Hypertext marks in \LaTeX

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

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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).
ChangeLog This file records the version history.
Bookmark talk, slides Slides for the talk “PDF information and navigation elements with hyperref, pdf\TeX{} and thumbpdf” at Euro\TeX{} 1999.
Bookmark talk, paper The paper version of the talk.
Source code documentation:

\begin{itemize}
  \item hyperref.dtx This is the source code documentation for hyperref (this file).
  \item backref.dtx “Back referencing from bibliographical citations”
  \item nameref.dtx “Section name references in \LaTeX”
\end{itemize}
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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 \texttt{\checkcommand} that is more powerful than \LaTeX{}’s \texttt{\CheckCommand}, because it takes \texttt{\DeclareRobustCommand} and optional parameters better into account.

\begin{verbatim}
\documentclass{article}
\makeatletter
\newcommand*{\checklatex}[1][1]{% \newcommand*{\checkpackage}[1][1]{% \newcommand*{\HyC@getDate}[1][1]{% \newcommand*{\HyC@checkPackage}[1]{% \def\HyC@checkPackage{% \begin{quote} \edef\x{\endgroup\noexpand\RequirePackage{\HyC@package}\ifx\HyC@date\@empty\relax\else[\HyC@date]\fi\typeout{}%}\x\typeout{}%\typeout{% \* Package `\HyC@package'\backslashspace Loaded: `\fmtname' \fmtversion} \@ifundefined{ver@\HyC@package.sty}{% \typeout{\backslashspace Loaded: `\HyC@package' \name ver@\HyC@package.sty\endsname}}{\typeout{\name ver@\HyC@package.sty\endsname}}\end{quote}}%\end{verbatim}

\end{verbatim}
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
}\endgroup
}

\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{%\def\HyC@checklong#1{%\def\HyC@defcmd{\long#1}%\expandafter\let\expandafter\HyC@next\csname HyC@\expandafter\@gobble\string#1\endcsname\HyC@checkcommand
}\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{%\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}
\newcommand \ The code for \newcommand.
86 \def\HyC@newcommand{% 
87 \let\HyC@cmd\HyC@cmd 
88 \@ifnextchar[\HyC@nc@opt\HyC@nc@noopt 
89 } 
\HyC@Toks \ A register for storing the default value of an optional argument.
90 \newtoks\HyC@Toks 
\HyC@nc@noopt \ This macro \HyC@nc@noopt is called, if the parser has reached the definition text.
91 \long\def\HyC@nc@noopt#1{% 
92 \edef\x{% 
93 \expandafter\noexpand\HyC@defcmd 
94 \HyC@star 
95 \expandafter\noexpand\HyC@cmd 
96 \HyC@param\the\HyC@Toks 
97 }% 
98 \x{#1}% 
99 \HyC@doCheck 
100 } 
\HyC@nc@opt \ This macro scans the first optional argument of a \LaTeX definition (number of arguments).
101 \def\HyC@nc@opt[#1]{% 
102 \def\HyC@param{[\{#1\}]}% 
103 \@ifnextchar[\HyC@nc@default\HyC@nc@noopt 
104 } 
\HyC@nc@default \ Macro \HyC@nc@default scans the default for an optional argument.
105 \def\HyC@nc@default[#1]{% 
106 \HyC@Toks=\{[\{#1\}]\}% 
107 \edef\HyC@optcmd{% 
108 \expandafter\let\expandafter\HyC@org@optcmd\HyC@optcmd 
109 }% 
110 \expandafter\let\expandafter\HyC@org@optcmd\HyC@optcmd 
111 \HyC@nc@noopt 
112 \HyC@nc@noopt 
113 } 
\DeclareRobustCommand \ \DeclareRobustCommand{\cmd} makes the command \cmd robust, that then calls \cmd with an space at the end of the command name, defined by \newcommand. Therefore the further parsing is done by \HyC@nc@opt or \HyC@nc@noopt of the \HyC@newcommand chain.
114 \def\HyC@DeclareRobustCommand{% 
115 \edef\HyC@robustcmd{% 
116 \expandafter\noexpand 
117 \expandafter\expandafter\expandafter\@gobble 
118 \expandafter\string\HyC@cmd\space\endcsname 
119 }% 
120 \expandafter\lett\expandafter\HyC@org@optcmd\HyC@optcmd 
121 \HyC@nc@noopt 
122 \HyC@nc@noopt 
123 } 
9
\HyC@def  The parameter text of \def or \edef is stored in the token register \HyC@Toks.
\HyC@doCheck  This command performs the checks and prints the result.
\HyC@checkItem  A single check.
\HyC@string  Some shorthands.
\HyC@checkOk  The result, if the check succeeds.
\HyC@checkFailed  The result, if the check fails.
\HyC@meaning  Some shorthands.
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
\edef\x{%
\edef\noexpand\x{%
\catcode 96=\relax
\catcode 61=\relax
}
\noexpand\x
\@makeother\`
\@makeother\=

\Hy@SetCatcodes
\edef\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<%}
\Hy@RestoreCatcodes
\begingroup
\def\x#1{\catcode \noexpand #1=\the \catcode \noexpand #1\relax}%
\xdef\Hy@RestoreCatcodes{%
\the \toks@
\x$%
4.2 Version check

\Hy@VersionChecked
\chardef\Hy@VersionChecked=0 
\Hy@VersionCheck
\def\Hy@VersionCheck#1{% 
\begingroup 
\ltx@IfUndefined{ver@hyperref.sty}{% 
\Hy@Error{% 
This should not happen!\MessageBreak 
Missing hyperref version% 
}\@ehd 
}{}% 
\ltx@IfUndefined{ver@#1}{% 
\Hy@Error{% 
This should not happen!\MessageBreak 
Missing version of \texttt{\textasciitilde#1}\% 
}\@ehd 
}{}% 
\def\x##1##2##3{% 
\expandafter\expandafter\expandafter\Hy@@VersionCheck \expandafter\expandafter\expandafter##2\csname ver@##3\endcsname##1\@nil 
} 
\x{ }\y{hyperref.sty} 
\x{ }\z{#1} 
\ifx\y\z 
\else 
\edef\a[#1]{}% 
\edef\b{\HyOpt@CustomDriver.def} 
\ifx\a\b 
\Hy@WarningNoLine{% 
Version mismatch (custom driver)!\MessageBreak 
* \y: hyperref.sty!\MessageBreak 
* \z: \a 
} 
\else 
\Hy@Error{% 
Version mismatch!\MessageBreak 
* \y: hyperref.sty!\MessageBreak 
* \z: \a 
}\@ehd 
\fi 
\fi 
\endgroup 
\chardef\Hy@VersionChecked=1 
}
4.3 Checks with regular expressions

\ltx@IfUndefined{pdfmatch}{{% 
\def\Hy@Match#1#2#3#4#5{}% 
}}{% 
\def\Hy@Match#1#2#3{% 
\begingroup 
\edef\^\ltx@backslashchar\string\}% 
\edef\.\ltx@backslashchar.\}% 
\edef\[\ltx@backslashchar[\]% 
\edef\]\ltx@rightbracechar\]% 
\edef\$\ltx@backslashchar$\}% 
\edef\(\ltx@backslashchar(\)% 
\edef\)\ltx@backslashchar\)% 
\edef\|\ltx@backslashchar|\}% 
\edef\*\ltx@backslashchar\*\}% 
\edef\+\ltx@backslashchar+\}% 
\edef\?\ltx@backslashchar?\}% 
\edef\{\ltx@leftbracechar\}% 
\edef\}\ltx@rightbracechar\}% 
\edef\\ltx@backslashchar\ltx@backslashchar\}% 
\let\ltx@space\ltx@backslashchar\}
\ifcase\pdfmatch#2{#3}{#1} 
\endgroup 
\expandafter\ltx@secondoftwo 
\or 
\endgroup 
\expandafter\ltx@firstoftwo 
\else 
\Hy@Warning{% 
Internal error: Wrong pattern!\MessageBreak 
--> #3 <--\MessageBreak 
Pattern check ignored% 
}% 
\endgroup 
\expandafter\ltx@firstoftwo 
\fi 
\ltx@ifpackagelater{ltxcmds}{2010/09/11}{}{% 
\begingroup 
\lccode`0=`\{elax 
\lowercase\endgroup 
\def\ltx@leftbracechar{0}% 
\begingroup 
\lccode`0=`\}elax 
\lowercase\endgroup 
\def\ltx@rightbracechar{0}% 
\endgroup 
\lcase\pdfmatch#2(#3)#1 % 
\endgroup 
\expandafter\ltx@secondoftwo 
\or 
\endgroup 
\expandafter\ltx@firstoftwo 
\else 
\Hy@Warning{% 
Internal error: Wrong pattern!\MessageBreak 
--> #3 <--\MessageBreak 
Pattern check ignored% 
}% 
\endgroup 
\expandafter\ltx@firstoftwo 
\fi 
\ltx@ifpackagelater{ltxcmds}{2010/09/11}{}{% 
\begingroup 
\lccode`0=`\{elax 
\lowercase\endgroup 
\def\ltx@leftbracechar{0}% 
\begingroup 
\lccode`0=`\}elax 
\lowercase\endgroup 
\def\ltx@rightbracechar{0}% 
\endgroup 
\lcase\pdfmatch#2(#3)#1 % 
\endgroup 
\expandafter\ltx@secondoftwo 
\or 
\endgroup 
\expandafter\ltx@firstoftwo 
\else 
\Hy@Warning{% 
Internal error: Wrong pattern!\MessageBreak 
--> #3 <--\MessageBreak 
Pattern check ignored% 
}% 
\endgroup 
\expandafter\ltx@firstoftwo 
\fi 
\ltx@ifpackagelater{ltxcmds}{2010/09/11}{}{% 
\begingroup 
\lccode`0=`\{elax 
\lowercase\endgroup 
\def\ltx@leftbracechar{0}% 
\begingroup 
\lccode`0=`\}elax 
\lowercase\endgroup 
\def\ltx@rightbracechar{0}% 
\endgroup 
\lcase\pdfmatch#2(#3)#1 % 
\endgroup 
\expandafter\ltx@secondoftwo 
\or 
\endgroup 
\expandafter\ltx@firstoftwo 
\else 
\Hy@Warning{% 
Internal error: Wrong pattern!\MessageBreak 
--> #3 <--\MessageBreak 
Pattern check ignored% 
}% 
\endgroup 
\expandafter\ltx@firstoftwo 
\fi 
\ltx@ifpackagelater{ltxcmds}{2010/09/11}{}{% 
\begingroup 
\lccode`0=`\{elax 
\lowercase\endgroup 
\def\ltx@leftbracechar{0}% 
\begingroup 
\lccode`0=`\}elax 
\lowercase\endgroup 
\def\ltx@rightbracechar{0}% 
\endgroup 
\lcase\pdfmatch#2(#3)#1 % 
\endgroup 
\expandafter\ltx@secondoftwo 
\or 
\endgroup 
\expandafter\ltx@firstoftwo 
\else 
\Hy@Warning{% 
Internal error: Wrong pattern!\MessageBreak 
--> #3 <--\MessageBreak 
Pattern check ignored% 
}% 
\endgroup 
\expandafter\ltx@firstoftwo 
\fi
4.4 Compatibility with format dumps

\AfterBeginDocument

For use with pre-compiled formats, created using the ldump package, there needs to be 2 hooks for adding material delayed until \begin{document}. These are called \AfterBeginDocument and \AtBeginDocument. If ldump is not loaded, then a single hook suffices for normal \TeX processing.

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

\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.

\AtEndOfPackage

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

4.5 Switches

\ifHy@stoppedearly
\AtEndOfPackage

\ifHy@typexml
\If\AtEndOfPackage\undefined
\AfterBeginDocument\undefined
\let\AtEndOfPackage\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]
\newif\ifHy@pdffitwindow
\newif\ifHy@hyperfootnotes
\newif\ifHy@hyperindex
\newif\ifHy@hyperfootnotes
\newif\ifHy@hyperindex
\newif\ifHy@implicit
\newif\ifHy@linktocpage
\newif\ifHy@localanchorname
\newif\ifHy@pdfmenubar
\newif\ifHy@naturalnames
\newif\ifHy@nesting
\newif\ifHy@pdfnewwindowset
\newif\ifHy@pdfnewwindow
\newif\ifHy@oocgcolorlinks
\newif\ifHy@pageanchor
\newif\ifHy@pdfpagelabels
\newif\ifHy@pdfpagehidden
\newif\ifHy@pdfstring
\newif\ifHy@plainpages
\newif\ifHy@psize
\newif\ifHy@raiselinks
\newif\ifHy@seminarslides
\newif\ifHy@setpagesize
\newif\ifHy@texht
\newif\ifHy@psdextra
\newif\ifHy@pdftoolbar
\newif\ifHy@unicode
\newif\ifHy@pdfusetitle
\newif\ifHy@pdfusetitle
\let\Hy@debugtrue\Hy@verbosetrue
\let\Hy@debugfalse\Hy@verbosefalse
\newif\ifHy@pdfwindowui
\newif\ifHy@pdfdisplaydoctitle
Defaults for the switches are now set.
5 \ Common help macros

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

5.1 Macros for recursions

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

5.2 Babel’s protection of shorthand characters

\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 (e.g., FitBH, ...). The following macros perform the transformation from TeX units (pt) to PDF units (bp).

\texttt{\hypercalcbp} The user macro \texttt{\hypercalcbp} can be used, for example, inside option values:

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

- It cannot be used inside \texttt{\usepackage}, because LaTeX expands the options before package hyperref is loaded and \texttt{\hypercalcbp} is defined.
- With e-TeX extensions an expandable implementation is very easy; \texttt{\hypercalcbp} can be used everywhere and is expanded at use.
- Without e-TeX’s features \texttt{\hypercalcbp} cannot be implemented expandable (practically) and have to be supported by \texttt{\hypercalcbpdef}. Limitations:
  - Works only in options that use \texttt{\hypercalcbpdef} (currently only \texttt{pdfstartview}).
  - For calculations package \texttt{calc} has to be loaded.
  - The expansion of the argument is done at definition time.

Example (\TeX):

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

\texttt{\hypercalcbp}

\begin{verbatim}
492 \begingroup\expandafter\expandafter\expandafter\endgroup
493 \expandafter\ifx\csname dimexpr\endcsname\relax
494 \def\hypercalcbpdef#1#2{%
495 \begingroup
496 \toks@{}%
497 \HyCal@scan#2\hypercalcbp\@nil
498 \endgroup
499 \expandafter\def\expandafter#1\expandafter\@nil
500 }%
501 \def\HyCal@scan#1\hypercalcbp#2\@nil{%
502 \toks@\expandafter\expandafter\expandafter{\the\toks@ #1}%
503 \ifx\#2\%
504 \else
505 \ltx@ReturnAfterFi{%
506 \HyCal@do\#2\@nil
507 }%
508 \fi
509 }%
510 \def\HyCal@do#1\@nil{%
511 \@ifpackageloaded{calc}{%}
512 \Hy@Warning{For calculations \string\hypercalcbp\space needs\MessageBreak
513 package \texttt{calc} or e-TeX}%
514 }
515 }
516 }
\end{verbatim}
6 Dealing with PDF strings

The PDF string stuff done by Heiko Oberdiek.

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

6.1 Description of PDF strings

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

- They are surrounded by parentheses. The hexadecimal form is not supported.
- Like PostScript language strings they use the same escaping mechanism:
  - \ the backslash itself
  - \, \( unbalanced parentheses
  - \n, \r, \t, \b, \f special white space escape sequences
  - \ddd octal character code \ddd
- Strings are stored either in PDFDocEncoding, which is a superset of ISO-Latin1 and is compatible with Unicode with character codes below 256, or in Unicode.

6.2 Definition of \pdfstringdef

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

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

The macro \pdfstringdef consists of three main parts:

1. Preprocessing. Here the expansion is prepared. The encoding is set and many commands are redefined, so that they work appropriate.
2. Expansion. The \TeX string is expanded the first time to get a PDF string.

3. Postprocessing. The result of the expansion is checked and converted to the final form.

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

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

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

533 \def\pdfstringdef{\#1\#2}%

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

534 \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.

535 \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.

536 \edef\0{\string\0}\
537 \edef\1{\string\1}\
538 \edef\2{\string\2}\
539 \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 \encupdate for optimizing reasons.

540 \ifHy@unicode
541 \edef\8{\string\8}\
542 \edef\9{\string\9}\

20
Internal encoding commands. \texttt{\texttt{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 \texttt{\texttt{@inmathwarn}} will be disabled (see below).

\texttt{\texttt{@inmathwarn}}\texttt{\texttt{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 (\texttt{edef}), so that the assignments of \texttt{@changed@cmd} don’t take place. To patch this behaviour I only found \texttt{\texttt{@inmathwarn}} as a usable hook. While an \texttt{edef} a warning message by \texttt{\texttt{@inmathwarn}} or \texttt{TextSymbolUnavailable} cannot be give out, so \texttt{\texttt{@inmathwarn}} should be disabled. And with the help of it the assignments in \texttt{\texttt{@changed@cmd}} can easily be caught (see below).

\texttt{\texttt{let}@i\texttt{inmathwarn}\texttt{HyPs}@i\texttt{inmathwarn}}

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

\texttt{\texttt{let}@i\texttt{add@accent\texttt{HyPs}@i\texttt{add@accent}}}

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

\texttt{\texttt{let}@l\texttt{\valuebraceleft}}
\texttt{\texttt{let}@l\texttt{\valuebraceright}}
\texttt{\texttt{let}@ll\texttt{\valuebackslash}}
\texttt{\texttt{let}@l\texttt{\valuenumbersign}}
\texttt{\texttt{let}@l\texttt{\valuedollar}}
\texttt{\texttt{let}@l\texttt{\valuepercent}}
\texttt{\texttt{let}@l\texttt{\valueampersand}}
\texttt{\texttt{let}@l\texttt{\valueasciitilde}}
\texttt{\texttt{let}@l\texttt{\valueunderscore}}
\texttt{\texttt{let}@l\texttt{\valueparagraph}}
\texttt{\texttt{let}@l\texttt{\valuedots}}
\texttt{\texttt{let}@l\texttt{\valueellipsis}}
\texttt{\texttt{let}@l\texttt{\textEncodingNoboundary}}
\texttt{\texttt{}}
\texttt{\texttt{\textEncodingNoboundary}}

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

\texttt{\texttt{backslash}}: \texttt{\texttt{\pdfstringdefDisableCommands}}\texttt{|\texttt{let}\texttt{\backslash}}
At any case, however, the optional argument or the star cannot be scanned in a 100% sure manner.

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

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

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

Environments.

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

Package color.

\def\textcolor##1##2{\@secondoftwo}

Upper- and lowercase.

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

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

\ifHy@psdextra
\ifHy@unicode
\csname psdmapshortnames\endcsname
\csname psdaliasnames\endcsname
\fi
\fi

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

\let\foreignlanguage@secondoftwo
\let\textlatin\@firstofone
\ltx@ifundefined{language@group}{%\%\%
\let\bbl@info\@gobble
\csname HyPsd@babel@language@group\endcsname
\}%
\HyPsd@GreekPatch
\HyPsd@SpanishPatch
\HyPsd@RussianPatch

23
\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
\let\ref\HyPsd@ref
\let\pageref\HyPsd@pageref
\let\nameref\HyPsd@nameref
\let\autoref\HyPsd@autoref

The \ref and \pageref is much more complicate because of their star form.
Miscellaneous commands.
677 \let\leavevmode\@empty
678 \let\mbox\@empty
\halign causes error messages because of the template character #.
679 \def\halign\{\pdfstringdefWarn\halign\@gobble\%
680 \let\ignorespaces\HyPsd@ignorespaces
681 \let\Hy@SectionAnchorHref\@gobble
682 \let\ensuremath\@firstofone

Patch for cjk bookmarks.
683 \HyPsd@CJWhook

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

Spaces. For checking the token of the string, spaces must be masked, because
they cannot by caught by undelimited arguments.
686 \HyPsd@LetUnexpandableSpace\space
687 \HyPsd@LetUnexpandableSpace\ %
688 \HyPsd@LetUnexpandableSpace-\%
689 \HyPsd@LetUnexpandableSpace\nobreakspace

Package xspace.
690 \ltx@IfUndefined{@xspace}{%
691 \let\xspace\HyPsd@ITALCORR
692 }{%
693 \let\xspace\HyPsd@XSPACE
694 }%
695 \let\HyPsd@ITALCORR
696 \let\bgroupl/%
697 \let\bgroupr/%

Redefinitions of miscellaneous commands. Hyphenation does not make
sense.
698 \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
\let\@protected@testopt@xargs\HyPsd@protected@testopt
```

Support for package ‘xargs’:

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

6.2.2 Expansion

There are several possibilities to expand tokens within \TeX{}:

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

\texttt{\csname}: First the string is expanded within a \texttt{\csname} and \texttt{\endcsname}. Then the command name is converted to characters with catcode 12 by \texttt{\string} and the first escape character removed by \texttt{\@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 \texttt{\csname} or allows to support the user with a descriptive error message. Therefore the experienced user had to enable this behaviour by an option \texttt{exactdef} in previous versions less or equal 6.50.

\texttt{\edef} This version uses this standard form for expansion. It is stronger than \TeX{}’s \texttt{\protected@edef}. So the font encoding mechanism works and the glyph commands are converted to the correct tokens for PDF strings with the definitions of the PD1 encoding. Because the protecting mechanism of \TeX{} doesn’t work within an \texttt{\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 \texttt{\texorpdfstring}). In the most cases unexpandable commands and tokens (math shift, grouping characters) remains. They don’t cause an error like with \texttt{\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 \texttt{\edef} the \texttt{\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, \texttt{\pdfstringdef} is slow enough).

```
\begingroup
\let\GenericError\@gobblefour
\let\GenericWarning\@gobbletwo
\let\GenericInfo\@gobbletwo
```
Package french.  This fix only works, if \GenericError is disabled.

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

6.2.3 Postprocessing

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

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 things a little 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.
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.

\begin{verbatim}
727 \let\Hypsd@SPACEOPTI\relax
728 {%
729 \let\Hypsd@String\@empty
730 \expandafter\Hypsd@CheckCatcodes\string\Hypsd@End
731 \global\let#1\Hypsd@String
732 }
733 \expandafter\Hypsd@RemoveMask\expandafter
734 \|\expandafter\@empty#1\Hypsd@End#1%
\end{verbatim}

\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:

\begin{verbatim}
\edef#1{\expandafter\strip@prefix\meaning#1}%
\end{verbatim}

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.

\begin{verbatim}
735 \expandafter\Hypsd@Subst\expandafter{\Hypsd@GLYPHERR}{\relax}#1%
736 \edef\Hypsd@StringSubst{\\}{\textbackslash}#1%
\end{verbatim}

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

\begin{verbatim}
740 \Hypsd@StringSubst{\\}{\textbackslash}#1%
\end{verbatim}

Spaces. All spaces have already the form \texttt{\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 \texttt{\relax} in order to prevent a too early expansion by an \texttt{\edef}. Secondly a \texttt{\relax} serves as a marker for a token that is detected by \texttt{\xspace}.

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

28
Right parenthesis. Also \texttt{xspace} detects a right parenthesis. For the \texttt{xspace} support and the following parenthesis check the different parenthesis notations ), \), and \texttt{051} are converted to one type \texttt{051} and before \texttt{HyPsd@empty} with the meaning of \texttt{relax} is introduced for \texttt{xspace}. By redefining to \texttt{@empty} \texttt{HyPsd@empty} can easily removed later.

Support for package \texttt{xspace}. \texttt{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 \texttt{xspace} there are tokens with catcode 11 and 12, \texttt{HyPsd@empty} and \texttt{HyPsd@SPACEOPTI}. With package \texttt{xspace} marker for the italic correction / and \texttt{xspace} come with. In the package \texttt{xspace} case the two markers are replaced by commands and an \texttt{edef} performs the \texttt{xspace} processing.

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

Ligatures. \texttt{T\LaTeX} forms ligatures in its stomach, but the PDF strings are treated only by \texttt{T\LaTeX}'s mouth. The PDFDocEncoding contains some ligatures, but the
current version 3 of the AcrobatReader lacks the \textfi and \textfl glyphs, and the Linux version lacks the \textemdash and \textendash 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 \textbackslash 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 \textbackslash 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.

\begin{verbatim}
774 \textbackslash HyPsd@Subst{---}\textemdash#1%
775 \textbackslash HyPsd@Subst{--}\textendash#1%
776 \textbackslash HyPsd@Subst{!`}\textexclamdown#1%
777 \textbackslash HyPsd@Subst{?`}\textquestiondown#1%
778 \textbackslash HyPsd@Subst{fi}\textfi#1%
779 \textbackslash HyPsd@Subst{fl}\textfl#1%
\end{verbatim}

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

\begin{verbatim}
780 \textbackslash let\textbackslash HyPsd@empty\textbackslash @empty
\end{verbatim}

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

An optimization is possible. Matched parentheses can replaced by a \textbackslash O pair. But this code is removed to save \TeX{} memory and time.

\begin{verbatim}
781 \textbackslash ifHy@unicode
782 \textbackslash HyPsd@StringSubst{\textparenleft#1%
783 \textbackslash HyPsd@Subst{\textparenleft#1%
784 \textbackslash else
785 \textbackslash HyPsd@StringSubst{\{\050#1%
786 \textbackslash HyPsd@Subst{\{\050#1%
787 \textbackslash HyPsd@StringSubst{\{\string\}#1%
788 \textbackslash fi
\end{verbatim}

**Optimizing spaces.** Spaces are often used, but they have a very long form \textbackslash \textbackslash 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.

\begin{verbatim}
789 \textbackslash ifHy@unicode
790 \edef\textbackslash HyPsd@SPACEOPTI{\80\040}%
791 \textbackslash else
792 \textbackslash let\textbackslash HyPsd@SPACEOPTI\textbackslash HyPsd@spaceopti
793 \textbackslash fi
794 \textbackslash xdef\#1{\#1\textbackslash @empty}%
795 \textbackslash fi
\end{verbatim}

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

\begin{verbatim}
796 \endgroup
797 \begingroup
798 \textbackslash ifHy@unicode
799 \textbackslash HyPsd@ConvertToUnicode#1%
\end{verbatim}
Try conversion back to PDFDocEncoding.
\ifx\HyPsd@pdfencoding\HyPsd@pdfencoding@auto
\ltx@IfUndefined{StringEncodingConvertTest}{{%}
\EdefUnescapeString\HyPsd@temp#1%
\iffetex
\let\HyPsd@UnescapedString\HyPsd@temp
StringEncodingConvertTest\HyPsd@temp\HyPsd@temp
\EdefEscapeString\HyPsd@temp\HyPsd@temp
\global\let#1\HyPsd@temp
\HyPsd@EscapeTeX#1%
\Hy@unicodefalse
\}
\HyPsd@ToBigChars#1
\HyPsd@EscapeTeX#1
\else
StringEncodingConvertTest\HyPsd@temp\HyPsd@temp
\{utf16be\}{ascii-print}{{%}
\EdefEscapeString\HyPsd@temp\HyPsd@temp
\global\let#1\HyPsd@temp
\HyPsd@EscapeTeX#1%
\Hy@unicodefalse
\}
\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
\HyPsd@XeTeXBigCharsfalse

User hook. The hook \pdfstringdefPostHook can be used for the purpose to postprocess the string further.
\pdfstringdefPostHook#1%
\endgroup
\Hy@pdfstringdef
\def\Hy@pdfstringdef#1#2{{%}
\pdfstringdef\Hy@gtemp{#2}
\let#1\Hy@gtemp
\}

6.3 Encodings

6.3.1 Xe\TeX
\edef\Hy@temp{\catcode0=\the\catcode0\relax}
\catcode0=12 %
\iffetex
\else
\let\HyPsd@XeTeXBigCharstrue\empty
\let\HyPsd@XeTeXBigCharsfalse\empty
\expandafter\@gobble
\fi
{ %

31
\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\x\@empty
    \lccode\z@=%
    \ifnum\count@=40 % ( 
      \let\y\@backslashchar
    \else
      \ifnum\count@=41 % ) 
      \edef\y##1{\string\r}\
    \else
      \ifnum\count@=13 % carriage return 
      \edef\y##1{\string\r}\
    \else
      \ifnum\count@=10 % newline 
      \edef\y##1{\string\n}\
    \else
      \edef\y##1{\string\r}\
    \fi
  \fi
  \lowercase{\toks@\expandafter{\the\expandafter\toks@\y}^^@%}
\}
\def\HyPsd@UnescapedString{%
  \expandafter\@gobbletwo\HyPsd@UnescapedString
\}
\edef\x{}\endgroup

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6.3.2 Workaround for package linguex

```latex
\@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} \% \Hy@SaveCatcodeSettings
```

6.3.3 Catcodes saving and restoring for .def files

```latex
\Hy@SaveCatcodeSettings\% \def\Hy@SaveCatcodeSettings\#1\{} \% \expandafter\edef\csname Hy@cat@#1\endcsname{\endlinechar=\the\endlinechar\relax \catcode32 \the\catcode32\relax % (space) \catcode34 \the\catcode34\relax % " \catcode35 \the\catcode35\relax % # \catcode37 \the\catcode37\relax % (percent) \catcode40 \the\catcode40\relax % ( \catcode41 \the\catcode41\relax % ) \catcode42 \the\catcode42\relax % * \catcode46 \the\catcode46\relax % . \catcode58 \the\catcode58\relax % : \catcode60 \the\catcode60\relax % < \catcode61 \the\catcode61\relax % = \catcode62 \the\catcode62\relax % > \catcode64 \the\catcode64\relax % @ \catcode91 \the\catcode91\relax % [ \catcode92 \the\catcode92\relax % \catcode93 \the\catcode93\relax % ] \catcode123 \the\catcode123\relax % { \catcode124 \the\catcode124\relax % | \catcode125 \the\catcode125\relax % }} % \endlinechar=-1 \% \catcode32 10 % (space) \catcode34 12 % " \catcode35 6 % #
```

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6.3.4 PD1 encoding

The PD1 encoding implements the PDFDocEncoding for use with \LaTeX 2ε’s NFSS. Because the informational strings are not set by \TeX’s typesetting mechanism but for interpreting by the PDF reader, the glyphs of the PD1 encoding are implemented to be safely written to a file (PDF output file, .out file).

The PD1 encoding can be specified as an option of the ‘fontenc’ package or loaded here. It does not matter what font family is selected, as \TeX does not process it anyway. So use CM.

6.3.5 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.

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

6.4.1 \textorpdfstring

While expanding the string in \pdfstringdef the switch \ifHy@pdfstring is set. This is used by the full expandible macro \textorpdfstring. 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.

6.4.2 Hooks for \pdfstringdef

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

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.:
In the argument of \texttt{pdfstringdefDisableCommands} the character @ can be used in command names. So it is easy to use useful \LaTeX\ commands like \texttt{@gobble} or \texttt{@firstofone}.

\begin{verbatim}
def\pdfstringdefDisableCommands{%
  \let\textasciitilde\textcolor\@gobble}%
\end{verbatim}

(\texttt{Partial}) fix for bug in \texttt{frenchb.ldf} 2010/08/21 v2.5a that destroys \texttt{pdfstringdefDisableCommands} after usage in \texttt{AtBeginDocument}.

\begin{verbatim}
\let\HyPsd@pdfstringdefDisableCommands\pdfstringdefDisableCommands
\AtBeginDocument{%
  \@ifundefined{pdfstringdefDisableCommands}{%\let\pdfstringdefDisableCommands\HyPsd@pdfstringdefDisableCommands}{}%}
\end{verbatim}

The purpose of \texttt{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 \texttt{<>-} is added to the token. \texttt{noexpand} protects the probably undefined one during the first expansion step. Then \texttt{HyPsd@CheckCatcodes} can detect the not allowed token, \texttt{HyPsd@CatcodeWarning} prints a warning message, after \texttt{HyPsd@RemovePrefix} has removed the prefix. \texttt{pdfstringdefWarn} is intended for document authors or package writers, examples for use can be seen in the definition of \texttt{HyPsd@ifnextchar} or \texttt{HyPsd@protected@testopt}.

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

\section{Help macros for expansion}

\subsection{\texttt{ignorespaces}}

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

\begin{verbatim}
\def\HyPsd@ignorespaces{%
  \begingroup
  \catcode0=12 %
  \def\x{%
    \catcode0=12 %
    \def\HyPsd@ignorespaces{\
      \x\endgroup}
  \endgroup}
}\end{verbatim}
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}
\begin{group}\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}{\let\HyPsd@BabelPatch{\let\HyOrg@languageshorthands\languageshorthands}}}{}}
Nested quoting environments are not supported (<<, >>).

\IfUndefined{slovene@sh@sel}{%}
\def\HyPsd@babel@slovene{%}
\declare@shorthand{slovene}{"|}{}%
\ }

\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}%
\ }

\IfUndefined{swedish@sh@sel}{}{%
\def\HyPsd@babel@swedish{%}
\declare@shorthand{swedish}{"|}{}%
\declare@shorthand{swedish}{"~}{-}%
\ }

\IfUndefined{ukrainian@sh@sel}{}{%
\def\HyPsd@babel@ukrainian{%}
\declare@shorthand{ukrainian}{"|}{}%
\declare@shorthand{ukrainian}{"~}{-}%
\ }

\IfUndefined{usorbian@sh@sel}{}{%
\def\HyPsd@babel@usorbian{%}
\declare@shorthand{usorbian}{"f}{f}%
\declare@shorthand{usorbian}{"|}{}%
\ }

\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<\one
\@arabic{#2}%
\else
\ifnum#2<1000000 %
\HyPsd@GreekNum1(#2)%
\else
\end{verbatim}

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\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%
}
Shorthand "-" of ‘russianb.ldf’ is not expandable, therefore it is disabled and replaced by -. 

6.5.3 CJK patch

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

6.5.4 CJK bookmarks

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:

```
\begingroup
\catcode"7F=\active
\toks0{7F=\active
\let\CJK@ignorespaces\empty
\let\CJK@char\@gobbletwo
\let\CJK@punctchar\@gobblefour
\def\CJK@punctcharx#1{\@gobblefour}
\catcode"7F=\active
\def^^7f#1^^7f#2^^7f{\@gobbletwo}
\endgroup
```

<arg1> is the first byte in the range (always > 0x80); <arg2> is the second byte in decimal notation ( ≥ 0x40).
\string #1\HyPsd@DecimalToOctal(#2)\
\fi
\let\Hy@cjkpu\@empty
\ifHy@unicode
\def\Hy@cjkpu{\80}
\else
\HyPsd@CJKActiveChars
\count@=127
\@whilenum\count@<255 \do{%}
\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 con-
sumption 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 \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 \141\or \142\or \143\or \144\or \145\or \146\or \147\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}%
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
\fi
\HyPsd@DecimalToOctalSecond{#2}%
\fi
}

\def\HyPsd@HighA#1!{%
\expandafter\expandafter\expandafter\HyPsd@HighB
\IntCalcDec{#1}!!%
}

\def\HyPsd@HighB#1!{%
\expandafter\expandafter\expandafter\HyPsd@HighC
\IntCalcDiv{#1}{164}!!%
}

\def\HyPsd@HighC#1!{%
\expandafter\expandafter\expandafter\HyPsd@HighD
\IntCalcMod{#1}{164}!!%
}

\def\HyPsd@HighD#1!{%
\IntCalcDec{#1}!%
\backslashchar
\IntCalcMod{#1}{144}!%
}
\def\HyPsd@HighD#1!{
  \ifcase\IntCalcDiv#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\n  \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\n  \or 030\or 031\or 032\or 033\or 034\or 035\or 036\or 037\n  \or 040\or 041\or 042\or 043\or 044\or 045\or 046\or 047\n  \or 050\or 051\or 052\or 053\or 054\or 055\or 056\or 057\n  \or 060\or 061\or 062\or 063\or 064\or 065\or 066\or 067\n  \or 070\or 071\or 072\or 073\or 074\or 075\or 076\or 077\n  \or 100\or 101\or 102\or 103\or 104\or 105\or 106\or 107\n  \or 110\or 111\or 112\or 113\or 114\or 115\or 116\or 117\n  \or 120\or 121\or 122\or 123\or 124\or 125\or 126\or 127\n  \or 130\or 131\or 132\or 133\or 134\or 135\or 136\or 137\n  \or 140\or 141\or 142\or 143\or 144\or 145\or 146\or 147\n  \or 150\or 151\or 152\or 153\or 154\or 155\or 156\or 157\n  \or 160\or 161\or 162\or 163\or 164\or 165\or 166\or 167\n  \or 170\or 171\or 172\or 173\or 174\or 175\or 176\or 177\n  \or 200\or 201\or 202\or 203\or 204\or 205\or 206\or 207\n  \or 210\or 211\or 212\or 213\or 214\or 215\or 216\or 217\n  \or 220\or 221\or 222\or 223\or 224\or 225\or 226\or 227\n  \or 230\or 231\or 232\or 233\or 234\or 235\or 236\or 237\n  \or 240\or 241\or 242\or 243\or 244\or 245\or 246\or 247\n  \or 250\or 251\or 252\or 253\or 254\or 255\or 256\or 257\n  \or 260\or 261\or 262\or 263\or 264\or 265\or 266\or 267\n  \or 270\or 271\or 272\or 273\or 274\or 275\or 276\or 277\n  \or 300\or 301\or 302\or 303\or 304\or 305\or 306\or 307\n  \or 310\or 311\or 312\or 313\or 314\or 315\or 316\or 317\n  \or 320\or 321\or 322\or 323\or 324\or 325\or 326\or 327\n  \or 330\or 331\or 332\or 333\or 334\or 335\or 336\or 337\n  \or 340\or 341\or 342\or 343\or 344\or 345\or 346\or 347\n  \or 350\or 351\or 352\or 353\or 354\or 355\or 356\or 357\n  \or 360\or 361\or 362\or 363\or 364\or 365\or 366\or 367\n  \or 370\or 371\or 372\or 373\or 374\or 375\or 376\or 377\n  \fi
\def\HyPsd@DecimalToOctalSecond#1{
  \ifcase#1\000\or 001\or 002\or 003\or 004\or 005\or 006\or 007\n  \or 010\or 011\or 012\or 013\or 014\or 015\or 016\or 017\n  \or 020\or 021\or 022\or 023\or 024\or 025\or 026\or 027\n  \or 030\or 031\or 032\or 033\or 034\or 035\or 036\or 037\n  \or 040\or 041\or 042\or 043\or 044\or 045\or 046\or 047\n  \or 050\or 051\or 052\or 053\or 054\or 055\or 056\or 057\n  \or 060\or 061\or 062\or 063\or 064\or 065\or 066\or 067\n  \or 070\or 071\or 072\or 073\or 074\or 075\or 076\or 077\n  \or 100\or 101\or 102\or 103\or 104\or 105\or 106\or 107\n  \or 110\or 111\or 112\or 113\or 114\or 115\or 116\or 117\n  \fi
}
\def\HyPsd@CJKnumber#1{\ifnum#1<1\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<1000\HyPsd@CJKnumberFour#1!\empty{20}\else\ifnum#1<10000\expandafter\expandafter\expandafter\HyPsd@CJKnumberFour\IntCalcDiv#1!10000!% \CJK@tenthousand\expandafter\expandafter\expandafter\HyPsd@CJKnumberFour\IntCalcMod#1!10000!% \CJK@zero{10}\empty\else\expandafter\HyPsd@CJKnumberLarge\number\IntCalcDiv#1!100000000!\expandafter!% \CJK@zeros\empty\else\HyPsd@CJKnumberFour\number\empty{20}\empty\@empty{20}\empty\empty\fi\fi\fi\fi\ifnum#1<1000000 \HyPsd@CJKnumberFour\number\empty{20}\empty\empty\empty\empty\empty\empty\empty\else\HyPsd@CJKnumberLarge\number\empty{20}\empty\empty\empty\empty\empty\empty\empty\empty\endcase\fi
\def\HyPsd@CJKnumberFour#1\ifnum#1<100000000 \HyPsd@CJKnumberFour\number\empty{20}\empty\empty\empty\empty\empty\empty\empty\else\HyPsd@CJKnumberLarge\number\empty{20}\empty\empty\empty\empty\empty\empty\empty\empty\endfor
\number\IntCalcMod#1!1000000000000!!%
\fi
\fi
\fi
}
def\HyPsd@CJKnumberLarge#1!#2!{
\HyPsd@CJKnumberFour#1!{}{20}!
\CJK@hundredmillion
\ifnum#2=20
@empty
\else
\expandafter\expandafter\expandafter\HyPsd@CJKnumberFour
\IntCalcDiv#2!10000!%
!\CJK@zero{10}!
\CJK@tenthousand
\expandafter\expandafter\expandafter\HyPsd@CJKnumberFour
\IntCalcMod#2!1000000000000000!!!%
\else
\expandafter\expandafter\expandafter\HyPsd@CJKnumberThree
\IntCalcDiv#2!1000!%
!\CJK@zero{10}!
@empty
\fi
\fi
}
def\HyPsd@CJKnumberFour#1!#2#3{%
\ifnum#1=20
@empty
\else
#2%
\HyPsd@CJKnumberThree#1!{}{#3}!
\else
\HyPsd@CJKnumberThree#1!{}{#3}!
\CJK@hundred
\expandafter\expandafter\expandafter\HyPsd@CJKnumberTwo
\IntCalcMod#2!1000000000000000!!!%
\else
\HyPsd@CJKnumberThree#1!{}{#3}!
\CJK@hundred
\expandafter\expandafter\expandafter\HyPsd@CJKnumberTwo
\IntCalcMod#2!1000000000000000!!!%
\else
\HyPsd@CJKnumberTwo#1!{}{#3}!
\CJK@hundred
\expandafter\expandafter\expandafter\HyPsd@CJKnumberOne
\IntCalcMod#2!1000000000000000!!!%
\else
@empty
\fi
\fi
}
def\HyPsd@CJKnumberThree#1!#2#3{%
\ifnum#1=20
@empty
\else
#2%
\HyPsd@CJKnumberTwo#1!{}{#3}!
\else
\HyPsd@CJKnumberTwo#1!{}{#3}!
\CJK@hundred
\expandafter\expandafter\expandafter\HyPsd@CJKnumberOne
\IntCalcMod#2!1000000000000000!!!%
\else
@empty
\fi
\fi
}
def\HyPsd@CJKnumberTwo#1!#2#3{%
\ifnum#1=20
@empty
\else
#2%
\HyPsd@CJKnumberOne#1!{}{#3}!
\else
\HyPsd@CJKnumberOne#1!{}{#3}!
\CJK@hundred
\expandafter\expandafter\expandafter\HyPsd@CJKnumberZero
\IntCalcMod#2!1000000000000000!!!%
\else
@empty
\fi
\fi
}
def\HyPsd@CJKnumberOne#1!#2#3{%
\ifnum#1=20
@empty
\else
#2%
\HyPsd@CJKnumberZero#1!{}{#3}!
\else
\HyPsd@CJKnumberZero#1!{}{#3}!
\CJK@hundred
\expandafter\expandafter\expandafter\HyPsd@CJKnumberZero
\IntCalcMod#2!1000000000000000!!!%
\else
@empty
\fi
\fi
}
def\HyPsd@CJKnumberZero#1!#2#3{%
\ifnum#1=20
@empty
\else
#2%
\HyPsd@CJKnumberZero#1!{}{#3}!
\else
@empty
\fi
\fi

6.5.6 \@inmathwarn-Patch

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 loutenc.dtx changes. Checked with \TeX\textsuperscript{2e} 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 (\TeX\textsuperscript{2e} release [1998/12/01]). In the normal case \pdfstringdef is executed in a context where \protect has the meaning of \@typeset-protect (\relax).
In \HyPsd@ProtectSpaces the space tokens are replaced by not expandable commands, that work like spaces:
• So they can be caught by undelimited arguments.
• And they work in number, 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 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.

6.5.8 Marker for commands

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

\def\HyPsd@hspace#1{\HyPsd@@hspace#1*\END}
\HyPsd@@hspace checks whether `\hspace` is called in its star form.

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

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

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

6.5.10 Fix for AMS classes

\IfUndefined{tocsection}{\let\HyPsd@AMSclassfix\relax}{\HyPsd@AMSclassfix}

\let\toc@part\HyPsd@tocsection
\let\toc@chapter\HyPsd@tocsection
\let\toc@appendix\HyPsd@tocsection
\let\toc@section\HyPsd@tocsection
\let\toc@subsection\HyPsd@tocsection
\let\toc@subsubsection\HyPsd@tocsection
\let\toc@paragraph\HyPsd@tocsection
6.5.11 Reference commands

\HyPsd@href

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

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

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

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

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

\HyPsd@@@pageref \HyPsd@@@pageref does the work and extracts the second argument.
Macro \nameref calls the macro \nameref for star checking. The same methods like in \hspace are used.

\begin{verbatim}
\def\nameref#1{\@nameref#1*\END}

\@nameref checks if a star is present.
\begin{verbatim}
\def\@nameref#1*#2\END{\ifx\#2\%
\@nameref{#1}\else\expandafter\@nameref\fi}
\end{verbatim}
\@@nameref does the work and extracts the third argument.
\begin{verbatim}
\def\@@nameref#1{\expandafter\ifx\csname r@#1\endcsname\relax
??\else\expandafter\expandafter\expandafter\expandafter
\@car\csname r@#1\endcsname{}{}{}{}\@nil\fi}
\end{verbatim}
\autorefname At least a basic definition for getting the \autorefname name.
\begin{verbatim}
\def\autorefname#1#2#3#4#5\@nil{\ifx\#4\%
\else\autorefname#4.\@nil\fi}
\end{verbatim}
\end{verbatim}
\end{verbatim}
\end{verbatim}

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 cause 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 \def job. But checking and defining all possible active characters of the full range (0 until 255) would take a while. \pdfstringdef is slow enough, so this isn’t done.

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

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

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

To avoid unmachted \if... tokens, the cases \let\if...\iftrue and \let\if...\iffalse are checked and ignored.
\pdfstringdefWarn\let
\expandafter\@gobble
\else
\expandafter\ifx\csname##1\expandafter\endcsname
\csname iffalse\endcsname
\pdfstringdefWarn\let
\expandafter\expandafter\expandafter\@gobble
\else
\else
#2%\expandafter\noexpand\csname##1\expandafter\expandafter\expandafter\endcsname\fi\fi
\fi
\fi
\expandafter\x\csname <def>-command\expandafter\endcsname
\expandafter\csname <let>-command\endcsname
\def\HyPsd@LetCommand#1{%\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
- \kernelifnextchar
- \newifnextchar from package amsgen.sty (bug report latex/3662).

6.5.14 \ifprotected@testoptifiextchar
\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 \ifprotected@testopt is also disabled, because its first argument is the problematic macro with the optional argument and it is called before \ifnextchar.

\pdfstringdefWarn\let
\expandafter\noexpand\gobbletwo \gobble
6.6 Help macros for postprocessing

6.6.1 Generic warning.

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

\begin{verbatim}
\def\HyPsd@Warning#1{\
  \begingroup\
  \let\space\ltx@space\
  \Hy@Warning{#1}\
  \endgroup}
\end{verbatim}

6.6.2 Protecting spaces

\RequirePackage{etexcmds}[2007/09/09]
\ifetex@unexpanded\expandafter\@secondoftwo\else\expandafter\@firstoftwo\fi\
{\HyPsd@ProtectSpaces calls with the expanded string \HyPsd@@ProtectSpacesFi. The expanded string is protected by \texttt{1} 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.}

\begin{verbatim}
\def\HyPsd@ProtectSpaces#1{\iftrue\expandafter\HyPsd@@ProtectSpacesFi\expandafter|\expandafter\@empty#1| \HyPsd@End#1\fi}
\end{verbatim}

Remove mask.

\HyPsd@RemoveMask removes the protecting \texttt{1}. It is used by \HyPsd@@ProtectSpacesFi and by the code in \texttt{pdfstringdef} that removes the grouping characters.

\begin{verbatim}
\def\HyPsd@RemoveMask|\#1|\HyPsd@End#2{\%\toks\@expandafter{\#1}\HyPsd@End#2\%\the\toks@\%}
\end{verbatim}
6.6.3 Remove grouping braces

\hspace{2cm} #1 contains the expanded string, the result will be locally written in command \HyPsd@String.

\hspace{2cm} #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 \texttt{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 \texttt{ltx@ReturnAfterFi}.

\hspace{2cm} #1 contains 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 \texttt{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 \texttt{ltx@ReturnAfterFi}.

\hspace{2cm} #1 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 \texttt{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 \texttt{ltx@ReturnAfterFi}.
\HyPsd@RemoveBraces{#2} \hfill \fi \hfill \else \hfill
\def\Hy@temp@A{#1} \hfill \fi
\ifx\Hy@temp@A\@empty \hfill \Hy@ReturnAfterElseFiFiEnd{\hfill} \hfill \else \hfill
\HyPsd@ProtectSpaces\Hy@temp@A \hfill \HyPsd@AppendItalcorr\Hy@temp@A \hfill \Hy@ReturnAfterFiFiEnd{\hfill}$\expandafter\HyPsd@RemoveBraces\expandafter$ \hfill \fi \hfill \fi\hfill \Hy@ReturnEnd

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

\def\HyPsd@AppendItalcorr#1{\hfill \expandafter\HyPsd@@AppendItalcorr\expandafter{\hfill}#1\hfill}
\def\HyPsd@@AppendItalcorr#1#2{\hfill \expandafter\def\expandafter#2\expandafter{#2#1}\hfill}

6.6.4 Catcode check

Workaround for \texttt{\LaTeX}. \texttt{\HyPsd@CheckCatcodes} might trigger a bug of \texttt{\LaTeX} (0.60.2, 0.70.1, 0.70.2, ...) in the comparison with \texttt{\ifcat}, see \url{http://tracker.latex.org/view.php?id=773}.

\ltx@IfUndefined{directlua}{\hfill} \hfill !\relax
\ltx@IfDefined{directlua}{\hfill}!

Check catcodes.

Because \texttt{\ifcat} expands its arguments, this is prevented by \texttt{\noexpand}. In case of command tokens and active characters \texttt{\ifcat} now sees a \texttt{\relax}. After protecting spaces and removing braces \#1 should be a single token, no group of several tokens, nor an empty group. (So the \texttt{\expandafter\relax} between \texttt{\ifcat} and \texttt{\noexpand} is only for safety and it should be possible to remove it.) \texttt{\protect} and \texttt{\relax} should be removed silently. But it is too dangerous and breaks some code giving them the meaning of \texttt{\@empty}. So commands with the meaning of \texttt{\protect} are removed here. (\texttt{\protect} should have the meaning of \texttt{\@typeset\protect} that is equal to \texttt{\relax}.

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

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

\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@
    \fi
  \else
    \HyPsd@RemoveSpaceWarning{\string\kern\space\the\dimen@}%
    \gdef\HyPsd@Rest{#1}%
  \fi
\}\endgroup

Remove counts, dimens, skips.

Counts like \penalty are removed silently.

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

2056 \def\HyPsd@AfterSkipRemove#1\HyPsd@End{%  
2057 \ifdim\ifx\HyPsd@String\@empty\z@\else\skip@\fi>1ex  
2058 \HyPsd@ReplaceSpaceWarning\string\hskip\space\the\skip@}%  
2059 \gdef\HyPsd@Rest\HyPsd@UnexpandableSpace #1%  
2060 \else  
2061 \ifdim\skip@=\z@  
2062 \else  
2063 \HyPsd@RemoveSpaceWarning\string\kern\space\the\skip@}%  
2064 \fi  
2065 \gdef\HyPsd@Rest\#1%  
2066 \fi  
2067 }

Catcode warnings.

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

2068 \def\HyPsd@CatcodeWarning#1{%  
2069 \HyPsd@Warning{%  
2070 Token not allowed in a PDF string (%)  
2071 \ifHy@unicode  
2072 Unicode%  
2073 \else  
2074 PDFDocEncoding%  
2075 \fi  
2076 );%  
2077 \MessageBreak removing \HyPsd@RemoveCmdPrefix#1%  
2078 }%  
2079 }
begin{group}
2080 \catcode`\|=0  
2081 \catcode`\|=12  
2082 \gdef\HyPsd@RemoveCmdPrefix#1{%  
2083 |expandafter|\HyPsd@RemoveCmdPrefix  
2084 |string#1@empty|<-|@empty|@empty  
2085 \}%  
2086 \gdef\HyPsd@RemoveCmdPrefix#1|<>|@empty|@empty#2|@empty#3|@empty#1#2}%  
2087 |endgroup

\HyPsd@ReplaceSpaceWarning

2089 \def\HyPsd@ReplaceSpaceWarning#1{%  
2090 \HyPsd@Warning{%  
2091 Token not allowed in a PDF string (%)  
2092 \ifHy@unicode  
2093 Unicode%  
2094 \else  
2095 PDFDocEncoding%  
2096 \fi  
2097 );%  
2098 \MessageBreak #1\MessageBreak  
2099 removed%  
2100 }%  
2101 }
6.6.5 Check for wrong glyphs

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

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.
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.

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

\HyPsd@EscapeTeX
6.6.7 Support for package \texttt{xspace}

\texttt{xspace} does not work, because it uses a \texttt{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 \texttt{@xspace}, but this version is shorter and easier to understand.

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

6.6.8 Converting to Unicode

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

\begin{verbatim}
\begingroup \catcode`|=0 \% 
  \catcode`\*=12 \% 
  \HyPsd@ConvertToUnicode|gdef|HyPsd@ConvertToUnicode#1{\% 
    |xdef|#1{\% 
      |expandafter|HyPsd@DoConvert#1|@empty|@empty|@empty \% 
    \} \% 
    |ifx#1|@empty \% 
    |\ifx#1\empty \% 
      |\else \% 
      |\edef#1{\% 
        \texttt{\textbackslash 376}\texttt{\textbackslash 377}\% 
      \} \% 
    \fi \% 
  \}% 
\endgroup \% 
\end{verbatim}
\HyPsd@DoConvert
\edef\HyPsd@DoConvert#1{%
  \ifx#1@empty
    \else
      \ltx@ReturnAfterFi{%
        \ifx#1\%
          \HyPsd@DoEscape
        \else
          \HyPsd@Char{#1}%
        \fi
      }%
    \fi
  \fi
}%

\HyPsd@DoEscape
\edef\HyPsd@DoEscape#1{%
  \ifx#19%
    \HyPsd@GetTwoBytes
  \else
    \ltx@ReturnAfterFi{%
      \ifx#18%
        \HyPsd@GetTwoBytes
      \else
        #1%
      \fi
    }%
  \fi
}%

\HyPsd@GetTwoBytes
\edef\HyPsd@GetTwoBytes#1#2#3#4{%
  #1#2#3#4%
  \HyPsd@DoConvert
}%

\HyPsd@GetOneByte
\edef\HyPsd@GetOneByte#1#2{%
  #1#2%
  \HyPsd@DoConvert
}%

\HyPsd@@GetNextTwoTokens\TeX
does only allow nine parameters, so we need another macro to get more arguments.
\edef\HyPsd@@GetNextTwoTokens#1#2#3\END#4{%
  \xdef#4{#4#1#2}%
  \HyPsd@ConvertToUnicode#3\END#4%
}%

\HyPsd@Char
\begingroup
  \catcode0=9 %
  \catcode`^=7 %

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6.6.9 Support for UTF-8 input encoding

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

This calculation must be done in an expandable context, so we use eTeX here for performance reasons. Unhappily the results of divisions are rounded. Thus a circumvention via \numexpr is used, e.g.:

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

\numexpr 123/4\relax
The two octet form of UTF-8 110aaabb (A) and 10cccdde (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:

\[ a := A/4 - 48 \] (1)
\[ b := A - 4 * (A/4) \] (2)
\[ c := B/8 - 8 * ((8 * (B/8))/8) \] (3)
\[ d := B - 8 * (B/8) \] (4)

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

\[ a := A/4 - 56 \] (6)
\[ b := 2 * ((A - 4 * (A/4)) + ((B - 128 < 32)?0 : 1)) \] (7)
\[ c := B/4 - 32 - ((B - 128 < 32)?0 : 8) \] (8)
\[ d := B - 4 * (B/4) \] (9)
\[ e := C/8 - 16 \] (10)
\[ f := C - 8 \ast (C/8) \]
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 \HyPsd@unichar{\number\numexpr 55296+\dimexpr.0009765625\dimexpr#1sp-\p@}
      \else
        \ifnum#1>"7FF \9 \expandafter\HyPsd@unichar@first@byte\expandafter{\number\dimexpr.00390625\dimexpr#1sp}
        \else
          \8 \number\dimexpr.00390625\dimexpr#1sp
        \fi
        \expandafter\HyPsd@unichar@second@byte\expandafter{\number\numexpr#1-64*\number\dimexpr.00390625\dimexpr#1sp}
        \else
          .% unsupported (Unicode -> PDF Doc Encoding)
        \fi
    \fi
  \else
    \ifnum#1>"7FF
      \9
      \expandafter\HyPsd@unichar@first@byte\expandafter{\number\dimexpr.00390625\dimexpr#1sp}
      \else
        \8 \number\dimexpr.00390625\dimexpr#1sp
      \fi
      \expandafter\HyPsd@unichar@second@byte\expandafter{\number\numexpr#1-128*\number\dimexpr.00390625\dimexpr#1sp}
      \else
        \fi
    \fi
  \fi
}\def\HyPsd@UnicodeReplacementCharacter{\9377\375}\
\def\HyPsd@unichar@first@byte#1{%
  \number\dimexpr.015625\dimexpr#1sp
  \expandafter\HyPsd@unichar@octtwo\expandafter{\number\numexpr#1-64*\number\dimexpr.015625\dimexpr#1sp}
}\def\HyPsd@unichar@second@byte#1{%
  \number\dimexpr.015625\dimexpr#1sp
  \expandafter\HyPsd@unichar@octtwo\expandafter{\number\numexpr#1-164*\number\dimexpr.015625\dimexpr#1sp}
}
HyPsd@utf@viii@undeferr comes from file utf8x.def from package ucs.

\HyPsd@DieFace Die faces are provided by

\begin{tabular}{ll}
  Package & Macro \\
  ifsym & Cube \\
  epsdice & epsdice \\
  hhcount & fcdice
\end{tabular}

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

\HyPsd@DieFaceLarge

\begin{verbatim}
\def\HyPsd@DieFaceLarge#1!{% 
  \ifnum#1>6 \expandafter\ltx@firstoftwo \else \expandafter\ltx@secondoftwo \fi 
  \ltx@firstoftwo 69
\end{verbatim}

\textbf{6.6.10 Support for die faces (ifsym et. al.)}

Die faces are not part of PDFDocEncoding.
6.6.11 Support for moon phases of package china2e

\def\HyPsd@MoonPha#1{\% 
  \ifcase\intcalcNum{#1} \%
  \or \%
  \or \%
  \or \%
  \or \%
  \else \%
  \fi}
\HyPsd@MoonPha -> \MoonPha

6.6.12 Support for package pifont

\HyPsd@ding
\ifHy@unicode
  \ifnum#1<32 \%
  \HyPsd@UnicodeReplacementCharacter
  \else \%
  \ifnum#1>254 \%
  \HyPsd@UnicodeReplacementCharacter
  \else \%
  \ifnum#1<127 \%
  \expandafter\expandafter\expandafter
  \HyPsd@@ding\intcalcNum{#1}!\%
  \else \%
  \ifnum#1>160 \%
  \expandafter\expandafter\expandafter
  \HyPsd@@ding\intcalcNum{#1}!\%
  \else \%
  \HyPsd@UnicodeReplacementCharacter
  \fi \%
  \fi \%
  \fi \%
  \fi \%
  \else %. Dingbats are not part of PDFDocEncoding

70
\HyPsd@ding

\def\HyPsd@ding@#1!{\ifx@undefined{HyPsd@ding@#1}{\ifnum#1<127 \9047\%\HyPsd@DecimalToOctalSecond{\IntCalcSub#1!32!}\else\ifnum#1<168 \9047\14\IntCalcSub#1!160!\else\ifnum#1>181 \9047\HyPsd@DecimalToOctalSecond{\IntCalcSub#1!64!}\else\% 172..181 -> U+2460..U+2469 \9044\HyPsd@DecimalToOctalSecond{\IntCalcSub#1!76!}\fi\fi\fi\else\csname HyPsd@ding@#1\endcsname\fi}}

\@namedef{HyPsd@ding@32}{\space}
\% U+260E BLACK TELEPHONE
\@namedef{HyPsd@ding@37}{\9046\016}% U+260E
\@namedef{HyPsd@ding@42}{\9046\033}% U+261B BLACK RIGHT POINTING INDEX
\@namedef{HyPsd@ding@43}{\9046\036}% U+261E WHITE RIGHT POINTING INDEX
\@namedef{HyPsd@ding@72}{\9045\317}% U+25CF BLACK CIRCLE
\@namedef{HyPsd@ding@108}{\9045\317}% U+25C6 BLACK DIAMOND
\@namedef{HyPsd@ding@110}{\9045\240}% U+25A0 BLACK SQUARE
\@namedef{HyPsd@ding@115}{\9045\262}% U+25B2 BLACK UP-POINTING TRIANGLE
\@namedef{HyPsd@ding@116}{\9045\274}% U+25BC BLACK DOWN-POINTING TRIANGLE
\@namedef{HyPsd@ding@119}{\9045\306}% U+25C7 RIGHT HALF BLACK CIRCLE
\@namedef{HyPsd@ding@117}{\9045\306}% U+25C7 RIGHT HALF BLACK CIRCLE
\@namedef{HyPsd@ding@119}{\9045\327}% U+25D7 RIGHT HALF BLACK CIRCLE
\@namedef{HyPsd@ding@168}{\textclubsuitblack}
\@namedef{HyPsd@ding@169}{\textdiamondsuitblack}
\@namedef{HyPsd@ding@170}{\textheartsuitblack}
\@namedef{HyPsd@ding@171}{\textspadesuitblack}
\@namedef{HyPsd@ding@213}{\textrightarrow}
\@namedef{HyPsd@ding@214}{\textleftrightarrow}
\@namedef{HyPsd@ding@215}{\textuparrow}
\@namedef{HyPsd@ding@240}{\HyPsd@UnicodeReplacementCharacter}
7 Support of other packages

7.1 Class memoir
2593 \@ifclassloaded{memoir}\{%  
2594 \Hy@AtEndOfPackage{\RequirePackage{memhfixc}}\%  
2595 \}\%

7.2 Package subfigure
Added fix for version 2.1. Here \sub@label is defined.
2596 \@ifpackageloaded{subfigure}\{%  
2597 \ltx@ifUndefined{sub@label}\{%  
2598 \Hy@hypertexnamesfalse  
2599 \}\{%  
2600 \renewcommand*{\sub@label}[1]{\%  
2601 \subfig@oldlabel{#1}\%  
2602 \if@files\%  
2603 \begingroup\%  
2604 \edef\@currentlabstr{\%  
2605 \expandafter\strip@prefix\meaning\@currentlabelname\%  
2606 }\%  
2607 \protected@write\@auxout\{%  
2608 \string\newlabel{sub@#1}{\%  
2609 \{\thechapter}\%  
2610 \{\thepage}\%  
2611 \}\%  
2612 \expandafter\strip@period\@currentlabstr\%  
2613 \relax\relax\@@@\%  
2614 }\%  
2615 \{@currentHref\}%  
2616 \}\%  
2617 \}\%  
2618 \}\%  
2619 \endgroup\%  
2620 \Between\%  
2621 \}@esphack\%  
2622 \@esphack\%  
2623 \}\%  
2624 \@ifpackagelater{subfigure}{2002/03/26}\{%  
2625 \providecommand*{\toclevel@subfigure}{1}\%  
2626 \providecommand*{\toclevel@subtable}{1}\%  
2627 \}\%  
2628 \}\%  
2629 \}\%

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:
2630 \ltx@ifUndefined{XR@addURL}\{%  
2631 \}\{%  
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.
2632 \def\XR@addURL\#1{\XR@addURL\#1\{}\{}\{}\%  
2633 \def\XR@addURL\#1\#2\#3\#4\#5\{}\{}\%  
2634 \(#1)(#2)\%
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Inserting a `\special` command to set a destination destroys the `\lastskip` value.

```latex
\let\Hy@SaveLastskip\relax
\def\Hy@SaveLastskip{%\noexpand\ifvmode\noexpand\nobreak\vskip\the\lastskip\relax\noexpand\fi}
\def\Hy@RestoreLastskip{%\ifvmode\nobreak\vskip\the\lastskip\relax\fi}
\let\Hy@RestoreLastskip\relax
```

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9 Options

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

9.1 Help macros

\IfHyperBooleanExists

\ifHyperBoolean

\Hy@boolkey
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{%begingroupedef\x(#1)%@onelevel@sanitize\x@let\y=y%\def\do##1##2{%\let\z=##1%@onelevel@sanitize\z@ifx\z\x@let\y=n%@let\do@gobbletwo@fi@fi%#3%\ifeq\y y%\def\do##1##2{%* `##1'%\ifx\##2\else\space(##2)\fi\MessageBreak\Hy@Warning{Values of option `#2':#3%* An empty value disables the option\MessageBreakUnknown value `\x'%}%}%}
```


\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  
    \fi  
  }%  
  \let#1\@empty  
%}

\Hy@UseNameKey

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

9.2 Defining the options

\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}  
  }%  
%}

\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}  
  }%  
%}
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.

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.
Most PDF-creating drivers do not allow links to be broken
2913 \def\Hy@setbreaklinks#1{%
2914 \ename breaklinks#1\endcsname
2915 }
2916 \def\Hy@breaklinks@unsupported{%
2917 \ifx\Hy@setbreaklinks\@gobble
2918 \if\Hy@breaklinks
2919 \Hy@WarningNoLine{%
2920 You have enabled option `breaklinks'.\MessageBreak
2921 But driver `\Hy@driver.def' does not support this.\MessageBreak
2922 Expect trouble with the link areas of broken links%
2923 }
2924 \fi
2925 \fi
2926 }
2927 \define@key{Hyp}{breaklinks}[true] {%
2928 \Hy@boolkey{breaklinks}{#1}%
2929 \let\Hy@setbreaklinks\@gobble
2930 }
2931 \define@key{Hyp}{localanchorname}[true] {%
2932 \Hy@boolkey{localanchorname}{#1}%
2933 }
Determines whether an automatic anchor is put on each page
2934 \define@key{Hyp}{pageanchor}[true] {%
2935 \Hy@boolkey{pageanchor}{#1}%
2936 }
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.
2937 \define@key{Hyp}{plainpages}[true] {%
2938 \Hy@boolkey{plainpages}{#1}%
2939 }
Are the names for anchors made as per the HyperTeX system, or do they simply
use what \LaTeX{} provides?
2940 \define@key{Hyp}{naturalnames}[true] {%
2941 \Hy@boolkey{naturalnames}{#1}%
2942 }
Completely ignore the names as per the HyperTeX system, and use unique counters.
2943 \define@key{Hyp}{hypertexnames}[true] {%
2944 \Hy@boolkey{hypertexnames}{#1}%
2945 }
Currently, \texttt{dvips} doesn't allow anchors nested within targets, so this option tries
to stop that happening. Other processors may be able to cope.
2946 \define@key{Hyp}{nesting}[true] {%
2947 \Hy@boolkey{nesting}{#1}%
2948 }
2949 \define@key{Hyp}{destlabel}[true] {%
2950 \Hy@boolkey{destlabel}{#1}%
2951 }
2952 \define@key{Hyp}{unicode}[true] {%
2953 \Hy@boolkey{unicode}{#1}%
2954 \if\Hy@unicode
2955 \def\HyPsd@pdfencoding{unicode}%
79
\HyPsd@LoadUnicode
\else
  \def\HyPsd@pdfencoding{pdfdoc}\
  \fi
\}
\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@unicodetrue
      \global\let\Hy@unicodetrue\Hy@unicodetrue
    }%
  \fi
  \fi
\}
\define@key{Hyp}{pdfencoding}{%
  \edef\HyPsd@temp{#1}%
  \ifx\HyPsd@temp\HyPsd@pdfencoding@pdfdoc
    \let\HyPsd@pdfencoding\HyPsd@temp
    \Hy@unicodetrue
  \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@unicodetrue
      \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': `pdfdoc', `unicode', `auto'.\MessageBreak Ignoring unknown value `\HyPsd@temp'%}
  \fi
%}
\fi
\fi
\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@unicodetrue
    \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
  \fi
\else
  \@onelevel@sanitize\HyPsd@temp
  \Hy@Warning{Values of option `pdfencoding': `pdfdoc', `unicode', `auto'.\MessageBreak Ignoring unknown value `\HyPsd@temp'%}
%}
\fi
\fi
\fi
\fi
\else
  \@onelevel@sanitize\HyPsd@temp
  \Hy@Warning{Values of option `pdfencoding': `pdfdoc', `unicode', `auto'.\MessageBreak Ignoring unknown value `\HyPsd@temp'%}
%}
\fi
\fi
\fi
\fi
\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 `pdftocoding=auto'\MessageBreak
in the preamble or load the package there%
}%
}%
}%
}

\define@key{Hyp}{psdextra}{true}{%
\Hy@boolkey{psdextra}{#1}%
\HyPsd@LoadExtra
}
\hypersetup{\kvsetkeys{Hyp}}
\newif\ifHy@setpdfversion
\define@key{Hyp}{pdfversion}{%
@ifundefined{Hy@pdfversion@#1}{%
\PackageWarning{hyperref}{% Unsupported PDF version `#1'.\MessageBreak
Valid values: 1.2-1.7, 2.0%}
)%
}%
\Hy@setpdfversiontrue
\@nameuse{Hy@pdfversion@#1}%
}%
%
\Hy@pdfminorversion already used elsewhere to denote \pdfminorversion or
\pdfvariable majorversion} so introduce new names here.
\namedef{Hy@pdfversion@1.2}{\def\Hy@pdf@majorversion{1}\def\Hy@pdf@mi-
norversion{2}}%
\namedef{Hy@pdfversion@1.3}{\def\Hy@pdf@majorversion{1}\def\Hy@pdf@mi-
norversion{3}}%
\namedef{Hy@pdfversion@1.4}{\def\Hy@pdf@majorversion{1}\def\Hy@pdf@mi-
norversion{4}}%
\namedef{Hy@pdfversion@1.5}{\def\Hy@pdf@majorversion{1}\def\Hy@pdf@mi-
norversion{5}}%
\namedef{Hy@pdfversion@1.6}{\def\Hy@pdf@majorversion{1}\def\Hy@pdf@mi-
norversion{6}}%
\namedef{Hy@pdfversion@1.7}{\def\Hy@pdf@majorversion{1}\def\Hy@pdf@mi-
norversion{7}}%
\namedef{Hy@pdfversion@2.0}{\def\Hy@pdf@majorversion{2}\def\Hy@pdf@mi-
norversion{0}}%
\def\Hy@pdf@majorversion{1}\def\Hy@pdf@minorversion{5}

Legacy name, earlier releases assumed 1.x
if pdfminorversion is defined, make sure pdfmajorversion is too.

\@ifundefined{pdfminorversion}{}{%
  \@ifundefined{pdfmajorversion}{{%
    \newcount\pdfmajorversion
    \pdfmajorversion=1
  }}{%
    \ifx\pdfmajorversion\@undefined\else
      \def\Hy@pdfmajorversion{\pdfmajorversion}
    \fi
  }
}\fi

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
      \ifnum\OpMode=\z@
        \Hy@DviModetrue
      \else
        \def\Hy@Error{Wrong DVI mode driver option `#1',\MessageBreak because \Hy@DviErrMsg}@@ehc
      \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
  \fi
  \expandafter\ltx@gobble\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
  \fi
  \expandafter\ltx@gobble\fi
}\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}
}\fi
\def\HyOpt@CheckDvi#1{\
  \ifHy@DviMode
    \expandafter\ltx@firstofone\else
    \Hy@Error{Wrong DVI mode driver option `#1',\MessageBreak because \Hy@DviErrMsg}@@ehc
  \fi
  \expandafter\ltx@gobble\fi
}\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}
}
\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} \PassOptionsToPackage{dvips}{color}\} 
}\ 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{}}\} 
    \else 
      \Hy@Error{% Wrong driver option `vtex',\MessageBreak because of wrong OpMode (\the\OpMode)\} \@ehc 
    \fi 
  \fi 
}\ DeclareVoidOption{vtexpdfmark}{% 
\let\Hy@MaybeStopNow\relax 
\DeclareVoidOption{vtex}{% 
  \ifnum 0\ifnum\OpMode<1 1\fi \ifnum\OpMode>3 1\fi =0 \def\Hy@driver{hvtex}\else 
\else 
  \ifnum\OpMode=10\relax 
\def\Hy@driver{hvtexhtm}\else 
    \Hy@Error{% Wrong driver option `vtex',\MessageBreak because VTeX is not running\} \@ehc 
    \fi 
} 

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

\DeclareVoidOption{ps2pdf}{%
  \HyOpt@CheckDvi{ps2pdf}{% #1
  \def\Hy@driver{hvips}%
  \PassOptionsToPackage{dvips}{color}%
}}%

\let\HyOpt@DriverFallback\ltx@empty
\def\Hyp@DriverFallback{driverfallback}{%
  \ltx@if@empty{driverfallback}{%
    \Hyp@Warning{Invalid driver `#1' for option `driverfallback'}%  
}}%

\let\HyOpt@DriverFallback\ltx@empty
\ifHy@DviMode
  \HyOpt@DriverFallback{driverfallback}{%
    \Hyp@DriverFallback{#1}{%
      \ltx@if@empty{driverfallback}{%
        \Hyp@Warning{Invalid driver `#1' for option `driverfallback'}%  
}}%
  }
\fi
11 Options to add extra features

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

The automatic footnote linking can be disabled by option hyperfootnotes.

Set up back-referencing to be hyper links, by page, slide or section number,
Make index entries be links back to the relevant pages. By default this is turned on, but may be stopped.

Configuration of encap char.

Language options

The \autoref feature depends on the language.
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`.

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`?

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`.

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

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}`”

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

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.

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

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

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.
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.

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.

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.

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

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

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 ...

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

Name of the page stable (standard) abbreviation form. No problem.
Instead of package babel’s definition of \addto the implementation of package \varienref is used. Additionally argument \texttt{#1} is checked for \relax.

\def\HyLang@addto#1#2{%  
\toks@\expandafter{#1}  
\edef#1{\the\toks@\the\@temptokena}  
\fi  
\ifx#1\@undefined  
\edef#1{\the\@temptokena}  
\else  
\fi  
\@temptokena{}\toks@\@temptokena

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\@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}{}%
\@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{catalan}{catalan}{}
\HyLang@DeclareLang{afrikaans}{afrikaans}{}
\HyLang@DeclareLang{french}{french}{}
\HyLang@DeclareLang{francais}{french}{}
\HyLang@DeclareLang{fr}{french}{}
\HyLang@DeclareLang{canadien}{french}{}
\HyLang@DeclareLang{italian}{italian}{}
\HyLang@DeclareLang{magyar}{magyar}{}
\HyLang@DeclareLang{greek}{greek}{}
\HyLang@DeclareLang{dutch}{dutch}{}

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More work is needed in case of options \texttt{vietnamese} and \texttt{vietnam}.

Similar for option \texttt{arabic} that just loads the additions to PU encoding for Arabi.

13 Options to change appearance of links

Colouring links at the \LaTeX level is useful for debugging, perhaps.
The depth of the outlines is controlled by option \texttt{bookmarksdepth}. The option acts globally and distinguishes three cases:

- \texttt{bookmarksdepth}: Without value \hyperref uses counter \texttt{tocdepth} (compatible behaviour and default).

- \texttt{bookmarksdepth=<number>}: the depth is set to \texttt{<number>}.  

- \texttt{bookmarksdepth=<name>}: The \texttt{<name>} must not start with a number or minus sign. It is a document division name (part, chapter, section, …). Internally the value of macro \texttt{toclevel@<name>} is used.
\ifcase 0\expandafter\ifx\y-1\fi
\expandafter\ifnum\expandafter`\y>47 \relax
\Hy@Warning{Unknown document division name (\x)}%
\else
\setbox\z@=\hbox{%
\count@=`\x
\edef\Hy@bookmarksdepth{\the\count@}%
}%
\fi
\fi
\endgroup

'bookmarksopenlevel' to specify the open level. From Heiko Oberdiek.
\define@key{Hyp}{bookmarksopenlevel}{% \\def@bookmarksopenlevel{#1}%
\def@bookmarksopenlevel{\@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}%
\Hy@temp{link}{red}
\Hy@temp{anchor}{black}
\Hy@temp{cite}{green}
\Hy@temp{file}{cyan}
\Hy@temp{url}{magenta}
\Hy@temp{menu}{red}
\define@key{Hyp}{pagecolor}{%
15 PDF-specific options

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.

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.
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).

```
3873 \def\Hy@ColorList{cite, file, link, menu, run, url}
3874 \@for\Hy@temp:=\Hy@ColorList\do{%
3875 \noexpand\define@key{Hyp}{\Hy@temp bordercolor}{%
3876 \noexpand\HyColor@HyperrefBorderColor{##1}%
3877 \expandafter\noexpand\csname @\Hy@temp bordercolor\endcsname
3878 \{hyperref\}%
3879 \{\Hy@temp bordercolor\}%
3880 )%
3881 }%
3882 }%
3883 }
3884 \Hy@temp
3885 }
3886 \define@key{Hyp}{pagebordercolor}{%
3887 \Hy@WarningPageBorderColor
3888 }
3889 \def\Hy@WarningPageBorderColor{%
3890 \Hy@WarningNoLine{Option `pagebordercolor' is not available anymore}%
3891 \global\let\Hy@WarningPageBorderColor\relax
3892 }
3893 \define@key{Hyp}{allbordercolors}{%
3894 \def\Hy@temp##1##2{%
3895 \HyColor@HyperrefBorderColor{#1}##1{hyperref}{##2bordercolor}%
3896 )%
3897 \Hy@temp\@citebordercolor{cite}%
3898 \Hy@temp\@filebordercolor{file}%
3899 \Hy@temp\@linkbordercolor{link}%
3900 \Hy@temp\@menubordercolor{menu}%
3901 \Hy@temp\@runbordercolor{run}%
3902 \Hy@temp\@uribordercolor{url}%
3903 }
3904 \define@key{Hyp}{pdfhighlight}{\def\@pdffhighlight{#1}}
3905 \Hy@DefNameKey{pdfhighlight}{%}
3906 \do{/I}{Invert}%
3907 \do{/N}{None}%
3908 \do{/O}{Outline}%
3909 \do{/P}{Push}%
3910 }
3911 \def\Hy@setpdfhighlight{%
3912 \dox[\pdffhighlight]{%}
3913 \else
3914 /H\pdffhighlight
```

99
\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}\
\)}
Test according to ABNF of RFC 3066.
\Hy@Match\@pdflang{icase}{{% 
  ^% 
  [a-z]{1,8}% 
  (-[a-z0-9]{1,8})*% 
  $% 
}%(% 
Test according to ABNF of RFC 5646.
\Hy@Match\@pdflang{icase}{{% 
  ^% 
  (% langtag 
    % language 
    [a-z](2,3)% 
    ([a-z]{3}(-[a-z]{3})(0,2)?% extlang 
      (\{a-z\}(4)% reserved for future use 
        (\{a-z\}(5,8)% registered language subtag 
          )% 
      )% 
    )% 
  )% 
  ([0-9]{4})?% script 
  ([0-9]{2}|0-9){3})?% region 
  ([0-9]{5,8}|[0-9][a-z0-9]{3})% variant 
  ([0-9a-wyz]{2,8})% extension 
  x-(\{a-z0-9\}(1,8))% privateuse 
  % grandfathered/irregular 
  en-GB-oed% 
  i-{ami|bnn|default|enochian|hak|klingon|lux}|% 
  mingo|navajo|pwn|tao|tay|tsu)% 
  ]sgn-(BE-FR|BE-NL|CH-DE)% 
  % grandfathered/regular 
  | art-lo|ban% 
  | cel-gaulish% 
  | no-(bok|nyn)% 
  | zh-(guoyu|hakka|min|min-nan|xiang)% 
}%(% 
Test for unique extensions.
\Hy@Match{-\@pdflang}{icase}{-{a-wyz0-9}-}{% 
\Hy@Match\@pdflang{icase}{{% 
  ^x-}% 
\edef\Hy@temp{-\@pdflang}{}
108
User-assigned country codes are forbidden in language tags (RFC 3066).
Invalid language identifier `#1'
\MessageBreak
for option `pdflang' (RFC 3066)
\}%
\let\@pdflang\relax
\}%
\fi
\fi
}\}
\define@key{Hyp}{pdfpagelabels} [true]{%
\Hy@boolkey{pdfpagelabels}{#1}%
}\}
\define@key{Hyp}{pdfescapeform} [true]{%
\Hy@boolkey{pdfescapeform}{#1}%
}\}
\Default values:
\def\@linkbordercolor{1 0 0}
\def\@urlbordercolor{0 1 1}
\def\@menubordercolor{1 0 0}
\def\@filebordercolor{0 .5 .5}
\def\@runbordercolor{0 .7 .7}
\def\@citebordercolor{0 1 0}
\def\@pdfhighlight{/I}
\let\@pdftitle\ltx@empty
\let\@pdfauthor\ltx@empty
\let\@pdfproducer\relax
\def\@pdfcreator{LaTeX with hyperref}
\let\@pdfcreationdate\ltx@empty
\let\@pdfmoddate\ltx@empty
\let\@pdfsubject\ltx@empty
\let\@pdfkeywords\ltx@empty
\let\@pdftrapped\ltx@empty
\let\@pdfpagescrop\ltx@empty
\def\@pdfstartview{/Fit}
\def\@pdfremotestartview{/Fit}
\def\@pdfstartpage{1}
\let\@pdfprintpagerange\ltx@empty
\let\@pdfauthor\ltx@empty
\let\@pdfproducer\relax
\let\@pdfcreationdate\ltx@empty
\let\@pdfmoddate\ltx@empty
\let\@pdfsubject\ltx@empty
\let\@pdfkeywords\ltx@empty
\let\@pdftrapped\ltx@empty
\let\@pdfpagescrop\ltx@empty
\def\@pdfstartview{/Fit}
\def\@pdfremotestartview{/Fit}
\def\@pdfstartpage{1}
\let\@pdfprintpagerange\ltx@empty
\let\@pdfauthor\ltx@empty
\let\@pdfproducer\relax
\let\@pdfcreationdate\ltx@empty
\let\@pdfmoddate\ltx@empty
\let\@pdfsubject\ltx@empty
\let\@pdfkeywords\ltx@empty
\let\@pdftrapped\ltx@empty
\let\@pdfpagescrop\ltx@empty
\def\@pdfstartview{/Fit}
\def\@pdfremotestartview{/Fit}
\def\@pdfstartpage{1}
\let\@pdfprintpagerange\ltx@empty
\let\@pdfauthor\ltx@empty
\let\@pdfproducer\relax
\let\@pdfcreationdate\ltx@empty
\let\@pdfmoddate\ltx@empty
\let\@pdfsubject\ltx@empty
\let\@pdfkeywords\ltx@empty
\let\@pdftrapped\ltx@empty
\let\@pdfpagescrop\ltx@empty
}\begin{group}
\edef\x{\@ifundefined{stockheight}\paperheight\stockheight}\%
\dimen@=\x\relax
\ifdim\dimen@>\z@\%
\Hy@WarningNoLine{Height of page (\expandafter\string\x) is invalid (\the\x)\MessageBreak
using 11in}\%
\fi
\else
\dimen@=11in\relax
\Hy@WarningNoLine{Height of page (\expandafter\string\x) is invalid (\the\x)\MessageBreak
using 11in}\%
\fi
\edef\Hy@pageheight{\strip@pt\dimen@}\%
110
Allow the user to use \ExecuteOptions in the cfg file even though this package does not use the normal option mechanism. Use \hyper@normalise as a scratch macro, since it is going to be defined in a couple of lines anyway.

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

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

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

Add option tex4ht if package tex4ht is loaded.
\ifpackagewith{hyperref}{tex4ht}{%
  \%\ifpackageloaded{tex4ht}{%
    \PassOptionsToPackage{tex4ht}{hyperref}%
  }{%
    \ltx@IfUndefined{HCode}{%
      \begingroup
      \def\Hy@pkg{tex4ht}%
      \def\Hy@temp@A#1\RequirePackage[#2]#3#4\Hy@NIL{%
        \def\Hy@param{#2#3}%
        \ifx\Hy@param\ltx@empty
          \expandafter\ltx@gobble
        \else
          \expandafter\expandafter\expandafter\ltx@firstofone
        \fi
        {\Hy@temp@A#4\Hy@NIL}%
      }%
      \expandafter\Hy@temp@A\@documentclasshook\RequirePackage[{}\Hy@NIL
      \endgroup
      \PassOptionsToPackage{tex4ht}{hyperref}%
    }%}
  }%}
%}
15.1 Package xspace support

15.2 Option draft

15.3 PDF/A
15.4 Patch for babel’s \texttilde

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

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.

```latex
\ifpdf
  \ifx\Hy@driver\Hy@temp
  \else
    \ifpdfextension\undefined
    \def\Hy@temp{hpdftex}
    \else
      \def\Hy@temp{hluatex}
    \fi
    \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}\%
      \fi
    \fi
    \let\Hy@driver\Hy@temp
  \fi
\fi
\fi
\fi
\fi
```

115
Wrong driver `\Hy@driver.def';

\MessageBreak

pdfTeX is not running in PDF mode.
\MessageBreak

Using default driver%

\}%

\let\Hy@driver\@empty

\fi

\fi

\fi

\ifHy@texht

\else

\ifx\Hy@driver\@empty

\else

\def\Hy@temp{hxetex}%

\ifxetex

\if\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

\let\Hy@driver\@empty

\else

\def\Hy@temp{hvtexhtm}%

\ifnum\ifvtex\OpMode\else\m@ne\fi=10 %

\if\Hy@driver\Hy@temp

\else

\if\Hy@driver\Hy@temp

\Hy@WarningNoLine{Wrong driver `\Hy@driver.def';

\MessageBreak

VTeX is running in HTML mode.
\MessageBreak

Forcing driver `\Hy@temp.def'%

\}%

\let\Hy@driver\@empty

\else

\let\Hy@driver\@empty

\fi

\fi

\fi

\fi

\fi

\fi

\fi

\fi

\fi

\fi

\if\Hy@driver\@empty

\fi

\if\Hy@driver\@empty

\fi

\if\Hy@driver\@empty

\fi

\fi

\let\HyOpt@DriverType\ltx@empty

\if\HyOpt@CustomDriver\ltx@empty

\def\HyOpt@DriverType{(autodetected)}%

\providecommand*{\Hy@defaultdriver}{hdvips}%

\ifpdf

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

\let\HyOpt@DriverType\ltx@empty

\if\HyOpt@CustomDriver\ltx@empty

\fi

\fi
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.

15.4.2 Bookmarks

The purpose of the \firstofone-number-space-construct is that no \relax will be inserted by T\TeX before the \else:
Add wrapper for setting standard catcodes (babel’s shorthands).

\def\Hy@CatcodeWrapper#1{\let\Hy@EndWrap\ltx@empty
\def\TMP@EnsureCode##1##2{\edef\Hy@EndWrap{%\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{48}{12}% \
\TMP@EnsureCode{49}{12}% ;\TMP@EnsureCode{50}{12}% <\TMP@EnsureCode{51}{12}% =\TMP@EnsureCode{52}{12}% >\TMP@EnsureCode{53}{12}% ?\TMP@EnsureCode{91}{12}% [}
\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 
  \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{\scdefault}\selectfont}%% 
  \def\Hy@endcolorlink{\endgroup}%% 
  \Hy@Info{French linking ON}%% 
  \else 
  \fi 
  \fi 
  \fi 
  \def\Hy@colorlink#1{}% 
  \begin{group} 
  \HyColor@UseColor#1%% 
  \end{group} 
  \Hy@Info{Link coloring OFF}%% 
  \else 
  \ifHy@frenchlinks 
  \def\Hy@colorlink#1{}% 
  \begin{group} 
  \Hy@endcolorlink{\endgroup}%% 
  \Hy@Info{French linking OFF}%% 
  \else 
  \fi 
  \fi 
}
}

for grouping consistency:
\def\Hy@colorlink#1{\begin{group}\fontshape{\scdefault}\selectfont\endgroup}%% 
\def\Hy@endcolorlink{\endgroup}%% 
\Hy@Info{Link coloring OFF}%% 
\fi 
\fi 
\fi 
\Hy@DisableOption{colorlinks}%% 
\Hy@DisableOption{frenchlinks}%% 
\ifHy@texht 
\long\def\@firstoffive#1#2#3#4#5{#1}%% 
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\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}[2012/07/28]%
}
\fi
\fi
\DeclareRobustCommand\ref{\
\@ifstar\@refstar\T@ref
}
\DeclareRobustCommand\pageref{\
\@ifstar\@pagerefstar\T@pageref
}
\else
\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
}
\fi
\fi
\Hy@AtBeginDocument{\
\ifHy@texht
\else
\Hy@CatcodeWrapper\ReadBookmarks
\fi
}
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 is 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.

```latex
\ifHy@backref
\RequirePackage{backref}\
\else
\let\Hy@backout\@gobble
\fi
\Hy@DisableOption{backref}
\Hy@DisableOption{pagebackref}
\Hy@activeanchorfalse

\begin{verbatim}
\if\backref\else
\RequirePackage{backref}\
\fi
\end{verbatim}
```

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 is 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.

```latex
\begin{verbatim}
\if\backref\else
\RequirePackage{backref}\
\fi
\end{verbatim}
```

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 is 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.

```latex
\begin{verbatim}
\if\backref\else
\RequirePackage{backref}\
\fi
\end{verbatim}
```
Option `page'.
5264 \define@key{href}{page}{% 5265 \def\Hy@href@page{#1}{% 5266 }\let\Hy@href@page\@empty 5267 \let\Hy@href@page\@empty 5268 \newcount\c@Hy@tempcnt 5269 \def\theHy@tempcnt{\the\c@Hy@tempcnt} 5270 \def\Hy@MakeRemoteAction{% 5271 %\def\Hy@href@page\@empty 5272 \def\Hy@href@page{0}% 5273 }else 5274 \setcounter{Hy@tempcnt}{\Hy@href@page}% 5275 \ifnum\c@Hy@tempcnt\neq 5276 \Hy@Warning{% 5277 Invalid page number \theHy@tempcnt\MessageBreak 5278 for remote PDF file.\MessageBreak 5279 Using page 1%
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.

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

Option `pdfremotestartview'.

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

Option `pdfnewwindow'.

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

Option `ismap'.

```latex
\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'\MessageBreak
}\@ehc}{%
\csname Hy@href@ismap#1\endcsname
}{}
}\ifHy@href@ismap%}
```

Option `nextactionraw'.

```latex
\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
The action is discarded\MessageBreak
}\MessageBreak
})%
\fi
\ifx\Hy@href@nextactionraw\@empty
\else
\edef\Hy@href@nextactionraw{/Next \Hy@href@nextactionraw}%
\fi
```

```
\def\Hy@href@page{0}\
\else
\global\advance\c@Hy@tempcnt\m@ne
\edef\Hy@href@page{\theHy@tempcnt}\
\fi
\fi
Load package url.sty and save the meaning of the original \url in \nolinkurl.

\begin{verbatim}
\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}
\DeclareRobustCommand*{\hypertarget}{\ifHy@nesting
\hyper@@anchor{#1}{#2}\else
\hyper@@anchor{#1}{\relax}{#2}\fi}
\end{verbatim}

\texttt{\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. \texttt{\hyperdef} sets up an anchor in the same way. They each have three parameters of category, linkname, and marked text, and \texttt{\hyperref} also has a first parameter of URL. If there is an optional first parameter to \texttt{\hyperdef}, it is the name of a \LaTeX{} label which can be used in a short form of \texttt{\hyperref} later, to avoid remembering the name and category.
We also have a need to give a \LaTeX label to a hyper reference, to ease the pain of referring to it later. \texttt{hyperrefundefinedlink} may be redefined by a user to add colour or other formatting.

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

16.1 Link box support for XeTeX

\begin{verbatim}
\newdimen\XeTeXLinkMargin
\setlength{\XeTeXLinkMargin}{2pt}
\ifxetex
\font\XeTeXLink@font=pzdr at 1sp\relax
\newcommand*{\XeTeXLink@space}{%\begingroup
\endgroup
\protect\G@refundefinedtrue
@latex@warning{% Hyper reference `#2' on page \thepage space undefined%
}\protect\G@refundefinedtrue
\@latex@warning{% Hyper reference `#2' on page \thepage space undefined%
}\if\@filesw
\protected@write\@auxout{}{\string\newlabel{#1}{{}{}{}{\Hy@AnchorName}{}}}%
\fi
\end{verbatim}

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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.
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.

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:

```
\@hyper@linkfile file:#7\{#3}{#2}{#7}\%
```

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

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

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\%
\@hyper@launch#7\{#3}{#2}\%
```

otherwise its a URL

```
\@hyper@linkurl{#3}{#7}{#2}\{#2}\%
```

By default, turn run: into file:

```
\@hyper@linkurl{#3}{#7}{#2}\%
```

```
\@def@hyper@linkurl\{#1\}#2#3{% filename, anchor text, linkname
\@hyper@linkurl{#2}{#1}\%
\@Hy@linkfileprefix\%
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D P Story <story@uakron.edu> pointed out that relative paths starting .. fell over. Switched to using \filename@parse to solve this.

\begin{verbatim}
\def\@hyper@linkfile #1\#2\#3\#4{\
  \filename@parse{#1}\
  \ifx\filename@ext\relax\
    \edef\filename@ext{\XR@ext}\
  \fi\
  \edef\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\@empty\else\hyper@hash\#3\fi\
    \else\
      \hyper@linkurl{#2}{\use@file\ifx\#3\@empty\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{#1}\
}\def\Hy@@CleanupFile#1//#2/#3\hbox#4\@nil#5{\
  \begingroup\
  \toks@{\endgroup}\
  \def\x{#1}\
  \ifx\x\@empty\
    \def\x{#2}\
  \else\
    \edef\y{\#2}\
  \fi\
  \@onelevel@sanitize\y\
  \edef\y{\#2}\
  \@onelevel@sanitize\y\
  \edef\y{\#2}\
  \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}\
\end{verbatim}

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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.

18 Option ‘destlabel’
5702 \fi
5703 })
5704 )%
5705 \ltx@GlobalAppendToMacro\label@hook{
5706 \HyperDestRename@currentHref\label@name
5707 })%
5708 \HyperDestLabelReplace
5709 \def\HyperDestLabelReplace#1{%
5710 \ltx@ifundefined{HyDL@#1}{%
5711 #1%
5712 \csname HyDL@#1\endcsname
5713 }%
5714 }%
5715 \HyperDestNameFilter
5716 \let\HyperDestNameFilter\HyperDestLabelReplace
5717 \else
5718 \let\hyper@newdestlabel\ltx@gobbletwo
5719 \let\HyperDestLabelReplace\ltx@firstofone
5720 \fi
5721 \Hy@DisableOption{destlabel}
5722 \AddLineBeginAux{%
5723 \string\providecommand\string\hyper@newdestlabel[2]{%}
5724 }

19 Compatibility with the \texttt{\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 \texttt{html.sty} first, and then \texttt{hyperref.sty}, so that the definitions in \texttt{html.sty} take effect, and are then overridden in a few circumstances by this package.

5725 \let\htmladdimg\hyperimage
5726 \def\htmladdnormallink#1#2{\href{#2}{#1}}
5727 \def\htmladdnormallinkfoot#1#2{\href{#2}{#1}\footnote{#2}}
5728 \def\htmlref#1#2{% anchor text, label
5729 \label@hyperref{#2}{#1}%
5730 }
This is really too much. The \texttt{\LaTeX2html} package defines its own \texttt{\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.

\begin{verbatim}
\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\}% \\
  }%
\end{verbatim}

\section{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.

\subsection{Field flags}

The field flags are organized in a bit set.

\begin{verbatim}
\RequirePackage{bitset} \\
Each flag has a option name, an \texttt{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 \verb|$newif$. \\
The names of the flags in the PDF specification (1.7) are used as lowercase option names.
\end{verbatim}

\begin{verbatim}
\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
\end{verbatim}

Package ‘bitset’ uses zero based positions, the PDF specification starts with one.
The bit set is `HyField@#1`

The bit set is `HyField@#1`

The bit set is `HyField@#1`

The bit set is `HyField@#1`
20.1.1 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}{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}{%
\ifFld@popdown
137
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.

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

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

\Field@NewFlag{Submit}{IncludeNoValueFields}{2}
\Field@NewFlagOnly{Submit}{ExportFormat}{3}
\Field@NewFlag{Submit}{GetMethod}{4}
\Field@NewFlag{Submit}{SubmitCoordinates}{5}
\Field@NewFlagOnly{Submit}{XFDF}{6}
\Field@NewFlag{Submit}{IncludeAppendSaves}{7}
\Field@NewFlag{Submit}{IncludeAnnotations}{8}
\Field@NewFlagOnly{Submit}{SubmitPDF}{9}
\HyField@FlagsSubmit

\edef\Fld@submitflags{/Flags \bitsetGetDec{HyField@Submit}}%
20.1.3 Set annot flags in fields

\HyField@FlagsAnnot

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

20.1.4 Pushbutton field

\HyField@FlagsPushButton

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

20.1.5 Check box field

\HyField@FlagsCheckBox

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

20.1.7 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\relax  
\Hy@Error{Field option `comb' cannot used together with\MessageBreak  
  `multiline', `password', or `fileselect'\%}
\else  
\HyField@UseFlag{Ff}{Comb}%  
\fi  
\fi  
\HyField@UseFlag{Ff}{RichText}%  
\HyField@PrintFlags{Ff}{text field}%  
\bitsetIsEmpty{HyField@Ff}{%  
\let\Fld@flags\ltx@empty  
}%  
}%  
}
20.1.8 Choice fields

\HyField@FlagsChoice

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

20.2 Choice field

\HyField@PDFChoices

\hyfield@PDFChoices#1:
list of choices in key value syntax, key = exported name, value = displayed text.

Input: \Fld@default, \Fld@value, \ifFld@multiselect

Result: \Fld@choices with entries: /Opt, /DV, /V, /I.

\def\HyField@PDFChoices#1{%
  \begingroup
    \global\let\Fld@choices\ltx@empty
    \let\HyTmp@optlist\ltx@empty
    \let\HyTmp@optitem\relax
    \count@=0 %
    \kv@parse{#1}{%
      \Hy@pdfstringdef\kv@key\kv@key
      \ifx\kv@value\relax
        \ifnum\Hy@pdf@majorminor@version<103%implementation note122,PDFspec1.7
          \xdef\Fld@choices{(\kv@key)(\kv@key)}%
        \else
          \xdef\Fld@choices{(\kv@key)}%
        \fi
      \else
        \Hy@pdfstringdef\kv@value\kv@value
        \xdef\Fld@choices{(\kv@value)(\kv@key)}%
      \fi
      \edef\HyTmp@optlist{%
        \kv@parse{#1}{%
          \Hy@pdfstringdef\kv@key\kv@key
          \ifx\kv@value\relax
            \ifnum\Hy@pdf@majorminor@version<103%implementation note122,PDFspec1.7
              \xdef\Fld@choices{(\kv@key)(\kv@key)}%
            \else
              \xdef\Fld@choices{(\kv@key)}%
            \fi
          \else
            \Hy@pdfstringdef\kv@value\kv@value
            \xdef\Fld@choices{(\kv@value)(\kv@key)}%
          \fi
        \fi
        \kv@parse{#1}{%
          \Hy@pdfstringdef\kv@key\kv@key
          \ifx\kv@value\relax
            \ifnum\Hy@pdf@majorminor@version<103%implementation note122,PDFspec1.7
              \xdef\Fld@choices{(\kv@key)(\kv@key)}%
            \else
              \xdef\Fld@choices{(\kv@key)}%
            \fi
          \else
            \Hy@pdfstringdef\kv@value\kv@value
            \xdef\Fld@choices{(\kv@value)(\kv@key)}%
          \fi
        \fi
      }%
  
  \edef\Fld@flags{/Ff \bitsetGetDec{\HyField@Ff}}%
}

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\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@bgcolor{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[]}}}

20.3 Forms
\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\else\Hy@Warning{\Form `encoding' key with \MessageBreak unknown value `#1}\Form@htmlfalse\fi}
\define@key{Form}{method}{%\lowercase{\def\Hy@temp{#1}}\@ifundefined{Form@method@\Hy@temp}{%\@onelevel@sanitize\Hy@temp\Hy@Error{Unknown method `\Hy@temp'.\MessageBreak Known values are `post' and `get'}\@ehc}{\let\Form@method\Hy@temp\ifcase\@nameuse{Form@method@\Hy@temp} %\Fld@getmethodfalse\else\Fld@getmethodtrue\fi}}
\def\Form@method{}
\@namedef{Form@method@post}{0}
\@namedef{Form@method@get}{1}
\newif\ifHyField@NeedAppearances\HyField@NeedAppearancestrue\define@key{Form}{NeedAppearances}{true}{%\edef\Hy@tempa{#1}\ifx\Hy@tempa\Hy@true\HyField@NeedAppearancestrue\else\fi}
\def\HyField@NeedAppearances{%\newif\ifHyField@NeedAppearances\HyField@NeedAppearancestrue\define@key{Form}{NeedAppearances}{false}{%\global\let\HyField@NeedAppearancesfalse}\def\HyField@NeedAppearancesfalse{%\global\let\HyField@NeedAppearancesfalse\iffalse\def\HyField@NeedAppearancesfalse{%\global\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\def\HyField@NeedAppearancesfalse\iftrue\def\HyField@NeedAppearancesfalse{%\def\HyField@NeedAppearancesfalse\iftrue\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppearancesfalse\ifture\def\HyField@NeedAppearancesfalse{%\let\HyField@NeedAppe
\ifx\Hy@tempa\Hy@false
\HyField@NeedAppearancesfalse
\else
\Hy@Error{%
Unexpected value \Hy@tempa\MessageBreak
of option `NeedAppearances' instead of \MessageBreak
`true' or `false'%
}\@ehc
\fi
\fi
\def\Field@boolkey#1#2{%
csname Fld@#2\ifx\relax#1\relax true\else#1\fi\endcsname
}
\ifHy@texht
\newtoks\Field@toks\Field@toks={ }%
\def\Field@addtoks#1#2{%
\edef\@processme{\Field@toks{\the\Field@toks\space #1="#2"}}%
\@processme
}%
\else
\def\Hy@WarnHTMLFieldOption#1{%
\Hy@Warning{%
HTML field option `#1'
\MessageBreak
is ignored%
}%
}%
\fi
\def\Fld@checkequals#1=#2=#3\{%
\def\@currDisplay{#1}%
\if#2%
\def\@currValue{#1}%
\else
\def\@currValue{#2}%
\fi
\expandafter\Hy@pdfstringdef\expandafter\@currValue\expandafter{\@currValue}%
\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}%
}
\fi
\define@key{Field}{tabkey}{\Hy@WarnHTMLFieldOption{tabkey}}
\define@key{Field}{name}{\def\Fld@name{#1}}
\let\Fld@altname\relax
\define@key{Field}{altname}{\def\Fld@altname{#1}}
\let\Fld@mappingname\relax
\define@key{Field}{mappingname}{\def\Fld@mappingname{#1}}
\define@key{Field}{width}{\def\Fld@width{#1}\Field@Width#1\setbox0=\hbox{m}}
\define@key{Field}{maxlen}{\def\Fld@maxlen{#1}}
\define@key{Field}{menulength}{\Fld@menulength=#1\relax}
\define@key{Field}{height}{\def\Fld@height{#1}}
\define@key{Field}{charsize}{\setlength{\Fld@charsize}{#1}}
\define@key{Field}{borderwidth}{\Hy@defaultbp\Fld@borderwidth{#1}}
\begingroup
\afterassignment\Hy@defaultbpAux
\dimen@=.99626\dimen@
\edef\x{\endgroup
\strip@pt\dimen@}
x
\fi
\else
\edef\x{\endgroup
\strip@pt\dimen@}
\fi
\else
\def\Hy@defaultbpAux#1\relax#2#3{%}
\ifx!#1!%
\endgroup
\def#2{#3}%
\else
\dimen@=.99626\dimen@
\edef\x{\endgroup
\strip@pt\dimen@}
x
\fi
\else
\def\Hy@defaultbpAux#1\relax#2#3{%}
\ifx!#1!%
\endgroup
\def#2{#3}%
\else
\dimen@=.99626\dimen@
\edef\x{\endgroup
\strip@pt\dimen@}
x
\fi
\fi
\endgroup
\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname dimexpr\endcsname\relax
\def\Hy@defaultbpAux#1\relax#2#3{%}
\ifx!#1!%
\endgroup
\def#2{#3}%
\else
\dimen@=.99626\dimen@
\edef\x{\endgroup
\strip@pt\dimen@}
x
\fi
\else
\def\Hy@defaultbpAux#1\relax#2#3{%}
\ifx!#1!%
\endgroup
\def#2{#3}%
\else
\dimen@=.99626\dimen@
\edef\x{\endgroup
\strip@pt\dimen@}
x
\fi
\fi
\endgroup
\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname dimexpr\endcsname\relax
\def\Hy@defaultbpAux#1\relax#2#3{%
Default options for the types of \ChoiceMenu.

\def\DefaultOptionsofSubmit{print,name=Submit,noexport}
\def\DefaultOptionsofReset{print,name=Reset,noexport}
\def\DefaultOptionsofPushButton{print}
\def\DefaultOptionsofCheckBox{print}
\def\DefaultOptionsofChoiceMenu{\normalbaselineskip}
\def\DefaultOptionsofListBox{\normalbaselineskip}
\def\DefaultOptionsofComboBox{print,edit,sort}
\def\DefaultOptionsofPopdownBox{print}
\def\DefaultOptionsofRadio{print,notoggletooff}

21 Setup

\ifHy@hyperfigures
  \Hy@Info{Hyper figures ON}%
\else
  \Hy@Info{Hyper figures OFF}%
\fi
\ifHy@nesting
  \Hy@Info{Link nesting ON}%
\else
  \Hy@Info{Link nesting OFF}%
\fi
\ifHy@hyperindex
  \Hy@Info{Hyper index ON}%
\else
  \Hy@Info{Hyper index OFF}%
\fi
\ifHy@backref
  \Hy@Info{backreferencing ON}%
\else
  \Hy@Info{backreferencing OFF}%
\fi
\ifHy@colorlinks
  \Hy@Info{Link coloring ON}%
\else
  \Hy@Info{Link coloring OFF}%
\fi
\ifHy@ocgcolorlinks
  \Hy@Info{Link coloring with OCG ON}%
\else
  \Hy@Info{Link coloring with OCG OFF}%
\fi
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{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
%
\end{document}
23 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 \texttt{hyperref} playing havoc in the front matter.

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

⟨/package⟩

24 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 \texttt{hyperref} low level commands, but it would also be useful with people using normal \texttt{hyperref}, who really do no want the package loaded at all.

Some low level commands:

\begin{verbatim}
\let\hyper@link\link\hyper@livelink
\end{verbatim}

⟨*nohyperref⟩
Some top-level commands:

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}

 Ignore star from referencing macros:

 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.

25 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}
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.

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

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.
26 Title strings

If options `pdftitle` and `pdfauthor` are not used, these informations for the pdf information dictionary can be extracted by the `\title` and `\author`.

The case, that `\title`, or `\author` are given before hyperref is loaded, is much more complicate, because LaTeX initializes the macros `@title` and `@author` with LaTeX error and warning messages.
Macro \texttt{\Hy@UseMaketitleInfos} is used in the driver files, before the information entries are used.

The newline macro \texttt{\newline} or \texttt{\\} is much more complicated. In the title a good replacement can be a space, but can be already a space after \texttt{\\} in the title string. So this space is removed by scanning for the next non-empty argument.

In the macro \texttt{\author} the newline can perhaps separate the different authors, so the newline expands here to a comma with space.

The possible arguments such as space or the optional argument after the newline macros are not detected.

A possible 1 emoves its argument.

\begin{verbatim}
\def\Hy@UseMaketitleString#1{% 
  \ifx\Hy@#1\@empty 
    \pdfstringdef\Hy@#1{}{}% 
  \else 
    \begingroup 
    \let\Hy@saved@hook\pdfstringdefPreHook 
    \pdfstringdefDisableCommands{% 
      \expandafter\let\expandafter\\csname Hy@newline@#1\endcsname \\ 
      \def\and{; } 
      \let\thanks\@gobble 
    }% 
    \expandafter\ifx\csname @pdf#1\endcsname\@empty 
    \expandafter\pdfstringdef\csname @pdf#1\endcsname{\Hy@#1\@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}} 
\end{verbatim}

27 Page numbers

This stuff is done by Heiko Oberdiek.

28 Every page

\begin{verbatim}
\RequirePackage{atbegshi}[2007/09/09] 
\let\Hy@EveryPageHook\itx@empty 
\let\Hy@EveryPageBoxHook\itx@empty 
\let\Hy@FirstPageHook\itx@empty 
\AtBeginShipout{\Hy@EveryPageHook 
  \ifx\Hy@EveryPageBoxHook\itx@empty 
    \Hy@FirstPageHook 
  \else 
    \setbox\AtBeginShipoutBox=\vbox{% 
      \offinterlineskip 
      \Hy@EveryPageBoxHook 
    } 
  \fi 
  \box\AtBeginShipoutBox 
\end{verbatim}

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\AtBeginShipout{% 
\Hy@FirstPageHook
\global\let\Hy@FirstPageHook\ltx@empty
}%
\AtBeginShipoutFirst{% 
\Hy@FirstPageHook
}\g@addto@macro\Hy@FirstPageHook{\PDF@FinishDoc}
\global\let\PDF@FinishDoc\ltx@empty
%
\ifHy@pdfpagelabels
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname thepage\endcsname\relax
\Hy@pdfpagelabelsfalse
\Hy@WarningNoLine{% Option `pdfpagelabels' is turned off\MessageBreak because \string\thepage space is undefined%
}%
\csname fi\endcsname
\csname iffalse\expandafter\endcsname
\fi
\thispdfpagelabel
The command \thispdfpagelabel allows to label a special page without the redefinition of \thepage for the page.
\def\thispdfpagelabel#1{\gdef\HyPL@thisLabel{#1}}
\global\let\HyPL@thisLabel\relax
\HyPL@Labels
The page labels are collected in \HyPL@Labels and set at the end of the document.
\let\HyPL@Labels\ltx@empty
\Hy@abspage
We have to know the the absolute page number and introduce a new counter for that.
\newcount\Hy@abspage
\Hy@abspage=0 %

For comparisons with the values of the previous page, some variables are needed:
\def\HyPL@LastType{init}%
\def\HyPL@LastNumber(0)%
\let\HyPL@LastPrefix\ltx@empty

Definitions for the PDF names of the \LaTeX pendants.
\def\HyPL@arabic{D}%
\def\HyPL@Roman{R}%
\def\HyPL@roman{r}%
\def\HyPL@Alph{A}%
\def\HyPL@alph{a}%

28.1 PDF /PageLabels
Internal macros of this module are marked with \HyPL@.

If a page is shipout and the page number is known, \texttt{\HyPL@EveryPage} has to be called. It stores the current page label.
\HyPL@CheckThePage Macro \HyPL@CheckThePage calls \HyPL@@CheckThePage that does the job.

\HyPL@@CheckThePage The first check is, is \thepage is defined such as in \LaTeX, e.g.:  \csname\@arabic\endcsname\c@page. In the current implementation 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.

\begin{verbatim}
\def\HyPL@@CheckThePage#1#2\csname#3\endcsname\c@page#4\@nil{\
  \def\Hy@tempa{#4}\
  \def\Hy@tempb{\csname\endcsname\c@page}\@nil\
  \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}\@nil\
        \edef\Hy@next{\endgroup}\
      \else\
        \def\HyPL@Type{#3}\
        \def\HyPL@Prefix{#2}\
      \fi\
    \fi\
  \fi}
\end{verbatim}
The help macro \HyPL@Format is executed while a \texttt{protected@include} in the second check method of \HyPL@@CheckPage. The first occurrences of, for example, \texttt{arabic\{page\}} is marked by \HyPL@found that is also defined by \texttt{csname}. 

\HyPL@Format
\HyPL@Format
\HyPL@Format
\HyPL@Format
\HyPL@Format
\HyPL@Format
\HyPL@Format
\HyPL@Format
\HyPL@Format
\HyPL@Format

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

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

\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.

\HyPL@SetPageLabels The page labels are written to the PDF catalog. The command \texttt{\Hy@PutCatalog} is defined in the driver files.
Option ‘pdfpagelabels’ has been used and is now disabled.

\Hy@DisableOption{pdfpagelabels}

\Hy@PutCatalog

\pdf@ifdraftmode{\let\Hy@PutCatalog\ltx@gobble}{\let\Hy@PutCatalog\pdfcatalog}

The code for VTeX is more complicated, 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.

\edef\Hy@VTeXversion{\ifx\VTeXversion\@undefined\z@\else\ifx\VTeXversion\relax\z@\else\VTeXversion\fi\fi}

\ifnum\Hy@VTeXversion<660 \gdef\Hy@PutCatalog#1{\Hy@WarningNoLine{VTeX 6.59g or above required for pdfpagelabels}%})\else\gdef\Hy@PutCatalog#1/PageLabels<<#2>>#3\@nil{\ifx\#2\%\else\immediate\special{!pdfpagelabels \#2}\fi}\fi}
This macro adds the entry #1 to \HyPL@Labels.

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

Package \texttt{atveryend} is used to get behind the final \texttt{\clearpage} and to avoid a \texttt{\clearpage} in \texttt{\AtEndDocument}. Then the PDF catalog entry for \texttt{\PageLabels} is set.

\RequirePackage{atveryend}[2009/12/07]
\AtVeryEndDocument{\HyPL@SetPageLabels}

\subsection{xetex}

\ifxetex
\HyPsd@LoadUnicode\Hy@unicodetrue
\ifx\HyPsd@pdfencoding\HyPsd@pdfencoding@unicode
\else
\let\HyPsd@pdfencoding\HyPsd@pdfencoding@auto
\fi
\HyPsd@LoadStringEnc
\define@key{Hyp}{unicode}[true]{\Hy@boolkey{unicode}{#1}}
\ifHy@unicode
\else
\Hy@Warning{XeTeX driver only supports `unicode=true'. Ignoring option `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 `pdfencoding=unicode|auto'. Ignoring option `pdfencoding'}
\fi
\fi
\fi
Since 2016 (x)dvipdfmx has a special to control the spacing of annotation borders. So let’s make use of it:

```latex
\def\setpdflinkmargin#1{\begingroup\setlength{\dimen@}{#1}\special{dvipdfmx:config g \strip@pt\dimen@}\endgroup}
```

### 28.1.3 pdfmarkbase, dvipdfm, xetex

```latex
\def\Hy@PutCatalog#1{\def\Hy@PutCatalog#1{\pdfmark{pdfmark=/PUT,Raw={\string{Catalog\string} <<#1>>}}}
```

This macro writes a string to the .aux file.

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

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

```latex
\def\Hy@PutCatalog#1{\def\Hy@PutCatalog#1{\pdfmark{pdfmark=/PUT,Raw={\string{Catalog\string} <<#1>>}}}
```

\Hy@PutCatalog
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]{}}%
  \}%

\if\Hy@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⟩

\if\MaybeStopEarly\relax
\else\Hy@stoppedearlytrue
\fi
\expandafter\MaybeStopEarly
\Hy@stoppedearlyfalse

29 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 ex-
pand 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
\else
\begin{group}\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname the#1\endcsname\relax
\else
\expandafter\expandafter\expandafter\@gobble
\fi
\fi
\fi
\fi
\fi
\let\Hy@CounterExists\item
\newcounter{Item}
\def\theHItem{\arabic{Item}}
\def\item{\@hyper@itemfalse
\if@nmbrlist\@hyper@itemtrue\fi
\let\H@item\item
\providecommand\theHenumi{\theHItem}
\providecommand\theHenumii{\theHItem}
\providecommand\theHenumiii{\theHItem}
\providecommand\theHenumiv{\theHItem}
\providecommand\theHHfootnote{\arabic{Hfootnote}}
\providecommand\theHmpfootnote{\arabic{mpfootnote}}
\@ifundefined{theHHmpfootnote}{%

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
\let\H@item\item
\providecommand\theHenumi{\theHItem}
\providecommand\theHenumii{\theHItem}
\providecommand\theHenumiii{\theHItem}
\providecommand\theHenumiv{\theHItem}
\providecommand\theHHfootnote{\arabic{Hfootnote}}
\providecommand\theHmpfootnote{\arabic{mpfootnote}}
\@ifundefined{theHHmpfootnote}{%
Tanmoy asked for this default handling of undefined \texttt{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 \texttt{arabic\{name\}}. We take the latter course, slightly worriedly.

We do not want the handler for \texttt{refstepcounter} to cut in during the processing of \texttt{item} (we handle that separately), so we provide a bypass conditional.

\begin{verbatim}
\let H@refstepcounter \refstepcounter
\edef \name@of@eq {equation}
\edef \name@of@slide {slide}

\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
  \fi
  \fi

\let \Hy@saved@refstepcounter \refstepcounter
\end{verbatim}

A\LaTeX{}X processes all equations twice; we want to make sure that the hyper stuff is not executed twice, so we use the AMS \texttt{\ifmeasuring\@}, initialized if AMS math is not used.

\begin{verbatim}
\ifpackageloaded{amsmath}{}\{\newif\ifmeasuring\@\measuring\@false\}
\end{verbatim}

\begin{verbatim}
\hyper@refstepcounter
\def \hyper@refstepcounter #1 {%
  \edef \This@name {#1}%
  \ifx \This@name \name@of@eq
    \ifdef \undefined \theHequation \{\%
      \make@stripped@name \theequation \%
      \let \theHequation \newname
    \} \%
  \fi
  \fi
  \fi
  \fi
  \fi
\end{verbatim}
\Hy@ProvideTheHCounter \theH<counter> is not set for counters that are defined before ‘hyperref’ is loaded. In \cl@ckpt, the clear counter list of the artificial counter \ckpt, \LaTeX remem-
bers the defined counters (needed for \include). We check the clear counter lists,
whether our counter is present. If we found it, then we add the parent counter
value to \theH<counter>. The \@elt list is used in sanitized form for the compar-
ison, because the list might contain other stuff than \@elts. Also it simplifies the
implementation, because \LaTeX’, substring search \in@ can be used.

\def\HyCnt@ProvideTheHCounter#1{% 
  \@ifundefined{theH#1}{% 
    \expandafter\def\csname theH#1\endcsname{}% 
    \def\Hy@temp{\@elt{#1}}% 
    \ltx@onelevel@sanitize\Hy@temp 
    \let\HyOrg@elt@elt 
    \edef\@elt{% 
      \noexpand\HyCnt@LookForParentCounter 
      \expandafter\noexpand\csname theH#1\endcsname 
    }% 
  }% 
  \cl@@ckpt 
  \let\@elt\HyOrg@elt 
  \expandafter 
  \ltx@LocalAppendToMacro\csname theH#1\endcsname 
  \expandafter\% 
}%

\Hy@LookForParentCounter 

\def\HyCnt@LookForParentCounter#1#2{% 
  \expandafter\let\expandafter\Hy@temp@A\csname cl@#2\endcsname 
  \ltx@IfUndefined{cl@#2}{% 
    \ltx@onelevel@sanitize\Hy@temp@A 
    \edef\Hy@temp@A{% 
      \noexpand\in@{\Hy@temp}{\Hy@temp@A}\Hy@temp@A 
    }% 
    \ifin@ 
      \ltx@IfUndefined{theH#2}{% 
        \expandafter\ltx@LocalAppendToMacro\csname theH#2\endcsname 
        \expandafter\% 
      }% 
      \expandafter\ltx@LocalAppendToMacro\csname c@#2\endcsname,.% 
    }% 
  }% 
  \Hy@temp@A 
  \ltx@IfUndefined{theH#2}{% 
    \expandafter\ltx@LocalAppendToMacro\csname theH#2\endcsname 
    \expandafter\% 
  }% 
  \fi 
}%
After \appendix “chapter” (or “section” for classes without chapter) should be replaced by “appendix” to get \autoref work. Macro \Hy@chapapp contains the current valid name like \chapapp, which cannot be used, because this string depends on the current language.

The “french” package defines counter \thechapter by \newcounterchapter, if \ifundefinedchapter.

\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname chapter\endcsname\relax
\def\Hy@chapterstring{section}%
\else
\def\Hy@chapterstring{chapter}%
\fi
\def\Hy@appendixstring{appendix}
\def\Hy@chapapp{\Hy@chapterstring}
\ltx@IfUndefined{appendix}{%
\let\HyOrg@appendix\appendix
\def\Hy@AlphNoErr#1{%
\ifnum\value{#1}>26 %
Alph\number\value{#1}%
\else
\ifnum\value{#1}<1 %
Alph\number\value{#1}%
\else
\Alph{#1}%
\fi
\fi
}%
\def\appendix{%
\ltx@IfUndefined{chapter}{%
\gdef\theHsection{\Hy@AlphNoErr{section}}%
}{}%
\gdef\theHchapter{\Hy@AlphNoErr{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

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

\begin{verbatim}
\hyper@makecurrent
\def\hyper@makecurrent#1{%
\begingroup
\Hy@safe@activestrue
\edef\Hy@param{#1}%
\ifx\Hy@param\Hy@chapterstring
\let\Hy@param\Hy@chapapp
\fi
\ifHy@hypertexnames
\let\@number\@firstofone
\def\@fnsymbol##1{fnsymbol\number##1}%
\def\@arabic##1{\number##1}%
\ifx\@alph\Hy@Test@alph
\else
\def\@alph{alph\number}%
\fi
\ifx\@Alph\Hy@Test@Alph
\else
\def\@Alph{Alph\number}%
\fi
\ifHy@naturalnames
\let\textlatin\@firstofone
\xdef\HyperGlobalCurrentHref{\csname the#1\endcsname}%
\else
\xdef\HyperGlobalCurrentHref{\Hy@param.\expandafter\strip@prefix\meaning\HyperGlobalCurrentHref}%
\fi
\let\HyperLocalCurrentHref\HyperGlobalCurrentHref
\ifHy@localanchorname
\let\@currentHref\HyperLocalCurrentHref
\else
\global\let\@currentHref\HyperGlobalCurrentHref
\fi
\endgroup
\let\HyperLocalCurrentHref\HyperGlobalCurrentHref
\if\Hy@MakeCurrentHref
\def\Hy@MakeCurrentHref#1{%
\edef\HyperLocalCurrentHref{#1}%
\@onelevel@sanitize\HyperLocalCurrentHref
\end{verbatim}
30 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. 39). The link will not work if option pageanchor is set to false.
31 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}}
32 Package titlesec and titletoc support

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

Package titlesec support:
\begin{verbatim}
\@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	oks@\expandafter{\ttl@savewrite}\edef\x{\endgroup\def\noexpand\ttl@savewrite{\let\noexpand\@currentHref\noexpand\ttl@Hy@SavedCurrentHref\the\oks@}}%
\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}}%
\}%
\def\ttl@Hy@PatchSaveWrite{%
\begingroup	oks@\expandafter{\ttl@savewrite}\edef\x{\endgroup\def\noexpand\ttl@savewrite{\let\noexpand\@currentHref\noexpand\ttl@Hy@SavedCurrentHref\the\oks@}}%
\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}}%
\}%
}\end{verbatim}

Package titletoc support:
\@ifpackageloaded{titletoc}{%
\def\ttl@gobblecontents#1#2#3#4{\ignorespaces}%
\}%
\end{verbatim}
\end{verbatim}

33 Package varioref support

Package nameref uses five arguments for the ref system. Fix provided by Felix Neubauer (felix.neubauer@gmx.net).
\begin{verbatim}
\AtBeginDocument{%
\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}}}}%
\}%
\}%
\end{verbatim}
\end{verbatim}

\begin{verbatim}
\@ifpackageloaded{titletoc}{%
\def\ttl@gobblecontents#1#2#3#4{\ignorespaces}%
\}%
\end{verbatim}
\end{verbatim}
Package varioref redefines \refstepcounter, thus it needs fixing, if the package is loaded *after* hyperref.

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

34 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

\begin{verbatim}
@ifpackageloaded{longtable}{%
\begingroup
\def\y{\LT@array}%
@ifundefined{scr@LT@array}{% 
\@ifundefined{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
\endgroup
\def\LT@start{% 
#1% 
\ifvoid\LT@foot#2\fi% 
\let\@currentHref\Hy@LT@currentHref\@currentHref 
#2\@sharp####4%
%}
%}
\expandafter\expandafter\expandafter\x\y[#1]{#2}\nil
\endgroup
\def\x#1\ifvoid\LT@foot#2\fi#3\nil{% 
\def\LT@start{% 
#1% 
@ifvoid\LT@foot#2\fi% 
\let\@currentHref\Hy@LT@currentHref\@currentHref 
\Hy@raisedlink{%
\hyper@anchorstart{\@currentHref}\hyper@anchorend 
%}
%}
%}
\expandafter\expandafter\expandafter\x\y[#1]{#2}\nil
\endgroup
\def\x{#1}{% 
\ifvoid\LT@foot#2\fi% 
\let\@currentHref\Hy@LT@currentHref\@currentHref 
\Hy@raisedlink{%
\hyper@anchorstart{\@currentHref}\hyper@anchorend 
%}
%}
%}
\expandafter\expandafter\expandafter\x\y[#1]{#2}\nil
\endgroup
\end{verbatim}

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

We want to make the whole equation a target anchor. Overload equation, temporarily reverting to original \texttt{refstepcounter}. If, however, it is in AMS math, we do not do anything, as the tag mechanism is used there (see section 42). The exception is that we move the equation incrementation inside the math environment to avoid specials outside and a wrong vertical spacing of equation environments.

My goodness, why can’t \LaTeX be consistent? Why is \texttt{eqnarray} set up differently from other objects?
People (you know who you are, Thomas Beuth) sometimes make an \texttt{eqnarray} where all the lines end with \texttt{\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 
\if\@namedef{theHequation}{% 
\make@stripped@name{\theequation}% 
\let\theHequation\newname 
} {% 
\hyper@makecurrent{equation}% 
\mathopen{% 
\Hy@raisedlink{% 
\hyper@anchorstart{\@currentHref}\hyper@anchorend 
} % 
}% 
} 
\fi 
\fi 
\fi 
\else \texttt{\@currentHref}\% 
\fi 
\fi
\def\endeqnarray{% 
\H@endeqnarray 
}
\else
\end
\def\endeqnarray{% 
\H@endeqnarray 
}
\fi
\@namedef{eqnarray*}{% 
\def\@eqncr{\nonumber\@seqncr}\@eqnstartrue\eqnarray
\def\endeqnarray*{% 
\nonumber\endeqnarray\@eqnstarfalse
} 
\@namedef{endeqnarray}{% 
\H@eqnarray 
}
\@namedef{endeqnarray*}{% 
\H@eqnarray 
}
\@namedef{theHequation}{% 
\make@stripped@name{\theequation}% 
\let\theHequation\newname 
} {% 
\hyper@makecurrent{equation}% 
\mathopen{% 
\Hy@raisedlink{% 
\hyper@anchorstart{\@currentHref}\hyper@anchorend 
} % 
}% 
} 
\fi 
\fi
\@ifundefined{subeqnarray}{% 
\let\H@subeqnarray\subeqnarray 
\let\H@endsubeqnarray\endsubeqnarray 
\def\subeqnarray{% 
\let\Hy@reserved@a\relax 
\H@subeqnarray 
\if\@namedef{theHequation}{% 
\make@stripped@name{\theequation}% 
\let\theHequation\newname 
} {% 
\hyper@makecurrent{equation}% 
\mathopen{% 
\Hy@raisedlink{% 
\hyper@anchorstart{\@currentHref}\hyper@anchorend 
} % 
}% 
} 
\fi 
\fi
\def\endsubeqnarray{% 
\H@endsubeqnarray 
}
\@ifundefined{theHequation}{% 
\make@stripped@name{\theequation}% 
\let\theHequation\newname 
} {% 
\hyper@makecurrent{equation}% 
\mathopen{% 
\Hy@raisedlink{% 
\hyper@anchorstart{\@currentHref}\hyper@anchorend 
} % 
}% 
} 
\fi 
\fi
\@ifundefined{theHequation}{% 
\make@stripped@name{\theequation}% 
\let\theHequation\newname 
} {% 
\hyper@makecurrent{equation}% 
\mathopen{% 
\Hy@raisedlink{% 
\hyper@anchorstart{\@currentHref}\hyper@anchorend 
} % 
}% 
} 
\fi 
\fi
\def\endsubeqnarray{% 
This is quite heavy-handed, but it works for now. If its an \texttt{eqnarray*} we need to disable the hyperref actions. There may well be a cleaner way to trap this. Bill Moss found this.

\@namedef{endeqnarray}{% 
\H@eqnarray 
}
\@namedef{endeqnarray*}{% 
\H@eqnarray 
}
\@namedef{theHequation}{% 
\make@stripped@name{\theequation}% 
\let\theHequation\newname 
} {% 
\hyper@makecurrent{equation}% 
\mathopen{% 
\Hy@raisedlink{% 
\hyper@anchorstart{\@currentHref}\hyper@anchorend 
} % 
}% 
} 
\fi 
\fi
\@ifundefined{subeqnarray}{% 
\let\H@subeqnarray\subeqnarray 
\let\H@endsubeqnarray\endsubeqnarray 
\def\subeqnarray{% 
\let\Hy@reserved@a\relax 
\H@subeqnarray 
\if\@namedef{theHequation}{% 
\make@stripped@name{\theequation}% 
\let\theHequation\newname 
} {% 
\hyper@makecurrent{equation}% 
\mathopen{% 
\Hy@raisedlink{% 
\hyper@anchorstart{\@currentHref}\hyper@anchorend 
} % 
}% 
} 
\fi 
\fi
\def\endsubeqnarray{% 
\H@endsubeqnarray 
}
\@ifundefined{theHequation}{% 
\make@stripped@name{\theequation}% 
\let\theHequation\newname 
} {% 
\hyper@makecurrent{equation}% 
\mathopen{% 
\Hy@raisedlink{% 
\hyper@anchorstart{\@currentHref}\hyper@anchorend 
} % 
}% 
} 
\fi 
\fi
\def\endsubeqnarray{% 

Then again, we have the \texttt{subeqnarray} package. Tanmoy provided some code for this:

\@namedef{endeqnarray}{% 
\H@eqnarray 
}
\@namedef{endeqnarray*}{% 
\H@eqnarray 
}
\@namedef{theHequation}{% 
\make@stripped@name{\theequation}% 
\let\theHequation\newname 
} {% 
\hyper@makecurrent{equation}% 
\mathopen{% 
\Hy@raisedlink{% 
\hyper@anchorstart{\@currentHref}\hyper@anchorend 
} % 
}% 
} 
\fi 
\fi
\@ifundefined{subeqnarray}{% 
\let\H@subeqnarray\subeqnarray 
\let\H@endsubeqnarray\endsubeqnarray 
\def\subeqnarray{% 
\let\Hy@reserved@a\relax 
\H@subeqnarray 
\if\@namedef{theHequation}{% 
\make@stripped@name{\theequation}% 
\let\theHequation\newname 
} {% 
\hyper@makecurrent{equation}% 
\mathopen{% 
\Hy@raisedlink{% 
\hyper@anchorstart{\@currentHref}\hyper@anchorend 
} % 
}% 
} 
\fi 
\fi
\def\endsubeqnarray{% 
\H@endsubeqnarray 
}
\@ifundefined{theHequation}{% 
\make@stripped@name{\theequation}% 
\let\theHequation\newname 
} {% 
\hyper@makecurrent{equation}% 
\mathopen{% 
\Hy@raisedlink{% 
\hyper@anchorstart{\@currentHref}\hyper@anchorend 
} % 
}% 
} 
\fi 
\fi
\def\endsubeqnarray{% 

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

\begin{group}
\escapechar\m@ne
\global\let\newname\@empty
\protected@edef\Hy@tempa{#1}\
\edef\@tempb{\noexpand\@tfor\noexpand\Hy@tempa:%}
\@tempb\do{\if{\Hy@tempa}else\fi{\Hy@tempa}xdef\newname{\newname\Hy@tempa}fi}
\endgroup

Support for amsmath’s subequations:
\begin{group}\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}}}\fi\end{group}

\Hy@AtBeginDocument{\@ifpackageloaded{cleveref}{\let\Hy@savedthm\@thm\def\@thm{\ifhmode\unskip\fi\Hy@savedthm}}{\@ifpackageloaded{amsthm}{Class amsbook uses a different definition of \@thm, where two lines are added (thanks to Dan Luecking for his analysis):
\let\thm@indent\indent % indent\thm@headfont{\scshape}% heading font small caps\def\@thm{\@thm\ifhmode\unskip\fi\Hy@savedthm}\@thm\ifhmode\unskip\fi\Hy@savedthm}}%\ifhmode\unskip\fi\normalfont}{}}

Support for package amsthm (Daniel Müllner): also cleveref.
\Hy@AtBeginDocument{\@ifpackageloaded{cleveref}{\let\Hy@savedthm\@thm\def\@thm{\ifhmode\unskip\fi\Hy@savedthm}\@thm\ifhmode\unskip\fi\Hy@savedthm}{}{}}

Class amsbook uses a different definition of \@thm, where two lines are added (thanks to Dan Luecking for his analysis):
\let\thm@indent\indent % indent\thm@headfont{\scshape}% heading font small caps\def\@thm{\@thm\ifhmode\unskip\fi\Hy@savedthm\@thm\ifhmode\unskip\fi\Hy@savedthm}
\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
\let\dth@counter{#2}%
\ifx\@empty\dth@counter
  \def\@tempa{\@oparg{\@begintheorem{#3}{}}[
ull]}%
\else
  \H@refstepcounter{#2}%
  \hyper@makecurrent{#2}%
  \let\Hy@dth@currentHref\@currentHref
  \def\@tempa{\@oparg{\@begintheorem{#3}{\csname the#2\endcsname}}[
ull]}%
\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}}%
      \fi
    \unhbox\@labels
  \fi
  \if\@nobreak \@nobreakfalse \clubpenalty\@M \else \clubpenalty\@clubpenalty \everypar{}%}
\fi
\endgroup
\fi
\fi
non \amsthm case, remove final space on line before a theorem for github issue 11.

36 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.

\ifar\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}\H@@footnotemark\let\H@@mpfootnotetext\@mpfootnotetext\long\def\@mpfootnotetext#1{\H@@mpfootnotetext{\if\Hy@nesting\expandafter\ltx@firstoftwo\else\expandafter\ltx@secondoftwo\fi\expandafter\hyper@@anchor\expandafter{\Hy@footnote@currentHref}{\ignorespaces #1}\Hy@raisedlink{\expandafter\hyper@@anchor\expandafter{\Hy@footnote@currentHref}{\ignorespaces #1}}}}}
\fi

\fi
Redefine \@footnotemark, borrowing its code (at the cost of getting out of sync with latex.ltx), to take advantage of its white space and hyphenation fudges. If we just overload it, we can get variant documents (the word before the footnote is treated differently). Thanks to David Carlisle and Brian Ripley for confusing and helping me on this.

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

Tabularx causes footnote problems, disable the linking if that is loaded. Since v6.82i footnotes are only disabled inside the environment ‘tabularx’.
\xifpackageloaded{tabularx}{{%
\let\HyOrg@TX@endtabularx\TX@endtabularx
\let\Hy@tabularx@hook{Hfootnote}\
\let\@footnotetext\H@@footnotetext
\let\@mpfootnotetext\H@@mpfootnotetext
\let\@makefnmark\@empty
\let\@makefntext\@empty
\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.

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

Footnotes for fancyvrb (Fix by Manuel Pégourié-Gonnard).
KOMA-Script defines \footref that uses both \ref and \@footnotemark resulting in two links, one of them wrong.

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.

\def\H@@footnotemark{\begingroup\unrestored@protected@xdef\@thefnmark{\ref{#1}}\endgroup\@footnotemark}
\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]{%
\let\Hy@temp\#1%
\begingroup
\unrestored@protected@xdef\@thefnmark{\ref{#1}}%
\endgroup
\@footnotemark
\let\Hy@temp\footref
\def\footref#1{%
\begingroup
\unrestored@protected@xdef\@thefnmark{\ref{#1}}%
\endgroup
\H@@footnotemark
\endgroup
\let\H@@footnotemark\@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.
\realfootnote  Does anyone remember the function and purpose of \realfootnote?

\caption  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.
Compatibility with float.sty: anchor setting at the top of the float, if the float is controlled by float.sty. Several \caption commands inside one float are not supported.

\HyNew@float@makebox is introduced as feature request of Axel Sommerfeldt to make the life easier for his package ‘caption’.

\let\Hy@float@caption\@caption
\newcommand{\HyNew@float@makebox}{% #1\relax
\ifx\Hy@float@currentHref\@undefined
  \hyper@@anchor{\Hy@float@currentHref}{% \{\relax}%
  \global\let\Hy@float@currentHref\@undefined
\fi
\let\HyOrg@float@makebox\float@makebox
\let\float@makebox\HyNew@float@makebox
}\}
\ifpackage{float}{% \checklatex[1999/06/01 - 2000/06/01]
\checkcommand{\def\caption{%
\ife\@captype\@undefined
\@latex@error{\noexpand\caption outside float}\@ehd
\expandafter\@gobble
\else
\refstepcounter\@captype
\expandafter\@firstofone
\fi
\begingroup
\addcontentsline{\csname ext@#1\endcsname}{#1}{% #1\@dblarg{\@caption\@captype}}%
\endgroup
\par
\parboxrestore
\if@minipage
\@setminipage
\fi
\{\@dblarg{\@caption\@captype}\}%
\}
\checkcommand{\long\def\@caption#1[#2]#3{%
\par
\addcontentsline{\csname ext@#1\endcsname}{#1}{% #2\protect\numberline{\csname the#1\endcsname}{\ignorespaces #3}}%
\bgroup
\parboxrestore
\if@minipage
\setminipage
\endgroup
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38 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, let’s make an attempt to get natbib right, because that’s 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@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@addtomacro{\bbl@cite@choice}{%}
\let\bibcite\Hy@bibcite
\}%

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\@BIBLABEL is working around a ‘feature’ of Rev\TeX.

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

\@BIBLABEL is working around a ‘feature’ of Rev\TeX.
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.

Tanmoy provided this replacement for CITEX. Lord knows what it does. For chapterbib added: extra@b@citeb
No, life is too short. I am not going to understand the \(\text{\textbackslash@collapse}\) macro, I shall just restore the original behaviour of \(\text{\textbackslash@citex}\); sigh. This is SO vile.

\begin{verbatim}
\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\% 
\}\% 
\}\% 
\}\}
\end{verbatim}

38.1 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 \texttt{\begin{document}}, because if harvard.sty is loaded and html.sty is present and detects pdf\TeX, then hyperref is already loaded at the begin of harvard.sty, and the \texttt{\newcommand} macros causes error messages.
\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@checkcitations\tempa{\hyper@link{cite}{\cite{#1}{#2}}}
\expandafter\ifx\csname HAR@fn@#1\endcsname\HAR@checkcitations\tempa
\def\HAR@checkcitations\tempa{\hyper@link{cite}{\cite{#1}{#3}}}
\expandafter\ifx\csname HAR@an@#1\endcsname\HAR@checkcitations\tempa
\def\HAR@checkcitations\tempa{\hyper@link{cite}{\cite{#1}{#4}}}
\expandafter\ifx\csname HAR@yr@#1\endcsname\HAR@checkcitations\tempa
\else
\@tempswatrue
\fi
\else
\@tempswatrue
\fi
\else
\@tempswatrue
\fi
38.2 Package chicago

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

\citeN

\def\citeN{% 8508  \
def\@citeseppen{-1000}\% 8509  \def\@citetext{\%} 8510  \def\@cite##1##2{##1} 8511  \def\citeauthoryear##1##2##3{##1 (##3\@cite@opt)} 8512  \@citedata@opt 8513 }%

\shortciteN

\def\shortciteN{% 8514  \def\@citeseppen{-1000}\% 8515  \def\@citetext{\%} 8516  \def\@cite##1##2{##2 (##3\@cite@opt)} 8517  \def\citeauthoryear##1##2##3{##2 (##3\@cite@opt)} 8518  \@citedata@opt 8519 }

\@citedata@opt

\def\@citedata@opt{% 8520  \def\@citedata@opt{% 8521  \let\@cite@opt\@empty 8522  \@ifnextchar [ {% 8523  \@tempswatrue 8524  \@citedata@opt 8525 }{% 8526  \@tempswatrue 8527  \@citedata@opt[]} 8528 }% 8529 }%

\@citedata@opt

\def\@citedata@opt[#1]{% 8530  \def\@citedata@opt[#1]{% 8531  \def\@cite@opt{, #1}% 8532  \@citedata@opt[#1]% 8533 }% 8534 }%

39 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{pdf-pageduration={}}. This can be set with \AtEndDocument, but it can be too late, if the last page is already finished, or too early, if lots of float pages will follow. Therefore currently nothing is done by hyperref.

This where we supply a destination for each page.

\ltx@ifclassloaded{slides}{%
40 Table of contents

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

% In newer \LaTeX\ releases this is defined to put a \verb|\}| at the end of the % line in the \texttt{toc} file.
% \begin{macrocode}
\providecommand\protected@file@percent{}
\def\addcontentsline#1#2#3{% toc extension, type, tag
\begingroup
\let\label\@gobble
\ifx\@currentHref\@empty
\Hy@PageAnchorSlidesPlain
\else
\Hy@PageAnchorSlide
\pdfstringdef\@the@H@page{\thepage}\
\endgroup
\EdefUnescapeString\@the@H@page{\@the@H@page}\
\def\Hy@TempPageAnchor{\hyper@@anchor{page.\@the@H@page}}\
\fi
\else
\Hy@GlobalStepCount\Hy@pagecounter
\def\Hy@TempPageAnchor{\hyper@@anchor{page.\the\Hy@pagecounter}}\
\fi
\vbox to 0pt{\kern\voffset\kern\topmargin\kern-1bp\relax\
\hbox to 0pt{\kern\hoffset\kern\ifodd\value{page}\
\oddsidemargin\else\evensidemargin\fi\kern-1bp\relax\
\Hy@TempPageAnchor\hss}\
\vss\i\fi
\g@addto@macro\Hy@EveryPageBoxHook{%
\Hy@EveryPageAnchor
}%
% \end{macrocode}
\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
\WarningNoLine{%
bookmark level for unknown #2 defaults to 0%
}
\else
\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}\
\writebookmark{\csname the#2\endcsname}{#3}{\@currentHref}{\Hy@toclevel}{#1}\
\ifHy@verbose
\begingroup
\def\Hy@tempa{#3}\
\text\let\temp@online\on@line\
\let\on@line\@empty\
\Info{%
bookmark\temp@online:
the\counter{\csname the#2\endcsname}
\text\reference{\@currentHref}\
\type{\Hy@toclevel}\MessageBreak
}
\endgroup
\fi
\addtocontents{#1}{%
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\gdef\csname theH#1\endcsname{\arabic{#1}}}

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

\let\H@newctr\@newctr
197
42 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.

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

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{%
42.1 \@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.

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

\maketitle

{\@currentHref\%}

{{\ignorespaces#1\unskip}}}%}

\def\eqref#1{\textup{\H@tagform@{\ref{#1}}}
43 Included figures

Simply intercept the low level graphics package macro.

\ifHy@hyperfigures
\let\Hy@Gin@setfile\Gin@setfile
\def\Gin@setfile#1#2#3{\
\hyperimage{#3}{\Hy@Gin@setfile{#1}{#2}{#3}}}
\fi
\Hy@DisableOption{hyperfigures}

44 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}{}egingroup
\lccode`|=`\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
\let\ccode`\.rawValue\relax
\lowercase{\endgroup
\ifHy@next
\def\HyInd@org@wrindex\@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
\end{verbatim}

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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.

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

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

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

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

\section{Compatibility with foiltex}

\begin{verbatim}
\@ifclassloaded{foils}{\providecommand\ext@table{lot}\
  \providecommand\ext@figure{lof}}{}
\end{verbatim}
Compatibility with seminar slide package

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

\ifclassloaded{seminar}{\Hy@seminarslidestrue\providecommand\theHslide{\arabic{slide}}}{\Hy@seminarslidesfalse}
\ifpackageloaded{slidesec}{\providecommand\theHslidesection{\arabic{slidesection}}\providecommand\theHslidesubsection{\theHslidesection.\arabic{slidesubsection}}\def\slide@heading[#1]{\H@refstepcounter{slidesection}\@addtoreset{slidesubsection}{slidesection}\addtocontents{los}{\protect\l@slide{\the\c@slidesection}{\ignorespaces#1}\@SCTR}{slideheading.\theslidesection}\\\edef\@currentlabel{\csname p@slidesection\endcsname\theslidesection}\makeslideheading{#1}\\\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\\\fi}{\fi}
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

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

\def\Hy@setref@link#1#2#3#4#5#6\@nil#7{\
\begingroup
\toks0={\hyper@@link{#5}{#4}}\toks1={#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
    \fss@text{\reset@font\bfseries ??}
  \else
    \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.
Now some extended referencing. \ref* and \pageref* are not linked, and \autoref prefixes with a tag based on the type.
\documentclass{article}
\usepackage{varioref}
\newcommand\Vref[3]{\leavevmode\unskip\vref@space}\hyperref[{#1}]{\Ref*{#1}}\let\vref@space\nobreakspace\@vpageref[\unskip]{#1}
\renewcommand\vr@[2][]{\leavevmode\unskip\vr@space}\hyperref[{#1}]{\ref*{#2}}\let\vr@space\nobreakspace\@vpageref[\unskip]{#1}
\renewcommand\vref@[2][]{\leavevmode\unskip\vref@space}\hyperref[{#1}]{\ref*{#2}}\let\vref@space\nobreakspace\@vpageref[\unskip]{#1}
\renewcommand\VPageref[2][]{\let\T@pageref\@pagerefstar\Ref*{#2}\vpageref[#1]{#2}}
\renewcommand\VRef[2][]{\let\T@pageref\@pagerefstar\hyperref[{#2}]{\Ref*{#1}}\vpageref[#1]{#2}}
\renewcommand\VRf[2][]{\let\T@pageref\@pagerefstar\hyperref[{#2}]{\ref*{#1}}\vpageref[#1]{#2}}
\renewcommand\VRef[2][]{\let\T@pageref\@pagerefstar\ref*{#2}\vpageref[#1]{#2}}
\usepackage{ifpackageloaded}
\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}}}
\begin{document}
Test if we are running new 2019 varioref or old one:
\ifdefined\vp@gerefstar\renewcommand\Vref@star[2][]{\begin{group}\let\T@pageref\@pagerefstar\Ref*{#2}\vpageref[#1]{#2}\end{group}}\renewcommand\VRf[2][]{\let\T@pageref\@pagerefstar\hyperref[{#2}]{\Ref*{#1}}\vpageref[#1]{#2}}\renewcommand\VRef[2][]{\let\T@pageref\@pagerefstar\hyperref[{#2}]{\Ref*{#1}}\vpageref[#1]{#2}}\renewcommand\VRf[2][]{\let\T@pageref\@pagerefstar\hyperref[{#2}]{\Ref*{#1}}\vpageref[#1]{#2}}\end{document}
\leavevmode\unskip\vref@space
\begingroup
\let\T@pageref\@pagerefstar
\hyperref\[{#1}]{{}\%}
\ref*{#1}{\%}
\vpageref\[
\unskip\]{#1}{\%}
\endgroup
\fi
\%FMi -end mod
\}%

\DeclareRobustCommand*{\autoref}{\leavevmode
\@ifstar{\HyRef@autoref\@gobbletwo}{\HyRef@autoref\hyper@@link}
}
\def\HyRef@autoref#1#2{\begingroup
\Hy@safe@activestrue
\expandafter\HyRef@autosetref\csname r@#2\endcsname{#2}{#1}\endgroup
}
\def\HyRef@autosetref#1#2#3{% link command, csname, refname
\HyRef@ShowKeysRef{#2}
\ifcase 0\ifx#1\relax 1\fi\ifx#1\Hy@varioref@undefined 1\fi\relax
\edef\HyRef@thisref{\expandafter\@fourthoffive#1\@empty\@empty\@empty\@empty\@empty}\HyRef@testreftype\HyRef@thisref.\%\Hy@safe@activesfalse
#3{\%}
\pageautorefname\nobreakspace
\%}
\pageautorefname\nobreakspace
\}%
\leavevmode
is added to make package wrapfigure happy, if \autoref starts a paragraph.
\DeclareRobustCommand*{\autoref}{\leavevmode
\@ifstar{\HyRef@autoref\@gobbletwo}{\HyRef@autoref\hyper@@link}
}
\def\HyRef@autoref#1#2{\begingroup
\Hy@safe@activestrue
\expandafter\HyRef@autosetref\csname r@#2\endcsname{#2}{#1}\endgroup
}
\def\HyRef@autosetref#1#2#3{% link command, csname, refname
\HyRef@ShowKeysRef{#2}
\ifcase 0\ifx#1\relax 1\fi\ifx#1\Hy@varioref@undefined 1\fi\relax
\edef\HyRef@thisref{\expandafter\@fourthoffive#1\@empty\@empty\@empty\@empty\@empty}\HyRef@testreftype\HyRef@thisref.\%\Hy@safe@activesfalse
#3{\%}
\pageautorefname\nobreakspace
\%}
\pageautorefname\nobreakspace
\}%
\leavevmode
Support for package \texttt{showkeys}.

\providecommand*{\AMSautorefname}{equationautorefname}
\providecommand*{\footnoteautorefname}{footnoteautorefname}
\providecommand*{\Itemautorefname}{itemautorefname}
\providecommand*{\figureautorefname}{figureautorefname}
\providecommand*{\tableautorefname}{tableautorefname}
\providecommand*{\partautorefname}{partautorefname}
\providecommand*{\chapterautorefname}{chapterautorefname}
\providecommand*{\sectionautorefname}{sectionautorefname}
\providecommand*{\subsectionautorefname}{subsectionautorefname}
\providecommand*{\subsubsectionautorefname}{subsubsectionautorefname}
\providecommand*{\paragraphautorefname}{paragraphautorefname}
\providecommand*{\FancyVerbLineautorefname}{FancyVerbLineautorefname}
\providecommand*{\theoremautorefname}{Theorem}
\providecommand*{\pageautorefname}{pageautorefname}

\providecommand*{\AMSautorefname}{equationautorefname}
\providecommand*{\footnoteautorefname}{footnoteautorefname}
\providecommand*{\Itemautorefname}{itemautorefname}
\providecommand*{\figureautorefname}{figureautorefname}
\providecommand*{\tableautorefname}{tableautorefname}
\providecommand*{\partautorefname}{partautorefname}
\providecommand*{\chapterautorefname}{chapterautorefname}
\providecommand*{\sectionautorefname}{sectionautorefname}
\providecommand*{\subsectionautorefname}{subsectionautorefname}
\providecommand*{\subsubsectionautorefname}{subsubsectionautorefname}
\providecommand*{\paragraphautorefname}{paragraphautorefname}
\providecommand*{\FancyVerbLineautorefname}{FancyVerbLineautorefname}
\providecommand*{\theoremautorefname}{Theorem}
\providecommand*{\pageautorefname}{pageautorefname}
47 Configuration files

47.1 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.

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`.

```latex
\begin{verbatim}
\beginingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname pdf@escapestring\endcsname\relax
\begingroup
\catcode`|=0 %
@makeother\%
|@firstofone{|endgroup
|def|\Hy@pstringdef#1#2{%
|begingroup
|edef~{|string~}%
|xdef|Hy@gtemp{#2}%
|endgroup
let#1|Hy@gtemp
@onelevel@sanitize#1%
|edef#1{|expandafter|Hy@ExchangeBackslash#1|@nil}%
|edef#1{|expandafter|Hy@ExchangeRightParenthesis#1(|@nil}%
|edef#1{|expandafter|Hy@ExchangeLeftParenthesis#1)@nil}%
}
|def|\Hy@ExchangeBackslash#1\#2@nil{%
#1%
|ifx\#2\%
|else
\%
|ltx@ReturnAfterFi{%
|Hy@ExchangeBackslash#2@nil%
)
|fi
}
|\def\Hy@ExchangeLeftParenthesis#1(#2@nil{%
#1%
|ltx@ReturnAfterFi{%
|Hy@ExchangeLeftParenthesis#2@nil%
)
|fi
%}
|\def\Hy@ExchangeRightParenthesis#1)#2@nil{%
#1%
|ltx@ReturnAfterFi{%
|Hy@ExchangeRightParenthesis#2@nil%
)
%}
\end{verbatim}
```

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This driver is for Han The Thanh’s TnX 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:
PDF object streams are disabled, because they are not supported in requested PDF version.

\MessageBreak
\Hy@pdf@majorversion.\Hy@pdf@minorversion
}%
\fi
\pdfobjcompresslevel=\ltx@zero
}%
\fi

\ifnum\Hy@pdfmajorminor@version=\Hy@pdf@majorversion@\relax
\else
\let\Hy@temp\ltx@empty
\def\Hy@temp@A#1#2{%
  \ifnum#1>\ltx@zero
    \edef\Hy@temp{\Hy@temp
      \space \space
      \the#1 #2%
      \ifnum#1=\ltx@one\else s\fi
      \MessageBreak
    }%
  \fi
  \ifx\Hy@temp\ltx@empty
    \Hy@pdfmajorversion=\Hy@pdf@majorversion, %
    \expandafter\string\Hy@pdfmajorversion=\Hy@pdf@majorversion
  \else
    \MessageBreak
  \fi
  \MessageBreak
}%
\Hy@temp@A\pdflastobj{PDF object}%
\Hy@temp@A\pdflastxform{form XObject}%
\Hy@temp@A\pdflastximage{image XObject}%
\Hy@temp@A\pdflastannot{annotation}%
\ifx\ltx@IfUndefined{pdf14.sty}{\MessageBreak
The version should be set as early as possible:%
  \expandafter\string\Hy@pdfmajorversion=\Hy@pdf@majorversion
  \expandafter\string\Hy@pdfminorversion=\Hy@pdf@minorversion
}{}
\fi
\MessageBreak
The PDF version number could not be set, because some PDF objects are already written: %
\MessageBreak
\Hy@temp
\MessageBreak
The version should be set as early as possible: %
\MessageBreak
\space
\MessageBreak
\string\relax

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First, allow for some changes and additions to pdftex syntax:
\begin{quote}
def\setpdflinkmargin#1{\% 
\begingroup 
\setlength{\dimen@}{#1}\% 
\expandafter\endgroup 
\expandafter\pdflinkmargin\the\dimen@\relax \% 
} 
\fi 
\end{quote}

First define the anchors:
\begin{quote}
\Hy@WrapperDef\new@pdflink#1{\% 
\ifhmode 
\@savsf\spacefactor \% 
\fi 
\Hy@SaveLastskip 
\Hy@VerboseAnchor{#1} \% 
\Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}\% 
\Hy@DestName\Hy@pstringDest\@pdfview \% 
\Hy@RestoreLastskip 
\ifhmode 
\spacefactor\@savsf \% 
\fi 
} 
\let\pdf@endanchor\@empty 
\Hy@DestName 
\end{quote}

Wrap the call of \pdfdest name in \Hy@DestName. Then it can easier be catched
by package hypdestopt.
\begin{quote}
def\Hy@DestName#1#2{\% 
pddest name(#1)#2\relax \% 
} 
\end{quote}

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

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

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

\ifx\#3\%
  /D(\Hy@pstringD)
\else
  \Hy@href@nextactionraw
\fi
\relax
\Hy@colorlink\@filecolor#1\Hy@xspace@end
close@pdflink
\endgroup

\def\@hyper@launch run:#1\#2#3{\% filename, anchor text linkname
\begingroup
\Hy@pstringdef\Hy@pstringF{#1}\
\Hy@pstringdef\Hy@pstringP{#3}\
\leavevmode
\pdfstartlink
\attr{\%
\Hy@setpdfborder
\Hy@setpdfhighlight
\ifx\@runbordercolor\relax
\else
  /C[\@runbordercolor]\
\fi
\user {\%
\ifHy@pdfa /F 4\fi
\fi
\if\Hy@pstringF{\#1}\%
\else
  \Hy@pstringF{\#3}\%
\fi
\relax
\Hy@colorlink\@filecolor#1\Hy@xspace@end
\close@pdflink
\endgroup
\def\@hyper@launch run:#1\#2#3{\% filename, anchor text linkname
\begingroup
\Hy@pstringdef\Hy@pstringF{#1}\
\Hy@pstringdef\Hy@pstringP{#3}\
\leavevmode
\pdfstartlink
\attr{\%
\Hy@setpdfborder
\Hy@setpdfhighlight
\ifx\@runbordercolor\relax
\else
  /C[\@runbordercolor]\
\fi
\user {\%
\ifHy@pdfa /F 4\fi
\fi
\if\Hy@pstringF{\#1}\%
\else
  \Hy@pstringF{\#3}\%
\fi
\relax
\Hy@colorlink\@filecolor#1\Hy@xspace@end
\close@pdflink
\endgroup

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\PDF@SetupDox

\def\PDF@SetupDoc{%
  \ifx\@pdfpagescrop\@empty
    \edef\process@me{%
      /CropBox{\@pdfpagescrop}%
      \ifx\@baseurl\@empty
        /URI<</Base(\Hy@pstringB)>>%
      \else
        ^J\the\pdfpagesattr
      \fi
    }%
  \else
    \edef\process@me{%/}
    \ifHy@pdftoolbar
      /HideToolbar true
    \fi
    \ifHy@pdfmenubar
      /HideMenubar true
    \fi
    \ifHy@pdfwindowui
      /HideWindowUI true
    \fi
    \ifHy@pdffitwindow
      /FitWindow true
    \fi
    \ifHy@pdfcenterwindow
      /CenterWindow true
    \fi
    \ifHy@displaydoctitle
      /DisplayDocTitle true
    \fi
    \ifHy@UseNameKey{NonFullScreenPageMode}
      \@pdfnonfullscreenpagemode
    \fi
    \ifHy@UseNameKey{Direction}
      \@pdfdirection
    \fi
    \ifHy@UseNameKey{ViewArea}
      \@pdfviewarea
    \fi
    \ifHy@UseNameKey{ViewClip}
      \@pdfviewclip
    \fi
    \ifHy@UseNameKey{PrintArea}
      \@pdfprintarea
    \fi
    \ifHy@UseNameKey{PrintClip}
      \@pdfprintclip
    \fi
  \fi
}%
\hyper@pagetransition \@pdfpagetransition is initialized with \relax. So it indicates, if option pdfpage-transition 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 >>% 
}%; 
}\fi 
\fi 
}\gdef\Hy@RemoveTransPageAttr#1^^J/Trans#2#3>>#4\END{% 
\ifx\#2\% 
\global\pdfpageattr{#1}%; 
\else 
\Hy@RemoveTransPageAttr#1#4\END 
\fi 
}\fi 
}\fi 
}

\Hyper@RemoveTransPageAttr Macro \Hyper@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\Hyper@RemoveTransPageAttr#1"^^J/Trans#2#3>>#4\END{% 
\ifx\#2\% 
\global\pdfpageattr(#1)%; 
\else 
\Hyper@RemoveTransPageAttr#1#4\END 
\fi 
}\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 
\fi 
\fi 
}\gdef\Hy@RemoveDurPageAttr#1^^J/Dur#2#3\END{% 
\ifx\#2\% 
\global\pdfpageattr{#1}%; 
\else 
\Hy@RemoveDurPageAttr#1#3\END 
\fi 
}\fi 
\fi 
}

\Hy@RemoveDurPageAttr
\def\@processme{%
  \global\pdfpageattr{^^J/Dur @pdfpageduration\space}
  }%
\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{^^J/Hid true % SPACE}
    }%
  \fi
  \fi
\}

\Hy@RemoveHidPageAttr Macro \Hy@RemoveHidPageAttr removes a /Hid entry from \pdfpageattr. It is called with the end marker "^^J/Hid{} \END. The trick is the empty group that does not appear in legal \pdfpageattr code. It appears in argument #2 and shows, whether the parameter text catches a really /Hid object or the end marker.

\gdef\Hy@RemoveHidPageAttr#1^^J/Hid#2#3 #4\END{%
  \ifx\#2\%
    \global\pdfpageattr{#1}%
  \else
    \Hy@RemoveHidPageAttr#1#4\END
  \fi
}

\pdf@ifdraftmode{}{%
  \g@addto@macro\Hy@EveryPageHook{%
Also Xe\TeX support \texttt{pdfpagewidth} and \texttt{pdfpageheight}, but it does not provide \texttt{pdfhorigin} and \texttt{pdfvorigin}.\[ (pdftex)\]

\begin{verbatim}
\Hy@AtBeginDocument{% 
\ifHy@setpagesize\expandafter\@firstofone\else\expandafter\@gobble\fi{% 
\@ifclassloaded{seminar}{% 
⟨/pdftex⟩\setlength{\pdfhorigin}{1truein}% 
⟨/pdftex⟩\setlength{\pdfvorigin}{1truein}% 
⟨/pdftex⟩\ifportrait\ifdim\paperwidth=\z@\else\setlength{\pdfpagewidth}{\strip@pt\paperwidth truept}\fi\ifdim\paperheight=\z@\else\setlength{\pdfpageheight}{\strip@pt\paperheight truept}\fi\else\ifdim\paperheight=\z@\else\setlength{\pdfpagewidth}{\strip@pt\paperheight truept}\fi\ifdim\paperwidth=\z@\else\setlength{\pdfpageheight}{\strip@pt\paperwidth truept}\fi\fi\else\ifdim\stockwidth=\z@\else\setlength{\pdfpagewidth}{\stockwidth}\fi\ifdim\stockheight=\z@\else\setlength{\pdfpageheight}{\stockheight}\fi\fi\%}
\ltx@ifundefined{stockwidth}{% 
\ifdim\paperwidth>\z@\setlength{\pdfpagewidth}{\paperwidth}\fi\ifdim\paperheight>\z@\setlength{\pdfpageheight}{\paperheight}\fi\%}
\ltx@ifundefined{stockheight}{% 
\ifdim\stockwidth>\z@\setlength{\pdfpagewidth}{\stockwidth}\fi\ifdim\stockheight>\z@\setlength{\pdfpageheight}{\stockheight}\fi\%}
\%}
\end{verbatim}
47.2.1 Fix for problem with different nesting levels

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

The problem could be fixed by replacing \AtBeginShipoutFirst, because the box layer is not necessary for pdftex—no \specials need to be inserted. However it’s easier to add an additional box level for the pages after the first one. Also \AtBeginShipoutFirst could be invoked independently from hyperref.

Since version 2011/10/05 v1.16 of package ‘atbegshi’ \AtBeginShipoutFirst does not add a additional box layer.
47.3 hypertex

The HyperTEX specification (this is borrowed from an article by Arthur Smith) says that conformant viewers/translators must recognize the following set of \special commands:

- **href:** html:<a href = "href_string">
- **name:** html:<a name = "name_string">
- **end:** html:</a>
- **image:** html:<img src = "href_string">
- **base_name:** html:<base href = "href_string">

The **href**, **name** and **end** commands are used to do the basic hypertext operations of establishing links between sections of documents. The **image** command is intended (as with current html viewers) to place an image of arbitrary graphical format on the page in the current location. The **base_name** command is 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.
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.
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).

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).

Very poor implementation of \hyper@link without considering \#1.

Very poor implementation of \hyper@link without considering \#1.

47.4 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 de-
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 1000000sp wide by \baselineskip
high is used.
\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#1\Hy@xspace\end\Hy@endcolorlink}
\fi\endgroup}
\def\hyper@linkfile#1#2#3{\begingroup\hyper@chars\leavevmode\ifHy@raiselinks\Hy@SaveSpaceFactor\Hy@SaveSavedSpaceFactor\sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}\Hy@RestoreSavedSpaceFactor\@linkdim\dp\@tempboxa\lower\@linkdim\hbox{
\special{button: \number\wd\@tempboxa\space
\number\ht\@tempboxa\space
launch: \wwwbrowser\space
#2}\%
}\Hy@colorlink\@urlcolor#1\Hy@xspace\end\Hy@endcolorlink}
\fi\endgroup}
\def\PDF@SetupDoc{%
  \ifx\@baseurl\@empty
    \special{PDF: Base \@baseurl}%
  \else
    \special{PDF: BBox \@pdfpagescrop}%
  \fi
  \ifx\@pdfpagescrop\@empty\else
    \special{PDF: BBox \@pdfpagescrop}%
  \fi
  \def\Hy@temp{}%
  \ifx\@pdfstartpage\@empty
    \else
      \edef\Hy@temp{%,Page=\@pdfstartpage
                      ,View=\@pdfstartview
                      }%
  \fi
  \edef\Hy@temp{\noexpand\pdfmark{pdfmark=/DOCVIEW,%
                             PageMode=/\@pdfpagemode
                             \Hy@temp}}%
  \edef\Hy@temp{\ifHy@pdftoolbar
                     /HideToolbar true\fi
              \ifHy@pdfmenubar
                     /HideMenubar true\fi
              \ifHy@pdfwindowui
                     /HideWindowUI true\fi
              \ifHy@pdffitwindow
                     /FitWindow true\fi
              \ifHy@pdfcenterwindow
                     /CenterWindow true\fi
              \ifHy@pdfdisplaydoctitle
                     /DisplayDocTitle true\fi
              \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
              \Hy@UseNameKey{Direction}\@pdfdirection
              \Hy@UseNameKey{ViewArea}\@pdfviewarea
              \Hy@UseNameKey{ViewClip}\@pdfviewclip
              \Hy@UseNameKey{PrintArea}\@pdfprintarea
              \Hy@UseNameKey{PrintClip}\@pdfprintclip
              \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
              \Hy@UseNameKey{Duplex}\@pdfduplex
              \ifx\@pdfpicktraybypdfsize\@empty
                     \else
                     /PickTrayByPDFSize \@pdfpicktraybypdfsize
              \fi
              \ifx\@pdfprintpagerange\@empty
                     \else
                     /PrintRange \@pdfprintpagerange
              \fi
  \fi
}
Provided by Mark Wicks (mwicks@kettering.edu)
\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
        \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
\@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{\@pdfview{XYZ}}\providecommand*{\@pdfview}{XYZ}\
  \@pdfview{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
\end{document}
Use primitive counter arithmetic here to avoid amsmath redefining \texttt{stepcounter} (github issue/13)
\def\Hy@undefinedname{UNDEFINED}
\def\hyper@linkstart#1#2{%}
\Hy@VerboseLinkStart{#1}{#2}%
\leavevmode
\Hy@BeginAnnot{%}
\protected@edef\Hy@testname{#2}%
\ifx\Hy@testname\@empty
\Hy@Warning{% Empty destination name,MessageBreak
using `\Hy@undefinedname'%
}%
\let\Hy@testname\Hy@undefinedname
\else
\Hy@pstringdef\Hy@testname{%
\expandafter\HyperDestNameFilter\expandafter{%
\Hy@testname}
%}
\fi
\@pdfm@mark{%
\bann<<% /Type/Annot% /Subtype/Link% \ifHy@pdfa /F 4\fi
\Hy@setpdfborder
\Hy@setpdfhighlight
\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%}
\expandafter\ifx\csname @#1color\endcsname\relax
\else
/C[\csname @#1color\endcsname]%
\fi
\A<<%
/D(\Hy@testname)%
\Hy@href@nextactionraw
>>%}
\expandafter\ifx\csname @#1bordercolor\endcsname\relax
\else
/C[\csname @#1bordercolor\endcsname]%
\fi
/A<<% /S/GoTo%
/D(\Hy@testname)%
\Hy@href@nextactionraw
>>%}
\expandafter\ifx\csname @#1color\endcsname\relax
\else
/C[\csname @#1color\endcsname]%
\fi
/A<<% /S/GoTo%
/D(\Hy@testname)%
\Hy@href@nextactionraw
>>%}
\expandafter\ifx\csname @#1bordercolor\endcsname\relax
\else
/C[\csname @#1bordercolor\endcsname]%
\fi
/A<<% /S/GoTo%
/D(\Hy@testname)%
\Hy@href@nextactionraw
>>%}
\expandafter\ifx\csname @#1color\endcsname\relax
\else
/C[\csname @#1color\endcsname]%
\fi
/A<<% /S/GoTo%
/D(\Hy@testname)%
\Hy@href@nextactionraw
>>%}
\hyp@UseNameKey{Direction}@pdfdirection
\hyp@UseNameKey{ViewArea}@pdfviewarea
\hyp@UseNameKey{ViewClip}@pdfviewclip
\hyp@UseNameKey{PrintArea}@pdfprintarea
\hyp@UseNameKey{PrintClip}@pdfprintclip
\hyp@UseNameKey{PrintScaling}@pdfprintscaling
\hyp@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\@pdfpagescrop@empty\else@pages<</CropBox[@pdfpagescrop]\fi
/docview<<
\ifx\@pdfstartpage@empty\else/OpenAction[@page\@pdfstartpage\@pdfstartview]\fi
\ifx\@baseurl@empty\else/URI<</Base(\Hy@pstringB)>>\fi
/PageMode/@pdfpagemode
\ifx\Hy@temp@empty\else/ViewerPreferences<<\Hy@temp>>\fi
\hyp@UseNameKey{PageLayout}@pdfpagelayout
\ifx\@pdflang\relax\else/Lang(@pdflang)\fi
\ifx\@pdfpagescrop@empty\else@pages<</CropBox[@pdfpagescrop]\fi
\ifx\@dfivpdfm | xetex\else/dvipdfm | xetex\fi
\hype@pagetransition
\def\hype@pagetransition{%
\ifx\@pdfpagetransition\relax\else/DVIPDFM RELAX\fi
\ifx\@pdfpagescrop@empty\else@pages<</CropBox[@pdfpagescrop]\fi
\ifx\@dfivpdfm | xetex\else/dvipdfm | xetex\fi
\hyper@pageduration
\def\hyper@pageduration{%
  \ifx\@pdfpageduration\relax
    \else
      \ifx\@pdfpageduration\@empty
        \special{pdf:put @thispage % <</Dur \@pdfpageduration>> %}
      \else
        \fi
      \fi
    \fi
  \fi
}\hyper@pagehidden
\def\hyper@pagehidden{%
  \ifHy@useHidKey
    \special{pdf:put @thispage % <</Hid \ifHy@pdfpagehidden true\else false\fi>> %}
  \fi
}\g@addto@macro\Hy@EveryPageBoxHook{\hyper@pagetransition \hyper@pageduration \hyper@pagehidden}

\hyper@pageduration
\def\hyper@pageduration{%
  \ifx\@pdfpageduration\relax
    \else
      \ifx\@pdfpageduration\@empty
        \special{pdf:put @thispage % <</Trans<</S/@pdfpagetransition>>> %}
      \else
        \fi
      \fi
    \fi
  \fi
}\hyper@pagehidden
\def\hyper@pagehidden{%
  \ifHy@useHidKey
    \special{pdf:put @thispage % <</Hid \ifHy@pdfpagehidden true\else false\fi>> %}
  \fi
}\g@addto@macro\Hy@EveryPageBoxHook{\hyper@pagetransition \hyper@pageduration \hyper@pagehidden}

\AtBeginShipoutFirst{\ifHy@setpagesize
  \begingroup
  \@ifundefined{stockwidth}{\ifdim\paperwidth>\z@ \ifdim\paperheight>\z@
    \special{papersize=\the\paperwidth,\the\paperheight}\
  \else
    \fi
  \fi
}{\ifdim\stockwidth>\z@ \ifdim\stockheight>\z@
    \special{papersize=\the\stockwidth,\the\stockheight}\
  \else
    \fi
}\endgroup
\g@addto@macro\Hyper@EveryPageBoxHook{\hyper@pagetransition \hyper@pageduration \hyper@pagehidden}
\endgraf
\dvipdfm | xetex

XeLaTeX uses pdflatex’s method \pdfpagewidth and \pdfpageheight for setting the paper size.
47.6 VTeX typesetting system

\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\bgroup\anchor@spot\egroup \special{direct </a>} \Hy@activeanchorfalse \Hy@RestoreLastskip\def\hyper@anchorend{% \special{direct </a>} \Hy@activeanchorfalse \Hy@RestoreLastskip\def\@Form[#1]{\Hy@Message{Sorry, TeXpider does not yet support FORMs}}\let\@endForm\ltx@empty\def\@Gauge[#1,#2,#3,#4]{% parameters, label, minimum, maximum \Hy@Message{Sorry, TeXpider does not yet support FORM gauges}}\def\@TextField[#1]{% parameters, label \Hy@Message{Sorry, TeXpider does not yet support FORM text fields}}\def\@CheckBox[#1]{% 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}}
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.

Older versions of VTeX require xyz in lower case.
The following code (transition effects) is made by Alex Kostin. The code below makes sense for VTeX 7.02 or later. Please never use \ifnum\Hy@VTeXversion<702 \else \fi globally.

\ifnum\Hy@VTeXversion<702 %
\else
\def\hyper@pagetransition{%
%  \ifx\pdfr@trans\relax
%    \hvtex@parse@trans\pdfr@trans
%  \else
%    \pdfr@trans\empty
%  \fi
 Standard incantation.
  1. Does an old entry have to be deleted? 2. If 1=yes, how to delete?
\fi
\fi
}

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I have to write an “honest” parser to convert raw PDF code into \texttt{VTeX} \texttt{\special{}}.

(AVK)

Syntax of \texttt{VTeX} \texttt{\special{!trans \langle transition\_effect \rangle}}:

\begin{verbatim}
<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>
\end{verbatim}

Transition codes:

11542 \def\hvtex@trans@effect@Blinds{\def\hvtex@trans@code{B}}\%
11543 \def\hvtex@trans@effect@Box{\def\hvtex@trans@code{X}}\%
11544 \def\hvtex@trans@effect@Dissolve{\def\hvtex@trans@code{D}}\%
11545 \def\hvtex@trans@effect@Glitter{\def\hvtex@trans@code{G}}\%
11546 \def\hvtex@trans@effect@Split{\def\hvtex@trans@code{S}}\%
11547 \def\hvtex@trans@effect@Wipe{\def\hvtex@trans@code{W}}\%
11548 \def\hvtex@trans@effect@R{\def\hvtex@trans@code{R}}\%

Optional parameters:

11549 \def\hvtex@par@dimension{/Dm}\%
11550 \def\hvtex@par@direction{/Di}\%
11551 \def\hvtex@par@duration{/D}\%
11552 \def\hvtex@par@motion{/M}\%

Tokenizer:

11553 \def\hvtex@gettoken{\%
11554 \expandafter\hvtex@gettoken@\hvtex@buffer\@nil
11555 )\%
11556 \def\hvtex@parse@trans{\%
11557 \edef\hvtex@token{\%}
11558 \edef\hvtex@buffer{\%}
11559 )\%
11560 \def\hvtex@parse@trans@1{\%

Initializing code:

11561 \let\hvtex@trans@code@empty
11562 \let\hvtex@param@dimension@empty
11563 \let\hvtex@param@direction@empty
11564 \let\hvtex@param@duration@empty
11565 \let\hvtex@param@motion@empty
11566 \edef\hvtex@buffer{\%1\space}\%

First token is the PDF transition name without escape.

11567 \hvtex@gettoken
11568 \ifx\hvtex@token@empty

Leading space(s)?

11569 \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
}%
Reentrant macro to parse optional parameters.
\def\hvtex@trans@params{%
\ifx\hvtex@buffer\@empty
\else
\hvtex@gettoken
/\hvtex@trans@par\hvtex@token
\else
\hvtex@gettoken
/\hvtex@trans@par\hvtex@token
\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
\let\hvtex@produce@trans\@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@trans@special}\hvtex@code\hvtex@param@dimension}\hvtex@param@motion}%
\else\if \hvtex@trans@special\hvtex@trans@code\hvtex@trans@special}%
\hvtex@trans@code\hvtex@param@dimension

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@special}\hvtex@trans@special}%
\else\if B\hvtex@trans@code
\edef\vtex@trans@special}%
\hvtex@trans@special}{\hvtex@trans@special}
I’m not guilty of possible overflow.

And all the mess is just for this.

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(\}
\if\VTeXOS>0%
\if\VTeXOS<6%
(\ifcase\VTeXOS
Windows\or Linux\or OS/2\or MacOS\or MacOS/X\%
\or Windows\or Linux\or OS/2\or MacOS\or MacOS/X%}
\fi
\fi
,\space\ifnum\OpMode=\@ne PDF\else PS\fi
\space backend\if\gexmode\@undefined\else
\space with GeX\fi
\fi
\fi
\fi
\fi
\fi
\edef\PDF@SetupDoc{\}

Current !pdfinfo key syntax:

<table>
<thead>
<tr>
<th>Key</th>
<th>Field</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Author</td>
<td>String</td>
</tr>
<tr>
<td>b</td>
<td>CropBox</td>
<td>String</td>
</tr>
<tr>
<td>c</td>
<td>Creator</td>
<td>String</td>
</tr>
<tr>
<td>k</td>
<td>Keywords</td>
<td>String</td>
</tr>
<tr>
<td>l</td>
<td>PageLayout</td>
<td>PS</td>
</tr>
<tr>
<td>p</td>
<td>PageMode</td>
<td>PS</td>
</tr>
<tr>
<td>r</td>
<td>Producer</td>
<td>String</td>
</tr>
<tr>
<td>s</td>
<td>Subject</td>
<td>String</td>
</tr>
<tr>
<td>t</td>
<td>Title</td>
<td>String</td>
</tr>
<tr>
<td>u</td>
<td>URI</td>
<td>PS</td>
</tr>
<tr>
<td>v</td>
<td>ViewPreferences</td>
<td>PS</td>
</tr>
</tbody>
</table>

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

\def\PDF@SetupDoc{\}
\Hy@Warning{VTeX does not support pdfmoddate. Therefore its setting is ignored}

\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{addtopdfcreator} \Hy@DisableOption{pdfcreationdate} \Hy@DisableOption{pdfmoddate} \Hy@DisableOption{pdfproducer} \Hy@DisableOption{pdfkeywords} \Hy@DisableOption{pdftrapped} \Hy@DisableOption{pdfinfo} }

47.7 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.

The fix has to be passed unchanged through GeX, if VTeX in PostScript mode with GeX is used.

\let\x\literalps@out
\def\Hy@DistillerDestFix{
\begingroup
\let\x\literalps@out
\ifnum \OpMode=0 \else 0 \fi
\def\x##1{257
}
47.8 Direct pdfmark support

Drivers that load \texttt{pdfmark.def} have to provide the correct macro definitions of

\begin{verbatim}
\@pdfproducer for document information
\literalps@out PostScript output
\headerps@out PostScript output that goes in the header area
\end{verbatim}

and the correct definitions of the following PostScript procedures:

\begin{verbatim}
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
\end{verbatim}
\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\ifmmode\def\Hy@LinkMath{$}\else\let\Hy@LinkMath\ltx@empty\fi
\Hy@SaveSpaceFactor\hbox\bgroup\Hy@RestoreSpaceFactor\Hy@LinkMath\fi
\expandafter\Hy@colorlink\csname @#1color\endcsname\literalps@out{H.S}\Hy@AllowHyphens
\xdef\hyper@currentanchor{#2}\gdef\hyper@currentlinktype{#1}\
}%
\def\hyper@linkend{%\literalps@out{\strip@pt@and@otherjunk\baselineskip\space H.L}\ltx@IfUndefined{@\hyper@currentlinktype bordercolor}{%\let\Hy@tempcolor\relax}{%\edef\Hy@tempcolor{\csname @\hyper@currentlinktype bordercolor\endcsname}}\pdfmark{%pdfmark=/ANN,\linktype=link,\Subtype=/Link,\PDFAFlags=4,\Dest=\hyper@currentanchor,%}\
\Hy@RestoreLastskip%\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}%
      \ifx Trans \else /S\fi %
      \@pdfpagetransition\space >> >>%
    }%
  \fi
\fi
}\def\strip@pt@and@otherjunk#1{\expandafter\rem@ptetc\the#1!}

\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={%
    }%
  \fi
\fi
}
\newtoks\pdffileset
\def\PDF@FinishDoc{\%}
\Hy@UseMakefileInfos
\HyInfo@GenerateAddons
\let\Hy@temp\@empty
\ifx\Hy@temp\@empty
\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
}\%
\else
\expandafter\pdfmark\expandafter{\Hy@temp
pdfmark=/DOCINFO,\%Raw={\HyInfo@Addons}\%}
\fi
\Hy@DisableOption{pdfauthor}\%
\Hy@DisableOption{pdftitle}\%
\Hy@DisableOption{pdfsubject}\%
\Hy@DisableOption{pdfcreator}\%
\Hy@DisableOption{pdfcreationdate}\%
\Hy@DisableOption{pdfkeywords}\%
\Hy@DisableOption{pdftrapped}\%
\Hy@DisableOption{pdfinfo}\%
}
\def\PDF@SetupDoc{\%
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
\let\pdf@objdef\ltx@empty
\kvsetkeys{PDF}{#2}%
\ifHy@pdfmarkerror
\else
\ifx#1%
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\edef\Hy@setouterhbox#1#2{\long\edef\my@temp#2}
\edef\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\fi\fi\leavevmode\Hy@SaveSpaceFactor\ifmmode\def\Hy@LinkMath{$}\else\def\Hy@LinkMath{\fi\chardef\x=1\%
\def\y{\anchor@spot}\ifx\Hy@temp\ltx@empty\chardef\x=0\%
\else\fi\def\y{\anchor@spot}\ifx\Hy@temp\ltx@empty\chardef\x=0\%
\else\fi\fi
\fi
\fi
\expandafter\endgroup\ifcase\x
\literalps@out{H.S}\literalps@out{H.R}\else\leavevmode\fi\Hy@SaveSpaceFactor\fi
\def\Hy@LinkMath{\$}
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…).

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.

\begin{verbatim}
\MAKE\toks\pdf@toks
\MAKE\toks\pdf@defaulttoks
\MAKE\toks
\def\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}}
\end{verbatim}

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

\begin{verbatim}
% 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}
% named object?
\define@key{PDF}{objdef}{\edef\pdf@objdef{#1}}
\let\pdf@objdef\ltx@empty
% 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}% hash-ok
  \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}}
\end{verbatim}
% 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 cwv}{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}%
}
% parameter is a name
\define@key{PDF}{AcroHighlight}{%
  begin\begin{group}
  \edef\x{#1}
  \expandafter\end{group}\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}}
\define@key{PDF}{PageMode}{\pdf@addtoks{#1}{PageMode}}% parameter is a name
\define@key{PDF}{Params}{\pdf@addtoks{(#1)}{Params}}% parameter is a string
\define@key{PDF}{Rect}{\pdf@addtoks{[#1]}{Rect}}% hash-ok
\define@key{PDF}{SrcPg}{\pdf@addtoks{#1}{SrcPg}}% parameter is an integer
\define@key{PDF}{Subtype}{\pdf@addtoks{#1}{Subtype}}% parameter is a name
\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
\define@key{PDF}{WinFile}{\pdf@addtoks{(#1)}{WinFile}}% parameter is a string

These are the keys used in the DOCINFO section.
\define@key{PDF}{Author}{\pdf@addtoks{(#1)}{Author}}% parameter is a name
\define@key{PDF}{Creator}{\pdf@addtoks{(#1)}{Creator}}% parameter is a string
\define@key{PDF}{CreationDate}{\pdf@addtoks{(#1)}{CreationDate}}% parameter is a string
\define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}% parameter is a string
\define@key{PDF}{Producer}{\pdf@addtoks{(#1)}{Producer}}% parameter is a string
\define@key{PDF}{Subject}{\pdf@addtoks{(#1)}{Subject}}% parameter is a string
\define@key{PDF}{Keywords}{\pdf@addtoks{(#1)}{Keywords}}% parameter is a string
\define@key{PDF}{Base}{\pdf@addtoks{(#1)}{Base}}% parameter is a string
\define@key{PDF}{URI}{\pdf@addtoks{#1}{URI}}% parameter is a string
\define@key{PDF}{Trapped}{% parameter is a string
  \edef\Hy@temp{#1}\
  \ifx\Hy@temp\@empty
  \else
  \pdf@addtoks{/#1}{Trapped}\
  \fi
}
And now for some useful examples:

```latex
\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.
```

```latex
\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)/IsMap true%},\PDFAFlags=4%}}\endgroup
```

This will only work if you use Distiller 2.1 or higher.
Unfortunately, some parts of the pdfmark PostScript code depend on vagaries of the dvi driver. We isolate here all the problems.

47.9 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.

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 /Border array are not taken literally, but interpreted by ghostscript using the resolution of the dvi driver. I don’t know how other distiller programs behaves in this manner.

Note GhostScript changed its behaviour here and later versions do not need this scaling, so test the PostScript interpreter is GhostScript and if so check its version.
If using gs and release > 9.27 no-op, otherwise patch.

12557 \product (Ghostscript) search \{pop pop pop revision 927 gt\}%
12558 \{pop false\ ifelse%
12559 \%
12560 /BorderArrayPatch{ } def%
12561 \%
12562 \%
12563 /BorderArrayPatch%
12564 \{exch%
12565 dup dup type/integertype eq exch/type/realtypenq or%
12566 \{BPToDvips\}if%
12567 \}forall%
12568 \}def%
12569 \) ifelse

The rectangle around the links starts off exactly the size of the box; we will to make it slightly bigger, 1 point on all sides.

12570 /HyperBorder \{1 PDFToDvips\} def%
12571 /H.V \{pdf@hoff pdf@voff null\} def%
12572 /H.B \{Rect[pd@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

12573 /H.S \%
12574 \currentpoint %
12575 HyperBorder add /pdf@lly exch def %
12576 dup DvipsToPDF 72 add /pdf@hoff exch def %
12577 HyperBorder sub /pdf@lly exch def%
12578 \) def%

The calculation of upper left $y$ is done without raising the point in \TeX, by simply adding on the current \texttt{\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

12579 /H.L \%
12580 2 sub dup%
12581 /HyperBasePt exch def %
12582 PDFToDvips /HyperBaseDvips exch def %
12583 \currentpoint %
12584 HyperBaseDvips sub /pdf@ury exch def%
12585 /pdf@urx exch def%
12586 \) def%
12587 /HA \%
12588 H.L %
12589 \% /pdf@voff\ = the distance from the top of the page to a point
12590 \% \texttt{\baselineskip} above the current point in PDF coordinates
12591 \currentpoint exch pop %
12592 \vaize 72 sub exch DvipsToPDF %
12593 HyperBasePt sub % baselineskip
12594 sub /pdf@voff exch def%
12595 \) def%
12596 /H.R \%
12597 \currentpoint %
12598 HyperBorder sub /pdf@ury exch def %
12599 HyperBorder add /pdf@urx exch def %

273
\pdf@voff = the distance from the top of the page to the current point, in PDF coordinates

currentpoint exch pop vaize 72 sub %
exch DvipsToPDF sub /pdf@voff exch def%
} def%
}%
}%
\AtBeginShipoutFirst{%
\ifHy@setpagesize
\begingroup
\ifdim\paperwidth>\z@
\ifdim\paperheight>\z@
\special{papersize=\the\paperwidth,\the\paperheight}%
\fi
\fi
\fi
\endgroup
\fi
\Hy@DisableOption{setpagesize}%
\def\setpdflinkmargin#1{%
\begingroup
\setlength{\dimen@}{#1}%
\literalps@out{%/HyperBorder{\strip@pt\dimen@ space PDFToDvips}def%}
\endgroup
}
\providecommand*{\XR@ext}{pdf}
\let\Hy@raisedlink\ltx@empty
\def\literalps@out#1{\special{pS:#1}}%
\def\headerps@out#1{\immediate\special{pS:#1}}%
\input{pdfmark.def}%
\ifx\@pdfproducer\relax
\ifnum\OpMode=\@ne
\def\@pdfproducer{VTeX}%
\else
\def\@pdfproducer{VTeX + Distiller}%
\fi
\fi
}\endgroup
}
\def\setpdflinkmargin{1}{%
\begingroup
\setlength{\dimen@}{1}\literalps@out{%/HyperBorder{\strip@pt\dimen@ space PDFToDvips}def%}
\endgroup
}
\providecommand*{\XR@ext}{pdf}
\let\Hy@raisedlink\ltx@empty
\def\literalps@out#1{\special{pS:#1}}%
\def\headerps@out#1{\immediate\special{pS:#1}}%
\input{pdfmark.def}%
\ifx\@pdfproducer\relax
\ifnum\OpMode=\@ne
\def\@pdfproducer{VTeX}%
\else
\def\@pdfproducer{VTeX + Distiller}%
\fi
\fi
\endgroup
}

47.10 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.

\providecommand*{\XR@ext}{pdf}
\let\Hy@raisedlink\ltx@empty
\def\literalps@out#1{\special{pS:#1}}%
\def\headerps@out#1{\immediate\special{pS:#1}}%
\input{pdfmark.def}%
\ifx\@pdfproducer\relax
\ifnum\OpMode=\@ne
\def\@pdfproducer{VTeX}%
\else
\def\@pdfproducer{VTeX + Distiller}%
\fi
\fi
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.

H.S (start of anchor, link, or rect) stores the x and y coordinates of the current point, in PDF coordinates: 

\pdf@ury = Y_c - HyperBorder, \pdf@urx = X_c + 72, 

pdf@llx = X_c - HyperBorder 

The x and y coordinates of the current point, minus the \baselineskip: 

pdf@ury = Y_c + HyperBasePt + HyperBorder, pdf@urx = X_c + HyperBorder 

pdf@ury = Y_c + HyperBorder, pdf@urx = X_c + HyperBorder
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.

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.

\Hy@ps@CR

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.
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.

```latex
\g@addto@macro\Hy@FirstPageHook{\
\headers@out{\
  /betterpdfmark {\
    systemdict begin %
    dup /BP eq% 
    {cleartomark gsave nulldevice []} %
    {dup /EP eq%  
    {cleartomark cleartomark grestore}  
    {cleartomark}  
    ifelse%  
    }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.

```latex
\Hy@AtBeginDocument{\
\headers@out{\nTextures lives in normal points, I think. So conversion from one coordinate system to another involves doing nothing.
```

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.

```latex
\Hy@AtBeginDocument{\
\headers@out{\nTextures lives in normal points, I think. So conversion from one coordinate system to another involves doing nothing.
```

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```latex
\Hy@AtBeginDocument{\
\headers@out{\nTextures lives in normal points, I think. So conversion from one coordinate system to another involves doing nothing.
```

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.
Textures provides built-in support for HyperTeX specials so this part combines code from `hypertext.def` with what is established by loading `pdfmark.def`, or any other driver.
Very poor implementation of \texttt{hyper@link} without considering \#1.

```
\def\hyper@link#1#2#3{\hbox{#1\texttt{hyper}\#2\texttt{hyper}}}\endgroup
\fi
```

47.12 \texttt{dvipsone}

```
\providecommand*{\XR@ext}{pdf}
\let\Hy@raisedlink\ltx@empty
\providecommand*{\@pdfborder}{0 0 1}
\providecommand*{\@pdfborderstyle{}}
\def\literalps@out#1{\special{ps:#1}}
\def\headerps@out#1{\special{headertext=#1}}
\input{pdfmark.def}
\HyInfo@AddonUnsupportedtrue
\def\PDF@FinishDoc{\Hy@UseMaketitleInfos\HyInfo@TrappedUnsupportedfalse
\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: ModifiedDate \@pdfmoddate}
\fi
\else
\fi
```

\section*{dvipsone}

\subsection*{dvipsone driver}

Over-ride the default setup macro in pdfmark driver to use Y\&Y \special commands.

```
\let\Hy@raisedlink\ltx@empty
\providecommand*{\@pdfborder}{0 0 1}
\providecommand*{\@pdfborderstyle{}}
\def\literalps@out#1{\special{ps:#1}}
\def\headerps@out#1{\special{headertext=#1}}
\input{pdfmark.def}
\HyInfo@AddonUnsupportedtrue
\def\PDF@FinishDoc{\Hy@UseMaketitleInfos\HyInfo@TrappedUnsupportedfalse
\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: ModifiedDate \@pdfmoddate}
\fi
```

47.12 \texttt{dvipsone}

```
\providecommand*{\XR@ext}{pdf}
\let\Hy@raisedlink\ltx@empty
\providecommand*{\@pdfborder}{0 0 1}
\providecommand*{\@pdfborderstyle{}}
\def\literalps@out#1{\special{ps:#1}}
\def\headerps@out#1{\special{headertext=#1}}
\input{pdfmark.def}
\HyInfo@AddonUnsupportedtrue
```

\section*{dvipsone}

```
\let\Hy@raisedlink\ltx@empty
\providecommand*{\@pdfborder}{0 0 1}
\providecommand*{\@pdfborderstyle{}}
\def\literalps@out#1{\special{ps:#1}}
\def\headerps@out#1{\special{headertext=#1}}
\input{pdfmark.def}
\HyInfo@Addon Unsupportedtrue
```

47.12 \texttt{dvipsone}
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.
dvipsone lives in scaled points; does this mean 65536 or 65781?
}
The values inside the /Border array are not taken literally, but interpreted by ghostscript using the resolution of the dvi driver. I don’t know how other distiller programs behaves in this manner.
\texttt{\def\PDF@SetupDoc{%}
\ifx\@baseurl\@empty
\else
\special{t4ht=<base href="\@baseurl">}%
\fi}
\let\PDF@FinishDoc\ltx@empty

\def\PDF@SetupDoc{%
\ifx\@baseurl\@empty
\else
\special{t4ht=<base href="\@baseurl">}%
\fi}
\def\PDF@FinishDoc\ltx@empty

\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=%}
\else
\begingroup
\hyper@chars\special{t4ht=<a name=%}
\fi
\special{t4ht=<a name=%}
\Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
\special{t4ht=<a href=%}
\endgroup
\fi
\def\hyper@linkend{%
\special{t4ht=</a>}%
\Hy@endcolorlink
\fi
\def\hyper@linkfile#1#2#3{%
\hyper@linkurl{#1}{\Hy@linkfileprefix#2\ifx\#3\else\##3\fi}%
Poor implementation of \hyper@link without considering #1.

Fix for \texttt{tex4ht}.  

\AtBeginDocument{\expandafter\let\expandafter\Hy@OrgMakeLabel\csname Make:Label\endcsname \Hy@OrganizeLabels\endcsname}
48 Driver-specific form support

48.1 pdfmarks

\long\def\@Form[#1]{%
\g@addto@macro\Hy@FirstPageHook{%
\headers\out{%
\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/quotesingle%
/quoteright/quotesinglbase/trademark/fi/fl/Lslash/OE/Scaron%
/Ydieresis/2caron/dotlessi/lslash/oe/scaron/zcaron %
164/currency %
166/brokenbar %
168/dieresis/copyright/ordfeminine %}
13254 172/logicalnot/.notdef/registered/macron/degree/plusminus%
13255 /twosuperior/threesuperior/acute/mu %
13256 183/periodcentered/cedilla/onesuperior/ordmasculine %
13257 188/onequarter/onehalf/threequarters %
13258 192/Agrave/Aacute/Acircumflex/Atilde/Adieresis/Aring/AE%
13259 /Ccedilla/Egrave/Eacute/Ecircumflex/Edieresis/igrave%
13260 /lacute/lcircumflex/ladieresis/eth/ntilde/ograve/oacute%
13261 /Ocircumflex/otilde/odieresis/multiply/oslash/ugrave%
13262 /ucircumflex/udieresis/yacute/germandbls%
13263 /agrave/aacute/acircumflex/adieresis/aring/ae%
13264 /ccedilla/egrave/eacute/ecircumflex/edieresis/igrave%
13265 /iacute/icircumflex/idieresis/eth/ntilde/ograve/oacute%
13266 /ocircumflex/otilde/odieresis/divide/oslash/ugrave/uacute%
13267 /ucircumflex/udieresis/yacute/thorn/ydieresis%
(Submit)
13539  \@@Listbox[#3]{
13540  \endgroup
13541  \fi
13542  )%
13543  \endgroup
13544  }
13545  \def\@@Radio#1{%
13546  \Fld@listcount=0 %
13547  \EdefEscapeName\Fld@default{\Fld@default}%
13548  \@for\@curropt:=#1\do{%
13549  \expandafter\Fld@checkequals\@curropt==\%
13550  \EdefEscapeName\@currValue{\@currValue}%
13551  \Hy@StepCount\Fld@listcount
13552  \@currDisplay\space
13553  \Hy@escapeform\PDFForm@Radio
13554  \ifnum\Fld@listcount=1 %
13555  \HyField@AdvanceAnnotCount
13556  \fi
13557  \pdfmark\[MakeRadioField{\Fld@width}{\Fld@height}]{%
13558  pdfmark=/ANN,%
13559  objdef=\ifnum\Fld@listcount=1 radio\HyField@TheAnnotCount\fi,%
13560  Raw={%
13561  \PDFForm@Radio /AP <</N <</\@currValue}{Check}>>>>%
13562  }%
13563  } % deliberate space between radio buttons
13564  \ifnum\Fld@listcount=1 %
13565  \HyField@AddToFields{radio}%
13566  \fi
13567  )%
13568  }
13569  \newcount\Fld@listcount
13570  \def\@@Listbox#1{%
13571  \HyField@PDFChoices{#1}%
13572  \Hy@escapeform\PDFForm@List
13573  \HyField@AdvanceAnnotCount
13574  \pdfmark\[MakeChoiceField{\Fld@width}{\Fld@height}]{%
13575  pdfmark=/ANN,%
13576  objdef=list\HyField@TheAnnotCount,%
13577  Raw={\PDFForm@List}%
13578  }%
13579  \HyField@AddToFields{list}%
13580  }
13581  \def\@PushButton[#1]{% parameters, label
13582  \def\Fld@name{#2}%
13583  \begingroup
13584  \expandafter\HyField@SetKeys\expandafter{%
13585  \DefaultOptionsofPushButton,\#
13586  )%
13587  \ifHy@pdfa
13588  \Hy@Error{%
13589  PDF/A: Push button with JavaScript is prohibited%
13590  }\@ehc
13591  \LayoutPushButtonField{%
13592  \leavevmode
13593  \MakeButtonField{#2}%
13594  )%
13595  \else
13596  

\ifFld@hidden\def\Fld@width{1sp}\fi
\HyField@AdvanceAnnotCount
\LayoutPushButtonField{\
\leavevmode
\Hy@escapeform\PDFForm@Push
\pdfmark[\MakeButtonField{#2}]{%
\pdfmark=/ANN,\
\objdef=push\HyField@TheAnnotCount,\
\Raw={\PDFForm@Push}%
}%
\HyField@AddToFields{push}\
}\
\def\@Submit[#1]#2{\
\def\Fld@width{\DefaultWidthofSubmit}\
\def\Fld@height{\DefaultHeightofSubmit}\
\begingroup\
\expandafter\HyField@SetKeys\expandafter{\DefaultOptionsofSubmit,#1}\
\HyField@FlagsPushButton\
\ifFld@hidden\def\Fld@width{1sp}\fi\
\Hy@escapeform\PDFForm@Submit\
\pdfmark[\MakeButtonField{#2}]{%
\pdfmark=/ANN,\
\objdef=submit\HyField@TheAnnotCount,\
\Raw={\PDFForm@Submit /AP<</N{Submit}/D{SubmitP}>>}%
\HyField@AddToFields{submit}\
}\
\def\@Reset[#1]#2{\
\def\Fld@width{\DefaultWidthofReset}\
\def\Fld@height{\DefaultHeightofReset}\
\begingroup\
\expandafter\HyField@SetKeys\expandafter{\DefaultOptionsofReset,#1}\
\ifHy@pdfa\
\Hy@Error{PDF/A: Reset action is prohibited}\@ehc\
\else\
\HyField@FlagsPushButton\
\ifFld@hidden\def\Fld@width{1sp}\fi\
\Hy@escapeform\PDFForm@Reset\
\pdfmark[\MakeButtonField{#2}]{%
\pdfmark=/ANN,\
\objdef=reset\HyField@TheAnnotCount,\
}\
\leavevmode
\else
\Hy@Error{%
PDF/A: Reset action is prohibited}\
\@ehc
\fi
\HyField@FlagsPushButton\
\ifFld@hidden\def\Fld@width{1sp}\fi\
\Hy@escapeform\PDFForm@Reset\
\pdfmark[\MakeButtonField{#2}]{%
\pdfmark=/ANN,\
\objdef=reset\HyField@TheAnnotCount,\
}
48.2 HyperTeX

\def\@Form[#1]{\Hy@Message{Sorry, HyperTeX does not support FORMs}}
\let\@endForm=\ltx@empty
\def\@Gauge[#1]#2#3#4{\Hy@Message{Sorry, HyperTeX does not support FORM gauges}}
\def\@TextField[#1]{\Hy@Message{Sorry, HyperTeX does not support FORM text fields}}
\def\@CheckBox[#1]{\Hy@Message{Sorry, HyperTeX does not support FORM checkboxes}}
\def\@ChoiceMenu[#1]#2#3{\Hy@Message{Sorry, HyperTeX does not support FORM choice menus}}
\def\@PushButton[#1]{\Hy@Message{Sorry, HyperTeX does not support FORM pushbuttons}}
\def\@Submit[#1]{\Hy@Message{Sorry, HyperTeX does not support FORM submits}}
\def\@Reset[#1]{\Hy@Message{Sorry, HyperTeX does not support FORM resets}}

\def\@CheckBox[#1]#2{\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\HyField@AdvanceAnnotCount\LayoutCheckField{#2}{\leavevmode\Hy@escapeform\PDFForm@Check\pdfmark\MakeCheckField{\Fld@width}{\Fld@height}{pdfmark=/ANN,\objdef=check\HyField@TheAnnotCount,Raw={\PDFForm@Check}}\HyField@AddToFields{check}\endgroup\fi
\def\@FormCheckBox{\PDFForm@Reset}\HyField@AddToFields(reset)\fi\endgroup\fi

\def\@CheckBox[⟨/pdfmark⟩]{\PDFForm@Reset}
\begin{verbatim}
\Message{Sorry, HyperTeX does not support FORMs}

\section*{48.3 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\Message{Sorry, TeX4ht does not support gauges}}
\def\@TextField[\#1]\#2{% parameters, label\let\Hy@reserved@a\@empty\def\Fld@name{\#2}\let\Fld@default\ltx@empty\bgroup\Field@toks={ }\kvsetkeys{Field}{\#1}\HCode{<label for="\Fld@name">\#2</label>}\if\Fld@password\@@PasswordField\else\@@TextField\fi\egroup\}
\def\@@PasswordField{\HCode{<input type="password" id="\Fld@name" name="\Fld@name" \if\Fld@hidden type="hidden" \fi value="\Fld@default" \the\Field@toks>}}
\def\@@TextField{\if\Fld@multiline\HCode{<textarea \if\Fld@readonly readonly \fi id="\Fld@name" name="\Fld@name" \if\Fld@hidden type="hidden" \fi \the\Field@toks>\Fld@default \HCode{</textarea>}}\else\HCode{<input type="textbox" \if\Fld@readonly readonly \fi id="\Fld@name" name="\Fld@name" \if\Fld@hidden type="hidden" \fi}}\fi}
\end{verbatim}
\def@ChoiceMenu[#1]#2#3{% parameters, label, choices
  \def@name{#2}\
  \let@default\ltx@empty
  \begingroup
  \expandafter@ChoiceMenu[#1]#2#3\%
\endgroup}

\def@ChoiceMenu[#1]#2#3{% parameters, label, choices
  \def@name{#2}\
  \let@default\ltx@empty
  \begingroup
  \expandafter@ChoiceMenu[#1]#2#3\%
\endgroup}
\@Submit[#1]#2{\HCode{<button type="submit" #2</button>}}
\@Reset[#1]#2{\HCode{<button type="reset" #2</button>}}
\@CheckBox[#1]#2{\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>\}\egroup}}
\@Gauge[#1]#2#3#4{\Hy@Message{Sorry, pdftex does not support FORM gauges}}
\MakeFieldObject#1#2{\sbox0{#1}\immediate\pdfxform0\expandafter\edef\csname #2Object\endcsname{\the\pdfxform 0 R}}\let\HyField@afields\ltx@empty\let\HyField@cofields\ltx@empty\begingroup\expandafter\expandafter\expandafter\endgroup\expandafter\ifx\csname pdflastlink\endcsname\relax\let\HyField@AddToFields\relax\PackageInfo{hyperref}{You need pdfTeX 1.40.0 for setting the /Fields entry.\MessageBreakAdobe Reader/Acrobat accepts an empty /Field array,\MessageBreakbut other PDF viewers might complain}
Insertion sort for calculation field list. In case of equal sort keys (for example, if `calculatesortkey` is not used at all) the keys keep document calling order.

```latex
\def\HyField@ABD@AuxAddToCoFields#1#2{\begingroup\Hy@safe@activestrue\let\ltx@secondoftwo\relax\ifx\HyField@cofields\ltx@empty\xdef\HyField@cofields{\ltx@secondoftwo{#1}{ #2 0 R}}\else\let\ltx@secondoftwo\relax\def\HyField@AddCoField##1##2##3{\ifx##1\ltx@empty\ltx@secondoftwo{#1}{ #2 0 R}\expandafter\ltx@gobble\else\ifnum\pdfstrcmp{##2}{#1}>=0\ltx@secondoftwo{#1}{ #2 0 R}\ltx@secondoftwo{##2}{##3}\expandafter\expandafter\expandafter\ltx@gobble\else\ltx@secondoftwo{##2}{##3}\fi\fi}\HyField@AddCoField\xdef\HyField@cofields{\HyField@AddCoField\HyField@cofields\ltx@empty\ltx@empty\ltx@empty}\fi\endgroup}\Hy@AtBeginDocument{\if@filesw\immediate\write\@mainaux{\string\providecommand\string\HyField@AuxAddToFields[1]{}}\immediate\write\@mainaux{\string\providecommand\string\HyField@AuxAddToCoFields[2]{}}\fi\let\HyField@AfterAuxOpen\@firstofone\def\HyField@AuxAddToFields#1{\xdef\HyField@afields{\ifx\HyField@afields\@empty\else\HyField@afields\space#1 0 R\fi}}%```
Same as \ding{123} of package pifont.
Laurent.Guillope@math.univ-nantes.fr (Laurent Guillope) persuades me that this was wrong: \( /\text{Fld@name}" /\\text{the}/ \text{Fld@listcount} \). But I leave it here to remind me that it is untested.

\( /\text{@currValue}% > >% \\
\relax \\
\MakeRadioField{\text{Fld@width}}{\text{Fld@height}}\pdfendlink \\
\ifnum\text{Fld@listcount}=1 % \\
\HyField@AddToFields \\
% deliberate space between radio buttons \\
\} %
\newcount\text{Fld@listcount} \\
def[@Listbox#1]{% \\
% \\
\HyField@PDFChoices{#1} \\
% \\
\leavevmode \\
\HyAnn@AbsPageLabel \\
% \\
\pdfstartlink user {\PDFForm@List}\relax \\
\MakeChoiceField{\text{Fld@width}}{\text{Fld@height}} \\
\pdfendlink \\
\HyField@AddToFields \\
} \\
\def[@PushButton[#1]#2]{% parameters, label \\
def[\text{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{ \\
% \\
\HyAnn@AbsPageLabel \\
% \\
\pdfstartlink user {\PDFForm@Push}\relax \\
\MakeButtonField{#2} \\
% \\
\pdfendlink \\
\HyField@AddToFields \\
} \\
\if\text{Fld@hidden} \\
\def[\text{Fld@width}=1sp]{} \\
% \\
\else \\
% \\
% \\
\fi
\def\@Submit[#1]{% 
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 
\HyAnn@AbsPageLabel 
\Hy@escapeform\PDFForm@Submit 
\pdfstartlink user {% 
\PDFForm@Submit 
/AP<</N \SubmitObject/D \SubmitPObject>>% 
\}% 
\relax 
\MakeButtonField{#1} 
\pdfendlink 
\HyField@AddToFields 
\endgroup 
\def\@Reset[#1]{% 
def\Fld@width{\DefaultWidthofReset} 
def\Fld@height{\DefaultHeightofReset} 
\begingroup 
\expandafter\HyField@SetKeys\expandafter{% 
\DefaultOptionsofReset,#1 
\}% 
\ifHy@pdfa \Hy@Error{PDF/A: Reset action is prohibited}\@ehc \else 
\HyField@FlagsPushButton 
\ifFld@hidden\def\Fld@width{1sp}\fi 
\HyAnn@AbsPageLabel 
\Hy@escapeform\PDFForm@Reset 
\pdfstartlink user \PDFForm@Reset\relax 
\MakeButtonField{#1} 
\pdfendlink 
\HyField@AddToFields 
\fi 
\endgroup 
\def\@CheckBox[#1]{% parameters, label 
def\Fld@name{#1} 
def\Fld@default{0} 
\begingroup 
def\Fld@width{\DefaultWidthofCheckBox} 
\HyField@FlagsPushButton 
\ifFld@hidden\def\Fld@width{1sp}\fi 
\HyAnn@AbsPageLabel 
\Hy@escapeform\PDFForm@CheckBox 
\pdfstartlink user \PDFForm@CheckBox\relax 
\MakeButtonField{#1} 
\pdfendlink 
\HyField@AddToFields 
\endgroup 
\ifHy@pdfa \Hy@Error{PDF/A: Reset action is prohibited}\@ehc \else
D. P. Story adapted the pdfTeX forms part for dvipdfm, of which version 0.12.7b or higher is required because of a bug.

\@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}\
  \@pdfm@mark{obj @afields \[]}\@pdfm@mark{obj @corder \[]}\@pdfm@mark{\
    obj @aform \<<\
  }\@pdfm@mark{Fields @afields\}%
  \@pdfm@mark{Font\<<\}%
  \@pdfm@mark{ZaDb @OBJZaDb}%
  \@pdfm@mark{Helv @OBJHelv}%
  \ifHy@pdfa\else\ifHyField@NeedAppearances\NeedAppearances true\fi\fi\ifHy@pdfa\else\fi\ifHyField@NeedAppearances\NeedAppearances true\fi\fi\Hy@FormObjects\relax\}

48.5 dvipdfm, xetex
\dipdfm@setdim \dipdfm@setdim sets dimensions for an using \pdfm@box.
\def\dipdfm@setdim{%
height \the\ht\pdfm@box\space
width \the\wd\pdfm@box\space
depth \the\dp\pdfm@box\space
}
\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
\fi}
\begingroup
\@@Radio
\def\@@Radio#1{%
\Fld@listcount=0 %
\EdefEscapeName\Fld@default{\Fld@default}%
\setbox\pdfm@box=\hbox{%
\MakeRadioField{\Fld@width}{\Fld@height}%
}%
\@for\@curropt:=#1\do{%
\expandafter\Fld@checkequals\@curropt==\%
\EdefEscapeName\@currValue{\@currValue}%
\Hy@StepCount\Fld@listcount
\@currDisplay\space
\leavevmode
\Hy@escapeform\PDFForm@Radio
\ifnum\Fld@listcount=1%
\HyField@AdvanceAnnotCount
\fi
\@pdfm@mark{%
\ifnum\Fld@listcount=1%
@radio\HyField@TheAnnotCount%
\fi
\dvipdfm@setdim

<<%}
\PDFForm@Radio
\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{%
\HyField@TheAnnotCount
\dvipdfm@setdim
<<\PDFForm@List>>%}
\unhbox\pdfm@box
\HyField@AddToFields{list}%
}%

\@@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

310
\Submit

\def\Submit[#1]{
\def\Fld@width{\DefaultWidthofSubmit}\%
\def\Fld@height{\DefaultHeightofSubmit}\%
\begin{group}
\expandafter\HyField@SetKeys\expandafter{\DefaultOptionsofSubmit,#1}\%
\HyField@FlagsPushButton\%
\ifFld@hidden\def\Fld@width{1sp}\fi
\setbox\pdfm@box=\hbox{\MakeButtonField{#1}}\%
\leavevmode\Hy@escapeform\PDFForm@Submit\%
\HyField@advanceAnnotCount\@
\pdfm@mark{ann @submit\HyField@TheAnnotCount space}\%
\dvipdfm@setdim\%
\unbbox\pdfm@box\%
\HyField@addToFields{submit}\%
\endgroup
}

\Reset

\def\Reset[#1]{
\def\Fld@width{\DefaultWidthofReset}\%
\def\Fld@height{\DefaultHeightofReset}\%
\begin{group}
\expandafter\HyField@SetKeys\expandafter{\DefaultOptionsofReset,#1}\%
\ifHy@pdfa\Hy@Error{PDF/A: Reset action is prohibited}\@ehc\else\HyField@FlagsPushButton\%
\ifFld@hidden\def\Fld@width{1sp}\fi
\setbox\pdfm@box=\hbox{\MakeButtonField{#1}}\%
\leavevmode\Hy@escapeform\PDFForm@Reset\%
\HyField@advanceAnnotCount\@
\pdfm@mark{ann @reset\HyField@TheAnnotCount space}\%
\dvipdfm@setdim\%
\unbbox\pdfm@box\%
\HyField@addToFields{reset}\%
\endgroup
}
\def\@CheckBox[#1]{% 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}{% %
      \leavevmode
      \Hy@escapeform\PDFForm@Check
      \@pdfm@mark{ann @check\HyField@TheAnnotCount\space\dvipdfm@setdim
        <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
    }% %
  \endgroup
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
\def\Hy@FormObjects{%
  \@pdfm@mark{obj @OBJpdfdocencoding\dvipdfm@setdim
    <<\PDFForm@Check>>\unhbox\pdfm@box\HyField@AddToFields{check}%%
  }% %
}
48.6 Common forms part

\begingroup
\let\Hy@escapestring\Hy@escapestring
\Hy@escapestring
\@ifundefined{Hy@esc@}{\noexpand\Hy@escapestring{\noexpand##1}}{\noexpand\Hy@escapestring{\noexpand##1}}
\endgroup
\ThisShouldNotHappen
\cnsame Hy@esc@\string##1\endcnsame
}\%
\else
\let\Hy@escapestring\@firstofone
\fi
\fi
\def\Hy@escapeform#1\Hy@escapestring#2#3\@nil{%
\ifx\#3\%
\else
\expandafter
\Hy@pstringdef\csname Hy@esc@\string#2\endcsname{#2}\
\ltx@ReturnAfterFi{\
\Hy@@escapeform#3\@nil
}\fi
\else
\def\Hy@escapeform#1{\
\ifHy@pdfescapeform
\let\Hy@escapestring\pdfescapestring
\else
\let\Hy@escapestring\@firstofone
\fi
}\else
\def\Hy@escapeform{}\
}\fi

\PDFForm@Name
\def\PDFForm@Name{%
\PDFForm@@Name\Fld@name
\ifx\Fld@altname\relax
\else
\PDFForm@@Name\Fld@altname
\fi
\ifx\Fld@mappingname\relax
\else
\PDFForm@@Name\Fld@mappingname
\fi
}
\PDFForm@@Name
\def\PDFForm@@Name#1{%
\begingroup
\ifnum\Hy@pdf@majorminor@version<105%implementation note 117, PDF spec 1.7
\ifHy@unicode
\Hy@unicodefalse
\fi
\fi
\HyPsd@XeTeXBigCharstrue
\pdfstringdef\Hy@gtemp#1\endgroup
\let#1\Hy@gtemp

\Fld@additionalactions
\def\Fld@@additionalactions{\%}

\textbf{K} input (keystroke) format
\begin{verbatim}
\ifx\Fld@keystroke@code\@empty
\else
/K<</S/JavaScript/JS(\Hy@escapestring{\Fld@keystroke@code})>>%
\fi
\end{verbatim}

\textbf{F} display format
\begin{verbatim}
\ifx\Fld@format@code\@empty
\else
/F<</S/JavaScript/JS(\Hy@escapestring{\Fld@format@code})>>%
\fi
\end{verbatim}

\textbf{V} validation
\begin{verbatim}
\ifx\Fld@validate@code\@empty
\else
/V<</S/JavaScript/JS(\Hy@escapestring{\Fld@validate@code})>>%
\fi
\end{verbatim}

\textbf{C} calculation
\begin{verbatim}
\ifx\Fld@calculate@code\@empty
\else
/C<</S/JavaScript/JS(\Hy@escapestring{\Fld@calculate@code})>>%
\fi
\end{verbatim}

\textbf{Fo} receiving the input focus
\begin{verbatim}
\ifx\Fld@onfocus@code\@empty
\else
/Fo<</S/JavaScript/JS(\Hy@escapestring{\Fld@onfocus@code})>>%
\fi
\end{verbatim}

\textbf{Bl} loosing the input focus (blurred)
\begin{verbatim}
\ifx\Fld@onblur@code\@empty
\else
/Bl<</S/JavaScript/JS(\Hy@escapestring{\Fld@onblur@code})>>%
\fi
\end{verbatim}

\textbf{D} pressing the mouse button (down)
\begin{verbatim}
\ifx\Fld@onmousedown@code\@empty
\else
/D<</S/JavaScript/JS(\Hy@escapestring{\Fld@onmousedown@code})>>%
\fi
\end{verbatim}

\textbf{U} releasing the mouse button (up)
\begin{verbatim}
\ifx\Fld@onmouseup@code\@empty
\else
/U<</S/JavaScript/JS(\Hy@escapestring{\Fld@onmouseup@code})>>%
\fi
\end{verbatim}

\textbf{E} cursor enters the annotation’s active area.
\begin{verbatim}
\ifx\Fld@onenter@code\@empty
\else
/E<</S/JavaScript/JS(\Hy@escapestring{\Fld@onenter@code})>>%
\fi
\end{verbatim}

\textbf{X} cursor exits the annotation’s active area.
\begin{verbatim}
\ifx\Fld@onexit@code\@empty
\else
/X<</S/JavaScript/JS(\Hy@escapestring{\Fld@onexit@code})>>%
\fi
\end{verbatim}
\def\Fld@additionalactions{%  
  \if-\Fld@@additionalactions-%  
  \else  
  \ifHy@pdfa  
  \else  
  /AA<<\Fld@@additionalactions>>%  
  \fi  
  \fi  
}

\def\Fld@annotnames{%  
  /T(\Fld@name)%  
  \ifx\Fld@altname\relax  
  \else  
  /TU(\Fld@altname)%  
  \fi  
  \ifx\Fld@mappingname\relax  
  \else  
  /TM(\Fld@mappingname)%  
  \fi  
}

\def\PDFForm@Check{%  
  /Subtype/Widget%  
  \Fld@annotflags  
  \Fld@pageobjref  
  \Fld@annotnames  
  /FT/Btn%  
  \Fld@flags  
  /Q \Fld@align  
  /BS<\W \Fld@borderwidth /S/\Fld@borderstyle>>%  
  /AP<< /N <</Yes<<<<>> %new string /Yes is from below  
  /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%  
  \iftFld@checked /V/Yes/AS/Yes\else /V/Off/AS/Off\fi  
  \Fld@additionalactions  
}

\PDFForm@Push
14881 \ifHy@pdfa
14882 \else
14883 \def\PDFForm@Push{%
14884 \Subtype/Widget%
14885 \Fld@annotflags
14886 \Fld@pageobjref
14887 \Fld@annotnames
14888 /FT/Btn%
14889 \Fld@flags
14890 /H/P%
14891 /BS<</W \Fld@borderwidth/S/>\Fld@borderstyle>>%
14892 \ifcase0\ifnum\Fld@rotation=\z@ \else 1\fi
14893 \ifx\Fld@bordercolor\relax\else 1\fi
14894 \space
14895 \else
14896 /MK<<%
14897 \ifnum\Fld@rotation=\z@ \else
14898 \fi
14899 /R \Fld@rotation
14900 \fi
14901 \ifx\Fld@bordercolor\relax\else
14902 \fi
14903 /BC[\Fld@bordercolor]%
14904 \fi
14905 >>%
14906 \fi
14907 /A<</S/JavaScript/JS(\Hy@escapestring{\Fld@onclick@code})>>%
14908 \Fld@additionalactions
14909 )%
14910 \fi

\PDFForm@List
14911 \def\PDFForm@List{%
14912 \Subtype/Widget%
14913 \Fld@annotflags
14914 \Fld@pageobjref
14915 \Fld@annotnames
14916 /FT/Ch%
14917 \Fld@flags
14918 /Q \Fld@align
14919 /BS<</W \Fld@borderwidth/S/>\Fld@borderstyle>>%
14920 \ifcase0\ifnum\Fld@rotation=\z@ \else 1\fi
14921 \ifx\Fld@bordercolor\relax\else 1\fi
14922 \ifx\Fld@bordercolor\relax \else 1\fi
14923 \space
14924 \else
14925 /MK<<%
14926 \ifnum\Fld@rotation=\z@ \else
14927 \fi
14928 /R \Fld@rotation
14929 \fi
14930 \ifx\Fld@bordercolor\relax\else
14931 \fi
14932 /BC[\Fld@bordercolor]%
14933 \fi
14934 \ifx\Fld@bordercolor\relax\else
14935 \fi
14936 /BG[\Fld@bordercolor]%

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New code, the default value is used for all buttons

\PDFForm@Radio
\def\PDFForm@Radio{\%}
/Subtype/Widget\%}
/Fla@annotflags\%}
/Fla@pageobjref\%}
/Fla@annotnames\%}
/FT/Btn\%}
/Fla@flags\%}
/H/F\%}
/BS</W \Fla@borderwidth/S/\Fla@borderstyle>>\%
/MK<<\%
/\#num/Fla@rotation=\z@
\else}
/Fla@rotation\%
/Fla@flags\%
/BC[\Fla@bordercolor\relax\%
/Fla@flags\%
/BC[\Fla@bcolor\%
/Fla@flags\%
/CA[\Hy@escapestring{\Fla@radiosymbol}]\%
/\%
/DA/[ZaDb \strip@pt\Fla@charsize\space Tf\%}
/\ifx\Fla@color@empty\else/\Fla@color\fi/}
/Fla@choices\%}
/Fla@additionalactions\%}
\PDFForm@Text
\def\PDFForm@Text{\%
/Subtype/Widget\%
/Fla@annotflags\%
/Fla@pageobjref\%
/Fla@annotnames\%
/FT/Tx\%
/Fla@flags\%
/Q/Fla@align\%
/BS</W \Fla@borderwidth\space/S/\Fla@borderstyle>>\%

318
49 Bookmarks in the PDF file

This was originally developed by Yannis Haralambous (it was the separate reperex.sty); it needed the reperex or makebook.pl post-processor to work properly. Now redundant, as it is done entirely in \TeX 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
This section was written by Heiko Oberdiek; the code replaces an earlier version by David Carlisle.

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

When using the right-to-left typesetting based on \(\varepsilon\)-TEX, the order of the \BOOKMARK commands written to the \@outlinefile could appear wrong, because of mis-feature of \(\varepsilon\)-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.

---

\begin{verbatim}
def\Hy@writebookmark#1#2#3#4#5{\% section number, text, label, level, file
  \ifx\WriteBookmarks\relax\else
    \ifnum#4>\Hy@bookmarksdepth\relax
      \else
        \ifnum\@writetorep{#1}{#2}{#3}{#4}{#5}{% #6}
          \fi
        \else
          \fi
        \fi
      \else
        \fi
      \fi
    \fi
  \fi
}
def\Hy@currentbookmarklevel{0}
def\Hy@numberline{}{#1}
def\@writetorep#1#2#3#4#5{\%#6}
\begin{group}
  \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\%
        \ifnum\Hy@currentbookmarklevel+1<\@tempcnta\%
          \Hy@Warning{\MessageBreak Difference \(\the\@tempcnta\) between bookmark levels is \%
            greater \MessageBreak than one, level fixed\%
          }\%
        \else
          \fi
        \else
          \fi
        \fi
      \fi
      \edef\Hy@level{\the\@tempcnta}\%
    \else
      \fi
  \else
    \fi
  \fi
\end{group}
\end{verbatim}
In the call of \texttt{\textbackslash BOOKMARK} the braces around \#4 are omitted, because it is not likely, that the level number contains \].

Tobias Oetiker rightly points out that we need a way to force a bookmark entry. So we introduce \texttt{\textbackslash 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.

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

\section{Rerun warning}

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

\subsection{Driver stuff}

The VTEX section was written originally by VTEX, but then amended by Denis Girou (denis.girou@idris.fr), then 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.

The \texttt{\char\textasciitilde} 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 \texttt{\ifcase}, but I’m too lazy to sort that out now.

\begin{verbatim}
\begingroup\catcode`\textasciitilde=12 \ifnum\Hy@VTeXversion<650 \catcode`\"=12 \gdef\hv@pdf@char#1#2#3{\char\ifcase'#1#2#3 00\or01\or02\or03\or04\or05\or06\or07\or08\or09\or0A\or0B\or0C\or0D\or0E\or0F\or10\or11\or12\or13\or14\or15\or16\or17\or18\or19\or1A\or1B\or1C\or1D\or1E\or1F\or20\or21\or22\or23\or24\or25\or26\or27\or28\or29\or2A\or2B\or2C\or2D\or2E\or2F\or30\or31\or32\or33\or34\or35\or36\or37\or38\or39\or3A\or3B\or3C\or3D\or3E\or3F\or40\or41\or42\or43\or44\or45\or46\or47\or48\or49\or4A\or4B\or4C\or4D\or4E\or4F\relax}
\endgroup
\end{verbatim}
\def\{}{%
\def\do##1{%\ifnum\catcode`##1=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\fi\}⟨vtex⟩\def\ReadBookmarks{%\pdf@ifdraftmode{}{\begingroup\def\do##1{%\ifnum\catcode`##1=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}{}{}%
\iffalse\WriteBookmarks\relax\else\iffalse\else\newwrite\@outlinefile\Hy@OutlineRerunCheck\immediate\openout\@outlinefile=\jobname.out\relax\ifHy@typexml\immediate\write\@outlinefile{<relaxxml>\relax}\fi\fi\fi\fi\}⟨pdftex⟩\def\ReadBookmarks{%\pdf@ifdraftmode{}{\begingroup\def\do##1{%\ifnum\catcode`##1=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{%\def\Hy@temp{##4}\%\langle pdftex \rangle \Hy@pstringdef\Hy@pstringName{\HyperDestNameFilter{##3}}\Hy@OutlineName{}\Hy@pstringName{##2}\check@bm@number{##3}\%\InputIfFileExists{\jobname.out}{}{}%
\ifx\WriteBookmarks\relax\global\let\WriteBookmarks\relax\else\fi\fi\fi\}⟨pdftex⟩
\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}}
\langle /vtex\rangle
\ifHy@implicit \else \endinput \fi
\langle /outlines\rangle
\langle *outlines | hypertex\rangle
\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}}}
\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\Hy@SectionAnchorHref{\@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{section} \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}}
\let\H@old@sect\@sect
\def\@sect#1#2#3#4#5#6#7#8#9#10{\Hy@MakeCurrentHrefAuto{section} \setlength{\Hy@SectionHShift}{#1} \begingroup \toks@{\H@old@sect{#1}{#2}{#3}{#4}{#5}{#6}{#7}{#8}{#9}{#10}} \toks\tw@{\expandafter\Hy@SectionAnchorHref{\@currentHref}{\expandafter\Hy@SectionAnchorHref{\@currentHref}{\expandafter\Hy@SectionAnchorHref{\@currentHref}{\expandafter\Hy@SectionAnchorHref{\@currentHref}{\expandafter\Hy@SectionAnchorHref{\@currentHref}}}}}} \edef\x{\endgroup \the\toks@{\the\toks\tw@}} \x}
If there is no chapter number (\frontmatter or \backmatter) then the counting by \refstepcounter{chapter} is not executed, so there will be no destination for \ddcontentsline. So \@chapter is overloaded to avoid this:

\begin{verbatim}
\let\H@old@chapter\@chapter
\def\@chapter{% 
\let\Hy@next\relax
\ifnum\c@secnumdepth>\m@ne
\fi
\Hy@next
\H@old@chapter}
\let\H@old@part\@part
\begin{group}\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
\fi
\phantomsection
\if\@part{}
\fi
\ifnum\Hy@secnum@part>c@secnumdepth
\fi
\let\H@old@part
\end{verbatim}

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50 Compatibility with koma-script classes

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.
Encoding definition files for encodings of PDF strings

This was contributed by Heiko Oberdiek.

51.1 PD1 encoding

\DeclareFontEncoding{PD1}{}
\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}
Special white space escape characters not for use in bookmarks but for other PDF strings.

Accent glyph names

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

\040: U+0020 SPACE; *space, spacehackarabic
\041: U+0021 EXCLAMATION MARK; exclam
\042: U+0022 QUOTATION MARK; quotedbl
\043: U+0023 NUMBER SIGN; numbersign
\044: U+0024 DOLLAR SIGN; dollar
\045: U+0025 PERCENT SIGN; percent
\046: U+0026 AMPERSAND; ampersand
\047: U+0027 APOSTROPHE; quotesingle
\050: U+0028 LEFT PARENTHESES; parenleft
\051: U+0029 RIGHT PARENTHESES; parenright
\052:
\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
15689 % U+002E FULL STOP; period
15690 \DeclareTextCommand{\textdotbelow}{PD1}{\cdot}\% \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
15691 % U+003C LESS-THAN SIGN; less
15692 \DeclareTextCommand{\textless}{PD1}{<}\% \074 U+003C
\075: U+003D EQUALS SIGN; equal
15693 % U+003E GREATER-THAN SIGN; greater
15694 \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
15695 % U+005C REVERSE SOLIDUS; backslash
15696 \DeclareTextCommand{\textbackslash}{PD1}{\textbackslash}\% \134 U+005C
15697 % "U+2216 SET MINUS" simulated by "U+005C REVERSE SOLIDUS"
15698 \DeclareTextCommand{\textsetminus}{PD1}{\textbackslash}
\135: U+005D RIGHT SQUARE BRACKET; bracketright
15699 % U+005E CIRCUMFLEX ACCENT; asccircum
15700 \DeclareTextCommand{\textasciicircum}{PD1}{\textasciicircum}\% \136 U+005E
15701 % U+005F LOW LINE; underscore
15702 \DeclareTextCommand{\textunderscore}{PD1}{\textunderscore}\% \137 U+005F
15703 \DeclareTextCommand{\textmacronbelow}{PD1}{\textmacronbelow}\% \137 U+005F
15704 % U+0060 GRAVE ACCENT; grave
15705 \DeclareTextCommand{\textasciigrave}{PD1}{\textasciigrave}\% \140 U+0060
\141: U+0061 LATIN SMALL LETTER A; a
...
\150: U+0068 LATIN SMALL LETTER H; h
15706 % U+0069 LATIN SMALL LETTER I; i
15707 \DeclareTextCompositeCommand{\{}{PD1}{\{}{\}}\% \151 U+0069
\152: U+006A LATIN SMALL LETTER J; j
...
\172: U+007A LATIN SMALL LETTER Z; z
15708 % U+007B LEFT CURLY BRACKET; braceleft
15709 \DeclareTextCommand{\textbraceleft}{PD1}{\{}\% U+007B
15710 % U+007C VERTICAL LINE, *bar, verticalbar
15711 \DeclareTextCommand{\textbar}{PD1}{\}}\% \157 C
15712 % U+007D RIGHT CURLY BRACKET; braceright
15713 \DeclareTextCommand{\textbraceright}{PD1}{\{\}}\% U+007D
15714 % U+007E TILDE; asctildelde
15715 \DeclareTextCommand{\textasciitilde}{PD1}{\textasciitilde}\% U+007E
Slot \177 (0x7F) is undefined in PDFDocEncoding.
Slot \237 (0x9F) is not defined in PDFDocEncoding. The euro \240 is inserted in version 1.3 of the pdf specification.

No glyph \255 in PDFDocEncoding.
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).

51.2 PU encoding

51.2.1 NFSS2 accents
Double accents.

@empty is an artefact of the NFSS2 machinery, it gets inserted for empty arguments and spaces.
Accents for capitals (see encoding TS1)

51.2.2 Basic Latin: \textup{U+0000 to U+007F}

Special white space escape characters.

51.2.2 Basic Latin: \textup{U+0000 to U+007F}

Special white space escape characters.
51.2.3 Latin-1 Supplement: U+0080 to U+00FF

\80\240: U+00A0 NO-BREAK SPACE; nbspace, nonbreakingspace
16220 % U+00A1 INVERTED EXCLAMATION MARK; exclamdown
16221 \DeclareTextCommand{\textexclamdown}{PU}{\80\241} % U+00A1
16222 % U+00A2 CENT SIGN; cent
16223 \DeclareTextCommand{\textcent}{PU}{\80\242} % U+00A2
16224 % U+00A3 POUND SIGN; sterling
16225 \DeclareTextCommand{\textpounds}{PU}{\80\243} % U+00A3
16226 %* \textsterling -> \mathsterling (LaTeX)
16227 %* \textsterling -> \pounds (LaTeX)
16228 % U+00A4 CURRENCY SIGN; currency
16229 \DeclareTextCommand{\textcurrency}{PU}{\80\244} % U+00A4
16230 % U+00A5 YEN SIGN; yen
51.2.4 Latin Extended-A: U+0080 to U+017F

51.2.4.1 Latin Extended-A: U+0080 to U+00FF

51.2.4.2 Latin Extended-A: U+00F0 to U+00FF
% U+010C LATIN CAPITAL LETTER C WITH CARON; Ccaron
\DeclareTextCompositeCommand{\v}{PU}{C}{\81\014}
% U+010D LATIN SMALL LETTER C WITH CARON; ccaron
\DeclareTextCompositeCommand{\v}{PU}{c}{\81\015}
% U+010E LATIN CAPITAL LETTER D WITH CARON; Dcaron
\DeclareTextCompositeCommand{\v}{PU}{D}{\81\016}
% U+010F LATIN SMALL LETTER D WITH CARON; dcaron
\DeclareTextCompositeCommand{\v}{PU}{d}{\81\017}
% U+0110 LATIN CAPITAL LETTER D WITH STROKE; Dcroat, Dslash
\DeclareTextCommand{\DJ}{PU}{\81\020}
% U+0111 LATIN SMALL LETTER D WITH STROKE; dcroat, dmacron;
% \textcrd (tipa)
\DeclareTextCommand{\dj}{PU}{\81\021}
\DeclareTextCommand{\textcrd}{PU}{\81\021}
%* \textcrd -> \crossd (wsuipa)
% An alternate glyph with the stroke through the bowl:
%* \textcrd -> \textbard (tipa)
%* \textcrd -> \bard (wsuipa)
% U+0112 LATIN CAPITAL LETTER E WITH MACRON; Emacron
\DeclareTextCompositeCommand{\=}{PU}{E}{\81\022}
% U+0113 LATIN SMALL LETTER E WITH MACRON; emacron
\DeclareTextCompositeCommand{\=}{PU}{e}{\81\023}
% U+0114 LATIN CAPITAL LETTER E WITH BREVE; Ebreve
\DeclareTextCompositeCommand{\u}{PU}{E}{\81\024}
% U+0115 LATIN SMALL LETTER E WITH BREVE; ebreve
\DeclareTextCompositeCommand{\u}{PU}{e}{\81\025}
% U+0116 LATIN CAPITAL LETTER E WITH DOT ABOVE; Edot, Edotaccent
\DeclareTextCompositeCommand{\.}{PU}{E}{\81\026}
% U+0117 LATIN SMALL LETTER E WITH DOT ABOVE; edot, edotaccent
\DeclareTextCompositeCommand{\.}{PU}{e}{\81\027}
% U+0118 LATIN CAPITAL LETTER E WITH OGONEK; Eogonek
\DeclareTextCompositeCommand{\k}{PU}{E}{\81\028}
% U+0119 LATIN SMALL LETTER E WITH OGONEK; eogonek
\DeclareTextCompositeCommand{\k}{PU}{e}{\81\029}
% U+011A LATIN CAPITAL LETTER E WITH CARON; Ecaron
\DeclareTextCompositeCommand{\v}{PU}{E}{\81\030}
% U+011B LATIN SMALL LETTER E WITH CARON; ecaron
\DeclareTextCompositeCommand{\v}{PU}{e}{\81\031}
% U+011C LATIN CAPITAL LETTER G WITH CIRCUMFLEX; Gcircumflex
\DeclareTextCompositeCommand{\^}{PU}{G}{\81\032}
% U+011D LATIN SMALL LETTER G WITH CIRCUMFLEX; gcircumflex
\DeclareTextCompositeCommand{\^}{PU}{g}{\81\033}
% U+011E LATIN CAPITAL LETTER G WITH BREVE; Gbreve
\DeclareTextCompositeCommand{\u}{PU}{G}{\81\034}
% U+011F LATIN SMALL LETTER G WITH BREVE; gbreve
\DeclareTextCompositeCommand{\u}{PU}{g}{\81\035}
% U+0120 LATIN CAPITAL LETTER G WITH CEDILLA; Gcedilla, Gcommaaccent
\DeclareTextCompositeCommand{\c}{PU}{G}{\81\036}
% U+0121 LATIN SMALL LETTER G WITH CEDILLA; gcedilla, gcommaaccent
\DeclareTextCompositeCommand{\c}{PU}{g}{\81\037}
% U+0122 LATIN CAPITAL LETTER H WITH CIRCUMFLEX; Hcircumflex
\DeclareTextCompositeCommand{\^}{PU}{H}{\81\038}
% U+0123 LATIN SMALL LETTER G WITH CEDILLA; gcedilla, gcommaaccent
\DeclareTextCompositeCommand{\c}{PU}{G}{\81\039}
% U+0124 LATIN CAPITAL LETTER H WITH CIRCUMFLEX; Hcircumflex
The canonical name of U+0138, small letter kra, would be \textkra, following the glyph naming convention. However latex/base/inputenc.dtx has chosen \textkgreenlandic.
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+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
\% 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
\%* \ng -> \eng (wsuipa)
\%* \ng -> \engma (phonetic)
\% U+014C LATIN CAPITAL LETTER O WITH MACRON; Omacron
\% U+014D LATIN SMALL LETTER O WITH MACRON; omacron
\% U+014E LATIN CAPITAL LETTER O WITH BREVE; Obreve
\% U+014F LATIN SMALL LETTER O WITH BREVE, obreve
\% U+0150 LATIN CAPITAL LETTER O WITH DOUBLE ACUTE; Odblacute, Ohungarumlaut
\% U+0151 LATIN SMALL LETTER O WITH DOUBLE ACUTE; odblacute, ohungarumlaut
\% U+0152 LATIN CAPITAL LETTER O WITH SегMENT; Ossegma
\% U+0153 LATIN SMALL LETTER O WITH SегMENT; ossegma
\% U+0154 LATIN CAPITAL LETTER O WITH DOT ABOVE; Odotaccent
\% U+0155 LATIN SMALL LETTER O WITH DOT ABOVE; odotaccent
\% U+0156 LATIN CAPITAL LETTER O WITH TILDE; Otilde
\% U+0157 LATIN SMALL LETTER O WITH TILDE; otilde
\%* lat -> \nlater (phonetic)
\DeclareTextCompositeCommand{\u}{PU}{u}{\81\155}% U+016D
\DeclareTextCompositeCommand{\r}{PU}{U}{\81\156}% U+016E
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\157}% U+016F
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\160}% U+0170
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\161}% U+0171
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\162}% U+0172
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\163}% U+0173
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\164}% U+0174
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\165}% U+0175
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\166}% U+0176
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\167}% U+0177
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\168}% U+0178
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\169}% U+0179
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\170}% U+017A
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\171}% U+017B
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\172}% U+017C
\ DeclareTextCompositeCommand{\U}{PU}{u}{\81\173}% U+017D
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\174}% U+017E
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\175}% U+017F
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\176}% U+0180
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\177}% U+0181
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\178}% U+0182
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\179}% U+0183
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\180}% U+0184
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\181}% U+0185
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\182}% U+0186
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\183}% U+0187
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\184}% U+0188
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\185}% U+0189
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\186}% U+018A
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\187}% U+018B
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\188}% U+018C
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\189}% U+018D
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\190}% U+018E
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\191}% U+018F
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\192}% U+0190
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\193}% U+0191
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\194}% U+0192
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\195}% U+0193
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\196}% U+0194
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\197}% U+0195
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\198}% U+0196
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\199}% U+0197
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\200}% U+0198
\ DeclareTextCompositeCommand{\U}{PU}{u}{\81\201}% U+0199
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\202}% U+019A
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\203}% U+019B
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\204}% U+019C
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\205}% U+019D
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\206}% U+019E
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\207}% U+019F
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\208}% U+01A0
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\209}% U+01A1
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\210}% U+01A2
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\211}% U+01A3
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\212}% U+01A4
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\213}% U+01A5
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\214}% U+01A6
\DeclareTextCompositeCommand{\U}{PU}{u}{\81\215}% U+01A7
\DeclareTextCompositeCommand{\U}{PU}{U}{\81\216}% U+01A8

51.2.5 Latin Extended-B: U+0180 to U+024F

\DeclareTextCompositeCommand{\textlongs}{PU}{\81\177}% U+017F
\DeclareTextCompositeCommand{\textcrb}{PU}{\81\178}% U+017A
\DeclareTextCompositeCommand{\textbarb}{PU}{\81\179}% U+017B
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\180}% U+017C
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\181}% U+017D
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\182}% U+017E
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\183}% U+017F
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\184}% U+0180
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\185}% U+0181
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\186}% U+0182
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\187}% U+0183
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\188}% U+0184
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\189}% U+0185
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\190}% U+0186
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\191}% U+0187
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\192}% U+0188
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\193}% U+0189
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\194}% U+018A
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\195}% U+018B
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\196}% U+018C
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\197}% U+018D
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\198}% U+018E
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\199}% U+018F
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\200}% U+0190
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\201}% U+0191
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\202}% U+0192
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\203}% U+0193
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\204}% U+0194
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\205}% U+0195
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\206}% U+0196
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\207}% U+0197
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\208}% U+0198
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\209}% U+0199
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\210}% U+019A
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\211}% U+019B
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\212}% U+019C
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\213}% U+019D
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\214}% U+019E
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\215}% U+019F
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\216}% U+0200
\DeclareTextCompositeCommand{\texthtc}{PU}{\81\217}% U+0201
16873 % U+0221 LATIN SMALL LETTER D WITH CURL; \textctd (tipa)
16874 \DeclareTextCommand{\textctd}{PU}{\82\041}% U+0221
16875 % U+0225 LATIN SMALL LETTER Z WITH HOOK; \textcommataliz (tipa)
16876 \DeclareTextCommand{\textcommataliz}{PU}{\82\045}% U+0225
16877 % U+0226 LATIN CAPITAL LETTER A WITH DOT ABOVE
16878 \DeclareTextCompositeCommand{\(A\)}{PU}{\82\046}% U+0226
16879 % U+0227 LATIN SMALL LETTER A WITH DOT ABOVE
16880 \DeclareTextCompositeCommand{\(a\)}{PU}{\82\047}% U+0227
16881 % U+0228 LATIN CAPITAL LETTER E WITH CEDILLA
16882 \DeclareTextCompositeCommand{\(E\)}{PU}{\82\050}% U+0228
16883 % U+0229 LATIN SMALL LETTER E WITH CEDILLA
16884 \DeclareTextCompositeCommand{\(e\)}{PU}{\82\051}% U+0229
16885 % U+022E LATIN CAPITAL LETTER O WITH DOT ABOVE
16886 \DeclareTextCompositeCommand{\(O\)}{PU}{\82\056}% U+022E
16887 % U+022F LATIN SMALL LETTER O WITH DOT ABOVE
16888 \DeclareTextCompositeCommand{\(o\)}{PU}{\82\057}% U+022F
16889 % U+0232 LATIN CAPITAL LETTER Y WITH MACRON
16890 \DeclareTextCompositeCommand{\=\(Y\)}{PU}{\82\062}% U+0232
16891 % U+0233 LATIN SMALL LETTER Y WITH MACRON
16892 \DeclareTextCompositeCommand{\=\(y\)}{PU}{\82\063}% U+0233
16893 % U+0235 LATIN CAPITAL LETTER O WITH DOT ABOVE
16894 \DeclareTextCompositeCommand{\(O\)}{PU}{\82\065}% U+0235
16895 % U+0236 LATIN SMALL LETTER O WITH DOT ABOVE
16896 \DeclareTextCompositeCommand{\(o\)}{PU}{\82\066}% U+0236
16897 % U+0237 LATIN CAPITAL LETTER DOTLESS J
16898 \DeclareTextCompositeCommand{\(\text\)}{PU}{\82\067}% U+0237
16899 % U+0238 LATIN SMALL LETTER DB DIGRAPH; \textdblig (tipx)
16900 \DeclareTextCompositeCommand{\textPUdblig}{PU}{\82\070}% U+0238
16901 %* \textPUdblig -> \textdblig (tipx)
16902 % U+0239 LATIN SMALL LETTER QP DIGRAPH; \textqplig (tipx)
16903 \DeclareTextCompositeCommand{\textPUqplig}{PU}{\82\071}% U+0239
16904 %* \textPUqplig -> \textqplig (tipx)
16905 % U+023C LATIN SMALL LETTER C WITH STROKE; \textslashc (wsuipa)
16906 \DeclareTextCompositeCommand{\textslashc}{PU}{\82\074}% U+023C
16907 %* \textslashc -> \textcentoldstyle (textcomp)
16908 %* \textslashc -> \textbarc (tipa)
16909 % With bar instead of stroke:
16910 %* \textslashc -> \textbarc (tipa)
16911 % 51.2.6 IPA Extensions: U+0250 to U+02AF
16912 % U+0250 LATIN SMALL LETTER TURNED A; aturned; \textturna (tipa)
16913 \DeclareTextCompositeCommand{\textturna}{PU}{\82\120}% U+0250
16914 %* \textturna -> \inva (wasysym)
16915 % U+0251 LATIN SMALL LETTER ALPHA/LATIN SMALL LETTER
16916 % U+0254 LATIN SMALL LETTER OPEN O; oopen;
16917 % 356
%* \texttipagamma -> \vod (phonetic)
% U+0264 LATIN SMALL LETTER RAMS HORN; rams horn;
% \baggamma (wusuipa)
\DeclareTextCommand{\textbaggamma}{PU}{\82\144}%* U+0264
\textbaggamma \textit{U+0264 LATIN SMALL LETTER TURNED H; hturned; \textturnh (tipa)
\DeclareTextCommand{\textturnh}{PU}{\82\145}% U+0265
%* \textturnh -> \invh (wusuipa)
%* \textturnh -> \udesc (phonetic)
% U+0266 LATIN SMALL LETTER HENG WITH HOOK; hhook; \texthth (tipa)
\DeclareTextCommand{\texthth}{PU}{\82\146}% U+0266
%* \texthth -> \hookh (wusuipa)
%* \texthth -> \voicedh (phonetic)
% U+0267 LATIN SMALL LETTER HENG WITH HOOK; henghook; \textththeng (tipa)
\DeclareTextCommand{\textththeng}{PU}{\82\147}% U+0267
%* \textththeng -> \hookheng (wusuipa)
% U+0268 LATIN SMALL LETTER I WITH STROKE;
% \textbari (tipa), \bari (wusuipa)
\DeclareTextCommand{\textbari}{PU}{\82\150}%* U+0268
%* \textbari -> \ibar (phonetic)
% U+0269 LATIN SMALL LETTER IOTA; iotalatin; \niiota (wusuipa)
\DeclareTextCommand{\textniiota}{PU}{\82\151}%* U+0269
%* \textniiota -> \vari (phonetic)
% U+026A LATIN LETTER SMALL CAPITAL I; \textsci (tipa), \sci (wusuipa)
\DeclareTextCommand{\textsci}{PU}{\82\152}%* U+026A
% U+026B LATIN SMALL LETTER L WITH MIDDLE TILDE;
% \textltilde (tipa)
\DeclareTextCommand{\textltilde}{PU}{\82\153}% U+026B
%* \textltilde -> \tildel (wusuipa)
% U+026C LATIN SMALL LETTER L WITH BELT; lbelt; \textbeltl (tipa)
\DeclareTextCommand{\textbeltl}{PU}{\82\154}%* U+026C
%* \textbeltl -> \latfric (wusuipa)
% U+026D LATIN SMALL LETTER LEZH; lezh; \textlyoghlig (tipa)
\DeclareTextCommand{\textlyoghlig}{PU}{\82\155}%* U+026D
%* \textlyoghlig -> \lz (wusuipa)
% U+026E LATIN SMALL LETTER TURNED M WITH LONG LEG;
% mlonglegturned;
\DeclareTextCommand{\textmlongleg}{PU}{\82\156}% U+026E
%* \textmlongleg -> \lz (wusuipa)
% U+026F LATIN SMALL LETTER TURNED M WITH LONG LEG;
% mlonglegturned;
\DeclareTextCommand{\textmlongleg}{PU}{\82\157}% U+026F
%* \textmlongleg -> \lz (wusuipa)
% U+0270 LATIN SMALL LETTER TURNED M WITH RETROFLEX HOOK;
% \textturnmr (tipa)
\DeclareTextCommand{\textturnmr}{PU}{\82\158}% U+0270
%* \textturnmr -> \runc (wusuipa)
% U+0271 LATIN SMALL LETTER L WITH RETROFLEX HOOK;
% lhook; \textlhook (tipa)
\DeclareTextCommand{\textlhook}{PU}{\82\159}% U+0271
%* \textlhook -> \lh (wusuipa)
% U+0272 LATIN SMALL LETTER L WITH RETROFLEX HOOK;
% lhook; \textlhook (tipa)
\DeclareTextCommand{\textlhook}{PU}{\82\160}% U+0272
%* \textlhook -> \lh (wusuipa)
\DeclareTextCommand{\textrtailn}{PU}{\82\163}% U+0273
\DeclareTextCommand{\textscn}{PU}{\82\164}% U+0274
\DeclareTextCommand{\textbaro}{PU}{\82\165}% U+0275
\DeclareTextCommand{\textscoelig}{PU}{\82\166}% U+0276
\DeclareTextCommand{\textcloseomega}{PU}{\82\167}% U+0277
\DeclareTextCommand{\textniphi}{PU}{\82\170}% U+0278
\DeclareTextCommand{\textturnr}{PU}{\82\171}% U+0279
\DeclareTextCommand{\textturnlonglegr}{PU}{\82\172}% U+027A
\DeclareTextCommand{\textturnrrtail}{PU}{\82\173}% U+027B
\DeclareTextCommand{\textlonglegr}{PU}{\82\174}% U+027C
\DeclareTextCommand{\textfishhookr}{PU}{\82\175}% U+027D
\DeclareTextCommand{\textlhtlongi}{PU}{\82\176}% U+027E
\DeclareTextCommand{\textscr}{PU}{\82\200}% U+0280
\DeclareTextCommand{\textinvscr}{PU}{\82\201}% U+0281
\DeclareTextCommand{\textrtails}{PU}{\82\202}% U+0282
\DeclareTextCommand{\textfishhookr}{PU}{\82\203}% U+0283
17142  %  ezhcurl; \textcenthythogh (tipa)
17143  \DeclareTextCommand{\textcenthythogh}{PU}{\82\223}% U+0023
17144  %* \textcenthythogh -> \curlyyogh (wsuipa)
17145  % U+0294 LATIN LETTER GLOTTAL STOP; glottalstop;
17146  \textglotstop (tipa), \glotstop (wsuipa)
17147  %* \textglotstop -> \ejective (wsuipa)
17148  %* \textglotstop -> \glottal (phonetic)
17149  % U+0295 LATIN LETTER PHARYNGEAL VOICED FRICATIVE/
17150  % LATIN LETTER REVERSED GLOTTAL STOP; glottalstopreversed;
17151  \textrevglotstop (tipa), \revglotstop (wsuipa)
17152  \textinvglotstop (tipa), \revglotstop (wsuipa)
17153  % U+0296 LATIN LETTER STRETCHED C; cstretched; \textstretchc (tipa)
17154  %* \textstretchc -> \clickc (wsuipa)
17155  %* \textstretchc -> \textstretchcvar (tipx)
17156  % U+0297 LATIN LETTER BILABIAL CLICK; bilabialclick;
17157  \textbullseye (tipa)
17158  %* \textbullseye -> \clickb (wsuipa)
17159  %* \textbullseye -> \textObullseye (tipx)
17160  % U+0298 LATIN LETTER SMALL CAPITAL B; \textscb (tipa)
17161  \textcloseepsilon (tipa)
17162  % U+0026 LATIN LETTER SMALL CAPITAL G WITH HOOK; Gsmallhook;
17163  \texthtscg (tipa)
17164  % U+0027 LATIN LETTER SMALL CAPITAL H; \textsch (tipa)
17165  \textcdj (tipa)
17166  %* \textcdj -> \textctjvar (tipx)
17167  % U+0028 LATIN LETTER SMALL CAPITAL J WITH CROSSED-TAIL; jcrosset-
17168  % tail; \textctj (tipa)
17169  \textbarglotstop (tipa)
17170  \textbarrevglotstop (tipa)
17171  % U+002A LATIN SMALL LETTER Q WITH HOOK; qhook; \texthtq (tipa)
17172  \textdzlig (tipa)
17173  % U+002B LATIN SMALL LETTER SMALL CAPITAL G WITH HOOK; Gemallhook;
17174  \textdz (tipa)
17175  % U+002C LATIN SMALL LETTER SMALL CAPITAL H; \textsch (tipa)
17176  \textdzlig (tipa)
17177  % U+002D LATIN SMALL LETTER J WITH CROSSED-TAIL; jcrosset-
17178  % tail; \textctj (tipa)
17179  \textbarglotstop (tipa)
17180  \textbarrevglotstop (tipa)
17181  % U+002A LATIN SMALL LETTER Q WITH HOOK; qhook; \texthtq (tipa)
17182  \textdzlig (tipa)
17183  % U+002B LATIN SMALL LETTER SMALL CAPITAL G WITH HOOK; Gemallhook;
17184  \textdz (tipa)
17185  % U+002C LATIN SMALL LETTER SMALL CAPITAL H; \textsch (tipa)
17186  \textdzlig (tipa)
17187  % U+002D LATIN SMALL LETTER J WITH CROSSED-TAIL; jcrosset-
17188  % tail; \textctj (tipa)
17189  \textbarglotstop (tipa)
17190  % U+002A LATIN SMALL LETTER Q WITH HOOK; qhook; \texthtq (tipa)
17191  \textdzlig (tipa)
17192  % U+002B LATIN SMALL LETTER SMALL CAPITAL G WITH HOOK; Gemallhook;
17193  \textdz (tipa)
17194  % U+002C LATIN SMALL LETTER SMALL CAPITAL H; \textsch (tipa)
17195  \textdzlig (tipa)
17196  % U+002D LATIN SMALL LETTER J WITH CROSSED-TAIL; jcrosset-
17197  % tail; \textctj (tipa)
17198  \textbarglotstop (tipa)
17199  % U+002A LATIN SMALL LETTER Q WITH HOOK; qhook; \texthtq (tipa)
17200  \textdzlig (tipa)
17201  % U+002B LATIN SMALL LETTER SMALL CAPITAL G WITH HOOK; Gemallhook;
17202  \textdz (tipa)
17203  % U+002C LATIN SMALL LETTER SMALL CAPITAL H; \textsch (tipa)
17204  \textdzlig (tipa)
17205  % U+002D LATIN SMALL LETTER J WITH CROSSED-TAIL; jcrosset-
17206  % tail; \textctj (tipa)
17207  \textbarglotstop (tipa)
17208  % U+002A LATIN SMALL LETTER Q WITH HOOK; qhook; \texthtq (tipa)
17209  \textdzlig (tipa)
17210  % U+002B LATIN SMALL LETTER SMALL CAPITAL G WITH HOOK; Gemallhook;
17211  \textdz (tipa)
17212  % U+002C LATIN SMALL LETTER SMALL CAPITAL H; \textsch (tipa)
17213  \textdzlig (tipa)
17214  % U+002D LATIN SMALL LETTER J WITH CROSSED-TAIL; jcrosset-
17215  % tail; \textctj (tipa)
17216  \textbarglotstop (tipa)
17217  % U+002A LATIN SMALL LETTER Q WITH HOOK; qhook; \texthtq (tipa)
17218  \textdzlig (tipa)
17219  % U+002B LATIN SMALL LETTER SMALL CAPITAL G WITH HOOK; Gemallhook;
17220  \textdz (tipa)
17221  % U+002C LATIN SMALL LETTER SMALL CAPITAL H; \textsch (tipa)
17222  \textdzlig (tipa)
17223  % U+002D LATIN SMALL LETTER J WITH CROSSED-TAIL; jcrosset-
17224  % tail; \textctj (tipa)
17225  \textbarglotstop (tipa)
17226  % U+002A LATIN SMALL LETTER Q WITH HOOK; qhook; \texthtq (tipa)
17227  \textdzlig (tipa)
17228  % U+002B LATIN SMALL LETTER SMALL CAPITAL G WITH HOOK; Gemallhook;
17229  \textdz (tipa)
17230  % U+002C LATIN SMALL LETTER SMALL CAPITAL H; \textsch (tipa)
17231  \textdzlig (tipa)
17232  % U+002D LATIN SMALL LETTER J WITH CROSSED-TAIL; jcrosset-
17233  % tail; \textctj (tipa)
17234  \textbarglotstop (tipa)
17235  % U+002A LATIN SMALL LETTER Q WITH HOOK; qhook; \texthtq (tipa)
17236  \textdzlig (tipa)
17237  % U+002B LATIN SMALL LETTER SMALL CAPITAL G WITH HOOK; Gemallhook;
17238  \textdz (tipa)
17239  % U+002C LATIN SMALL LETTER SMALL CAPITAL H; \textsch (tipa)
17240  \textdzlig (tipa)
17241  % U+002D LATIN SMALL LETTER J WITH CROSSED-TAIL; jcrosset-
17242  % tail; \textctj (tipa)
17196 %* \textdzig -> \dz (wsuipa)
17197 % U+02A4 LATIN SMALL LETTER DEZH DIGRAPH; dezh; \textdyoghlig (tipa)
17198 \DeclareTextCommand{\textdyoghlig}{PU}{\82\244}% U+02A4
17199 % U+02A5 LATIN SMALL LETTER DZ DIGRAPH WITH CURL; dzcurl; \textdctzlig (tipa)
17200 \DeclareTextCommand{\textdctzlig}{PU}{\82\245}% U+02A5
17201 % U+02A6 LATIN SMALL LETTER TS DIGRAPH; ts; \texttslig (tipa)
17202 \DeclareTextCommand{\texttslig}{PU}{\82\246}% U+02A6
17203 % U+02A7 LATIN SMALL LETTER TESH DIGRAPH; tesh; \textteshlig (tipa)
17204 \DeclareTextCommand{\textteshlig}{PU}{\82\247}% U+02A7
17205 %* \textteshlig -> \tesh (wsuipa)
17206 % U+02A8 LATIN SMALL LETTER TC DIGRAPH WITH CURL; tccurl; \texttctclig (tipa)
17207 \DeclareTextCommand{\texttctclig}{PU}{\82\250}% U+02A8
17208 % U+02AE LATIN SMALL LETTER TURNED H WITH FISHHOOK; lhtlongy (tipa)
17209 \DeclareTextCommand{\textlhtlongy}{PU}{\82\256}% U+02AE
17210 % U+02AF LATIN SMALL LETTER TURNED H WITH FISHHOOK AND TAIL; vibyy (tipa)
17211 \DeclareTextCommand{\textvibyy}{PU}{\82\257}% U+02AF

51.2.7 Spacing Modifier Letters: U+02B0 to U+02FF

17216 % U+02BD MODIFIER LETTER REVERSED COMMA; commareversedmod, afi64937; \textrevapostrophe (tipa)
17217 % commareversedmod, afi64937; \textrevapostrophe (tipa)
17218 \DeclareTextCommand{\textrevapostrophe}{PU}{\82\275}% U+02BD
17219 % U+02C0 MODIFIER LETTER GLOTTAL STOP; glottalstopmod; \textraiseglotstop (tipa)
17220 % \textraiseglotstop (tipa)
17221 \DeclareTextCommand{\textraiseglotstop}{PU}{\82\300}% U+02C0
17222 % U+02C2 MODIFIER LETTER LEFT ARROWHEAD; arrowheadleftmod; \textlptr (tipa)
17223 % \textlptr (tipa)
17224 \DeclareTextCommand{\textlptr}{PU}{\82\302}% U+02C2
17225 % U+02C3 MODIFIER LETTER RIGHT ARROWHEAD; arrowheadrightmod; \textrptr (tipa)
17226 % \textrptr (tipa)
17227 \DeclareTextCommand{\textrptr}{PU}{\82\303}% U+02C3
17228 % U+02C7 CARON; caron
17229 \DeclareTextCommand{\textasciicaron}{PU}{\82\307}% U+02C7
17230 % U+02C8 MODIFIER LETTER VERTICAL LINE; verticallinemod; \textprimstress (tipa)
17231 % \textprimstress (tipa)
17232 \DeclareTextCommand{\textprimstress}{PU}{\82\310}% U+02C8
17233 % U+02CC MODIFIER LETTER LOW VERTICAL LINE, verticallinelowmod; \textsecstress (tipa)
17234 % \textsecstress (tipa)
17235 \DeclareTextCommand{\textsecstress}{PU}{\82\314}% U+02CC
17236 % U+02D0 MODIFIER LETTER TRIANGULAR COLON; colontriangularmod; \textlengthmark (tipa)
17237 % \textlengthmark (tipa)
17238 \DeclareTextCommand{\textlengthmark}{PU}{\82\320}% U+02D0
17239 % U+02D1 MODIFIER LETTER HALF TRIANGULAR COLON; colontriangularhalfmod; \texthalflength (tipa)
17240 % \texthalflength (tipa)
17241 \DeclareTextCommand{\texthalflength}{PU}{\82\321}% U+02D1
17242 % U+02D8 BREVE; breve
17243 \DeclareTextCommand{\textasciibreve}{PU}{\82\330}% U+02D8
17244 % U+02D9 DOT ABOVE; dotaccent
17245 \DeclareTextCommand{\textasciidotaccent}{PU}{\82\331}% U+02D9
17246 % U+02DA RING ABOVE; ring
17247 \DeclareTextCommand{\textring}{PU}{\82\332}% U+02DA
17248 % U+02DB OGONEK; ogonek

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51.2.10 Cyrillic: U+0400 to U+04FF

Thanks to Vladimir Volovich (vvv@vvv.vsu.ru) for the help with the Cyrillic glyph names.
% U+04D2 CYRILLIC CAPITAL LETTER A WITH DIAERESIS; Adieresiscyrillic
% U+04D3 CYRILLIC SMALL LETTER A WITH DIAERESIS; adieresiscyrillic
% U+04D4 CYRILLIC CAPITAL LIGATURE A IE; Aiecyrillic
% U+04D5 CYRILLIC SMALL LIGATURE A IE; aiecyrillic
% U+04D6 CYRILLIC CAPITAL LETTER IE WITH BREVE; Iebrevcyrillic
% U+04D7 CYRILLIC SMALL LETTER IE WITH BREVE; iebrevcyrillic
% U+04D8 CYRILLIC CAPITAL LETTER SCHWA; Schwacyrillic
% U+04D9 CYRILLIC SMALL LETTER SCHWA; *afii10846, schwacyrillic
% U+04DA CYRILLIC CAPITAL LETTER SCHWA WITH DIAERESIS; Schwadieresiscyrillic
% U+04DB CYRILLIC SMALL LETTER SCHWA WITH DIAERESIS; schwadieresiscyrillic
% U+04DC CYRILLIC CAPITAL LETTER ZHE WITH DIAERESIS; Zhedieresiscyrillic
% U+04DD CYRILLIC SMALL LETTER ZHE WITH DIAERESIS; zhedieresiscyrillic
% U+04DE CYRILLIC CAPITAL LETTER ZE WITH DIAERESIS; Zedieresiscyrillic
% U+04DF CYRILLIC SMALL LETTER ZE WITH DIAERESIS; zedieresiscyrillic
% U+04E0 CYRILLIC CAPITAL LETTER ABKHASIAN DZE; Dzeabkhasiancyrillic
% U+04E1 CYRILLIC SMALL LETTER ABKHASIAN DZE; dzeabkhasiancyrillic
% U+04E2 CYRILLIC CAPITAL LETTER I WITH MACRON; Imacroncyrillic
% U+04E3 CYRILLIC SMALL LETTER I WITH MACRON; imacroncyrillic
% U+04E4 CYRILLIC CAPITAL LETTER I WITH DIAERESIS; Idieresiscyrillic
% U+04E5 CYRILLIC SMALL LETTER I WITH DIAERESIS; idieresiscyrillic
% U+04E6 CYRILLIC CAPITAL LETTER O WITH DIAERESIS; Odieresiscyrillic
% U+04E7 CYRILLIC SMALL LETTER O WITH DIAERESIS; odieresiscyrillic
% U+04E8 CYRILLIC CAPITAL LETTER BARRED O; Oberredcyrillic
% U+04E9 CYRILLIC SMALL LETTER BARRED O; oberredcyrillic
51.2.11 Hebrew: U+0590 to U+05FF

Macro names are taken from he8enc.def.
51.2.12 Thai: U+0E00 to U+0E7F

51.2.13 Phonetic Extensions: U+1D00 to U+1D7F

U+1D00 LATIN LETTER SMALL CAPITAL A; \textsca (tipa)
U+1D05 LATIN LETTER SMALL CAPITAL D; \textscd (wsuipa)
U+1D07 LATIN LETTER SMALL CAPITAL E; \textsce (tipa)
U+1D0A LATIN LETTER SMALL CAPITAL J; \textscj (tipa)
U+1D0B LATIN LETTER SMALL CAPITAL K; \textPUsck (tipx)
U+1D0D LATIN LETTER SMALL CAPITAL M; \textPUscm (tipx)
U+1D18 LATIN LETTER SMALL CAPITAL P; \textPUscp (tipx)
U+1D19 LATIN LETTER SMALL CAPITAL REVERSED R; \textrevscr (tipx)
U+1D1C LATIN LETTER SMALL CAPITAL U; \textscu (wsuipa)
U+1D1D LATIN SMALL SUBSCRIPT SMALL LETTER I
U+1D1E LATIN SMALL SUBSCRIPT SMALL LETTER R
U+1D1F LATIN SMALL SUBSCRIPT SMALL LETTER U
U+1D20 GREEK SUBSCRIPT SMALL LETTER BETA
U+1D21 GREEK SUBSCRIPT SMALL LETTER GAMMA
U+1D22 LATIN SMALL SUBSCRIPT SMALL LETTER ETA
U+1D23 LATIN SMALL SUBSCRIPT SMALL LETTER THETA
U+1D24 LATIN SMALL SUBSCRIPT SMALL LETTER NU
U+1D25 GREEK SUBSCRIPT SMALL LETTER PHI
U+1D26 GREEK SUBSCRIPT SMALL LETTER CHI
U+1D7B LATIN SMALL CAPITAL LETTER I WITH STROKE
51.2.14 Phonetic Extensions Supplement: U+1D80 to U+1DBF

51.2.15 Latin Extended Additional: U+1E00 to U+1EFF
\DeclareTextCompositeCommand{\textsubcircum}{PU}{N}{\9036\112}% U+1E4A
\DeclareTextCompositeCommand{\textsubcircum}{PU}{n}{\9036\113}% U+1E4B % U+1E50 LATIN CAPITAL LETTER O WITH MACRON AND GRAVE;
\DeclareTextCompositeCommand{\textcircum}{PU}{o}{\9036\120}% U+1E51 % Omacron
circumflexbelow
\DeclareTextCompositeCommand{\textcircum}{PU}{O}{\9036\121}% U+1E52 % umacron
\DeclareTextCompositeCommand{\textcircum}{PU}{o}{\9036\122}% U+1E53 % U+1E54 LATIN CAPITAL LETTER P WITH ACUTE; Pacute
\DeclareTextCompositeCommand{\textacutep}{PU}{p}{\9036\123}% U+1E54 % U+1E55 LATIN SMALL LETTER P WITH ACUTE; pacute
\DeclareTextCompositeCommand{\textacutep}{PU}{P}{\9036\124}% U+1E55 % U+1E56 LATIN CAPITAL LETTER P WITH DOT ABOVE; Pdotaccent
\DeclareTextCompositeCommand{\textdottop}{PU}{p}{\9036\125}% U+1E56 % U+1E57 LATIN SMALL LETTER P WITH DOT ABOVE; pdotaccent
\DeclareTextCompositeCommand{\textdottop}{PU}{P}{\9036\126}% U+1E57 % U+1E58 LATIN CAPITAL LETTER R WITH DOT ABOVE; Rdotaccent
\DeclareTextCompositeCommand{\textdotup}{PU}{r}{\9036\127}% U+1E58 % U+1E59 LATIN SMALL LETTER R WITH DOT ABOVE; rdotaccent
\DeclareTextCompositeCommand{\textdotup}{PU}{r}{\9036\128}% U+1E59 % U+1E60 LATIN CAPITAL LETTER S WITH DOT ABOVE; Sdotaccent
\DeclareTextCompositeCommand{\textdottop}{PU}{s}{\9036\129}% U+1E60 % U+1E61 LATIN SMALL LETTER S WITH DOT ABOVE; sdotaccent
\DeclareTextCompositeCommand{\textdottop}{PU}{S}{\9036\130}% U+1E61 % U+1E62 LATIN CAPITAL LETTER T WITH DOT ABOVE; Tdotaccent
\DeclareTextCompositeCommand{\textdottop}{PU}{t}{\9036\131}% U+1E62 % U+1E63 LATIN SMALL LETTER T WITH DOT ABOVE; tdotaccent
\DeclareTextCompositeCommand{\textdottop}{PU}{T}{\9036\132}% U+1E63 % U+1E64 LATIN CAPITAL LETTER T WITH DOT BELOW; Tdotbelow
\DeclareTextCompositeCommand{\textdottop}{PU}{T}{\9036\133}% U+1E64 % U+1E65 LATIN SMALL LETTER T WITH DOT BELOW; tdotbelow
\DeclareTextCompositeCommand{\textdottop}{PU}{T}{\9036\134}% U+1E65 % U+1E66 LATIN CAPITAL LETTER T WITH CIRCUMFLEX BELOW; Tcircumflexbelow
\DeclareTextCompositeCommand{\textdottop}{PU}{T}{\9036\135}% U+1E66 % U+1E67 LATIN SMALL LETTER T WITH CIRCUMFLEX BELOW; Tcir-
cumflexbelow
\DeclareTextCompositeCommand{\textsubcircum}{PU}{T}{\9036\160}%U+1E70
\% U+1E71 LATIN SMALL LETTER T WITH CIRCUMFLEX BELOW; tcircumflexbelow
\DeclareTextCompositeCommand{\textsubcircum}{PU}{t}{\9036\161}%U+1E71
\% U+1E72 LATIN CAPITAL LETTER U WITH DIAERESIS BELOW; udieresisbelow
\DeclareTextCompositeCommand{\textsubumlaut}{PU}{U}{\9036\162}%U+1E72
\% U+1E73 LATIN SMALL LETTER U WITH DIAERESIS BELOW; udieresisbelow
\DeclareTextCompositeCommand{\textsubumlaut}{PU}{u}{\9036\163}%U+1E73
\% U+1E74 LATIN CAPITAL LETTER U WITH TILDE BELOW; utildebelow
\DeclareTextCompositeCommand{\textsubumlaut}{PU}{U}{\9036\164}%U+1E74
\% U+1E75 LATIN SMALL LETTER U WITH TILDE BELOW; utildebelow
\DeclareTextCompositeCommand{\textsubumlaut}{PU}{u}{\9036\165}%U+1E75
\% U+1E76 LATIN CAPITAL LETTER U WITH CIRCUMFLEX BELOW; ucircumflexbelow
\DeclareTextCompositeCommand{\textsubumlaut}{PU}{U}{\9036\166}%U+1E76
\% U+1E77 LATIN SMALL LETTER U WITH CIRCUMFLEX BELOW; ucircumflexbelow
\DeclareTextCompositeCommand{\textsubumlaut}{PU}{u}{\9036\167}%U+1E77
\% U+1E7C LATIN CAPITAL LETTER V WITH TILDE; vtilde
\DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{V}{\9036\174}%U+1E7C
\% U+1E7D LATIN SMALL LETTER V WITH TILDE; vtildeduitildebelow
\DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{v}{\9036\175}%U+1E7D
\% U+1E7E LATIN CAPITAL LETTER V WITH DOT BELOW; vdotbelow
\DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{V}{\9036\176}%U+1E7E
\% U+1E7F LATIN SMALL LETTER V WITH DOT BELOW; vdotbelow
\DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{v}{\9036\177}%U+1E7F
\% U+1E80 LATIN CAPITAL LETTER W WITH GRAVE; wgrave
\DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{W}{\9036\200}%U+1E80
\% U+1E81 LATIN SMALL LETTER W WITH GRAVE; wgrave
\DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{w}{\9036\201}%U+1E81
\% U+1E82 LATIN CAPITAL LETTER W WITH ACUTE; wacute
\DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{W}{\9036\202}%U+1E82
\% U+1E83 LATIN SMALL LETTER W WITH ACUTE; wacute
\DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{w}{\9036\203}%U+1E83
\% U+1E84 LATIN CAPITAL LETTER W WITH DIAERESIS; wadieresis
\DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{W}{\9036\204}%U+1E84
\% U+1E85 LATIN SMALL LETTER W WITH DIAERESIS; wadieresis
\DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{w}{\9036\205}%U+1E85
\% U+1E86 LATIN CAPITAL LETTER W WITH DOT ABOVE; wdotaccent
\[\textsubumlaut]{\textsubumlaut}{W}{\9036\206}%U+1E86
\% U+1E87 LATIN SMALL LETTER W WITH DOT ABOVE; wdotaccent
\ DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{w}{\9036\207}%U+1E87
\% U+1E88 LATIN CAPITAL LETTER W WITH DOT BELOW; wdotbelow
\ DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{W}{\9036\210}%U+1E88
\% U+1E89 LATIN SMALL LETTER W WITH DOT BELOW; wdotbelow
\ DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{w}{\9036\211}%U+1E89
\% U+1E8A LATIN CAPITAL LETTER X WITH DOT ABOVE; xdotaccent
\ DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{X}{\9036\212}%U+1E8A
\% U+1E8B LATIN SMALL LETTER X WITH DOT ABOVE; xdotaccent
\ DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{x}{\9036\213}%U+1E8B
\% U+1E8C LATIN CAPITAL LETTER X WITH DIAERESIS; xdieresis
\ DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{X}{\9036\214}%U+1E8C
\% U+1E8D LATIN SMALL LETTER X WITH DIAERESIS; xdieresis
\ DeclareTextCompositeCommand{\textsubumlaut}{\textsubumlaut}{x}{\9036\215}%U+1E8D
51.2.16  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; dblink
\DeclareTextCommand{\textbardbl}{PU}{\9040\026}% U+2016
%* \textbardbl -> \textdoublevertline (tipa)
% U+2018 LEFT SINGLE QUOTATION MARK; quotedblleft
\DeclareTextCommand{\textquotedblleft}{PU}{\9040\034}% U+2018
% U+2019 RIGHT SINGLE QUOTATION MARK; quotedibright
\DeclareTextCommand{\textquotedblright}{PU}{\9040\035}% U+2019
% U+201A SINGLE LOW-9 QUOTATION MARK; quotesinglbase
\DeclareTextCommand{\quotesinglbase}{PU}{\9040\036}% U+201A
% U+201C LEFT DOUBLE QUOTATION MARK; quotedblright
\DeclareTextCommand{\textquotedblright}{PU}{\9040\038}% U+201C
% U+201D RIGHT DOUBLE QUOTATION MARK; quotedibleft
\DeclareTextCommand{\textquotedblleft}{PU}{\9040\040}% U+201D
% U+201E DOUBLE LOW-9 QUOTATION MARK;quotedblbase
\DeclareTextCommand{\quotedblbase}{PU}{\9040\042}% U+201E
% U+2020 DAGGER; dagger
\DeclareTextCommand{\textdagger}{PU}{\9040\044}% U+2020
% U+2021 DOUBLE DAGGER; daggerdbl; \ddagger (LaTeX)
\DeclareTextCommand{\textdaggerdbl}{PU}{\9040\045}% U+2021
% U+2022 BULLET; bullet
\DeclareTextCommand{\textbullet}{PU}{\9040\047}% U+2022
% U+2025 TWO DOT LEADER; \hdotfor (MnSymbol)
\DeclareTextCommand{\texttwo}{PU}{\9040\048}% U+2025
% U+2026 HORIZONTAL ELLIPSIS; ellipsis
\DeclareTextCommand{\textellipsis}{PU}{\9040\049}% U+2026
%* \textellipsis -> \mathellipsis
% U+2030 PER MILLE SIGN; perthousand
\DeclareTextCommand{\textperthousand}{PU}{\9040\050}% U+2030
% U+2031 PER TEN THOUSAND SIGN
\DeclareTextCommand{\textperthousand}{PU}{\9040\051}% U+2031
% U+2032 PRIME; minute; \prime (MnSymbol)
\DeclareTextCommand{\textprime}{PU}{\9040\052}% U+2032
% U+2033 DOUBLE PRIME; \second (mathabx)
\DeclareTextCommand{\textsecond}{PU}{\9040\053}% U+2033
% U+2034 TRIPLE PRIME; \third (mathabx)
\DeclareTextCommand{\textthird}{PU}{\9040\054}% U+2034
% U+2035 REVERSED PRIME; \backprime (AmS)
\DeclareTextCommand{\textbackprime}{PU}{\9040\055}% U+2035
% U+2039 SINGLE LEFT-POINTING ANGLE QUOTATION MARK; guillemotleft
\DeclareTextCommand{\textguillemotleft}{PU}{\9040\059}% U+2039
51.2.17 Superscripts and Subscripts: U+2070 to U+209F

% U+2070 SUPERSCRIPT ZERO; zerosuperior
% U+2071 SUPERSCRIPT LATIN SMALL LETTER I
% U+2074 SUPERSCRIPT FOUR; foursuperior
% U+2075 SUPERSCRIPT FIVE; fivesuperior
% U+2076 SUPERSCRIPT SIX; sixsuperior
% U+2077 SUPERSCRIPT SEVEN; sevensuperior
% U+2078 SUPERSCRIPT EIGHT; eightsuperior
% U+2079 SUPERSCRIPT NINE; ninesuperior
% U+207A SUPERSCRIPT PLUS SIGN; plussuperior
% U+207B SUPERSCRIPT MINUS; minussuperior
% U+207C SUPERSCRIPT EQUALS SIGN; equalsuperior
% U+207D SUPERSCRIPT LEFT PARENTHESIS; parenleftsuperior
% U+207E SUPERSCRIPT RIGHT PARENTHESIS; parentrightsuperior
% U+207F SUPERSCRIPT LATIN SMALL LETTER N; nsuperior
% U+2080 SUBSCRIPT ZERO; zeroinferior
% U+2081 SUBSCRIPT ONE; oneinferior
% U+2082 SUBSCRIPT TWO; twoinferior
51.2.18 Currency Symbols: U+20A0 to U+20CF

\DeclareTextCommand{\textcolonmonetary}{PU}{\9040\241} % U+20A1 COLON SIGN; *colonmonetary, colonsign
\DeclareTextCommand{\textlira}{PU}{\9040\244} % U+20A4 LIRA SIGN; afii08941, *lira
18553 % U+20A6 NAIRA SIGN
18554 \DeclareTextCommand{\textnaira}{PU}{\9040\246}% U+20A6
18555 % U+20A7 PESETA SIGN; peseta
18556 \DeclareTextCommand{\textpeseta}{PU}{\9040\247}% U+20A7
18557 % U+20A9 WON SIGN; won
18558 \DeclareTextCommand{\textwon}{PU}{\9040\251}% U+20A9
18559 % U+20AB DONG SIGN; dong
18560 \DeclareTextCommand{\textdong}{PU}{\9040\253}% U+20AB
18561 % U+20AC EURO SIGN; *Euro, euro
18562 \DeclareTextCommand{\texteuro}{PU}{\9040\254}% U+20AC
18563 %* \texteuro -> \EurDig (marvosym)
18564 %* \texteuro -> \EURdig (marvosym)
18565 %* \texteuro -> \EurHv (marvosym)
18566 %* \texteuro -> \EURhv (marvosym)
18567 %* \texteuro -> \EurCr (marvosym)
18568 %* \texteuro -> \EURcr (marvosym)
18569 %* \texteuro -> \EurTm (marvosym)
18570 %* \texteuro -> \EURtm (marvosym)
18571 %* \texteuro -> \Eur (marvosym)
18572 % U+20B0 GERMAN PENNY SIGN; \Deleatur (marvosym)
18573 \DeclareTextCommand{\textDeleatur}{PU}{\9040\260}% U+20B0
18574 %* \textDeleatur -> \Denarius (marvosym)
18575 % U+20B1 PESO SIGN
18576 \DeclareTextCommand{\textpeso}{PU}{\9040\261}% U+20B1
18577 % U+20B2 GUARANI SIGN
18578 \DeclareTextCommand{\textguarani}{PU}{\9040\262}% U+20B2
18579 51.2.19 Letterlike Symbols: U+2100 to U+214F
18580 % U+2103 DEGREE CELSIUS; centigrade
18581 % U+210F PLANCK CONSTANT OVER TWO PI; \hslash (AmS)
18582 \DeclareTextCommand{\texthslash}{PU}{\9041\017}% U+210F
18583 % U+2111 BLACK-LETTER CAPITAL I (=imaginary part); Ifraktur; \Im (La-
18584 TeX)
18585 \DeclareTextCommand{\textIm}{PU}{\9041\021}% U+2111
18586 % U+2113 SCRIPT SMALL L (=ell, liter); aEfi61289, lsquare; \ell (LaTeX)
18587 \DeclareTextCommand{\textell}{PU}{\9041\023}% U+2113
18588 % U+2116 NUMERO SIGN; *aEfi61352, numero
18589 \DeclareTextCommand{\textnumero}{PU}{\9041\026}% U+2116
18590 % U+2117 SOUND RECORDING COPYRIGHT
18591 \DeclareTextCommand{\textcircledP}{PU}{\9041\027}% U+2117
18592 % U+2118 SCRIPT CAPITAL P (=Weierstrass elliptic function);
18593 % weierstrass; \wp (LaTeX)
18594 \DeclareTextCommand{\textwp}{PU}{\9041\030}% U+2118
18595 % U+211C BLACK-LETTER CAPITAL R (=real part); Rfraktur; \Re (LaTeX)
18596 \DeclareTextCommand{\textRe}{PU}{\9041\034}% U+211C
18597 % U+211E PRESCRIPTION TAKE; prescription
18598 \DeclareTextCommand{\textrecipe}{PU}{\9041\036}% U+211E
18599 % U+2120 SERVICE MARK
185860 \DeclareTextCommand{\textservicemark}{PU}{\9041\040}% U+2120
185861 % U+2122 TRADE MARK SIGN; trademark
185862 \DeclareTextCommand{\texttrademark}{PU}{\9041\042}% U+2122
185863 % U+2126 OHM SIGN; Ohm, Omega
185864 \DeclareTextCommand{\textohm}{PU}{\9041\046}% U+2126
185865 % U+2127 INVERTED OHM SIGN
185866 \DeclareTextCommand{\textmho}{PU}{\9041\047}% U+2127
185867 %* \textmho -> \agemO (wasysym)
185868 388
18607 \texttriota \textsuperscript{(phonetic)}
18608 \textcommandname{\texttriota}{PU}{\9041\051}\textsuperscript{U+2129}
18609 \textcommandname{\textangstrom}{PU}{\9041\053}\textsuperscript{U+212B}
18610 \textcommandname{\textestimated}{PU}{\9041\056}\textsuperscript{U+212E}
18611 \textcommandname{\textFinv}{PU}{\9041\062}\textsuperscript{U+2132}
18612 \textcommandname{\textaleph}{PU}{\9041\065}\textsuperscript{U+2135}
18613 \textcommandname{\textbeth}{PU}{\9041\066}\textsuperscript{U+2136}
18614 \textcommandname{\textgimel}{PU}{\9041\067}\textsuperscript{U+2137}
18615 \textcommandname{\textdaleth}{PU}{\9041\070}\textsuperscript{U+2138}
18616 \textcommandname{\textinvamp}{PU}{\9041\113}\textsuperscript{U+214B}
18617 \textcommandname{\textoneseventh}{PU}{\9041\120}\textsuperscript{U+2150}
18618 \textcommandname{\textoneninth}{PU}{\9041\121}\textsuperscript{U+2151}
18619 \textcommandname{\textonetenth}{PU}{\9041\122}\textsuperscript{U+2152}
18620 \textcommandname{\textonethird}{PU}{\9041\123}\textsuperscript{U+2153}
18621 \textcommandname{\texttwothirds}{PU}{\9041\124}\textsuperscript{U+2154}
18622 \textcommandname{\textonefifth}{PU}{\9041\125}\textsuperscript{U+2155}
18623 \textcommandname{\texttwofifths}{PU}{\9041\126}\textsuperscript{U+2156}
18624 \textcommandname{\textthreefifths}{PU}{\9041\127}\textsuperscript{U+2157}
18625 \textcommandname{\textfourfifths}{PU}{\9041\130}\textsuperscript{U+2158}
18626 \textcommandname{\textonesixth}{PU}{\9041\131}\textsuperscript{U+2159}
18627 \textcommandname{\textfivesixths}{PU}{\9041\132}\textsuperscript{U+215A}
18628 \textcommandname{\textoneeighth}{PU}{\9041\133}\textsuperscript{U+215B}
18629 \textcommandname{\textthreeeighths}{PU}{\9041\134}\textsuperscript{U+215C}
18630 \textcommandname{\textfiveeighths}{PU}{\9041\135}\textsuperscript{U+215D}
18631 \textcommandname{\textsixeighths}{PU}{\9041\136}\textsuperscript{U+215E}
18632 \textcommandname{\textseveneighths}{PU}{\9041\137}\textsuperscript{U+215F}

51.2.20 Number Forms: \textsuperscript{U+2150 to U+218F}
18633 \textcommandname{\textgame}{PU}{\9041\101}\textsuperscript{U+2141}
18634 \textcommandname{\textampersand}{PU}{\9041\113}\textsuperscript{U+214B}
18635 \textcommandname{\textonethird}{PU}{\9041\123}\textsuperscript{U+2153}
18636 \textcommandname{\texttwothirds}{PU}{\9041\124}\textsuperscript{U+2154}
18637 \textcommandname{\textfifths}{PU}{\9041\125}\textsuperscript{U+2155}
18638 \textcommandname{\textsixths}{PU}{\9041\131}\textsuperscript{U+2159}
18639 \textcommandname{\textsevenths}{PU}{\9041\135}\textsuperscript{U+215E}
18640 \textcommandname{\texteighths}{PU}{\9041\137}\textsuperscript{U+215F}

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51.2.21 Arrows: U+2190 to U+21FF

- U+2190 LEFTWARDS ARROW; arrowleft
- U+2191 UPWARDS ARROW; arrowup
- U+2192 RIGHTWARDS ARROW; arrowright
- U+2193 DOWNWARDS ARROW; arrowdown
- U+2194 LEFT RIGHT ARROW; arrowboth; \leftarrow (LaTeX)
- U+2195 UP DOWN ARROW; updownarrow (LaTeX)
- U+2196 NORTH WEST ARROW; arrowupleft; \nwarrow (LaTeX)
- U+2197 NORTH EAST ARROW; arrowupright; \nearrow (LaTeX)
- U+2198 SOUTH EAST ARROW; arrowdownright; \searrow (LaTeX)
- U+2199 SOUTH WEST ARROW; arrowdownleft; \swarrow (LaTeX)
- U+219A LEFTWARDS ARROW WITH TAIL; \leftarrowtail (AmS)
- U+219B RIGHTWARDS ARROW WITH TAIL; \rightarrowtail (AmS)
- U+219C RIGHTWARDS ARROW FROM BAR; \mapsto (LaTeX)
- U+219D LEFTWARDS TWO HEADED ARROW; \twoheadleftarrow (AmS)
- U+219E LEFTWARDS TWO HEADED ARROW; \twoheadleftarrow (AmS)
- U+219F RIGHTWARDS TWO HEADED ARROW; \twoheadrightarrow (AmS)
- U+219E RIGHTWARDS TWO HEADED ARROW; \twoheadrightarrow (AmS)
- U+219F DOWNWARDS TWO HEADED ARROW; \twoheaddownarrow (MnSymbol)
- U+21A0 UPWARDS TWO HEADED ARROW; \twoheaduparrow (MnSymbol)
- U+21A1 DOWNWARDS TWO HEADED ARROW; \twoheaddownarrow (MnSymbol)
18822 \DeclareTextCommand{\textleftsquigarrow}{PU}{\9041\334}%* U+21DC
18823 % U+21DD RIGHTWARDS SQUIGGLE ARROW; \rightsquigarrow (mathabx)
18824 \DeclareTextCommand{\textrightsquigarrow}{PU}{\9041\335}%* U+21DD
18825 % U+21E0 LEFTWARDS DASHED ARROW; arrowdashleft;
18826 % \dashleftarrow (AmS)
18827 \DeclareTextCommand{\textdashleftarrow}{PU}{\9041\340}%* U+21E0
18828 %* \textdashleftarrow -> \dashedleftarrow (MnSymbol)
18829 % U+21E1 UPWARDS DASHED ARROW; arrowdashup; \dasheduparrow (MnSymbol)
18830 \DeclareTextCommand{\textdasheduparrow}{PU}{\9041\341}%* U+21E1
18831 % U+21E2 RIGHTWARDS DASHED ARROW; arrowdasheright; \dashrightar-
18832 row (AmS)
18833 \DeclareTextCommand{\textdashrightarrow}{PU}{\9041\342}%* U+21E2
18834 %* \textdashrightarrow -> \dashedrightarrow (MnSymbol)
18835 % U+21E3 DOWNWARDS DASHED ARROW; arrowdashdown; \dasheddownar-
18836 row (MnSymbol)
18837 \DeclareTextCommand{\textdasheddownarrow}{PU}{\9041\343}%* U+21E3
18838 % U+21E8 RIGHTWARDS WHITE ARROW; \pointer (wasysym)
18839 \DeclareTextCommand{\textpointer}{PU}{\9041\350}%* U+21E8
18840 % U+21F5 DOWNWARDS ARROW LEFTWARDS OF UPWARDS ARROW;
18841 % \downuparrows (MnSymbol)
18842 \DeclareTextCommand{\textdownuparrows}{PU}{\9041\365}%* U+21F5
18843 % U+2200 FOR ALL; forall; \forall (LaTeX)
18844 \DeclareTextCommand{\textforall}{PU}{\9042\000}%* U+2200
18845 % U+2201 COMPLEMENT; \complement (AmS)
18846 \DeclareTextCommand{\textcomplement}{PU}{\9042\001}%* U+2201
18847 % U+2202 PARTIAL DIFFERENTIAL; partialdiff; \partial (LaTeX)
18848 \DeclareTextCommand{\textpartial}{PU}{\9042\002}%* U+2202
18849 % U+2203 THERE EXISTS; existential; \exists (LaTeX)
18850 \DeclareTextCommand{\textexists}{PU}{\9042\010}%* U+2203
18851 % U+2204 THERE DOES NOT EXIST; \nexists (AmS)
18852 \DeclareTextCommand{\textnexists}{PU}{\9042\011}%* U+2204
18853 % U+2206 INCREMENT; increment, Deta; \triangle (LaTeX)
18854 \DeclareTextCommand{\texttriangle}{PU}{\9042\006}%* U+2206
18855 % U+2207 HATLA; nabla, gradient; \nabla (LaTeX)
18856 \DeclareTextCommand{\textnabla}{PU}{\9042\007}%* U+2207
18857 % U+2208 ELEMENT OF; element; \in (LaTeX)
18858 \DeclareTextCommand{\textin}{PU}{\9042\010}%* U+2208
18859 % U+2209 NOT AN ELEMENT OF; notelement, notelementof; \notin (LaTeX)
18860 \DeclareTextCommand{\textnotin}{PU}{\9042\011}%* U+2209
18861 % U+220A SMALL ELEMENT OF; \smallo (mathdesign)
18862 \DeclareTextCommand{\textsmallo}{PU}{\9042\012}%* U+220A
18863 % U+220B CONTAINS AS MEMBER; suchthat; \ni (LaTeX)
18864 \DeclareTextCommand{\textni}{PU}{\9042\013}%* U+220B
18865 %* \textni -> \owns (mathabx)

51.2.22 Mathematical Operators: U+2200 to U+22FF

18867 % U+2200 FOR ALL; forall; \forall (LaTeX)
18868 \DeclareTextCommand{\textforall}{PU}{\9042\000}%* U+2200
18869 % U+2201 COMPLEMENT; \complement (AmS)
18870 \DeclareTextCommand{\textcomplement}{PU}{\9042\001}%* U+2201
18871 % U+2202 PARTIAL DIFFERENTIAL; partialdiff; \partial (LaTeX)
18872 \DeclareTextCommand{\textpartial}{PU}{\9042\002}%* U+2202
18873 % U+2203 THERE EXISTS; existential; \exists (LaTeX)
18874 \DeclareTextCommand{\textexists}{PU}{\9042\010}%* U+2203
18875 % U+2204 THERE DOES NOT EXIST; \nexists (AmS)
18876 \DeclareTextCommand{\textnexists}{PU}{\9042\011}%* U+2204
18877 % U+2206 INCREMENT; increment, Deta; \triangle (LaTeX)
18878 \DeclareTextCommand{\texttriangle}{PU}{\9042\006}%* U+2206
18879 % U+2207 HATLA; nabla, gradient; \nabla (LaTeX)
18880 \DeclareTextCommand{\textnabla}{PU}{\9042\007}%* U+2207
18881 % U+2208 ELEMENT OF; element; \in (LaTeX)
18882 \DeclareTextCommand{\textin}{PU}{\9042\010}%* U+2208
18883 % U+2209 NOT AN ELEMENT OF; notelement, notelementof; \notin (LaTeX)
18884 \DeclareTextCommand{\textnotin}{PU}{\9042\011}%* U+2209
18885 % U+220A SMALL ELEMENT OF; \smallo (mathdesign)
18886 \DeclareTextCommand{\textsmallo}{PU}{\9042\012}%* U+220A
18887 % U+220B CONTAINS AS MEMBER; suchthat; \ni (LaTeX)
18888 \DeclareTextCommand{\textni}{PU}{\9042\013}%* U+220B
18889 %* \textni -> \owns (mathabx)

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\DeclareTextCommand{\textprecsim}{PU}{\9042\176}%* U+227E
% \nprecsim (txfonts/pxfonts)
\DeclareTextCommand{\textnprecsim}{PU}{\9042\176\83\070}%* U+227EU+0338
% U+227F SUCCEEDS OR EQUIVALENT TO; \succsim (AmS)
\DeclareTextCommand{\textsuccsim}{PU}{\9042\177}%* U+227F
% \nsuccsim (txfonts/pxfonts)
\DeclareTextCommand{\textnsuccsim}{PU}{\9042\177\83\070}%* U+227FU+0338
% U+2280 DOES NOT PRECEDE; notprecedes; \npreceq (AmS)
\DeclareTextCommand{\textnprec}{PU}{\9042\200}%* U+2280
% U+2281 DOES NOT SUCCEED; notsucceeds; \nsucc (AmS)
\DeclareTextCommand{\textnsucc}{PU}{\9042\201}%* U+2281
% U+2282 SUBSET OF; propersubset; \subset (LaTeX)
\DeclareTextCommand{\textsubset}{PU}{\9042\202}%* U+2282
% U+2283 SUPERSET OF; propersuperset; \supset (LaTeX)
\DeclareTextCommand{\textsupset}{PU}{\9042\203}%* U+2283
% U+2284 NOT A SUBSET OF; notsubset; \nsubset (mathabx)
\DeclareTextCommand{\textnsubset}{PU}{\9042\204}%* U+2284
% U+2285 NOT A SUPERSET OF; notsuperset; \nsupset (mathabx)
\DeclareTextCommand{\textnsupset}{PU}{\9042\205}%* U+2285
% U+2286 SUBSET OF OR EQUAL TO; reflexsubset; \subseteqq (LaTeX)
\DeclareTextCommand{\textsubseteqq}{PU}{\9042\206}%* U+2286
% U+2287 SUPERSET OF OR EQUAL TO; reflexsuperset; \supseteq (LaTeX)
\DeclareTextCommand{\textsupseteq}{PU}{\9042\207}%* U+2287
% U+2288 NEITHER A SUBSET OF NOR EQUAL TO; \nsubseteqq (AmS)
\DeclareTextCommand{\textnsubseteqq}{PU}{\9042\208}%* U+2288
% U+2289 NEITHER A SUPERSET OF NOR EQUAL TO; \nsupseteqq (AmS)
\DeclareTextCommand{\textnsupseteqq}{PU}{\9042\209}%* U+2289
% U+228A SUBSET OF WITH NOT EQUAL TO; subsetnoteq; \subsetneq (AmS)
\DeclareTextCommand{\textsubsetneq}{PU}{\9042\20a}%* U+228a
% U+228b SUPERSET OF WITH NOT EQUAL TO; supersetnoteq; \supsetneq (AmS)
\DeclareTextCommand{\textsupsetneq}{PU}{\9042\20b}%* U+228b
% U+228d MULTISET MULTIPLICATION; \cupdot (MnSymbol)
\DeclareTextCommand{\textcupdot}{PU}{\9042\20c}%* U+228d
% U+228e MULTISET UNION; \cupplus (MnSymbol)
\DeclareTextCommand{\textcupplus}{PU}{\9042\20d}%* U+228e
% U+2290 SQUARE IMAGE OF; \sqsubset (latexsym, ...)
\DeclareTextCommand{\textsqsubset}{PU}{\9042\20e}%* U+2290
% \nsqsubset (txfonts/pxfonts)
\DeclareTextCommand{\textnsqsubset}{PU}{\9042\20f}%* U+2290
% U+2291 SQUARE ORIGINAL OF; \sqsupset (latexsym, ...)
\DeclareTextCommand{\textsqsupset}{PU}{\9042\210}%* U+2291
% \nsqsupset (txfonts/pxfonts)
\DeclareTextCommand{\textnsqsupset}{PU}{\9042\211}%* U+2291
% U+2292 SQUARE IMAGE OF OR EQUAL TO; \sqsubseteq (LaTeX)
\DeclareTextCommand{\textsqsubseteq}{PU}{\9042\212}%* U+2292
% \nsqsubseteq (txfonts/pxfonts)
\DeclareTextCommand{\textnsqsubseteq}{PU}{\9042\213}%* U+2292
% U+2293 SQUARE ORIGINAL OF OR EQUAL TO; \sqsupseteq (LaTeX)
\DeclareTextCommand{\textsqsupseteq}{PU}{\9042\214}%* U+2293
% \nsqsupseteq (txfonts/pxfonts)
\DeclareTextCommand{\textnsqsupseteq}{PU}{\9042\215}%* U+2293
% U+2294 SQUARE CAP; \sqcap (LaTeX)
\DeclareTextCommand{\textsqcap}{PU}{\9042\216}%* U+2294
% \nsqcap (txfonts/pxfonts)
\DeclareTextCommand{\textnsqcap}{PU}{\9042\217}%* U+2294

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51.2.24 Control Pictures: U+2400 to U+243F

51.2.25 Optical Character Recognition: U+2440 to U+245F

51.2.26 Enclosed Alphanumerics: U+2460 to U+24FF
51.2.27  Box Drawing: U+2500 to 257F

\textcircled U+24E4 \textcircled U+24E5 \textcircled U+24E6 \textcircled U+24E7 \textcircled U+24E8 \textcircled U+24E9 \textcircled U+24EA

51.2.28  Geometric Shapes: U+25A0 to U+25FF

\textUArrow U+25B2 \textUArrow U+25B3 \textForward U+25B6 \textTriangleright U+25B7 \textRHD U+25BA \textDOWNarrow U+25BC \textDownarrow U+25BD
% 	extdiamond -> \Diamond (wasyms)
% U+25CA LOZENGE; lozenge; \lozenge (AmS)
\DeclareTextCommand{\textlozenge}{PU}\{\9045\312\}%* U+25CA
\DeclareTextCommand{\textLEFTCIRCLE}{PU}\{\9045\326\}%* U+25D6
\DeclareTextCommand{\textRIGHTCIRCLE}{PU}\{\9045\327\}%* U+25D7
% U+25E6 WHITE BULLET; *openbullet, whitebullet
% U+25EB WHITE SQUARE WITH VERTICAL BISECTING LINE,
% \boxbar (stmaryrd)
\DeclareTextCommand{\textboxbar}{PU}\{\9045\353\}%* U+25EB
% U+25EF LARGE CIRCLE; largecircle
% U+2600 CLOUD; \Cloud (ifsym)
\DeclareTextCommand{\textCloud}{PU}\{\9046\001\}%* U+2600
% U+2605 BLACK STAR; \FiveStar (bbding)
% U+2606 WHITE STAR; \FiveStarOpen (bbding)
% U+2610 BALLOT BOX; \boxempty (stmaryrd)
% U+2611 BALLOT BOX WITH CHECK; \Checkedbox (marvosym)
% U+2612 BALLOT BOX WITH X; \Crossedbox (marvosym)
% U+2615 HOT BEVERAGE; \Coffeecup (marvosym)
% U+261A BLACK LEFT POINTING INDEX; \HandCuffLeft (bbding)
% U+261B BLACK RIGHT POINTING INDEX; \HandCuffRight (bbding)
% U+261C WHITE LEFT POINTING INDEX; \HandLeft (bbding)
% U+261E WHITE RIGHT POINTING INDEX; \HandRight (bbding)
% U+2640 RADIOACTIVE SIGN; \Radioactivity (marvosym)
% U+2642 BIOHAZARD SIGN; \Biohazard (marvosym)
% U+2643 ANKH; \Ankh (marvosym)

51.2.29 Miscellaneous Symbols: U+2600 to U+26FF

% U+2600 CLOUD; \Cloud (ifsym)
\DeclareTextCommand{\textCloud}{PU}\{\9046\001\}%* U+2600
% U+2605 BLACK STAR; \FiveStar (bbding)
% U+2606 WHITE STAR; \FiveStarOpen (bbding)
% U+2610 BALLOT BOX; \boxempty (stmaryrd)
% U+2611 BALLOT BOX WITH CHECK; \Checkedbox (marvosym)
% U+2612 BALLOT BOX WITH X; \Crossedbox (marvosym)
% U+2615 HOT BEVERAGE; \Coffeecup (marvosym)
% U+261A BLACK LEFT POINTING INDEX; \HandCuffLeft (bbding)
% U+261B BLACK RIGHT POINTING INDEX; \HandCuffRight (bbding)
% U+261C WHITE LEFT POINTING INDEX; \HandLeft (bbding)
% U+261E WHITE RIGHT POINTING INDEX; \HandRight (bbding)
% U+2640 RADIOACTIVE SIGN; \Radioactivity (marvosym)
% U+2642 BIOHAZARD SIGN; \Biohazard (marvosym)
% U+2643 ANKH; \Ankh (marvosym)
\DeclareTextCommand{\textAnkh}{PU}{\9046\045}%* U+2625
\textYinYang = \YinYang (marvosym)
\\textYinYang -> \Yinyang (marvosym)
\\textYinYang -> \YingYang (marvosym)
\\textYinYang -> \Yingyang (marvosym)
\textfrownie = \Frowny (marvosym)
\textsmiley = \Smiley (marvosym)
\textblacksmiley = \blacksmiley (wasysym)
\textsun = \Sun (marvosym)
\textleftmoon = \leftmoon (wasysym, mathabx)
\textrightmoon = \rightmoon (wasysym, mathabx)
\textmercury = \Mercury (marvosym)
\textPUfemale = \female (wasysym)
\textPUfemale = \venus (wasysym)
\textPUfemale = \Venus (marvosym)
\textPUfemale = \Female (marvosym)
\textearth = \Earth (marvosym)
\textmale = \mars (wasysym)
\textmale = \Mars (marvosym)
\textmale = \Male (marvosym)
\textjupiter = \Jupiter (marvosym)
\textsaturn = \Saturn (marvosym)
\texturanus = \Uranus (wasysym)
\textneptune = \Neptune (marvosym)
\textpluto = \Pluto (marvosym)
\textaries = \Aries (marvosym)
\texttaries = \Aries (marvosym)

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19801 % U+2649 TAURUS; \taurus (wasysym)
19802 \DeclareTextCommand{\texttaurus}{PU}{\9046\111}%* U+2649
19803 %* \texttaurus -> \Taurus (marvosym)
19804 % U+264A GEMINI; \gemini (wasysym)
19805 \DeclareTextCommand{\textgemini}{PU}{\9046\112}%* U+264A
19806 %* \textgemini -> \Gemini (marvosym)
19807 % U+264B CANCER; \cancer (wasysym)
19808 \DeclareTextCommand{\textcancer}{PU}{\9046\113}%* U+264B
19809 %* \textcancer -> \Cancer (marvosym)
19810 % U+264C LEO; \leo (wasysym)
19811 \DeclareTextCommand{\textleo}{PU}{\9046\114}%* U+264C
19812 %* \textleo -> \Leo (marvosym)
19813 % U+264D VIRGO; \virgo (wasysym)
19814 \DeclareTextCommand{\textvirgo}{PU}{\9046\115}%* U+264D
19815 %* \textvirgo -> \Virgo (marvosym)
19816 % U+264E LIBRA; \libra (wasysym)
19817 \DeclareTextCommand{\textlibra}{PU}{\9046\116}%* U+264E
19818 %* \textlibra -> \Libra (marvosym)
19819 % U+264F SCORPIO; \scorpio (wasysym)
19820 \DeclareTextCommand{\textscorpio}{PU}{\9046\117}%* U+264F
19821 %* \textscorpio -> \Scorpio (marvosym)
19822 % U+2650 SAGITTARIUS; \sagittarius (wasysym)
19823 \DeclareTextCommand{\textsagittarius}{PU}{\9046\118}%* U+2650
19824 %* \textsagittarius -> \Sagittarius (marvosym)
19825 % U+2651 CAPRICORN; \capricornus (wasysym)
19826 \DeclareTextCommand{\textcapricornus}{PU}{\9046\119}%* U+2651
19827 %* \textcapricornus -> \Capricorn (marvosym)
19828 % U+2652 AQUARIUS; \aquarius (wasysym)
19829 \DeclareTextCommand{\textaquarius}{PU}{\9046\120}%* U+2652
19830 %* \textaquarius -> \Aquarius (marvosym)
19831 % U+2653 PISCES; \pisces (wasysym)
19832 \DeclareTextCommand{\textpisces}{PU}{\9046\121}%* U+2653
19833 %* \textpisces -> \Pisces (marvosym)
19834 % U+2660 BLACK SPADE SUIT; spade, spadesuitblack; \spadesuit (LaTeX)
19835 \DeclareTextCommand{\textspadesuitblack}{PU}{\9046\122}%* U+2660
19836 %* \textspadesuitblack -> \spadesuit (MnSymbol)
19837 % U+2661 WHITE HEART SUIT; heartsuitwhite; \heartsuit (LaTeX)
19838 \DeclareTextCommand{\textheartsuitwhite}{PU}{\9046\123}%* U+2661
19839 %* \textheartsuitwhite -> \Heart (marvosym)
19840 % U+2662 WHITE DIAMOND SUIT; diamondsuitwhite; \diamondsuit (LaTeX)
19841 \DeclareTextCommand{\textdiamondsuitwhite}{PU}{\9046\124}%* U+2662
19842 %* \textdiamondsuitwhite -> \diamondsuit (MnSymbol)
19843 % U+2663 BLACK CLUB SUIT; clubsuitblack; \clubsuit (LaTeX)
19844 \DeclareTextCommand{\textclubsuitblack}{PU}{\9046\125}%* U+2663
19845 %* \textclubsuitblack -> \clubsuit (MnSymbol)
19846 % U+2664 WHITE CLUB SUIT; spadesuitwhite
19847 \DeclareTextCommand{\textspadesuitwhite}{PU}{\9046\126}%* U+2664
19848 % U+2665 BLACK HEART SUIT; heartsuitblack, heart
19849 \DeclareTextCommand{\textheartsuitblack}{PU}{\9046\127}%* U+2665
19850 % U+2666 BLACK DIAMOND SUIT; diamondsuitblack; \diamondsuit (LaTeX)
19851 % U+2667 WHITE CLUB SUIT; clubsuitwhite
19852 \DeclareTextCommand{\textclubsuitwhite}{PU}{\9046\128}%* U+2667
19853 % U+2669 QUARTER NOTE; quarternote; \quarternote (textcomp)
\DeclareTextCommand{\textmusicalnote}{PU}{\9046\152}% U+266A
%* \textmusicalnote -> \eighthnote (wasysym, arev)
\DeclareTextCommand{\texttwonotes}{PU}{\9046\153}%* U+266B
%* \texttwonotes (wasysym)
\DeclareTextCommand{\textsixteenthnote}{PU}{\9046\154}%* U+266C
% U+266D MUSIC FLAT SIGN; musicflatsign; \flat (LaTeX)
\DeclareTextCommand{\textflat}{PU}{\9046\155}%* U+266D
% U+266E MUSIC NATURAL SIGN; \natural (LaTeX)
\DeclareTextCommand{\textnatural}{PU}{\9046\156}%* U+266E
% U+266F MUSIC SHARP SIGN; musicsharpsign; \sharp (LaTeX)
\DeclareTextCommand{\textsharp}{PU}{\9046\157}%* U+266F
% U+2672 UNIVERSAL RECYCLING SYMBOL; \recycle (marvosym)
\DeclareTextCommand{\textrecycle}{PU}{\9046\162}%* U+2672
%* \textrecycle -> \Recycling (marvosym)
% U+267F WHEELCHAIR SYMBOL; \Wheelchair (marvosym)
\DeclareTextCommand{\textWheelchair}{PU}{\9046\222}% U+267F
% U+2691 BLACK FLAG; \Flag (ifsym)
\DeclareTextCommand{\textFlag}{PU}{\9046\221}%* U+2691
%* \textFlag -> \VarFlag (ifsym)
% U+2692 HAMMER AND PICK; \MineSign (marvosym)
\DeclareTextCommand{\textMineSign}{PU}{\9046\222}% U+2692
% U+2694 CROSSED SWORDS; \dsmilitary (dictsym)
\DeclareTextCommand{\textdsmilitary}{PU}{\9046\224}%* U+2694
%* \textdsmilitary -> \textxswup (fourier)
% U+2695 STAFF OF AESCULAPIUS; \dsmedical (dictsym)
\DeclareTextCommand{\textdsmedical}{PU}{\9046\225}% U+2695
% U+2696 SCALES; \dsjuridical (dictsym)
\DeclareTextCommand{\textdsjuridical}{PU}{\9046\226}%* U+2696
% U+2697 ALEMBIC; \dschemical (dictsym)
\DeclareTextCommand{\textdschemical}{PU}{\9046\227}%* U+2697
% U+2698 FLOWER; \dsbiological (dictsym)
\DeclareTextCommand{\textdsbiological}{PU}{\9046\228}%* U+2698
% U+2699 STAFF OF HERMES; \dscommercial (dictsym)
\DeclareTextCommand{\textdscommercial}{PU}{\9046\230}%* U+2699
% U+269A OUTLINED WHITE STAR; \manstar (manfnt)
\DeclareTextCommand{\textmanstar}{PU}{\9046\235}%* U+269A
% U+269B WARNING SIGN; \danger (fourier)
\DeclareTextCommand{\textdanger}{PU}{\9046\240}%* U+269B
% U+26A2 DOUBLED FEMALE SIGN; \FemaleFemale (marvosym)
\DeclareTextCommand{\textFemaleFemale}{PU}{\9046\242}%* U+26A2
% U+26A3 DOUBLED MALE SIGN; \MaleMale (marvosym)
\DeclareTextCommand{\textMaleMale}{PU}{\9046\243}%* U+26A3
% U+26A4 INTERLOCKED FEMALE AND MALE SIGN; \FemaleMale (marvosym)
\DeclareTextCommand{\textFemaleMale}{PU}{\9046\244}%* U+26A4
% U+26A5 MALE AND FEMALE SIGN; \Hermaphrodite (marvosym)
\DeclareTextCommand{\textHermaphrodite}{PU}{\9046\245}%* U+26A5
% U+26A6 MEDIUM WHITE CIRCLE; \Neutral (marvosym)
\DeclareTextCommand{\textNeutral}{PU}{\9046\252}%* U+26A6
% U+26AD MARRIAGE SYMBOL
\DeclareTextCommand{\textmarried}{PU}{\9046\255}%* U+26AD
% U+26AE DIVORCE SYMBOL
\DeclareTextCommand{\textdivorced}{PU}{\9046\256}% U+26AE
% U+26B2 NEUTER; \textuncrfemale (tipx)
\DeclareTextCommand{\textPUuncrfemale}{PU}{\9046\262}% U+26B2
51.2.30 Dingbats: U+2700 to U+27BF

- U+2701 UPPER BLADE SCISSORS; \texttextScissorRightBrokenBottom (bbding)
- U+2702 BLACK SCISSORS; \texttextScissorRight (bbding)
- U+2703 LOWER BLADE SCISSORS; \texttextScissorRightBrokenTop (bbding)
- U+2704 WHITE SCISSORS; \texttextScissorHollowRight (bbding)
- U+2705 TELEPHONE LOCATION SIGN; \textPhoneHandset (bbding)
- U+2706 TAPE DRIVE; \textTape (bbding)
- U+2707 AIRPLANE; \textPlane (bbding)
- U+2708 ENVELOPE; \textEnvelope (bbding)
- U+2709 VICTORY HAND; \textPeace (bbding)
- U+270A WRITING HAND; \textWritingHand (bbding)
- U+270B LOWER RIGHT PENCIL; \textPencilRightDown (bbding)
- U+270C WHITE NIB; \textNibRight (bbding)
- U+270D BLACK NIB; \textNibSolidRight (bbding)
- U+270E CHECK MARK; \textCheckmark (bbding)
- U+270F PENCIL; \textPencilRight (bbding)
- U+2710 UPPER RIGHT PENCIL; \textPencilRightUp (bbding)
- U+2711 WHITE NIB; \textNibRightUp (bbding)
- U+2712 BLACK NIB; \textNibSolidRight (bbding)
- U+2713 CHECK MARK; \textCheckmark (bbding)
- U+2714 \textLetter (bbding)

51.2.40 Dingbats: U+27B0 to U+27BF

- U+27B0 RIGHT ANGLE; \textAngleRight (bbding)
- U+27B1 LEFT ANGLE; \textAngleLeft (bbding)
- U+27B2 UP ANGLE; \textAngleUp (bbding)
- U+27B3 DOWN ANGLE; \textAngleDown (bbding)
- U+27B4 RANGE MARK; \textRange (bbding)
- U+27B5 BULLET; \textBullet (bbding)
- U+27B6 SQUARE BULLET; \textSquare (bbding)
- U+27B7 DIAMOND BULLET; \textDiamond (bbding)
- U+27B8 TRIANGLE BULLET; \textTriangle (bbding)
- U+27B9 OCTAGON BULLET; \textOctagon (bbding)
- U+27BA CIRCLE BULLET; \textCircle (bbding)
- U+27BB LARGE DIAMOND BULLET; \textLargeDiamond (bbding)
- U+27BC LARGE SQUARE BULLET; \textLargeSquare (bbding)
- U+27BD LARGE TRIANGLE BULLET; \textLargeTriangle (bbding)
- U+27BE LARGE OCTAGON BULLET; \textLargeOctagon (bbding)
- U+27BF LARGE CIRCLE BULLET; \textLargeCircle (bbding)
\DeclareTextCommand{\textAsteriskCenterOpen}{PU}{\9047\062}%* U+2732
\DeclareTextCommand{\textEightStarTaper}{PU}{\9047\064}%* U+2734
\DeclareTextCommand{\textEightStarConvex}{PU}{\9047\065}%* U+2735
\DeclareTextCommand{\textSixStar}{PU}{\9047\066}%* U+2736
\DeclareTextCommand{\textEightStar}{PU}{\9047\067}%* U+2737
\DeclareTextCommand{\textEightStarBold}{PU}{\9047\070}%* U+2738
\DeclareTextCommand{\textTwelveStar}{PU}{\9047\071}%* U+2739
\DeclareTextCommand{\textSixteenStarLight}{PU}{\9047\072}%* U+273A
\DeclareTextCommand{\textSixFlowerPetalRemoved}{PU}{\9047\073}%* U+273B
\DeclareTextCommand{\textSixFlowerOpenCenter}{PU}{\9047\074}%* U+273C
\DeclareTextCommand{\textTwelveStar}{PU}{\9047\075}%* U+273D
\DeclareTextCommand{\textSixFlowerAlternate}{PU}{\9047\076}%* U+273E
\DeclareTextCommand{\textFiveFlowerPetal}{PU}{\9047\077}%* U+273F
\DeclareTextCommand{\textSixFlowerOpenCenter}{PU}{\9047\078}%* U+2740
\DeclareTextCommand{\textSixFlowerAltPetal}{PU}{\9047\079}%* U+2741
\DeclareTextCommand{\textSunshineOpenCircled}{PU}{\9047\080}%* U+2742
\DeclareTextCommand{\textSnowflakeChevron}{PU}{\9047\081}%* U+2743
\DeclareTextCommand{\textSnowflake}{PU}{\9047\082}%* U+2744
\DeclareTextCommand{\textSparkle}{PU}{\9047\083}%* U+2745
\DeclareTextCommand{\textSparkleBold}{PU}{\9047\084}%* U+2746
\DeclareTextCommand{\textAsteriskRoundedEnds}{PU}{\9047\085}%* U+2747
\DeclareTextCommand{\textEightFlowerPetalRemoved}{PU}{\9047\086}%* U+2748
\DeclareTextCommand{\textSunshineOpenCircled}{PU}{\9047\087}%* U+2749
\DeclareTextCommand{\textSnowflakeChevron}{PU}{\9047\088}%* U+274A
\DeclareTextCommand{\textSparkle}{PU}{\9047\089}%* U+274B
\DeclareTextCommand{\textSevenFlowerPetal}{PU}{\9047\090}%* U+274C
\DeclareTextCommand{\textSparkleBold}{PU}{\9047\091}%* U+274D
\DeclareTextCommand{\textSevenFlowerPetal}{PU}{\9047\092}%* U+274E
\DeclareTextCommand{\textSparkle}{PU}{\9047\093}%* U+274F
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\094}%* U+2750
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\095}%* U+2751
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\096}%* U+2752
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\097}%* U+2753
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\098}%* U+2754
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\099}%* U+2755
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\100}%* U+2756
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\101}%* U+2757
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\102}%* U+2758
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\103}%* U+2759
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\104}%* U+275A
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\105}%* U+275B
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\106}%* U+275C
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\107}%* U+275D
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\108}%* U+275E
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\109}%* U+275F
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\110}%* U+2760
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\111}%* U+2761
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\112}%* U+2762
\DeclareTextCommand{\textEightFlowerPetal}{PU}{\9047\113}%* U+2763
51.2.31 Miscellaneous Mathematical Symbols-A: U+27C0 to U+27EF

51.2.32 Supplemental Arrows-A: U+27F0 to U+27FF
51.2.33 Supplemental Arrows-B: U+2900 to U+297F

\DeclareTextCommand{\textLongleftarrow}{PU}{\9047\370}%* U+27F8
\DeclareTextCommand{\textLongrightarrow}{PU}{\9047\371}%* U+27F9
\DeclareTextCommand{\textLongleftrightarrow}{PU}{\9047\372}%* U+27FA
\DeclareTextCommand{\textLongmapsfrom}{PU}{\9047\375}%* U+27FD
\DeclareTextCommand{\textLongmapsto}{PU}{\9047\376}%* U+27FE

\textnwsearrow (MnSymbol)
\textneswarrow (MnSymbol)
\textlhooknwarrow (MnSymbol)
\textrhooknearrow (MnSymbol)
\textlhooksearrow (MnSymbol)
\textrhookswarrow (MnSymbol)
\textleadsto (wasysym)
\textrcurvearrowne (MnSymbol)
\textlcurvearrowse (MnSymbol)
\textlcurvearrowsw (MnSymbol)
\textrcurvearrowse (MnSymbol)
\textlcurvearrowdown (MnSymbol)
\textrcurvearrowdown (MnSymbol)
\textlcurvearrowdown (marvosym)
\textrcurvearrowdown (marvosym)
\textlcurvearrowleft (MnSymbol)
\textcurvearrowleft \textcurvearrowright \rcurvearrowright \textleftrightharpoon \textupdownharpoonrightleft \updownharpoonrightleft \leftleftharpoons \upupharpoons \rightrightharpoons \downdownharpoons \leftbarharpoon \barleftharpoon \rightbarharpoon \barrightharpoon \updownharpoons \downupharpoons \textmoo

51.2.34 Miscellaneous Mathematical Symbols-B: U+2980 to U+29FF

\textllparenthesis \textupparanthesis # U+2987 Z NOTATION LEFT IMAGE BRACKET; \llparenthesis (stmaryrd)
51.2.35 Supplemental Mathematical Operators: U+2A00 to U+2AFF

<table>
<thead>
<tr>
<th>Unicode</th>
<th>Description</th>
<th>LaTeX Packages</th>
</tr>
</thead>
</table>
| U+2A04   | N-ARY UNION OPERATOR WITH PLUS; 
\text{\(\cup\)} (LaTeX)                                                        | \
\text{\(\cup\)} (LaTeX) |
| U+2A07   | TWO LOGICAL AND OPERATOR; 
\text{\(\&\)} (MnSymbol)                                                           | \
\text{\(\&\)} (MnSymbol) |
| U+2A08   | TWO LOGICAL OR OPERATOR; 
\text{\(\lor\)} (MnSymbol)                                                          | \
\text{\(\lor\)} (MnSymbol) |
| U+2A09   | JOIN; 
\text{\(\Join\)} (latexsym, amsfonts, amssymb, mathabx, txfonts, pxfonts) | \
\text{\(\Join\)} (latexsym, amsfonts, amssymb, mathabx, txfonts, pxfonts) |
| U+2A1D   | JOIN; 
\text{\(\Join\)} (latexsym, amssfonts, amssymb, mathabx, txfonts, pxfonts) | \
\text{\(\Join\)} (latexsym, amssfonts, amssymb, mathabx, txfonts, pxfonts) |
| U+2A1F   | Z NOTATION SCHEMA COMPOSITION; 
\text{\(\otimes\)} (stmaryrd)                                              | \
\text{\(\otimes\)} (stmaryrd) |
| U+2A2F   | PLUS SIGN WITH SMALL CIRCLE ABOVE; 
\text{\(\oplus\)} (mathabx)                                                   | \
\text{\(\oplus\)} (mathabx) |
| U+2A22   | MINUS SIGN WITH DOT BELOW; 
\text{\(\ominus\)} (MnSymbol)                                                       | \
\text{\(\ominus\)} (MnSymbol) |

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prox (AmS)
\DeclareTextCommand{\textprecnapprox}{PU}{\9052\271}%* U+2AB9
\% U+2ABA SUCCEEDS ABOVE NOT ALMOST EQUAL TO; \succnapprox (AmS)
\DeclareTextCommand{\textsuccnapprox}{PU}{\9052\272}%* U+2ABA
\% U+2AC5 SUBSET OF ABOVE EQUALS SIGN; \subseteqq (AmS)
\DeclareTextCommand{\textsubseteqq}{PU}{\9052\305}%* U+2AC5
\% \nsubseteqq (txfonts/pxfonts, mathabx)
\DeclareTextCommand{\textnsubseteqq}{PU}{\9052\305\83\070}%*U+2AC5U+0338
\% U+2AC6 SUPERSET OF ABOVE EQUALS SIGN; \supseteqq (AmS)
\DeclareTextCommand{\textsupseteqq}{PU}{\9052\306}%* U+2AC6
\% \nsupseteqq (mathabx)
\DeclareTextCommand{\textnsupseteqq}{PU}{\9052\306\83\070}%*U+2AC6U+0338
\% U+2AE3 DOUBLE VERTICAL BAR LEFT TURNSTILE
\DeclareTextCommand{\textdashV}{PU}{\9052\343}%* U+2AE3
\% \textdashV -> \leftVdash (MnSymbol)
\DeclareTextCommand{\textndashV}{PU}{\9052\343\83\070}%*U+2AE3U+0338
\% \textndashV -> \nleftVdash (MnSymbol)
\% U+2AE4 VERTICAL BAR DOUBLE LEFT TURNSTILE; \Dashv (mathabx)
\DeclareTextCommand{\textDashv}{PU}{\9052\344}%* U+2AE4
\% \textDashv -> \leftmodels (MnSymbol)
\% U+2AE5 DOUBLE VERTICAL BAR DOUBLE LEFT TURNSTILE;
\% \DashV (mathabx)
\% \textDashV -> \leftModels (MnSymbol)
\% U+2AE6 DOUBLE DOWN TACK; \downmodels (MnSymbol)
\% \textdownmodels -> \nleftVdash (MnSymbol)
\% U+2AE7 DOUBLE UP TACK; \upmodels (MnSymbol)
\% \textupmodels -> \leftVdash (MnSymbol)
51.2.36 Miscellaneous Symbols and Arrows: U+2B00 to U+2BFF
\% U+2B00 WHITE PENTAGON; \pentagon (wasysym)
\% U+2B01 WHITE HEXAGON; \varhexagon (wasysym)
\% U+2B02 DOUBLE SOLIDUS OPERATOR; \slash (stmaryrd)
51.2.37 Latin Extended-C: U+2C60 to U+2C7F
\% U+2C6C LATIN SUBSCRIPT SMALL LETTER J
51.2.38 Supplemental Punctuation: U+2E00 to U+2E7F

51.2.39 Modifier Tone Letters: U+A700 to U+A71F

51.2.40 Latin Extended-D: U+A720 to U+A7FF

51.2.41 Alphabetic Presentation Forms: U+FB00 to U+FB4F

51.2.42 Musical Symbols: U+1D100 to U+1D1FF
51.2.43 Miscellaneous Symbols and Pictographs: U+1F300 to U+1F5FF

51.2.44 Transport and Map Symbols: U+1F680 to U+1F6FF

51.2.45 Miscellaneous

51.2.46 Aliases

Aliases (german.sty)
51.3 PU encoding, additions for VnTEX

This file is provided by Han The Thanh.
51.4 PU encoding, additions for Arabic

This file is provided and maintained by Youssef Jabri.
\DeclareTextCommand{\alef}{PU}{\86\047}% U+0627
\DeclareTextCommand{\baa}{PU}{\86\050}% U+0628
\DeclareTextCommand{\T}{PU}{\86\051}% U+0629
\DeclareTextCommand{\taa}{PU}{\86\052}% U+062A
\DeclareTextCommand{\thaa}{PU}{\86\053}% U+062B
\DeclareTextCommand{\jeem}{PU}{\86\054}% U+062C
\DeclareTextCommand{\Haa}{PU}{\86\055}% U+062D
\DeclareTextCommand{\kha}{PU}{\86\056}% U+062E
\DeclareTextCommand{\dal}{PU}{\86\057}% U+062F
\DeclareTextCommand{\dhal}{PU}{\86\060}% U+0630
\DeclareTextCommand{\ra}{PU}{\86\061}% U+0631
\DeclareTextCommand{\zay}{PU}{\86\062}% U+0632
\DeclareTextCommand{\seen}{PU}{\86\063}% U+0633
\DeclareTextCommand{\sheen}{PU}{\86\064}% U+0634
\DeclareTextCommand{\sad}{PU}{\86\065}% U+0635
\DeclareTextCommand{\dad}{PU}{\86\066}% U+0636
\DeclareTextCommand{\Ta}{PU}{\86\067}% U+0637
\DeclareTextCommand{\za}{PU}{\86\070}% U+0638
\DeclareTextCommand{\ayn}{PU}{\86\071}% U+0639
\DeclareTextCommand{\ghayn}{PU}{\86\072}% U+063A
\DeclareTextCommand{\tatweel}{PU}{\86\100}% U+0640
\DeclareTextCommand{\fa}{PU}{\86\101}% U+0641
\DeclareTextCommand{\qaf}{PU}{\86\102}% U+0642
\DeclareTextCommand{\kaf}{PU}{\86\103}% U+0643
\DeclareTextCommand{\meem}{PU}{\86\105}% U+0644
\DeclareTextCommand{\nun}{PU}{\86\106}% U+0646
\DeclareTextCommand{\ha}{PU}{\86\107}% U+0647
\DeclareTextCommand{\waw}{PU}{\86\110}% U+0648
\let\gtreqless\textgtreqless
\let\curlyeqprec\textcurlyeqprec
\let\ncurlyeqprec\textncurlyeqprec
\let\curlyeqsucc\textcurlyeqsucc
\let\ncurlyeqsucc\textncurlyeqsucc
\let\npreccurlyeq\textnpreccurlyeq
\let\nsucccurlyeq\textnsucccurlyeq
\let\nqsubseteq\textnqsubseteq
\let\nqsupseteq\textnqsupseteq
\let\sqsubsetneq\textsqsubsetneq
\let\sqsupsetneq\textsqsupsetneq
\let\lnsim\textlnsim
\let\gnsim\textgnsim
\let\precnsim\textprecnsim
\let\succnsim\textsuccnsim
\let\ntriangleleft\textntriangleleft
\let\ntriangleright\textntriangleright
\let\ntrianglelefteq\textntrianglelefteq
\let\ntrianglerighteq\textntrianglerighteq
\let\vdots\textvdots
\let\cdots\textcdots
\let\udots\textudots
\let\ddots\textddots
\let\barin\textbarin
\let\diameter\textdiameter
\let\backneg\textbackneg
\let\wasylozenge\textwasylozenge
\let\invbackneg\textinvbackneg
\let\clock\textclock
\let\ulcorner\textulcorner
\let\urcorner\texturcorner
\let\llcorner\textllcorner
\let\lrcorner\textlrcorner
\let\frown\textfrown
\let\smile\textsmile
\let\Keyboard\textKeyboard
\let\langle\textlangle
\let\rangle\textrangle
\let\APLinv\textAPLinv
\let\Tumbler\textTumbler
\let\notslash\textnotslash
\let\notbackslash\textnotbackslash
\let\boxbackslash\textboxbackslash
\let\APLleftarrowbox\textAPLleftarrowbox
\let\APLrightarrowbox\textAPLrightarrowbox
\let\APLuparrowbox\textAPLuparrowbox
\let\APLdownarrowbox\textAPLdownarrowbox
\let\APLinput\textAPLinput
\let\Request\textRequest
\let\Beam\textBeam
\let\hexagon\texthexagon
\let\CircledA\textCircledA
\let\CleaningF\textCleaningF
52 End of file hycheck.tex

(*check*)
\typeout{}
\begin{document}
\end{document}
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