Hypertext marks in LaTeX

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1 Documentation overview for hyperref

The documentation for package hyperref consists of several files:

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

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

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

Options This file provides a short option summary.

Bookmark talk, slides Slides for the talk "PDF information and navigation elements with hyperref, pdfTeX and thumbpdf" at EuroTeX 1999.

Bookmark talk, paper The paper version of the talk.

Source code documentation:

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

backref.dtx "Back referencing from bibliographical citations"

nameref.dtx "Section name references in LaTeX"

2 Contents

1 Documentation overview for hyperref **1**

2 Contents **2**

3 File hycheck.tex **7**

4 Package options and setup **10**
4.1 Save catcodes . . . 10
4.2 Checks with regular expressions . . . 12
4.3 Compatibility with format dumps . . . 13
4.4 Switches . . . 14

5 Common help macros **15**
5.1 Macros for recursions . . . 16
5.2 Babel's protection of shorthand characters . . . 16
5.3 Coordinate transformations . . . 16

6 Dealing with PDF strings **17**
6.1 Description of PDF strings . . . 17
6.2 Definition of \pdfstringdef . . . 18
6.2.1 Preprocessing . . . 18
6.2.2 Expansion . . . 23
6.2.3 Postprocessing . . . 25
6.3 Encodings . . . 29
6.3.1 XeTeX . . . 29
6.3.2 Workaround for package linguex . . . 30
6.3.3 PD1 encoding . . . 30
6.3.4 PU encoding . . . 31
6.4 Additional user commands . . . 31
6.4.1 \texorpdfstring . . . 31
6.4.2 Hooks for \pdfstringdef . . . 31
6.5 Help macros for expansion . . . 32
6.5.1 \ignorespaces . . . 32
6.5.2 Babel languages . . . 33
6.5.3 CJK patch . . . 38
6.5.4 CJK bookmarks . . . 38
6.5.5 CJK unicode . . . 40
6.5.6 \@inmathwarn-Patch . . . 44
6.5.7 Unexpandable spaces . . . 46
6.5.8 Marker for commands . . . 46
6.5.9 \hspace fix . . . 46
6.5.10 Fix for AMS classes . . . 46
6.5.11 Reference commands . . . 47
6.5.12 Redefining the defining commands . . . 49
6.5.13 \ifnextchar . . . 50
6.5.14 \@protected@testoptifnextchar . . . 50
6.6 Help macros for postprocessing . . . 51
6.6.1 Generic warning. . . . 51
6.6.2 Protecting spaces . . . 51
6.6.3 Remove grouping braces . . . 52
6.6.4 Catcode check . . . 53
6.6.5 Check for wrong glyphs . . . 56

6.6.6 Replacing tokens . . . 57
6.6.7 Support for package xspace . . . 58
6.6.8 Converting to Unicode . . . 59
6.6.9 Support for UTF-8 input encoding . . . 61

7 Support of other packages 65
7.1 Class memoir . . . 65
7.2 Package subfigure . . . 65
7.3 Package xr and xr-hyper . . . 65

8 Help macros for links 66

9 Options 68
9.1 Help macros . . . 68
9.2 Defining the options . . . 70

10 Options for different drivers 74

11 Options to add extra features 77

12 Language options 79

13 Options to change appearance of links 85

14 Bookmarking 86

15 PDF-specific options 88
15.1 PDF/A . . . 98
15.2 Patch for babel's \texttilde . . . 99
15.2.1 Driver loading . . . 100
15.2.2 Bookmarks . . . 103

16 User hypertext macros 107

17 Underlying basic hypertext macros 112

18 Compatibility with the *LaTeX2html* package 116

19 Forms creation 117
19.1 Field flags . . . 117
19.1.1 Declarations of field flags . . . 119
19.1.2 Set submit flags . . . 121
19.1.3 Set annot flags in fields . . . 121
19.1.4 Pushbutton field . . . 122
19.1.5 Check box field . . . 122
19.1.6 Radio button field . . . 122
19.1.7 Text fields . . . 123
19.1.8 Choice fields . . . 123
19.2 Choice field . . . 124
19.3 Forms . . . 126

20 Setup 132

21 Low-level utility macros 133

22 Localized nullifying of package **134**

23 Package nohyperref **134**

24 The Mangling Of Aux and Toc Files **135**

25 Title strings **137**

26 Page numbers **138**

27 Every page **138**
27.1 PDF /PageLabels . . . 139
27.1.1 pdfTeX and VTeX . . . 142
27.1.2 xetex . . . 143
27.1.3 pdfmarkbase, dvipdfm, xetex . . . 144

28 Automated LaTeX hypertext cross-references **145**

29 Package lastpage support **150**

30 Package ifthen support **151**

31 Package titlesec and titletoc support **151**

32 Package varioref support **152**

33 Package longtable support **153**

34 Equations **154**

35 Footnotes **157**

36 Float captions **161**

37 Bibliographic references **164**
37.1 Package harvard . . . 167
37.2 Package chicago . . . 168

38 Page numbers **169**

39 Table of contents **170**

40 New counters **172**

41 AMSLaTeX compatibility **172**
41.1 `\@addtoreset` and `\numberwithin` patches . . . 173

42 Included figures **174**

43 hyperindex entries **174**

44 Compatibility with foiltex **177**

45 Compatibility with seminar slide package **177**

46 Configuration files **186**
46.1 PS/PDF strings . . . 186
46.2 pdftex . . . 187
46.2.1 Fix for problem with different nesting levels . . . 200
46.3 hypertex . . . 200
46.4 dviwindo . . . 203
46.5 dvipdfm/xetex dvi to PDF converter . . . 208
46.6 VTeX typesetting system . . . 216
46.7 Fix for Adobe bug number 466320 . . . 228
46.8 Direct pdfmark support . . . 229
46.9 Rokicki's dvips . . . 242
46.10 VTeX's vtexpdfmark driver . . . 244
46.11 Textures . . . 245
46.12 dvipsone . . . 249
46.13 TeX4ht . . . 252

47 Driver-specific form support **255**
47.1 pdfmarks . . . 255
47.2 HyperTeX . . . 262
47.3 TeX4ht . . . 262
47.4 pdfTeX . . . 265
47.5 dvipdfm, xetex . . . 272
47.6 Common forms part . . . 279

48 Bookmarks in the PDF file **286**
48.1 Bookmarks . . . 286
48.1.1 Rerun warning . . . 289
48.1.2 Driver stuff . . . 289

49 Compatibility with koma-script classes **295**

50 Encoding definition files for encodings of PDF strings **296**
50.1 PD1 encoding . . . 296
50.2 PU encoding . . . 304
50.2.1 NFSS2 accents . . . 304
50.2.2 Basic Latin: U+0000 to U+007F . . . 306
50.2.3 Latin-1 Supplement: U+0080 to U+00FF . . . 307
50.2.4 Latin Extended-A: U+0080 to U+017F . . . 311
50.2.5 Latin Extended-B: U+0180 to U+024F . . . 316
50.2.6 Spacing Modifier Letters: U+02B0 to U+02FF . . . 317
50.2.7 Combining Diacritical Marks: U+0300 to U+036F . . . 318
50.2.8 Greek and Coptic: U+0370 to U+03FF . . . 318
50.2.9 Cyrillic: U+0400 to U+04FF . . . 321
50.2.10 Thai: U+0E00 to U+0E7F . . . 331
50.2.11 Latin Extended Additional: U+1E00 to U+1EFF . . . 331
50.2.12 General Punctuation: U+2000 to U+206F . . . 334
50.2.13 Superscripts and Subscripts: U+2070 to U+209F . . . 335
50.2.14 Currency Symbols: U+20A0 to U+20CF . . . 336
50.2.15 Letterlike Symbols: U+2100 to U+214F . . . 336
50.2.16 Arrows: U+2190 to U+21FF . . . 337
50.2.17 Mathematical Operators: U+2200 to U+22FF . . . 337
50.2.18 Miscellaneous Technical: U+2300 to U+23FF . . . 337
50.2.19 Control Pictures: U+2400 to U+243F . . . 337

50.2.20 Enclosed Alphanumerics: U+2460 to U+24FF 337
50.2.21 Box Drawing: U+2500 to U+257F 340
50.2.22 Miscellaneous Symbols: U+2600 to U+26FF 340
50.2.23 Miscellaneous Mathematical Symbols-A: U+27C0 to U+27EF . . 340
50.2.24 Alphabetic Presentation Forms: U+FB00 to U+FB4F 340
50.2.25 Miscellaneous 340
50.2.26 Aliases 340
50.3 PU encoding, additions for VnTEX 341
50.4 PU encoding, additions for Arabi 343

51 End of file hycheck.tex **344**

52 Index **346**

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{infwarerr}[2010/04/08]
\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@Error#1{\@PackageError{hyperref}}
\def\Hy@Warning#1{\@PackageWarning{hyperref}{#1}}
\def\Hy@WarningNoLine#1{\@PackageWarningNoLine{hyperref}{#1}}
\def\Hy@Info#1{\@PackageInfo{hyperref}{#1}}
\def\Hy@InfoNoLine{\@PackageInfoNoLine{hyperref}}
\def\Hy@Message#1{%
  \GenericWarning{%
    (hyperref)\@spaces\@spaces\@spaces\@spaces
  }{%
    Package hyperref Message: #1\ltx@gobble
  }%
}
```

4.2 Checks with regular expressions

```
\ltx@IfUndefined{pdfmatch}{%
  \def\Hy@Match#1#2#3#4{}%
}{%
  \def\Hy@Match#1#2{%
    \begingroup
    \edef\^{\ltx@backslashchar\string^}%
    \edef\.{\ltx@backslashchar.}%
    \edef\[{\ltx@backslashchar[}% ]]
    \edef\${\ltx@backslashchar$}%
    \edef\({\ltx@backslashchar(}%
    \edef\){\ltx@backslashchar)}%
    \edef\|{\ltx@backslashchar|}%
```

```
    \edef\*{\ltx@backslashchar*}%
    \edef\+{\ltx@backslashchar+}%
    \edef\?{\ltx@backslashchar?}%
    \edef\{{\ltx@backslashchar\ltx@leftbracechar}%
    \edef\}{\ltx@rightbracechar}%
    \edef\\{\ltx@backslashchar\ltx@backslashchar}%
    \ifnum\pdfmatch{#2}{#1}=\ltx@one
      \endgroup
      \expandafter\ltx@firstoftwo
    \else
      \endgroup
      \expandafter\ltx@secondoftwo
    \fi
  }%
}
\ltx@ifpackagelater{ltxcmds}{2010/09/11}{}{%
  \begingroup
    \lccode`0=`\{\relax
  \lowercase{\endgroup
    \def\ltx@leftbracechar{0}%
  }%
  \begingroup
    \lccode`0=`\}\relax
  \lowercase{\endgroup
    \def\ltx@rightbracechar{0}%
  }%
}
```

4.3 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
  }%
}
```

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

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

4.4 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`.

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

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

```
454 \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.

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

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

```
\edef\0{\string\0}%
\edef\1{\string\1}%
\edef\2{\string\2}%
\edef\3{\string\3}%
```

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

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

```
\ifHy@unicode
  \edef\8{\string\8}%
  \edef\9{\string\9}%
  \fontencoding{PU}%
  \HyPsd@UTFviii
  \def\ifpdfstringunicode##1##2{##1}%
\else
  \fontencoding{PD1}%
  \def\ifpdfstringunicode##1##2{##2}%
\fi
\let\utf@viii@undeferr\HyPsd@utf@viii@undeferr
\enc@update
```

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

```
\@inmathwarn\pdfstringdef
```

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

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

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

```
\let\add@accent\HyPsd@add@accent
```

Commands that don't use NFSS directly. There are several commands that prints characters in the printable ASCII area that don't obey the NFSS, so they have to be redefined here.

```
\let\{\textbraceleft
\let\}\textbraceright
\let\\\textbackslash
\let\#\textnumbersign
```

```
\let\$\textdollar
\let\%\textpercent
\let\&\textampersand
%   \let\~\textasciitilde
\let\_\textunderscore
\let\P\textparagraph
\let\ldots\textellipsis
\let\dots\textellipsis
```

Newline \newline or \\ do not work in bookmarks, in text annotations they should expand to \r. In pdf strings \\ stands for a backslash. Therefore the commands are disabled now. The user can redefine them for a result what he want:

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

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

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

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

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

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

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

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

```
\let\fontencoding\@gobble
\let\fontfamily\@gobble
\let\fontseries\@gobble
\let\fontshape\@gobble
\let\fontsize\@gobbletwo
\let\selectfont\@empty
\let\usefont\@gobblefour
\let\emph\@firstofone
\let\textnormal\@firstofone
\let\textrm\@firstofone
\let\textsf\@firstofone
\let\texttt\@firstofone
\let\textbf\@firstofone
\let\textmd\@firstofone
```

```
\let\textit\@firstofone
\let\textsc\@firstofone
\let\textsl\@firstofone
\let\textup\@firstofone
\let\normalfont\@empty
\let\rmfamily\@empty
\let\sffamily\@empty
\let\ttfamily\@empty
\let\bfseries\@empty
\let\mdseries\@empty
\let\itshape\@empty
\let\scshape\@empty
\let\slshape\@empty
\let\upshape\@empty
\let\em\@empty
\let\rm\@empty
\let\Huge\@empty
\let\LARGE\@empty
\let\Large\@empty
\let\footnotesize\@empty
\let\huge\@empty
\let\large\@empty
\let\normalsize\@empty
\let\scriptsize\@empty
\let\small\@empty
\let\tiny\@empty
\let\mathversion\@gobble
\let\phantom\@gobble
\let\vphantom\@gobble
\let\hphantom\@gobble
```

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\HyPsd@href
\let\@mkboth\@gobbletwo
```

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

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

Miscellaneous commands.

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

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

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

Patch for cjk bookmarks.

```
\HyPsd@CJKhook
```

User hook. The switch \Hy@pdfstring is turned on. So user commands can detect that they are processed not to be typesetted within TEX's stomach, but to be expanded by the mouth to give a PDF string. At this place before interpreting the string in #2 additional redefinitions can by added by the hook \pdfstringdefPreHook.

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

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

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

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

Package xspace.

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

Redefinitions of miscellaneous commands. Hyphenation does not make sense.

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

\@ifstar is defined in LATEX as follows:

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

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

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

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

Support for package 'xargs':

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

6.2.2 Expansion

There are several possibilities to expand tokens within LATEX:

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

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

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

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

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

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

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

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

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

6.2.3 Postprocessing

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

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

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

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

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

```
  \HyPsd@ProtectSpaces#1%
  \let\HyPsd@String\@empty
  \expandafter\HyPsd@RemoveBraces\expandafter{#1|}%
  \global\let#1\HyPsd@String
```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```
    \HyPsd@StringSubst{\051}{\HyPsd@empty\string\)}#1%
  \fi
```

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

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

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

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

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

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

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

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

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

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

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

```
  \ifHy@unicode
    \HyPsd@StringSubst\(\textparenleft#1%
    \HyPsd@Subst(\textparenleft#1%
  \else
```

```
    \HyPsd@StringSubst\({\050}#1%
    \HyPsd@Subst({\050}#1%
    \HyPsd@StringSubst{\050}{\string\(}#1%
  \fi
```

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

With Unicode the spaces are replaced by their octal sequences.

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

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

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

Try conversion back to PDFDocEncoding.

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

User hook. The hook \pdfstringdefPostHook can be used for the purpose to 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@href

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

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

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

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

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

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

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

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

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

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

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

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

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

```
  \else
    \expandafter\expandafter\expandafter\expandafter
    \expandafter\expandafter\expandafter\@car
    \expandafter\expandafter\expandafter\@gobble
    \csname r@#1\endcsname{}\@nil
  \fi
}
```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

\HyPsd@@autorefname

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

6.5.12 Redefining the defining commands

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

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

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

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

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

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

\HyPsd@DefCommand
\HyPsd@LetCommand

```
\begingroup
  \def\x#1#2{%
    \endgroup
    \let#1\def
```

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

6.5.13 \ifnextchar

\HyPsd@ifnextchar

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

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

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

6.5.14 \@protected@testoptifnextchar

\HyPsd@protected@testopt

Macros with optional arguments doesn't work properly, because they call \@ifnextchar to detect the optional argument (see the explanation of \HyPsd@ifnextchar). But a

warning, that \@ifnextchar doesn't work, doesn't help the user very much. Therefore \@protected@testopt is also disabled, because its first argument is the problematic macro with the optional argument and it is called before \@ifnextchar.

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

6.6 Help macros for postprocessing

6.6.1 Generic warning.

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

```
\def\HyPsd@Warning#1{%
  \begingroup
    \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
 #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
```

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

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

```
}%
```

7 Support of other packages

7.1 Class memoir

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

7.2 Package subfigure

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

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

7.3 Package xr and xr-hyper

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

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

If reading external aux files check whether they have a non zero fourth field in `\newlabel` and if so, add the URL as the fifth field.

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

Providing dummy definitions.

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

8 Help macros for links

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

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

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

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

```
\newcount\Hy@SavedSpaceFactor
\def\Hy@SaveSpaceFactor{%
  \global\Hy@SavedSpaceFactor=\ifhmode\spacefactor\else\z@\fi
}
\def\Hy@RestoreSpaceFactor{%
  \relax
  \ifhmode
    \ifnum\Hy@SavedSpaceFactor>\z@
      \spacefactor=\Hy@SavedSpaceFactor
    \fi
  \fi
}
\def\Hy@SaveSavedSpaceFactor{%
  \edef\Hy@RestoreSavedSpaceFactor{%
    \global\Hy@SavedSpaceFactor=\the\Hy@SavedSpaceFactor\relax
  }%
}
\def\Hy@raisedlink#1{%
  \ifvmode
    #1%
  \else
```

```
    \Hy@SaveSpaceFactor
    \penalty\@M
    \smash{%
      \begingroup
        \let\HyperRaiseLinkLength\@tempdima
        \setlength\HyperRaiseLinkLength\HyperRaiseLinkDefault
        \HyperRaiseLinkHook
      \expandafter\endgroup
      \expandafter\raise\the\HyperRaiseLinkLength\hbox{%
        \Hy@RestoreSpaceFactor
        #1%
        \Hy@SaveSpaceFactor
      }%
    }%
    \Hy@RestoreSpaceFactor
  \fi
}
```

\Hy@SaveLastskip
\Hy@RestoreLastskip

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

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

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

9 Options

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

9.1 Help macros

\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{%
      \Hy@Error{%
        Unicode support for bookmarks is not available.\MessageBreak
        Activate unicode support by using one of the options\MessageBreak
        'unicode', 'pdfencoding=unicode', 'pdfencoding=auto'\MessageBreak
        in the preamble%
      }\@ehc
```

```
      \global\let\HyPsd@LoadUnicode\relax
      \global\Hy@unicodefalse
      \global\let\Hy@unicodetrue\Hy@unicodefalse
    }%
  \fi
}
\define@key{Hyp}{pdfencoding}{%
  \edef\HyPsd@temp{#1}%
  \ifx\HyPsd@temp\HyPsd@pdfencoding@pdfdoc
    \let\HyPsd@pdfencoding\HyPsd@temp
    \Hy@unicodefalse
  \else
    \ifcase\ifx\HyPsd@temp\HyPsd@pdfencoding@unicode
            \z@
          \else
            \ifx\HyPsd@temp\HyPsd@pdfencoding@auto
              \z@
            \else
              \@ne
            \fi
          \fi
      \let\HyPsd@pdfencoding\HyPsd@temp
      \hypersetup{unicode}%
      \ifHy@unicode
        \def\HyPsd@pdfencoding{#1}%
        \ifx\HyPsd@pdfencoding\HyPsd@pdfencoding@auto
          \HyPsd@LoadStringEnc
        \fi
      \else
        \Hy@Warning{Cannot switch to unicode bookmarks}%
        \let\HyPsd@pdfencoding\HyPsd@pdfencoding@pdfdoc
      \fi
    \else
      \@onelevel@sanitize\HyPsd@temp
      \Hy@Warning{%
        Values of option 'pdfencoding':\MessageBreak
        'pdfdoc', 'unicode', 'auto'.\MessageBreak
        Ignoring unknown value '\HyPsd@temp'%
      }%
    \fi
  \fi
}
\def\HyPsd@pdfencoding@auto{auto}
\def\HyPsd@pdfencoding@pdfdoc{pdfdoc}
\def\HyPsd@pdfencoding@unicode{unicode}
\let\HyPsd@pdfencoding\Hy@pdfencoding@pdfdoc
\def\HyPsd@LoadStringEnc{%
  \RequirePackage{stringenc}[2009/12/15]%
  \let\HyPsd@LoadStringEnc\relax
}
\Hy@AtBeginDocument{%
  \@ifpackageloaded{stringenc}{%
    \let\HyPsd@LoadStringEnc\relax
  }{%
    \def\HyPsd@LoadStringEnc{%
      \Hy@WarningNoLine{%
        Missing package 'stringenc'. Use 'pdfencoding=auto'\MessageBreak
```

```
      in the preamble or load the package there%
    }%
  }%
 }%
}
\def\hypersetup{\kvsetkeys{Hyp}}
\newif\ifHy@setpdfversion
\define@key{Hyp}{pdfversion}{%
 \@ifundefined{Hy@pdfversion@#1}{%
  \PackageWarning{hyperref}{%
   Unsupported PDF version '#1'.\MessageBreak
   Valid values: 1.2 until 1.9%
  }%
 }{%
  \Hy@setpdfversiontrue
  \edef\Hy@pdfversion{\@nameuse{Hy@pdfversion@#1}}%
 }%
}
\@namedef{Hy@pdfversion@1.2}{2}%
\@namedef{Hy@pdfversion@1.3}{3}%
\@namedef{Hy@pdfversion@1.4}{4}%
\@namedef{Hy@pdfversion@1.5}{5}%
\@namedef{Hy@pdfversion@1.6}{6}%
\@namedef{Hy@pdfversion@1.7}{7}%
\@namedef{Hy@pdfversion@1.8}{8}%
\@namedef{Hy@pdfversion@1.9}{9}%
\def\Hy@pdfversion{2}
```

10 Options for different drivers

```
\newif\ifHy@DviMode
\let\Hy@DviErrMsg\ltx@empty
\ifpdf
 \def\Hy@DviErrMsg{pdfTeX or LuaTeX is running in PDF mode}%
\else
 \ifxetex
  \def\Hy@DviErrMsg{XeTeX is running}%
 \else
  \ifvtex
   \ifvtexdvi
    \Hy@DviModetrue
   \else
    \def\Hy@DviErrMsg{VTeX is running, but not in DVI mode}%
   \fi
  \else
   \Hy@DviModetrue
  \fi
 \fi
\fi
\def\HyOpt@CheckDvi#1{%
 \ifHy@DviMode
  \expandafter\ltx@firstofone
 \else
  \Hy@Error{%
   Wrong DVI mode driver option '#1',\MessageBreak
   because \Hy@DviErrMsg
  }\@ehc
```

```
    \expandafter\ltx@gobble
  \fi
}
\DeclareVoidOption{tex4ht}{%
  \Hy@texhttrue
  \kvsetkeys{Hyp}{colorlinks=true}%
  \def\BeforeTeXIVht{\RequirePackage{color}}%
  \def\Hy@driver{htex4ht}%
  \def\MaybeStopEarly{%
    \Hy@Message{Stopped early}%
    \Hy@AtBeginDocument{%
      \PDF@FinishDoc
      \gdef\PDF@FinishDoc{}%
    }%
    \endinput
  }%
}
\DeclareVoidOption{pdftex}{%
  \ifpdf
    \def\Hy@driver{hpdftex}%
  \else
    \Hy@Error{%
      Wrong driver option 'pdftex',\MessageBreak
      because pdfTeX in PDF mode is not detected%
    }\@ehc
  \fi
}
\DeclareVoidOption{nativepdf}{%
  \HyOpt@CheckDvi{nativepdf}{%
    \def\Hy@driver{hdvips}%
  }%
}
\DeclareVoidOption{dvipdfm}{%
  \HyOpt@CheckDvi{dvipdfm}{%
    \def\Hy@driver{hdvipdfm}%
  }%
}
\DeclareVoidOption{dvipdfmx}{%
  \HyOpt@CheckDvi{dvipdfmx}{%
    \def\Hy@driver{hdvipdfm}%
  }%
}
\define@key{Hyp}{dvipdfmx-outline-open}[true]{%
  \expandafter\ifx\csname if#1\expandafter\endcsname
                \csname iftrue\endcsname
    \chardef\SpecialDvipdfmxOutlineOpen\@ne
  \else
    \chardef\SpecialDvipdfmxOutlineOpen\z@
  \fi
}
\DeclareVoidOption{xetex}{%
  \ifxetex
    \def\Hy@driver{hxetex}%
  \else
    \Hy@Error{%
      Wrong driver option 'xetex',\MessageBreak
      because XeTeX is not detected%
```

```
    }\@ehc
  \fi
}
\DeclareVoidOption{pdfmark}{%
  \HyOpt@CheckDvi{pdfmark}{%
    \def\Hy@driver{hdvips}%
  }%
}
\DeclareVoidOption{dvips}{%
  \HyOpt@CheckDvi{dvips}{%
    \def\Hy@driver{hdvips}%
  }%
}
\DeclareVoidOption{hypertex}{%
  \HyOpt@CheckDvi{hypertex}{%
    \def\Hy@driver{hypertex}%
  }%
}
\let\Hy@MaybeStopNow\relax
\DeclareVoidOption{vtex}{%
  \ifvtex
    \ifnum 0\ifnum\OpMode<1 1\fi \ifnum\OpMode>3 1\fi =0 %
      \def\Hy@driver{hvtex}%
    \else
      \ifnum\OpMode=10\relax
        \def\Hy@driver{hvtexhtm}%
        \def\MaybeStopEarly{%
          \Hy@Message{Stopped early}%
          \Hy@AtBeginDocument{%
            \PDF@FinishDoc
            \gdef\PDF@FinishDoc{}%
          }%
          \endinput
        }%
      \else
        \Hy@Error{%
          Wrong driver option 'vtex',\MessageBreak
          because of wrong OpMode (\the\OpMode)%
        }\@ehc
      \fi
    \fi
  \else
    \Hy@Error{%
      Wrong driver option 'vtex',\MessageBreak
      because VTeX is not running%
    }\@ehc
  \fi
}
\DeclareVoidOption{vtexpdfmark}{%
  \ifvtex
    \ifnum 0\ifnum\OpMode<1 1\fi \ifnum\OpMode>3 1\fi =0 %
      \def\Hy@driver{hvtexmrk}%
    \else
      \Hy@Error{%
        Wrong driver option 'vtexpdfmark',\MessageBreak
        because of wrong OpMode (\the\OpMode)%
      }\@ehc
```

```
    \fi
  \else
    \Hy@Error{%
      Wrong driver option 'vtexpdfmark,\MessageBreak
      because VTeX is not running%
    }\@ehc
  \fi
}
\DeclareVoidOption{dviwindo}{%
  \HyOpt@CheckDvi{dviwindo}{%
    \def\Hy@driver{hdviwind}%
    \kvsetkeys{Hyp}{colorlinks}%
    \PassOptionsToPackage{dviwindo}{color}%
  }%
}
\DeclareVoidOption{dvipsone}{%
  \HyOpt@CheckDvi{dvipsone}{%
    \def\Hy@driver{hdvipson}%
  }%
}
\DeclareVoidOption{textures}{%
  \HyOpt@CheckDvi{textures}{%
    \def\Hy@driver{htexture}%
  }%
}
\DeclareVoidOption{latex2html}{%
  \HyOpt@CheckDvi{latex2html}{%
    \Hy@AtBeginDocument{\@@latextohtmlX}%
  }%
}
```

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

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

11 Options to add extra features

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

```
\define@key{Hyp}{hyperfigures}[true]{%
  \Hy@boolkey[hyperfigures]{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{%
  \@ifpackagewith{babel}{#1}{%
    \expandafter\HyLang@addto
        \csname extras#1\expandafter\endcsname
        \csname HyLang@#2\endcsname
    \begingroup
      \edef\x{\endgroup
        #3%
      }%
    \x
    \@namedef{HyLang@#1@done}{}%
  }{}%
  \begingroup
    \edef\x##1##2{%
      \noexpand\ifx##2\relax
        \errmessage{No definitions for language #2' found!}%
      \noexpand\fi
      \endgroup
      \noexpand\define@key{Hyp}{#1}[]{%
        \noexpand\@ifundefined{HyLang@#1@done}{%
          \noexpand\HyLang@addto{\noexpand##1}{\noexpand##2}%
          #3%
          \noexpand\@namedef{HyLang@#1@done}{}%
        }{}%
      }%
    }%
  \expandafter\x\csname extras#1\expandafter\endcsname
              \csname HyLang@#2\endcsname
}
\HyLang@DeclareLang{english}{english}{}
\HyLang@DeclareLang{UKenglish}{english}{}
\HyLang@DeclareLang{british}{english}{}
\HyLang@DeclareLang{USenglish}{english}{}
\HyLang@DeclareLang{american}{english}{}
\HyLang@DeclareLang{german}{german}{}
\HyLang@DeclareLang{austrian}{german}{}
\HyLang@DeclareLang{ngerman}{german}{}
\HyLang@DeclareLang{naustrian}{german}{}
\HyLang@DeclareLang{russian}{russian}{\noexpand\hypersetup{unicode}}
\HyLang@DeclareLang{brazil}{portuges}{}
\HyLang@DeclareLang{brazilian}{portuges}{}
```

```
\HyLang@DeclareLang{portuguese}{portuges}{}
\HyLang@DeclareLang{spanish}{spanish}{}
\HyLang@DeclareLang{afrikaans}{afrikaans}{}
\HyLang@DeclareLang{french}{french}{}
\HyLang@DeclareLang{frenchb}{french}{}
\HyLang@DeclareLang{francais}{french}{}
\HyLang@DeclareLang{acadian}{french}{}
\HyLang@DeclareLang{canadien}{french}{}
\HyLang@DeclareLang{italian}{italian}{}
\HyLang@DeclareLang{magyar}{magyar}{}
\HyLang@DeclareLang{hungarian}{magyar}{}
```

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

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

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

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

13 Options to change appearance of links

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

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

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

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

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

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

```
\def\Hy@ColorList{cite,file,link,menu,run,url}
\@for\Hy@temp:=\Hy@ColorList\do{%
  \edef\Hy@temp{%
    \noexpand\define@key{Hyp}{\Hy@temp bordercolor}{%
      \noexpand\HyColor@HyperrefBorderColor
          {##1}%
          \expandafter\noexpand\csname @\Hy@temp bordercolor\endcsname
          {hyperref}%
          {\Hy@temp bordercolor}%
    }%
  }%
  \Hy@temp
}
\define@key{Hyp}{pagebordercolor}{%
  \Hy@WarningPageBorderColor
}
\def\Hy@WarningPageBorderColor{%
  \Hy@WarningNoLine{Option 'pagebordercolor' is not available anymore}%
  \global\let\Hy@WarningPageBorderColor\relax
}
\define@key{Hyp}{pdfhighlight}{\def\@pdfhighlight{#1}}
\Hy@DefNameKey{pdfhighlight}{%
  \do{/I}{Invert}%
  \do{/N}{None}%
  \do{/O}{Outline}%
  \do{/P}{Push}%
}
\define@key{Hyp}{pdfborder}{%
  \def\Hy@temp{#1}%
  \Hy@Match\Hy@temp{%
    ^(\HyPat@NonNegativeReal/ %
      \HyPat@NonNegativeReal/ %
      \HyPat@NonNegativeReal/%
      ( ?[\HyPat@NonNegativeReal/( \HyPat@NonNegativeReal/)*])?)$%
  }{%
    \let\@pdfborder\Hy@temp
  }{%
    \Hy@Warning{%
      Invalid value '\Hy@temp'\MessageBreak
      for option 'pdfborder'.\MessageBreak
      Option setting is ignored%
    }%
  }%
}
\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'%
      }%
      \kvsetkeys{Hyp}{unicode}%
    \fi
  \else
    \let\HyXeTeX@CheckUnicode\relax
  \fi
}
\def\HyPsd@PrerenderUnicode#1{%
  \begingroup
    \expandafter\ifx\csname PrerenderUnicode\endcsname\relax
    \else
      \sbox0{%
        \let\GenericInfo\@gobbletwo
        \let\GenericWarning\@gobbletwo
        \let\GenericError\@gobblefour
        \PrerenderUnicode{#1}%
       }%
    \fi
  \endgroup
}
\define@key{Hyp}{pdftitle}{%
  \HyXeTeX@CheckUnicode
  \HyPsd@XeTeXBigCharstrue
  \HyPsd@PrerenderUnicode{#1}%
  \pdfstringdef\@pdftitle{#1}%
}
\define@key{Hyp}{pdfauthor}{%
  \HyXeTeX@CheckUnicode
```

```
  \HyPsd@XeTeXBigCharstrue
  \HyPsd@PrerenderUnicode{#1}%
  \pdfstringdef\@pdfauthor{#1}%
}
\define@key{Hyp}{pdfproducer}{%
  \HyXeTeX@CheckUnicode
  \HyPsd@XeTeXBigCharstrue
  \HyPsd@PrerenderUnicode{#1}%
  \pdfstringdef\@pdfproducer{#1}%
}
\define@key{Hyp}{pdfcreator}{%
  \HyXeTeX@CheckUnicode
  \HyPsd@XeTeXBigCharstrue
  \HyPsd@PrerenderUnicode{#1}%
  \pdfstringdef\@pdfcreator{#1}%
}
\define@key{Hyp}{pdfcreationdate}{%
  \begingroup
    \Hy@unicodefalse
    \pdfstringdef\@pdfcreationdate{#1}%
  \endgroup
}
\define@key{Hyp}{pdfmoddate}{%
  \begingroup
    \Hy@unicodefalse
    \pdfstringdef\@pdfmoddate{#1}%
  \endgroup
}
\define@key{Hyp}{pdfsubject}{%
  \HyXeTeX@CheckUnicode
  \HyPsd@XeTeXBigCharstrue
  \HyPsd@PrerenderUnicode{#1}%
  \pdfstringdef\@pdfsubject{#1}%
}
\define@key{Hyp}{pdfkeywords}{%
  \HyXeTeX@CheckUnicode
  \HyPsd@XeTeXBigCharstrue
  \HyPsd@PrerenderUnicode{#1}%
  \pdfstringdef\@pdfkeywords{#1}%
}
\define@key{Hyp}{pdftrapped}{%
  \lowercase{\edef\Hy@temp{#1}}%
  \ifx\Hy@temp\HyInfo@trapped@true
    \def\@pdftrapped{True}%
  \else
    \ifx\Hy@temp\HyInfo@trapped@false
      \def\@pdftrapped{False}%
    \else
      \ifx\Hy@temp\HyInfo@trapped@unknown
        \def\@pdftrapped{Unknown}%
      \else
        \ifx\Hy@temp\@empty
        \else
          \Hy@Warning{%
            Unsupported value '#1'\MessageBreak
            for option 'pdftrapped'%
          }%
```

```
      \fi
      \def\@pdftrapped{}%
    \fi
  \fi
\fi
}
\def\HyInfo@trapped@true{true}
\def\HyInfo@trapped@false{false}
\def\HyInfo@trapped@unknown{unknown}
\def\HyInfo@TrappedUnsupported{%
  \ifx\@pdftrapped\@empty
  \else
    \Hy@WarningNoLine{'pdftrapped' is not supported by this driver}%
    \gdef\HyInfo@TrappedUnsupported{}%
  \fi
}
\define@key{Hyp}{pdfinfo}{%
  \kvsetkeys{pdfinfo}{#1}%
}
\def\Hy@temp#1{%
  \lowercase{\Hy@temp@A{#1}}{#1}%
}
\def\Hy@temp@A#1#2{%
  \define@key{pdfinfo}{#2}{%
    \hypersetup{pdf#1={##1}}%
  }%
}
\Hy@temp{Title}
\Hy@temp{Author}
\Hy@temp{Keywords}
\Hy@temp{Subject}
\Hy@temp{Creator}
\Hy@temp{Producer}
\Hy@temp{CreationDate}
\Hy@temp{ModDate}
\Hy@temp{Trapped}
\newif\ifHyInfo@AddonUnsupported
\kv@set@family@handler{pdfinfo}{%
  \HyInfo@AddonHandler{#1}{#2}%
}
\let\HyInfo@do\relax
\def\HyInfo@AddonHandler#1#2{%
  \ifx\kv@value\relax
    \Hy@Warning{%
      Option 'pdfinfo': ignoring key '\kv@key' without value%
    }%
  \else
    \EdefEscapeName\HyInfo@KeyEscaped{\kv@key}%
    \EdefUnescapeName\HyInfo@Key{\HyInfo@KeyEscaped}%
    \expandafter\ifx\csname KV@pdfinfo@\HyInfo@Key\endcsname\relax
      \ifHyInfo@AddonUnsupported
        \Hy@Warning{%
          This driver does not support additional\MessageBreak
          information entries, therefore\MessageBreak
          '\kv@key' is ignored%
        }%
      \else
```

```
      \define@key{pdfinfo}{\HyInfo@Key}{%
        \HyXeTeX@CheckUnicode
        \HyPsd@XeTeXBigCharstrue
        \HyPsd@PrerenderUnicode{##1}%
        \pdfstringdef\HyInfo@Value{##1}%
        \expandafter\let\csname HyInfo@Value@\HyInfo@Key\endcsname
            \HyInfo@Value
      }%
      \edef\HyInfo@AddonList{%
        \HyInfo@AddonList
        \HyInfo@do{\HyInfo@Key}%
      }%
      \kv@parse@normalized{%
        \HyInfo@Key={#2}%
      }{%
        \kv@processor@default{pdfinfo}%
      }%
    \fi
  \else
    \kv@parse@normalized{%
      \HyInfo@Key={#2}%
    }{%
      \kv@processor@default{pdfinfo}%
    }%
  \fi
\fi
}
\def\HyInfo@GenerateAddons{%
  \ifHyInfo@AddonUnsupported
    \def\HyInfo@Addons{}%
  \else
    \begingroup
      \toks@{}%
      \def\HyInfo@do##1{%
        \EdefEscapeName\HyInfo@Key{##1}%
        \edef\x{%
          \toks@{%
            \the\toks@
            /\HyInfo@Key(\csname HyInfo@Value@##1\endcsname)%
          }%
        }%
        \x
      }%
      \HyInfo@AddonList
      \edef\x{\endgroup
        \def\noexpand\HyInfo@Addons{\the\toks@}%
      }%
    \x
  \fi
}
\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
}
\def\HyPat@NonNegativeReal/{%
  ([0-9]+\.?[0-9]*|[0-9]*\.?[0-9]+)%
}
\define@key{Hyp}{pdfremotestartview}{%
  \ifx\\#1\\%
    \def\@pdfremotestartview{/Fit}%
  \else
    \hypercalcbpdef\@pdfremotestartview{#1}%
    \edef\@pdfremotestartview{\@pdfremotestartview}%
    \Hy@Match\@pdfremotestartview{%
      ^(XYZ -?(null|\HyPat@NonNegativeReal/) %
          -?(null|\HyPat@NonNegativeReal/) %
          (null|\HyPat@NonNegativeReal/)|%
        Fit(|B|%
         (H|V|BH|BV) (null|\HyPat@NonNegativeReal/)|%
         R \HyPat@NonNegativeReal/ \HyPat@NonNegativeReal/ %
           \HyPat@NonNegativeReal/ \HyPat@NonNegativeReal/%
      ))$%
    }{}{%
      \Hy@Warning{%
        Invalid value '\@pdfremotestartview'\MessageBreak
        of 'pdfremotestartview'\MessageBreak
        is replaced by 'Fit'%
      }%
      \let\@pdfremotestartview\@empty
    }%
    \ifx\@pdfremotestartview\@empty
      \def\@pdfremotestartview{/Fit}%
```

```
    \else
      \edef\@pdfremotestartview{/\@pdfremotestartview}%
    \fi
  \fi
}
\define@key{Hyp}{pdfpagescrop}{\edef\@pdfpagescrop{#1}}
\define@key{Hyp}{pdftoolbar}[true]{%
  \Hy@boolkey[pdftoolbar]{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\@pdfremotestartview{/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{\|}
```

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.

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

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

15.2 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
  \Hy@InfoNoLine{Implicit mode ON; LaTeX internals redefined}%
\else
  \Hy@InfoNoLine{Implicit mode OFF; no redefinition of LaTeX internals}%
  \def\MaybeStopEarly{%
    \Hy@Message{Stopped early}%
    \Hy@AtBeginDocument{%
      \PDF@FinishDoc
      \gdef\PDF@FinishDoc{}%
    }%
    \endinput
  }%
  \Hy@AtBeginDocument{%
    \let\autoref\ref
    \let\autopageref\pageref
    \ifx\@pdfpagemode\@empty
      \gdef\@pdfpagemode{UseNone}%
    \fi
    \global\Hy@backreffalse
  }%
  \Hy@AtEndOfPackage{%
    \global\let\ReadBookmarks\relax
    \global\let\WriteBookmarks\relax
  }%
\fi
\Hy@DisableOption{implicit}
```

15.2.1 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.

```
\def\HyOpt@DriverType{}%
\ifx\Hy@driver\@empty
 \def\HyOpt@DriverType{ (autodetected)}%
 \providecommand*{\Hy@defaultdriver}{hypertex}%
 \ifpdf
  \def\Hy@driver{hpdftex}%
 \else
  \ifxetex
   \def\Hy@driver{hxetex}%
  \else
   \ifvtexhtml
    \def\Hy@driver{hvtexhtm}%
    \def\MaybeStopEarly{%
     \Hy@Message{Stopped early}%
     \Hy@AtBeginDocument{%
      \PDF@FinishDoc
      \gdef\PDF@FinishDoc{}%
     }%
     \endinput
    }%
   \else
    \ifvtexpdf
     \def\Hy@driver{hvtex}%
    \else
     \ifvtexps
      \def\Hy@driver{hvtex}%
     \else
      \ifx\HyOpt@DriverFallback\ltx@empty
       \let\Hy@driver\Hy@defaultdriver
       \def\HyOpt@DriverType{ (default)}%
      \else
       \begingroup
        \toks@\expandafter{\HyOpt@DriverFallback}%
        \edef\x{\endgroup
         \noexpand\kvsetkeys{Hyp}{\the\toks@}%
        }%
       \x
       \ifx\Hy@driver\ltx@empty
        \let\Hy@driver\Hy@defaultdriver
        \def\HyOpt@DriverType{ (default)}%
       \else
        \def\HyOpt@DriverType{ (fallback)}%
       \fi
      \fi
     \fi
    \fi
   \fi
```

```
    \fi
    \ifx\Hy@driver\Hy@defaultdriver
      \def\Hy@temp{hdviwind}%
      \ifx\Hy@temp\Hy@driver
        \kvsetkeys{Hyp}{colorlinks}%
        \PassOptionsToPackage{dviwindo}{color}%
      \fi
    \fi
  \fi
  \Hy@Message{Driver\HyOpt@DriverType: \Hy@driver}%
  \input{\Hy@driver.def}%
  \let\@unprocessedoptions\relax
  \Hy@RestoreCatcodes
  \Hy@DisableOption{tex4ht}%
  \Hy@DisableOption{pdftex}%
  \Hy@DisableOption{nativepdf}%
  \Hy@DisableOption{dvipdfm}%
  \Hy@DisableOption{dvipdfmx}%
  \Hy@DisableOption{dvipdfmx-outline-open}%
  \Hy@DisableOption{pdfmark}%
  \Hy@DisableOption{dvips}%
  \Hy@DisableOption{hypertex}%
  \Hy@DisableOption{vtex}%
  \Hy@DisableOption{vtexpdfmark}%
  \Hy@DisableOption{dviwindo}%
  \Hy@DisableOption{dvipsone}%
  \Hy@DisableOption{textures}%
  \Hy@DisableOption{latex2html}%
  \Hy@DisableOption{ps2pdf}%
  \Hy@DisableOption{xetex}%
  \Hy@DisableOption{pdfversion}%
}
```

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

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

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
    \kvsetkeys{Hyp}{colorlinks}%
    \ifHy@pdfa
      \Hy@Warning{%
        PDF/A: Optional Content Groups are prohibited,\MessageBreak
        using 'colorlinks' instead of 'ocgcolorlinks'%
      }%
      \Hy@ocgcolorlinksfalse
    \fi
  \fi
  \ifHy@ocgcolorlinks
  \else
    \Hy@DisableOption{ocgcolorlinks}%
  \fi
  \ifHy@colorlinks
    \def\@pdfborder{0 0 0}%
    \let\@pdfborderstyle\@empty
    \ifHy@typexml
    \else
      \Hy@CatcodeWrapper{%
        \RequirePackage{color}%
      }%
    \fi
    \def\Hy@colorlink#1{%
      \begingroup
      \HyColor@UseColor#1%
    }%
    \def\Hy@endcolorlink{\endgroup}%
    \Hy@Info{Link coloring ON}%
  \else
    \ifHy@frenchlinks
      \def\Hy@colorlink#1{\begingroup\fontshape{sc}\selectfont}%
      \def\Hy@endcolorlink{\endgroup}%
      \Hy@Info{French linking ON}%
    \else
```

for grouping consistency:

```
      \def\Hy@colorlink#1{\begingroup}%
      \def\Hy@endcolorlink{\endgroup}%
      \Hy@Info{Link coloring OFF}%
    \fi
  \fi
  \Hy@DisableOption{colorlinks}%
  \Hy@DisableOption{frenchlinks}%
  \ifHy@texht
    \long\def\@firstoffive#1#2#3#4#5{#1}%
```

```
    \long\def\@secondoffive#1#2#3#4#5{#2}%
    \long\def\@thirdoffive#1#2#3#4#5{#3}%
    \long\def\@fourthoffive#1#2#3#4#5{#4}%
    \long\def\@fifthoffive#1#2#3#4#5{#5}%
    \providecommand*\@safe@activestrue{}%
    \providecommand*\@safe@activesfalse{}%
    \def\T@ref#1{%
      \Hy@safe@activestrue
      \expandafter\@setref\csname r@#1\endcsname\@firstoffive{#1}%
      \Hy@safe@activesfalse
    }%
    \def\T@pageref#1{%
      \Hy@safe@activestrue
      \expandafter\@setref\csname r@#1\endcsname\@secondoffive{#1}%
      \Hy@safe@activesfalse
    }%
  \else
    \ifHy@typexml
    \else
      \Hy@CatcodeWrapper{%
        \RequirePackage{nameref}%
      }%
    \fi
  \fi
  \DeclareRobustCommand\ref{%
    \@ifstar\@refstar\T@ref
  }%
  \DeclareRobustCommand\pageref{%
    \@ifstar\@pagerefstar\T@pageref
  }%
%  \@ifclassloaded{memoir}{%
%    \ltx@IfUndefined{@mem@titlerefnolink}\ltx@secondoftwo{%
%      \ltx@IfUndefined{@mem@titleref}\ltx@secondoftwo\ltx@firstoftwo
%    }%
%  }\ltx@secondoftwo
%  {%
%    \DeclareRobustCommand*{\nameref}{%
%      \@ifstar\@mem@titlerefnolink\@mem@titleref
%    }%
%  }{%
    \DeclareRobustCommand*{\nameref}{%
      \@ifstar\@namerefstar\T@nameref
    }%
%  }%
}
\Hy@AtBeginDocument{%
  \ifHy@texht
  \else
    \Hy@CatcodeWrapper{%
      \ReadBookmarks
    }%
  \fi
}
\ifHy@backref
  \RequirePackage{backref}%
\else
  \let\Hy@backout\@gobble
```

```
\fi
\Hy@DisableOption{backref}
\Hy@DisableOption{pagebackref}
\Hy@activeanchorfalse
```

16 User hypertext macros

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

```
\begingroup
  \endlinechar=-1 %
  \catcode`\^^A=14 %
  \catcode`\^^M\active
  \catcode`\%\active
  \catcode`\#\active
  \catcode`\_\active
  \catcode`\$\active
  \catcode`\&\active
  \gdef\hyper@normalise{^^A
    \begingroup
    \catcode`\^^M\active
    \def^^M{ }^^A
    \catcode`\%\active
    \let%\@percentchar
    \let\%\@percentchar
    \catcode`\#\active
    \def#{\hyper@hash}^^A
    \def\#{\hyper@hash}^^A
    \@makeother\&^^A
    \edef&{\string&}^^A
    \edef\&{\string&}^^A
    \edef\textunderscore{\string_}^^A
    \let\_\textunderscore
    \catcode`\_\active
    \let_\textunderscore
    \let~\hyper@tilde
    \let\~\hyper@tilde
    \let\textasciitilde\hyper@tilde
    \let\\\@backslashchar
    \edef${\string$}^^A
    \Hy@safe@activestrue
    \hyper@n@rmalise
  }^^A
  \catcode`\#=6 ^^A
  \gdef\Hy@ActiveCarriageReturn{^^M}^^A
  \gdef\hyper@n@rmalise#1#2{^^A
    \def\Hy@tempa{#2}^^A
    \ifx\Hy@tempa\Hy@ActiveCarriageReturn
      \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}[1][]{%
  \begingroup
  \setkeys{href}{#1}%
  \@ifnextchar\bgroup\Hy@href{\hyper@normalise\href@}%
}
\def\Hy@href#{%
  \hyper@normalise\href@
}
\begingroup
  \catcode`\$=6 %
  \catcode`\#=12 %
  \gdef\href@$1{\expandafter\href@split$1##\\}%
  \gdef\href@split$1#$2#$3\\$4{%
    \hyper@@link{$1}{$2}{$4}%
    \endgroup
  }%
\endgroup
```

Option 'page'.

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

```
    \fi
  \fi
```

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

```
  \ifx\Hy@href@nextactionraw\@empty
  \else
    \Hy@newwindowsettrue
    \Hy@newwindowtrue
  \fi
}
```

Option ‘pdfremotestartview’.

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

Option ‘pdfnewwindow’.

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

Option ‘ismap’.

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

Option ‘nextactionraw’.

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

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

```
\RequirePackage{url}
```

```
\let\HyOrg@url\url
\def\Hurl{\begingroup \Url}
\DeclareRobustCommand*{\nolinkurl}{\hyper@normalise\nolinkurl@}
\def\nolinkurl@#1{\Hurl{#1}}
\DeclareRobustCommand*{\url}{\hyper@normalise\url@}
\def\url@#1{\hyper@linkurl{\Hurl{#1}}{#1}}

\DeclareRobustCommand*{\hyperimage}{\hyper@normalise\hyper@image}
\providecommand\hyper@image[2]{#2}

\def\hypertarget#1#2{%
  \ifHy@nesting
    \hyper@@anchor{#1}{#2}%
  \else
    \hyper@@anchor{#1}{\relax}#2%
  \fi
}
```

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

```
\DeclareRobustCommand*{\hyperref}{%
  \@ifnextchar[{\Hy@babelnormalise\label@hyperref}\@hyperref
}
\def\Hy@babelnormalise#1[#2]{%
  \begingroup
    \Hy@safe@activestrue
    \edef\Hy@tempa{%
      \endgroup
      \noexpand#1[{#2}]%
    }%
  \Hy@tempa
}
\def\@hyperref{\hyper@normalise\@@hyperref}
\def\@@hyperref#1#2#3{%
  \edef\ref@one{\ifx\\#2\\\else#2.\fi#3}%
  \expandafter\tryhyper@link\ref@one\\{#1}%
}
\def\tryhyper@link#1\\#2{%
 \hyper@@link{#2}{#1}%
}

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

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

```
\def\label@hyperref[#1]{%
  \expandafter\label@@hyperref\csname r@#1\endcsname{#1}%
}%
\def\label@@hyperref#1#2#3{%
  \ifx#1\relax
    \protect\G@refundefinedtrue
    \@latex@warning{%
      Hyper reference `#2' on page \thepage \space undefined%
    }%
    \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{%
  \begingroup
    \let\\\relax
  \expandafter\endgroup
  \expandafter\@@hyper@@readexternallink#1\\{#2}{#3}{#4}%
}
\def\@@hyper@@readexternallink#1\\#2#3#4{%
```

Parameters are:

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

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

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

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

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

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

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

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

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

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

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

otherwise its a URL

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

By default, turn run: into file:

```
\def\@hyper@launch run:#1\\#2#3{% filename, anchor text, linkname
  \hyper@linkurl{#2}{%
    \Hy@linkfileprefix
    #1%
    \ifx\\#3\\%
    \else
      \hyper@hash
      #3%
    \fi
  }%
}
```

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

```
\def\@hyper@linkfile file:#1\\#2#3#4{%
   %file url,link string, name, original uri
  \filename@parse{#1}%
  \ifx\filename@ext\relax
    \edef\filename@ext{\XR@ext}%
  \fi
  \def\use@file{\filename@area\filename@base.\filename@ext}%
  \Hy@IfStringEndsWith\filename@ext\XR@ext{%
    \hyper@linkfile{#2}{\use@file}{#3}%
  }{%
    \ifx\@baseurl\@empty
      \hyper@linkurl{#2}{%
        #4\ifx\\#3\\\else\hyper@hash#3\fi
      }%
    \else
```

```
    \hyper@linkurl{#2}{\use@file\ifx\\#3\\\else\hyper@hash#3\fi}%
  \fi
 }%
}
\def\Hy@IfStringEndsWith#1#2{%
 \begingroup
  \edef\x{#1}%
  \@onelevel@sanitize\x
  \edef\x{.\x$}%
  \edef\y{#2}%
  \@onelevel@sanitize\y
  \edef\y{.\y$}%
  \expandafter\def\expandafter\z\expandafter##\expandafter1\y##2\@nil{%
    \endgroup
    \ifx\relax##2\relax
      \expandafter\ltx@secondoftwo
    \else
      \expandafter\ltx@firstoftwo
    \fi
  }%
 \expandafter\expandafter\expandafter\z\expandafter\x\y\@nil
}
\def\Hy@StringLocalhost{localhost}
\@onelevel@sanitize\Hy@StringLocalhost
\def\Hy@CleanupFile#1{%
 \edef#1{#1}%
 \expandafter\Hy@@CleanupFile#1\hbox///\hbox\@nil{#1}%
}
\def\Hy@@CleanupFile#1//#2/#3\hbox#4\@nil#5{%
 \begingroup
  \toks@{\endgroup}%
  \def\x{#1}%
  \ifx\x\@empty
    \def\x{#2}%
    \ifx\x\@empty
      \toks@{\endgroup\def#5{/#3}}%
    \else
      \@onelevel@sanitize\x
      \ifx\x\Hy@StringLocalhost
        \toks@{\endgroup\def#5{/#3}}%
      \fi
    \fi
  \fi
 \the\toks@
}
```

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

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

```
\long\def\hyper@@anchor#1#2{\@hyper@@anchor#1\relax#2\relax}
\long\def\@hyper@@anchor#1\relax#2#3\relax{%
 \ifx\\#1\\%
```

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

18 Compatibility with the *LaTeX2html* package

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

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

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

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

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

```
                % post-label text in print
  ##2\ref{##4}##3%
 }%
}
```

19 Forms creation

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

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

19.1 Field flags

The field flags are organized in a bit set.

```
\RequirePackage{bitset}
```

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

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

\HyField@NewFlag

#1: type: F annot flags, Ff field flags
#2: PDF name
#3: PDF position

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

\HyField@NewFlagOnly

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

\HyField@NewOption

#1: option name

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

\HyField@NewBitsetFlag

Package 'bitset' uses zero based positions, the PDF specification starts with one.
#1: option
#2: PDF name
#3: type: F annot flags, Ff field flags
#4: PDF position

```
\def\HyField@NewBitsetFlag#1#2#3#4{%
  \begingroup
    \count@=#4\relax
    \advance\count@\m@ne
    \def\x##1{%
      \endgroup
      \expandafter\def\csname HyField@#3@#1\endcsname{##1}%
```

```
    \expandafter\ifx\csname HyField@#3@##1\endcsname\relax
      \expandafter\edef\csname HyField@#3@##1\endcsname{%
        (\number#4) #2%
      }%
    \else
      \expandafter\edef\csname HyField@#3@##1\endcsname{%
        \csname HyField@#3@##1\endcsname
        /#2%
      }%
    \fi
  }%
  \expandafter\x\expandafter{\the\count@}%
}
```

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

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

\HyField@@UseFlag

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

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

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

\HyField@@SetFlag

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

\HyField@PrintFlags

```
\def\HyField@PrintFlags#1#2{%
  \ifHy@verbose
    \begingroup
      \let\Hy@temp\@empty
      \let\MessageBreak\relax
      \expandafter\@for\expandafter\x\expandafter:\expandafter=%
      \bitsetGetSetBitList{HyField@#1}\do{%
        \edef\Hy@temp{%
          \Hy@temp
          \csname HyField@#1@\x\endcsname\MessageBreak
        }%
      }%
    \edef\x{\endgroup
      \noexpand\Hy@Info{%
        Field flags: %
```

```
      \expandafter\ifx\@car#1\@nil S\else/\fi
      #1 %
      \bitsetGetDec{HyField@#1} %
      (0x\bitsetGetHex{HyField@#1}{32})\MessageBreak
    \Hy@temp
    for #2%
  }%
 }\x
\fi
}
```

19.1.1 Declarations of field flags

"Table 8.70 Field flags common to all field types"

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

"Table 8.75 Field flags specific to button fields"

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

"Table 8.77 Field flags specific to text fields"

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

"Table 8.79 field flags specific to choice fields"

```
\HyField@NewFlag{Ff}{Combo}{18}
\HyField@NewFlag{Ff}{Edit}{19}
\HyField@NewFlag{Ff}{Sort}{20}
\HyField@NewFlag{Ff}{MultiSelect}{22}% PDF 1.4
% \HyField@NewFlag{Ff}{DoNotSpellCheck}{23}% PDF 1.4
\HyField@NewFlag{Ff}{CommitOnSelChange}{27}% PDF 1.5
```

Signature fields are not supported.

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

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

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

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

```
\HyField@NewFlag{F}{Invisible}{1}
\HyField@NewFlag{F}{Hidden}{2}% PDF 1.2
\HyField@NewFlag{F}{Print}{3}% PDF 1.2
\HyField@NewFlag{F}{NoZoom}{4}% PDF 1.2
```

```
\HyField@NewFlag{F}{NoRotate}{5}% PDF 1.3
\HyField@NewFlag{F}{NoView}{6}% PDF 1.3
\HyField@NewFlag{F}{Locked}{8}% PDF 1.4
\HyField@NewFlag{F}{ToggleNoView}{9}% PDF 1.5
\HyField@NewFlag{F}{LockedContents}{10}% PDF 1.7

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

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

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

\define@key{Field}{export}{%
  \lowercase{\def\Hy@temp{#1}}%
  \@ifundefined{Fld@export@\Hy@temp}{%
    \@onelevel@sanitize\Hy@temp
    \Hy@Error{%
      Unknown export format '\Hy@temp'.\MessageBreak
```

```
      Known formats are 'FDF', 'HTML', 'XFDF', and 'PDF'%
    }\@ehc
  }{%
    \let\Fld@export\Hy@temp
  }%
}
\def\Fld@export{fdf}
\@namedef{Fld@export@fdf}{0}%
\@namedef{Fld@export@html}{1}%
\@namedef{Fld@export@xfdf}{2}%
\@namedef{Fld@export@pdf}{3}%
```

19.1.2 Set submit flags

\HyField@FlagsSubmit

```
\def\HyField@FlagsSubmit{%
  \bitsetReset{HyField@Submit}%
  \ifcase\@nameuse{Fld@export@\Fld@export} %
    % FDF
    \HyField@UseFlag{Submit}{IncludeNoValueFields}%
    \HyField@UseFlag{Submit}{SubmitCoordinates}%
    \HyField@UseFlag{Submit}{IncludeAppendSaves}%
    \HyField@UseFlag{Submit}{IncludeAnnotations}%
    \HyField@UseFlag{Submit}{CanonicalFormat}%
    \HyField@UseFlag{Submit}{ExclNonUserAnnots}%
    \HyField@UseFlag{Submit}{ExclFKey}%
    \HyField@UseFlag{Submit}{EmbedForm}%
  \or % HTML
    \HyField@SetFlag{Submit}{ExportFormat}%
    \HyField@UseFlag{Submit}{IncludeNoValueFields}%
    \HyField@UseFlag{Submit}{GetMethod}%
    \HyField@UseFlag{Submit}{SubmitCoordinates}%
    \HyField@UseFlag{Submit}{CanonicalFormat}%
  \or % XFDF
    \HyField@SetFlag{Submit}{XFDF}%
    \HyField@UseFlag{Submit}{IncludeNoValueFields}%
    \HyField@UseFlag{Submit}{SubmitCoordinates}%
    \HyField@UseFlag{Submit}{CanonicalFormat}%
  \or % PDF
    \HyField@SetFlag{Submit}{SubmitPDF}%
    \HyField@UseFlag{Submit}{GetMethod}%
  \fi
  \HyField@PrintFlags{Submit}{submit button field}%
  \bitsetIsEmpty{HyField@Submit}{%
    \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
      \Hy@Error{%
        Field option 'comb' cannot used together with\MessageBreak
        'multiline', 'password', or 'fileselect'%
      }\@ehc
    \else
      \HyField@UseFlag{Ff}{Comb}%
    \fi
  \fi
  \HyField@UseFlag{Ff}{RichText}%
  \HyField@PrintFlags{Ff}{text field}%
  \bitsetIsEmpty{HyField@Ff}{%
    \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{%
  \kvsetkeys{Field}%
}

\newif\ifFld@checked
\newif\ifFld@disabled
\Fld@checkedfalse
\Fld@disabledfalse
\newcount\Fld@menulength
\newdimen\Field@Width
\newdimen\Fld@charsize
\Fld@charsize=10\p@
\def\Fld@maxlen{0}
\def\Fld@align{0}
\def\Fld@color{0 0 0 rg}
\def\Fld@bcolor{1 1 1}
\def\Fld@bordercolor{1 0 0}
\def\Fld@bordersep{1\p@}
\def\Fld@borderwidth{1}
\def\Fld@borderstyle{S}
\def\Fld@cbsymbol{4}
\def\Fld@radiosymbol{H}
\def\Fld@rotation{0}
\def\Form{\@ifnextchar[{\@Form}{\@Form[]}}
\def\endForm{\@endForm}
\newif\ifForm@html
\Form@htmlfalse
\def\Form@boolkey#1#2{%
  \csname Form@#2\ifx\relax#1\relax true\else#1\fi\endcsname
}
\define@key{Form}{action}{%
  \hyper@normalise\Hy@DefFormAction{#1}%
```

```
}
\def\Hy@DefFormAction{\def\Form@action}
\def\enc@@html{html}
\define@key{Form}{encoding}{%
  \def\Hy@tempa{#1}%
  \ifx\Hy@tempa\enc@@html
    \Form@htmltrue
    \def\Fld@export{html}%
  \else
    \Hy@Warning{%
      Form 'encoding' key with \MessageBreak
      unknown value '#1'%
    }%
    \Form@htmlfalse
  \fi
}
\define@key{Form}{method}{%
  \lowercase{\def\Hy@temp{#1}}%
  \@ifundefined{Form@method@\Hy@temp}{%
    \@onelevel@sanitize\Hy@temp
    \Hy@Error{%
      Unknown method '\Hy@temp'.\MessageBreak
      Known values are 'post' and 'get'%
    }\@ehc
  }{%
    \let\Form@method\Hy@temp
    \ifcase\@nameuse{Form@method@\Hy@temp} %
      \Fld@getmethodfalse
    \else
      \Fld@getmethodtrue
    \fi
  }%
}
\def\Form@method{}
\@namedef{Form@method@post}{0}
\@namedef{Form@method@get}{1}
\def\Field@boolkey#1#2{%
  \csname Fld@#2\ifx\relax#1\relax true\else#1\fi\endcsname
}
\ifHy@texht
  \newtoks\Field@toks
  \Field@toks={ }%
  \def\Field@addtoks#1#2{%
    \edef\@processme{\Field@toks{\the\Field@toks\space #1="#2"}}%
    \@processme
  }%
\else
  \def\Hy@WarnHTMLFieldOption#1{%
    \Hy@Warning{%
      HTML field option '#1'\MessageBreak
      is ignored%
    }%
  }%
\fi
\def\Fld@checkequals#1=#2=#3\\{%
  \def\@currDisplay{#1}%
  \ifx\\#2\\%
```

```
    \def\@currValue{#1}%
  \else
    \def\@currValue{#2}%
  \fi
}
\define@key{Field}{loc}{%
  \def\Fld@loc{#1}%
}
\define@key{Field}{checked}[true]{%
  \lowercase{\Field@boolkey{#1}}{checked}%
}
\define@key{Field}{disabled}[true]{%
  \lowercase{\Field@boolkey{#1}}{disabled}%
}
\ifHy@texht
  \define@key{Field}{accesskey}{%
    \Field@addtoks{accesskey}{#1}%
  }%
  \define@key{Field}{tabkey}{%
    \Field@addtoks{tabkey}{#1}%
  }%
\else
  \define@key{Field}{accesskey}{%
    \Hy@WarnHTMLFieldOption{accesskey}%
  }%
  \define@key{Field}{tabkey}{%
    \Hy@WarnHTMLFieldOption{tabkey}%
  }%
\fi
\define@key{Field}{name}{%
  \def\Fld@name{#1}%
}
\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}{%
      \Hy@Error{%
        PDF/A: Additional action '#2' is prohibited%
      }\@ehc
    }%
  \else
    \define@key{Field}{#2}{%
      \def#1{##1}%
    }%
  \fi
}
\Hy@temp{keystroke}
\Hy@temp{format}
\Hy@temp{validate}
\Hy@temp{calculate}
\Hy@temp{onfocus}
\Hy@temp{onblur}
\Hy@temp{onenter}
\Hy@temp{onexit}
\ifHy@texht
  \def\Hy@temp#1{%
    \define@key{Field}{#1}{%
      \Field@addtoks{#1}{##1}%
    }%
  }%
\else
  \def\Hy@temp#1{%
    \define@key{Field}{#1}{%
      \Hy@WarnHTMLFieldOption{#1}%
    }%
  }%
\fi
\Hy@temp{ondblclick}
\Hy@temp{onmousedown}
\Hy@temp{onmouseup}
\Hy@temp{onmouseover}
\Hy@temp{onmousemove}
\Hy@temp{onmouseout}
\Hy@temp{onkeydown}
\Hy@temp{onkeyup}
\Hy@temp{onselect}
\Hy@temp{onchange}
\Hy@temp{onkeypress}
```

```
\ifHy@texht
  \define@key{Field}{onclick}{%
    \Field@addtoks{onclick}{#1}%
  }%
\else
  \ifHy@pdfa
    \define@key{Field}{onclick}{%
      \Hy@Error{%
        PDF/A: Action 'onclick' is prohibited%
      }\@ehc
    }%
  \else
    \define@key{Field}{onclick}{%
      \def\Fld@onclick@code{#1}%
    }%
  \fi
\fi
\DeclareRobustCommand\TextField{%
  \@ifnextchar[{\@TextField}{\@TextField[]}%
}
\DeclareRobustCommand\ChoiceMenu{%
  \@ifnextchar[{\@ChoiceMenu}{\@ChoiceMenu[]}%
}
\DeclareRobustCommand\CheckBox{%
  \@ifnextchar[{\@CheckBox}{\@CheckBox[]}%
}
\DeclareRobustCommand\PushButton{%
  \@ifnextchar[{\@PushButton}{\@PushButton[]}%
}
\DeclareRobustCommand\Gauge{%
  \@ifnextchar[{\@Gauge}{\@Gauge[]}%
}
\DeclareRobustCommand\Submit{%
  \@ifnextchar[{\@Submit}{\@Submit[]}%
}
\DeclareRobustCommand\Reset{%
  \@ifnextchar[{\@Reset}{\@Reset[]}%
}
\def\LayoutTextField#1#2{% label, field
  #1 #2%
}
\def\LayoutChoiceField#1#2{% label, field
  #1 #2%
}
\def\LayoutCheckField#1#2{% label, field
  #1 #2%
}
\def\LayoutPushButtonField#1{% button
  #1%
}
\def\MakeRadioField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
\def\MakeCheckField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
\def\MakeTextField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
\def\MakeChoiceField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
\def\MakeButtonField#1{%
  \sbox0{%
    \hskip\Fld@borderwidth bp#1\hskip\Fld@borderwidth bp%
```

```
  }%
  \@tempdima\ht0 %
  \advance\@tempdima by \Fld@borderwidth bp %
  \advance\@tempdima by \Fld@borderwidth bp %
  \ht0\@tempdima
  \@tempdima\dp0 %
  \advance\@tempdima by \Fld@borderwidth bp %
  \advance\@tempdima by \Fld@borderwidth bp %
  \dp0\@tempdima
  \box0\relax
}
\def\DefaultHeightofSubmit{14pt}
\def\DefaultWidthofSubmit{2cm}
\def\DefaultHeightofReset{14pt}
\def\DefaultWidthofReset{2cm}
\def\DefaultHeightofCheckBox{\baselineskip}
\def\DefaultWidthofCheckBox{\baselineskip}
\def\DefaultHeightofChoiceMenu{\baselineskip}
\def\DefaultWidthofChoiceMenu{\baselineskip}
\def\DefaultHeightofText{\baselineskip}
\def\DefaultHeightofTextMultiline{4\baselineskip}
\def\DefaultWidthofText{3cm}
\def\DefaultOptionsofSubmit{print,name=Submit,noexport}
\def\DefaultOptionsofReset{print,name=Reset,noexport}
\def\DefaultOptionsofPushButton{print}
\def\DefaultOptionsofCheckBox{print}
\def\DefaultOptionsofText{print}
```

Default options for the types of \ChoiceMenu.

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

20 Setup

```
\ifHy@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
\newcommand*{\href}[3][]{#3}
\let\hyperdef\@gobbletwo
\let\hyperlink\@gobble
\let\hypertarget\@gobble
\def\hyperref{%
  \@ifnextchar[\@gobbleopt{\expandafter\@gobbletwo\@gobble}%
}
\long\def\@gobbleopt[#1]{}
\let\hyperpage\@empty
```

Ignore star from referencing macros:

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

24 The Mangling Of Aux and Toc Files

Some extra tests so that the hyperref package may be removed or added to a document without having to remove .aux and .toc files (this section is by David Carlisle) All the code is delayed to `\begin{document}`

```
⟨*package⟩
```

```
\Hy@AtBeginDocument{%
```

First the code to deal with removing the hyperref package from a document.

Write some stuff into the aux file so if the next run is done without hyperref, then \contentsline and \newlabel are defined to cope with the extra arguments.

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

But the new aux file will be read again at the end, with the normal definitions expected, so better put things back as they were.

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

If the document is being run with hyperref put this definition into the aux file, so we can spot it on the next run.

```
        \string\fi%
      }^^J%
      \string\global\string\let\string\hyper@last\relax^^J%
      \string\gdef\string\HyperFirstAtBeginDocument\string#1{\string#1}%
    }%
  \fi
  \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
}
\let\Hy@saved@refstepcounter\refstepcounter
```

AMSLaTeX processes all equations twice; we want to make sure that the hyper stuff is not executed twice, so we use the AMS `\ifmeasuring@`, initialized if AMS math is not used.

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

`\hyper@refstepcounter`

```
\def\hyper@refstepcounter#1{%
  \edef\This@name{#1}%
  \ifx\This@name\name@of@eq
    \@ifundefined{theHequation}{%
      \make@stripped@name{\theequation}%
      \let\theHequation\newname
    }{}%
```

```
  \fi
  \@ifundefined{theH#1}{%
    \expandafter\def\csname theH#1\endcsname{\arabic{#1}}%
  }{}%
  \hyper@makecurrent{#1}%
  \ifmeasuring@
  \else
    \Hy@raisedlink{%
      \hyper@anchorstart{\@currentHref}\hyper@anchorend
    }%
  \fi
}
```

After \appendix "chapter" (or "section" for classes without chapter) should be replaced by "appendix" to get \autoref work. Macro \Hy@chapapp contains the current valid name like \@chapapp, which cannot be used, because this string depends on the current language.

The "french" package defines counter \thechapter by \newcounterchapter, if \@ifundefinedchapter.

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

\Hy@Test@alph

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

\Hy@Test@Alph

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

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

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

\Hy@MakeCurrentHref

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

```
  \fi
}
```

\Hy@MakeCurrentHrefAuto

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

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

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

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

29 Package lastpage support

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

\lastpage@putlabel

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

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

30 Package ifthen support

Since version 6.75a this is done in package nameref.

For compatibility `\hypergetref` and `\hypergetpageref` are still provided. But they do not generate warnings, if the reference is undefined.

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

31 Package titlesec and titletoc support

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

Package titlesec support:

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

Package titletoc support:

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

32 Package varioref support

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

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

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

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

33 Package longtable support

Sometimes the anchor of the longtable goes to the previous page. Thus the following patch separates the anchor setting and counter incrementation by hyperref's `\refstepcounter` and the anchor setting is moved after `\vskip\LTpre`.

Patch of `\LT@array`: replace `\refstepcounter` by the original `\H@refstepcounter` without anchor generation

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

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

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

34 Equations

We want to make the whole equation a target anchor. Overload equation, temporarily reverting to original \refstepcounter. If, however, it is in AMS math, we do not do anything, as the tag mechanism is used there (see section 41). The execption is that we move the equation incrementation inside the math environment to avoid specials outside and a wrong vertical spacing of equation environments.

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

My goodness, why can't LaTeX be consistent? Why is \eqnarray set up differently from other objects?

People (you know who you are, Thomas Beuth) sometimes make an eqnarray where *all* the lines end with \notag, so there is no suitable anchor at all. In this case, pass by on the other side.

```
\newif\if@eqnstar
\@eqnstarfalse
\let\H@eqnarray\eqnarray
\let\H@endeqnarray\endeqnarray
\def\eqnarray{%
  \let\Hy@reserved@a\relax
  \def\@currentHref{}%
```

```
  \H@eqnarray
  \if@eqnstar
  \else
    \ifx\\\@currentHref\\%
    \else
      \@ifundefined{theHequation}{%
        \make@stripped@name{\theequation}%
        \let\theHequation\newname
      }{}%
      \hyper@makecurrent{equation}%
      \hyper@anchorstart{\@currentHref}{}\hyper@anchorend
    \fi
  \fi
}
\def\endeqnarray{%
  \H@endeqnarray
}
```

This is quite heavy-handed, but it works for now. If its an eqnarray* we need to disable the hyperref actions. There may well be a cleaner way to trap this. Bill Moss found this.

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

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

```
\ltx@IfUndefined{subeqnarray}{}{%
  \let\H@subeqnarray\subeqnarray
  \let\H@endsubeqnarray\endsubeqnarray
  \def\subeqnarray{%
    \let\Hy@reserved@a\relax
    \H@subeqnarray
    \@ifundefined{theHequation}{%
      \make@stripped@name{\theequation}%
      \let\theHequation\newname
    }{}%
    \hyper@makecurrent{equation}%
    \hyper@anchorstart{\@currentHref}{}\hyper@anchorend
  }%
  \def\endsubeqnarray{%
    \H@endsubeqnarray
  }%
  \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\relax
    \hss
  }%
  \vss
 }%
\fi
}
\g@addto@macro\Hy@EveryPageBoxHook{%
 \Hy@EveryPageAnchor
}
```

39 Table of contents

TV Raman noticed that people who add arbitrary material into the TOC generate a bad or null link. We avoid that by checking if the current destination is empty. But if 'the most recent destination' is not what you expect, you will be in trouble.

```
\def\addcontentsline#1#2#3{% toc extension, type, tag
 \begingroup
  \let\label\@gobble
  \ifx\@currentHref\@empty
    \Hy@Warning{%
      No destination for bookmark of \string\addcontentsline,%
      \MessageBreak destination is added%
    }%
    \phantomsection
  \fi
  \expandafter\ifx\csname toclevel@#2\endcsname\relax
    \begingroup
      \def\Hy@tempa{#1}%
      \ifx\Hy@tempa\Hy@bookmarkstype
        \Hy@WarningNoLine{%
          bookmark level for unknown #2 defaults to 0%
        }%
```

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

⟨/package⟩

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

40 New counters

The whole theorem business makes up new counters on the fly; we are going to intercept this. Sigh. Do it at the level where new counters are defined.

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

But what if they have used the optional argument to e.g. `\newtheorem` to determine when the numbering is reset? OK, we'll trap that too.

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

41 AMSLaTeX compatibility

Oh, no, they don't use anything as simple as `\refstepcounter` in the AMS! We need to intercept some low-level operations of theirs. Damned if we are going to try and work out what they get up to. Just stick a label of 'AMS' on the front, and use the label *they* worked out. If that produces something invalid, I give up. They'll change all the code again anyway, I expect (SR).

Version 6.77p uses a patch by Ross Moore.

```
\@ifpackageloaded{amsmath}{%
  \def\Hy@make@anchor{%
    \Hy@MakeCurrentHrefAuto{AMS}%
    \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
  }%
  \def\Hy@make@df@tag@@#1{%
    \gdef\df@tag{%
      \maketag@@@{\Hy@make@anchor#1}%
      \def\@currentlabel{#1}%
    }%
  }%
  \def\Hy@make@df@tag@@@#1{%
    \gdef\df@tag{%
      \tagform@{\Hy@make@anchor#1}%
      \toks@\@xp{\p@equation{#1}}%
      \edef\@currentlabel{\the\toks@}%
    }%
  }%
```

```
  \let\HyOrg@make@df@tag@@\make@df@tag@@
  \let\HyOrg@make@df@tag@@@\make@df@tag@@@
  \let\make@df@tag@@\Hy@make@df@tag@@
  \let\make@df@tag@@@\Hy@make@df@tag@@@
}{}
```

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

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

This code I simply cannot remember what I was trying to achieve. The final result seems to do nothing anyway.

```
\let\H@tagform@\tagform@
\def\tagform@#1{%
 \maketag@@@{\hyper@@anchor{\@currentHref}%
 {(\ignorespaces#1\unskip)}}%
}
\def\eqref#1{\textup{\H@tagform@{\ref{#1}}}}
```

41.1 \@addtoreset and \numberwithin patches

\@addtoreset puts a counter to the reset list of another counter. After a reset the counter starts again with perhaps already used values. Therefore the hyperref version of the counter print command \theHcounter is redefined in order to add the parent counter.

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

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

```
⟨/package⟩
⟨*check⟩
\checkpackage{amsmath}[1999/12/14 - 2000/06/06]
\checkcommand\newcommand{\numberwithin}[3][\arabic]{%
  \@ifundefined{c@#2}{\@nocounterr{#2}}{%
    \@ifundefined{c@#3}{\@nocnterr{#3}}{%
      \@addtoreset{#2}{#3}%
      \@xp\xdef\csname the#2\endcsname{%
        \@xp\@nx\csname the#3\endcsname .\@nx#1{#2}%
      }%
    }%
  }%
```

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

42 Included figures

Simply intercept the low level graphics package macro.

```
\ifHy@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.

```
8195 ⟨*pdftex | dvipdfm | xetex | vtex | pdfmarkbase | dviwindo⟩
8196 \RequirePackage{pdftexcmds}[2009/04/10]
8197 \begingroup\expandafter\expandafter\expandafter\endgroup
8198 \expandafter\ifx\csname pdf@escapestring\endcsname\relax
8199   \begingroup
8200     \catcode`\|=0 %
8201     \@makeother\\%
8202   |@firstofone{|endgroup
8203     |def|Hy@pstringdef#1#2{%
8204       |begingroup
8205         |edef~{|string~}%
8206         |xdef|Hy@gtemp{#2}%
8207       |endgroup
8208       |let#1|Hy@gtemp
8209       |@onelevel@sanitize#1%
8210       |edef#1{|expandafter|Hy@ExchangeBackslash#1\|@nil}%
8211       |edef#1{|expandafter|Hy@ExchangeLeftParenthesis#1(|@nil}%
8212       |edef#1{|expandafter|Hy@ExchangeRightParenthesis#1)|@nil}%
8213     }%
8214     |def|Hy@ExchangeBackslash#1\#2|@nil{%
8215       #1%
8216       |ifx|\#2|\%%
8217       |else
8218         \\%
8219         |Hy@ReturnAfterFi{%
8220           |Hy@ExchangeBackslash#2|@nil
8221         }%
8222       |fi
8223     }%
8224   }%
8225   \def\Hy@ExchangeLeftParenthesis#1(#2\@nil{%
8226     #1%
8227     \ifx\\#2\\%
8228     \else
8229       \@backslashchar(%
8230       \Hy@ReturnAfterFi{%
8231         \Hy@ExchangeLeftParenthesis#2\@nil
8232       }%
8233     \fi
8234   }%
8235   \def\Hy@ExchangeRightParenthesis#1)#2\@nil{%
8236     #1%
8237     \ifx\\#2\\%
8238     \else
8239       \@backslashchar)%
8240       \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}
\def\HyPat@ObjRef{%
 [0-9]*[1-9][0-9]* 0 R%
}
```

This driver is for Han The Thanh's TEX variant which produces PDF directly. This has new primitives to do PDF things, which usually translate almost directly to PDF code, so there is a lot of flexibility which we do not at present harness.

Set PDF version if requested by option pdfversion.

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

```
\let\Hy@pdfminorversion\relax
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname pdfminorversion\endcsname\relax
 \begingroup\expandafter\expandafter\expandafter\endgroup
 \expandafter\ifx\csname pdfoptionpdfminorversion\endcsname\relax
 \else
  \def\Hy@pdfminorversion{\pdfoptionpdfminorversion}%
 \fi
\else
 \def\Hy@pdfminorversion{\pdfminorversion}%
\fi
\@ifundefined{Hy@pdfminorversion}{%
 \PackageInfo{hyperref}{%
  PDF version is not set, because pdfTeX is too old (<1.10a)%
 }%
}{%
 \ifHy@ocgcolorlinks
  \ifnum\Hy@pdfminorversion<5 %
   \kvsetkeys{Hyp}{pdfversion=1.5}%
  \fi
 \fi
 \ifHy@setpdfversion
  \ifnum\Hy@pdfminorversion=\Hy@pdfversion\relax
  \else
   \Hy@pdfminorversion=\Hy@pdfversion\relax
  \fi
```

```
    \PackageInfo{hyperref}{%
      \expandafter\string\Hy@pdfminorversion
      :=\number\Hy@pdfversion\space
    }%
  \fi
  \edef\Hy@pdfversion{\number\Hy@pdfminorversion}%
}
\Hy@DisableOption{pdfversion}%
\ifHy@ocgcolorlinks
  \immediate\pdfobj{%
    <<%
      /Type/OCG%
      /Name(View)%
      /Usage<<%
        /Print<<%
          /PrintState/OFF%
        >>%
        /View<<%
          /ViewState/ON%
        >>%
      >>%
    >>%
  }%
  \edef\OBJ@OCG@view{\the\pdflastobj\space 0 R}%
  \immediate\pdfobj{%
    <<%
      /Type/OCG%
      /Name(Print)%
      /Usage<<%
        /Print<<%
          /PrintState/ON%
        >>%
        /View<<%
          /ViewState/OFF%
        >>%
      >>%
    >>%
  }%
  \edef\OBJ@OCG@print{\the\pdflastobj\space 0 R}%
  \immediate\pdfobj{%
    [%
      \OBJ@OCG@view\space\OBJ@OCG@print
    ]%
  }%
  \edef\OBJ@OCGs{\the\pdflastobj\space 0 R}%
  \pdfcatalog{%
    /OCProperties<<%
      /OCGs \OBJ@OCGs
      /D<<%
        /OFF[\OBJ@OCG@print]%
        /AS[%
          <<%
            /Event/View%
            /OCGs \OBJ@OCGs
            /Category[/View]%
          >>%
          <<%
```

```
        /Event/Print%
        /OCGs \OBJ@OCGs
        /Category[/Print]%
      >>%
      <<%
        /Event/Export%
        /OCGs \OBJ@OCGs
        /Category[/Print]%
      >>%
    ]%
  >>%
 >>%
}%
\begingroup
 \edef\x{\endgroup
  \pdfpageresources{%
   /Properties<<%
    /OCView \OBJ@OCG@view
    /OCPrint \OBJ@OCG@print
   >>%
  }%
 }%
\x
\Hy@AtBeginDocument{%
 \def\Hy@colorlink#1{%
  \begingroup
   \ifHy@ocgcolorlinks
    \def\Hy@ocgcolor{#1}%
    \setbox0=\hbox\bgroup\color@begingroup
   \else
    \HyColor@UseColor#1%
   \fi
 }%
 \def\Hy@endcolorlink{%
  \ifHy@ocgcolorlinks
   \color@endgroup\egroup
   \mbox{%
    \pdfliteral page{/OC/OCPrint BDC}%
    \rlap{\copy0}%
    \pdfliteral page{EMC/OC/OCView BDC}%
    \begingroup
     \expandafter\HyColor@UseColor\Hy@ocgcolor
     \box0 %
    \endgroup
    \pdfliteral page{EMC}%
   }%
  \fi
  \endgroup
 }%
}%
\else
 \Hy@DisableOption{ocgcolorlinks}%
\fi
```

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

```
\def\setpdflinkmargin#1{\pdflinkmargin#1}
\ifx\pdfstartlink\@undefined% less than version 14
 \let\pdfstartlink\pdfannotlink
```

```
  \let\pdflinkmargin\@tempdima
  \let\pdfxform\pdfform
  \let\pdflastxform\pdflastform
  \let\pdfrefxform\pdfrefform
\else
  \pdflinkmargin1pt %
\fi
```

First set up the default linking

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

First define the anchors:

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

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

```
\def\Hy@DestName#1#2{%
  \pdfdest name{#1}#2\relax
}
```

Now the links; the interesting part here is the set of attributes which define how the link looks. We probably want to add a border and color it, but there are other choices. This directly translates to PDF code, so consult the manual for how to change this. We will add an interface at some point.

```
\providecommand*\@pdfborder{0 0 1}
\providecommand*\@pdfborderstyle{}
\def\Hy@undefinedname{UNDEFINED}
\def\find@pdflink#1#2{%
  \leavevmode
  \protected@edef\Hy@testname{#2}%
  \ifx\Hy@testname\@empty
    \Hy@Warning{%
      Empty destination name,\MessageBreak
      using `\Hy@undefinedname'%
    }%
    \let\Hy@testname\Hy@undefinedname
  \else
    \Hy@pstringdef\Hy@testname{%
      \expandafter\HyperDestNameFilter\expandafter{\Hy@testname}%
    }%
  \fi
  \Hy@StartlinkName{%
    \ifHy@pdfa /F 4\fi
    \Hy@setpdfborder
    \ifx\@pdfhighlight\@empty
```

```
    \else
      /H\@pdfhighlight
    \fi
    \ifx\CurrentBorderColor\relax
    \else
      /C[\CurrentBorderColor]%
    \fi
  }\Hy@testname
  \expandafter\Hy@colorlink\csname @#1color\endcsname
}
\def\Hy@StartlinkName#1#2{%
  \pdfstartlink attr{#1}goto name{#2}\relax
}
\def\close@pdflink{%
  \Hy@endcolorlink
  \Hy@VerboseLinkStop
  \pdfendlink
}
\def\hyper@anchor#1{%
  \new@pdflink{#1}\anchor@spot\pdf@endanchor
}
\def\hyper@anchorstart#1{%
  \new@pdflink{#1}%
  \Hy@activeanchortrue
}
\def\hyper@anchorend{%
  \pdf@endanchor
  \Hy@activeanchorfalse
}
\def\hyper@linkstart#1#2{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \ltx@IfUndefined{@#1bordercolor}{%
    \let\CurrentBorderColor\relax
  }{%
    \edef\CurrentBorderColor{\csname @#1bordercolor\endcsname}%
  }%
  \find@pdflink{#1}{#2}%
}
\def\hyper@linkend{\close@pdflink}
\def\hyper@link#1#2#3{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \ltx@IfUndefined{@#1bordercolor}{%
    \let\CurrentBorderColor\relax
  }{%
    \edef\CurrentBorderColor{\csname @#1bordercolor\endcsname}%
  }%
  \find@pdflink{#1}{#2}#3%
  \close@pdflink
}
\let\CurrentBorderColor\@linkbordercolor
\def\hyper@linkurl#1#2{%
  \begingroup
    \Hy@pstringdef\Hy@pstringURI{#2}%
    \hyper@chars
    \leavevmode
    \pdfstartlink
      attr{%
```

```
      \Hy@setpdfborder
      \ifx\@pdfhightlight\@empty
      \else
        /H\@pdfhighlight
      \fi
      \ifx\@urlbordercolor\relax
      \else
        /C[\@urlbordercolor]%
      \fi
    }%
    user{%
     /Subtype/Link%
     \ifHy@pdfa /F 4\fi
     /A<<%
       /Type/Action%
       /S/URI%
       /URI(\Hy@pstringURI)%
       \ifHy@href@ismap
         /IsMap true%
       \fi
       \Hy@href@nextactionraw
     >>%
    }%
    \relax
  \Hy@colorlink\@urlcolor#1%
  \close@pdflink
 \endgroup
}
\def\hyper@linkfile#1#2#3{% anchor text, filename, linkname
 \begingroup
  \def\Hy@pstringF{#2}%
  \Hy@CleanupFile\Hy@pstringF
  \Hy@pstringdef\Hy@pstringF\Hy@pstringF
  \Hy@pstringdef\Hy@pstringD{#3}%
  \Hy@MakeRemoteAction
  \leavevmode
  \pdfstartlink
    attr{%
      \Hy@setpdfborder
      \ifx\@pdfhighlight\@empty
      \else
        /H\@pdfhighlight
      \fi
      \ifx\@filebordercolor\relax
      \else
        /C[\@filebordercolor]%
      \fi
    }%
    user {%
      /Subtype/Link%
      \ifHy@pdfa /F 4\fi
      /A<<%
        /F(\Hy@pstringF)%
        /S/GoToR%
        \Hy@SetNewWindow
```

If #3 is empty, page 0; if its a number, Page number, otherwise a named destination.

```
\afterassignment\xxx\count@=0\foo!%
```

```
\def\xxx#1!{%
 \ifx\xxx#1\xxx
   foo was an integer
 \else
   it wasnt
 \fi}
```

```
        \ifx\\#3\\%
          /D[\Hy@href@page\@pdfremotestartview]%
        \else
          /D(\Hy@pstringD)%
        \fi
        \Hy@href@nextactionraw
      >>%
    }%
    \relax
  \Hy@colorlink\@filecolor#1%
  \close@pdflink
 \endgroup
}
\def\@hyper@launch run:#1\\#2#3{% filename, anchor text linkname
 \begingroup
  \Hy@pstringdef\Hy@pstringF{#1}%
  \Hy@pstringdef\Hy@pstringP{#3}%
  \leavevmode
  \pdfstartlink
    attr{%
      \Hy@setpdfborder
      \ifx\@pdfhighlight\@empty
      \else
        /H\@pdfhighlight
      \fi
      \ifx\@runbordercolor\relax
      \else
        /C[\@runbordercolor]%
      \fi
    }%
    user {%
      /Subtype/Link%
      \ifHy@pdfa /F 4\fi
      /A<<%
        /F(\Hy@pstringF)%
        /S/Launch%
        \Hy@SetNewWindow
        \ifx\\#3\\%
        \else
          /Win<</P(\Hy@pstringP)/F(\Hy@pstringF)>>%
        \fi
        \Hy@href@nextactionraw
      >>%
    }%
    \relax
  \Hy@colorlink\@runcolor#2%
  \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 pdfpagetransi-

tion 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}{%
```

```
8857 ⟨*pdftex⟩
8858       \setlength{\pdfhorigin}{1truein}%
8859       \setlength{\pdfvorigin}{1truein}%
8860 ⟨/pdftex⟩
8861       \ifportrait
8862         \ifdim\paperwidth=\z@
8863         \else
8864           \setlength{\pdfpagewidth}{\strip@pt\paperwidth truept}%
8865         \fi
8866         \ifdim\paperheight=\z@
8867         \else
8868           \setlength{\pdfpageheight}{\strip@pt\paperheight truept}%
8869         \fi
8870       \else
8871         \ifdim\paperheight=\z@
8872         \else
8873           \setlength{\pdfpagewidth}{\strip@pt\paperheight truept}%
8874         \fi
8875         \ifdim\paperwidth=\z@
8876         \else
8877           \setlength{\pdfpageheight}{\strip@pt\paperwidth truept}%
8878         \fi
8879       \fi
8880     }{%
8881       \ltx@IfUndefined{stockwidth}{%
8882         \ifdim\paperwidth>\z@
8883           \setlength{\pdfpagewidth}{\paperwidth}%
8884         \fi
8885         \ifdim\paperheight>\z@
8886           \setlength{\pdfpageheight}{\paperheight}%
8887         \fi
8888       }{%
8889         \ifdim\stockwidth>\z@
8890           \setlength{\pdfpagewidth}{\stockwidth}%
8891         \fi
8892         \ifdim\stockheight>\z@
8893           \setlength{\pdfpageheight}{\stockheight}%
8894         \fi
8895       }%
8896     }%
8897   }%
8898   \Hy@DisableOption{setpagesize}%
8899 }
8900 ⟨/pdftex | xetex⟩
8901 ⟨*pdftex⟩
8902 \def\Acrobatmenu#1#2{%
8903   \Hy@Acrobatmenu{#1}{#2}{%
8904     \pdfstartlink
8905       attr{%
8906         \Hy@setpdfborder
8907         \ifx\@pdfhighlight\@empty
8908         \else
8909           /H\@pdfhighlight
8910         \fi
8911         \ifx\@menubordercolor\relax
8912         \else
8913           /C[\@menubordercolor]%
```

```
      \fi
    }%
    user{%
      /Subtype/Link%
      \ifHy@pdfa /F 4\fi
      /A<<%
        /S/Named%
        /N/#1%
        \Hy@href@nextactionraw
      >>%
    }%
    \relax
  \Hy@colorlink\@menucolor#2%
  \close@pdflink
 }%
}
```

46.2.1 Fix for problem with different nesting levels

\AtBeginShipoutFirst adds an additional box layer around the first output page. This disturbs pdfTEX's low level link commands \pdfstartlink and \pdfendlink, if a link is broken across the first and second output page.

The problem could be fixed by replacing \AtBeginShipoutFirst, because the box layer is not necessary for pdfTEX– no \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
    \Hy@SaveSpaceFactor
    \Hy@SaveSavedSpaceFactor
    \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
    \Hy@RestoreSavedSpaceFactor
    \@linkdim\dp\@tempboxa
    \lower\@linkdim\hbox{%
      \hyper@chars
      \special{html:<a href=\hyper@quote#2\hyper@quote>}%
    }%
    \Hy@colorlink\@urlcolor
      \Hy@RestoreSpaceFactor
      #1%
      \Hy@SaveSpaceFactor
    \@linkdim\ht\@tempboxa
```

Because of the interaction with the dvihps processor, we have to subtract a little from the height. This is not clean, or checked. Check with Mark Doyle about what gives here. It may not be needed with the new dvips (Jan 1997).

```
    \advance\@linkdim by -6.5\p@
    \raise\@linkdim\hbox{\special{html:</a>}}%
    \Hy@endcolorlink
    \Hy@RestoreSpaceFactor
  \else
    \begingroup
      \hyper@chars
      \special{html:<a href=\hyper@quote#2\hyper@quote>}%
      \Hy@colorlink\@urlcolor#1%
      \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}%
  \leavevmode
  \ifHy@raiselinks
    \Hy@SaveSpaceFactor
    \Hy@SaveSavedSpaceFactor
    \sbox\@tempboxa{\Hy@RestoreSpaceFactor#3}%
    \Hy@RestoreSavedSpaceFactor
    \@linkdim\dp\@tempboxa
    \lower\@linkdim\hbox{%
      \special{button: %
        \number\wd\@tempboxa\space
        \number\ht\@tempboxa\space
        #2%
      }%
      \expandafter\Hy@colorlink\csname @#1color\endcsname
      \Hy@RestoreSpaceFactor
      #3%
      \Hy@SaveSpaceFactor
      \Hy@endcolorlink
    }%
    \@linkdim\ht\@tempboxa
    \advance\@linkdim by -6.5\p@
    \raise\@linkdim\hbox{}%
    \Hy@RestoreSpaceFactor
  \else
    \special{button: %
      \number\wd\@tempboxa\space
      \number\ht\@tempboxa\space
      #2%
    }%
    \expandafter\Hy@colorlink\csname @#1color\endcsname
    #3%
    \Hy@endcolorlink
  \fi
}
\def\hyper@linkurl#1#2{%
  \begingroup
    \hyper@chars
    \leavevmode
    \ifHy@raiselinks
      \Hy@SaveSpaceFactor
      \Hy@SaveSavedSpaceFactor
      \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
      \Hy@RestoreSavedSpaceFactor
      \@linkdim\dp\@tempboxa
      \lower\@linkdim\hbox{%
        \special{button: %
          \number\wd\@tempboxa\space
          \number\ht\@tempboxa\space
          launch: \wwwbrowser\space
          #2%
        }%
        \Hy@colorlink\@urlcolor
```

```
        \Hy@RestoreSpaceFactor
        #1%
        \Hy@SaveSpaceFactor
      \Hy@endcolorlink
    }%
    \@linkdim\ht\@tempboxa
    \advance\@linkdim by -6.5\p@
    \raise\@linkdim\hbox{}%
    \Hy@RestoreSpaceFactor
  \else
    \special{button: %
      \number\wd\@tempboxa\space
      \number\ht\@tempboxa\space
      launch: \wwwbrowser\space
      #2%
    }%
    \Hy@colorlink\@urlcolor#1\Hy@endcolorlink
  \fi
 \endgroup
}
\def\hyper@linkfile#1#2#3{%
 \begingroup
   \hyper@chars
   \leavevmode
   \ifHy@raiselinks
     \Hy@SaveSpaceFactor
     \Hy@SaveSavedSpaceFactor
     \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
     \Hy@RestoreSavedSpaceFactor
     \@linkdim\dp\@tempboxa
     \lower\@linkdim\hbox{%
       \special{button: %
         \number\wd\@tempboxa\space
         \number\ht\@tempboxa\space
         #3,%
         file: #2%
       }%
       \Hy@colorlink\@filecolor
         \Hy@RestoreSpaceFactor
         #1%
         \Hy@SaveSpaceFactor
       \Hy@endcolorlink
     }%
     \@linkdim\ht\@tempboxa
     \advance\@linkdim by -6.5\p@
     \raise\@linkdim\hbox{}%
     \Hy@RestoreSpaceFactor
   \else
     \special{button: %
       \number\wd\@tempboxa\space
       \number\ht\@tempboxa\space
       #3,%
       file: #2%
     }%
     \Hy@colorlink\@filecolor#1\Hy@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}
\def\HyPat@ObjRef{%
  @[^ ]+%
}
\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
  \fi
  \@pdfm@mark{dest (\Hy@pstringDest) [@thispage /\x]}%
 \endgroup
 \Hy@RestoreLastskip
}
\providecommand*\@pdfview{XYZ}
\providecommand*\@pdfborder{0 0 1}
\providecommand*\@pdfborderstyle{}
\def\hyper@anchor#1{%
 \@pdfm@dest{#1}%
}
\def\hyper@anchorstart#1{%
 \Hy@activeanchortrue
 \@pdfm@dest{#1}%
}
\def\hyper@anchorend{%
 \Hy@activeanchorfalse
}
\newcounter{Hy@AnnotLevel}
\ifHy@ocgcolorlinks
 \def\OBJ@OCG@view{@OCG@view}%
 \@pdfm@mark{%
  obj \OBJ@OCG@view <<%
   /Type/OCG%
   /Name(View)%
   /Usage<<%
    /Print<<%
     /PrintState/OFF%
    >>%
    /View<<%
     /ViewState/ON%
    >>%
   >>%
  >>%
 }%
 \@pdfm@mark{close \OBJ@OCG@view}%
 \def\OBJ@OCG@print{@OCG@print}%
 \@pdfm@mark{%
  obj \OBJ@OCG@print <<%
   /Type/OCG%
   /Name(Print)%
   /Usage<<%
    /Print<<%
     /PrintState/ON%
    >>%
    /View<<%
     /ViewState/OFF%
    >>%
   >>%
  >>%
 }%
 \@pdfm@mark{close \OBJ@OCG@print}%
 \def\OBJ@OCGs{@OCGs}%
 \@pdfm@mark{%
```

```
  obj \OBJ@OCGs [%
    \OBJ@OCG@view\space\OBJ@OCG@print
  ]%
}%
\@pdfm@mark{close \OBJ@OCGs}%
\@pdfm@mark{%
  put @catalog <<%
    /OCProperties<<%
      /OCGs \OBJ@OCGs
      /D<<%
        /OFF[\OBJ@OCG@print]%
        /AS[%
          <<%
            /Event/View%
            /OCGs \OBJ@OCGs
            /Category[/View]%
          >>%
          <<%
            /Event/Print%
            /OCGs \OBJ@OCGs
            /Category[/Print]%
          >>%
          <<%
            /Event/Export%
            /OCGs \OBJ@OCGs
            /Category[/Print]%
          >>%
        ]%
      >>%
    >>%
  >>%
}%
\AtBeginShipout{%
  \setbox\AtBeginShipoutBox=\hbox{%
    \copy\AtBeginShipoutBox
    \@pdfm@mark{%
      put @resources <<%
        /Properties<<%
          /OCView \OBJ@OCG@view
          /OCPrint \OBJ@OCG@print
        >>%
      >>%
    }%
  }%
}%
\Hy@AtBeginDocument{%
  \def\Hy@colorlink#1{%
    \begingroup
      \ifHy@ocgcolorlinks
        \def\Hy@ocgcolor{#1}%
        \setbox0=\hbox\bgroup\color@begingroup
      \else
        \HyColor@UseColor#1%
      \fi
  }%
  \def\Hy@endcolorlink{%
    \ifHy@ocgcolorlinks
```

```
      \color@endgroup\egroup
      \mbox{%
        \@pdfm@mark{content /OC/OCPrint BDC}%
        \rlap{\copy0}%
        \@pdfm@mark{content EMC/OC/OCView BDC}%
        \begingroup
          \expandafter\HyColor@UseColor\Hy@ocgcolor
          \box0 %
        \endgroup
        \@pdfm@mark{content EMC}%
      }%
    \fi
    \endgroup
  }%
 }%
\else
 \Hy@DisableOption{ocgcolorlinks}%
\fi
\def\Hy@BeginAnnot#1{%
 \stepcounter{Hy@AnnotLevel}%
 \ifnum\value{Hy@AnnotLevel}=\@ne
  #1%
 \fi
}
\def\Hy@EndAnnot{%
 \ifnum\value{Hy@AnnotLevel}=\@ne
  \Hy@endcolorlink
  \@pdfm@mark{eann}%
 \fi
 \addtocounter{Hy@AnnotLevel}\m@ne
}
\def\Hy@undefinedname{UNDEFINED}
\def\hyper@linkstart#1#2{%
 \Hy@VerboseLinkStart{#1}{#2}%
 \Hy@BeginAnnot{%
  \protected@edef\Hy@testname{#2}%
  \ifx\Hy@testname\@empty
   \Hy@Warning{%
    Empty destination name,\MessageBreak
    using `\Hy@undefinedname'%
   }%
   \let\Hy@testname\Hy@undefinedname
  \else
   \Hy@pstringdef\Hy@testname{%
    \expandafter\HyperDestNameFilter\expandafter{%
     \Hy@testname
    }%
   }%
  \fi
  \@pdfm@mark{%
   bann<<%
    /Type/Annot%
    /Subtype/Link%
    \ifHy@pdfa /F 4\fi
    \Hy@setpdfborder
    \expandafter\ifx\csname @#1bordercolor\endcsname\relax
    \else
```

```
        /C[\csname @#1bordercolor\endcsname]%
      \fi
      /A<<%
        /S/GoTo%
        /D(\Hy@testname)%
        \Hy@href@nextactionraw
      >>%
    >>%
  }%
  \expandafter\Hy@colorlink\csname @#1color\endcsname
 }%
}
\def\hyper@linkend{\Hy@EndAnnot}%
\def\hyper@link#1#2#3{%
 \hyper@linkstart{#1}{#2}#3\hyper@linkend
}
\def\hyper@linkfile#1#2#3{%
 \leavevmode
 \Hy@BeginAnnot{%
  \def\Hy@pstringF{#2}%
  \Hy@CleanupFile\Hy@pstringF
  \Hy@pstringdef\Hy@pstringF\Hy@pstringF
  \Hy@pstringdef\Hy@pstringD{#3}%
  \Hy@MakeRemoteAction
  \@pdfm@mark{%
   bann<<%
    /Type/Annot%
    /Subtype/Link%
    \ifHy@pdfa /F 4\fi
    \Hy@setpdfborder
    \ifx\@filebordercolor\relax
    \else
      /C[\@filebordercolor]%
    \fi
    /A<<%
      /S/GoToR%
      /F(\Hy@pstringF)%
      /D%
      \ifx\\#3\\%
        [\Hy@href@page\@pdfremotestartview]%
      \else
        (\Hy@pstringD)%
      \fi
      \Hy@SetNewWindow
      \Hy@href@nextactionraw
    >>%
   >>%
  }%
  \Hy@colorlink\@filecolor
 }%
 #1%
 \Hy@EndAnnot
}
\def\hyper@linkurl#1#2{%
 \leavevmode
 \Hy@BeginAnnot{%
  \Hy@pstringdef\Hy@pstringURI{#2}%
```

```
    \@pdfm@mark{%
      bann<<%
        /Type/Annot%
        /Subtype/Link%
        \ifHy@pdfa /F 4\fi
        \Hy@setpdfborder
        \ifx\@urlbordercolor\relax
        \else
          /C[\@urlbordercolor]%
        \fi
        /A<<%
          /S/URI%
          /URI(\Hy@pstringURI)%
          \ifHy@href@ismap
            /IsMap true%
          \fi
          \Hy@href@nextactionraw
        >>%
      >>%
    }%
    \Hy@colorlink\@urlcolor
  }%
  #1%
  \Hy@EndAnnot
}
\def\Acrobatmenu#1#2{%
  \Hy@Acrobatmenu{#1}{#2}{%
    \Hy@BeginAnnot{%
      \@pdfm@mark{%
        bann<<%
          /Type/Annot%
          /Subtype/Link%
          \ifHy@pdfa /F 4\fi
          /A<<%
            /S/Named%
            /N/#1%
            \Hy@href@nextactionraw
          >>%
          \Hy@setpdfborder
          \ifx\@menubordercolor\relax
          \relax
            /C[\@menubordercolor]%
          \fi
        >>%
      }%
      \Hy@colorlink\@menucolor
    }%
    #2%
    \Hy@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]{%
  \Hy@Message{Sorry, TeXpider does not yet support FORMs}%
}
\def\@endForm{}
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \Hy@Message{Sorry, TeXpider does not yet support FORM gauges}%
}
```

```
\def\@TextField[#1]#2{% parameters, label
  \Hy@Message{Sorry, TeXpider does not yet support FORM text fields}%
}
\def\@CheckBox[#1]#2{% parameters, label
  \Hy@Message{Sorry, TeXpider does not yet support FORM checkboxes}%
}
\def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
  \Hy@Message{Sorry, TeXpider does not yet support FORM choice menus}%
}
\def\@PushButton[#1]#2{% parameters, label
  \Hy@Message{Sorry, TeXpider does not yet support FORM pushbuttons}%
}
\def\@Reset[#1]#2{%
  \Hy@Message{Sorry, TeXpider does not yet support FORMs}%
}
\def\@Submit[#1]#2{%
  \Hy@Message{Sorry, TeXpider does not yet support FORMs}%
}
⟨/vtexhtml⟩
⟨*vtex⟩
```

VTeX version 6.68 supports \mediawidth and \mediaheight. The \ifx construct is better than a \csname, because it avoids the definition and the hash table entry of a previous undefined macro.

```
\ifx\mediaheight\@undefined
\else
  \ifx\mediaheight\relax
  \else
    \ifHy@setpagesize
      \providecommand*{\VTeXInitMediaSize}{%
        \ltx@IfUndefined{stockwidth}{%
          \ifdim\paperheight>0pt %
            \setlength\mediaheight\paperheight
          \fi
          \ifdim\paperheight>0pt %
            \setlength\mediawidth\paperwidth
          \fi
        }{%
          \ifdim\stockheight>0pt %
            \setlength\mediaheight\stockheight
          \fi
          \ifdim\stockwidth>0pt %
            \setlength\mediawidth\stockwidth
          \fi
        }%
      }%
      \Hy@AtBeginDocument{\VTeXInitMediaSize}%
    \fi
    \Hy@DisableOption{setpagesize}%
  \fi
\fi
```

Older versions of VTeX require xyz in lower case.

```
\providecommand*\@pdfview{xyz}
\providecommand*\@pdfborder{0 0 1}
\providecommand*\@pdfborderstyle{}
\let\CurrentBorderColor\@linkbordercolor
\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)%
        \ifHy@href@ismap
          /IsMap true%
        \fi
        \Hy@href@nextactionraw
        >;%
      a=<%
        \ifHy@pdfa /F 4\fi
        \Hy@setpdfborder
        \ifx\CurrentBorderColor\relax
        \else
          /C [\CurrentBorderColor]%
        \fi
      >%
    }%
  \else
```

```
    \protected@edef\Hy@testname{#2}%
    \ifx\Hy@testname\@empty
      \Hy@Warning{%
        Empty destination name,\MessageBreak
        using `\Hy@undefinedname'%
      }%
      \let\Hy@testname\Hy@undefinedname
    \fi
    \special{!%
      aref \expandafter\HyperDestNameFilter
          \expandafter{\Hy@testname};%
      a=<%
        \ifHy@pdfa /F 4\fi
        \Hy@setpdfborder
        \ifx\CurrentBorderColor\relax
        \else
          /C [\CurrentBorderColor]%
        \fi
      >%
    }%
  \fi
}
\def\hyper@linkend{%
  \special{!endaref}%
  \Hy@endcolorlink
}
\def\hyper@linkfile#1#2#3{%
  \leavevmode
  \def\Hy@pstringF{#2}%
  \Hy@CleanupFile\Hy@pstringF
  \special{!%
    aref <%
    \ifnum\Hy@VTeXversion>753 \ifHy@newwindow n\fi\fi
    f=\Hy@pstringF>#3;%
    a=<%
      \ifHy@pdfa /F 4\fi
      \Hy@setpdfborder
      \ifx\@filebordercolor\relax
      \else
        /C [\@filebordercolor]%
      \fi
    >%
  }%
  \Hy@colorlink\@filecolor#1\Hy@endcolorlink
  \special{!endaref}%
}
\def\hyper@linkurl#1#2{%
  \begingroup
    \Hy@pstringdef\Hy@pstringURI{#2}%
    \hyper@chars
    \leavevmode
    \special{!%
      aref <u=/Type/Action/S/URI/URI(\Hy@pstringURI)%
        \ifHy@href@ismap
          /IsMap true%
        \fi
        \Hy@href@nextactionraw
```

```
      >;%
    a=<%
      \ifHy@pdfa /F 4\fi
      \Hy@setpdfborder
      \ifx\@urlbordercolor\relax
      \else
        /C [\@urlbordercolor]%
      \fi
    >%
  }%
  \Hy@colorlink\@urlcolor#1\Hy@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
    \Hy@href@nextactionraw
  >;%
  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	P**r**oducer	String
s	**S**ubject	String
t	**T**itle	String
u	**U**RI	PS
v	**V**iewPreferences	PS

Note: PS objects that are dicts are in <<<..>>> (yuck; no choice).

```
\def\PDF@SetupDoc{%
  \ifx\@pdfpagescrop\@empty
  \else
```

```
    \special{!pdfinfo b=<\@pdfpagescrop>}%
  \fi
  \ifx\@pdfstartpage\@empty
  \else
    \ifx\@pdfstartview\@empty
    \else
      \special{!onopen Page\@pdfstartpage}%
    \fi
  \fi
  \special{!pdfinfo p=</\@pdfpagemode>}%
  \ifx\@baseurl\@empty
  \else
    \special{!pdfinfo u=<<</Base (\@baseurl)>>>}%
  \fi
  \special{!pdfinfo v=<<<%
    \ifHy@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\HyPat@ObjRef{%
  \{[^{}]+\}%
}
\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
    \Hy@SaveSpaceFactor
    \hbox\bgroup
    \Hy@RestoreSpaceFactor
  \fi
  \expandafter\Hy@colorlink\csname @#1color\endcsname
  \literalps@out{H.S}%
  \Hy@AllowHyphens
  \xdef\hyper@currentanchor{#2}%
  \gdef\hyper@currentlinktype{#1}%
}
\def\hyper@linkend{%
  \literalps@out{\strip@pt@and@otherjunk\baselineskip\space H.L}%
  \ltx@IfUndefined{@\hyper@currentlinktype bordercolor}{%
    \let\Hy@tempcolor\relax
  }{%
    \edef\Hy@tempcolor{%
      \csname @\hyper@currentlinktype bordercolor\endcsname
    }%
  }%
  \pdfmark{%
    pdfmark=/ANN,%
    linktype=link,%
    Subtype=/Link,%
    PDFAFlags=4,%
    Dest=\hyper@currentanchor,%
    AcroHighlight=\@pdfhighlight,%
    Border=\@pdfborder,%
    BorderStyle=\@pdfborderstyle,%
    Color=\Hy@tempcolor,%
    Raw=H.B%
  }%
  \Hy@endcolorlink
  \ifHy@breaklinks
  \else
    \Hy@SaveSpaceFactor
    \egroup
    \Hy@RestoreSpaceFactor
  \fi
}
```

We have to allow for \baselineskip having an optional stretch and shrink (you meet this in slide packages, for instance), so we need to strip off the junk. David Carlisle, of course, wrote this bit of code.

```
\begingroup
  \catcode`P=12 %
  \catcode`T=12 %
  \lowercase{\endgroup
  \gdef\rem@ptetc#1.#2PT#3!{#1\ifnum#2>\z@.#2\fi}%
```

```
}
\def\strip@pt@and@otherjunk#1{\expandafter\rem@ptetc\the#1!}
```

\hyper@pagetransition

```
\def\hyper@pagetransition{%
  \ifx\@pdfpagetransition\relax
  \else
    \ifx\@pdfpagetransition\@empty
      % 1. Does an old entry have to be deleted?
      % 2. If 1=yes, how to delete?
    \else
      \pdfmark{%
        pdfmark=/PUT,%
        Raw={%
          \string{ThisPage\string}%
          <</Trans << /S /\@pdfpagetransition\space >> >>%
        }%
      }%
    \fi
  \fi
}
```

\hyper@pageduration

```
\def\hyper@pageduration{%
  \ifx\@pdfpageduration\relax
  \else
    \ifx\@pdfpageduration\@empty
      % 1. Does an old entry have to be deleted?
      % 2. If 1=yes, how to delete?
    \else
      \pdfmark{%
        pdfmark=/PUT,%
        Raw={%
          \string{ThisPage\string}%
          <</Dur \@pdfpageduration>>%
        }%
      }%
    \fi
  \fi
}
```

\hyper@pagehidden

```
\def\hyper@pagehidden{%
  \ifHy@useHidKey
    \pdfmark{%
      pdfmark=/PUT,%
      Raw={%
        \string{ThisPage\string}%
        <</Hid \ifHy@pdfpagehidden true\else false\fi>>%
      }%
    }%
  \fi
}

\g@addto@macro\Hy@EveryPageBoxHook{%
  \hyper@pagetransition
  \hyper@pageduration
```

```
  \hyper@pagehidden
}
\def\hyper@image#1#2{%
  \hyper@linkurl{#2}{#1}%
}
\def\Hy@undefinedname{UNDEFINED}
\def\hyper@link#1#2#3{%
  \Hy@VerboseLinkStart{#1}{#2}%
  \ltx@IfUndefined{@#1bordercolor}{%
    \let\Hy@tempcolor\relax
  }{%
    \edef\Hy@tempcolor{\csname @#1bordercolor\endcsname}%
  }%
  \begingroup
    \protected@edef\Hy@testname{#2}%
    \ifx\Hy@testname\@empty
      \Hy@Warning{%
        Empty destination name,\MessageBreak
        using `\Hy@undefinedname'%
      }%
      \let\Hy@testname\Hy@undefinedname
    \fi
    \pdfmark[{#3}]{%
      Color=\Hy@tempcolor,%
      linktype={#1},%
      AcroHighlight=\@pdfhighlight,%
      Border=\@pdfborder,%
      BorderStyle=\@pdfborderstyle,%
      pdfmark=/ANN,%
      Subtype=/Link,%
      PDFAFlags=4,%
      Dest=\Hy@testname
    }%
  \endgroup
}
\newtoks\pdf@docset
\def\PDF@FinishDoc{%
  \Hy@UseMaketitleInfos
  \HyInfo@GenerateAddons
  \let\Hy@temp\@empty
  \ifx\@pdfcreationdate\@empty
  \else
    \def\Hy@temp{CreationDate=\@pdfcreationdate,}%
  \fi
  \ifx\@pdfmoddate\@empty
  \else
    \expandafter\def\expandafter\Hy@temp\expandafter{%
      \Hy@temp
      ModDate=\@pdfmoddate,%
    }%
  \fi
  \ifx\@pdfproducer\relax
  \else
    \expandafter\def\expandafter\Hy@temp\expandafter{%
      \Hy@temp
      Producer=\@pdfproducer,%
    }%
```

```
\fi
\expandafter
\pdfmark\expandafter{%
  \Hy@temp
  pdfmark=/DOCINFO,%
  Title=\@pdftitle,%
  Subject=\@pdfsubject,%
  Creator=\@pdfcreator,%
  Author=\@pdfauthor,%
  Keywords=\@pdfkeywords,%
  Trapped=\@pdftrapped
}%
\ifx\HyInfo@Addons\@empty
\else
  \pdfmark{%
    pdfmark=/DOCINFO,%
    Raw={\HyInfo@Addons}%
  }%
\fi
\Hy@DisableOption{pdfauthor}%
\Hy@DisableOption{pdftitle}%
\Hy@DisableOption{pdfsubject}%
\Hy@DisableOption{pdfcreator}%
\Hy@DisableOption{pdfcreationdate}%
\Hy@DisableOption{pdfmoddate}%
\Hy@DisableOption{pdfproducer}%
\Hy@DisableOption{pdfkeywords}%
\Hy@DisableOption{pdftrapped}%
\Hy@DisableOption{pdfinfo}%
}
\def\PDF@SetupDoc{%
  \def\Hy@temp{}%
  \ifx\@pdfstartpage\@empty
  \else
    \ifx\@pdfstartview\@empty
    \else
      \edef\Hy@temp{%
        ,Page=\@pdfstartpage
        ,View=\@pdfstartview
      }%
    \fi
  \fi
  \edef\Hy@temp{%
    \noexpand\pdfmark{%
      pdfmark=/DOCVIEW,%
      PageMode=/\@pdfpagemode
      \Hy@temp
    }%
  }%
  \Hy@temp
  \ifx\@pdfpagescrop\@empty
  \else
    \pdfmark{pdfmark=/PAGES,CropBox=\@pdfpagescrop}%
  \fi
  \edef\Hy@temp{%
    \ifHy@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
  \kvsetkeys{PDF}{#2}%
  \ifHy@pdfmarkerror
  \else
    \ifx\pdf@type\relax
      \Hy@WarningNoLine{no pdfmark type specified in #2!!}%
      \ifx\\#1\\%
      \else
        \pdf@rect{#1}%
      \fi
    \else
      \ifx\\#1\\%
        \literalps@out{%
          [\the\pdf@toks\space\pdf@type\space pdfmark%
        }%
      \else
        \ltx@IfUndefined{@\pdf@linktype color}{%
          \Hy@colorlink\@linkcolor
        }{%
          \expandafter\Hy@colorlink
                \csname @\pdf@linktype color\endcsname
        }%
        \pdf@rect{#1}%
        \literalps@out{%
          [\the\pdf@toks\space\pdf@type\space pdfmark%
        }%
        \Hy@endcolorlink
      \fi
    \fi
  \fi
}
```

The complicated bit is working out the right enclosing rectangle of some piece of TEX text, needed by the /Rect key. This solution originates with Toby Thain (tobyt@netspace.net.au).

For the case breaklinks is enabled, I have added two hooks, the first one for package setouterhbox, it provides a hopefully better method without setting the text twice.

```
\usepackage[hyperref]{setouterhbox}
```

With the second hook, also you can set the text twice, e.g.:

```
\long\def\Hy@setouterhbox#1#2{\long\def\my@temp{#2}}
\def\Hy@breaklinksunhbox#1{\my@temp}
```

```
\newsavebox{\pdf@box}
\providecommand*{\Hy@setouterhbox}{\sbox}
\providecommand*{\Hy@breaklinksunhbox}{\unhbox}
\def\Hy@DEST{/DEST}
\def\pdf@rect#1{%
  \begingroup
    \chardef\x=1 %
    \def\Hy@temp{#1}%
    \ifx\Hy@temp\ltx@empty
      \chardef\x=0 %
    \else
```

```
    \def\y{\anchor@spot}%
    \ifx\Hy@temp\y
      \def\y{\relax}%
      \ifx\anchor@spot\y
        \chardef\x=0 %
      \fi
    \fi
  \fi
\expandafter\endgroup
\ifcase\x
  \literalps@out{H.S}%
  \literalps@out{H.R}%
\else
  \leavevmode
  \Hy@SaveSpaceFactor
  \ifHy@breaklinks
    \Hy@setouterhbox\pdf@box{%
      \Hy@RestoreSpaceFactor
      \Hy@AllowHyphens#1%
      \Hy@SaveSpaceFactor
    }%
  \else
    \sbox\pdf@box{%
      \Hy@RestoreSpaceFactor
      #1%
      \Hy@SaveSpaceFactor
    }%
  \fi
  \dimen@\ht\pdf@box
  \ifdim\dp\pdf@box=\z@
    \literalps@out{H.S}%
  \else
    \lower\dp\pdf@box\hbox{\literalps@out{H.S}}%
  \fi
```

If the text has to be horizontal mode stuff then just unbox the saved box like this, which saves executing it twice, which can mess up counters etc (thanks DPC. . .).

```
  \ifHy@breaklinks
    \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
  \Hy@RestoreSpaceFactor
\fi
\ifx\pdf@type\Hy@DEST
\else
```

```
    \pdf@addtoksx{H.B}%
  \fi
}
```

All the supplied material is stored in a token list; since I do not feel sure I quite understand these, things may not work as expected with expansion. We'll have to experiment.

```
\newtoks\pdf@toks
\newtoks\pdf@defaulttoks
\pdf@defaulttoks={}%
\def\pdf@addtoks#1#2{%
  \edef\@processme{\pdf@toks{\the\pdf@toks/#2 #1}}%
  \@processme
}
\def\pdf@addtoksx#1{%
  \edef\@processme{\pdf@toks{\the\pdf@toks\space #1}}%
  \@processme
}
\def\PDFdefaults#1{%
  \pdf@defaulttoks={#1}%
}
```

This is the list of allowed keys. See the Acrobat manual for an explanation.

```
% what is the type of pdfmark?
\define@key{PDF}{pdfmark}{\def\pdf@type{#1}}
% what is the link type?
\define@key{PDF}{linktype}{\def\pdf@linktype{#1}}
\def\pdf@linktype{link}
% parameter is a stream of PDF
\define@key{PDF}{Raw}{\pdf@addtoksx{#1}}
% parameter is a name
\define@key{PDF}{Action}{\pdf@addtoks{#1}{Action}}
% parameter is a array
\define@key{PDF}{Border}{%
  \edef\Hy@temp{#1}%
  \ifx\Hy@temp\@empty
  \else
    \pdf@addtoks{[#1]\Hy@BorderArrayPatch}{Border}% hash-ok
  \fi
}
\let\Hy@BorderArrayPatch\@empty
% parameter is a dictionary
\define@key{PDF}{BorderStyle}{%
  \edef\Hy@temp{#1}%
  \ifx\Hy@temp\@empty
  \else
    \pdf@addtoks{<<#1>>}{BS}%
  \fi
}
% parameter is a array
\define@key{PDF}{Color}{%
  \ifx\relax#1\relax
  \else
    \pdf@addtoks{[#1]}{Color}% hash-ok
  \fi
}
% parameter is a string
\define@key{PDF}{Contents}{\pdf@addtoks{(#1)}{Contents}}
% parameter is a integer
```

```
\define@key{PDF}{Count}{\pdf@addtoks{#1}{Count}}
% parameter is a array
\define@key{PDF}{CropBox}{\pdf@addtoks{[#1]}{CropBox}}% hash-ok
% parameter is a string
\define@key{PDF}{DOSFile}{\pdf@addtoks{(#1)}{DOSFile}}
% parameter is a string or file
\define@key{PDF}{DataSource}{\pdf@addtoks{(#1)}{DataSource}}
% parameter is a destination
\define@key{PDF}{Dest}{%
  \Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}%
  \ifx\Hy@pstringDest\@empty
    \Hy@pdfmarkerrortrue
    \Hy@Warning{Destination with empty name ignored}%
  \else
    \pdf@addtoks{(\Hy@pstringDest) cvn}{Dest}%
  \fi
}
\define@key{PDF}{DestAnchor}{%
  \Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}%
  \ifx\Hy@pstringDest\@empty
    \Hy@pdfmarkerrortrue
    \Hy@Warning{Destination with empty name ignored}%
  \else
    \pdf@addtoks{(\Hy@pstringDest) cvn}{Dest}%
  \fi
}
% parameter is a string
\define@key{PDF}{Dir}{\pdf@addtoks{(#1)}{Dir}}
% parameter is a string
\define@key{PDF}{File}{\pdf@addtoks{(#1)}{File}}
% parameter is a int
\define@key{PDF}{Flags}{\pdf@addtoks{#1}{Flags}}
\define@key{PDF}{PDFAFlags}{%
  \ifHy@pdfa
    \pdf@addtoks{#1}{F}%
  \fi
}
% parameter is a name
\define@key{PDF}{AcroHighlight}{%
  \begingroup
    \edef\x{#1}%
  \expandafter\endgroup\ifx\x\@empty
  \else
    \pdf@addtoks{#1}{H}%
  \fi
}
% parameter is a string
\define@key{PDF}{ID}{\pdf@addtoks{[#1]}{ID}}% hash-ok
% parameter is a string
\define@key{PDF}{MacFile}{\pdf@addtoks{(#1)}{MacFile}}
% parameter is a string
\define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
% parameter is a string
\define@key{PDF}{Op}{\pdf@addtoks{(#1)}{Op}}
% parameter is a Boolean
\define@key{PDF}{Open}{\pdf@addtoks{#1}{Open}}
% parameter is a integer or name
```

```
\define@key{PDF}{Page}{\pdf@addtoks{#1}{Page}}
% parameter is a name
\define@key{PDF}{PageMode}{\pdf@addtoks{#1}{PageMode}}
% parameter is a string
\define@key{PDF}{Params}{\pdf@addtoks{(#1)}{Params}}
% parameter is a array
\define@key{PDF}{Rect}{\pdf@addtoks{[#1]}{Rect}}% hash-ok
% parameter is a integer
\define@key{PDF}{SrcPg}{\pdf@addtoks{#1}{SrcPg}}
% parameter is a name
\define@key{PDF}{Subtype}{\pdf@addtoks{#1}{Subtype}}
% parameter is a string
\define@key{PDF}{Title}{\pdf@addtoks{(#1)}{Title}}
% parameter is a string
\define@key{PDF}{Unix}{\pdf@addtoks{(#1)}{Unix}}
% parameter is a string
\define@key{PDF}{UnixFile}{\pdf@addtoks{(#1)}{UnixFile}}
% parameter is an array
\define@key{PDF}{View}{\pdf@addtoks{[#1]}{View}}% hash-ok
% parameter is a string
\define@key{PDF}{WinFile}{\pdf@addtoks{(#1)}{WinFile}}
```

These are the keys used in the DOCINFO section.

```
\define@key{PDF}{Author}{\pdf@addtoks{(#1)}{Author}}
\define@key{PDF}{Creator}{\pdf@addtoks{(#1)}{Creator}}
\define@key{PDF}{CreationDate}{\pdf@addtoks{(#1)}{CreationDate}}
\define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
\define@key{PDF}{Producer}{\pdf@addtoks{(#1)}{Producer}}
\define@key{PDF}{Subject}{\pdf@addtoks{(#1)}{Subject}}
\define@key{PDF}{Keywords}{\pdf@addtoks{(#1)}{Keywords}}
\define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
\define@key{PDF}{Base}{\pdf@addtoks{(#1)}{Base}}
\define@key{PDF}{URI}{\pdf@addtoks{#1}{URI}}
\define@key{PDF}{Trapped}{%
  \edef\Hy@temp{#1}%
  \ifx\Hy@temp\@empty
  \else
    \pdf@addtoks{/#1}{Trapped}%
  \fi
}

⟨/pdfmarkbase⟩
⟨*pdfmark⟩
\def\Acrobatmenu#1#2{%
  \Hy@Acrobatmenu{#1}{#2}{%
    \pdfmark[{#2}]{%
      linktype=menu,%
      pdfmark=/ANN,%
      AcroHighlight=\@pdfhighlight,%
      Border=\@pdfborder,%
      BorderStyle=\@pdfborderstyle,%
      Action={<< /Subtype /Named /N /#1 >>},%
      Subtype=/Link,%
      PDFAFlags=4%
    }%
  }%
}
```

And now for some useful examples:

```
\def\PDFNextPage{\@ifnextchar[{\PDFNextPage@}{\PDFNextPage@[]}}
\def\PDFNextPage@[#1]#2{%
  \pdfmark[{#2}]{%
    #1,%
    Border=\@pdfborder,%
    BorderStyle=\@pdfborderstyle,%
    Color=.2 .1 .5,%
    pdfmark=/ANN,%
    Subtype=/Link,%
    PDFAFlags=4,%
    Page=/Next%
  }%
}
\def\PDFPreviousPage{%
  \@ifnextchar[{\PDFPreviousPage@}{\PDFPreviousPage@[]}%
}
\def\PDFPreviousPage@[#1]#2{%
  \pdfmark[{#2}]{%
    #1,%
    Border=\@pdfborder,%
    BorderStyle=\@pdfborderstyle,%
    Color=.4 .4 .1,%
    pdfmark=/ANN,%
    Subtype=/Link,%
    PDFAFlags=4,%
    Page=/Prev%
  }%
}
\def\PDFOpen#1{%
  \pdfmark{#1,pdfmark=/DOCVIEW}%
}
```

This will only work if you use Distiller 2.1 or higher.

```
\def\hyper@linkurl#1#2{%
  \begingroup
    \Hy@pstringdef\Hy@pstringURI{#2}%
    \hyper@chars
    \leavevmode
    \pdfmark[{#1}]{%
      pdfmark=/ANN,%
      linktype=url,%
      AcroHighlight=\@pdfhighlight,%
      Border=\@pdfborder,%
      BorderStyle=\@pdfborderstyle,%
      Color=\@urlbordercolor,%
      Action={<<%
        /Subtype/URI%
        /URI(\Hy@pstringURI)%
        \ifHy@href@ismap
          /IsMap true%
        \fi
      >>},%
      Subtype=/Link,%
      PDFAFlags=4%
    }%
  \endgroup
}
```

```
\def\hyper@linkfile#1#2#3{%
  \begingroup
    \def\Hy@pstringF{#2}%
    \Hy@CleanupFile\Hy@pstringF
    \Hy@pstringdef\Hy@pstringF\Hy@pstringF
    \Hy@pstringdef\Hy@pstringD{#3}%
    \Hy@MakeRemoteAction
    \leavevmode
    \pdfmark[{#1}]{%
      pdfmark=/ANN,%
      Subtype=/Link,%
      PDFAFlags=4,%
      AcroHighlight=\@pdfhighlight,%
      Border=\@pdfborder,%
      BorderStyle=\@pdfborderstyle,%
      linktype=file,%
      Color=\@filebordercolor,%
      Action={%
        <<%
          /S/GoToR%
          \Hy@SetNewWindow
          /F(\Hy@pstringF)%
          /D%
          \ifx\\#3\\%
            [\Hy@href@page\@pdfremotestartview]%
          \else
            (\Hy@pstringD)cvn%
          \fi
          \Hy@href@nextactionraw
        >>%
      }%
    }%
  \endgroup
}
\def\@hyper@launch run:#1\\#2#3{%
  \begingroup
    \Hy@pstringdef\Hy@pstringF{#1}%
    \Hy@pstringdef\Hy@pstringP{#3}%
    \leavevmode
    \pdfmark[{#2}]{%
      pdfmark=/ANN,%
      Subtype=/Link,%
      PDFAFlags=4,%
      AcroHighlight=\@pdfhighlight,%
      Border=\@pdfborder,%
      BorderStyle=\@pdfborderstyle,%
      linktype=run,%
      Color=\@runbordercolor,%
      Action={%
        <<%
          /S/Launch%
          \Hy@SetNewWindow
          /F(\Hy@pstringF)%
          \ifx\\#3\\%
          \else
            /Win<</P(\Hy@pstringP)/F(\Hy@pstringF)>>%
          \fi
```

```
        \Hy@href@nextactionraw
      >>%
    }%
  }%
 \endgroup
}
⟨/pdfmark⟩
```

Unfortunately, some parts of the pdfmark PostScript code depend on vagaries of the dvi driver. We isolate here all the problems.

46.9 Rokicki's dvips

dvips thinks in 10ths of a big point, its coordinate space is resolution dependent, and its y axis starts at the top of the page. Other drivers can and will be different!

The work is done in SDict, because we add in some header definitions in a moment.

```
⟨*dvips⟩
\providecommand*{\XR@ext}{pdf}
\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
    \Hy@SaveSpaceFactor
    \Hy@SaveSavedSpaceFactor
    \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
    \Hy@RestoreSavedSpaceFactor
    \@linkdim\dp\@tempboxa
    \lower\@linkdim\hbox{%
      \hyper@chars
      \special{html:<a href=\hyper@quote#2\hyper@quote>}%
    }%
    \Hy@colorlink\@urlcolor
      \Hy@RestoreSpaceFactor
      #1%
      \Hy@SaveSpaceFactor
      \@linkdim\ht\@tempboxa
      \advance\@linkdim by -6.5\p@
      \raise\@linkdim\hbox{\special{html:</a>}}%
    \Hy@endcolorlink
    \Hy@RestoreSpaceFactor
  \else
    \begingroup
      \hyper@chars
      \special{html:<a href=\hyper@quote#2\hyper@quote>}%
      \Hy@colorlink\@urlcolor#1%
      \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}{%
  \Hy@InfoNoLine{tex4ht is 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
    \Hy@SaveSpaceFactor
    \Hy@SaveSavedSpaceFactor
    \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}%
    \Hy@RestoreSavedSpaceFactor
    \@linkdim\dp\@tempboxa
    \lower\@linkdim\hbox{%
      \begingroup
        \hyper@chars
        \special{%
          t4ht=<a href=\hyper@quote#2\hyper@quote>%
        }%
      \endgroup
    }%
    \Hy@colorlink\@urlcolor
      \Hy@RestoreSpaceFactor
      #1%
      \Hy@SaveSpaceFactor
    \Hy@endcolorlink
    \@linkdim\ht\@tempboxa
    \advance\@linkdim by -6.5\p@
    \raise\@linkdim\hbox{\special{t4ht=</a>}}%
    \Hy@RestoreSpaceFactor
  \else
    \begingroup
      \hyper@chars
      \special{t4ht=<a href=\hyper@quote#2\hyper@quote>}%
      \Hy@colorlink\@urlcolor#1\Hy@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{}
```
Fix for tex4ht.
```
\AtBeginDocument{%
 \expandafter\let\expandafter\Hy@OrgMakeLabel\csname Make:Label\endcsname
 \expandafter\def\csname Make:Label\endcsname#1#2{%
   \ifhmode
     \Hy@SaveSpaceFactor
   \else
     \global\Hy@SavedSpaceFactor=1000 %
   \fi
   \Hy@OrgMakeLabel{#1}{%
     \Hy@RestoreSpaceFactor
     #2%
     \Hy@SaveSpaceFactor
   }%
   \Hy@RestoreSpaceFactor
 }%
}
⟨/tex4ht⟩
⟨*tex4htcfg⟩
\IfFileExists{\jobname.cfg}{\endinput}{}
\Preamble{html}
  \begin{document}%
\EndPreamble
\def\TeX{TeX}
\def\OMEGA{Omega}
\def\LaTeX{La\TeX}
\def\LaTeXe{\LaTeX2e}
\def\eTeX{e-\TeX}
\def\MF{Metafont}
\def\MP{MetaPost}
⟨/tex4htcfg⟩
```

47 Driver-specific form support

47.1 pdfmarks

```
⟨*pdfmark⟩
\long\def\@Form[#1]{%
\g@addto@macro\Hy@FirstPageHook{%
  \headerps@out{%
[%
  /__objdef{pdfDocEncoding}%
  /type/dict%
/OBJ pdfmark%
[%
  {pdfDocEncoding}%
  <<%
    /Type/Encoding%
    /Differences[%
      24/breve/caron/circumflex/dotaccent/hungarumlaut/ogonek/ring%
        /tilde %
      39/quotesingle %
      96/grave %
      128/bullet/dagger/daggerdbl/ellipsis/emdash/endash/florin%
         /fraction/guilsinglleft/guilsinglright/minus/perthousand%
```

```
      /quotedblbase/quotedblleft/quotedblright/quoteleft%
      /quoteright/quotesinglbase/trademark/fi/fl/Lslash/OE/Scaron%
      /Ydieresis/Zcaron/dotlessi/lslash/oe/scaron/zcaron %
    164/currency %
    166/brokenbar %
    168/dieresis/copyright/ordfeminine %
    172/logicalnot/.notdef/registered/macron/degree/plusminus%
      /twosuperior/threesuperior/acute/mu %
    183/periodcentered/cedilla/onesuperior/ordmasculine %
    188/onequarter/onehalf/threequarters %
    192/Agrave/Aacute/Acircumflex/Atilde/Adieresis/Aring/AE%
      /Ccedilla/Egrave/Eacute/Ecircumflex/Edieresis/Igrave%
      /Iacute/Icircumflex/Idieresis/Eth/Ntilde/Ograve/Oacute%
      /Ocircumflex/Otilde/Odieresis/multiply/Oslash/Ugrave%
      /Uacute/Ucircumflex/Udieresis/Yacute/Thorn/germandbls%
      /agrave/aacute/acircumflex/atilde/adieresis/aring/ae%
      /ccedilla/egrave/eacute/ecircumflex/edieresis/igrave%
      /iacute/icircumflex/idieresis/eth/ntilde/ograve/oacute%
      /ocircumflex/otilde/odieresis/divide/oslash/ugrave/uacute%
      /ucircumflex/udieresis/yacute/thorn/ydieresis%
  ]%
 >>%
/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
}}%
  \kvsetkeys{Form}{#1}%
}
\def\@endForm{}
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \Hy@Message{Sorry, pdfmark drivers do not support FORM gauges}%
}
\def\@TextField[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \def\Fld@default{}%
  \let\Fld@value\@empty
```

```
  \def\Fld@width{\DefaultWidthofText}%
  \def\Fld@height{%
    \ifFld@multiline
      \DefaultHeightofTextMultiline
    \else
      \DefaultHeightofText
    \fi
  }%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofText,#1%
    }%
    \HyField@FlagsText
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \ifx\Fld@value\@empty\def\Fld@value{\Fld@default}\fi
    \LayoutTextField{#2}{%
      \Hy@escapeform\PDFForm@Text
      \pdfmark[\MakeTextField{\Fld@width}{\Fld@height}]{%
        pdfmark=/ANN,Raw={\PDFForm@Text}%
      }%
    }%
  \endgroup
}
\def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
  \def\Fld@name{#2}%
  \let\Fld@default\relax
  \let\Fld@value\relax
  \def\Fld@width{\DefaultWidthofChoiceMenu}%
  \def\Fld@height{\DefaultHeightofChoiceMenu}%
  \begingroup
    \Fld@menulength=0 %
    \@tempdima\z@
    \@for\@curropt:=#3\do{%
      \expandafter\Fld@checkequals\@curropt==\\%
      \Hy@StepCount\Fld@menulength
      \settowidth{\@tempdimb}{\@currDisplay}%
      \ifdim\@tempdimb>\@tempdima\@tempdima\@tempdimb\fi
    }%
    \advance\@tempdima by 15\p@
    \begingroup
      \HyField@SetKeys{#1}%
    \edef\x{\endgroup
      \noexpand\expandafter
      \noexpand\HyField@SetKeys
      \noexpand\expandafter{%
        \expandafter\noexpand\csname DefaultOptionsof%
          \ifFld@radio
            Radio%
          \else
            \ifFld@combo
              \ifFld@popdown
                PopdownBox%
              \else
                ComboBox%
              \fi
            \else
              ListBox%
```

```
          \fi
        \fi
      \endcsname
    }%
  }\x
  \HyField@SetKeys{#1}%
  \ifFld@hidden\def\Fld@width{1sp}\fi
  \ifx\Fld@value\relax
    \let\Fld@value\Fld@default
  \fi
  \LayoutChoiceField{#2}{%
    \ifFld@radio
      \HyField@FlagsRadioButton
      \@@Radio{#3}%
    \else
      \begingroup
        \HyField@FlagsChoice
        \ifdim\Fld@width<\@tempdima
          \ifdim\@tempdima<1cm\@tempdima1cm\fi
          \edef\Fld@width{\the\@tempdima}%
        \fi
        \ifFld@combo
        \else
          \@tempdima=\the\Fld@menulength\Fld@charsize
          \advance\@tempdima by \Fld@borderwidth bp %
          \advance\@tempdima by \Fld@borderwidth bp %
          \edef\Fld@height{\the\@tempdima}%
        \fi
        \@@Listbox{#3}%
      \endgroup
    \fi
  }%
 \endgroup
}
\def\@@Radio#1{%
 \Fld@listcount=0 %
 \@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
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofPushButton,#1%
    }%
    \ifHy@pdfa
      \Hy@Error{%
        PDF/A: Push button with JavaScript is prohibited%
      }\@ehc
      \LayoutPushButtonField{%
        \leavevmode
        \MakeButtonField{#2}%
      }%
    \else
      \HyField@FlagsPushButton
      \ifFld@hidden\def\Fld@width{1sp}\fi
      \LayoutPushButtonField{%
        \leavevmode
        \Hy@escapeform\PDFForm@Push
        \pdfmark[\MakeButtonField{#2}]{%
          pdfmark=/ANN,Raw={\PDFForm@Push}%
        }%
      }%
    \fi
  \endgroup
}
\def\@Submit[#1]#2{%
  \def\Fld@width{\DefaultWidthofSubmit}%
  \def\Fld@height{\DefaultHeightofSubmit}%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofSubmit,#1%
    }%
    \HyField@FlagsPushButton
    \HyField@FlagsSubmit
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \Hy@escapeform\PDFForm@Submit
    \pdfmark[\MakeButtonField{#2}]{%
      pdfmark=/ANN,%
      Raw={\PDFForm@Submit /AP << /N {Submit} /D {SubmitP} >>}%
    }%
  \endgroup
}
\def\@Reset[#1]#2{%
  \def\Fld@width{\DefaultWidthofReset}%
  \def\Fld@height{\DefaultHeightofReset}%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofReset,#1%
    }%
    \leavevmode
    \ifHy@pdfa
      \Hy@Error{%
        PDF/A: Reset action is prohibited%
      }\@ehc
      \MakeButtonField{#2}%
```

```
    \else
      \HyField@FlagsPushButton
      \ifFld@hidden\def\Fld@width{1sp}\fi
      \Hy@escapeform\PDFForm@Reset
      \pdfmark[\MakeButtonField{#2}]{%
        pdfmark=/ANN,Raw={\PDFForm@Reset}%
      }%
    \fi
  \endgroup
}%
\def\@CheckBox[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \def\Fld@default{0}%
  \begingroup
    \def\Fld@width{\DefaultWidthofCheckBox}%
    \def\Fld@height{\DefaultHeightofCheckBox}%
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofCheckBox,#1%
    }%
    \HyField@FlagsCheckBox
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \LayoutCheckField{#2}{%
      \Hy@escapeform\PDFForm@Check
      \pdfmark[\MakeCheckField{\Fld@width}{\Fld@height}]{%
        pdfmark=/ANN,Raw={\PDFForm@Check}%
      }%
    }%
  \endgroup
}
⟨/pdfmark⟩
```

47.2 HyperTeX

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

47.3 TeX4ht

```
⟨*tex4ht⟩
\def\@Form[#1]{%
```

```
  \kvsetkeys{Form}{#1}%
  \HCode{<form action="\Form@action" method="\Form@method">}%
}
\def\@endForm{\HCode{</form>}}
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \Hy@Message{Sorry, TeX4ht does not support gauges}%
}
\def\@TextField[#1]#2{% parameters, label
  \let\Hy@reserved@a\@empty
  \def\Fld@name{#2}%
  \def\Fld@default{}%
  \bgroup
    \Field@toks={ }%
    \kvsetkeys{Field}{#1}%
    \HCode{<label for="\Fld@name">#2</label>}%
    \ifFld@password
      \@@PasswordField
    \else
      \@@TextField
    \fi
  \egroup
}
\def\@@PasswordField{%
  \HCode{%
    <input type="password" %
     id="\Fld@name" %
     name="\Fld@name" %
     \ifFld@hidden type="hidden" \fi
     value="\Fld@default" %
     \the\Field@toks
    >%
  }%
}
\def\@@TextField{%
  \ifFld@multiline
    \HCode{<textarea %
      \ifFld@readonly readonly \fi
      id="\Fld@name" %
      name="\Fld@name" %
      \ifFld@hidden type="hidden" \fi
      \the\Field@toks>%
    }%
    \Fld@default
    \HCode{</textarea>}%
  \else
    \HCode{<input type="textbox" %
      \ifFld@readonly readonly \fi
      id="\Fld@name" %
      name="\Fld@name" %
      \ifFld@hidden type="hidden" \fi
      value="\Fld@default" %
      \the\Field@toks>%
    }%
  \fi
}
\def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
  \def\Fld@name{#2}%
```

```
  \def\Fld@default{}%
  \let\Hy@reserved@a\relax
  \begingroup
    \expandafter\Fld@findlength#3\\%
    \Field@toks={ }%
    \kvsetkeys{Field}{#1}%
    #2%
    \ifFld@radio
      \expandafter\@@Radio#3\\%
    \else
      \expandafter\@@Menu#3\\%
    \fi
  \endgroup
}
\def\Fld@findlength#1\\{%
  \Fld@menulength=0 %
  \@for\@curropt:=#1\do{\Hy@StepCount\Fld@menulength}%
}
\def\@@Menu#1\\{%
  \HCode{<select size="\the\Fld@menulength" %
    name="\Fld@name" %
    \the\Field@toks>%
  }%
  \@for\@curropt:=#1\do{%
    \expandafter\Fld@checkequals\@curropt==\\%
    \HCode{<option %
      \ifx\@curropt\Fld@default selected \fi
      value="\@currValue">\@currDisplay</option>%
    }%
  }%
  \HCode{</select>}%
}
\def\@@Radio#1\\{%
  \@for\@curropt:=#1\do{%
    \expandafter\Fld@checkequals\@curropt==\\%
    \HCode{<input type="radio" %
      \ifx\@curropt\Fld@default checked \fi
      name="\Fld@name" %
      value="\@currValue" %
      \the\Field@toks>%
    }%
    \@currDisplay
  }%
}
\def\@PushButton[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \bgroup
    \Field@toks={ }%
    \kvsetkeys{Field}{#1}%
    \HCode{<input type="button" %
      name="\Fld@name" %
      value="#2" %
      \the\Field@toks>%
    }%
    \HCode{</button>}%
  \egroup
}
```

```
\def\@Submit[#1]#2{%
  \HCode{<button type="submit">#2</button>}%
}
\def\@Reset[#1]#2{%
  \HCode{<button type="reset">#2</button>}%
}
\def\@CheckBox[#1]#2{% parameters, label
  \let\Hy@reserved@a\@empty
  \def\Fld@name{#2}%
  \def\Fld@default{0}%
  \bgroup
    \Field@toks={ }%
    \kvsetkeys{Field}{#1}%
    \HCode{<input type="checkbox" %
      \ifFld@checked checked \fi
      \ifFld@disabled disabled \fi
      \ifFld@readonly readonly \fi
      name="\Fld@name" %
      \ifFld@hidden type="hidden" \fi
      value="\Fld@default" %
      \the\Field@toks>%
      #2%
    }%
  \egroup
}
```
⟨/tex4ht⟩

47.4 pdfTeX

```
⟨*pdftex⟩
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \Hy@Message{Sorry, pdftex does not support FORM gauges}%
}
\def\MakeFieldObject#1#2{\sbox0{#1}%
  \immediate\pdfxform0 %
  \expandafter\edef\csname #2Object\endcsname{%
    \the\pdflastxform\space 0 R%
  }%
% \hbox to 0pt{\hskip-\maxdimen{\pdfrefxform \the\pdflastxform}}%
}%
\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}{}%
 \kvsetkeys{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
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofText,#1%
    }%
    \PDFForm@Name
    \HyField@FlagsText
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \ifx\Fld@value\@empty\def\Fld@value{\Fld@default}\fi
    \LayoutTextField{#2}{%
      \Hy@escapeform\PDFForm@Text
      \pdfstartlink user {\PDFForm@Text}\relax
      \MakeTextField{\Fld@width}{\Fld@height}\pdfendlink
      \HyField@AddToFields
    }%
  \endgroup
}
\def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
  \def\Fld@name{#2}%
  \let\Fld@default\relax
  \let\Fld@value\relax
  \def\Fld@width{\DefaultWidthofChoiceMenu}%
  \def\Fld@height{\DefaultHeightofChoiceMenu}%
  \begingroup
    \Fld@menulength=0 %
    \@tempdima\z@
```

```
\@for\@curropt:=#3\do{%
  \expandafter\Fld@checkequals\@curropt==\\%
  \Hy@StepCount\Fld@menulength
  \settowidth{\@tempdimb}{\@currDisplay}%
  \ifdim\@tempdimb>\@tempdima\@tempdima\@tempdimb\fi
}%
\advance\@tempdima by 15\p@
\begingroup
  \HyField@SetKeys{#1}%
\edef\x{\endgroup
  \noexpand\expandafter
  \noexpand\HyField@SetKeys
  \noexpand\expandafter{%
    \expandafter\noexpand\csname DefaultOptionsof%
      \ifFld@radio
        Radio%
      \else
        \ifFld@combo
          \ifFld@popdown
            PopdownBox%
          \else
            ComboBox%
          \fi
        \else
          ListBox%
        \fi
      \fi
    \endcsname
  }%
}\x
\HyField@SetKeys{#1}%
\PDFForm@Name
\ifFld@hidden\def\Fld@width{1sp}\fi
\ifx\Fld@value\relax
  \let\Fld@value\Fld@default
\fi
\LayoutChoiceField{#2}{%
  \ifFld@radio
    \HyField@FlagsRadioButton
    \@@Radio{#3}%
  \else
    \begingroup
      \HyField@FlagsChoice
      \ifdim\Fld@width<\@tempdima
        \ifdim\@tempdima<1cm\@tempdima1cm\fi
        \edef\Fld@width{\the\@tempdima}%
      \fi
      \ifFld@combo
      \else
        \@tempdima=\the\Fld@menulength\Fld@charsize
        \advance\@tempdima by \Fld@borderwidth bp %
        \advance\@tempdima by \Fld@borderwidth bp %
        \edef\Fld@height{\the\@tempdima}%
      \fi
      \@@Listbox{#3}%
    \endgroup
  \fi
```

```
    }%
  \endgroup
}
\def\@@Radio#1{%
  \Fld@listcount=0 %
  \@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
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofPushButton,#1%
    }%
    \PDFForm@Name
    \ifHy@pdfa
      \Hy@Error{%
        PDF/A: Push button with JavaScript is prohibited%
      }\@ehc
      \LayoutPushButtonField{%
        \leavevmode
        \MakeButtonField{#2}%
      }%
    \else
      \HyField@FlagsPushButton
```

```
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \LayoutPushButtonField{%
      \leavevmode
      \Hy@escapeform\PDFForm@Push
      \pdfstartlink user {\PDFForm@Push}\relax
      \MakeButtonField{#2}%
      \pdfendlink
      \HyField@AddToFields
    }%
  \fi
 \endgroup
}
\def\@Submit[#1]#2{%
 \def\Fld@width{\DefaultWidthofSubmit}%
 \def\Fld@height{\DefaultHeightofSubmit}%
 \begingroup
  \expandafter\HyField@SetKeys\expandafter{%
   \DefaultOptionsofSubmit,#1%
  }%
  \HyField@FlagsPushButton
  \HyField@FlagsSubmit
  \ifFld@hidden\def\Fld@width{1sp}\fi
  \leavevmode
  \Hy@escapeform\PDFForm@Submit
  \pdfstartlink user {%
   \PDFForm@Submit
   /AP<</N \SubmitObject/D \SubmitPObject>>%
  }%
  \relax
  \MakeButtonField{#2}%
  \pdfendlink
  \HyField@AddToFields
 \endgroup
}
\def\@Reset[#1]#2{%
 \def\Fld@width{\DefaultWidthofReset}%
 \def\Fld@height{\DefaultHeightofReset}%
 \begingroup
  \expandafter\HyField@SetKeys\expandafter{%
   \DefaultOptionsofReset,#1%
  }%
  \leavevmode
  \ifHy@pdfa
   \Hy@Error{%
    PDF/A: Reset action is prohibited%
   }\@ehc
   \MakeButtonField{#2}%
  \else
   \HyField@FlagsPushButton
   \ifFld@hidden\def\Fld@width{1sp}\fi
   \Hy@escapeform\PDFForm@Reset
   \pdfstartlink user {\PDFForm@Reset}\relax
   \MakeButtonField{#2}%
   \pdfendlink
   \HyField@AddToFields
  \fi
 \endgroup
```

```
}
\def\@CheckBox[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \def\Fld@default{0}%
  \begingroup
    \def\Fld@width{\DefaultWidthofCheckBox}%
    \def\Fld@height{\DefaultHeightofCheckBox}%
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofCheckBox,#1%
    }%
    \PDFForm@Name
    \HyField@FlagsCheckBox
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \LayoutCheckField{#2}{%
      \Hy@escapeform\PDFForm@Check
      \pdfstartlink user {\PDFForm@Check}\relax
      \MakeCheckField{\Fld@width}{\Fld@height}%
      \pdfendlink
      \HyField@AddToFields
    }%
  \endgroup
}
\def\Hy@FormObjects{%
  \pdfobj {%
    <<%
      /Type/Encoding%
      /Differences[%
        24/breve/caron/circumflex/dotaccent/hungarumlaut/ogonek%
          /ring/tilde %
        39/quotesingle %
        96/grave %
        128/bullet/dagger/daggerdbl/ellipsis/emdash/endash/florin%
          /fraction/guilsinglleft/guilsinglright/minus/perthousand%
          /quotedblbase/quotedblleft/quotedblright/quoteleft%
          /quoteright/quotesinglbase/trademark/fi/fl/Lslash/OE%
          /Scaron/Ydieresis/Zcaron/dotlessi/lslash/oe/scaron/zcaron %
        164/currency %
        166/brokenbar %
        168/dieresis/copyright/ordfeminine %
        172/logicalnot/.notdef/registered/macron/degree/plusminus%
          /twosuperior/threesuperior/acute/mu %
        183/periodcentered/cedilla/onesuperior/ordmasculine %
        188/onequarter/onehalf/threequarters %
        192/Agrave/Aacute/Acircumflex/Atilde/Adieresis/Aring/AE%
          /Ccedilla/Egrave/Eacute/Ecircumflex/Edieresis/Igrave%
          /Iacute/Icircumflex/Idieresis/Eth/Ntilde/Ograve/Oacute%
          /Ocircumflex/Otilde/Odieresis/multiply/Oslash/Ugrave%
          /Uacute/Ucircumflex/Udieresis/Yacute/Thorn/germandbls%
          /agrave/aacute/acircumflex/atilde/adieresis/aring/ae%
          /ccedilla/egrave/eacute/ecircumflex/edieresis/igrave%
          /iacute/icircumflex/idieresis/eth/ntilde/ograve/oacute%
          /ocircumflex/otilde/odieresis/divide/oslash/ugrave%
          /uacute/ucircumflex/udieresis/yacute/thorn/ydieresis%
      ]%
    >>%
  }%
  \xdef\OBJ@pdfdocencoding{\the\pdflastobj}%
```

```
  \pdfobj{%
    <<%
      /Type/Font%
      /Subtype/Type1%
      /Name/ZaDb%
      /BaseFont/ZapfDingbats%
    >>%
  }%
  \xdef\OBJ@ZaDb{\the\pdflastobj}%
  \pdfobj{%
    <<%
      /Type/Font%
      /Subtype/Type1%
      /Name/Helv%
      /BaseFont/Helvetica%
      /Encoding \OBJ@pdfdocencoding\space 0 R%
    >>%
  }%
  \xdef\OBJ@Helv{\the\pdflastobj}%
  \global\let\Hy@FormObjects\relax
}
⟨/pdftex⟩
```

47.5 dvipdfm, xetex

D. P. Story adapted the pdfTEX forms part for dvipdfm, of which version 0.12.7b or higher is required because of a bug.

```
⟨*dvipdfm | xetex⟩
```

\@Gauge

```
\def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
  \Hy@Message{Sorry, dvipdfm/XeTeX does not support FORM gauges}%
}
```

\@Form

```
\def\@Form[#1]{%
  \@ifundefined{textcolor}{\let\textcolor\@gobble}{}%
  \kvsetkeys{Form}{#1}%
  \Hy@FormObjects
  \@pdfm@mark{obj @afields []}%
  \@pdfm@mark{obj @corder []}%
  \@pdfm@mark{%
    obj @aform <<%
      /Fields @afields%
      /DR<<%
        /Font<<%
          /ZaDb @OBJZaDb%
          /Helv @OBJHelv%
        >>%
      >>%
      /DA(/Helv 10 Tf 0 g)%
      /CO @corder%
      \ifHy@pdfa
      \else
        /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
    \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@
  \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
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofPushButton,#1%
    }%
    \PDFForm@Name
    \ifHy@pdfa
      \Hy@Error{%
        PDF/A: Push button with JavaScript is prohibited%
      }\@ehc
      \LayoutPushButtonField{%
        \leavevmode
        \MakeButtonField{#2}%
      }%
    \else
      \setbox\pdfm@box=\hbox{\MakeButtonField{#2}}%
      \HyField@FlagsPushButton
      \ifFld@hidden\def\Fld@width{1sp}\fi
      \HyField@AdvanceAnnotCount
      \LayoutPushButtonField{%
        \leavevmode
        \Hy@escapeform\PDFForm@Push
        \@pdfm@mark{%
          ann @push\HyField@TheAnnotCount\space
          \dvipdfm@setdim
          <<\PDFForm@Push>>%
        }%
      }%
      \unhbox\pdfm@box
      \@pdfm@mark{put @afields @push\HyField@TheAnnotCount}%
    \fi
```

```
  \endgroup
}
```

\@Submit

```
\def\@Submit[#1]#2{%
  \def\Fld@width{\DefaultWidthofSubmit}%
  \def\Fld@height{\DefaultHeightofSubmit}%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofSubmit,#1%
    }%
    \HyField@FlagsPushButton
    \HyField@FlagsSubmit
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \setbox\pdfm@box=\hbox{\MakeButtonField{#2}}%
    \leavevmode
    \Hy@escapeform\PDFForm@Submit
    \HyField@AdvanceAnnotCount
    \@pdfm@mark{%
      ann @submit\HyField@TheAnnotCount\space
      \dvipdfm@setdim
      <<\PDFForm@Submit>>%
    }%
    \unhbox\pdfm@box%
    \@pdfm@mark{put @afields @submit\HyField@TheAnnotCount}%
  \endgroup
}
```

\@Reset

```
\def\@Reset[#1]#2{%
  \def\Fld@width{\DefaultWidthofReset}%
  \def\Fld@height{\DefaultHeightofReset}%
  \begingroup
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofReset,#1%
    }%
    \leavevmode
    \ifHy@pdfa
      \Hy@Error{%
        PDF/A: Reset action is prohibited%
      }\@ehc
      \MakeButtonField{#2}%
    \else
      \HyField@FlagsPushButton
      \ifFld@hidden\def\Fld@width{1sp}\fi
      \setbox\pdfm@box=\hbox{\MakeButtonField{#2}}%
      \Hy@escapeform\PDFForm@Reset
      \HyField@AdvanceAnnotCount
      \@pdfm@mark{%
        ann @reset\HyField@TheAnnotCount\space
        \dvipdfm@setdim
        <<\PDFForm@Reset>>%
      }%
      \unhbox\pdfm@box
      \@pdfm@mark{put @afields @reset\HyField@TheAnnotCount}%
    \fi
  \endgroup
```

```
}
```

\@CheckBox

```
\def\@CheckBox[#1]#2{% parameters, label
  \def\Fld@name{#2}%
  \def\Fld@default{0}%
  \begingroup
    \def\Fld@width{\DefaultWidthofCheckBox}%
    \def\Fld@height{\DefaultHeightofCheckBox}%
    \expandafter\HyField@SetKeys\expandafter{%
      \DefaultOptionsofCheckBox,#1%
    }%
    \PDFForm@Name
    \HyField@FlagsCheckBox
    \ifFld@hidden\def\Fld@width{1sp}\fi
    \setbox\pdfm@box=\hbox{%
      \MakeCheckField{\Fld@width}{\Fld@height}%
    }%
    \HyField@AdvanceAnnotCount
    \LayoutCheckField{#2}{%
      \Hy@escapeform\PDFForm@Check
      \@pdfm@mark{%
        ann @check\HyField@TheAnnotCount\space
        \dvipdfm@setdim
        <<\PDFForm@Check>>%
      }%
      \unhbox\pdfm@box
      \@pdfm@mark{put @afields @check\HyField@TheAnnotCount}%
    }%
  \endgroup
}

\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding%
    <<%
      /Type/Encoding%
      /Differences[%
        24/breve/caron/circumflex/dotaccent/hungarumlaut/ogonek/ring/tilde %
        39/quotesingle %
        96/grave %
        128/bullet/dagger/daggerdbl/ellipsis/emdash/endash/florin%
          /fraction/guilsinglleft/guilsinglright/minus/perthousand%
          /quotedblbase/quotedblleft/quotedblright/quoteleft/quoteright%
          /quotesinglbase/trademark/fi/fl/Lslash/OE/Scaron/Ydieresis%
          /Zcaron/dotlessi/lslash/oe/scaron/zcaron %
        164/currency %
        166/brokenbar %
        168/dieresis/copyright/ordfeminine %
        172/logicalnot/.notdef/registered/macron/degree/plusminus%
          /twosuperior/threesuperior/acute/mu %
        183/periodcentered/cedilla/onesuperior/ordmasculine %
        188/onequarter/onehalf/threequarters %
        192/Agrave/Aacute/Acircumflex/Atilde/Adieresis/Aring/AE%
          /Ccedilla/Egrave/Eacute/Ecircumflex/Edieresis/Igrave/Iacute%
          /Icircumflex/Idieresis/Eth/Ntilde/Ograve/Oacute/Ocircumflex%
          /Otilde/Odieresis/multiply/Oslash/Ugrave/Uacute/Ucircumflex%
          /Udieresis/Yacute/Thorn/germandbls/agrave/aacute/acircumflex%
          /atilde/adieresis/aring/ae/ccedilla/egrave/eacute%
```

```
        /ecircumflex/edieresis/igrave/iacute/icircumflex/idieresis%
        /eth/ntilde/ograve/oacute/ocircumflex/otilde/odieresis%
        /divide/oslash/ugrave/uacute/ucircumflex/udieresis/yacute%
        /thorn/ydieresis%
    ]%
  >>%
}%
\@pdfm@mark{obj @OBJZaDb%
  <<%
    /Type/Font%
    /Subtype/Type1%
    /Name/ZaDb%
    /BaseFont/ZapfDingbats%
  >>%
}%
\@pdfm@mark{obj @OBJHelv%
  <<%
    /Type/Font%
    /Subtype/Type1%
    /Name/Helv%
    /BaseFont/Helvetica%
    /Encoding @OBJpdfdocencoding%
  >>%
}%
\global\let\Hy@FormObjects\relax
}
⟨/dvipdfm | xetex⟩
```

47.6 Common forms part

```
⟨*pdfform⟩
```

\Hy@escapestring

```
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname pdfescapestring\endcsname\relax
  \let\Hy@escapestring\@firstofone
  \def\Hy@escapeform#1{%
    \ifHy@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
}
```

\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@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
  \Fld@additionalactions
}
```

\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})>>%
    \Fld@additionalactions
  }%
\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
 >>%
 \Fld@additionalactions
}
```

\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>>%
  \Fld@additionalactions
 }%
\fi
```

```
⟨/pdfform⟩
⟨*package⟩
```

48 Bookmarks in the PDF file

This was originally developed by Yannis Haralambous (it was the separate repere.sty); it needed the repere or makebook.pl post-processor to work properly. Now redundant, as it is done entirely in LaTeX macros.

To write out the current section title, and its rationalized number, we have to intercept the \@sect command, which is rather dangerous. But how else to see the information we need? We do the *same* for \@ssect, giving anchors to unnumbered sections. This allows things like bibliographies to get bookmarks when used with a manual \addcontentsline

```
\def\phantomsection{%
  \Hy@MakeCurrentHrefAuto{section*}%
  \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
}
```
⟨/package⟩

48.1 Bookmarks

⟨*outlines⟩

This section was written by Heiko Oberdiek; the code replaces an earlier version by David Carlisle.

The first part of bookmark code is in section 6. Further documentation is available as paper and slides of the talk, that Heiko Oberdiek has given at the EuroTeX'99 meating in Heidelberg. See paper.pdf and slides.pdf in the doc directory of hyperref.

When using the right-to-left typesetting based on ε-TeX, the order of the \BOOKMARK commands written to the \@outlinefile could appear wrong, because of mis-feature of ε-TeX's implementation (that it processes the shipped out lines left-to-right, instead of the order in which they appear in the document). The wrong order will appear when the file contains two bookmarks on the same line typeset right-to-left.

To work around this problem, the bookmark@seq@number counter is used to write the bookmark's sequential number into a comment in the \@outlinefile, which could be used to post-process it to achieve the proper ordering of \BOOKMARK commands in that file.

```
\def\Hy@writebookmark#1#2#3#4#5{%
  % section number, text, label, level, file
  \ifx\WriteBookmarks\relax%
  \else
    \ifnum#4>\Hy@bookmarksdepth\relax
    \else
      \@@writetorep{#1}{#2}{#3}{#4}{#5}%
    \fi
  \fi
}
\def\Hy@currentbookmarklevel{0}
\def\Hy@numberline#1{#1 }
\def\@@writetorep#1#2#3#4#5{%
  \begingroup
    \edef\Hy@tempa{#5}%
    \ifx\Hy@tempa\Hy@bookmarkstype
      \edef\Hy@level{#4}%
      \ifx\Hy@levelcheck Y%
        \@tempcnta\Hy@level\relax
        \advance\@tempcnta by -1 %
        \ifnum\Hy@currentbookmarklevel<\@tempcnta
          \advance\@tempcnta by -\Hy@currentbookmarklevel\relax
          \advance\@tempcnta by 1 %
```

```
        \Hy@Warning{%
          Difference (\the\@tempcnta) between bookmark levels is %
          greater \MessageBreak than one, level fixed%
        }%
        \@tempcnta\Hy@currentbookmarklevel
        \advance\@tempcnta by 1 %
        \edef\Hy@level{\the\@tempcnta}%
      \fi
    \else
      \global\let\Hy@levelcheck Y%
    \fi
    \global\let\Hy@currentbookmarklevel\Hy@level
    \@tempcnta\Hy@level\relax
    \expandafter\xdef\csname Parent\Hy@level\endcsname{#3}%
    \advance\@tempcnta by -1 %
    \edef\Hy@tempa{#3}%
    \edef\Hy@tempb{\csname Parent\the\@tempcnta\endcsname}%
    \ifx\Hy@tempa\Hy@tempb
      \Hy@Warning{%
        The anchor of a bookmark and its parent's must not%
        \MessageBreak be the same. Added a new anchor%
      }%
      \phantomsection
    \fi
    \ifHy@bookmarksnumbered
      \let\numberline\Hy@numberline
      \let\booknumberline\Hy@numberline
      \let\partnumberline\Hy@numberline
      \let\chapternumberline\Hy@numberline
    \else
      \let\numberline\@gobble
      \let\booknumberline\@gobble
      \let\partnumberline\@gobble
      \let\chapternumberline\@gobble
    \fi
    \HyPsd@XeTeXBigCharstrue
    \pdfstringdef\Hy@tempa{#2}%
    \HyPsd@SanitizeForOutFile\Hy@tempa
    \if@filesw
      \stepcounter{bookmark@seq@number}%
      \@ifundefined{@outlinefile}{%
      }{%
        \protected@write\@outlinefile{}{%
          \protect\BOOKMARK
            [\Hy@level][\@bookmarkopenstatus{\Hy@level}]{#3}%
            {\Hy@tempa}{\Hy@tempb}%
            \@percentchar\space\thebookmark@seq@number
        }%
      }%
    \fi
  \fi
 \endgroup
}
\newcounter{bookmark@seq@number}
\begingroup
 \lccode`(=`{%
 \lccode`)=`}%
```

```
  \lccode`1=\z@
  \lccode`2=\z@
  \lccode`3=\z@
  \lccode`5=\z@
  \lccode`7=\z@
  \lccode`\#=\z@
  \lccode`\`=\z@
  \lccode`\{=\z@
  \lccode`\}=\z@
\lowercase{%
  \endgroup
  \def\HyPsd@SanitizeForOutFile#1{%
    \@onelevel@sanitize\Hy@tempa
    \escapechar`\\%
    \edef\Hy@tempa{%
      \expandafter\HyPsd@SanitizeOut@BraceLeft\Hy@tempa(\@nil
    }%
    \edef\Hy@tempa{%
      \expandafter\HyPsd@SanitizeOut@BraceRight\Hy@tempa)\@nil
    }%
  }%
  \def\HyPsd@SanitizeOut@BraceLeft#1(#2\@nil{%
    #1%
    \ifx\\#2\\%
      \expandafter\ltx@gobble
    \else
      \expandafter\ltx@firstofone
    \fi
    {%
      \string\173%
      \HyPsd@SanitizeOut@BraceLeft#2\@nil
    }%
  }%
  \def\HyPsd@SanitizeOut@BraceRight#1)#2\@nil{%
    #1%
    \ifx\\#2\\%
      \expandafter\ltx@gobble
    \else
      \expandafter\ltx@firstofone
    \fi
    {%
      \string\175%
      \HyPsd@SanitizeOut@BraceRight#2\@nil
    }%
  }%
}
```

In the call of \BOOKMARK the braces around #4 are omitted, because it is not likely, that the level number contains].

```
\newcommand{\currentpdfbookmark}{%
  \pdfbookmark[\Hy@currentbookmarklevel]%
}
\newcommand{\subpdfbookmark}{%
  \@tempcnta\Hy@currentbookmarklevel
  \Hy@StepCount\@tempcnta
  \expandafter\pdfbookmark\expandafter[\the\@tempcnta]%
}
\newcommand{\belowpdfbookmark}[2]{%
```

```
  \@tempcnta\Hy@currentbookmarklevel
  \Hy@StepCount\@tempcnta
  \expandafter\pdfbookmark\expandafter[\the\@tempcnta]{#1}{#2}%
  \advance\@tempcnta by -1 %
  \xdef\Hy@currentbookmarklevel{\the\@tempcnta}%
}
```

Tobias Oetiker rightly points out that we need a way to force a bookmark entry. So we introduce \pdfbookmark, with two parameters, the title, and a symbolic name. By default this is at level 1, but we can reset that with the optional first argument.

```
\renewcommand\pdfbookmark[3][0]{%
  \Hy@writebookmark{}{#2}{#3.#1}{#1}{toc}%
  \hyper@anchorstart{#3.#1}\hyper@anchorend
}
\def\BOOKMARK{%
  \@ifnextchar[{\@BOOKMARK}{\@@BOOKMARK[1][-]}%
}
\def\@BOOKMARK[#1]{%
  \@ifnextchar[{\@@BOOKMARK[{#1}]}{\@@BOOKMARK[{#1}][-]}%
}
```

The macros for calculating structure of outlines are derived from those by Petr Olsak used in the texinfopdf macros.

48.1.1 Rerun warning

\Hy@OutlineRerunCheck

```
\RequirePackage{rerunfilecheck}[2009/12/10]
\def\Hy@OutlineRerunCheck{%
  \RerunFileCheck{\jobname.out}{%
    \immediate\closeout\@outlinefile
  }{%
    Rerun to get outlines right\MessageBreak
    or use package 'bookmark'%
  }%
}
```

48.1.2 Driver stuff

The VTEX section was written originally by VTEX, but then amended by Denis Girou (denis.girou@idris.fr), then by by Taco Hoekwater (taco.hoekwater@wkap.nl. The problem is that VTEX, with its close integration of the PDF backend, does look at the contents of bookmarks, escaping \ and the like.

```
⟨*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=`\\%
    \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

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

Accents

```
\DeclareTextAccent{\‘}{PD1}{\textasciigrave}
\DeclareTextAccent{\’}{PD1}{\textacute}
\DeclareTextAccent{\^}{PD1}{\textasciicircum}
\DeclareTextAccent{\~}{PD1}{\texttilde}
\DeclareTextAccent{\"}{PD1}{\textasciidieresis}
\DeclareTextAccent{\r}{PD1}{\textring}
\DeclareTextAccent{\v}{PD1}{\textasciicaron}
\DeclareTextAccent{\.}{PD1}{\textdotaccent}
\DeclareTextAccent{\c}{PD1}{\textcedilla}
\DeclareTextAccent{\=}{PD1}{\textasciimacron}
\DeclareTextAccent{\b}{PD1}{\textmacronbelow}
\DeclareTextAccent{\d}{PD1}{\textdotbelow}
\DeclareTextCompositeCommand{\‘}{PD1}{\@empty}{\textasciigrave}
\DeclareTextCompositeCommand{\’}{PD1}{\@empty}{\textacute}
\DeclareTextCompositeCommand{\^}{PD1}{\@empty}{\textasciicircum}
\DeclareTextCompositeCommand{\~}{PD1}{\@empty}{\texttilde}
\DeclareTextCompositeCommand{\"}{PD1}{\@empty}{\textasciidieresis}
\DeclareTextCompositeCommand{\r}{PD1}{\@empty}{\textring}
\DeclareTextCompositeCommand{\v}{PD1}{\@empty}{\textasciicaron}
\DeclareTextCompositeCommand{\.}{PD1}{\@empty}{\textdotaccent}
\DeclareTextCompositeCommand{\c}{PD1}{\@empty}{\textcedilla}
\DeclareTextCompositeCommand{\=}{PD1}{\@empty}{\textasciimacron}
```

```
\DeclareTextCompositeCommand{\b}{PD1}{\@empty}{\textmacronbelow}
\DeclareTextCompositeCommand{\d}{PD1}{\@empty}{\textdotbelow}
\DeclareTextCompositeCommand{\`}{PD1}{\ }{\textasciigrave}
\DeclareTextCompositeCommand{\'}{PD1}{\ }{\textacute}
\DeclareTextCompositeCommand{\^}{PD1}{\ }{\textasciicircum}
\DeclareTextCompositeCommand{\~}{PD1}{\ }{\texttilde}
\DeclareTextCompositeCommand{\"}{PD1}{\ }{\textasciidieresis}
\DeclareTextCompositeCommand{\r}{PD1}{\ }{\textring}
\DeclareTextCompositeCommand{\v}{PD1}{\ }{\textasciicaron}
\DeclareTextCompositeCommand{\.}{PD1}{\ }{\textdotaccent}
\DeclareTextCompositeCommand{\c}{PD1}{\ }{\textcedilla}
\DeclareTextCompositeCommand{\=}{PD1}{\ }{\textasciimacron}
\DeclareTextCompositeCommand{\b}{PD1}{\ }{\textmacronbelow}
\DeclareTextCompositeCommand{\d}{PD1}{\ }{\textdotbelow}
\DeclareTextCommand{\k}{PD1}[1]{\TextSymbolUnavailable{\k{#1}}#1}
\DeclareTextCommand{\t}{PD1}[1]{\TextSymbolUnavailable{\t{#1}}#1}
\DeclareTextCommand{\newtie}{PD1}[1]{%
  \TextSymbolUnavailable{\newtie{#1}}#1%
}
```

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

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

Accent glyph names

```
% U+02D8 BREVE; breve
\DeclareTextCommand{\textasciibreve}{PD1}{\030}% U+02D8
% U+02C7 CARON; caron
\DeclareTextCommand{\textasciicaron}{PD1}{\031}% U+02C7
% U+02C6 MODIFIER LETTER CIRCUMFLEX ACCENT; circumflex
\DeclareTextCommand{\textcircumflex}{PD1}{\032}% U+02C6
% U+02D9 DOT ABOVE; dotaccent
\DeclareTextCommand{\textdotaccent}{PD1}{\033}% U+02D9
% U+02DD DOUBLE ACUTE ACCENT; hungarumlaut
\DeclareTextCommand{\texthungarumlaut}{PD1}{\034}% U+02DD
% U+02DB OGONEK; ogonek
\DeclareTextCommand{\textogonek}{PD1}{\035}% U+02DB
% U+02DA RING ABOVE; ring
\DeclareTextCommand{\textring}{PD1}{\036}% U+02DA
% U+02DC SMALL TILDE; ilde, *tilde
\DeclareTextCommand{\texttilde}{PD1}{\037}% U+02DC
```

\040: U+0020 SPACE; *space, spacehackarabic
\041: U+0021 EXCLAMATION MARK; exclam

```
% U+0022 QUOTATION MARK; quotedbl
\DeclareTextCommand{\textquotedbl}{PD1}{\string"}% \042 U+0022
% U+0023 NUMBER SIGN; numbersign
\DeclareTextCommand{\textnumbersign}{PD1}{\043}% U+0023
% U+0024 DOLLAR SIGN; dollar
\DeclareTextCommand{\textdollar}{PD1}{\044}% U+0024
% U+0025 PERCENT SIGN; percent
\DeclareTextCommand{\textpercent}{PD1}{\045}% U+0025
% U+0026 AMPERSAND; ampersand
\DeclareTextCommand{\textampersand}{PD1}{\046}% U+0026
```

\047: U+0027 APOSTROPHE; quotesingle

```
% U+0028 LEFT PARENTHESIS; parenleft
\DeclareTextCommand{\textparenleft}{PD1}{\string\(}% \050 U+0028
% U+0029 RIGHT PARENTHESIS; parenright
\DeclareTextCommand{\textparenright}{PD1}{\string\)}% \051 U+0029
```

\052: U+002A ASTERISK; asterisk
\053: U+002B PLUS SIGN; plus
\054: U+002C COMMA; comma
\055: U+002D HYPHEN-MINUS; hyphen
\056: U+002E FULL STOP; period

```
% U+002E FULL STOP; period
\DeclareTextCommand{\textdotbelow}{PD1}{.}% \056 U+002E
```

\057: U+002F SOLIDUS; slash
\060: U+0030 DIGIT ZERO; zero
...
\071: U+0039 DIGIT NINE; nine
\072: U+003A COLON; colon
\073: U+003B SEMICOLON; semicolon

```
% U+003C LESS-THAN SIGN; less
\DeclareTextCommand{\textless}{PD1}{<}% \074 U+003C
```

\075: U+003D EQUALS SIGN; equal

```
% U+003E GREATER-THAN SIGN; greater
\DeclareTextCommand{\textgreater}{PD1}{>}% \076 U+003E
```

\077: U+003F QUESTION MARK; question
\100: U+0040 COMMERCIAL AT; at
\101: U+0041 LATIN CAPITAL LETTER A; A
...
\132: U+005A LATIN CAPITAL LETTER Z; Z
\133: U+005B LEFT SQUARE BRACKET; bracketleft

```
% U+005C REVERSE SOLIDUS; backslash
\DeclareTextCommand{\textbackslash}{PD1}{\134}% U+005C
```

\135: U+005D RIGHT SQUARE BRACKET; bracketright

```
% U+005E CIRCUMFLEX ACCENT; asciicircum
\DeclareTextCommand{\textasciicircum}{PD1}{\136}% U+005E
% U+005F LOW LINE; underscore
\DeclareTextCommand{\textunderscore}{PD1}{\137}% U+005F
\DeclareTextCommand{\textmacronbelow}{PD1}{\137}% U+005F
% U+0060 GRAVE ACCENT; grave
\DeclareTextCommand{\textasciigrave}{PD1}{\140}% U+0060
```

\141: U+0061 LATIN SMALL LETTER A; a
...
\150: U+0068 LATIN SMALL LETTER H; h

```
% U+0069 LATIN SMALL LETTER I; i
\DeclareTextCompositeCommand{\.}{PD1}{i}{i}% \151 U+0069
```

\152: U+006A LATIN SMALL LETTER J; j
...
\172: U+007A LATIN SMALL LETTER Z; z

```
% U+007B LEFT CURLY BRACKET; braceleft
\DeclareTextCommand{\textbraceleft}{PD1}{\173}% U+007B
% U+007C VERTICAL LINE; *bar, verticalbar
\DeclareTextCommand{\textbar}{PD1}{|}% U+007C
% U+007D RIGHT CURLY BRACKET; braceright
```

```
\DeclareTextCommand{\textbraceright}{PD1}{\175}% U+007D
% U+007E TILDE; asciitilde
\DeclareTextCommand{\textasciitilde}{PD1}{\176}% U+007E
```

Slot \177 (0x7F) is undefined in PDFDocEncoding.

```
% U+2022 BULLET; bullet
\DeclareTextCommand{\textbullet}{PD1}{\200}% U+2022
% U+2020 DAGGER; dagger
\DeclareTextCommand{\textdagger}{PD1}{\201}% U+2020
% U+2021 DOUBLE DAGGER; daggerdbl
\DeclareTextCommand{\textdaggerdbl}{PD1}{\202}% U+2021
% U+2026 HORIZONTAL ELLIPSIS; ellipsis
\DeclareTextCommand{\textellipsis}{PD1}{\203}% U+2026
% U+2014 EM DASH; emdash
\DeclareTextCommand{\textemdash}{PD1}{\204}% U+2014
% U+2013 EN DASH; endash
\DeclareTextCommand{\textendash}{PD1}{\205}% U+2013
% U+0192 LATIN SMALL LETTER F WITH HOOK; florin
\DeclareTextCommand{\textflorin}{PD1}{\206}% U+0192
% U+2044 FRACTION SLASH; fraction
\DeclareTextCommand{\textfractionsolidus}{PD1}{\207}% U+2044
% U+2039 SINGLE LEFT-POINTING ANGLE QUOTATION MARK; guilsinglleft
\DeclareTextCommand{\guilsinglleft}{PD1}{\210}% U+2039
% U+203A SINGLE RIGHT-POINTING ANGLE QUOTATION MARK; guilsinglright
\DeclareTextCommand{\guilsinglright}{PD1}{\211}% U+203A
% U+2212 MINUS SIGN; minus
\DeclareTextCommand{\textminus}{PD1}{\212}% U+2212
% U+2030 PER MILLE SIGN; perthousand
\DeclareTextCommand{\textperthousand}{PD1}{\213}% U+2030
% U+201E DOUBLE LOW-9 QUOTATION MARK; quotedblbase
\DeclareTextCommand{\quotedblbase}{PD1}{\214}% U+201E
% U+201C LEFT DOUBLE QUOTATION MARK; quotedblleft
\DeclareTextCommand{\textquotedblleft}{PD1}{\215}% U+201C
% U+201D RIGHT DOUBLE QUOTATION MARK; quotedblright
\DeclareTextCommand{\textquotedblright}{PD1}{\216}% U+201D
% U+2018 LEFT SINGLE QUOTATION MARK; quoteleft
\DeclareTextCommand{\textquoteleft}{PD1}{\217}% U+2018
% U+2019 RIGHT SINGLE QUOTATION MARK; quoteright
\DeclareTextCommand{\textquoteright}{PD1}{\220}% U+2019
% U+201A SINGLE LOW-9 QUOTATION MARK; quotesinglbase
\DeclareTextCommand{\quotesinglbase}{PD1}{\221}% U+201A
% U+2122 TRADE MARK SIGN; trademark
\DeclareTextCommand{\texttrademark}{PD1}{\222}% U+2122
% U+FB01 LATIN SMALL LIGATURE FI; fi
\DeclareTextCommand{\textfi}{PD1}{\223}% U+FB01
% U+FB02 LATIN SMALL LIGATURE FL; fl
\DeclareTextCommand{\textfl}{PD1}{\224}% U+FB02
% U+0141 LATIN CAPITAL LETTER L WITH STROKE; Lslash
\DeclareTextCommand{\L}{PD1}{\225}% U+0141
% U+0152 LATIN CAPITAL LIGATURE OE; OE
\DeclareTextCommand{\OE}{PD1}{\226}% U+0152
% U+0160 LATIN CAPITAL LETTER S WITH CARON; Scaron
\DeclareTextCompositeCommand{\v}{PD1}{S}{\227}% U+0160
% U+0178 LATIN CAPITAL LETTER Y WITH DIAERESIS; Ydieresis
\DeclareTextCompositeCommand{\"}{PD1}{Y}{\230}% U+0178
\DeclareTextCommand{\IJ}{PD1}{\230}
```

```
% U+017D LATIN CAPITAL LETTER Z WITH CARON; Zcaron
\DeclareTextCompositeCommand{\v}{PD1}{Z}{\231}% U+017D
% U+0131 LATIN SMALL LETTER DOTLESS I; dotlessi
\DeclareTextCommand{\i}{PD1}{\232}% U+0131
% U+0142 LATIN SMALL LETTER L WITH STROKE; lslash
\DeclareTextCommand{\l}{PD1}{\233}% U+0142
% U+0153 LATIN SMALL LIGATURE OE; oe
\DeclareTextCommand{\oe}{PD1}{\234}% U+0153
% U+0161 LATIN SMALL LETTER S WITH CARON; scaron
\DeclareTextCompositeCommand{\v}{PD1}{s}{\235}% U+0161
% U+017E LATIN SMALL LETTER Z WITH CARON; zcaron
\DeclareTextCompositeCommand{\v}{PD1}{z}{\236}% U+017E
```

Slot \237 (0x9F) is not defined in PDFDocEncoding.
The euro \240 is inserted in version 1.3 of the pdf specification.

```
% U+20AC EURO SIGN; *Euro, euro
\DeclareTextCommand{\texteuro}{PD1}{\240}% U+20AC
% U+00A1 INVERTED EXCLAMATION MARK; exclamdown
\DeclareTextCommand{\textexclamdown}{PD1}{\241}% U+00A1
% U+00A2 CENT SIGN; cent
\DeclareTextCommand{\textcent}{PD1}{\242}% U+00A2
% U+00A3 POUND SIGN; sterling
\DeclareTextCommand{\textsterling}{PD1}{\243}% U+00A3
% U+00A4 CURRENCY SIGN; currency
\DeclareTextCommand{\textcurrency}{PD1}{\244}% U+00A4
% U+00A5 YEN SIGN; yen
\DeclareTextCommand{\textyen}{PD1}{\245}% U+00A5
% U+00A6 BROKEN BAR; brokenbar
\DeclareTextCommand{\textbrokenbar}{PD1}{\246}% U+00A6
% U+00A7 SECTION SIGN; section
\DeclareTextCommand{\textsection}{PD1}{\247}% U+00A7
% U+00A8 DIAERESIS; dieresis
\DeclareTextCommand{\textasciidieresis}{PD1}{\250}% U+00A8
% U+00A9 COPYRIGHT SIGN; copyright
\DeclareTextCommand{\textcopyright}{PD1}{\251}% U+00A9
% U+00AA FEMININE ORDINAL INDICATOR; ordfeminine
\DeclareTextCommand{\textordfeminine}{PD1}{\252}% U+00AA
% U+00AB LEFT-POINTING DOUBLE ANGLE QUOTATION MARK; guille-
    motleft
\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; guillemotleft
\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
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% 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
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\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
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\DeclareTextCompositeCommand{\"}{PU}{\textiota}{\83\312}% U+03CA
% U+03CB GREEK SMALL LETTER UPSILON WITH DIALYTIKA; upsilondieresis
\DeclareTextCompositeCommand{\"}{PU}{\textupsilon}{\83\313}% U+03CB
% U+03CC GREEK SMALL LETTER OMICRON WITH TONOS; omicrontonos
\DeclareTextCompositeCommand{\'}{PU}{\textomicron}{\83\314}% U+03CC
% U+03CD GREEK SMALL LETTER UPSILON WITH TONOS; upsilontonos
\DeclareTextCommand{\textupsilonacute}{PU}{\83\315}% U+03CD
\DeclareTextCompositeCommand{\'}{PU}{\textupsilon}{\83\315}% U+03CD
% U+03CE GREEK SMALL LETTER OMEGA WITH TONOS; omegatonos
\DeclareTextCompositeCommand{\'}{PU}{\textomega}{\83\316}% U+03CE
% U+03DA GREEK LETTER STIGMA; Stigmagreek
\DeclareTextCommand{\textStigmagreek}{PU}{\83\332}% U+03DA
% U+03DB GREEK SMALL LETTER STIGMA
\DeclareTextCommand{\textstigmagreek}{PU}{\83\333}% U+03DB
% U+03DC GREEK LETTER DIGAMMA; Digammagreek
\DeclareTextCommand{\textDigammagreek}{PU}{\83\334}% U+03DC
% U+03DD GREEK SMALL LETTER DIGAMMA
\DeclareTextCommand{\textdigammagreek}{PU}{\83\335}% U+03DD
% U+03DE GREEK LETTER KOPPA; Koppagreek
\DeclareTextCommand{\textKoppagreek}{PU}{\83\336}% U+03DE
% U+03DF GREEK SMALL LETTER KOPPA
\DeclareTextCommand{\textkoppagreek}{PU}{\83\337}% U+03DF
% U+03E0 GREEK LETTER SAMPI; Sampigreek
\DeclareTextCommand{\textSampigreek}{PU}{\83\340}% U+03E0
% U+03E1 GREEK SMALL LETTER SAMPI
\DeclareTextCommand{\textsampigreek}{PU}{\83\341}% U+03E1
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50.2.9 Cyrillic: U+0400 to U+04FF

Thanks to Vladimir Volovich (vvv@vvv.vsu.ru) for the help with the Cyrillic glyph names.

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% U+0400 CYRILLIC CAPITAL LETTER IE WITH GRAVE
\DeclareTextCompositeCommand{\`}{PU}{\CYRE}{\84\000}% U+0400
% U+0401 CYRILLIC CAPITAL LETTER IO; Iocyrillic, *afii10023
\DeclareTextCommand{\CYRYO}{PU}{\84\001}% U+0401
\DeclareTextCompositeCommand{\"}{PU}{\CYRE}{\84\001}% ???
% U+0402 CYRILLIC CAPITAL LETTER DJE; Djecyrillic, *afii10051
\DeclareTextCommand{\CYRDJE}{PU}{\84\002}% U+0402
% U+0403 CYRILLIC CAPITAL LETTER GJE; Gjecyrillic, *afii10052
\DeclareTextCompositeCommand{\'}{PU}{\CYRG}{\84\003}% U+0403
% U+0404 CYRILLIC CAPITAL LETTER UKRAINIAN IE; Ecyrillic, *afii10053
\DeclareTextCommand{\CYRIE}{PU}{\84\004}% U+0404
% U+0405 CYRILLIC CAPITAL LETTER DZE; Dzecyrillic, *afii10054
\DeclareTextCommand{\CYRDZE}{PU}{\84\005}% U+0405
% U+0406 CYRILLIC CAPITAL LETTER BYELORUSSIAN-UKRAINIAN I; Icyrillic, *afii10055
\DeclareTextCommand{\CYRII}{PU}{\84\006}% U+0406
% U+0407 CYRILLIC CAPITAL LETTER YI; Yicyrillic, *afii10056
\DeclareTextCommand{\CYRYI}{PU}{\84\007}% U+0407
\DeclareTextCompositeCommand{\"}{PU}{\CYRII}{\84\007}% U+0407
% U+0408 CYRILLIC CAPITAL LETTER JE; Jecyrillic, *afii10057
\DeclareTextCommand{\CYRJE}{PU}{\84\010}% U+0408
% U+0409 CYRILLIC CAPITAL LETTER LJE; Ljecyrillic, *afii10058
\DeclareTextCommand{\CYRLJE}{PU}{\84\011}% U+0409
% U+040A CYRILLIC CAPITAL LETTER NJE; Njecyrillic, *afii10059
\DeclareTextCommand{\CYRNJE}{PU}{\84\012}% U+040A
% U+040B CYRILLIC CAPITAL LETTER TSHE; Tshecyrillic, *afii10060
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\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
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% 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
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% 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
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% 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; Yusbigiotifiedcyrillic
\DeclareTextCommand{\CYRIOTBYUS}{PU}{\84\154}% U+046C
% U+046D CYRILLIC SMALL LETTER IOTIFIED BIG YUS; yusbigiotifiedcyrillic
\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 ACCENT; Izhitsadblgravecyrillic
\DeclareTextCompositeCommand{\C}{PU}{\CYRIZH}{\84\166}% U+0476
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% U+0477 CYRILLIC SMALL LETTER IZHITSA WITH DOUBLE GRAVE ACCENT; 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; Omegaroundcyrillic
\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; Omegatitlocyrillic
\DeclareTextCommand{\CYROMEGATITLO}{PU}{\84\174}% U+047C
% U+047D CYRILLIC SMALL LETTER OMEGA WITH TITLO; omegatitlocyrillic
\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
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\84\203: U+0483 COMBINING CYRILLIC TITLO; titlocyrilliccmb
\84\204: U+0484 COMBINING CYRILLIC PALATALIZATION; palatalizationcyrilliccmb
\84\205: U+0485 COMBINING CYRILLIC DASIA PNEUMATA; dasiapneumatacyrilliccmb
\84\206: U+0486 COMBINING CYRILLIC PSILI PNEUMATA; psilipneumatacyrilliccmb
\84\207: U+0487 COMBINING CYRILLIC POKRYTIE
\84\210: U+0488 COMBINING CYRILLIC HUNDRED THOUSANDS SIGN
\84\211: U+0489 COMBINING CYRILLIC MILLIONS SIGN

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% U+048A CYRILLIC CAPITAL LETTER SHORT I WITH TAIL
\DeclareTextCommand{\CYRISHRTDSC}{PU}{\84\212}% U+048A
% U+048B CYRILLIC SMALL LETTER SHORT I WITH TAIL
\DeclareTextCommand{\cyrishrtdsc}{PU}{\84\213}% U+048B
% U+048C CYRILLIC CAPITAL LETTER SEMISOFT SIGN
\DeclareTextCommand{\CYRSEMISFTSN}{PU}{\84\214}% U+048C
% U+048D CYRILLIC SMALL LETTER SEMISOFT SIGN
\DeclareTextCommand{\cyrsemisftsn}{PU}{\84\215}% U+048D
% U+048E CYRILLIC CAPITAL LETTER ER WITH TICK
\DeclareTextCommand{\CYRRTICK}{PU}{\84\216}% U+048E
% U+048F CYRILLIC SMALL LETTER ER WITH TICK
\DeclareTextCommand{\cyrrtick}{PU}{\84\217}% U+048F
% U+0490 CYRILLIC CAPITAL LETTER GHE WITH UPTURN; Gheupturncyrillic, *afii10050
\DeclareTextCommand{\CYRGUP}{PU}{\84\220}% U+0490
% U+0491 CYRILLIC SMALL LETTER GHE WITH UPTURN; *afii10098, gheupturncyrillic
\DeclareTextCommand{\cyrgup}{PU}{\84\221}% U+0491
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% 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
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\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
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% 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
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\84\317: U+04CF CYRILLIC SMALL LETTER PALOCHKA

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% U+04D0 CYRILLIC CAPITAL LETTER A WITH BREVE; Abrevecyrillic
\DeclareTextCompositeCommand{\U}{PU}{\CYRA}{\84\320}% U+04D0
% U+04D1 CYRILLIC SMALL LETTER A WITH BREVE; abrevecyrillic
\DeclareTextCompositeCommand{\U}{PU}{\cyra}{\84\321}% U+04D1
% U+04D2 CYRILLIC CAPITAL LETTER A WITH DIAERESIS; Adieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\CYRA}{\84\322}% U+04D2
% U+04D3 CYRILLIC SMALL LETTER A WITH DIAERESIS; adieresiscyrillic
\DeclareTextCompositeCommand{\"}{PU}{\cyra}{\84\323}% U+04D3
% U+04D4 CYRILLIC CAPITAL LIGATURE A IE; Aiecyrillic
\DeclareTextCommand{\CYRAE}{PU}{\84\324}% U+04D4
% U+04D5 CYRILLIC SMALL LIGATURE A IE; aiecyrillic
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\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
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\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
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\84\372: U+04FA CYRILLIC CAPITAL LETTER GHE WITH STROKE AND HOOK
\84\373: U+04FB CYRILLIC SMALL LETTER GHE WITH STROKE AND HOOK

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% U+04FC CYRILLIC CAPITAL LETTER HA WITH HOOK
\DeclareTextCommand{\CYRHHK}{PU}{\84\374}% U+04FC
% U+04FD CYRILLIC SMALL LETTER HA WITH HOOK
\DeclareTextCommand{\cyrhhk}{PU}{\84\375}% U+04FD
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\84\376: U+04FE CYRILLIC CAPITAL LETTER HA WITH STROKE
\84\377: U+04FF CYRILLIC SMALL LETTER HA WITH STROKE

50.2.10 Thai: U+0E00 to U+0E7F

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% U+0E3F THAI CURRENCY SYMBOL BAHT; bahtthai
\DeclareTextCommand{\textbaht}{PU}{\9016\077}% U+0E3F
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50.2.11 Latin Extended Additional: U+1E00 to U+1EFF

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% U+1E02 LATIN CAPITAL LETTER B WITH DOT ABOVE; Bdotaccent
\DeclareTextCompositeCommand{\.}{PU}{B}{\9036\002}% U+1E02
% U+1E03 LATIN SMALL LETTER B WITH DOT ABOVE; bdotaccent
\DeclareTextCompositeCommand{\.}{PU}{b}{\9036\003}% U+1E03
% U+1E06 LATIN CAPITAL LETTER B WITH LINE BELOW; Blinebelow
\DeclareTextCompositeCommand{\b}{PU}{B}{\9036\006}% U+1E06
% U+1E07 LATIN SMALL LETTER B WITH LINE BELOW; blinebelow
\DeclareTextCompositeCommand{\b}{PU}{b}{\9036\007}% U+1E07
% U+1E0A LATIN CAPITAL LETTER D WITH DOT ABOVE; Ddotaccent
\DeclareTextCompositeCommand{\.}{PU}{D}{\9036\012}% U+1E0A
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% 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}

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\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}
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\DeclareTextCompositeCommand{\d}{PU}{e}{\9036\271}
\DeclareTextCompositeCommand{\`}{PU}{e}{\80\350}
\DeclareTextCompositeCommand{\h}{PU}{e}{\9036\273}
\DeclareTextCompositeCommand{\~}{PU}{e}{\9036\275}
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\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}
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\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}
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\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}
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\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, 1992
\" . . 202, 227, 3090, 13539, 13897, 13909, 13921, 14044, 14130, 14144, 14152, 14167, 14179, 14195, 14209, 14220, 14221, 14235, 14247, 14253, 14304, 14332, 14351, 14372, 14499, 14513, 14521, 14535, 14547, 14563, 14577, 14588, 14589, 14603, 14615, 14621, 14868, 15083, 15085, 15095, 15147, 15149, 15177, 15190, 15342, 15355, 15588, 15590, 15604, 15606, 15608, 15610, 15612, 15614, 15624, 15626, 15628, 15630, 15636, 15638, 15640, 15642, 15648, 15650, 15656, 15658, 15664, 15666, 15706, 15708, 15778, 15780, 15790, 15792, 15808
\# . . . 478, 2077, 2078, 4421, 4432, 4434, 4450, 4482, 4542, 8214, 8216, 8989, 8998, 9033, 9800, 11360, 11371, 11407, 11638, 11647, 11685, 13459
\$ . . 184, 209, 262, 479, 4423, 4541
\% . . . 480, 1992, 2052, 2053, 4420, 4429, 4431, 4483, 8216
\& 185, 210, 481, 4424, 4435, 4437, 11417
\' 203, 228, 3030, 3044, 3085, 3087, 3088, 3089, 3090, 3095, 3096, 3098, 3103, 3109, 3113, 3114, 3117, 3160, 3161, 3166, 3167, 3168, 3169, 3170, 3171, 3172, 3173, 3175, 3179, 3192, 13537, 13894, 13906, 13918, 14124, 14140, 14148, 14161, 14175, 14181, 14189, 14205, 14214, 14215, 14229, 14243, 14249, 14272, 14274, 14275, 14276, 14279, 14281, 14282, 14283, 14291, 14329, 14348, 14369, 14493, 14509, 14517, 14529, 14543, 14549, 14557, 14573, 14582, 14583, 14597, 14611, 14617, 14635, 14637, 14742, 14744, 14762, 14764, 14796, 14798, 14808, 14810, 14870, 14872, 14922, 14924, 14930, 14932, 14934, 14936, 15018, 15020, 15022, 15024, 15026, 15028, 15030, 15032, 15087, 15089, 15091, 15093, 15151, 15154, 15156, 15181, 15200, 15346, 15365, 15714, 15716, 15726, 15728, 15742, 15744, 15774, 15776, 16179, 16184, 16189, 16194, 16199, 16204, 16209, 16214, 16219, 16224, 16229, 16234, 16239, 16244, 16249, 16254, 16259, 16264, 16269, 16274, 16279, 16284, 16289, 16294
\(190, 215, 263, 684, 687, 689, 1994, 13605, 13967
\) 191, 216, 264, 656, 662, 665, 1995, 13606, 13969
* 266
\+ 200, 225, 267
\- 201, 226
\. . 198, 223, 260, 1153, 3414, 3796, 13900, 13912, 13924, 13986, 14277, 14284, 14302, 14335, 14354, 14378, 14418, 14419, 14643, 14645, 14667, 14669, 14687, 14689, 14723, 14754, 14756, 14874, 14876, 14967, 14969, 14975, 14977, 15674, 15676, 15682, 15684, 15694, 15696, 15702, 15704, 15730, 15732, 15734, 15736, 15746, 15748, 15750, 15752, 15758, 15760, 15782, 15784, 15786, 15788, 15794, 15796, 15814
\/ 194, 219, 598, 599, 600, 667, 1777, 7613
\: 189, 214
\; 199, 224, 7908
\< 196, 221
\= 167, 173, 180, 183, 13902, 13914, 13926, 14297, 14339, 14358, 14377, 14623, 14625, 14659, 14661, 14708, 14710, 14711, 14780, 14782, 14840, 14842, 14979, 14981, 15620, 15622, 15644, 15646, 15698, 15700
\> 197, 222
\? 268
\@ 3081
\@@@ 2308
\@@BOOKMARK . 13520, 13523, 13581, 13648, 13655
\@@Listbox . 12003, 12025, 12478, 12509, 12813, 12854
\@@Menu 12209, 12217
\@@PasswordField . 12158, 12164
\@@Radio . . 11988, 12009, 12207, 12231, 12463, 12484, 12798, 12819
\@@TextField 12160, 12175
\@@commahyperpage . 7720, 7721
\@@hyper@@readexternallink 4731, 4733
\@@hyperref 4644, 4645
\@@latextohtmlX 2909, 4879
\@@wrindex 7648, 7649
\@@writetorep 13380, 13386
\@Alph 6396, 6398
\@BIBLABEL . . 7143, 7149, 7155
\@BOOKMARK . . 13520, 13522
\@CITE 7220, 7228
\@CITEX 7222
\@CheckBox . . 5597, 9865, 12099, 12128, 12262, 12593, 12956
\@ChoiceMenu . 5594, 9868, 11941, 12131, 12197, 12415, 12750
\@Form . 5337, 9855, 11729, 12120, 12141, 12340, 12675
\@Gauge 5603, 9859, 11911, 12122, 12146, 12283, 12672
\@Localurlfalse 9808
\@Localurltrue 9805
\@M 1059, 2365, 4528, 6778
\@MM 6906
\@PackageError 242
\@PackageInfo 245
\@PackageInfoNoLine 246
\@PackageWarning 243
\@PackageWarningNoLine . . 244
\@PushButton . 5600, 9871, 12032, 12134, 12243, 12518, 12870
\@Refstar 8023, 8030
\@Reset . 5609, 9874, 12076, 12137, 12259, 12569, 12927
\@Roman 560
\@SCTR 7767, 7819
\@SetMaxRnhefLabel 7217
\@Submit 5606, 9877, 12059, 12138, 12256, 12547, 12904
\@TextField . . . 5591, 9862, 11914, 12125, 12149, 12387, 12714
\@addchap 13854
\@addtoreset . . 7542, 7543, 7557, 7764

\@afterheading 13871
\@alph 6392, 6394
\@anchorcolor . 8958, 9053, 9922, 11328, 11608
\@arabic 1029, 1034, 1038
\@auxout . 2302, 4689, 5819, 5821, 6481, 6509, 7163, 7178, 7194, 7204, 7234, 7257, 7283, 7289, 7313
\@backslashchar . . . 780, 783, 786, 1283, 1954, 1958, 1961, 2099, 2116, 2122, 2126, 2134, 4445, 8229, 8239
\@baseurl 3400, 3402, 4789, 8679, 8682, 8943, 8945, 9227, 9229, 9713, 9723, 9773, 9775, 10300, 10302, 10673, 10687, 11313, 11315, 11514, 11528, 11594, 11596
\@begintheorem 6742, 6749
\@bibitem 7170, 7201
\@biblabel 7143, 7190
\@bookmarkopenstatus . . . 4243, 4260, 13441
\@bookmarksopenlevel 3363, 3365, 4246
\@bsphack 2295, 4682, 7287
\@capstartfalse 7037
\@caption 7002, 7014, 7057, 7093, 7095
\@captype 2304, 6997, 7001, 7005, 7012, 7019, 7061, 7086, 7090, 7093
\@car 1565, 1581, 1599, 1619, 3342, 4955, 8631, 8642
\@cdr 8632, 8643
\@chapter 13778, 13779
\@cite 7220, 7251, 7348, 7354
\@cite@opt . 7349, 7355, 7359, 7369
\@citea . . 7223, 7230, 7231, 7250, 7253, 7254
\@citeb . . 7229, 7232, 7234, 7236, 7240, 7243, 7252, 7255, 7257, 7259, 7263, 7266
\@citebordercolor 3887
\@citedata@opt . 7350, 7356, 7358
\@citedatax 7365, 7370
\@citedatax@opt 7362, 7368
\@citeseppen 7347, 7353
\@citex 7249
\@clubpenalty 6780
\@commahyperpage . . 7715, 7720
\@ctrerr 6371, 6380
\@currDisplay 5401, 11953, 12014, 12226, 12240, 12427, 12489, 12762, 12827
\@currValue . . . 5403, 5405, 12019, 12226, 12237, 12496, 12842, 13259
\@currentHlabel 6442
\@currentHref 2310, 5699, 6345, 6422, 6424, 6433, 6435, 6442, 6523, 6525, 6535, 6586, 6597, 6599, 6637, 6648, 6652, 6659, 6683, 6747, 6771, 6835, 6845, 6847, 6848, 6891, 6919, 7017, 7043, 7047, 7062, 7064, 7292, 7418, 7441, 7454, 7461, 7512, 7536, 7538, 13370, 13759, 13772, 13783, 13813, 13830, 13865
\@currentlabel . 6565, 6909, 7285, 7292, 7517, 7524, 7773, 7825
\@currentlabelname . . 2300, 6836, 6892, 6920, 7022
\@currentlabstr 2299, 2307
\@curropt . . 11950, 11951, 12011, 12012, 12215, 12222, 12223, 12225, 12232, 12233, 12235, 12424, 12425, 12486, 12487, 12759, 12760, 12824, 12825
\@dblarg 2427, 7012, 7093
\@definecounter 7497, 7498
\@ehc 2656, 2767, 2792, 2825, 2863, 2870, 2881, 2887, 3999, 4590, 4753, 5049, 5173, 5369, 5533, 5582, 12041, 12087, 12528, 12580, 12880, 12938
\@ehd 63, 6998, 7087
\@endFform . . . 5338, 9858, 11910, 12121, 12145, 12386, 12700
\@endparenv 6738
\@eqncr 6667
\@eqnstarfalse 6643, 6670
\@eqnstartrue 6667
\@eqnswtrue 6613, 6622
\@esphack . 2316, 4693, 7297, 7660
\@extra@b@citeb 7128, 7131, 7148, 7153, 7173, 7221, 7243, 7259, 7266
\@extra@binfo . . 7127, 7130, 7134
\@fifthoffive 3959, 4358, 4676, 7974, 8092
\@filebordercolor 3885, 8546, 8548, 9558, 9560, 10008, 10010, 11030
\@filecolor 3392, 8567, 9170, 9187, 9576, 10014
\@firstoffive 4354, 4363, 8013, 8097
\@firstofone 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 549, 740, 895, 906, 1139, 1143, 1147, 1485, 3774, 4245, 5303, 5309, 5496, 6260, 6390, 6401, 6468, 7010, 7091, 7232, 7255, 7381, 7603, 8851, 12313, 13040, 13057, 13075
\@firstoftwo . 569, 850, 1021, 1693, 5789, 13820
\@fnsymbol 6391
\@footnotemark 6788, 6841, 6928, 6940, 6942, 6954, 6955, 6985, 6987
\@footnotetext . 6787, 6794, 6823, 6941, 6943, 6957, 6958, 6978
\@for 3433, 4945, 7229, 7252, 11950, 12011, 12215, 12222, 12232, 12424, 12486, 12759, 12824
\@fourthoffive . 4357, 4677, 8087, 8094
\@gobble 49, 56, 117, 502, 503, 504, 505, 542, 543, 544, 545, 572, 573, 574, 583, 585, 744, 857, 893, 904, 1045, 1049, 1052, 1422, 1483, 1502, 1515, 1519, 1582, 1645, 1646, 1653, 1658, 1672, 1677, 2280, 2337, 2596, 2608, 3762, 3947, 3949, 4001, 4411, 5288, 5486, 5753, 5757, 5775, 5777, 5793, 5794, 5797, 5798, 5800, 6239, 6254, 6258, 6731, 6999, 7088, 7417, 8152, 8853, 10180, 10183, 12341, 12676, 13427, 13428, 13429, 13430
\@gobblefour 508, 608, 1179, 1180, 1181, 3581, 7888
\@gobbleopt 5800, 5802
\@gobbletwo 506, 576, 601, 609, 610, 757, 1178, 1600, 1677, 1681, 2481, 3579, 3580, 3951, 5234, 5779, 5788, 5796, 5800, 8075, 13769
\@harvarditem 7302, 7304
\@hyper@@anchor . . . 4839, 4840
\@hyper@itemfalse . . . 6290, 6306, 6320
\@hyper@itemtrue 6291
\@hyper@launch 4759, 4768, 8571, 10077, 11048
\@hyper@linkfile 4740, 4743, 4747, 4779
\@hyper@readexternallink . 4734, 4738
\@hyperdef 4652, 4653
\@hyperpage 7712, 7713
\@hyperref 4633, 4644
\@ifclasslater 13877, 13882

\@ifclassloaded . 2287, 4385, 6453, 6490, 7212, 7748, 7752, 8856, 13876, 13881
\@ifnextchar . . . 12, 88, 103, 123, 602, 4535, 4633, 4652, 4701, 5337, 5591, 5594, 5597, 5600, 5603, 5606, 5609, 5800, 5872, 5881, 6944, 6962, 7302, 7360, 10698, 10959, 10973, 13520, 13523
\@ifpackagelater . 915, 2318, 6444, 7567
\@ifpackageloaded . 431, 810, 914, 2290, 2708, 3319, 3323, 3938, 4081, 6329, 6443, 6456, 6518, 6551, 6555, 6575, 6609, 6723, 6784, 6855, 6898, 7058, 7272, 7345, 7509, 7566, 7608, 7609, 7610, 7757, 8022, 8165, 8169, 11586
\@ifpackagewith . 3210, 3939, 7532
\@ifstar 66, 4380, 4383, 4392, 4396, 5734, 5738, 5806, 5810, 8030, 8056, 8075
\@ifundefined . . 34, 293, 829, 837, 853, 856, 2458, 2570, 2638, 2722, 3228, 3264, 3272, 3279, 3292, 3340, 3911, 5044, 5364, 6192, 6333, 6338, 6557, 6578, 6579, 6632, 6654, 6678, 6715, 7003, 7021, 7137, 7220, 7236, 7259, 7506, 7547, 7555, 7556, 7569, 7570, 7577, 8272, 9749, 10368, 10369, 11143, 12341, 12676, 13049, 13437
\@indexfile 7652, 7667, 7675, 7679, 7684
\@inlabelfalse 6759
\@inmathwarn 472, 473
\@inpenc@undefined@ 2154
\@labels 6775
\@latex@ 5903, 5904
\@latex@error 6998, 7087
\@latex@warning 4671, 7239, 7262, 7949, 7969, 7986, 8103
\@lbibitem 7144, 7189
\@linkbordercolor 3882, 8495, 9912
\@linkcolor 10720
\@linkdim 398, 9007, 9008, 9016, 9017, 9018, 9087, 9088, 9100, 9101, 9102, 9124, 9125, 9138, 9139, 9140, 9162, 9163, 9176, 9177, 9178, 11381, 11382, 11390, 11391, 11392, 11656, 11657, 11670, 11671, 11672
\@listctr 7179, 7205
\@m 1042, 7231, 7254, 10227
\@mainaux 5817, 5818, 6222, 6230, 12309, 12333
\@makecaption . 7038, 7040, 7106
\@makefnmark 6850, 6990
\@makefntext 6910
\@makeother 166, 167, 179, 180, 182, 183, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 4435, 8201, 13609, 13612, 13638, 13641
\@makeschapterhead 13868, 13870
\@mem@titleref 4392
\@mem@titlerefnolink 4392
\@menubordercolor 3884, 8911, 8913, 9624, 9626, 10112, 10114
\@menucolor . . 8926, 9630, 10118
\@minipagefalse 6755
\@mkboth 576, 7870, 13769, 13857, 13859
\@mpfn 6791, 6963, 6975
\@mpfootnotetext 6794, 6807, 6808
\@mycount 13585, 13595
\@namedef 1159, 2732, 2733, 2734, 2735, 2736, 2737, 2738, 2739, 3219, 3231, 5055, 5056, 5057, 5058, 5380, 5381, 6454, 6666, 6669, 7277, 7278, 7279, 7280
\@namerefstar 4396, 8018
\@nameuse . 2304, 2729, 5061, 5372
\@ne 1028, 2675, 2813, 4560, 9491, 9496, 10279, 11168, 12709
\@newctr 7502, 7503
\@newl@bel 5866, 7130
\@newlistfalse 6756
\@nil 417, 421, 426, 430, 445, 1477, 1480, 1488, 1565, 1583, 1601, 1617, 1619, 1622, 1625, 1628, 2163, 2165, 2181, 2183, 3342, 4467, 4471, 4476, 4806, 4814, 4820, 4822, 4955, 5477, 5480, 5499, 5891, 5894, 5901, 5903, 5904, 5989, 6036, 6037, 6039, 6062, 6079, 6127, 6129, 6581, 6590, 6592, 6604, 7699, 7701, 7708, 7731, 7734, 7744, 7953, 7956, 8111, 8142, 8225, 8231, 8235, 8241, 8631, 8632, 8642, 8643, 10145, 10147, 13047, 13060, 13066, 13469, 13472, 13475, 13484, 13487, 13496
\@nobreakfalse 5863, 6778
\@nocnterr 7556, 7570
\@nocounterr 7555, 7569
\@noparitemfalse 6757
\@number 6390, 6468, 7381
\@nx 7559, 7573, 7576, 7578
\@onelevel@sanitize . . 2474, 2478, 2690, 3341, 3976, 4006, 4501, 4801, 4804, 4817, 4831, 5045, 5281, 5365, 6089, 6091, 6429, 7447, 7999, 9348, 13466
\@oparg 6742, 6749
\@outlinefile . 13439, 13528, 13623, 13625, 13627, 13702, 13704, 13706
\@pagerefstar . . . 4383, 8015, 8046
\@pagesetref 7965
\@parboxrestore . 6908, 7030, 7101
\@parcount 13587, 13595
\@part 13796, 13803
\@pdfauthor 3597, 3890, 8738, 9209, 9660, 10341, 10599, 11445
\@pdfborder 3467, 3478, 3480, 4326, 8425, 9366, 9910, 10466, 10560, 10951, 10963, 10978, 10999, 11027, 11058, 11087, 11174, 11262, 11422
\@pdfborderstyle 3476, 3482, 3484, 4327, 8426, 9367, 9911, 10467, 10561, 10952, 10964, 10979, 11000, 11028, 11059, 11088, 11175, 11263, 11423
\@pdfcreationdate 3614, 3893, 8742, 8744, 9201, 9203, 9652, 9654, 10574, 10576, 11437, 11439
\@pdfcreator 3609, 3892, 8741, 9200, 9651, 10344, 10598, 11436
\@pdfdirection . 8702, 9265, 9693, 10312, 10653, 11494
\@pdfduplex . . 8708, 9271, 9699, 10318, 10659, 11500
\@pdfhighlight 3452, 3888, 8445, 8447, 8506, 8542, 8544, 8579, 8581, 8907, 8909, 10465, 10559, 10950, 10998, 11026, 11057
\@pdfhightlight 8504
\@pdfkeywords 3633, 3896, 8754, 9198, 9665, 10349, 10600, 11434
\@pdflang 3874, 3903, 8728, 8730, 9293, 9295, 9733, 9735, 10683, 10685, 11524, 11526
\@pdfm@dest . . . 9310, 9369, 9373
\@pdfm@mark 6210, 9309, 9361, 9381, 9395, 9397, 9411, 9413, 9418, 9419, 9449, 9473, 9475, 9480, 9498, 9520, 9552, 9585, 9613, 9647, 9714, 9741,

12679, 12680, 12681, 12698, 12740, 12746, 12833, 12847, 12862, 12868, 12893, 12900, 12918, 12924, 12946, 12952, 12974, 12980, 12985, 13017, 13025, 13675
\@pdfmoddate . 3620, 3894, 8746, 8748, 9205, 9207, 9656, 9658, 10578, 10582, 11441, 11443
\@pdfnonfullscreenpagemode 8701, 9264, 9692, 10311, 10652, 11493
\@pdfnumcopies 8717, 8719, 9280, 9282, 9708, 9710, 10327, 10329, 10668, 10670, 11509, 11511
\@pdfpageduration 3410, 8797, 8801, 8806, 10236, 10238, 10241, 10504, 10506, 10514
\@pdfpagelayout 8727, 9292, 9732, 10332, 10334, 10682, 11523
\@pdfpagemode 4069, 4070, 4256, 4257, 4266, 4267, 8681, 9248, 9727, 10299, 10636, 11477
\@pdfpagescrop 3828, 3898, 8666, 8670, 9231, 9232, 9253, 9255, 9739, 9741, 10288, 10290, 10641, 10643, 11482, 11484
\@pdfpagetransition 3406, 8773, 8777, 8782, 10125, 10127, 10129, 10487, 10489, 10497
\@pdfpicktraybypdfsize . . . 8709, 8711, 9272, 9274, 9700, 9702, 10319, 10321, 10660, 10662, 11501, 11503
\@pdfprintarea . 8705, 9268, 9696, 10315, 10656, 11497
\@pdfprintclip . 8706, 9269, 9697, 10316, 10657, 11498
\@pdfprintpagerange 3549, 3902, 8713, 8715, 9276, 9278, 9704, 9706, 10323, 10325, 10664, 10666, 11505, 11507
\@pdfprintscaling 8707, 9270, 9698, 10317, 10658, 11499
\@pdfproducer 3603, 3891, 8607, 8750, 8752, 9191, 9192, 9210, 9212, 9636, 9637, 9641, 9661, 9663, 10256, 10257, 10261, 10264, 10265, 10345, 10347, 10585, 10589, 11084, 11085, 11167, 11169, 11171, 11259, 11260, 11427, 11428, 11446, 11448
\@pdfremotestartview 3800, 3802, 3803, 3804, 3815, 3819, 3821, 3822, 3824, 3900, 8559, 9567, 11038
\@pdfstartpage 3783, 3785, 3901, 8687, 8691, 9235, 9240, 9716, 9720, 10292, 10296, 10623, 10628, 11464, 11469
\@pdfstartview 3790, 3792, 3899, 8689, 8691, 9237, 9241, 9718, 9720, 10294, 10625, 10629, 11466, 11470
\@pdfsubject 3627, 3895, 8740, 9214, 9650, 10343, 10597, 11450
\@pdftempa 4745, 4746, 4749
\@pdftempwordfile . . . 4736, 4746
\@pdftempwordrun . . 4737, 4749
\@pdftitle 3591, 3889, 8739, 9199, 9649, 10342, 10596, 11435
\@pdftrapped . . 3638, 3641, 3644, 3653, 3662, 3897, 8755, 8757, 9666, 9668, 10601
\@pdfview 3764, 8407, 8415, 9316, 9320, 9324, 9328, 9332, 9336, 9337, 9340, 9341, 9344, 9348, 9350, 9365, 9909, 9919, 9931, 10409, 10429, 11089, 11176, 11264, 11536
\@pdfviewarea . 8703, 9266, 9694, 10313, 10654, 11495
\@pdfviewclip . 8704, 9267, 9695, 10314, 10655, 11496
\@pdfviewparams 3766, 3768, 10409, 10429, 11090, 11177, 11265, 11537
\@percentchar . 4430, 4431, 4483, 13443
\@processme . . 5389, 5390, 8779, 8785, 8803, 8809, 8825, 8831, 10701, 10702, 10801, 10802, 10805, 10806
\@protected@testopt 605
\@protected@testopt@xargs . 606
\@refstar 4380, 8012
\@runbordercolor 3886, 8583, 8585, 10096, 10098, 11061
\@runcolor 8603, 10102
\@safe@activesfalse 558, 4360
\@safe@activestrue 557, 4359
\@savsf 8410, 8418
\@schapter 13766, 13767
\@secondoffive . 3960, 4355, 4368, 7975, 7976, 8016
\@secondoftwo . . . 546, 848, 1024, 1551, 1691, 3959, 3960, 13822
\@sect 13817, 13818
\@seqncr 6667
\@serial@counter . . 13535, 13583, 13585, 13586
\@seteqlabel 7533, 7534
\@setminipage 7032, 7103
\@setref . . 4363, 4368, 7944, 7945, 7982
\@sharp 6581, 6587
\@skiphyperreffalse . . 6307, 7159, 7171
\@skiphyperreftrue . . . 7145, 7171
\@spaces 249
\@spart 13809, 13810
\@ssect 13752, 13753
\@startlos 7882, 7889, 7938
\@starttoc 5851
\@tempa . 6741, 6748, 6752, 6857, 6861, 6864, 6879
\@tempb 6695, 6699
\@tempboxa 9005, 9007, 9016, 9085, 9087, 9090, 9091, 9100, 9106, 9107, 9122, 9124, 9127, 9128, 9138, 9144, 9145, 9160, 9162, 9165, 9166, 9176, 9182, 9183, 11379, 11381, 11390, 11654, 11656, 11670
\@tempcnta . 13392, 13393, 13394, 13395, 13396, 13398, 13401, 13402, 13403, 13409, 13411, 13413, 13504, 13505, 13506, 13509, 13510, 13511, 13512, 13513, 13725, 13726, 13727
\@tempdima 2368, 5631, 5632, 5633, 5634, 5635, 5636, 5637, 5638, 8400, 11949, 11954, 11956, 11992, 11993, 11994, 11998, 11999, 12000, 12001, 12423, 12428, 12430, 12467, 12468, 12469, 12473, 12474, 12475, 12476, 12758, 12763, 12765, 12802, 12803, 12804, 12808, 12809, 12810, 12811
\@tempdimb 11953, 11954, 12427, 12428, 12762, 12763
\@tempswafalse 7364
\@tempswatrue 7334, 7337, 7340, 7361
\@temptokena . 3197, 3202, 3205, 3207
\@tfor 6696
\@the@H@page 7383, 7385
\@thefnmark . . 6792, 6803, 6869, 6870, 6909, 6926, 6933, 6964,

6976, 6983
\@thirdoffive 4356, 8019
\@thm 6724
\@topnewpage 13868
\@topsep 6737
\@topsepadd 6738
\@typeset@protect 13738
\@undefined . . 306, 309, 611, 3201, 5790, 5825, 5838, 5850, 6051, 6069, 6108, 6997, 7060, 7072, 7077, 7086, 8007, 8398, 8611, 8620, 9882, 10267, 10281
\@undottedtocline 7934
\@unprocessedoptions 4207
\@urlbordercolor 3883, 8508, 8510, 9591, 9593, 10032, 10034, 11001
\@urlcolor 8527, 9012, 9025, 9132, 9149, 9605, 10038, 11386, 11399, 11665, 11678
\@urltype 8978, 8983, 9778, 9804, 9939, 9953, 11348, 11353, 11627, 11632
\@vpageref 8040
\@whilenum 1195
\@wrindex 7616, 7617, 7648
\@writefile 7290
\@x@sf 6843, 6852, 6989, 6991
\@xfootnote 6962
\@xfootnotemark 6800, 6980
\@xfootnotenext 6789, 6973
\@xp 7523, 7558, 7559, 7572, 7573, 7575, 7576
\[. 192, 217, 261, 4602
\{ 269, 283, 475, 1994, 10400, 13461
\} 270, 288, 476, 1995, 10400, 13462
\] 193, 218
\^ 186, 211, 259, 2092, 2093, 3108, 4418, 4419, 4427, 13895, 13907, 13919, 14126, 14142, 14150, 14163, 14177, 14191, 14207, 14217, 14218, 14231, 14245, 14293, 14330, 14349, 14370, 14495, 14511, 14519, 14531, 14545, 14559, 14575, 14585, 14586, 14599, 14613, 14639, 14641, 14679, 14681, 14695, 14697, 14731, 14733, 14734, 14812, 14814, 14860, 14862, 14864, 14866, 15798, 15800
_ . 187, 212, 483, 4422, 4439, 4440
\‘ 166, 172, 179, 182, 3044, 3178, 3181, 3183, 3191, 13460, 13893, 13905, 13917, 14122, 14138, 14146, 14159, 14173, 14187, 14203, 14211, 14212, 14227, 14241, 14289, 14328, 14347, 14368, 14491, 14507, 14515, 14527, 14541, 14555, 14571, 14579, 14580, 14595, 14609, 14926, 14928, 15174, 15202, 15339, 15367, 15770, 15772, 15820, 15822, 16181, 16186, 16191, 16196, 16201, 16206, 16211, 16216, 16221, 16226, 16231, 16236, 16241, 16246, 16251, 16256, 16261, 16266, 16271, 16276, 16281, 16286, 16291, 16296
\| 188, 213, 265, 1900, 1993, 2034, 2990, 3926, 7612, 8200, 8210
\~ 482, 1197, 2142, 3102, 3110, 3111, 3112, 4020, 4443, 13896, 13908, 13920, 14128, 14157, 14165, 14193, 14225, 14233, 14295, 14331, 14350, 14371, 14497, 14525, 14533, 14561, 14593, 14601, 14703, 14705, 14706, 14836, 14838, 15766, 15768, 15816, 15818, 15824, 15826, 16183, 16188, 16193, 16198, 16203, 16208, 16213, 16218, 16223, 16228, 16233, 16238, 16243, 16248, 16253, 16258, 16263, 16268, 16273, 16278, 16283, 16288, 16293, 16298

Numbers

\3 . . . . . 459, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 2256, 13604, 14122, 14124, 14126, 14128, 14130, 14132, 14134, 14136, 14138, 14140, 14142, 14144, 14146, 14148, 14150, 14152, 14154, 14155, 14157, 14159, 14161, 14163, 14165, 14167, 14169, 14171, 14173, 14175, 14177, 14179, 14181, 14183, 14185, 14187, 14189, 14191, 14193, 14195, 14197, 14199, 14201, 14203, 14205, 14207, 14209, 14211, 14212, 14214, 14215, 14217, 14218, 14220, 14221, 14223, 14225, 14227, 14229, 14231, 14233, 14235, 14237, 14239, 14241, 14243, 14245, 14247, 14249, 14251, 14253, 14254, 14327, 14491, 14493, 14495, 14497, 14499, 14501, 14503, 14505, 14507, 14509, 14511, 14513, 14515, 14517, 14519, 14521, 14523, 14525, 14527, 14529, 14531, 14533, 14535, 14537, 14539, 14541, 14543, 14545, 14547, 14549, 14551, 14553, 14555, 14557, 14559, 14561, 14563, 14565, 14567, 14569, 14571, 14573, 14575, 14577, 14579, 14580, 14582, 14583, 14585, 14586, 14588, 14589, 14591, 14593, 14595, 14597, 14599, 14601, 14603, 14605, 14607, 14609, 14611, 14613, 14615, 14617, 14619, 14621, 14886, 14888, 14890, 14892, 14893, 14895, 14897, 14899, 14901, 14903, 14905, 14907, 14909, 14911, 14913, 14915, 14917, 14919, 14920, 14922, 14924, 14926, 14928, 14930, 14932, 14934, 14936, 14985, 14987, 14989, 14991, 14993, 14995, 14997, 15000, 15002, 15127, 15129, 15131, 15133, 15135, 15137, 15139, 15141, 15143, 15145, 15147, 15149, 15151, 15153, 15154, 15156, 15158, 15160, 15162, 15164, 15166, 15168, 15170, 15172, 15558, 15560, 15562, 15564, 15566, 15568, 15570, 15572, 15574, 15576, 15578, 15580, 15582, 15584, 15586, 15588, 15590, 15592, 15594, 15596, 15598, 15600, 15602, 15604, 15606, 15608, 15610, 15612, 15614, 15616, 15618, 15620, 15622, 15624, 15626, 15628, 15630, 15632, 15634, 15636, 15638, 15640, 15642, 15644, 15646, 15648, 15650, 15652, 15654, 15656, 15658, 15660, 15662, 15664, 15666, 15668, 15670, 15820, 15822, 15824, 15826, 16046, 16048, 16050, 16052, 16054, 16056, 16058, 16060, 16062, 16064, 16066, 16068, 16070, 16072, 16074, 16076, 16078, 16080, 16082, 16084, 16086, 16088, 16090, 16092, 16094, 16096, 16098, 16100, 16102, 16104, 16106, 16108, 16110, 16112, 16114, 16116, 16118, 16120, 16122, 16124, 16126, 16128, 16130, 16132, 16134, 16142, 16144,

16166, 16168, 16169, 16173, 16175, 16176, 16179, 16181, 16183, 16194, 16196, 16200, 16201, 16202, 16203, 16204, 16205, 16206, 16207, 16209, 16210, 16211, 16212, 16213, 16214, 16215, 16216, 16217, 16218, 16219, 16220, 16221, 16222, 16223, 16224, 16225, 16226, 16227, 16229, 16230, 16231, 16232, 16233, 16234, 16235, 16236, 16237, 16238, 16239, 16241, 16243, 16254, 16256, 16260, 16261, 16262, 16263, 16264, 16265, 16266, 16267, 16269, 16270, 16271, 16272, 16273, 16274, 16275, 16276, 16277, 16278, 16279, 16280, 16281, 16282, 16283, 16284, 16285, 16286, 16287, 16289, 16290, 16291, 16292, 16293, 16294, 16295, 16296, 16297, 16298, 16351, 16353

\9 . . . . . 462, 1261, 1264, 1295, 2184, 2199, 2208, 2236, 2256, 14327, 15672, 15674, 15676, 15678, 15680, 15682, 15684, 15686, 15688, 15690, 15692, 15694, 15696, 15698, 15700, 15702, 15704, 15706, 15708, 15710, 15712, 15714, 15716, 15718, 15720, 15722, 15724, 15726, 15728, 15730, 15732, 15734, 15736, 15738, 15740, 15742, 15744, 15746, 15748, 15750, 15752, 15754, 15756, 15758, 15760, 15762, 15764, 15766, 15768, 15770, 15772, 15774, 15776, 15778, 15780, 15782, 15784, 15786, 15788, 15790, 15792, 15794, 15796, 15798, 15800, 15802, 15804, 15806, 15808, 15810, 15812, 15814, 15816, 15818, 15820, 15822, 15824, 15826, 15828, 15830, 15832, 15834, 15836, 15838, 15840, 15842, 15844, 15846, 15848, 15850, 15852, 15854, 15856, 15858, 15860, 15862, 15864, 15866, 15868, 15870, 15872, 15874, 15876, 15878, 15880, 15882, 15884, 15886, 15888, 15890, 15892, 15894, 15896, 15898, 15900, 15902, 15904, 15906, 15908, 15910, 15912, 15914, 15916, 15918, 15920, 15922, 15924, 15926, 15928, 15930, 15932, 15934, 15936, 15938, 15940, 15942, 15944, 15946, 15948, 15950, 15952, 15954, 15956, 15958, 15960, 15962, 15964, 15966, 15968, 15970, 15972, 15974, 15976, 15978, 15980, 15982, 15984, 15986, 15988, 15990, 15992, 15994, 15996, 15998, 16000, 16002, 16004, 16006, 16008, 16010, 16012, 16014, 16016, 16018, 16020, 16022, 16024, 16026, 16028, 16030, 16032, 16034, 16036, 16038, 16040, 16042, 16044, 16046, 16048, 16050, 16052, 16054, 16056, 16058, 16060, 16062, 16064, 16066, 16068, 16070, 16072, 16074, 16076, 16078, 16080, 16082, 16084, 16086, 16088, 16090, 16092, 16094, 16096, 16098, 16100, 16102, 16104, 16106, 16108, 16110, 16112, 16114, 16116, 16118, 16120, 16122, 16124, 16126, 16128, 16130, 16132, 16134, 16136, 16138, 16140, 16142, 16144, 16146, 16148, 16180, 16182, 16184, 16185, 16186, 16187, 16188, 16189, 16190, 16191, 16192, 16193, 16195, 16197, 16198, 16199, 16200, 16201, 16202, 16203, 16205, 16207, 16210, 16212, 16214, 16215, 16216, 16217, 16218, 16219, 16220, 16221, 16222, 16223, 16225, 16227, 16229, 16230, 16231, 16232, 16233, 16235, 16236, 16237, 16238, 16240, 16242, 16244, 16245, 16246, 16247, 16248, 16249, 16250, 16251, 16252, 16253, 16255, 16257, 16258, 16259, 16260, 16261, 16262, 16263, 16265, 16267, 16270, 16272, 16274, 16275, 16276, 16277, 16278, 16279, 16280, 16281, 16282, 16283, 16285, 16287, 16289, 16290, 16291, 16292, 16293, 16295, 16296, 16297, 16298, 16352

\␣ . . . 590, 3125, 3128, 7231, 7254, 13917, 13918, 13919, 13920, 13921, 13922, 13923, 13924, 13925, 13926, 13927, 13928, 14347, 14348, 14349, 14350, 14351, 14352, 14353, 14354, 14355, 14356, 14357, 14358, 14359, 14360, 14361, 14362, 14363, 14364, 14365

A

\ABREVE . . 16172, 16244, 16245, 16246, 16247, 16248
\abreve 16165, 16184, 16185, 16186, 16187, 16188
\AccFancyVerbLineautorefname 3152
\Accfootnoteautorefname . . 3132
\Acctheoremautorefname . . 3156
\ACIRCUMFLEX . 16173, 16249, 16250, 16251, 16252, 16253
\acircumflex . . 3183, 16166, 16189, 16190, 16191, 16192, 16193
\Acrobatmenu . 2339, 3956, 5787, 8902, 9610, 10105, 10945
\active 1175, 1182, 4419, 4420, 4421, 4422, 4423, 4424, 4427, 4429, 4432, 4440, 13608, 13637
\add@accent 474
\addcontentsline 7026, 7097, 7415, 7420, 7491, 13873
\addtocontents 7460, 7492, 7765, 7817, 13861, 13862
\addtocounter . 6465, 6488, 6497, 6508, 6512, 6717, 9500
\addvspace 13861, 13862
\adl@LT@array 6579
\advance 396, 397, 1196, 4568, 4905, 5233, 5279, 5632, 5633, 5636, 5637, 6006, 8656, 9017, 9101, 9139, 9177, 10263, 11391, 11671, 11956, 11999, 12000, 12430, 12474, 12475, 12709, 12765, 12809, 12810, 13393, 13395, 13396, 13402, 13411, 13512, 13726
\AE 14134, 14503, 14930
\ae 14199, 14567, 14932
\afterassignment 1789, 1795, 1801
\AfterBeginDocument . . 293, 307
\aftergroup 6913
\alef 16307
\alefhamza 16303
\aleflowerhamza 16305
\alefmadda 16302
\alefmaqsura 16336
\Alph 6055, 6360, 6361
\alph 6056, 6688, 6719
\AMSautorefname 8174
\anchor@spot 4844, 4857, 4864, 4870, 4872,

8465, 8958, 9053, 9850, 9922, 10406, 10745, 10748, 11328, 11608
\appendix 6357, 6358
\appendixautorefname 3000, 3018, 3036, 3054, 3072, 3090, 3108, 3140, 3141, 3166, 3184, 8184
\arabic . . . 6052, 6265, 6268, 6271, 6272, 6273, 6275, 6276, 6277, 6278, 6280, 6281, 6282, 6283, 6284, 6285, 6288, 6298, 6299, 6339, 6472, 7500, 7506, 7554, 7568, 7753, 7758, 7760
\AtBeginDocument . . 294, 5823, 6569, 11698
\AtBeginShipout 5935, 8937, 9446
\AtBeginShipoutBox . 5939, 5942, 8932, 8933, 9447, 9448
\AtBeginShipoutFirst 5946, 9746, 11140, 11255
\AtEndDocument 5837
\AtEndOfPackage 304
\AtVeryEndDocument 6148, 12349
\author 5871, 5881
\autopageref 4068, 8055
\autoref . . . 580, 4067, 8074, 11693
\ayn 16325

B

\b . . . 811, 815, 821, 13903, 13915, 13927, 14319, 14342, 14361, 15678, 15680, 15686, 15688, 15718, 15720, 15722, 15724, 15738, 15740, 15754, 15756, 15762, 15764, 15802, 15804, 15806
\baa 16308
\back@none 2935, 2945, 2958
\back@page 2937, 2950
\back@section . 2936, 2942, 2948, 2954
\back@slide 2938, 2947
\backcite 7291
\backref 7322, 11697
\baselineskip . . 2342, 5645, 5646, 5647, 5648, 5649, 5650, 9072, 10425, 10451, 11123
\bbl@cite@choice 7138
\BeforeTeXIVht 2774
\begin 11718, 16357
\belowpdfbookmark 13508
\bfseries . . . 524, 7237, 7260, 7948, 7968, 7985, 8102
\bgroup 599, 4535, 6900, 6912, 8372, 9464, 9850, 10441, 12153, 12245, 12266
\bibcite . . 7129, 7135, 7139, 7164, 7179, 7195, 7205
\bitsetGetDec . 4957, 5090, 5108, 5122, 5135, 5151, 5183, 5208
\bitsetGetHex 4958
\bitsetGetSetBitList 4946
\bitsetIsEmpty 5087, 5105, 5119, 5132, 5148, 5180, 5205
\bitsetReset . . . 5060, 5094, 5113, 5127, 5140, 5156, 5188
\bitsetSetValue 4926, 4936
\BOOKMARK 13440, 13519
\booknumberline . . 13423, 13428
\box 5639, 5942, 8386, 9478, 10782
\bullet 7900, 7908, 7918, 7926

C

\C 14313, 15418, 15420
\c 812, 816, 822, 3102, 3110, 3111, 3112, 5894, 5901, 13901, 13913, 13925, 14136, 14201, 14321, 14336, 14355, 14366, 14505, 14569, 14691, 14693, 14736, 14738, 14746, 14748, 14766, 14768, 14800, 14802, 14816, 14818, 14824, 14826, 14971, 14973, 15473, 15476, 15690, 15692, 15710, 15712
\c@footnote 6802, 6859, 6867, 6982
\c@Hy@tempcnt 4553, 4554, 4560, 4568
\c@page . . 5988, 6006, 6007, 6011, 6023, 6025, 6030, 6037, 6039, 6041, 6070, 7378
\c@secnumdepth . . 13786, 13804, 13819
\c@slidesection . . 7766, 7894, 7895
\c@slidesubsection 7818
\c@tocdepth 3333, 3338
\calc@bm@number . 13649, 13724
\calculate@pdfview . . 3760, 3763
\capitalacute 14369
\capitalbreve 14376
\capitalcaron 14375
\capitalcedilla 14366
\capitalcircumflex 14370
\capitaldieresis 14372
\capitaldotaccent 14378
\capitalgrave 14368
\capitalhungarumlaut . . . 14373
\capitalmacron 14377
\capitalnewtie 14380
\capitalogonek 14367
\capitalring 14374
\capitaltie 14379
\capitaltilde 14371
\caption . . . 6996, 6998, 7085, 7087
\catcode . 172, 173, 184, 185, 186, 187, 206, 737, 738, 874, 1175, 1182, 1900, 1901, 2034, 2035, 2091, 2092, 2093, 4276, 4278, 4418, 4419, 4420, 4421, 4422, 4423, 4424, 4427, 4429, 4432, 4440, 4450, 4541, 4542, 8200, 10480, 10481, 13537, 13539, 13608, 13611, 13637, 13640
\cf@encoding 1500
\chapterautorefname . 3001, 3019, 3037, 3055, 3073, 3091, 3109, 3138, 3167, 3185, 8185
\chapternumberline 13425, 13430
\char 12376, 13541, 13578
\chardef 2560, 2561, 2562, 2563, 2813, 2815, 10740, 10743, 10749
\check@bm@number 13660, 13668, 13717, 13725
\CheckBox 5596
\CheckCommand 6856
\checkcommand . . 42, 6507, 6973, 6980, 6987, 7085, 7095, 7189, 7201, 7491, 7494, 7554, 7982
\checklatex . . 4, 6972, 7084, 7188, 7490, 7981
\checkpackage 9, 6506, 7553
\ChoiceBox 5283
\ChoiceMenu 5593
\citation 7234, 7257, 7283
\citeauthoryear 7349, 7355
\citeN 7346
\CJK@char 1178
\CJK@charx 1179
\CJK@CJK 1167
\CJK@eight 1378, 1381, 1495
\CJK@five 1378, 1380, 1495
\CJK@four 1377, 1380, 1494
\CJK@hundred 1444
\CJK@hundredmillion 1407
\CJK@ignorespaces 1177
\CJK@kern 1165
\CJK@minus 1369
\CJK@nine 1378, 1382, 1495
\CJK@null 1471
\CJK@one 1377, 1379, 1494
\CJK@punctchar 1180
\CJK@punctcharx 1181
\CJK@seven . . . 1378, 1381, 1495
\CJK@six 1378, 1381, 1495
\CJK@ten 1379, 1380, 1381, 1382, 1459
\CJK@tenthousand . . 1392, 1413
\CJK@thousand 1429
\CJK@three 1377, 1380, 1494
\CJK@two 1377, 1379, 1494
\CJK@zero 1377, 1395, 1412, 1416, 1432, 1447, 1469

\CJKdigits 1254
\CJKkern 1166
\CJKnumber 1253
\close@pdflink . 8459, 8484, 8493, 8528, 8568, 8604, 8927
\closeout 5817, 13528
\clubpenalty 6778, 6780
\codeof 7313
\color@begingroup . . . 8372, 9464
\color@endgroup 8379, 9471
\columnwidth 6907
\comma@entry . . 5274, 5281, 5283
\comma@parse 5273
\contentsline . . 5826, 5827, 5839, 7461, 7465, 7492, 7494
\copy 8382, 8933, 9448, 9474
\count@ 776, 778, 779, 782, 785, 788, 791, 1194, 1195, 1196, 1197, 1790, 3349, 3350, 3355, 3356, 4904, 4905, 4920, 5216, 5231, 5233, 5257, 5279, 5295, 8651, 8652, 8653, 8654, 8655, 8656, 8659, 10259, 10260, 10261, 10262, 10263, 10266
\CurrentBorderColor 8449, 8451, 8478, 8480, 8488, 8490, 8495, 9912, 9946, 9948, 9964, 9966, 9985, 9987, 10045, 10047, 10064, 10066
\currentpdfbookmark 13500
\curu 15370
\cyr . . 559, 3120, 3122, 3125, 3128, 3131, 3132, 3133, 3134, 3135, 3136, 3137, 3138, 3139, 3140, 3142, 3144, 3145, 3146, 3147, 3148, 3149, 3150, 3151, 3152, 3153, 3154, 3155, 3156, 3157
\CYRA 15209, 15584, 15588
\cyra 3122, 3129, 3131, 3136, 3139, 3144, 3145, 3151, 3155, 15274, 15586, 15590
\CYRABHCH 15548, 15553
\cyrabhch 15550, 15556
\CYRABHCHDSC 15552
\cyrabhchdsc 15555
\CYRABHDZE 15616
\cyrabhdze 15618
\CYRABHHA 15506
\cyrabhha 15508
\CYRAE 15592
\cyrae 15594
\CYRB 15211
\cyrb 3136, 15276
\CYRBYUS 15394
\cyrbyus 15396
\CYRC 15254
\cyrc 15319
\CYRCH 15256, 15656
\cyrch . . 3128, 3129, 3137, 15321, 15658
\CYRCHLDSC 15576
\cyrchldsc 15578
\CYRCHRDSC 15536
\cyrchrdsc 15538
\CYRCHVCRS 15540
\cyrchvcrs 15542
\CYRD 15217
\cyrd 3125, 3128, 3139, 3144, 3145, 15282
\CYRDJE 15179
\cyrdje 15344
\CYRDZE 15185
\cyrdze 15350
\CYRDZHE 15207
\cyrdzhe 15372
\CYRE 15174, 15177, 15219, 15596
\cyre 3122, 3128, 3129, 3142, 3154, 3155, 3156, 15284, 15339, 15342, 15598
\cyreref 15642
\CYREREV 15268, 15640
\cyrerev 15333
\CYRERY 15264, 15664
\cyrery . 3120, 3122, 15329, 15666
\CYRF 15250
\cyrf 15315
\CYRFITA 15410
\cyrfita 15412
\CYRG 15181, 15215
\cyrg 3138, 15280, 15346
\CYRGDSC 15660
\cyrgdsc 15662
\CYRGHCRS 15460
\cyrghcrs 15462
\CYRGHK 15464
\cyrghk 15466
\CYRGUP 15456
\cyrgup 15458
\CYRH 15252
\cyrh 15317
\CYRHDSC 15528
\cyrhdsc 15530
\CYRHHK 15668
\cyrhhk 15670
\CYRHRDSN 15262
\cyrhrdsn 15327
\CYRI 15202, 15225, 15228, 15620, 15624
\cyri 3122, 3125, 3129, 3135, 3140, 3142, 15290, 15293, 15367, 15622, 15626
\CYRIE 15183
\cyrie 15348
\CYRII 15187, 15190
\cyrii 15352, 15355
\CYRIOTBYUS 15398
\cyriotbyus 15400
\CYRIOTE 15382
\cyriote 15384
\CYRIOTLYUS 15390
\cyriotlyus 15392
\CYRISHRT 15227
\cyrishrt 15292
\CYRISHRTDSC 15444
\cyrishrtdsc 15446
\CYRIZH 15414, 15418
\cyrizh 15416, 15420
\CYRJE 15192
\cyrje 15357
\CYRK 15200, 15230
\cyrk 3131, 3132, 3134, 3148, 3149, 3151, 3152, 3153, 15295, 15365
\CYRKBEAK 15490
\cyrkbeak 15492
\CYRKDSC 15478
\cyrkdsc 15480
\CYRKHCRS 15486
\cyrkhcrs 15488
\CYRKHK 15564
\cyrkhk 15566
\CYRKOPPA 15438
\cyrkoppa 15440
\CYRKSI 15402
\cyrksi 15404
\CYRKVCRS 15482
\cyrkvcrs 15484
\CYRL 15232
\cyrl 3136, 3138, 3140, 3142, 15297
\CYRLDSC 15568
\cyrldsc 15570
\CYRLJE 15194
\cyrlje 15359
\CYRLYUS 15386
\cyrlyus 15388
\CYRM 15234
\cyrm 3125, 3129, 3155, 3156, 15299
\CYRMDSC 15580
\cyrmdsc 15582
\CYRN 15236
\cyrn 3122, 3128, 3129, 3131, 3132, 3134, 3142, 3148, 3149, 15301
\CYRNDSC 15494
\cyrndsc 15496
\CYRNG 15498
\cyrng 15500
\CYRNHK 15572
\cyrnhk 15574
\CYRNJE 15196

\cyrnje 15361
\CYRO 15238, 15628
\cyro 3125, 3128, 3131, 3132, 3142, 3151, 3152, 3154, 3155, 3156, 15303, 15630
\CYROMEGA 15374
\cyromega 15376
\CYROMEGARND 15426
\cyromegarnd 15428
\CYROMEGATITLO . . . 15430
\cyromegatitlo 15432
\CYROT 15434
\cyrot 15436
\CYROTLD 15632, 15636
\cyrotld 15634, 15638
\CYRP 15240
\cyrp 3125, 3128, 3129, 3133, 3134, 3140, 3142, 3146, 3147, 3148, 3149, 15305
\CYRpalochka 15558
\CYRPHK 15502
\cyrphk 15504
\CYRPSI 15406
\cyrpsi 15408
\CYRR 15242
\cyrr 3120, 3122, 3125, 3128, 3129, 3135, 3139, 3140, 3142, 3144, 3145, 3150, 3151, 3152, 3153, 3154, 3155, 3156, 15307
\CYRRTICK 15452
\cyrrtick 15454
\CYRS 15244, 15511
\cyrs 3125, 3128, 3131, 3132, 3135, 3150, 3151, 3152, 3153, 3157, 15309, 15514
\CYRSCHWA 15600, 15604
\cyrschwa 15602, 15606
\CYRSDSC 15510, 15511
\cyrsdsc 15513
\CYRSEMISFTSN 15448
\cyrsemisftsn 15450
\CYRSFTSN 15266
\cyrsftsn 15331
\CYRSH 15258
\cyrsh 15323
\CYRSHCH 15260
\cyrshch 15325
\CYRSHHA 15544
\cyrshha 15546
\CYRT 15246
\cyrt 3125, 3128, 3134, 3136, 3148, 3149, 3150, 3151, 3152, 3153, 3154, 3155, 3156, 15311
\CYRTDSC 15516
\cyrtdsc 15518
\CYRTETSE 15532
\cyrtetse 15534
\cyrthousands 15442
\CYRTSHE 15198
\cyrtshe 15363
\CYRU 15205, 15248, 15644, 15648, 15652
\cyru 3132, 3134, 3148, 3149, 3152, 3156, 15313, 15646, 15650, 15654
\CYRUK 15422
\cyruk 15424
\CYRUSHRT 15204
\cyrushrt 15369
\CYRV 15213
\cyrv 3120, 3122, 15278
\CYRY 15520
\cyry 15522
\CYRYA 15272
\cyrya 15337
\CYRYAT 15378
\cyryat 15380
\CYRYHCRS 15524
\cyryhcrs 15526
\CYRYI 15189
\cyryi 15354
\CYRYO 15176
\cyryo 15341
\CYRYU 15270
\cyryu 15335
\CYRZ 15223, 15473, 15612
\cyrz . . . 3139, 3144, 3145, 15288, 15476, 15614
\CYRZDSC 15472
\cyrzdsc 15475
\CYRZH . . . 15221, 15560, 15608
\cyrzh . . 3122, 3142, 15286, 15562, 15610
\CYRZHDSC 15468
\cyrzhdsc 15470

D

\d 813, 817, 823, 3180, 3184, 3186, 3187, 3188, 3189, 3190, 3192, 13904, 13916, 13928, 14317, 14343, 14362, 16180, 16185, 16190, 16195, 16200, 16205, 16210, 16215, 16220, 16225, 16230, 16235, 16240, 16245, 16250, 16255, 16260, 16265, 16270, 16275, 16280, 16285, 16290, 16295
\dad 16322
\dal 16315
\damma 16342
\declare@shorthand 929, 930, 935, 936, 941, 951, 952, 953, 958, 959, 964, 965, 970, 975, 976, 981, 986, 987, 988, 989, 990, 991, 996, 997, 1002, 1003, 1008, 1009
\DeclareFontEncoding . . . 13892, 14287
\DeclareFontFamily 833, 841, 2642
\DeclareFontShape 834, 842, 2643
\DeclareFontSubstitution . . . 835, 843, 2644
\DeclareLocalOptions 3935
\DeclareRobustCommand . 4379, 4382, 4391, 4395, 4532, 4619, 4621, 4623, 4632, 5590, 5593, 5596, 5599, 5602, 5605, 5608, 5733, 5737, 5805, 5809, 8029, 8055, 8074, 13742
\DeclareTextAccent 13893, 13894, 13895, 13896, 13897, 13898, 13899, 13900, 13901, 13902, 13903, 13904
\DeclareVoidOption . . 2771, 2785, 2795, 2800, 2805, 2818, 2828, 2833, 2838, 2844, 2873, 2890, 2897, 2902, 2907, 2912, 3261, 3269, 3277
\DefaultHeightofCheckBox . 5645, 12104, 12598, 12961
\DefaultHeightofChoiceMenu 5647, 11946, 12420, 12755
\DefaultHeightofReset 5643, 12078, 12571, 12929
\DefaultHeightofSubmit . . . 5641, 12061, 12549, 12906
\DefaultHeightofText 5649, 11923, 12396, 12723
\DefaultHeightofTextMultiline . . . 5650, 11921, 12394, 12721
\DefaultOptionsofCheckBox 5655, 12106, 12600, 12963
\DefaultOptionsofComboBox 5658
\DefaultOptionsofListBox . 5657
\DefaultOptionsofPopdownBox 5659
\DefaultOptionsofPushButton . . . 5654, 12036, 12522, 12874
\DefaultOptionsofRadio . . . 5660
\DefaultOptionsofReset . . . 5653, 12081, 12574, 12932
\DefaultOptionsofSubmit . . 5652, 12064, 12552, 12909
\DefaultOptionsofText 5656, 11928, 12401, 12728
\DefaultWidthofCheckBox . 5646, 12103, 12597, 12960
\DefaultWidthofChoiceMenu 5648, 11945, 12419, 12754
\DefaultWidthofReset 5644, 12077, 12570, 12928

\DefaultWidthofSubmit . . . 5642, 12060, 12548, 12905
\DefaultWidthofText 5651, 11918, 12391, 12718
\define@key 2459, 2461, 2504, 2519, 2522, 2525, 2533, 2536, 2546, 2549, 2552, 2569, 2581, 2583, 2586, 2589, 2606, 2610, 2613, 2616, 2619, 2622, 2625, 2628, 2663, 2721, 2810, 2918, 2929, 2932, 2939, 2968, 2987, 2990, 3227, 3284, 3287, 3302, 3327, 3330, 3334, 3362, 3367, 3371, 3374, 3381, 3393, 3401, 3404, 3407, 3411, 3426, 3435, 3445, 3452, 3459, 3476, 3548, 3557, 3587, 3593, 3599, 3605, 3611, 3617, 3623, 3629, 3635, 3668, 3675, 3709, 3760, 3761, 3781, 3788, 3798, 3828, 3829, 3832, 3835, 3838, 3841, 3844, 3847, 3850, 3873, 3876, 3879, 4549, 4578, 4584, 4596, 4898, 4986, 5042, 5344, 5349, 5362, 5408, 5411, 5414, 5418, 5421, 5425, 5428, 5432, 5435, 5439, 5442, 5445, 5448, 5451, 5454, 5457, 5460, 5463, 5466, 5469, 5472, 5502, 5505, 5508, 5511, 5530, 5536, 5551, 5557, 5574, 5579, 5585, 6161, 6172, 10812, 10814, 10817, 10819, 10821, 10830, 10838, 10845, 10847, 10849, 10851, 10853, 10855, 10864, 10874, 10876, 10878, 10879, 10885, 10894, 10896, 10898, 10900, 10902, 10904, 10906, 10908, 10910, 10912, 10914, 10916, 10918, 10920, 10922, 10924, 10925, 10926, 10927, 10928, 10929, 10930, 10931, 10932, 10933, 10934, 10935
\df@tag 7515, 7521
\DH 14154, 14523
\dh 14223, 14591
\dhal 16316
\dimen@ 437, 438, 442, 1796, 1864, 1865, 1868, 1870, 3912, 3913, 3915, 3922, 3923, 10226, 10227, 10229, 10773, 10785, 10788
\dimexpr . . 449, 2160, 2162, 2170, 2175, 2178, 2180, 2194, 2196, 2199, 2200, 2207, 2210, 2213, 2214, 2215, 2216, 2226, 2231, 2239, 2243, 2248, 2258, 2261, 2266, 2269, 2274, 2275
\ding 5477, 5480
\DingObject 12496
\discretionary 601
\divide 8652, 10260
\DJ . . . 3192, 14155, 14655, 16174
\dj 3189, 3190, 14657, 16167
\do 1195, 2476, 2481, 2486, 3433, 3454, 3455, 3456, 3457, 3488, 3489, 3490, 3491, 3492, 3493, 3496, 3497, 3498, 3499, 3500, 3501, 3504, 3505, 3508, 3509, 3510, 3511, 3512, 3515, 3516, 3517, 3518, 3519, 3522, 3523, 3524, 3525, 3526, 3529, 3530, 3531, 3532, 3533, 3536, 3537, 3540, 3541, 3542, 3545, 3546, 3552, 3553, 3554, 3555, 3866, 3867, 3868, 3869, 3870, 3871, 4946, 6699, 7229, 7252, 11950, 12011, 12215, 12222, 12232, 12424, 12486, 12759, 12824, 13607, 13636
\documentclass 2
\dospecials 13616, 13645
\dots 486
\dp 5635, 5638, 6905, 9007, 9087, 9124, 9162, 10774, 10777, 11381, 11656, 12704
\dth@counter . . . 6739, 6740, 6766
\dth@everypar 6754
\dvipdfm@setdim . . 12701, 12742, 12839, 12864, 12895, 12920, 12948, 12976

E

\ECIRCUMFLEX . 16175, 16259, 16260, 16261, 16262, 16263
\ecircumflex . 16168, 16199, 16200, 16201, 16202, 16203
\EdefEscapeHex 756
\EdefEscapeName . . . 3699, 3743
\EdefEscapeString 710, 720
\EdefUnescapeName 3700
\EdefUnescapeString 705
\egroup . . . 600, 8379, 9471, 9850, 10475, 12162, 12254, 12279
\em 530
\emph 509
\empty 1177, 3337
\enc@@html 5348, 5351
\enc@update 471
\END 1525, 1526, 1552, 1553, 1568, 1569, 1586, 1587, 1604, 1605, 1973, 1979, 1984, 2086, 2088, 8776, 8789, 8793, 8800, 8813, 8817, 8823, 8835, 8839
\end 16358
\endeqnarray . . . 6645, 6663, 6670
\endequation 6608, 6640
\endForm 5338
\endinput 64, 2782, 2857, 4064, 4166, 7942, 10415, 11716, 13732
\endlinechar 4417
\endNoHyper 5769
\EndPreamble 11719
\endsubeqnarray 6674, 6685
\eqnarray 6644, 6646, 6667
\equal 7310
\equation . . 6607, 6616, 6620, 6629
\equationautorefname 2994, 3012, 3030, 3048, 3066, 3084, 3102, 3120, 3121, 3160, 3178, 8174, 8178
\errmessage 3224
\es@roman 560
\es@save@dot 1153
\escapechar 455, 761, 6692, 13467, 13647, 13698
\eTeX 495, 11724
\etex@unexpanded . . . 1728, 1735
\eTeXversion . . . 8611, 8613, 8615
\evensidemargin 7402
\everypar 6780
\ExecuteOptions 3927, 3928, 3932
\ext@figure 7750
\ext@table 7749
\extra@b@citeb 7236
\extrasvietnam 3270
\extrasvietnamese 3262

F

\fa 16328
\FancyVerbLineautorefname 3007, 3025, 3043, 3061, 3079, 3097, 3115, 3150, 3153, 3173, 3191, 8191
\farsikaf 16349
\farsiya 16351
\fatha 16341
\fbox 12380, 12383
\Field@addtoks 5388, 5419, 5422, 5552, 5575
\Field@boolkey 4899, 4987, 5382, 5412, 5415
\Field@toks . . . 5386, 5387, 5389, 12154, 12171, 12182, 12193, 12203, 12220, 12238, 12246, 12251, 12267, 12276
\Field@Width 5323, 5437
\figureautorefname . . . 2997, 3015, 3033, 3051, 3069, 3087, 3105, 3135, 3163, 3181, 8181

\filename@area 4785
\filename@base 4785
\filename@ext . 4782, 4783, 4785, 4786
\filename@parse 4781
\find@pdflink . . . 8428, 8482, 8492
\Fld@@additionalactions . 13092, 13135, 13139
\Fld@@DingDef . 5477, 5480, 5499
\Fld@additionalactions . . . 13092, 13170, 13198, 13232, 13264, 13298, 13332, 13363
\Fld@align 5327, 5464, 13149, 13207, 13272
\Fld@annotflags 5106, 5108, 13145, 13176, 13203, 13236, 13268, 13303, 13338
\Fld@bcolor . . . 5329, 5506, 13160, 13162, 13223, 13225, 13251, 13253, 13276, 13288, 13290
\fld@bcolor 13211
\Fld@bordercolor 5330, 5509, 13156, 13158, 13183, 13191, 13193, 13210, 13219, 13221, 13247, 13249, 13275, 13284, 13286, 13310, 13318, 13320, 13345, 13353, 13355
\Fld@bordersep 5331, 5458
\Fld@borderstyle 5333, 5455, 13150, 13181, 13208, 13241, 13273, 13308, 13361
\Fld@borderwidth . . . 5332, 5452, 5629, 5632, 5633, 5636, 5637, 11999, 12000, 12474, 12475, 12809, 12810, 13150, 13181, 13208, 13241, 13273, 13308, 13361
\Fld@calculate@code 5517, 13105, 13107
\Fld@cbsymbol 5334, 5470, 13164
\Fld@charsize . . 5324, 5325, 5449, 11998, 12473, 12808, 13166, 13229, 13257, 13294, 13343
\Fld@checkedfalse 5320
\Fld@checkequals . . . 5400, 11951, 12012, 12223, 12233, 12425, 12487, 12760, 12825
\Fld@choices . . 5213, 5221, 5223, 5227, 5236, 5244, 5249, 5297, 5299, 5307, 5308, 13231
\Fld@color 5328, 5512, 13167, 13230, 13258, 13295
\Fld@default 5238, 5241, 5243, 5461, 11916, 11932, 11943, 11983, 12101, 12152, 12170, 12184, 12192, 12199, 12225, 12235, 12265, 12275, 12389, 12406, 12417, 12458, 12595, 12716, 12733, 12752, 12793, 12958, 13259, 13260, 13296
\Fld@DingDef . . 5470, 5473, 5475
\Fld@disabledfalse 5321
\Fld@export 5051, 5054, 5061, 5353
\Fld@findlength . . . 12202, 12213
\Fld@flags 5120, 5122, 5133, 5135, 5149, 5151, 5181, 5183, 5206, 5208, 13148, 13179, 13206, 13239, 13271, 13306, 13341
\Fld@format@code . . 5515, 13097, 13099
\Fld@getmethodfalse 5373
\Fld@getmethodtrue 5375
\Fld@height . . 5446, 11919, 11935, 11946, 12001, 12016, 12028, 12061, 12078, 12104, 12112, 12392, 12410, 12420, 12476, 12501, 12514, 12549, 12571, 12598, 12608, 12719, 12735, 12755, 12811, 12822, 12857, 12906, 12929, 12961, 12969
\Fld@hiddenfalse 5009
\Fld@hiddentrue 5010
\Fld@invisiblefalse 5005
\Fld@invisibletrue 5006
\Fld@keystroke@code 5518, 13093, 13095
\Fld@listcount 12010, 12013, 12024, 12485, 12488, 12502, 12508, 12820, 12826, 12830, 12835, 12846, 12853
\Fld@loc 5409
\Fld@maxlen . . 5326, 5440, 13299
\Fld@menulength 5322, 5443, 11948, 11952, 11998, 12214, 12215, 12218, 12422, 12426, 12473, 12757, 12761, 12808
\Fld@name . . 5433, 11915, 11942, 12033, 12100, 12151, 12156, 12167, 12168, 12179, 12180, 12189, 12190, 12198, 12219, 12236, 12244, 12249, 12264, 12273, 12388, 12416, 12519, 12594, 12715, 12751, 12871, 12957, 13088, 13090, 13146, 13177, 13204, 13237, 13269, 13304, 13339
\Fld@norotatefalse 5022
\Fld@norotatetrue 5021
\Fld@noviewfalse 5025
\Fld@noviewtrue 5026
\Fld@nozoomfalse 5018
\Fld@nozoomtrue 5017
\Fld@onblur@code . . 5520, 13113, 13115
\Fld@onclick@code . . . 5514, 5586, 13197
\Fld@onenter@code . 5523, 13125, 13127
\Fld@onexit@code . . 5524, 13129, 13131
\Fld@onfocus@code . 5519, 13109, 13111
\Fld@onmousedown@code . 5521, 13117, 13119
\Fld@onmouseup@code . . . 5522, 13121, 13123
\Fld@printfalse 5014
\Fld@printtrue 5013
\Fld@radiosymbol . . . 5335, 5473, 13255
\Fld@rotation . 5336, 5503, 13152, 13154, 13182, 13187, 13189, 13209, 13215, 13217, 13243, 13245, 13274, 13280, 13282, 13309, 13314, 13316, 13344, 13349, 13351
\Fld@submitflags 5088, 5090, 13330
\Fld@temp 5476, 5478, 5481, 5482, 5491, 5492
\Fld@validate@code . 5516, 13101, 13103
\Fld@value 5239, 5246, 5248, 5467, 11917, 11932, 11944, 11982, 11983, 12390, 12406, 12418, 12457, 12458, 12717, 12733, 12753, 12792, 12793, 13297
\Fld@width . . 5436, 11918, 11931, 11935, 11945, 11981, 11992, 11994, 12016, 12028, 12048, 12060, 12068, 12077, 12091, 12103, 12109, 12112, 12391, 12405, 12410, 12419, 12456, 12467, 12469, 12501, 12514, 12535, 12548, 12556, 12570, 12584, 12597, 12604, 12608, 12718, 12732, 12735, 12754, 12791, 12802, 12804, 12822, 12857, 12888, 12905, 12913, 12928, 12942, 12960, 12967, 12969
\float@caption 7006, 7066
\float@makebox 7068, 7069
\floatingpenalty 6906
\flq 567
\flqq 565
\fmtname 7
\fmtversion 7
\fontencoding 463, 467, 502, 12372

\fontfamily 503, 12371
\fontseries 504, 6732, 12373
\fontshape 505, 4342, 12374
\fontsize 506
\footins 6900
\footnote 4875
\footnoteautorefname 2995, 3013, 3031, 3049, 3067, 3085, 3103, 3124, 3127, 3161, 3179, 8175, 8179
\footnotesep 6904, 6911
\footnotesize 535, 6902
\footnotetext 6859
\footref 6930, 6931
\Form 5337
\Form@action 5347, 12143, 13328
\Form@boolkey 5341
\Form@htmlfalse 5340, 5359
\Form@htmltrue 5352
\Form@method 5371, 5379, 12143
\frq 568
\frqq 566
\futurelet 620, 1519
\FV@SetLineNo 6446
\FV@StepLineNo 6445, 6447, 6448

G

\G . . . 14312, 14338, 14357, 14938, 14940, 14942, 14944, 14946, 14948, 14949, 14951, 14953, 14955, 14957, 14959, 14961
\g@addto@macro 5949, 6100, 7138, 7412, 8842, 10250, 10531, 11092, 11178, 11240, 11542, 11730
\G@refundefinedtrue . 4670, 7238, 7261, 7947, 7967, 7984, 8101
\gaf 16350
\Gauge 5602
\GenericError 608, 3581
\GenericInfo 610, 3579
\GenericWarning . 248, 609, 3580
\getpagerefnumber 6560
\getrefbykeydefault . . 6516, 6517
\gexmode . . . 10281, 10282, 10370
\ghayn 16326
\Gin@setfile 7592, 7593
\glossary 574
\glq 563
\glqq 561
\Greeknumeral 1017
\greeknumeral 1016
\grq 564
\grqq 562
\guill@spacing 946
\guillemotleft . . 986, 14081, 14261, 14449, 16154
\guillemotright 987, 14112, 14262, 14481, 16155
\guilsinglleft 14012, 14263, 15860, 16156
\guilsinglright 14014, 14264, 15862, 16157

H

\H . . . 14308, 14340, 14359, 14373, 14788, 14790, 14852, 14854, 15652, 15654
\h 3182, 16182, 16187, 16192, 16197, 16202, 16207, 16212, 16217, 16222, 16227, 16232, 16237, 16242, 16247, 16252, 16257, 16262, 16267, 16272, 16277, 16282, 16287, 16292, 16297
\H@@footnotemark . . 6788, 6805, 6935, 6942, 6954, 6965
\H@@footnotetext . . . 6787, 6797, 6824, 6884, 6943, 6957, 6965
\H@@mpfootnotetext . 6795, 6807, 6809
\H@definecounter 7497, 7499
\H@endeqnarray 6645, 6664
\H@endequation 6608, 6640
\H@endsubeqnarray . . 6674, 6686
\H@eqnarray 6644, 6649
\H@equation 6607, 6631
\H@item . . 6286, 6292, 7146, 7171
\H@newctr 7502, 7504
\H@old@part 13796, 13807
\H@old@schapter . . 13766, 13775
\H@old@sect 13817, 13828, 13837
\H@old@spart 13809, 13815
\H@old@ssect 13752, 13757
\H@refstepcounter . . . 6301, 6311, 6447, 6571, 6584, 6630, 6745, 7001, 7763, 7816
\H@seteqlabel 7533, 7535
\H@subeqnarray 6673, 6677
\ha 16334
\Haa 16313
\halign 583
\hamza 16301
\HAR@checkcitations 7326
\HAR@citetoaux 7282
\HAR@tempa . . 7327, 7328, 7329, 7330, 7331, 7332
\harvardcite 7276, 7313
\harvarditem 7301
\hbox 1788, 1794, 1800, 2372, 3348, 3354, 4820, 4822, 5437, 5623, 5624, 5625, 5626, 7266, 7397, 8372, 8932, 9008, 9018, 9088, 9102, 9125, 9140, 9163, 9178, 9447, 9464, 10441, 10777, 10788, 11382, 11392, 11657, 11672, 12291, 12734, 12821, 12856, 12886, 12914, 12943, 12968, 13744
\hc@currentHref 7017
\HCode 12143, 12145, 12156, 12165, 12177, 12185, 12187, 12218, 12224, 12229, 12234, 12248, 12253, 12257, 12260, 12269
\headerps@out 6195, 11082, 11093, 11165, 11179, 11232, 11241, 11254, 11268, 11307, 11425, 11543, 11731
\hfill 5623, 5624, 5625, 5626, 7157, 7190
\Hfootnoteautorefname . . . 8175
\hhyperref 4880
\hoffset 7398
\hphantom 545
\href . 575, 4532, 4874, 4875, 5795
\href@ 4535, 4538, 4543
\href@split 4543, 4544
\hsize 6907
\hskip 1799, 1877, 2413, 2414, 4529, 5629, 12291
\hspace 571, 7316, 7317
\hss 7406, 13749
\ht 5631, 5634, 9016, 9091, 9100, 9107, 9128, 9138, 9145, 9166, 9176, 9183, 10773, 11390, 11670, 12702
\htmladdimg 4873
\htmladdnormallink 4874
\htmladdnormallinkfoot . . . 4875
\htmlref 4876
\Huge 532
\huge 536
\Hurl 4618, 4620, 4622
\hv@pdf@char 13536, 13601, 13602, 13603, 13604
\hvtex@buffer 10145, 10149, 10157, 10160, 10169, 10173, 10189
\hvtex@gettoken . . 10144, 10158, 10162, 10171, 10175
\hvtex@gettoken@ . 10145, 10147
\hvtex@par@dimension . . 10140, 10181
\hvtex@par@direction . . . 10141, 10184
\hvtex@par@duration 10142, 10176
\hvtex@par@motion 10143, 10178
\hvtex@param@dimension 10153, 10182, 10200, 10203
\hvtex@param@direction . 10154, 10185, 10211, 10219
\hvtex@param@duration . 10155, 10177, 10224, 10226

\hvtex@param@motion . . 10156, 10179, 10200, 10207
\hvtex@parse@trans 10129, 10151
\hvtex@produce@trans . . . 10190, 10196
\hvtex@token 10148, 10159, 10165, 10172, 10177, 10180, 10183, 10185
\hvtex@trans@code 10133, 10134, 10135, 10136, 10137, 10138, 10139, 10152, 10198, 10199, 10201, 10203, 10205, 10207, 10209, 10211, 10213, 10214, 10215, 10216, 10217, 10219
\hvtex@trans@effect@Blinds 10133
\hvtex@trans@effect@Box . 10134
\hvtex@trans@effect@Dissolve 10135
\hvtex@trans@effect@Glitter 10136
\hvtex@trans@effect@R . . 10139
\hvtex@trans@effect@Split 10137
\hvtex@trans@effect@Wipe 10138
\hvtex@trans@par . 10172, 10176, 10178, 10181, 10184
\hvtex@trans@params . . . 10166, 10168, 10192
\Hy@@boolkey 2427, 2428
\Hy@@CleanupFile . . . 4820, 4822
\Hy@@DefNameKey . . 2501, 2503
\Hy@@escapeform . 13047, 13060, 13066
\Hy@@SectionAnchor 13739, 13742
\Hy@@temp 3378, 3380, 5526, 5528
\Hy@abspage . . 5969, 6034, 6144, 6221
\Hy@Acrobatmenu . . . 3972, 4013, 8903, 9611, 10106, 10946
\Hy@activeanchorfalse 4415, 8473, 8960, 8975, 9054, 9064, 9376, 9835, 9852, 9923, 9936, 10432, 11330, 11345, 11610, 11624
\Hy@activeanchortrue 8469, 8957, 8971, 9052, 9061, 9372, 9831, 9849, 9921, 9933, 10422, 11327, 11341, 11607, 11620
\Hy@ActiveCarriageReturn 4451, 4454
\Hy@AllowHyphens . 4525, 10420, 10446, 10763
\Hy@AnchorName . . . 4655, 4657, 4660, 4662, 4684, 4686, 4690, 4695, 4697
\Hy@appendixstring . 6355, 6362
\Hy@AtBeginDocument 296, 925, 2647, 2707, 2778, 2853, 2909, 3290, 3909, 3945, 4060, 4066, 4162, 4310, 4400, 5701, 5814, 6228, 6452, 7273, 8021, 8168, 8367, 8849, 9459, 9904, 11267, 11305, 12306, 12307
\Hy@AtBeginDocumentHook 297, 302, 308, 309
\Hy@AtEndOfPackage . 299, 819, 2288, 3263, 3271, 3278, 4048, 4074, 4080, 4262
\Hy@AtEndOfPackageHook . 300, 303, 305, 306
\Hy@author 5883, 5887
\Hy@babelnormalise . 4633, 4635
\Hy@backout . . 4411, 5753, 5757, 7112
\Hy@backreffalse 359, 2959, 2981, 4072
\Hy@backreftrue 2952, 2956, 2978
\Hy@BeginAnnot 9489, 9505, 9546, 9583, 9612
\Hy@bibcite 7135, 7139
\Hy@bookmarksdepth 3333, 3338, 3350, 3356, 13378
\Hy@bookmarksnumberedfalse 360
\Hy@bookmarksopenfalse . . . 361
\Hy@bookmarkstrue 362
\Hy@bookmarkstype . 3368, 3370, 7428, 13389
\Hy@boolkey . . 2427, 2520, 2523, 2526, 2547, 2550, 2553, 2584, 2587, 2590, 2607, 2611, 2614, 2617, 2620, 2623, 2626, 2629, 2930, 2933, 2988, 3285, 3288, 3303, 3328, 3331, 3372, 3375, 3427, 3558, 3830, 3833, 3836, 3839, 3842, 3845, 3848, 3856, 3877, 3880, 6162
\Hy@BorderArrayPatch . . 10825, 10828, 11091, 11541
\Hy@breaklinks@unsupported 2595, 10398
\Hy@breaklinksfalse 363
\Hy@breaklinksunhbox . . 10736, 10780
\Hy@CatcodeWrapper 4271, 4330, 4374, 4403
\Hy@centerwindowfalse 364
\Hy@chapapp . . 6356, 6362, 6387, 13770, 13781, 13863
\Hy@chapterstring . . . 6351, 6353, 6356, 6386
\Hy@CheckOptionValue . . . 2471, 2508
\Hy@CJKbookmarksfalse . . . 365
\Hy@cjkpu 1188, 1190, 1211
\Hy@CleanupFile 4818, 8534, 9548, 10000, 11017
\Hy@colorlink . 4334, 4342, 4346, 8368, 8454, 8527, 8567, 8603, 8926, 8958, 8981, 9012, 9025, 9053, 9069, 9094, 9110, 9132, 9149, 9170, 9187, 9460, 9537, 9576, 9605, 9630, 9922, 9944, 10014, 10038, 10071, 10102, 10118, 10444, 10720, 10722, 11328, 11351, 11386, 11399, 11608, 11630, 11665, 11678
\Hy@ColorList 3432, 3433
\Hy@CounterExists . . 6251, 6264, 6267
\Hy@currentbookmarklevel 13384, 13394, 13395, 13401, 13408, 13501, 13504, 13509, 13513
\Hy@defaultdriver . . . 4151, 4176, 4186, 4197
\Hy@DefFormAction . 5345, 5347
\Hy@DefNameKey . . . 2500, 3453, 3487, 3495, 3503, 3507, 3514, 3521, 3528, 3535, 3539, 3544, 3551, 3865
\Hy@DEST 10737, 10792
\Hy@DestName 8415, 8422
\Hy@DisableOption . . 2457, 3965, 3966, 3967, 3969, 4053, 4079, 4209, 4210, 4211, 4212, 4213, 4214, 4215, 4216, 4217, 4218, 4219, 4220, 4221, 4222, 4223, 4224, 4225, 4226, 4270, 4323, 4351, 4352, 4413, 4414, 5705, 5706, 5707, 5708, 5709, 5710, 5711, 5712, 5713, 5714, 5715, 5716, 5717, 5718, 5719, 5720, 5721, 5722, 5723, 5724, 5725, 5726, 5727, 5728, 5907, 6102, 6969, 7597, 7695, 7696, 8294, 8395, 8761, 8762, 8763, 8764, 8765, 8766, 8767, 8768, 8769, 8770, 8898, 9215, 9216, 9217, 9218, 9219, 9220, 9221, 9222, 9223, 9224, 9487, 9673, 9674, 9675, 9676, 9677, 9678, 9679, 9680, 9681, 9682, 9764, 9906, 10350, 10351, 10352, 10353, 10354, 10355, 10356, 10357, 10358, 10359, 10610, 10611, 10612, 10613, 10614, 10615, 10616, 10617, 10618, 10619, 11158, 11451, 11452, 11453, 11454, 11455, 11456, 11457, 11458, 11459, 11460

\Hy@displaydoctitlefalse . . . 394
\Hy@DistillerDestFix 7374, 10363, 10365
\Hy@draftfalse 324
\Hy@drafttrue 325
\Hy@driver 399, 2600, 2775, 2787, 2797, 2802, 2807, 2820, 2830, 2835, 2840, 2847, 2850, 2876, 2892, 2899, 2904, 2914, 4082, 4085, 4089, 4092, 4096, 4099, 4101, 4105, 4109, 4113, 4116, 4120, 4124, 4128, 4131, 4135, 4138, 4140, 4144, 4149, 4153, 4156, 4159, 4170, 4173, 4176, 4185, 4186, 4197, 4199, 4205, 4206
\Hy@dth@currentHref 6747, 6771
\Hy@DviErrMsg 2742, 2744, 2747, 2753, 2766
\Hy@DviModetrue . . . 2751, 2756
\Hy@DvipdfmxOutlineOpentrue 4232, 4239
\Hy@EndAnnot 9495, 9540, 9579, 9608, 9633
\Hy@endcolorlink 4338, 4343, 4347, 8377, 8460, 8958, 8995, 9019, 9027, 9053, 9077, 9098, 9112, 9136, 9149, 9174, 9187, 9469, 9497, 9922, 9995, 10014, 10038, 10071, 10102, 10118, 10471, 10729, 11328, 11367, 11393, 11401, 11608, 11644, 11669, 11678
\Hy@EndWrap . 4272, 4274, 4275, 4308
\Hy@Error 242, 2651, 2764, 2789, 2822, 2860, 2867, 2878, 2884, 3997, 4586, 4751, 5046, 5170, 5366, 5531, 5580, 12039, 12085, 12526, 12578, 12878, 12936
\Hy@escapeform . . 11934, 12015, 12027, 12051, 12069, 12092, 12111, 12408, 12491, 12512, 12538, 12558, 12585, 12606, 12739, 12829, 12860, 12892, 12916, 12944, 12973, 13041, 13071, 13078
\Hy@escapeformfalse 366
\Hy@escapestring . . 13038, 13095, 13099, 13103, 13107, 13111, 13115, 13119, 13123, 13127, 13131, 13164, 13197, 13296, 13297, 13328
\Hy@EveryPageAnchor 7373, 7413
\Hy@EveryPageBoxHook 5933, 5937, 5941, 7412, 10250, 10531
\Hy@EveryPageHook . 5932, 5936, 6100, 8842
\Hy@ExchangeLeftParenthesis 8225, 8231
\Hy@ExchangeRightParenthesis 8235, 8241
\Hy@false . . 2336, 2438, 2944, 2980
\Hy@figuresfalse 367
\Hy@finalfalse 325
\Hy@finaltrue 324
\Hy@FirstPage 3983
\Hy@FirstPageHook 5934, 5947, 5949, 6193, 6194, 11092, 11178, 11240, 11542, 11730
\Hy@fitwindowfalse 368
\Hy@FixNotFirstPage 8930, 8931, 8937
\Hy@float@caption . . . 7007, 7057, 7059
\Hy@float@currentHref 7060, 7062, 7064, 7072, 7075, 7077
\Hy@footnote@currentHref . 5700, 6812, 6817, 6827, 6832, 6835, 6847, 6849, 6875, 6916, 6919
\Hy@FormObjects . 12343, 12614, 12668, 12678, 12984, 13034
\Hy@Gin@setfile 7592, 7594
\Hy@GlobalStepCount 397, 6034, 6416, 6439, 7388, 7805, 7856
\Hy@gtemp . 734, 735, 5243, 5244, 5248, 5249, 5260, 5274, 8249, 8251, 13088, 13090
\Hy@href 4535, 4537
\Hy@href@nextactionraw 4572, 4595, 4597, 4598, 4600, 4605, 4609, 4611, 8523, 8563, 8599, 8922, 9533, 9572, 9601, 9621, 9959, 10027, 10091, 11042, 11071
\Hy@href@page 4550, 4552, 4556, 4557, 4559, 4566, 4569, 8559, 9567, 11038
\Hy@hyperfootnotesfalse . . 6784
\Hy@hyperfootnotestrue . . . 369
\Hy@hyperindextrue 370
\Hy@hypertexnamesfalse . . 2292
\Hy@hypertexnamestrue . . . 371
\Hy@IfStringEndsWith 4786, 4798
\Hy@implicittrue 372
\Hy@Info . . 245, 2446, 4023, 4025, 4028, 4030, 4033, 4035, 4038, 4040, 4043, 4045, 4255, 4261, 4339, 4344, 4348, 4494, 4521, 4953, 5662, 5664, 5667, 5669, 5672, 5674, 5677, 5679, 5682, 5684, 5687, 5689, 5692, 5694, 7213, 7274, 7433, 7450
\Hy@InfoNoLine 246, 4055, 4057, 11587
\Hy@LastPage 3986
\Hy@level . . 13390, 13392, 13403, 13408, 13409, 13410, 13441
\Hy@levelcheck . . . 13391, 13406
\Hy@linkcounter . 401, 403, 6416, 6417, 6439, 6440, 7536, 7805, 7806, 7810, 7856, 7857, 7861
\Hy@linkfileprefix . . . 3403, 4770, 8998, 9800, 11371, 11647
\Hy@linktoc . . . 2555, 2557, 2565, 2567, 2577, 7469
\Hy@linktoc@all 2563
\Hy@linktoc@none 2560
\Hy@linktoc@page . . . 2555, 2562, 2565
\Hy@linktoc@section . 2557, 2561, 2567
\Hy@linktocpagefalse 373
\Hy@localanchornamefalse . . 374
\Hy@LT@currentHref . 6586, 6597
\Hy@LT@footnotetext 6873, 6883
\Hy@make@anchor . . . 7510, 7516, 7522
\Hy@make@df@tag@@ 7514, 7529
\Hy@make@df@tag@@@ 7520, 7530
\Hy@MakeCurrentHref 6427, 6440
\Hy@MakeCurrentHrefAuto 6438, 6520, 7511, 13369, 13754, 13770, 13781, 13811, 13825, 13863
\Hy@MakeRemoteAction . . 4555, 8537, 9551, 11020
\Hy@maketitle@end . . 6946, 6951, 6953
\Hy@maketitle@optarg 6944, 6949
\Hy@Match . 255, 257, 2921, 3413, 3461, 3804, 4600
\Hy@MaybeStopNow . 2843, 3933
\Hy@menubartrue 375
\Hy@Message 247, 2777, 2852, 4059, 4161, 4205, 9856, 9860, 9863, 9866, 9869, 9872, 9875, 9878, 11912, 12120, 12123, 12126, 12129, 12132, 12135, 12137, 12138, 12147, 12284, 12673
\Hy@naturalnamesfalse 376
\Hy@nestingfalse 377
\Hy@newline@author 5926
\Hy@newline@title 5925
\Hy@newwindowfalse 379
\Hy@newwindowsetfalse 378, 3853
\Hy@newwindowsettrue . . . 3855, 4574

\Hy@newwindowtrue 4575
\Hy@next 6050, 6060, 6065, 13780, 13789, 13792
\Hy@nextfalse 4015, 7607
\Hy@NextPage 3977
\Hy@nexttrue . 4016, 4017, 4018, 7608, 7609, 7610
\Hy@number . . . 3773, 3777, 3785
\Hy@numberline . . 13385, 13422, 13423, 13424, 13425
\Hy@ObsoletePaperOption 2529, 2537
\Hy@ocgcolor . . 8371, 8385, 9463, 9477
\Hy@ocgcolorlinksfalse 4318
\Hy@org@chapter . . 13778, 13793
\Hy@OrgMakeLabel 11699, 11706
\Hy@OutlineName . 13659, 13713
\Hy@OutlineRerunCheck . 13525, 13624, 13703
\Hy@pageanchortrue 380
\Hy@pagecounter . 402, 404, 6478, 7388, 7390
\Hy@pageheight 3923, 11180, 11269
\Hy@pagelabelsfalse 5956
\Hy@pagelabelstrue 381
\Hy@param 6385, 6386, 6387, 6413, 6417
\Hy@pdfafalse 395
\Hy@pdfencoding@pdfdoc . 2702
\Hy@pdfmarkerrorfalse . . 10700
\Hy@pdfmarkerrortrue . . . 10858, 10867
\Hy@pdfminorversion 8261, 8267, 8270, 8278, 8283, 8285, 8288, 8292
\Hy@pdfpagehiddenfalse . . . 382
\Hy@pdfstringdef . 733, 5218, 5226
\Hy@pdfstringfalse 383, 5730
\Hy@pdfstringtrue 587, 5702
\Hy@pdfversion 2729, 2740, 5220, 8283, 8285, 8289, 8292, 13082
\Hy@plainpagesfalse 384
\Hy@PrevPage 3980
\Hy@ps@CR 11222, 11229, 11234, 11235, 11252, 11273, 11274, 11275, 11281, 11288, 11295, 11302
\Hy@pstringB 8679, 8684, 9713, 9725, 10673, 10689, 11514, 11530
\Hy@pstringD . 8536, 8561, 9550, 9569, 11019, 11040
\Hy@pstringdef 8195, 8414, 8438, 8498, 8535, 8536, 8573, 8574, 8679, 9314, 9514, 9549, 9550, 9584, 9713, 9943, 10019, 10078, 10079, 10673, 10856, 10865, 10992, 11018, 11019, 11050, 11051, 11514, 13064, 13658, 13674
\Hy@pstringDest 8414, 8415, 9314, 9361, 10856, 10857, 10861, 10865, 10866, 10870
\Hy@pstringF 8533, 8534, 8535, 8555, 8573, 8592, 8597, 9547, 9548, 9549, 9564, 9999, 10000, 10004, 10078, 10085, 10089, 11016, 11017, 11018, 11035, 11050, 11066, 11069
\Hy@pstringName . 13658, 13659, 13674, 13688
\Hy@pstringP . 8574, 8597, 10079, 10089, 11051, 11069
\Hy@pstringURI 8498, 8519, 9584, 9597, 9943, 9955, 10019, 10023, 10992, 11004
\Hy@PutCatalog 6096, 6104, 6210
\Hy@raisedlink 2360, 6344, 6522, 6543, 6544, 6545, 6548, 6598, 6637, 6640, 6768, 6815, 6830, 6888, 6914, 7045, 7123, 7147, 7152, 7172, 7512, 7537, 11080, 11163, 11421, 11585, 13370, 13746, 13771, 13782, 13812, 13864
\Hy@raiselinksfalse . . . 385, 7275
\Hy@RemoveDurPageAttr . 8800, 8813
\Hy@RemoveHidPageAttr . 8823, 8835
\Hy@RemovePercentCr . . . 4467, 4471, 4476
\Hy@RemoveTransPageAttr 8775, 8789
\Hy@reserved@a 4700, 6647, 6676, 12150, 12200, 12263
\Hy@RestoreCatcodes 205, 3929, 4208
\Hy@RestoreLastskip 2381, 8416, 8961, 8976, 9055, 9065, 9363, 9836, 9853, 9924, 9937, 10413, 10433, 11331, 11346, 11611, 11625
\Hy@RestoreSavedSpaceFactor . . 2356, 9006, 9086, 9123, 9161, 11380, 11655
\Hy@RestoreSpaceFactor 2347, 2373, 2378, 9005, 9013, 9020, 9085, 9095, 9103, 9122, 9133, 9141, 9160, 9171, 9179, 10442, 10476, 10762, 10768, 10790, 11379, 11387, 11394, 11654, 11666, 11673, 11707, 11711
\Hy@ReturnAfterElseFi 405, 4455
\Hy@ReturnAfterElseFiFiEnd 409, 1762
\Hy@ReturnAfterFi 405, 425, 1940, 4459, 4475, 7707, 7743, 8230, 8240, 13065
\Hy@ReturnAfterFiFiEnd . . 408, 1754, 1768, 1846, 1853
\Hy@ReturnEnd . . 407, 408, 409, 1774, 1858
\Hy@safe@activesfalse 410, 4364, 4369, 4714, 8090
\Hy@safe@activestrue 410, 4362, 4367, 4447, 4484, 4492, 4520, 4637, 4706, 7997, 8079, 13617, 13646
\Hy@saved@currentHref . . . 6845, 6848
\Hy@saved@footnotemark . 6940, 6955
\Hy@saved@footnotetext . . 6941, 6958
\Hy@saved@hook 5911, 5921
\Hy@saved@refstepcounter . 6328, 6572
\Hy@SavedSpaceFactor . . . 2343, 2345, 2350, 2351, 2357, 11704
\Hy@SaveLastskip 2381, 8412, 8949, 8964, 9046, 9058, 9311, 9823, 9839, 9914, 9927, 10403, 10417, 11320, 11334, 11600, 11614
\Hy@SaveSavedSpaceFactor 2355, 9004, 9084, 9121, 9159, 11378, 11653
\Hy@SaveSpaceFactor 2344, 2364, 2375, 9003, 9015, 9083, 9097, 9120, 9135, 9158, 9173, 10440, 10474, 10759, 10764, 10770, 11377, 11389, 11652, 11668, 11702, 11709
\Hy@scanauthor 5881, 5886
\Hy@scanoptauthor . . 5881, 5882
\Hy@scanopttitle 5872, 5873
\Hy@scantitle 5872, 5877
\Hy@secnum@part . 13799, 13801, 13804
\Hy@SectionAnchorHref 585, 13737, 13759, 13830
\Hy@SectionHShift 13736, 13745, 13755, 13826
\Hy@seminarslidesfalse . . . 7755
\Hy@seminarslidestrue 7753

\Hy@setbreaklinks . . . 2592, 2596, 2608, 8257, 9304
\Hy@SetCatcodes 181, 231, 3931
\Hy@SetNewWindow 3859, 8557, 8594, 9571, 10086, 11034, 11065
\Hy@setouterhbox . 10735, 10761
\Hy@setpagesizetrue 386
\Hy@setpdfborder . . . 3477, 8444, 8503, 8541, 8578, 8906, 9525, 9557, 9590, 9623, 9963, 9984, 10007, 10031, 10063, 10095, 10111
\Hy@setpdfversiontrue 2728
\Hy@setref@link 7953, 7956
\Hy@slidetitle . 7782, 7784, 7791, 7799, 7809, 7833, 7835, 7842, 7850, 7860
\Hy@StartlinkName . . 8442, 8456
\Hy@StepCount 396, 6011, 11952, 12013, 12215, 12426, 12488, 12761, 12826, 13505, 13510, 13586
\Hy@StringLocalhost . 4816, 4817, 4832
\Hy@temp 615, 622, 737, 809, 913, 916, 924, 925, 2535, 2540, 2541, 2542, 2543, 2544, 2545, 3377, 3386, 3387, 3388, 3389, 3390, 3391, 3392, 3433, 3434, 3435, 3438, 3440, 3443, 3460, 3461, 3467, 3470, 3636, 3637, 3640, 3643, 3646, 3671, 3679, 3680, 3681, 3682, 3683, 3684, 3685, 3686, 3687, 3851, 3852, 4004, 4008, 4009, 4010, 4011, 4087, 4089, 4094, 4096, 4099, 4111, 4113, 4118, 4120, 4126, 4128, 4133, 4135, 4138, 4198, 4199, 4943, 4947, 4948, 4959, 5043, 5044, 5045, 5047, 5051, 5363, 5364, 5365, 5367, 5371, 5372, 5525, 5541, 5542, 5543, 5544, 5545, 5546, 5547, 5548, 5550, 5556, 5562, 5563, 5564, 5565, 5566, 5567, 5568, 5569, 5570, 5571, 5572, 5991, 5994, 6003, 6005, 6009, 6013, 6057, 6059, 6472, 6475, 6478, 6484, 6610, 6616, 6924, 6930, 7704, 7705, 8694, 8723, 8725, 9234, 9239, 9245, 9249, 9252, 9257, 9288, 9290, 9685, 9728, 9730, 10573, 10576, 10580, 10581, 10587, 10588, 10594, 10622, 10627, 10633, 10637, 10640, 10645, 10678, 10680, 10741, 10742, 10746, 10822, 10823, 10831, 10832, 10936, 10937, 11463, 11468, 11474, 11478, 11481, 11486, 11519, 11521, 13046, 13047, 13656, 13662, 13670, 13685
\Hy@temp@A 646, 647, 1746, 1748, 1759, 1761, 1766, 1767, 1770, 3672, 3674, 7626, 7627, 7628, 7635, 7663, 7664, 7665, 7674
\Hy@temp@B 1747, 1748
\Hy@tempa 2429, 2431, 2433, 2434, 2436, 2438, 2440, 2443, 2446, 2447, 2940, 2941, 2942, 2944, 2945, 2947, 2948, 2950, 2954, 2958, 2969, 2971, 2973, 2974, 2976, 2980, 4453, 4454, 4465, 4469, 4638, 4642, 4705, 4708, 4717, 4719, 5350, 5351, 6040, 6042, 6080, 6082, 6221, 6223, 6694, 6696, 6697, 6700, 6701, 6702, 7002, 7007, 7012, 7427, 7428, 7446, 7447, 7453, 7769, 7770, 7821, 7822, 8982, 8983, 9804, 9952, 9953, 11352, 11353, 11631, 11632, 13388, 13389, 13412, 13414, 13433, 13434, 13442, 13466, 13468, 13469, 13471, 13472, 13853, 13878, 13883, 13886, 13889
\Hy@tempb 6041, 6042, 6081, 6082, 13413, 13414, 13442
\Hy@tempcolor . . . 10453, 10455, 10468, 10543, 10545, 10557
\Hy@TempPageAnchor . . . 7378, 7385, 7389, 7405
\Hy@Test@Alph 6374, 6396
\Hy@Test@alph 6365, 6392
\Hy@testname 8430, 8431, 8436, 8438, 8439, 8453, 9506, 9507, 9512, 9514, 9516, 9532, 9971, 9972, 9977, 9981, 10050, 10051, 10056, 10060, 10548, 10549, 10554, 10565
\Hy@texhtfalse 387
\Hy@texhttrue 2772, 4083
\Hy@title 5874, 5878
\Hy@toclevel . . . 7438, 7442, 7455
\Hy@toolbartrue 388
\Hy@true . 2335, 2434, 2436, 2974, 2976
\Hy@typexmlfalse 389
\Hy@undefinedname 8427, 8434, 8436, 9502, 9510, 9512, 9940, 9975, 9977, 10054, 10056, 10539, 10552, 10554
\Hy@unicodefalse . . 390, 713, 723, 2658, 2659, 2667, 3613, 3619, 6474, 7382, 13084
\Hy@unicodetrue 2659, 6155, 6169
\Hy@useHidKeyfalse 3425
\Hy@useHidKeytrue 3429
\Hy@UseMaketitleInfos 5927, 8735, 9196, 9645, 10339, 10571, 11432
\Hy@UseMaketitleString . . 5908, 5928, 5929
\Hy@UseNameKey 2513, 8701, 8702, 8703, 8704, 8705, 8706, 8707, 8708, 8727, 9264, 9265, 9266, 9267, 9268, 9269, 9270, 9271, 9292, 9692, 9693, 9694, 9695, 9696, 9697, 9698, 9699, 9732, 10311, 10312, 10313, 10314, 10315, 10316, 10317, 10318, 10652, 10653, 10654, 10655, 10656, 10657, 10658, 10659, 10682, 11493, 11494, 11495, 11496, 11497, 11498, 11499, 11500, 11523
\Hy@usetitlefalse 391
\Hy@varioref@refstepcounter 6563, 6570
\Hy@varioref@undefined . . . 6554, 6558, 8085
\Hy@VerboseAnchor 4517, 8413, 8950, 8965, 9047, 9059, 9312, 9824, 9840, 9915, 9928, 10404, 10418, 11321, 11335, 11601, 11615
\Hy@verbosefalse 392
\Hy@VerboseGlobalTemp . . 4493, 4494, 4495, 4496, 4500
\Hy@VerboseLinkInfo 4500, 4501, 4504, 4511
\Hy@VerboseLinkStart 4489, 8476, 8486, 8980, 9032, 9068, 9080, 9504, 9780, 9803, 9942, 10043, 10436, 10541, 11350, 11406, 11629, 11684
\Hy@VerboseLinkStop 4505, 8461
\Hy@vt@PutCatalog . 6127, 6129
\Hy@VTeXversion . . . 6107, 6119, 10003, 10122, 10258, 13538
\Hy@WarnHTMLFieldOption 5393, 5426, 5429, 5558
\Hy@Warning 243, 432, 1686, 2451, 2466, 2491, 2571, 2686, 2691, 3294, 3346, 3416, 3469, 3648, 3695,

3703, 3814, 4314, 4561, 4604, 4720, 4842, 5000, 5355, 5394, 6165, 6180, 7419, 8066, 8115, 8432, 9345, 9349, 9508, 9973, 10052, 10550, 10859, 10868, 13397, 13415
\Hy@WarningNoLine . 244, 2530, 2598, 2712, 3397, 3449, 3564, 3664, 3916, 3963, 4091, 4100, 4115, 4130, 4139, 5855, 5957, 6121, 6235, 6459, 7429, 7584, 10708
\Hy@WarningPageBorderColor 3446, 3448, 3450
\Hy@WarningPageColor . . . 3394, 3396, 3398
\Hy@WarnOptionDisabled . 2463, 2465
\Hy@WarnOptionValue . . . 2444, 2450, 2961, 2983
\Hy@windowuitrue 393
\Hy@writebookmark . 2340, 7439, 7789, 7797, 7807, 7840, 7848, 7858, 13374, 13516
\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 426, 430
\HyCal@scan 417, 421, 445
\HyColor@FieldBColor 5506, 5509
\HyColor@FieldColor 5512
\HyColor@HyperrefBorderColor 3436
\HyColor@HyperrefColor . . 3382
\HyColor@UseColor . . 4336, 8374, 8385, 9466, 9477
\HyField@@AddToFields . 12326, 12330
\HyField@@PDFChoices . . 5238, 5239, 5254
\HyField@@SetFlag . . 4933, 4935
\HyField@@UseFlag . . 4923, 4925
\HyField@AddToFields . . 12296, 12325, 12411, 12503, 12516, 12542, 12566, 12589, 12610
\HyField@AdvanceAnnotCount . 12708, 12737, 12831, 12861, 12889, 12917, 12945, 12971
\HyField@afields . . 12293, 12315, 12316, 12318, 12352
\HyField@AfterAuxOpen . 12306, 12313, 12331
\HyField@AnnotCount . . . 12706, 12709, 12712
\HyField@AuxAddToFields 12305, 12310, 12314, 12334
\HyField@FlagsAnnot 5093, 5112, 5126, 5139, 5155, 5187
\HyField@FlagsCheckBox . 5125, 12108, 12603, 12966
\HyField@FlagsChoice 5186, 11991, 12466, 12801
\HyField@FlagsPushButton 5111, 12047, 12066, 12090, 12534, 12554, 12583, 12887, 12911, 12941
\HyField@FlagsRadioButton 5138, 11987, 12462, 12797
\HyField@FlagsSubmit . . . 5059, 12067, 12555, 12912
\HyField@FlagsText 5154, 11930, 12404, 12731
\HyField@NewBitsetFlag . . 4891, 4894, 4902
\HyField@NewFlag . . 4889, 4965, 4966, 4967, 4968, 4969, 4970, 4971, 4972, 4973, 4974, 4975, 4976, 4977, 4978, 4979, 4980, 4981, 4982, 4983, 4984, 4989, 4990, 4991, 4992, 4993, 4994, 4995, 4996, 4997, 5030, 5032, 5033, 5035, 5036, 5038, 5039, 5040, 5041
\HyField@NewFlagOnly . . . 4893, 5031, 5034, 5037
\HyField@NewOption 4890, 4896
\HyField@PDFAFlagWarning . . . 4999, 5007, 5011, 5015, 5019, 5023, 5027
\HyField@PDFChoices 5211, 12026, 12510, 12855
\HyField@PrintFlags . 4940, 5086, 5104, 5118, 5131, 5147, 5179, 5204
\HyField@SetFlag . . . 4932, 5072, 5078, 5083, 5117, 5145
\HyField@SetKeys . . 5315, 11927, 11958, 11961, 11980, 12035, 12063, 12080, 12105, 12400, 12432, 12435, 12454, 12521, 12551, 12573, 12599, 12727, 12767, 12770, 12789, 12873, 12908, 12931, 12962
\HyField@TheAnnotCount 12711, 12741, 12746, 12836, 12848, 12863, 12868, 12894, 12900, 12919, 12924, 12947, 12952, 12975, 12980
\HyField@UseFlag . . . 4922, 5063, 5064, 5065, 5066, 5067, 5068, 5069, 5070, 5073, 5074, 5075, 5076, 5079, 5080, 5081, 5084, 5095, 5096, 5097, 5098, 5099, 5100, 5101, 5102, 5103, 5114, 5115, 5116, 5128, 5129, 5130, 5141, 5142, 5143, 5144, 5146, 5157, 5158, 5159, 5160, 5161, 5162, 5163, 5164, 5175, 5178, 5189, 5190, 5191, 5192, 5194, 5196, 5197, 5200, 5203
\HyInd@@@wrindex . . 7622, 7625, 7656, 7662
\HyInd@@hyperpage . 7702, 7712
\HyInd@@wrindex . . . 7617, 7618
\HyInd@EncapChar . . 2991, 3926, 7612
\HyInd@hyperpage . . . 7699, 7701, 7708
\HyInd@org@wrindex . 7616, 7620, 7630, 7636, 7638, 7641
\HyInd@pagelink 7717, 7723, 7725, 7728
\HyInd@ParenLeft . . . 7599, 7627, 7664
\HyInd@ParenRight . . 7600, 7628, 7635, 7665, 7674

\HyInd@removespaces 7731, 7734, 7744
\HyInfo@AddonHandler . . . 3690, 3693
\HyInfo@AddonList . . 3717, 3718, 3752, 3759
\HyInfo@Addons 3738, 3754, 8759, 9670, 10603, 10607
\HyInfo@AddonUnsupportedtrue . . . 9194, 10337, 11430
\HyInfo@do 3692, 3719, 3742
\HyInfo@GenerateAddons . 3736, 8736, 9646, 10572
\HyInfo@Key . . 3700, 3701, 3709, 3714, 3719, 3722, 3729, 3743, 3747
\HyInfo@KeyEscaped . 3699, 3700
\HyInfo@trapped@false 3640, 3659
\HyInfo@trapped@true 3637, 3658
\HyInfo@trapped@unknown 3643, 3660
\HyInfo@TrappedUnsupported 3661, 3665, 9197, 10340, 11433
\HyInfo@Value 3713, 3715
\HyLang@addto 3195, 3211, 3229, 3262, 3270
\HyLang@afrikaans 2993
\HyLang@DeclareLang 3209, 3238, 3239, 3240, 3241, 3242, 3243, 3244, 3245, 3246, 3247, 3248, 3249, 3250, 3251, 3252, 3253, 3254, 3255, 3256, 3257, 3258, 3259, 3260
\HyLang@english 3011
\HyLang@french 3029
\HyLang@german 3047
\HyLang@italian 3065
\HyLang@magyar 3083
\HyLang@portuges 3101
\HyLang@russian 3119
\HyLang@spanish 3159
\HyLang@vietnamese . 3177, 3262, 3270
\HyLinguex@OrgB 811, 815
\HyLinguex@OrgC 812, 816
\HyLinguex@OrgD 813, 817
\HyLinguex@Restore . . 814, 827, 831, 839, 2640
\HyOpt@CheckDvi . . 2760, 2796, 2801, 2806, 2829, 2834, 2839, 2891, 2898, 2903, 2908, 2913
\HyOpt@DriverFallback . . . 2917, 2920, 2921, 2925, 4175, 4180
\HyOpt@DriverType . 4148, 4150, 4177, 4187, 4189, 4205
\HyOrg@addtoreset . . 7542, 7544, 7571
\HyOrg@appendix . . . 6357, 6363
\HyOrg@author . 5871, 5884, 5888
\HyOrg@float@makebox . . . 7068, 7070
\HyOrg@hyperpage . . 7602, 7604, 7605
\HyOrg@languageshorthands 883, 898, 909, 919
\HyOrg@make@df@tag@@ . 7527
\HyOrg@make@df@tag@@@ 7528
\HyOrg@maketitle . . . 6938, 6945, 6950
\HyOrg@subequations 6711, 6718
\HyOrg@title . . . 5870, 5875, 5879
\HyOrg@url 4617
\HyPat@NonNegativeReal . 3462, 3463, 3464, 3465, 3795, 3805, 3806, 3807, 3809, 3810, 3811
\HyPat@ObjRef 4601, 4602, 4615, 8258, 9305, 10399
\hyper@@anchor 3947, 4627, 4629, 4660, 4662, 4695, 4697, 4839, 5742, 5758, 5775, 6811, 6816, 6826, 6831, 6886, 6889, 6915, 7043, 7046, 7074, 7378, 7385, 7390, 7788, 7796, 7806, 7839, 7847, 7857
\hyper@@link . . 4487, 4545, 4650, 4674, 4676, 4700, 7131, 7277, 7278, 7279, 7327, 7329, 7331, 7958, 7973, 8075
\hyper@@normalise . . 4456, 4460, 4464
\hyper@anchor 4866, 5745, 5760, 5825, 5838, 8464, 8948, 9045, 9368, 9838, 9913, 10402, 11319, 11599
\hyper@anchorend 3950, 5729, 5747, 5762, 5778, 6345, 6524, 6599, 6640, 6659, 6683, 6772, 7125, 7150, 7153, 7173, 7306, 7512, 7538, 8471, 8973, 9063, 9375, 9833, 9935, 10424, 11343, 11622, 13370, 13517, 13747, 13772, 13783, 13813, 13865
\hyper@anchorstart 3949, 5729, 5746, 5761, 5777, 6345, 6523, 6599, 6637, 6659, 6683, 6769, 7123, 7148, 7153, 7173, 7306, 7512, 7538, 8467, 8963, 9057, 9371, 9822, 9926, 10416, 11333, 11613, 13370, 13517, 13747, 13772, 13783, 13813, 13865
\hyper@chars 4481, 8499, 8953, 8967, 8987, 9009, 9023, 9037, 9117, 9155, 9789, 9810, 9826, 9843, 9918, 9930, 10020, 10993, 11337, 11357, 11383, 11397, 11411, 11617, 11636, 11659, 11676, 11689
\hyper@currentanchor . . . 10421, 10430, 10447, 10464
\hyper@currentlinktype . . 10448, 10452, 10456
\hyper@hash . . 4433, 4434, 4482, 4762, 4774, 4791, 4794, 5696, 9783
\hyper@image . 4623, 4624, 9035, 10074, 10536, 11409, 11687
\hyper@last 5845, 5850
\hyper@link 3948, 4709, 5743, 5744, 5759, 5770, 5776, 8485, 9031, 9079, 9541, 9779, 10042, 10540, 11405, 11683
\hyper@link@ . . 3955, 4701, 4703, 5741, 5752, 5756, 5767, 5783
\hyper@linkend 3952, 5749, 5764, 5780, 6851, 7117, 7120, 7473, 7477, 7481, 7483, 8484, 8993, 9076, 9540, 9542, 9815, 9993, 10450, 11365, 11642
\hyper@linkfile 3954, 4787, 5751, 5766, 5782, 8531, 8997, 9153, 9544, 9799, 9997, 11014, 11369, 11646
\hyper@linkstart 3951, 5748, 5763, 5779, 6849, 7113, 7120, 7473, 7477, 7481, 7483, 8475, 8979, 9067, 9503, 9542, 9802, 9941, 10435, 11349, 11628
\hyper@linkurl 3953, 4622, 4762, 4769, 4790, 4794, 5750, 5765, 5781, 8496, 8998, 9000, 9033, 9115, 9581, 9787, 9800, 10017, 10075, 10537, 10990, 11370, 11374, 11407, 11647, 11649, 11685
\hyper@livelink 5743, 5770
\hyper@makecurrent . 6341, 6383, 6585, 6636, 6658, 6682, 6746, 6846, 7019, 7061
\hyper@n@rmalise . . . 4448, 4452
\hyper@nat@current 7114
\hyper@natanchorend 7125
\hyper@natanchorstart 7122
\hyper@natlinkbreak 7119
\hyper@natlinkend 7116
\hyper@natlinkstart 7111
\hyper@normalise . . . 3927, 3932, 4425, 4535, 4538, 4619, 4621,

4623, 4644, 5345
\hyper@pageduration . 8796, 8844, 10235, 10252, 10503, 10533
\hyper@pagehidden . . 8820, 8845, 10245, 10253, 10520, 10534
\hyper@pagetransition 8772, 8843, 10124, 10251, 10486, 10532
\hyper@quote . 5698, 8955, 8969, 8984, 8989, 9010, 9024, 9038, 9783, 9793, 9806, 9829, 9847, 11325, 11339, 11354, 11360, 11384, 11398, 11412, 11605, 11618, 11633, 11638, 11661, 11677, 11690
\hyper@readexternallink . . 4711, 4727
\hyper@refstepcounter 6319, 6322, 6330
\hyper@tilde 4442, 4443, 4444, 5697
\hyperbaseurl . . 3400, 3401, 5794
\hypercalcbp 412, 412
\hypercalcbpdef . . 414, 451, 3792, 3802
\hyperdef 4652, 5796
\HyperDestNameFilter 3908, 4521, 8414, 8439, 8955, 8969, 8989, 9033, 9314, 9515, 9783, 9793, 9811, 9829, 9847, 9919, 9931, 9980, 10059, 10856, 10865, 11325, 11339, 11360, 11407, 11605, 11618, 11638, 11685, 13595, 13658, 13674
\HyperFirstAtBeginDocument 5822, 5824, 5846, 5849
\hypergetpageref 6517
\hypergetref 6516
\HyperGlobalCurrentHref . 6402, 6404, 6412, 6413, 6417, 6420, 6424, 6430, 6431, 6435
\hyperimage . . . 4623, 4873, 7594
\hyperindexformat 7601
\hyperlink 4486, 5797, 7740, 7878, 7886, 7901, 7909, 7919, 7927, 7934
\hyperlinkfileprefix . . 3403, 3404, 3405, 11591
\HyperLocalCurrentHref . . 6420, 6422, 6428, 6429, 6430, 6431, 6433
\hyperpage 5803, 7602, 7603, 7605, 7698
\HyperRaiseLinkDefault . . 2342, 2369
\HyperRaiseLinkHook 2341, 2370
\HyperRaiseLinkLength . . . 2368, 2369, 2372
\hyperref . 4632, 4880, 4881, 5799, 8033, 8037, 8047, 8061
\hypersetup 2679, 2719, 3247, 3676, 3928, 5793
\hypertarget 4625, 5798
\HyPL@@@CheckThePage . 6061, 6079
\HyPL@@CheckThePage . . 6037, 6039
\HyPL@Alph 5977
\HyPL@alph 5978
\HyPL@arabic 5974
\HyPL@CheckThePage 5989, 6036
\HyPL@Entry . 6223, 6231, 6239, 6241
\HyPL@EveryPage . . . 5979, 6100
\HyPL@Format 6052, 6053, 6054, 6055, 6056, 6068
\HyPL@found . 6051, 6058, 6062, 6069, 6079, 6081
\HyPL@Labels . 5968, 6091, 6092, 6094, 6096, 6141, 6142, 6234, 6242, 6243
\HyPL@LastNumber . 5972, 6007, 6030
\HyPL@LastPrefix . . . 5973, 6001, 6032
\HyPL@LastType 5971, 5992, 6031
\HyPL@page . . 5982, 5984, 5989, 5997
\HyPL@Prefix . 5997, 5999, 6001, 6015, 6018, 6020, 6032, 6046, 6084
\HyPL@Roman 5975
\HyPL@roman 5976
\HyPL@SetPageLabels 6090, 6149, 6237
\HyPL@StorePageLabel . . . 6015, 6017, 6087, 6139, 6218
\HyPL@thisLabel 5965, 5967, 5981, 5984, 5985
\HyPL@Type . . 5987, 5992, 5996, 6014, 6022, 6031, 6045, 6083
\HyPL@Useless 6088, 6094
\HyPsd@@@autoref . . 1607, 1609, 1612
\HyPsd@@@CJKdigits 1477, 1480, 1488
\HyPsd@@@nameref . . 1589, 1591, 1594
\HyPsd@@@pageref . . 1571, 1573, 1576
\HyPsd@@@ref . . 1555, 1557, 1560
\HyPsd@@@UTFviii@four . . 2209, 2212
\HyPsd@@AppendItalcorr . 1776
\HyPsd@@autoref . . . 1604, 1605
\HyPsd@@autorefname 1625, 1628
\HyPsd@@CJKdigits . 1469, 1471, 1474
\HyPsd@@CJKnumber 1370, 1372, 1375, 1428, 1443, 1456, 1458, 1462
\HyPsd@@ConvertToUnicode 2088
\HyPsd@@GetNextTwoTokens 2086
\HyPsd@@GlyphProcessWarning 1946, 1949
\HyPsd@@GreekNum . 1032, 1041, 1140, 1144, 1148
\HyPsd@@hspace 1525, 1526
\HyPsd@@LetCommand . . 1649, 1670
\HyPsd@@nameref . . . 1586, 1587
\HyPsd@@pageref . . . 1568, 1569
\HyPsd@@ProtectSpacesFi . 1698, 1702, 1720, 1726, 1731
\HyPsd@@ref 1552, 1553
\HyPsd@@RemoveBraces . . 1744
\HyPsd@@RemoveBracesFi 1741, 1744
\HyPsd@@RemoveCmdPrefix 1903, 1906
\HyPsd@@ReplaceFi . 1973, 1979, 1984
\HyPsd@@UTFviii@four . . . 2193, 2198
\HyPsd@add@accent . . 474, 1514
\HyPsd@AfterCountRemove 1789, 1860
\HyPsd@AfterDimenRemove 1795, 1863
\HyPsd@AfterSkipRemove . 1801, 1875
\HyPsd@AMSclassfix . 570, 1535, 1537
\HyPsd@AppendItalcorr . . 1760, 1767, 1776
\HyPsd@autoref 580, 1604
\HyPsd@autorefname . 1616, 1622
\HyPsd@babel@danish 928
\HyPsd@babel@dutch 934
\HyPsd@babel@finnish 940
\HyPsd@babel@frenchb 945
\HyPsd@babel@german 950
\HyPsd@babel@macedonian . 957
\HyPsd@babel@ngerman . . . 963
\HyPsd@babel@portuges . . . 969
\HyPsd@babel@russian 974
\HyPsd@babel@slovene 980
\HyPsd@babel@spanish 985
\HyPsd@babel@swedish 995
\HyPsd@babel@ukrainian . . 1001

\HyPsd@babel@usorbian . . 1007
\HyPsd@BabelPatch 556, 882, 918
\HyPsd@CatcodeWarning . 1805, 1822, 1825, 1828, 1831, 1887
\HyPsd@Char 2090
\HyPsd@CharOctByte 2110, 2112, 2115, 2124, 2129
\HyPsd@CharSurrogate . . . 2104, 2121
\HyPsd@CharTwoByte 2102, 2109
\HyPsd@CheckCatcodes 633, 1782
\HyPsd@CJK@Unicode 1252, 1256
\HyPsd@CJKActiveChars . 1192, 1207
\HyPsd@CJKdigit . . . 1481, 1491
\HyPsd@CJKdigits . . 1254, 1467
\HyPsd@CJKhook 586, 1163, 1174
\HyPsd@CJKhook@bookmarks 1169, 1203
\HyPsd@CJKhook@unicode 1171, 1251
\HyPsd@CJKnumber . 1253, 1367
\HyPsd@CJKnumberFour . 1385, 1389, 1393, 1406, 1410, 1414, 1420
\HyPsd@CJKnumberLarge . 1398, 1405
\HyPsd@CJKnumberThree 1426, 1430, 1436
\HyPsd@CJKnumberTwo . . 1441, 1445, 1451
\HyPsd@ConvertToUnicode . 701, 2036
\HyPsd@DecimalToOctal . . 1184, 1215
\HyPsd@DecimalToOctalFirst 1258, 1294
\HyPsd@DecimalToOctalSecond 1259, 1268, 1331
\HyPsd@DefCommand . 616, 617, 618, 619, 1638
\HyPsd@DisableCommands . 862, 864
\HyPsd@DoConvert . . 2038, 2048
\HyPsd@DoEscape 2062
\HyPsd@doxspace 673, 2009
\HyPsd@empty 658, 660, 664, 665, 667, 675, 682
\HyPsd@End 633, 637, 1699, 1702, 1705, 1708, 1711, 1724, 1734, 1741, 1744, 1782, 1790, 1796, 1802, 1847, 1854, 1860, 1863, 1875
\HyPsd@EndWithElse 1504, 1513
\HyPsd@EscapeTeX 712, 722, 1991
\HyPsd@fi . 1716, 1722, 1726, 1732
\HyPsd@GetNextTwoTokens 2086
\HyPsd@GetOneBye 2081
\HyPsd@GetTwoBytes 2077
\HyPsd@GLYPHERR 638, 1501, 1515, 1522
\HyPsd@GlyphProcess 640, 1934, 1947
\HyPsd@GlyphProcessWarning 1941, 1945
\HyPsd@GobbleFiFi . 1506, 1512
\HyPsd@GreekNum . . 1021, 1024, 1026
\HyPsd@Greeknumeral 1017, 1023
\HyPsd@greeknumeral 1016, 1020
\HyPsd@GreekNumI . 1044, 1070, 1113, 1139
\HyPsd@GreekNumII . 1048, 1092, 1136, 1143
\HyPsd@GreekNumIII 1051, 1115, 1147
\HyPsd@GreekNumIV 1060, 1138
\HyPsd@GreekNumV . 1063, 1142
\HyPsd@GreekNumVI 1065, 1146
\HyPsd@GreekPatch . 553, 1013, 1015
\HyPsd@HighA 1262, 1271
\HyPsd@HighB 1272, 1277
\HyPsd@HighC 1278, 1281
\HyPsd@HighD 1274, 1286
\HyPsd@href 575, 1551
\HyPsd@hspace 571, 1525
\HyPsd@hspacetest . . 1528, 1530, 1533
\HyPsd@ifnextchar 602, 603, 604, 1675
\HyPsd@ignorespaces . . . 584, 873
\HyPsd@InitUnicode 836
\HyPsd@inmathwarn . . 473, 1498
\HyPsd@ITALCORR . . 594, 598, 1522
\HyPsd@langshort@system . . 889, 892
\HyPsd@LanguageShorthands 884, 890, 902
\HyPsd@LetCommand . 620, 621, 1638
\HyPsd@LetUnexpandableSpace . . . 589, 590, 591, 592, 1518, 1521
\HyPsd@LoadStringEnc . . . 2683, 2703, 2705, 2709, 2711, 6160
\HyPsd@LoadUnicode 2632, 2637, 2645, 2648, 2650, 2657, 6154
\HyPsd@nameref 579, 1586
\HyPsd@pageref 578, 1568
\HyPsd@pdfencoding . 702, 2631, 2634, 2666, 2678, 2681, 2682, 2687, 2702, 6156, 6158, 6175, 6178
\HyPsd@pdfencoding@auto . 702, 2672, 2682, 2699, 6158, 6177
\HyPsd@pdfencoding@pdfdoc 2665, 2687, 2700
\HyPsd@pdfencoding@unicode 2669, 2701, 6156, 6174
\HyPsd@PrerenderUnicode 3574, 3590, 3596, 3602, 3608, 3626, 3632, 3712
\HyPsd@protected@testopt . 605, 606, 1679
\HyPsd@ProtectSpaces 626, 1696, 1717, 1766
\HyPsd@ref 577, 1552
\HyPsd@RemoveBraces 628, 1738, 1755, 1763, 1769
\HyPsd@RemoveCmdPrefix 1896, 1902
\HyPsd@RemoveMask 636, 1705, 1711, 1724, 1734
\HyPsd@RemoveSpaceWarning 1870, 1882, 1908
\HyPsd@ReplaceSpaceWarning 1865, 1877, 1921
\HyPsd@Rest . . 1783, 1843, 1851, 1854, 1861, 1866, 1872, 1878, 1884
\HyPsd@RussianPatch . 555, 1156
\HyPsd@SanitizeForOutFile 13434, 13465
\HyPsd@SanitizeOut@BraceLeft . . . 13469, 13475, 13484
\HyPsd@SanitizeOut@BraceRight . . . 13472, 13487, 13496
\HyPsd@SPACEOPTI . 630, 645, 646, 648, 650, 652, 653, 692, 694, 1818, 2020
\HyPsd@spaceopti 694, 1965
\HyPsd@SpanishPatch . 554, 1150
\HyPsd@String 627, 629, 632, 634, 639, 641, 1749, 1750, 1760, 1812, 1813, 1817, 1818, 1833, 1834, 1864, 1876, 1935, 1936
\HyPsd@StringSubst . . 642, 644, 650, 656, 659, 662, 665, 684, 687, 689, 1988
\HyPsd@Subst . 638, 647, 651, 657, 663, 667, 671, 676, 677, 678, 679, 680, 681, 685, 688, 1972, 1989, 2004, 2005, 2006
\HyPsd@temp 705, 707, 708, 710, 711, 718, 720, 721, 2664, 2665, 2666, 2669, 2672, 2678,

2690, 2694, 6173, 6174, 6175, 6177, 6178, 6183
\HyPsd@ToBigChar 762, 763, 772
\HyPsd@ToBigChars . . . 715, 754
\HyPsd@tocsection . . 1538, 1539, 1540, 1541, 1542, 1543, 1544, 1546
\HyPsd@UnescapedString . . 707, 756, 757, 763
\HyPsd@UnexpandableSpace . . . 1521, 1707, 1731, 1866, 1878
\HyPsd@unichar 2151, 2218, 2224, 2229
\HyPsd@unichar@first@byte 2237, 2257
\HyPsd@unichar@octtwo . . 2259, 2267, 2273
\HyPsd@unichar@second@byte 2245, 2265
\HyPsd@UnicodeReplacementCharacter 2221, 2256
\HyPsd@utf@viii@undeferr . . 470, 2279
\HyPsd@UTFviii . 464, 2139, 2144
\HyPsd@UTFviii@@three . . 2174, 2183
\HyPsd@UTFviii@@two 2159, 2165
\HyPsd@UTFviii@ccxliv@def 2149, 2155
\HyPsd@UTFviii@ccxliv@undef 2148, 2154
\HyPsd@UTFviii@four 2147, 2192
\HyPsd@UTFviii@three 2146, 2173
\HyPsd@UTFviii@two 2145, 2158
\HyPsd@Warning 1683, 1888, 1909, 1922, 1951, 1957
\HyPsd@XeTeXBigCharsfalse 729, 743, 748
\HyPsd@XeTeXBigCharstrue 742, 751, 3589, 3595, 3601, 3607, 3625, 3631, 3711, 13087, 13432
\HyPsd@XSPACE 596, 672, 1522
\HyPsd@xspace . . . 670, 672, 673
\HyRef@@StarSetRef . 8001, 8006
\HyRef@autopageref . 8058, 8060
\HyRef@autopagerefname . 8057, 8061, 8063
\HyRef@autoref 8075, 8077
\HyRef@autosetref . . . 8080, 8083
\HyRef@CaseStar 8144, 8150
\HyRef@currentHtag . 8096, 8114, 8117, 8123, 8130, 8136, 8151
\HyRef@MakeUppercaseFirstOfFive 8024, 8026
\HyRef@name . 8112, 8113, 8118, 8125, 8143, 8144, 8145, 8147
\HyRef@Ref 8030, 8032
\HyRef@ShowKeysInit 8153, 8166, 8170
\HyRef@ShowKeysRef 8084, 8152
\HyRef@StarSetRef . . 7995, 8013, 8016, 8019, 8024
\HyRef@StripStar . . . 8111, 8142
\HyRef@testreftype . . 8089, 8108
\HyRef@thisref 8086, 8089
\HyTmp@found . 5265, 5275, 5278
\HyTmp@key 5259, 5260
\HyTmp@optitem . . . 5215, 5231, 5258, 5263, 5269, 5290, 5301
\HyTmp@optlist 5214, 5229, 5230, 5261, 5262, 5267, 5268, 5276, 5277, 5297, 5299, 5306, 5309
\HyXeTeX@CheckUnicode . 3560, 3571, 3588, 3594, 3600, 3606, 3624, 3630, 3710, 6188

I

\i 14049, 14212, 14215, 14218, 14221, 14418, 14580, 14583, 14586, 14589, 14706, 14711, 14716, 14721, 14725, 14892, 14948
\if 1547, 2329, 6005, 6013, 6700, 6701, 10198, 10201, 10205, 10209, 10213, 10215, 10217, 13135
\if@eqnstar 6642, 6650
\if@filesw 2297, 4688, 5815, 5859, 6219, 6229, 6466, 7160, 7175, 7191, 7203, 7233, 7256, 7283, 7288, 7307, 7650, 12308, 12332, 13435, 13622, 13701
\if@hyper@item 6304, 6317
\if@inlabel 6758
\if@Localurl 9770, 9816
\if@mid@expandable 569
\if@minipage 7031, 7102
\if@nmbrlist 6291
\if@nobreak 6777
\if@skiphyperref 6305, 6315
\if@twocolumn 13867
\if@twoside 13856
\ifcase 1077, 1099, 1122, 1216, 1265, 1287, 1290, 1296, 1332, 1376, 1492, 2187, 2669, 3343, 5061, 5166, 5295, 5372, 6366, 6375, 7469, 7627, 7664, 7893, 8085, 10271, 10754, 13182, 13209, 13274, 13309, 13344, 13542
\ifcat 1784, 1811, 1816, 1821, 1824, 1827, 1830, 4850, 4852
\ifdim 1533, 1864, 1868, 1876, 1880, 2384, 2403, 3913, 4230, 8862, 8866, 8871, 8875, 8882, 8885, 8889, 8892, 9750, 9751, 9756, 9757, 9889, 9892, 9896, 9899, 10774, 10785, 11144, 11145, 11150, 11151, 11954, 11992, 11993, 12428, 12467, 12468, 12763, 12802, 12803
\ifetex@unexpanded 1690
\iffalse 749
\IfFileExists 5854, 11716
\ifFld@checked 5318, 12270, 13169
\ifFld@comb 5165
\ifFld@combo . 5193, 5198, 11967, 11996, 12441, 12471, 12776, 12806
\ifFld@disabled 5319, 12271
\ifFld@edit 5199
\ifFld@fileselect 5168
\ifFld@hidden 11931, 11981, 12048, 12068, 12091, 12109, 12169, 12181, 12191, 12274, 12405, 12456, 12535, 12556, 12584, 12604, 12732, 12791, 12888, 12913, 12942, 12967
\ifFld@multiline 5166, 11920, 12176, 12393, 12720
\ifFld@multiselect 5237
\ifFld@password . . . 5167, 12157
\ifFld@popdown . . . 4985, 11968, 12442, 12777
\ifFld@radio . 11964, 11986, 12206, 12438, 12461, 12773, 12796
\ifFld@readonly . . . 12178, 12188, 12272
\ifForm@html 5339
\ifhmode . 2345, 2349, 2402, 2411, 4527, 6725, 6843, 6852, 6989, 6991, 8409, 8417, 11701
\ifHy@activeanchor . . . 314, 4863
\ifHy@backref . . 315, 4042, 4408, 5676, 7284, 7320
\ifHy@bookmarks 316, 4254
\ifHy@bookmarksnumbered . 317, 7781, 7832, 13421
\ifHy@bookmarksopen . 318, 4244
\ifHy@breaklinks 319, 2597, 10437, 10472, 10760, 10779
\ifHy@centerwindow 320, 8699, 9262, 9690, 10309, 10650, 11491
\ifHy@CJKbookmarks . 321, 1168
\ifHy@colorlinks . 322, 4325, 5681, 11306
\ifHy@displaydoctitle 357, 8700, 9263, 9691, 10310, 10651, 11492
\ifHy@draft 323, 3946

\ifHy@DviMode . 2741, 2761, 2919
\ifHy@DvipdfmxOutlineOpen 4228, 13676
\ifHy@escapeform . . . 326, 13042, 13072
\ifHy@figures 327, 4022, 5661, 7591
\ifHy@fitwindow 328, 8698, 9261, 9689, 10308, 10649, 11490
\ifHy@frenchlinks 329, 4341
\ifHy@href@ismap . . . 4583, 8520, 9598, 9956, 10024, 11005
\ifHy@hyperfootnotes . 330, 6785
\ifHy@hyperindex 331, 4032, 5671, 7598
\ifHy@hypertexnames 332, 6389, 6470, 7376, 7786, 7837
\ifHy@implicit . . 333, 4054, 13730
\ifHy@linktocpage 334, 2554, 2564
\ifHy@localanchorname 335, 6421, 6432
\ifHy@menubar . 336, 8696, 9259, 9687, 10306, 10647, 11488
\ifHy@naturalnames . . 337, 6400, 7787, 7838
\ifHy@nesting . . 338, 4027, 4626, 4659, 4694, 4848, 5666, 6810, 6825, 6885, 7042
\ifHy@newwindow . . . 340, 3862, 10003
\ifHy@newwindowset . . 339, 3860
\ifHy@next 926, 4019, 7615
\ifHy@ocgcolorlinks . . 341, 3293, 4311, 4321, 5686, 8277, 8295, 8370, 8378, 9379, 9462, 9470
\ifHy@pageanchor 342, 6457, 6469, 6484, 7375
\ifHy@pagelabels 343, 5953, 6139, 6217
\ifHy@pdfa 358, 3970, 4313, 4750, 4998, 5529, 5578, 5691, 8443, 8515, 8553, 8590, 8918, 9524, 9556, 9589, 9617, 9962, 9983, 10006, 10030, 10062, 10094, 10110, 10880, 11891, 12038, 12084, 12360, 12525, 12577, 12692, 12877, 12935, 13137, 13172, 13334
\ifHy@pdfmarkerror 10697, 10705
\ifHy@pdfpagehidden . 344, 3428, 8824, 10247, 10526
\ifHy@pdfstring . . 345, 847, 6309
\ifHy@plainpages 346, 4037, 6471, 7377
\ifHy@psize 347
\ifHy@raiselinks . 348, 9002, 9082, 9119, 9157, 11376, 11651
\ifHy@seminarslides 349
\ifHy@setpagesize 350, 8850, 9747, 9886, 11141
\ifHy@setpdfversion . . 2720, 8282
\ifHy@texht 351, 4353, 4401, 5385, 5417, 5549, 5573, 5729, 7941
\ifHy@toolbar . . 352, 8695, 9258, 9686, 10305, 10646, 11487
\ifHy@typexml . . 313, 4047, 4328, 4372, 5816, 13626, 13705
\ifHy@unicode . 353, 460, 493, 496, 643, 655, 683, 691, 700, 1027, 1187, 1890, 1911, 1924, 1953, 1959, 2219, 2630, 2680, 3562, 6163, 13083
\ifHy@useHidKey 3424, 8821, 10246, 10521
\ifHy@usetitle 354, 5869
\ifHy@verbose . . 355, 4490, 4506, 4518, 4941, 7444
\ifHy@windowui . 356, 8697, 9260, 9688, 10307, 10648, 11489
\ifHyInfo@AddonUnsupported 3688, 3702, 3737
\ifHyPsd@XeTeXBigChars . . 747, 749, 752, 755
\ifmeasuring@ 6329, 6342
\ifnum 272, 779, 782, 785, 788, 791, 903, 1028, 1031, 1042, 1043, 1047, 1055, 1059, 1062, 1072, 1094, 1117, 1257, 1368, 1384, 1388, 1408, 1421, 1424, 1437, 1439, 1452, 1454, 1460, 2098, 2101, 2177, 2220, 2223, 2235, 2350, 2846, 2849, 2875, 3344, 3345, 4238, 4245, 4560, 5220, 5291, 5302, 5988, 6007, 6023, 6119, 7895, 7933, 8278, 8283, 8615, 8622, 8628, 8636, 9491, 9496, 10003, 10122, 10258, 10266, 10268, 10269, 10279, 10282, 10368, 10370, 10483, 11168, 12344, 12502, 12830, 12835, 12846, 13082, 13152, 13182, 13187, 13209, 13215, 13243, 13274, 13280, 13299, 13309, 13314, 13344, 13349, 13378, 13394, 13538, 13608, 13611, 13637, 13640, 13678, 13786, 13804, 13819
\ifodd 2201, 2206, 7399
\ifpdf 2743, 2786, 4088, 4152
\ifpdfstringunicode 465, 468
\ifportrait 8861
\ifthenelse 7310
\iftrue 752, 1697, 1719, 1983, 13788
\ifvmode 2361, 2383, 2392
\ifvoid 6592, 6596, 6762
\ifvtex 2749, 2845, 2874
\ifvtexdvi 2750
\ifvtexhtml 4127, 4158
\ifvtexpdf 4169
\ifvtexps 4172
\ifxetex 706, 739, 2746, 2819, 3561, 4112, 4155, 4229
\ignorespaces . . . 584, 6552, 6720, 6921, 7027, 7038, 7041, 7098, 7106, 7168, 7183, 7199, 7208, 7318, 7766, 7818
\IJ 14045, 14727
\ij 14254, 14729
\immediate 5817, 5818, 5819, 5821, 5861, 6132, 6222, 6230, 6481, 6509, 7163, 7178, 7194, 7204, 7234, 7257, 7283, 7313, 8296, 8311, 8326, 10373, 11165, 12287, 12309, 12350, 13528, 13594, 13625, 13627, 13704, 13706
\incr@eqnum 6611, 6624
\index 573
\indexentry 7653, 7668, 7676, 7680, 7685
\input 830, 838, 2639, 3265, 3273, 3280, 4206, 11083, 11166, 11257, 11426
\InputIfFileExists . . 3930, 13618, 13651, 13696, 13698
\inputlineno 4497, 4855
\insert 6900
\IntCalcAdd 2127
\IntCalcDec 1279
\IntCalcDiv 1273, 1282, 1287, 1390, 1399, 1411, 1428, 1443, 1458, 2111, 2117, 2123
\intcalcDiv . 1263, 2118, 2125, 2128
\IntCalcMod . . 1275, 1284, 1290, 1394, 1400, 1415, 1431, 1446, 1460, 1462, 2113, 2118, 2119, 2125, 2128, 2130
\intcalcMod 1265
\intcalcSub 2105
\interfootnotelinepenalty . . 6903
\interlinepenalty 6903
\item 6286, 6289, 7190, 7202, 7305
\Itemautorefname 8176
\itemautorefname . . . 2996, 3014, 3032, 3050, 3068, 3086, 3104, 3133, 3134, 3162, 3180, 8176, 8177, 8180
\itemindent 6763
\itshape 526

J

\j 14734, 14919, 14983

\jarr 16340
\jeem 16312
\jeh 16348
\jobname 5818, 5854, 5861, 11716, 13527, 13618, 13625, 13651, 13696, 13698, 13704

K

\k . . . 13929, 14271, 14273, 14278, 14280, 14323, 14341, 14360, 14367, 14631, 14633, 14671, 14673, 14718, 14720, 14721, 14856, 14858, 14915, 14917, 15514, 15553, 15556
\kaf 16330
\kasra 16343
\keepPDF@SetupDoc 11310, 11317
\kern 1793, 1865, 1870, 1882, 6763, 7394, 7395, 7396, 7398, 7399, 7404, 13745
\kernel@ifnextchar 603
\kha 16314
\KV@href@pdfnewwindow . 4581
\KV@href@pdfnewwindow@default 4582
\KV@Hyp@draft 2528
\KV@Hyp@nolinks 2528
\KV@Hyp@pdfnewwindow . 4581
\KV@Hyp@pdfnewwindow@default 4582
\kv@key . . 3696, 3699, 3706, 5218, 5221, 5223, 5227, 5231
\kv@parse 5217
\kv@parse@normalized 3721, 3728
\kv@processor@default 3724, 3731
\kv@set@family@handler . . 3689
\kv@value . 3694, 5219, 5226, 5227
\kvsetkeys 2719, 2773, 2893, 3568, 3669, 3971, 4182, 4200, 4312, 5316, 8279, 10704, 11908, 12142, 12155, 12204, 12247, 12268, 12342, 12677

L

\L 14038, 14758
\l 14051, 14760
\l@slide . . 7766, 7876, 7881, 7885, 7892
\l@subslide . 7818, 7881, 7888, 7932
\label 572, 7417
\label@@hyperref 4666, 4668
\label@hyperdef 4652, 4680
\label@hyperref . 4633, 4665, 4877
\labelsep 7317
\labelwidth 7316
\lam 16331
\language@group 551
\languageshorthands 883, 884, 919
\LARGE 533
\Large 534
\large . 537, 7898, 7906, 7916, 7924
\lastbox 6761
\lastpage@putlabel 6452
\lastskip . 2384, 2388, 2395, 2403, 2407, 2414
\LaTeX . . . 490, 492, 11722, 11723
\LaTeXe 491, 11723
\LayoutCheckField . 5617, 12110, 12605, 12972
\LayoutChoiceField . 5614, 11985, 12460, 12795
\LayoutPushButtonField . . 5620, 12042, 12049, 12529, 12536, 12881, 12890
\LayoutTextField . . . 5611, 11933, 12407, 12738
\lccode 283, 288, 778, 1197, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2142, 5489, 7612, 7613, 13452, 13453, 13454, 13455, 13456, 13457, 13458, 13459, 13460, 13461, 13462
\ldots 485
\leavevmode 581, 2339, 3956, 3973, 4013, 4755, 5787, 6842, 6988, 7224, 8036, 8044, 8429, 8500, 8538, 8575, 9001, 9081, 9118, 9156, 9545, 9582, 9781, 9790, 9844, 9998, 10021, 10049, 10080, 10439, 10758, 10994, 11021, 11052, 11375, 11650, 12043, 12050, 12083, 12490, 12511, 12530, 12537, 12557, 12576, 12828, 12859, 12882, 12891, 12915, 12934, 13743
\LetLtxMacro . 5732, 5736, 5804, 5808
\limits 4473
\listofslides 7867
\listslidename . 7866, 7869, 7871, 7873
\literalps@out 2337, 10362, 10367, 10419, 10425, 10445, 10451, 10715, 10726, 10755, 10756, 10775, 10777, 10786, 10788, 11081, 11164, 11227, 11424
\lower . . . 9008, 9088, 9125, 9163, 10777, 11382, 11657
\lowercase . . . 284, 289, 798, 1198, 2002, 2143, 2430, 2940, 2970, 3636, 3672, 4890, 4891, 4894, 4899, 4923, 4933, 4987, 5043, 5363, 5412, 5415, 5490, 7614, 10482, 13463
\lslide@flag 7893, 7896, 7914, 7933, 7937
\LT@array 6577
\LT@foot 6592, 6596
\LT@p@ftn . 6858, 6861, 6865, 6878
\LT@p@ftntext 6856, 6863
\LT@start 6594, 6604
\ltx@backslashchar . 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 271
\ltx@empty 2742, 2917, 2925, 3421, 4175, 4185, 10742
\ltx@firstofone 2762, 13480, 13492
\ltx@firstoftwo . . . 274, 4387, 4811
\ltx@gobble . . . 251, 2768, 13478, 13490
\ltx@ifpackagelater 281
\ltx@ifpackageloaded 1164
\ltx@IfUndefined . . 254, 550, 593, 668, 703, 821, 822, 823, 927, 933, 939, 944, 949, 956, 962, 968, 973, 979, 984, 994, 1000, 1006, 1012, 1151, 1157, 1534, 1629, 1630, 2291, 2324, 4016, 4017, 4018, 4386, 4387, 4585, 5909, 6270, 6359, 6672, 7126, 8064, 8065, 8109, 8110, 8112, 8113, 8477, 8487, 8881, 9888, 9945, 10044, 10415, 10452, 10542, 10719, 13777, 13787
\ltx@ifundefined 6770
\ltx@leftbracechar 269, 285
\ltx@LocalAppendToMacro . 297, 300
\ltx@one 272
\ltx@rightbracechar 270, 290
\ltx@secondoftwo 277, 4386, 4387, 4389, 4809
\ltx@zero . 1996, 1997, 1998, 1999, 2000, 2001
\luatexrevision 8659
\luatexversion 8651, 8656

M

\m@ne 4509, 4568, 4905, 6497, 6692, 9500, 13698, 13786, 13801
\make@df@tag@@ 7527, 7529
\make@df@tag@@@ . . . 7528, 7530
\make@stripped@name 6334, 6633, 6655, 6679, 6690
\makeatletter 3, 861, 5853
\MakeButtonField . . 5627, 12044, 12052, 12070, 12088, 12093, 12531, 12540, 12564, 12581, 12587, 12883, 12886, 12914, 12939, 12943

\MakeCheckField . . . 5624, 12112, 12608, 12969
\MakeChoiceField . . 5626, 12028, 12514, 12857
\MakeFieldObject . 12286, 12369, 12379, 12382
\MakeLowercase 548
\MakeLowercaseUnsupportedInPdfStrings 548
\MakeRadioField . . . 5623, 12016, 12501, 12822
\makeslideheading 7776
\makeslidesubheading 7828
\maketag@@@ 7516
\MakeTextField 5625, 11935, 12410, 12735
\maketitle 6938, 6939
\MakeUppercase 547, 7871, 7873, 8027
\MakeUppercaseUnsupportedInPdfStrings 547
\MathBSuppress 9791, 9795
\mathdisplay 6614, 6623
\mathdisplay@push . . 6612, 6621
\mathversion 542
\maxdimen 3365, 12291
\MaybeStopEarly 400, 2776, 2851, 4058, 4160, 6250
\mbox 582, 7237, 7260, 8380, 9472
\mddefault 6732
\mdseries 525
\meaning 62, 153, 159, 2300, 5893, 6413, 6697, 13662, 13670, 13685
\measuring@false 6329
\mediaheight . . 9882, 9884, 9890, 9897
\mediawidth 9893, 9900
\meem 16332
\message 7894
\MessageBreak 433, 1896, 1917, 1930, 1953, 1958, 1960, 2452, 2453, 2467, 2489, 2492, 2494, 2572, 2573, 2599, 2600, 2652, 2653, 2654, 2692, 2693, 2713, 2724, 2765, 2790, 2823, 2861, 2868, 2879, 2885, 2962, 3295, 3417, 3418, 3470, 3471, 3565, 3649, 3704, 3705, 3815, 3816, 3918, 4092, 4093, 4101, 4102, 4116, 4117, 4131, 4132, 4140, 4141, 4315, 4562, 4563, 4587, 4588, 4604, 4605, 4944, 4949, 4958, 5001, 5047, 5171, 5284, 5356, 5367, 5395, 5958, 6166, 6181, 6182, 6460, 7421, 7451, 7452, 7453, 7454, 7455, 7586, 8433, 9509, 9974, 10053, 10551, 12299, 12301, 13399, 13417, 13530
\MF 500, 11725
\MP 501, 11726
\multiply 8655, 10227, 10262

N

\n 789
\name@of@eq 6302, 6332
\name@of@slide 6303, 6313
\nameref 579, 4391, 4395
\nasb 16338
\netscape 9044
\new@ifnextchar 604
\new@pdflink . . . 8408, 8465, 8468
\new@refstepcounter . 6606, 6638
\newblock 7321
\newcommand 4, 9, 42, 2338, 5791, 5795, 6265, 6268, 6271, 6272, 6273, 6275, 6276, 6277, 6278, 6280, 6281, 6282, 6283, 6284, 6285, 6294, 6295, 6296, 6297, 6298, 6299, 6688, 7554, 7753, 7758, 7759, 13500, 13503, 13508
\newcount 401, 402, 2343, 4553, 5322, 5969, 12024, 12508, 12706, 12853, 13535
\newcounter . . . 6287, 6786, 9378, 13450
\newdimen 398, 5323, 5324
\newif . . . 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 747, 926, 2720, 2741, 3424, 3688, 4228, 4583, 4897, 4985, 5318, 5319, 5339, 6304, 6305, 6329, 6642, 9770, 10697
\newlabel . 2303, 4690, 5831, 5832, 5840, 5866, 6482, 6510
\newlabelxx 5833, 5834
\newlength 13736
\newline 488, 5914
\newname 6335, 6634, 6656, 6680, 6693, 6702
\newsavebox 9308, 10734
\newtie 13931, 13932, 14315, 14345, 14364, 14380
\newtoks . 90, 5386, 10569, 10797, 10798
\newwrite . . . 5860, 13623, 13702
\next . . . 7311, 7312, 7313, 10190, 10192, 10194
\nfss@text . 7948, 7968, 7985, 8102
\NG 14776
\ng 14778
\noboundary 16353
\nobreak . 2385, 2393, 2404, 2412, 6843, 6989
\nobreakspace . . 592, 8039, 8068, 8071
\noexpand 22, 93, 95, 108, 116, 169, 171, 172, 173, 176, 206, 767, 871, 1211, 1644, 1661, 1784, 2156, 2391, 2392, 2393, 2396, 2410, 2411, 2412, 2415, 3223, 3225, 3227, 3228, 3229, 3231, 3247, 3435, 3436, 3438, 3754, 4182, 4467, 4640, 4720, 4850, 4852, 4953, 6061, 6062, 6071, 6073, 6076, 6195, 6494, 6495, 6497, 6522, 6523, 6524, 6525, 6526, 6534, 6535, 6536, 6696, 6859, 6867, 6868, 6869, 6870, 6871, 6873, 6998, 7087, 7162, 7177, 7193, 7546, 7548, 8001, 8002, 8118, 8119, 8124, 8126, 8131, 8132, 8137, 8138, 8658, 9246, 10634, 10701, 11224, 11475, 11960, 11961, 11962, 11963, 12434, 12435, 12436, 12437, 12769, 12770, 12771, 12772, 13044
\nofrenchguillemets 611, 613
\NoHy@OrgPageRef . . 5736, 5738, 5808, 5810
\NoHy@OrgRef 5732, 5734, 5804, 5806
\NoHyper 5740
\nohyperpage . . 5786, 7697, 7699, 7701
\nolinkurl 4619
\nolinkurl@ 4619, 4620
\NomFancyVerbLineautorefname 3151
\Nomfootnoteautorefname . 3131
\Nomtheoremautorefname . 3155
\nonumber 6667, 6670
\normalfont 520, 6728
\normalsize 538, 7034, 7105
\NR@gettitle 7024
\null 7302, 7310, 7990, 8098
\number . 1045, 1049, 1052, 1060, 1063, 1065, 1370, 1372, 1399, 1400, 2102, 2160, 2161, 2162, 2163, 2167, 2168, 2169, 2170, 2171, 2175, 2176, 2177, 2178,

2179, 2180, 2181, 2185, 2186, 2187, 2188, 2189, 2190, 2193, 2195, 2199, 2200, 2202, 2204, 2206, 2209, 2213, 2214, 2215, 2216, 2225, 2226, 2230, 2231, 2238, 2239, 2243, 2246, 2247, 2248, 2258, 2260, 2261, 2266, 2268, 2269, 2274, 2275, 3774, 4230, 4246, 4911, 6391, 6394, 6398, 8289, 8292, 9072, 9090, 9091, 9106, 9107, 9127, 9128, 9144, 9145, 9165, 9166, 9182, 9183
\numberline . . . 7027, 7098, 13422, 13427
\numberwithin 7551
\numexpr . 2167, 2168, 2169, 2171, 2177, 2185, 2186, 2187, 2188, 2189, 2190, 2194, 2196, 2200, 2202, 2204, 2206, 2210, 2213, 2214, 2216, 2225, 2230, 2247, 2261, 2269, 2275, 3778
\nun 16333

O

\O 14171, 14539, 14934
\o 14239, 14607, 14936
\obeylines 11223
\OBJ@acroform . . . 12366, 12367
\OBJ@Helv . 12347, 12356, 12667
\OBJ@OCG@print . . . 8325, 8328, 8336, 8362, 9396, 9398, 9411, 9415, 9424, 9453
\OBJ@OCG@view . . . 8310, 8328, 8361, 9380, 9382, 9395, 9415, 9452
\OBJ@OCGs . . 8331, 8334, 8340, 8345, 8350, 9412, 9414, 9418, 9422, 9428, 9433, 9438
\OBJ@pdfdocencoding . . . 12345, 12648, 12664
\OBJ@ZaDb 12346, 12355, 12657
\OCIRCUMFLEX . 16176, 16274, 16275, 16276, 16277, 16278
\ocircumflex 16169, 16214, 16215, 16216, 16217, 16218
\oddsidemargin 7400
\OE 14040, 14792
\oe 14053, 14794
\offinterlineskip 5940
\OHORN . . . 16177, 16279, 16280, 16281, 16282, 16283
\ohorn . . 3178, 3185, 16170, 16219, 16220, 16221, 16222, 16223
\oldb 821
\oldc 822
\oldcontentsline . 5826, 5829, 5839
\oldd 823
\oldnewlabel . . . 5831, 5836, 5840
\OMEGA 11721
\on@line 7448, 7449
\openout 5818, 5861, 13625, 13704
\OpMode . 2846, 2849, 2862, 2875, 2880, 10279, 10370, 11168
\or . . 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1266, 1288, 1291, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 1348, 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1377, 1378, 1379, 1380, 1381, 1493, 1494, 1495, 5071, 5077, 5082, 5296, 6366, 6367, 6368, 6369, 6375, 6376, 6377, 6378, 7471, 7475, 7913, 7922, 10272, 13543, 13544, 13545, 13546, 13547, 13548, 13549, 13550, 13551, 13552, 13553, 13554, 13555, 13556, 13557, 13558, 13559, 13560, 13561, 13562, 13563, 13564, 13565, 13566, 13567, 13568, 13569, 13570, 13571, 13572, 13573, 13574

P

\P 484
\p@ 2226, 2231, 5325, 5331, 6734, 9017, 9101, 9139, 9177, 10226, 11391, 11671, 11956, 12430, 12765, 13861, 13862
\p@equation 7523
\PackageError 61
\PackageInfo . . 8273, 8287, 12297
\PackageWarning 2723, 5282
\pageautorefname . . . 3009, 3027, 3045, 3063, 3081, 3099, 3117, 3157, 3175, 3193, 8071, 8193
\pagename 8068
\pageref . . . 578, 4068, 4382, 5736, 5737, 5808, 5809, 6460, 8057, 8061
\paperheight 3911, 8866, 8868, 8871, 8873, 8885, 8886, 9751, 9752, 9889, 9890, 9892, 11145, 11146
\paperwidth . . . 8862, 8864, 8875, 8877, 8882, 8883, 9750, 9752, 9893, 11144, 11146
\par . 6726, 7026, 7054, 7096, 7106, 7304, 7324
\paragraphautorefname . . . 3005, 3023, 3041, 3059, 3077, 3095, 3113, 3146, 3148, 3171, 3189, 8189
\partautorefname 2999, 3017, 3035, 3053, 3071, 3089, 3107, 3137, 3165, 3183, 8183
\partnumberline . . . 13424, 13429
\PassOptionsToPackage . . . 2894, 2951, 2955, 2977, 3940, 4201
\pdf@addtoks 10800, 10819, 10825, 10834, 10841, 10845, 10847, 10849, 10851, 10853, 10861, 10870, 10874, 10876, 10878, 10881, 10890, 10894, 10896, 10898, 10900, 10902, 10904, 10906, 10908, 10910, 10912, 10914, 10916, 10918, 10920, 10922, 10924, 10925, 10926, 10927, 10928, 10929, 10930, 10931, 10932, 10933, 10934, 10939
\pdf@addtoksx 10794, 10804, 10817
\pdf@box . . . 10734, 10761, 10767, 10773, 10774, 10777, 10784
\pdf@defaulttoks . . 10701, 10798, 10799, 10809
\pdf@docset 10569
\pdf@endanchor . 8421, 8465, 8472
\pdf@escapestring 8249
\PDF@FinishDoc 2779, 2780, 2854, 2855, 3905, 3958, 4061, 4062, 4163, 4164, 5785, 5950, 5951, 8734, 8941, 9195, 9644, 9771, 10338, 10570, 11431, 11592
\pdf@linktype 10719, 10723, 10814, 10815
\pdf@rect . . . 10711, 10725, 10738
\PDF@SetupDoc 3904, 3957, 5703, 5704, 5784, 8665, 8942, 9226, 9684, 9772, 10287, 10621, 11312, 11462, 11593

\PDF@SetupDox 8665
\pdf@strcmp 903
\pdf@toks . . 10701, 10716, 10727, 10797, 10801, 10805
\pdf@type . . 10703, 10707, 10716, 10727, 10792, 10812
\pdfannotlink 8399
\pdfbookmark . 2338, 5790, 5791, 13501, 13506, 13511, 13515
\pdfcatalog 6104, 8332, 8680, 8722, 12367
\PDFdefaults 10808
\pdfdest 8423
\pdfendlink . . 8462, 12410, 12501, 12515, 12541, 12565, 12588, 12609
\pdfescapestring 13073
\pdfform 8401
\PDFForm@Check . 12111, 12113, 12606, 12607, 12973, 12977, 13143
\PDFForm@List . . . 12027, 12029, 12512, 12513, 12860, 12865, 13201
\PDFForm@Name . 12403, 12455, 12524, 12602, 12730, 12790, 12876, 12965, 13080
\PDFForm@Push . . 12051, 12053, 12538, 12539, 12892, 12896, 13172
\PDFForm@Radio . 12015, 12019, 12491, 12493, 12829, 12841, 13234
\PDFForm@Reset . 12092, 12094, 12585, 12586, 12944, 12949, 13334
\PDFForm@Submit 12069, 12072, 12558, 12560, 12916, 12921, 13301
\PDFForm@Text . . 11934, 11936, 12408, 12409, 12739, 12742, 13266
\pdfhorigin 8858
\pdfinfo 8737
\pdflastform 8402
\pdflastlink 12327
\pdflastobj 8310, 8325, 8331, 12366, 12648, 12657, 12667
\pdflastxform . 8402, 12289, 12291
\pdflinkmargin . . 8397, 8400, 8405
\pdfliteral 8381, 8383, 8388
\pdfm@box . . 9308, 12702, 12703, 12704, 12734, 12745, 12821, 12845, 12856, 12867, 12886, 12899, 12914, 12923, 12943, 12951, 12968, 12979
\pdfmark . 6213, 9246, 9255, 9285, 10406, 10426, 10459, 10493, 10510, 10522, 10556, 10593, 10605, 10634, 10643, 10674, 10698, 10947, 10961, 10976, 10988, 10995, 11022, 11053, 11475, 11484, 11515, 11935, 12016, 12028, 12052, 12070, 12093, 12112, 13666
\pdfmark@ 10698, 10699
\pdfmatch 272
\pdfminorversion 8270
\PDFNextPage 10959
\PDFNextPage@ . . 10959, 10960
\pdfobj . 8296, 8311, 8326, 12350, 12615, 12649, 12658
\PDFOpen 10987
\pdfoptionpdfminorversion 8267
\pdfoutline 13714
\pdfpageattr . . 8776, 8780, 8781, 8791, 8800, 8804, 8805, 8815, 8823, 8826, 8827, 8837
\pdfpageheight 8868, 8877, 8886, 8893
\pdfpageresources 8359
\pdfpagesattr . . . 8669, 8671, 8673
\pdfpagewidth . 8864, 8873, 8883, 8890
\PDFPreviousPage 10972
\PDFPreviousPage@ 10973, 10975
\pdfrefform 8403
\pdfrefobj . . 12345, 12346, 12347
\pdfrefxform 8403, 12291
\pdfstartlink 8398, 8399, 8457, 8501, 8539, 8576, 8904, 12409, 12492, 12513, 12539, 12559, 12586, 12607
\pdfstringdef 453, 734, 3591, 3597, 3603, 3609, 3614, 3620, 3627, 3633, 3713, 5243, 5248, 5274, 5917, 5997, 5999, 6475, 7383, 13088, 13433
\pdfstringdefDisableCommands 820, 859, 5788, 5912
\pdfstringdefPostHook . . 730, 853
\pdfstringdefPreHook . 588, 853, 865, 867, 5911, 5921
\pdfstringdefWarn . 487, 488, 583, 870, 1652, 1657, 1676, 1680
\pdftexrevision . 8625, 8633, 8644
\pdftexversion . 8620, 8622, 8625, 8628, 8631, 8632, 8636, 8642, 8643, 12344
\pdfvorigin 8859
\pdfxform 8401, 12287
\peh 16346
\penalty . . 1787, 2365, 4528, 7231, 7254
\phantom 543
\phantomsection 3906, 5792, 7423, 13368, 13419, 13805
\Preamble 11717
\PrerenderUnicode 3582
\process@me . . 5891, 5903, 5904, 8668, 8677
\ProcessKeyvalOptions . . . 3944
\protect 1785, 4670, 7027, 7098, 7162, 7177, 7193, 7309, 7316, 7317, 7461, 7492, 7766, 7818, 7947, 7967, 7973, 7984, 8101, 8952, 9049, 9842, 9917, 11323, 11603, 13440, 13738, 13861, 13862
\protected@edef 4705, 6057, 6565, 6694, 6714, 8430, 9506, 9971, 10050, 10548
\protected@write 2302, 4689, 7289, 7652, 7667, 7675, 7679, 7684, 13439
\protected@xdef . 6868, 6870, 6964
\providecommand 2319, 2320, 3320, 3321, 3324, 3325, 4151, 4359, 4360, 4481, 4624, 5822, 6087, 6106, 6231, 7127, 7128, 7143, 7221, 7749, 7750, 7866, 8174, 8175, 8176, 8177, 8178, 8179, 8180, 8181, 8182, 8183, 8184, 8185, 8186, 8187, 8188, 8189, 8190, 8191, 8192, 8193, 8256, 8407, 8425, 8426, 8940, 9043, 9044, 9303, 9365, 9366, 9367, 9768, 9887, 9909, 9910, 9911, 10363, 10735, 10736, 11079, 11087, 11088, 11089, 11090, 11162, 11174, 11175, 11176, 11177, 11221, 11262, 11263, 11264, 11265, 11420, 11422, 11423, 11536, 11537, 11584, 12310
\PushButton 5599
\put@me@back . . 4845, 4858, 4868

Q

\qaf 16329
\quotedblbase 14020, 14257, 15846, 16150
\quotesinglbase . . . 14030, 14259, 15840, 16152

R

\r . 792, 13898, 13910, 13922, 14132, 14197, 14306, 14333, 14352,

14374, 14501, 14565, 14848, 14850, 15810, 15812
\ra 16317
\raff 16339
\raise 2372, 9018, 9102, 9140, 9178, 10788, 11392, 11672
\ReadBookmarks 3943, 3961, 4075, 4263, 4404, 13599, 13634
\real@setref 7944, 8010
\realfootnote 6961
\Ref 8029, 8033, 8038
\ref . . 577, 4067, 4379, 4885, 5732, 5733, 5804, 5805, 6926, 6933, 8048, 11693
\ref@one 4646, 4647
\rEfLiNK 11694, 11695
\refstepcounter 6301, 6308, 6328, 6547, 6570, 6571, 6572, 6581, 6606, 6630, 6638, 7090
\rem@ptetc 10483, 10485
\renewcommand 2294, 7069, 7568, 13515
\RequirePackage 22, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 312, 886, 1162, 1689, 2288, 2704, 2774, 4049, 4050, 4331, 4375, 4409, 4616, 4888, 5774, 5931, 6147, 8196, 9769, 11589, 13525
\RerunFileCheck 13527
\Reset 5608
\reset@font 7237, 7260, 7948, 7968, 7985, 8102
\revtex@checking 7214
\Rightarrow 7900
\rlap 8382, 9474
\rm 531
\rmfamily 521
\Roman 6053
\roman 6054
\romannumeral 877, 878
\rule 6911

S

\sad 16321
\sbox 3578, 5628, 9005, 9085, 9122, 9160, 10735, 10767, 11379, 11654, 12286
\scr@LT@array 6580
\scriptsize 539
\scriptstyle 7227
\scrollmode 1704, 1729, 1739, 1752, 1844, 1976
\scshape 527
\section 7868
\sectionautorefname . . 3002, 3020, 3038, 3056, 3074, 3092, 3110, 3139, 3168, 3186, 8186
\seen 16319
\selectfont 507, 4342, 12375
\setbox 1788, 1794, 1800, 3348, 3354, 5437, 5939, 6761, 8372, 8932, 9447, 9464, 12734, 12821, 12856, 12886, 12914, 12943, 12968
\setcounter 4559
\setkeys 4534, 4579
\setlength 437, 438, 2369, 8858, 8859, 8864, 8868, 8873, 8877, 8883, 8886, 8890, 8893, 9890, 9893, 9897, 9900, 10226, 13755, 13826
\setpdflinkmargin 3761, 3762, 8397
\settowidth . 11953, 12427, 12762
\SetupKeyvalOptions . 2423, 3934
\sffamily 522
\shadda 16344
\sheen 16320
\shortciteN 7352
\SK@ 8160
\SK@@ref 8160
\SK@ref 8157
\skip@ 1802, 1876, 1877, 1880, 1882, 2388, 2394, 2407, 2413
\slide@cline 7886, 7899, 7907, 7917, 7925
\Slide@contents 7891
\slide@contents 7884
\slide@heading 7762
\slide@subheading 7815
\slide@undottedcline 7877
\slidenumberline 7878, 7886, 7900, 7908, 7918, 7926
\SliTeX 499
\slshape 528
\small 540
\smash 2366
\spacefactor 2345, 2351, 6843, 6852, 6989, 6991, 8410, 8418
\special@paper 3907
\SpecialDvipdfmxOutlineOpen 2813, 2815, 4238
\splitmaxdepth 6905
\splittopskip 6904
\SS 14255, 16149
\ss 3049, 14185, 14270, 14553
\st@rredfalse 6613, 6622
\stepcounter . . 6318, 6495, 6564, 6713, 6844, 6963, 9490, 13436
\stockheight 3911, 8892, 8893, 9757, 9758, 9896, 9897, 11151, 11152
\stockwidth 8889, 8890, 9756, 9758, 9899, 9900, 11150, 11152
\stop@hyper 5755
\StringEncodingConvertTest 708, 718
\strip@period 2307
\strip@prefix 62, 2300, 5893, 6413, 6697, 13662, 13670, 13685
\strip@pt 442, 449, 3923, 8864, 8868, 8873, 8877, 10229, 13166, 13229, 13257, 13294, 13343
\strip@pt@and@otherjunk 10425, 10451, 10485
\strutbox 6905
\sub@label 2294
\subeqnarray 6673, 6675
\subequations 6711, 6712
\subfig@oldlabel 2296
\Submit 5605
\SubmitObject 12561
\SubmitPObject 12561
\subparagraphautorefname 3006, 3024, 3042, 3060, 3078, 3096, 3114, 3147, 3149, 3172, 3190, 8190
\subpdfbookmark 13503
\subsection 11416
\subsectionautorefname . . . 3003, 3021, 3039, 3057, 3075, 3093, 3111, 3144, 3169, 3187, 8187
\subsubsectionautorefname 3004, 3022, 3040, 3058, 3076, 3094, 3112, 3145, 3170, 3188, 8188
\sukun 16345
\surd 7908

T

\T 16309
\t 13930, 14325, 14344, 14363, 14379
\T@nameref 4396
\T@pageref 4366, 4383, 8046
\T@ref 4361, 4380
\T@temp 7215, 7218
\Ta 16323
\taa 16310
\tableautorefname . . . 2998, 3016, 3034, 3052, 3070, 3088, 3106, 3136, 3164, 3182, 8182
\tagform@ 7522
\tatweel 16327
\tcheh 16347
\temp@online 7448, 7451
\TeX . . . 489, 490, 497, 499, 11720, 11722, 11724
\texorpdfstring 846, 5789

\textacute . . 13894, 13906, 13918, 14098, 14329, 14348, 14466
\textacutedbl 14998
\textaleph 15964
\textAlpha . . . 1079, 15018, 15034
\textalpha . . . 1079, 15087, 15097
\textampersand 481, 13965, 14396
\textangstrom 15960
\textasciiacute 14467
\textasciibreve 13941, 14337, 14356, 14987
\textasciicaron 13899, 13911, 13923, 13943, 14334, 14353, 14985
\textasciicircum . . . 13895, 13907, 13919, 13979, 14330, 14349, 14412
\textasciidieresis . . 13897, 13909, 13921, 14075, 14332, 14351, 14443
\textasciigrave 13893, 13905, 13917, 13984, 14328, 14347, 14416
\textasciimacron . . 13902, 13914, 13926, 14088, 14339, 14358, 14456
\textasciitilde . 482, 4444, 13994, 14427
\textasteriskcentered 14404
\textbackslash . . . 477, 642, 2282, 13977, 14410
\textbaht 15672
\textbar 13990, 14423
\textbardbl 15834
\textBeta 1080, 15036
\textbeta 1080, 14270, 15099
\textbf 514
\textbigcircle 14346, 14365, 16134
\textblank 15982
\textbraceleft . . 475, 2283, 13988, 14421
\textbraceright 476, 2283, 13992, 14425
\textbrokenbar 14071, 14439
\textbullet 13996, 15852
\textcdot 14269, 16162
\textcedilla . 13901, 13913, 13925, 14106, 14336, 14355, 14475
\textcelsius 14256, 15944
\textcent 14063, 14431
\textChi 1129, 15076
\textchi 1129, 15141
\textcircled . 14327, 14346, 14365, 15986, 15988, 15990, 15992, 15994, 15996, 15998, 16000, 16002, 16004, 16006, 16008, 16010, 16012, 16014, 16016, 16018, 16020, 16022, 16024, 16026, 16028, 16030, 16032, 16034, 16036, 16038, 16040, 16042, 16044, 16046, 16048, 16050, 16052, 16054, 16056, 16058, 16060, 16062, 16064, 16066, 16068, 16070, 16072, 16074, 16076, 16078, 16080, 16082, 16084, 16086, 16088, 16090, 16092, 16094, 16096, 16098, 16100, 16102, 16104, 16106, 16108, 16110, 16112, 16114, 16116, 16118, 16120, 16122, 16124, 16126, 16128, 16130
\textcircledP 15948
\textcircumflex 13945
\textcolonmonetary 15926
\textcolor 546, 12341, 12380, 12383, 12676
\textcompwordmark 15828
\textcopyright 14077, 14445
\textCR 13939, 14386
\textcurrency 14067, 14435
\textdagger 13998, 15848
\textdaggerdbl 14000, 15850
\textdegree . 14090, 14256, 14458
\textDelta 1082, 15040
\textdelta 1082, 15103
\textDigammagreek 15162
\textdigammagreek 15164
\textdiscount 15874
\textdiv 14267, 16160
\textdivide . . 14237, 14267, 14605, 16160
\textdivorced 16140
\textdollar 479, 13961, 14392
\textdong 15936
\textdotaccent 13900, 13912, 13924, 13947, 14335, 14354, 14989
\textdotbelow 13904, 13916, 13928, 13971, 14343, 14362, 15008
\textdoublegrave . . 14338, 14357, 15004
\textdownarrow 15972
\texteightinferior 15918
\texteightsuperior 15886
\textellipsis 485, 486, 14002, 15854
\textemdash . . 676, 14004, 15832
\textendash . . . 677, 14006, 15830
\textEpsilon . 1083, 15020, 15042
\textepsilon 493, 496, 1083, 15089, 15105
\textequalsuperior 15894
\textestimated 15962
\textEta 1086, 15022, 15046
\texteta 1086, 15091, 15109
\texteuro 14059, 15938
\textexclamdown 680, 990, 14061, 14429
\textfi 678, 14034, 16146
\TextField 5590
\textfiveinferior 15912
\textfivesuperior 15880
\textfl 679, 14036, 16148
\textflorin 14008, 14884
\textflq 567, 14263, 16156
\textflqq 565, 14261, 16154
\textfourinferior 15910
\textfoursuperior 15878
\textfractionsolidus 14010, 15868
\textfrq 568, 14264, 16157
\textfrqq 566, 14262, 16155
\textGamma 1081, 15038
\textgamma 1081, 15101
\textglq 563, 14259, 16152
\textglqq 561, 14257, 16150
\textgravedbl 15000
\textgreater 13975, 14408
\textgrq 564, 14260, 16153
\textgrqq 562, 14258, 16151
\textGslash 14903
\textgslash 14905
\textguarani 15942
\textHslash 14699
\texthslash 14701
\textHT 13935, 14382
\texthungarumlaut 13949, 14340, 14359, 14997, 14998
\textinterrobang 15866
\textIota 1101, 15024, 15050, 15083
\textiota 1101, 15093, 15113, 15147
\textIotadieresis . . . 15032, 15082
\textit 516
\textKappa 1102, 15052
\textkappa 1102, 15115
\textKoppagreek . . . 1109, 15166
\textkoppagreek 1109, 15168
\textkra 14740
\textLambda 1103, 15054
\textlambda 1103, 15117
\textlangle 15978
\textlatin 549, 6401
\textlbrackdbl 16142
\textleftarrow 15966
\textless 13973, 14406
\textLF 13937, 14384
\textlira 15928
\textlnot 14084, 14452
\textlogicalnot 14083, 14265, 14451, 16158
\textlongs 14882, 15814
\textlquill 15870

\textmacronbelow . 13903, 13915, 13927, 13982, 14342, 14361, 15010
\textmarried 16138
\textmd 515
\textmho 15958
\textminus 14016, 15974
\textminussuperior 15892
\textMu 1104, 15056
\textmu 1104, 14100, 14469
\textmugreek 15119
\textmultiply 14169, 14266, 14537, 16159
\textmusicalnote 16136
\textnaira 15930
\textnapostrophe 14774
\textneg 14265, 16158
\textnewtie . 14345, 14364, 15006
\textnineinferior 15920
\textninesuperior 15888
\textnormal 510
\textnsuperior 15900
\textNu 1105, 15058
\textnu 1105, 15121
\textnumbersign 478, 13959, 14390
\textnumeralsigngreek 1056, 15014
\textnumeralsignlowergreek 1073, 1095, 1118, 15016
\textnumero 15946
\textogonek . 13951, 14341, 14360, 14993
\textohm 15956
\textOmega . . 1131, 15030, 15080
\textomega . . 1131, 15145, 15156
\textOmicron . 1107, 15026, 15062
\textomicron . 1107, 15125, 15151
\textonehalf 14116, 14485
\textoneinferior 15904
\textonequarter . . . 14114, 14483
\textonesuperior . . 14108, 14477
\textopenbullet 16132
\textordfeminine . . 14079, 14447
\textordmasculine . 14110, 14479
\textparagraph 484, 14102, 14471
\textparenleft . . 684, 685, 13967, 14400
\textparenleftinferior 15922
\textparenleftsuperior . . . 15896
\textparenright . . . 13969, 14402
\textparenrightinferior . . . 15924
\textparenrightsuperior . . 15898
\textpercent . . . 480, 13963, 14394
\textperiodcentered 14104, 14269, 14473, 16162
\textpertenthousand 15858
\textperthousand . . 14018, 15856
\textpeseta 15932
\textpeso 15940
\textPhi 1128, 15074
\textphi 1128, 15139
\textPi 1108, 15064
\textpi 1108, 15127
\textplusminus . . . 14092, 14268, 14460, 16161
\textplussuperior 15890
\textpm 14268, 16161
\textPsi 1130, 15078
\textpsi 1130, 15143
\textquestiondown 681, 991, 14120, 14489
\textquotedbl 13957, 14388
\textquotedblleft . . 14022, 14258, 15842, 16151
\textquotedblright . 14024, 15844
\textquoteleft 14026, 14260, 15836, 16153
\textquoteright . . . 14028, 15838
\textquotesingle 14398
\textrangle 15980
\textrbrackdbl 16144
\textrecipe 15950
\textreferencemark 15864
\textregistered 14086, 14454
\textRho 1124, 15066
\textrho 1124, 15129
\textrightarrow 15970
\textring . . . 13898, 13910, 13922, 13953, 14333, 14352, 14991
\textrm 511
\textrquill 15872
\textSampigreek . . . 1132, 15170
\textsampigreek 1132, 15172
\textsc 517
\textsection 14073, 14441
\textservicemark 15952
\textseveninferior 15916
\textsevensuperior 15884
\textsf 512, 12380, 12383
\textSigma 1125, 15068
\textsigma 1125, 15133
\textsixinferior 15914
\textsixsuperior 15882
\textsl 518
\textsterling 14065, 14433
\textStigmagreek . . . 1084, 15158
\textstigmagreek . . . 1084, 15160
\textsurd 15976
\TextSymbolUnavailable . 13929, 13930, 13932
\textTau 1126, 15070
\texttau 1126, 15135
\textTheta 1087, 15048
\texttheta 1087, 15111
\textthreeinferior 15908
\textthreequarters . 14118, 14487
\textthreesuperior . 14096, 14464
\texttie 14344, 14363, 15012
\texttilde 4020, 13896, 13908, 13920, 13955, 14331, 14350, 14995
\texttildelow 15002
\texttimes 14266, 16159
\texttrademark . . . 14032, 15954
\textTslash 14832
\texttslash 14834
\texttt 513
\texttwoinferior 15906
\texttwosuperior . . 14094, 14462
\textunderscore . 483, 4438, 4439, 4441, 13981, 14414
\textup 519
\textuparrow 15968
\textUpsilon . 1127, 15028, 15072, 15085
\textupsilon . . 1127, 15137, 15149, 15154
\textupsilonacute . . 15095, 15153
\textvarsigma 15131
\textvisiblespace 15984
\textwon 15934
\textXi 1106, 15060
\textxi 1106, 15123
\textyen 14069, 14437
\textzeroinferior 15902
\textzerosuperior 15876
\textZeta 1085, 15044
\textzeta 1085, 15107
\TH 14183, 14551
\th 14251, 14619
\thaa 16311
\thebookmark@seq@number 13443
\theequation . . 6334, 6633, 6655, 6679, 6715
\thefootnote 6803, 6983
\theHchapter . . 6275, 6276, 6277, 6278, 6361
\theHenumi 6294
\theHenumii 6295
\theHenumiii 6296
\theHenumiv 6297
\theHequation . 6265, 6335, 6634, 6656, 6680, 6688, 6715, 6719
\theHfigure 6272, 6276
\theHHfootnote 6298, 6300
\theHHmpfootnote 6300
\theHItem 6288, 6294, 6295, 6296, 6297
\theHlisting 3324
\theHlstlisting 3320
\theHmpfootnote 6299
\theHparagraph 6282, 6283

\theHparentequation . 6714, 6719
\theHpart 6268
\theHsection . . 6265, 6271, 6278, 6280, 6284, 6285, 6360
\theHslide 7753
\theHslidesection 7758, 7760, 7796, 7800
\theHslidesubsection . 7759, 7847, 7851
\theHsubequation 6688
\theHsubparagraph 6283
\theHsubsection 6280, 6281
\theHsubsubsection . . 6281, 6282
\theHtable 6273, 6277
\theHtheorem 6284
\theHthm 6285
\theHy@tempcnt 4554, 4562, 4569
\thelisting 3324
\thelstlisting 3320
\thempfn . 6792, 6869, 6871, 6964, 6976
\theoremautorefname . 3008, 3026, 3044, 3062, 3080, 3098, 3116, 3154, 3174, 3192, 8192
\thepage . 2305, 4672, 5959, 5982, 6475, 6483, 6510, 7240, 7263, 7292, 7383, 7461, 7492, 7653, 7670, 7676, 7680, 7687, 7950, 7970, 7987, 8104
\theslideheading 7779
\theslidesection 7767, 7774, 7782, 7788, 7790, 7792, 7798, 7808
\theslidesubheading . . 7780, 7831
\theslidesubsection . . 7819, 7826, 7833, 7839, 7841, 7843, 7849, 7859
\This@name 6312, 6313, 6331, 6332
\thispdfpagelabel 5964
\ThisShouldNotHappen . . 13051
\thm@headpunct 6733
\thm@headsep 6734
\thm@notefont 6732
\thm@postskip 6738
\thm@preskip 6737
\thm@space@setup 6735
\thm@swap 6731
\thmheadnl 6730
\tiny 541
\title 5870, 5872
\TMP@EnsureCode . . 4273, 4280, 4281, 4282, 4283, 4284, 4285, 4286, 4287, 4288, 4289, 4290, 4291, 4292, 4293, 4294, 4295, 4296, 4297, 4298, 4299, 4300, 4301, 4302, 4303, 4304, 4305, 4306
\tocappendix 1540
\tocchapter 1539
\toclevel@chapter 3311
\toclevel@figure 3317
\toclevel@listing 3325
\toclevel@lstlisting 3321
\toclevel@paragraph 3315
\toclevel@part 3307, 3309
\toclevel@section 3312
\toclevel@subfigure 2319
\toclevel@subparagraph . . . 3316
\toclevel@subsection 3313
\toclevel@subsubsection . . . 3314
\toclevel@subtable 2320
\toclevel@table 3318
\tocparagraph 1544
\tocpart 1538
\tocsection 1541
\tocsubsection 1542
\tocsubsubsection 1543
\toks 865, 866, 867, 4709, 4711, 4713, 4717, 4722, 7958, 7959, 7961, 13758, 13763, 13829, 13834
\toks@ . . . 171, 208, 416, 419, 422, 440, 441, 760, 767, 799, 800, 1176, 1199, 1202, 1204, 1712, 1713, 3204, 3205, 3207, 3741, 3745, 3746, 3754, 4180, 4182, 4824, 4829, 4833, 4837, 6059, 6061, 6141, 6143, 6193, 6205, 6492, 6496, 6532, 6537, 7523, 7524, 7730, 7735, 7737, 7740, 13757, 13763, 13828, 13834
\topmargin 7395
\trivlist 6729
\tryhyper@link 4647, 4649
\ttfamily 523
\ttl@b 6543, 6548
\ttl@gobblecontents 6552
\ttl@Hy@PatchSaveWrite . . 6526, 6530
\ttl@Hy@refstepcounter . . . 6542
\ttl@Hy@saveanchor . . 6521, 6545
\ttl@Hy@SavedCurrentHref 6525, 6536
\ttl@Hy@steplink 6519
\ttl@savewrite 6532, 6534
\tw@ . 13758, 13763, 13829, 13834
\typeout . . . 5, 6, 7, 19, 26, 27, 36, 131, 155, 158, 159, 160, 4854, 13855, 16356

U

\U . . . 14300, 15205, 15228, 15293, 15370, 15560, 15562, 15584, 15586, 15596, 15598
\u . . . 14299, 14337, 14356, 14376, 14627, 14629, 14663, 14665, 14683, 14685, 14713, 14715, 14716, 14784, 14786, 14844, 14846
\UHORN . . . 16178, 16289, 16290, 16291, 16292, 16293
\uhorn . . 3178, 3185, 16171, 16229, 16230, 16231, 16232, 16233
\UnDef 11694
\unhbox 6775, 10736, 12745, 12867, 12899, 12923, 12951, 12979
\unhcopy 12845
\unichar 2151
\Unicode 1252
\unrestored@protected@xdef 6792, 6803, 6926, 6933, 6976, 6983
\unskip . . 6726, 7225, 8036, 8040, 8044, 8049
\upshape 529, 6732
\Url 4618
\url 4617, 4621
\url@ 4621, 4622
\use@file 4785, 4787, 4794
\usefont 508
\utf@viii@undeferr 470
\UTFviii@four@octets 2147, 2156
\UTFviii@three@octets 2146
\UTFviii@two@octets 2145

V

\v . . . 13899, 13911, 13923, 14042, 14047, 14055, 14057, 14310, 14334, 14353, 14375, 14647, 14649, 14651, 14653, 14675, 14677, 14750, 14752, 14770, 14772, 14804, 14806, 14820, 14822, 14828, 14830, 14878, 14880, 14886, 14888, 14890, 14892, 14893, 14895, 14897, 14899, 14901, 14907, 14909, 14911, 14913, 14919, 14920, 14963, 14965
\V@@@footnotetext 6913
\V@@footnotetext 6899
\value 7179, 7205, 7399, 7548, 9491, 9496
\vbox 5623, 5624, 5625, 5626, 5939, 7393
\vfill 5623, 5624, 5625, 5626
\voffset 7394
\vpageref 8049
\vphantom 544
\Vr@f 8035
\vr@f 8043
\vref@pagenum 6556
\vref@space 8036, 8039, 8044
\vskip 2394, 2395
\vss 7408

\vtex@trans@special 10197, 10199, 10202, 10206, 10210, 10214, 10216, 10218, 10222, 10228, 10229, 10232
\VTeXInitMediaSize . 9887, 9904
\VTeXOS . . . 10267, 10268, 10269, 10271
\VTeXversion . 6108, 6111, 6114, 10259, 10263

W

\waw 16335
\wawhamza 16304
\wd . 9090, 9106, 9127, 9144, 9165, 9182, 12703
\write 4509, 5819, 5821, 6222, 6230, 6481, 6509, 7163, 7178, 7194, 7204, 7234, 7257, 7283, 7313, 12309, 12333, 13627, 13706
\WriteBookmarks 3962, 4076, 4242, 4264, 13376, 13620, 13652, 13653, 13695, 13699
\wwwbrowser . . . 9044, 9129, 9146

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, 439, 444, 762, 765, 769, 774, 806, 875, 881, 1639, 1667, 2094, 2096, 2389, 2399, 2408, 2418, 2473, 2474, 2479, 2495, 3215, 3218, 3222, 3235, 3336, 3337, 3340, 3341, 3342, 3346, 3349, 3355, 3744, 3750, 3753, 3756, 3911, 3912, 3917, 3918, 3975, 3976, 3977, 3980, 3983, 3986, 4181, 4184, 4508, 4514, 4707, 4718, 4722, 4725, 4800, 4801, 4802, 4814, 4825, 4826, 4827, 4828, 4831, 4832, 4906, 4920, 4945, 4949, 4952, 4962, 5892, 5893, 5898, 6493, 6500, 6533, 6540, 6581, 6590, 6592, 6604, 7737, 7738, 7960, 7963, 7998, 7999, 8000, 8002, 8004, 8358, 8366, 8653, 8654, 8657, 8659, 8662, 9315, 9316, 9317, 9319, 9320, 9321, 9323, 9324, 9325, 9327, 9328, 9329, 9331, 9332, 9333, 9335, 9336, 9337, 9339, 9340, 9341, 9343, 9344, 9346, 9352, 9361, 10367, 10372, 10376, 10740, 10743, 10749, 10754, 10887, 10888, 11959, 11979, 12433, 12453, 12768, 12788, 13762, 13764, 13833, 13835
\XeTeXrevision 4230, 9641
\XeTeXversion 4230, 9641
\XR@@dURL 2326, 2327
\XR@addURL 2326
\XR@ext 2581, 2582, 4783, 4786, 6106, 8256, 8940, 9043, 9303, 9768, 11079, 11162, 11221, 11420, 11584
\XR@URL 2331
\xspace 594, 596

Y

\y 777, 780, 783, 786, 789, 792, 801, 2475, 2480, 2485, 3342, 3344, 3345, 3978, 3981, 3987, 3989, 3995, 4803, 4805, 4806, 4814, 5893, 6577, 6579, 6580, 6583, 10745, 10746, 10747, 10
\ya . . . . . .
\yahamza . . . . . .

Z

\z . . 2477, 2478, 2479, 4806
\z@ 738, 778, 903, 1072, 1094, 1117, 1368, 1421, 1437, 1452, 1460, 1788, 1794, 1800, 1864, 1876, 1880, 2345, 2350, 2403, 2670, 2673, 2815, 3354, 3913, 4238, 6109, 6761, 6762, 6911, 8862, 8871, 8875, 8882, 8885, 8892, 9750, 9751, 9756, 10258, 10282, 10483, 10785, 11144, 11145, 11151, 11949, 12423, 12758, 13152, 13182, 13209, 13215, 13243, 13280, 13299, 13309, 13344, 13349, 13454, 13456, 13457, 13458, 13460, 13461, 13462, 13799
\z@skip . . . . . .
\za . . . . . .
\zay . . . . . .
\ZWNJ . . . . . .