex@trans@special . . 9697, 9699, 9702, 9706, 9710, 9714, 9716, 9718, 9722, 9728, 9729, 9732
\VTeXInitMediaSize . 9400, 9417
\VTeXOS . . 9767, 9768, 9769, 9771
\VTeXversion . 5721, 5724, 5727, 9759, 9763

W

\waw 15763
\wawhamza 15732
\wd . 8642, 8654, 8671, 8683, 8701, 8713, 12130
\write 4253, 5432, 5434, 5835, 5843, 6077, 6105, 6745, 6760, 6776, 6786, 6816, 6839, 6865, 6895, 11730, 11754, 13054, 13134
\WriteBookmarks 3720, 3834, 3986, 4008, 12805, 13047, 13080, 13081, 13123, 13127
\wwwbrowser . . . 8599, 8673, 8685

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, 389, 394, 705, 708, 712, 717, 749, 818, 824, 1581, 1609, 2036, 2038, 2300, 2310, 2319, 2329, 2380, 2381, 2386, 2402, 3045, 3055, 3156, 3157, 3160, 3161, 3162, 3166, 3169, 3175, 3534, 3540, 3543, 3546, 3667, 3668, 3673, 3674, 3733, 3734, 3735, 3738, 3741, 3744, 4252, 4258, 4381, 4392, 4396, 4399, 4468, 4469, 4470, 4482, 4550, 4564, 4589, 4593, 4596, 4606, 5505, 5506, 5511, 6089, 6096, 6129, 6136, 6163, 6172, 6174, 6186, 7319, 7320, 7542, 7545, 7580, 7581, 7582, 7584, 7586, 7937, 7945, 8217, 8218, 8221, 8223, 8226, 8843, 8844, 8845, 8847, 8848, 8849, 8851, 8852, 8853, 8855, 8856, 8857, 8859, 8860, 8861, 8863, 8864, 8865, 8867, 8868, 8869, 8871, 8872, 8874, 8880, 8889, 9867, 9872, 9876, 10349, 10350, 11376, 11396, 11856, 11876, 12197, 12217, 13190, 13192, 13261, 13263
\XeTeXrevision 3954, 9154
\XeTeXversion 3954, 9154
\XR@@dURL 2260, 2261
\XR@addURL 2260
\XR@ext 2488, 2489, 4451, 4454, 5719, 7838, 8502, 8598, 8834, 9281, 10525, 10608, 10667, 10859, 11023
\XR@URL 2265
\xspace 53

Y

\y 720, 723, 726, 729, 732, 73 2382, 2387, 2392, 3162 3164, 3165, 3736, 3739 3745, 3747, 3753, 4471 4473, 4474, 4482, 5506 6161, 6162, 6165, 6172
\ya . . . . . .
\yahamza . . . . . .

Z

\z . . 2384, 2385, 2386, 4474
\z@ 681, 721, 846, 998 1037, 1060, 1311, 1351 1380, 1395, 1403, 1476 1736, 1742, 1806, 1810 1822, 2295, 2314, 2577 2679, 3168, 3174, 3669 5722, 5725, 6343, 6344 8426, 8430, 8435, 8439 8449, 8453, 8456, 9263 9269, 9270, 9758, 9782 10238, 10249, 10590, 10596, 10597, 11365, 12134, 12186, 12534, 12568, 12640, 12646, 12705, 12711, 12730, 12745, 12774, 12779, 12882, 12883, 12884, 12886, 12887, 12888, 13106, 13227
\z@skip . . . . . .
\za . . . . . .
\zay . . . . . .
\ZWNJ . . . . . .