Hypertext marks in \LaTeX

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

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1 Documentation overview for \texttt{hyperref}

The documentation for package \texttt{hyperref} consists of several files:

\textbf{Manual} The \texttt{USER MANUAL} (also available as HTML).

\textbf{ChangeLog} This file records the version history (also available as text file).

\textbf{Options} This file provides a short option summary.

\textbf{Bookmark talk, slides} Slides for the talk “PDF information and navigation elements with hyperref, pdf\TeX\ and thumbpdf” at Euro\TeX\ 1999.

\textbf{Bookmark talk, paper} The paper version of the talk.

Source code documentation:

\fbox{\texttt{hyperref.dtx}} This is the source code documentation for hyperref (this file).

\texttt{backref.dtx} “Back referencing from bibliographical citations”

\texttt{nameref.dtx} “Section name references in \LaTeX”
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3 File hycheck.tex

Many commands of \LaTeX{} or other packages cannot be overloaded, but have to be redefined by hyperref directly. If these commands change in newer versions, these changes are not noticed by hyperref. With this test file this situation can be checked. It defines the command \texttt{\checkcommand} that is more powerful than \LaTeX{}’s \texttt{\CheckCommand}, because it takes \texttt{\DeclareRobustCommand} and optional parameters better into account.

\begin{verbatim}
\checklatex Optional argument: release date of \LaTeX{}.
\newcommand*{\checklatex}[1]{\typeout{}\typeout{* Format: `LaTeX2e' #1}\typeout{\space\space Loaded: `\fmtname' \fmtversion}}

\checkpackage The argument of \texttt{\checkpackage} is the package name without extension optionally followed by a release date.
\newcommand*{\checkpackage}[1]{\def\HyC@package{#1}\let\HyC@date\@empty\@ifnextchar[\HyC@getDate\HyC@checkPackage}

\HyC@getDate The release date is scanned.
\def\HyC@getDate[#1]{\def\HyC@date{#1}\HyC@checkPackage}

\HyC@checkPackage \def\HyC@checkPackage{%\begin{group}
  \edef\x{\endgroup\noexpand\RequirePackage{\HyC@package} \ifx\HyC@date\@empty\relax\else[\HyC@date]\fi}\x\typeout{\space\space Loaded: `\HyC@package' \csname ver@\HyC@package.sty\endcsname}\
\@ifundefined{ver@\HyC@package.sty}{\typeout{\space\space Loaded: `\HyC@package'\space Loaded: `\HyC@package'\space Loaded: `\HyC@package'}}{\typeout{\space\space Loaded: `\HyC@package' \csname ver@\HyC@package.sty\endcsname}}
\end{group}
\end{verbatim}
\checkcommand The macro \checkcommand parses the next tokens as a LaTeX definition and compares this definition with the current meaning of that command.

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

\HyC@check The macro \HyC@check reads the definition command.
\def\HyC@check#1{% \def\HyC@checklong#1{% \def\HyC@cmd{#1}\% \let\HyC@org@cmd#1\% \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.
\def\HyC@newcommand{%
  \let\HyC@@cmd\HyC@cmd
  \@ifnextchar[\HyC@nc@opt\HyC@nc@noopt
%}
\HyC@Toks A register for storing the default value of an optional argument.
\newtoks\HyC@Toks
\HyC@nc@noopt This macro \HyC@nc@noopt is called, if the parser has reached the definition text.
\long\def\HyC@nc@noopt#1{%
  \edef\x{%
    \expandafter\noexpand\HyC@defcmd
    \HyC@star
    \expandafter\noexpand\HyC@cmd
    \HyC@param\the\HyC@Toks
  }%
  \x{#1}%
  \HyC@doCheck
%}
\HyC@nc@opt This macro scans the first optional argument of a \LaTeX definition (number of arguments).
\def\HyC@nc@opt[#1]{%
  \def\HyC@param{[\{#1\}]}%
  \@ifnextchar[\HyC@nc@default\HyC@nc@noopt
%}
\HyC@nc@default Macro \HyC@nc@default scans the default for an optional argument.
\def\HyC@nc@default[#1]{%
  \HyC@Toks={\{[\{#1\}]\}]}%
  \edef\HyC@optcmd{%
    \expandafter\noexpand
    \csname\expandafter\expandafter\expandafter\@gobble
    \expandafter\string\HyC@cmd\space\endcsname
  }%
  \expandafter\let\expandafter\HyC@org@optcmd\HyC@optcmd
  \let\HyC@optcmd\relax
  \let\HyC@@cmd\HyC@optcmd
  \@ifnextchar[\HyC@nc@opt\HyC@nc@noopt
%}
\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.
\def\HyC@DeclareRobustCommand{%
  \edef\HyC@robustcmd{%
    \expandafter\noexpand
    \csname\expandafter\expandafter\expandafter\@gobble
    \expandafter\string\HyC@cmd\space\endcsname
  }%
  \expandafter\let\expandafter\HyC@org@robustcmd\HyC@robustcmd
  \expandafter\let\HyC@robustcmd\relax
  \expandafter\let\expandafter\HyC@@cmd\HyC@robustcmd
  \@ifnextchar[\HyC@nc@opt\HyC@nc@noopt
%}
The parameter text of \def or \edef is stored in the token register \HyC@Toks.

\def\HyC@def#1#2{%
\HyC@Toks=#1%\HyC@nc@noopt
}
\let\HyC@edef\HyC@def

This command performs the checks and prints the result.
\def\HyC@doCheck{%
\typeout{\string\HyC@string\string\HyC@cmd:\%}
\HyC@checkItem{cmd}\%
\HyC@checkItem{robustcmd}\%
\HyC@checkItem{optcmd}\%
\HyC@checkItem{robustoptcmd}\%
\endgroup
}

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

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

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

The result, if the check fails.
\def\HyC@checkFailed#1#2{%
\typeout{\space\HyC@string#1 failed.\%}
\typeout{\space* original: \meaning#2\%}
\typeout{\space* expected: \HyC@meaning#1\%}
}\endgroup

% **************************************************
\check
\package
4 Package options and setup

4.1 Save catcodes

There are many packages that change the standard catcodes.

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

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

\Hy@SetCatcodes

181 \def \Hy@SetCatcodes{%
182 \@makeother `\%
183 \@makeother \=%
184 \catcode `\$=3 %
185 \catcode `\&=4 %
186 \catcode `\^=7 %
187 \catcode `\_=8 %
188 \@makeother \texttt{\%
189 \@makeother \%
190 \@makeother \texttt{(}%
191 \@makeother \%
192 \@makeother \%
193 \@makeother \%
194 \@makeother \%
195 \@makeother \%
196 \@makeother <%
197 \@makeother >%
198 \@makeother .%
199 \@makeother .%
200 \@makeother +%
201 \@makeother-%
202 \@makeother-%
203 \@makeother %
204 }

\Hy@RestoreCatcodes

205 \begingroup
206 \def x\#1{\catcode`\noexpand \#1=\the \catcode`\noexpand \#1 \noexpand \relax}%
207 \xdef \Hy@RestoreCatcodes{%
208 \the \toks@
209 x\$%
\end{verbatim}

\Hy@SetCatcodes
\RequirePackage{ltcmds}[2010/11/12]
\RequirePackage{ifetex}[2019/10/24]
\RequirePackage{pdftexcmds}[2009/04/10]
% IfPackageLater{pdftexcmds}{2010/11/04}{%
\ltx@ifUndefined{pdftexcmds}{%
% \let\pdf@ifdraftmode\ltx@secondoftwo
% }%
% \def\pdf@ifdraftmode{%
% \ifnum\pdfdraftmode=\ltx@one
% \expandafter\ltx@firstoftwo
% \else
% \expandafter\ltx@secondoftwo
% \fi
% }%
\else
\let\pdf@ifdraftmode\ltx@secondoftwo
\fi
% }%
% }
\RequirePackage{infwarerr}[2010/04/08]
\RequirePackage{keyval}[1997/11/10]
\RequirePackage{kvsetkeys}[2007/09/29]
\RequirePackage{kvdefinekeys}[2011/04/07]
\RequirePackage{pdfescape}[2007/11/11]
\RequirePackage{hycolor}
\RequirePackage{letltxmacro}[2008/06/13]
\RequirePackage{auxhook}[2009/12/14]
\def\Hy@Error{\@@PackageError{\@PackageError{hyperref}}}
\def\Hy@Warning{\@@PackageWarning{\@PackageWarning{hyperref}}}
\def\Hy@WarningNoLine{\@@PackageWarningNoLine{\@PackageWarningNoLine{hyperref}}}
\def\Hy@Info{\@@PackageInfo{\@PackageInfo{hyperref}}}
\def\Hy@InfoNoLine{\@@PackageInfoNoLine{\@PackageInfoNoLine{hyperref}}}
\def\Hy@Message#1{%
4.2 Version check

\Hy@VersionChecked
\def\Hy@VersionCheck#1{%  
\begingroup  
\ltx@IfUndefined{ver@hyperref.sty}{%  
\Hy@Error{%This should not happen!\MessageBreak  
Missing hyperref version%  
}\@ehd  
}%  
\ltx@IfUndefined{ver@#1}{%  
\Hy@Error{%This should not happen!\MessageBreak  
Missing version of `{#1}'%  
}\@ehd  
}%  
\def\x##1##2##3{%  
\expandafter\expandafter\expandafter\Hy@@VersionCheck  
\expandafter\expandafter\expandafter##2%  
\csname ver@##3\endcsname##1##1\@nil  
}%  
\x{ }\y{hyperref.sty}%;  
\x{ }\z{#1};  
\ifx\y\z  
\else  
\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
4.4 Compatibility with format dumps

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

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

\texttt{\let\ifundefined{AfterBeginDocument}\{(\def\AfterBeginDocument{\AtBeginDocument})\}\}}\%

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

\texttt{\let\Hy@AtBeginDocumentHook\ltx@empty}

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

\texttt{\let\Hy@AtBeginDocumentHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}

\AtEndOfPackage

\texttt{\let\Hy@AtEndOfPackageHook\ltx@empty}\%

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

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

4.5 Switches

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

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

\RequirePackage{kvoptions}[2009/07/21]
Defaults for the switches are now set.
5 Common help macros

\Hy@StepCount

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

\Hy@GlobalStepCount

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

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

5.1 Macros for recursions

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

5.2 Babel’s protection of shorthand characters

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

\def\Hy@safe@activestrue{\csname @safe@activestrue\endcsname}
\def\Hy@safe@activesfalse{\csname @safe@activesfalse\endcsname}
5.3 Coordinate transformations

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

\hypercalcbp

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

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

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

Example (\TeX):

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

\hypercalcbp

492 \begingroup\expandafter\expandafter\expandafter\endgroup
493 \expandafter\expandafter\expandafter\expandafter\relax
494 \def\hypercalcbpdef#1\#2{\%
495 \begingroup
496 \toks@{
497 \HyCal@scan\#2\hypercalcbp@nil
498 \expandafter\endgroup
499 \expandafter\def\expandafter#1\expandafter{\the\toks@}\
500 }\%
501 \def\HyCal@scan\#1\hypercalcbp\#2@nil\%
502 \toks@\expandafter\expandafter\expandafter\expandafter{\the\toks@ \#1}\%
503 \ifx\#2\%
504 \else
505 \ltx@ReturnAfterFt{\%
506 \HyCal@do\#2@nil
507 }\%
508 \fi
509 }\%
510 \def\HyCal@do\#1\#2@nil\%
511 \@ifpackageloaded{calc}\{\%
512 \Hy@Warning{\%
513 For calculations \string\hypercalcbp\space needs\MessageBreak
514 package calc or e-TeX\%
515 }\%
516 }\%
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:
  \begin{itemize}
  \item `\` the backslash itself
  \item `\`, `\(`, `\)` unbalanced parentheses
  \item `\n`, `\r`, `\t`, `\b`, `\f` special white space escape sequences
  \item `\ddd` octal character code `ddd`
  \end{itemize}
- 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.

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

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.

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.

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

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

\@inmathwarn\pdfstringdef

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

\let\@inmathwarn\HyPsd@inmathwarn

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

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

\let\textbraceleft
\let\textbraceright
\let\textbackslash
\let\textnombresign
\let\textdollar
\let\textpercent
\let\textampersand
% \let\textasciitilde
\let\textunderscore
\let\textparagraph
\let\textellipsis
\ltx@IfUndefined{textEncodingNoboundary}{}{\let\noboundary\textEncodingNoboundary}

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

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

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

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

\let\fontencoding\@gobble
\let\fontfamily\@gobble
\let\fontseries\@gobble
\let\fontshape\@gobble
\let\fontsize\@gobbletwo
\let\selectfont\@empty
\let\usefont\@gobblefour
\let\emph\@firstofone
\let\textnormal\@firstofone
\let\textrm\@firstofone
\let\textsf\@firstofone
\let\texttt\@firstofone
\let\textbf\@firstofone
\let\textmd\@firstofone
\let\textit\@firstofone
\let\textsc\@firstofone
\let\textsl\@firstofone
\let\textup\@firstofone
\let\normalfont\@empty
\let\rmfamily\@empty
\let\sffamily\@empty
\let\ttfamily\@empty
\let\bfseries\@empty
\let\mdseries\@empty
\let\itshape\@empty
\let\scshape\@empty
\let\slshape\@empty
\let\upshape\@empty
\let\em\@empty
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
\iffHy@psdextra
\csname psdmapshortnames\endcsname
\csname psdaliasnames\endcsname
\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
\fi

\HyPsd@GreekPatch
\HyPsd@SpanishPatch
\HyPsd@RussianPatch
\HyPsd@BabelPatch
\let\@safe@activestrue\relax
\let\@safe@activesfalse\relax
Disable \cyr, used in russian\ldf.
\let\cyr\relax
Redefine \es@roman, used in spanish\ldf.
\let\es@roman@Roman

Package german.
\let\glqq\textglqq
\let\grqq\textgrqq
\let\glq\textglq
\let\grq\textgrq
\let\flqq\textflqq
\let\frqq\textfrqq
\let\flq\textflq
\let\frq\textfrq

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

Package FrenchPro. This package uses:
\if@mid@expandable{not fully expandable code}{fully expandable code}
\let\if@mid@expandable@firstoftwo

AMS classes.
\HyPsd@AMSclassfix

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

Commands of referencing and indexing systems. Some \LaTeX commands that are legal in \section commands have to be disabled here.
\let\label@gobble
\let\index@gobble
\let\glossary@gobble
\let\href@HyPsd@href
\let\@mkboth@gobbletwo
The \ref and \pageref is much more complicate because of their star form.
\let\ref@HyPsd@ref
\let\pageref@HyPsd@pageref
\let\nameref@HyPsd@nameref
\let\autoref@HyPsd@autoref
Miscellaneous commands.
\let\leavevmode@empty
\let\mbox@empty
\halign causes error messages because of the template character #.
\def\halign{\pdfstringdefWarn\halign@gobble}%
\let\ignorespaces\HyPsd@ignorespaces
\let\Hy@SectionAnchorHref\@gobble
\let\ensuremath\@firstofone

Patch for cjk bookmarks.
\HyPsd@CJKhook

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

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

Package xspace.
\ltx@ifundefined{@xspace}{%
\let\xspace\HyPsd@ITALCORR%
\let\egroup\%
\let\bgroup\%

Redefinitions of miscellaneous commands. Hyphenation does not make
sense.
\let\discretionary@gobbletwo
\@ifstar is defined in \LTex as follows:
\def\@ifstar#1{\@ifnextchar{*{\@firstoftwo{#1}}}
\@ifnextchar doesn’t work, because it uses stomach commands like \let and \fu-
turelet. 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:

\begin{verbatim}
699 \def\@ifnextchar\{HyPsd@ifnextchar\@ifnextchar\%
700 \def\kernel@ifnextchar\{HyPsd@ifnextchar\kernel@ifnextchar\%
701 \def\new@ifnextchar\{HyPsd@ifnextchar\new@ifnextchar\%
702 \let\@protected@testopt\HyPsd@protected@testopt
703 \let\@protected@testopt@xargs\HyPsd@protected@testopt
\end{verbatim}

Support for package ‘xargs’:

\begin{verbatim}
6.2.2 Expansion
\end{verbatim}

There are several possibilities to expand tokens within \LaTeX:

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

\verb|\csname|: First the string is expanded within a `\csname` and `\endcsname`. Then
the command name is converted to characters with catcode 12 by `\string`
and the first escape character removed by `\gobble`. This method has the
great advantage that stomach tokens that aren’t allowed in PDF strings are
detected by \TeX and reported as errors in order to force the user to write
correct things. So he get no wrong results by forgetting the proofreading
of his text. But the disadvantage is that old wrong code cannot processed
without errors. Mainly the error message is very cryptic and for the normal
user hard to understand. \TeX provides no way to catch the error caused
by `\csname` or allows to support the user with a descriptive error message.
Therefore the experienced user had to enable this behaviour by an option
```
exactdef`` in previous versions less or equal 6.50.
```
```
\verb|\edef| This version uses this standard form for expansion. It is stronger than
\LaTeX’s `\protected@edef`. So the font encoding mechanism works and the
glyph commands are converted to the correct tokens for PDF strings with
the definitions of the PD1 encoding. Because the protecting mechanism of
\LaTeX doesn’t work within an `\edef`, there are situations thinkable where
code can break. For example, assignments and definitions aren’t performed
and so undefined command errors or argument parsing errors can occur. But
this is only a compatibility problem with old texts. Now there are possibilities
to write code that gives correct PDF strings (see `\texorpdfstring`). In
the most cases unexpandable commands and tokens (math shift, grouping
characters) remains. They don’t cause an error like with `\csname`. How-
ever 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 `\edef` the `\Generic...` messages don’t
work and causes problems (error messages, invalid .out file). So they are dis-
abled while expanding and removed silently, because a user warning would be too
expensive (memory and runtime, `\pdfstringdef` is slow enough).

\begin{verbatim}
704 \begingroup
705 \let\GenericError\gobblefour
706 \let\GenericWarning\gobbletwo
707 \let\GenericInfo\gobbletwo
\end{verbatim}
Package french. This fix only works, if \GenericError is disabled.

708 \ifx\nofrenchguillemets\@undefined
709 \else
710 \nofrenchguillemets
711 \fi

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

712 \let\Hy@temp\xdef
713 \let\def\HyPad@DefCommand
714 \let\gdef\HyPad@DefCommand
715 \let\edef\HyPad@DefCommand
716 \let\xdef\HyPad@DefCommand
717 \let\futurelet\HyPad@LetCommand
718 \let\let\HyPad@LetCommand
719 \let\temp#1{#2}\%
720 \endgroup

6.2.3 Postprocessing

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

721 \ifx\@empty
722 \else

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

- \TeX does not accept a space as an delimited 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.

723 \HyPad@ProtectSpaces#1\%
724 \let\HyPad@String\@empty
725 \expandafter\HyPad@RemoveBraces\expandafter{#1|}\%
726 \global\let#1\HyPad@String
Check tokens. After removing the spaces and the grouping characters the string now should only consist of the following tokens/catcodes:

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

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

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

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

`\HyPsd@CheckCatcodes` should not have removed the tokens with catcode 3, 4, 7, and 8. Because a parameter token (6) would cause many errors before, there should now be only tokens with catcodes 11 or 12. So I think there is no need for a safety step like:

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

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

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

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

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

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

The code of `frenchb.ldf` can produce an additional space before `\guillemotright`, because `\lastskip` and `\unskip` do not work. Therefore it is removed here.
Right parenthesis. Also \texttt{xspace} detects a right parenthesis. For the texttt{xspace} support and the following parenthesis check the different parenthesis notations \texttt{),} \texttt{)}, and \texttt{051} are converted to one type \texttt{)} 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. \TeX{} forms ligatures in its stomach, but the PDF strings are treated only by \TeX{}'s mouth. The PDFDocEncoding contains some ligatures, but the
current version 3 of the AcrobatReader lacks the \textit{fi} and \textit{fl} glyphs, and the Linux version lacks the \textit{emdash} and \textit{endash} glyphs. So the necessary code is provided here, but currently disabled, hoping that version 4 of the AcrobatReader is better. To break the ligatures the user can use an empty group, because it leads to an insertion of an \textit{\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 \textit{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  \HyPsd@Subst{---}\textendash#1%
775  \HyPsd@Subst{--}\textendash#1%
776  \% \HyPsd@Subst{\textfi}
777  \% \HyPsd@Subst{fl}
778  \HyPsd@Subst{!`}\textexclamdown#1%
779  \HyPsd@Subst{?`}\textquestiondown#1%
\end{verbatim}

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

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

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

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

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

**Optimizing spaces.** Spaces are often used, but they have a very long form \textit{\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  \iffHy@unicode
790  \edef\HyPsd@SPACEOPTI{\80\040}%
791  \else
792  \let\HyPsd@SPACEOPTI\HyPsd@spaceopti
793  \fi
794  \xdef\#1{\#1\@empty}%
795  \fi
\end{verbatim}

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

\begin{verbatim}
796  \endgroup
797  \begingroup
798  \iffHy@unicode
799  \HyPsd@ConvertToUnicode#1%
\end{verbatim}
Try conversion back to PDFDocEncoding.

\ifx\HyPsd@pdfencoding\HyPsd@pdfencoding@auto
\ltx@IfUndefined{StringEncodingConvertTest}{%\EdefUnescapeString\HyPsd@temp#1%
\ifetex
\let\HyPsd@UnescapedString\HyPsd@temp
StringEncodingConvertTest\HyPsd@temp\HyPsd@temp
{utf16be}{ascii-print}{%\EdefEscapeString\HyPsd@temp\HyPsd@temp
\global\let\HyPsd@EscapeTeX#1%
\Hy@unicodefalse
\}%
\HyPsd@ToBigChars#1%
\HyPsd@EscapeTeX#1%
}%
\else
StringEncodingConvertTest\HyPsd@temp\HyPsd@temp
{utf16be}{pdfdoc}{%\EdefEscapeString\HyPsd@temp\HyPsd@temp
\global\let\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{%
\pdffontdef\Hy@gtemp{#2}%
\let#1\Hy@gtemp
}\}

6.3 Encodings

6.3.1 XeTEx

\edef\Hy@temp{\catcode0=\the\catcode0\relax}
code\z@=12 %
\fiftex
\expandafter@firstofone
\else
\let\HyPsd@XeTeXBigCharstrue\empty
\let\HyPsd@XeTeXBigCharsfalse\empty
\expandafter@gobble
\fi
\}%
\newif\ifHyPsd@XeTeXBigChars
\def\HyPsd@XeTeXBigCharsfalse{%
  \global\let\ifHyPsd@XeTeXBigChars\iffalse
}\def\HyPsd@XeTeXBigCharstrue{%
  \global\let\ifHyPsd@XeTeXBigChars\iftrue
}\def\HyPsd@ToBigChars#1{%
  \ifHyPsd@XeTeXBigChars
    \EdefEscapeHex\HyPsd@UnescapedString{%
      \expandafter\@gobbletwo\HyPsd@UnescapedString
    }\begingroup
    \toks@{}\escapechar=92\relax
    \let\x\HyPsd@ToBigChar
    \expandafter\HyPsd@ToBigChar\HyPsd@UnescapedString
    \relax\relax\relax\relax\relax\relax\relax\relax\relax
    \edef\x{%
      \endgroup
      \noexpand#1{\the	oks@}
    }\x
  \fi
}\def\HyPsd@ToBigChar#1#2#3#4{%
  \ifx\relax#1\relax
    \let\x\relax
  \else
    \count@=#1#2#3#4\relax
    \let\y\@empty
    \lccode\z@=\count@
    \ifnum\count@=40 % (\expandafter\gobbletwo\HyPsd@UnescapedString
      \let\y\@backslashchar
    \else
      \ifnum\count@=41 % )\gobbletwo\HyPsd@UnescapedString
        \let\y\@backslashchar
    \else
      \ifnum\count@=92 % backslash\gobbletwo\HyPsd@UnescapedString
        \edef\y##1{\string\\}\gobbletwo\HyPsd@UnescapedString
    \else
      \ifnum\count@=10 % newline\gobbletwo\HyPsd@UnescapedString
        \edef\y##1{\string\n}\gobbletwo\HyPsd@UnescapedString
    \else
      \ifnum\count@=13 % carriage return\gobbletwo\HyPsd@UnescapedString
        \edef\y##1{\string\r}\gobbletwo\HyPsd@UnescapedString
    \else
      \edef\y##1{\string\%}\gobbletwo\HyPsd@UnescapedString
    \fi
  \fi
  \fi
}\lowercase{%
  \toks@\expandafter{%
    \the\expandafter\toks@\y
    \^^\%\fi
  }%
6.3.2 Workarounds for the 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@temp
```

6.3.3 Catcodes saving and restoring for .def files

```latex
\@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)
    \catcode39 \the\catcode39\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 \epsilon's NFSS. Because the informational strings are not set by \TeX X's typesetting mechanism but for interpreting by the PDF reader, the glyphs of the PD1 encoding are implemented to be safely written to a file (PDF output file, .out file).

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

\begin{verbatim}
\ifdefined{T@PD1}{\Hy@SaveCatcodeSettings{pd1}}\input{pd1enc.def}\Hy@RestoreCatcodeSettings{pd1}\HyLinguex@Restore
\end{verbatim}

6.3.5 PU encoding

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

\begin{verbatim}
\def\HyPsd@LoadUnicode{\ifdefined{T@PU}{\Hy@SaveCatcodeSettings{pu}}\input{puenc.def}\Hy@RestoreCatcodeSettings{pu}\end{verbatim}

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 \texorpdfstring

\texorpdfstring While expanding the string in \texttt{pdfstringdef} the switch \texttt{ifHy@pdfstring} is set. This is used by the full expandable macro \texttt{texorpdfstring}. It expects two arguments, the first contains the string that will be set and processed by \LaTeX's stomach, the second contains the replacement for PDF strings.

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

6.4.2 Hooks for \texttt{pdfstringdef}

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

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

\pdfstringdefDisableCommands

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

Macro \texttt{pdfstringdefDisableCommands} avoids this, because it reuses the old meaning of the hook and appends the new code to \texttt{pdfstringdefPreHook}, e.g.:
In the argument of \pdfstringdefDisableCommands the character @ can be used in command names. So it is easy to use useful \LaTeX commands like \@gobble or \@firstofone.

\pdfstringdefDisableCommands{\let\textasciitilde\textcolor\@gobble}

1021 \def\pdfstringdefDisableCommands{%
1022 \begingroup
1023 \makeatletter
1024 \HyPsd@DisableCommands
1025 }

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

\let\HyPsd@pdfstringdefDisableCommands\pdfstringdefDisableCommands
\AtBeginDocument{%
\@ifundefined{pdfstringdefDisableCommands}{%
\let\pdfstringdefDisableCommands\HyPsd@pdfstringdefDisableCommands
}%
\endgroup
}

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

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

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

\pdfstringdefWarn{\let\HyPsd@pdfstringdefWarn\@ifnextchar}
\expandafter\noexpand\csname<>-\string#1\endcsname

6.5 Help macros for expansion

6.5.1 \ignorespaces

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

\begin{verbatim}
\begingroup
\catcode0=12 %
\def\x{\endgroup
\def\HyPsd@ignorespaces{36
\end{verbatim}

\}
6.5.2 Babel languages

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

\pdffiddisablecommands{%
  \languageshorthandssystem%
}

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

\def\HyPsd@BabelPatch{%
  \let\HyOrglanguageshorthandssystem\languageshorthandssystem
  \let\languageshorthandssystem\HyPsd@LanguageShorthands
}\begingroup\expandafter\expandafter\expandafter\endgroup
\ifx\pdfstrcmp\relax
  \let\HyPsd@langshortsystem\@empty
  \def\HyPsd@LanguageShorthands#1{%
    \if\HyPsd@langshortsystem\else
      \ifnum\pdfstrcmp#1system=\z@\else
        \else
      \fi
    \fi
    \HyOrglanguageshorthandssystem
  }%
  \def\Hy@temp{%
    \@ifpackageloaded{babel}{
      \@ifpackagelater{babel}{2008/03/16}{
        \let\Hy@temp\@empty
      }{
        \def\HyPsd@BabelPatch{%
          \let\HyOrglanguageshorthandssystem\languageshorthandssystem
        }%
      }%
    }{}%
  }%
  \def\Hy@temp{%
    \@ifpackageloaded{babel}{
      \@ifpackagelater{babel}{2008/03/16}{
        \let\Hy@temp\@empty
      }{
        \def\HyPsd@BabelPatch{%
          \let\HyOrglanguageshorthandssystem\languageshorthandssystem
        }%
      }%
    }{}%
  }%
\else
  \def\HyPsd@LanguageShorthands#1{%
    \ifnum\pdfstrcmp#1system=\z@\else
      \else
    \fi
    \HyOrglanguageshorthandssystem
  }%
\fi
\def\Hy@temp{%
  \@ifpackageloaded{babel}{
    \@ifpackagelater{babel}{2008/03/16}{
      \let\Hy@temp\@empty
    }{
      \def\HyPsd@BabelPatch{%
        \let\HyOrglanguageshorthandssystem\languageshorthandssystem
      }%
    }%
  }{}%
Nothing to do for english.
Nested quoting environments are not supported (<<, >>).

Nested quoting environments are not supported (<<, >>).
\def\HyPsd@GreekNumII#1#2#3#4{\textnumeralsignlowergreek\textiota\textIota\textkappa\textKappa\textlambda\textLambda\textmu\textMu\textnu\textNu\textxi\textXi\textomicron\textOmicron\textpi\textPi\textkoppagreek\textKoppagreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsignlowergreek\textnumeralsign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Shorthand "- of `russianb.ldf` is not expandable, therefore it is disabled and replaced by `-`.

6.5.3 CJK patch

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

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

\HyPsd@CJKActiveChars

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

\def\HyPsd@DecimalToOctal#1{\ifcase #1 \000\or \001\or \002\or \003\or \004\or \005\or \006\or \007\or \010\or \011\or \012\or \013\or \014\or \015\or \016\or \017\or \020\or \021\or \022\or \023\or \024\or \025\or \026\or \027\or \030\or \031\or \032\or \033\or \034\or \035\or \036\or \037\or \040\or \041\or \042\or \043\or \044\or \045\or \046\or \047\or \050\or \051\or \052\or \053\or \054\or \055\or \056\or \057\or \060\or \061\or \062\or \063\or \064\or \065\or \066\or \067\or \070\or \071\or \072\or \073\or \074\or \075\or \076\or \077\or \080\or \081\or \082\or \083\or \084\or \085\or \086\or \087\or \090\or \091\or \092\or \093\or \094\or \095\or \096\or \097\or \100\or \101\or \102\or \103\or \104\or \105\or \106\or \107\or \110\or \111\or \112\or \113\or \114\or \115\or \116\or \117\or \120\or \121\or \122\or \123\or \124\or \125\or \126\or \127\or \130\or \131\or \132\or \133\or \134\or \135\or \136\or \137\or \140\or \141\or \142\or \143\or \144\or \145\or \146\or \147\or \150\or \151\or \152\or \153\or \154\or \155\or \156\or \157\or \160\or \161\or \162\or \163\or \164\or \165\or \166\or \167\or \170\or \171\or \172\or \173\or \174\or \175\or \176\or \177\or \180\or \181\or \182\or \183\or \184\or \185\or \186\or \187\or \190\or \191\or \192\or \193\or \194\or \195\or \196\or \197\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}!\
    \ifcase\intcalcMod{#1}{4} 4\or 5\or 6\or 7\
    \fi\
    \HyPsd@DecimalToOctalSecond{#2}\
  \fi
\def\HyPsd@HighA#1!{%
  \expandafter\expandafter\expandafter\HyPsd@HighB\intcalcDec#1!!\
  \def\HyPsd@HighB#1!!{%
    \IntCalcDiv#1!4!@backslashchar\
    \IntCalcMod#1!4!\
  }\IntCalcMod#1!64!!!\
  \expandafter\expandafter\expandafter\HyPsd@HighD\IntCalcDiv#1!64!!\
  \expandafter\expandafter\expandafter\HyPsd@HighC\IntCalcDiv#1!144!!\
  \expandafter\expandafter\expandafter\HyPsd@HighC\IntCalcDiv#1!144!!\
  \expandafter\expandafter\expandafter\HyPsd@HighC\IntCalcDiv#1!144!!\
\}
\def\HyPsd@HighD#1\{%  
\ifcase\IntCalcDiv#1\%  
0\or 1\or 2\or 3\or 4\or 5\or 6\or 7\%  
\fi  
\def\HyPsd@DecimalToOctalFirst#1\{%  
9\%  
\ifcase\#1\%  
000\or 001\or 002\or 003\or 004\or 005\or 006\or 007\%  
\or 010\or 011\or 012\or 013\or 014\or 015\or 016\or 017\%  
\or 020\or 021\or 022\or 023\or 024\or 025\or 026\or 027\%  
\or 030\or 031\or 032\or 033\or 034\or 035\or 036\or 037\%  
\or 040\or 041\or 042\or 043\or 044\or 045\or 046\or 047\%  
\or 050\or 051\or 052\or 053\or 054\or 055\or 056\or 057\%  
\or 060\or 061\or 062\or 063\or 064\or 065\or 066\or 067\%  
\or 070\or 071\or 072\or 073\or 074\or 075\or 076\or 077\%  
\or 100\or 101\or 102\or 103\or 104\or 105\or 106\or 107\%  
\or 110\or 111\or 112\or 113\or 114\or 115\or 116\or 117\%  
\or 120\or 121\or 122\or 123\or 124\or 125\or 126\or 127\%  
\or 130\or 131\or 132\or 133\or 134\or 135\or 136\or 137\%  
\or 140\or 141\or 142\or 143\or 144\or 145\or 146\or 147\%  
\or 150\or 151\or 152\or 153\or 154\or 155\or 156\or 157\%  
\or 160\or 161\or 162\or 163\or 164\or 165\or 166\or 167\%  
\or 170\or 171\or 172\or 173\or 174\or 175\or 176\or 177\%  
\or 200\or 201\or 202\or 203\or 204\or 205\or 206\or 207\%  
\or 210\or 211\or 212\or 213\or 214\or 215\or 216\or 217\%  
\or 220\or 221\or 222\or 223\or 224\or 225\or 226\or 227\%  
\or 230\or 231\or 232\or 233\or 234\or 235\or 236\or 237\%  
\or 240\or 241\or 242\or 243\or 244\or 245\or 246\or 247\%  
\or 250\or 251\or 252\or 253\or 254\or 255\or 256\or 257\%  
\or 260\or 261\or 262\or 263\or 264\or 265\or 266\or 267\%  
\or 270\or 271\or 272\or 273\or 274\or 275\or 276\or 277\%  
\or 300\or 301\or 302\or 303\or 304\or 305\or 306\or 307\%  
\or 310\or 311\or 312\or 313\or 314\or 315\or 316\or 317\%  
\or 320\or 321\or 322\or 323\or 324\or 325\or 326\or 327\%  
\or 330\or 331\or 332\or 333\or 334\or 335\or 336\or 337\%  
\or 340\or 341\or 342\or 343\or 344\or 345\or 346\or 347\%  
\or 350\or 351\or 352\or 353\or 354\or 355\or 356\or 357\%  
\or 360\or 361\or 362\or 363\or 364\or 365\or 366\or 367\%  
\or 370\or 371\or 372\or 373\or 374\or 375\or 376\or 377\%  
\fi  
\def\HyPsd@DecimalToOctalSecond#1\{%  
\ifcase\#1\%  
0\or 1\or 2\or 3\or 4\or 5\or 6\or 7\%  
\or 010\or 011\or 012\or 013\or 014\or 015\or 016\or 017\%  
\or 020\or 021\or 022\or 023\or 024\or 025\or 026\or 027\%  
\or 030\or 031\or 032\or 033\or 034\or 035\or 036\or 037\%  
\or 040\or 041\or 042\or 043\or 044\or 045\or 046\or 047\%  
\or 050\or 051\or 052\or 053\or 054\or 055\or 056\or 057\%  
\or 060\or 061\or 062\or 063\or 064\or 065\or 066\or 067\%  
\or 070\or 071\or 072\or 073\or 074\or 075\or 076\or 077\%  
\or 100\or 101\or 102\or 103\or 104\or 105\or 106\or 107\%  
\or 110\or 111\or 112\or 113\or 114\or 115\or 116\or 117\%
\number\IntCalcMod\#1!10000000000!%
\fi
\fi
\fi
}
\def\HyPsd@CJKnumberLarge\#1\#2\{%
\HyPsd@CJKnumberFour\#1\{20\}%
\CJK@hundredmillion
\ifnum\#2=\z@
\else
\expandafter\expandafter\expandafter\HyPsd@CJKnumberFour
\IntCalcDiv\#2!10000!%
!\CJK@zero{10}%
\CJK@tenthousand
\expandafter\expandafter\expandafter\HyPsd@CJKnumberFour
\IntCalcMod\#2!10000!%
!\CJK@zero{10}%
@empty
\fi
\def\HyPsd@CJKnumberFour\#1\#2#3{%
\ifnum\#1=\z@
\else
\ifnum\#1<1000 %
\#2%
\HyPsd@CJKnumberThree\#1\{\#3\}%
\else
\HyPsd@CJKnumber\{\IntCalcDiv\#1!10000!\}%
\CJK@thousand
\expandafter\expandafter\expandafter\HyPsd@CJKnumberThree
\IntCalcMod\#1!10000!%
\CJK@zero{10}%
\fi
\fi
\def\HyPsd@CJKnumberThree\#1\#2#3{%
\ifnum\#1=\z@
\else
\ifnum\#1<100 %
\#2%
\HyPsd@CJKnumberTwo\#1\{\#3\}%
\else
\HyPsd@CJKnumber\{\IntCalcDiv\#1!1000!\}%
\CJK@hundred
\expandafter\expandafter\expandafter\HyPsd@CJKnumberTwo
\IntCalcMod\#1!1000!%
\CJK@zero{10}%
\fi
\fi
\def\HyPsd@CJKnumberTwo\#1\#2#3{%
\ifnum\#1=\z@
\else
\ifnum\#1<\#3 %
\#2%
\HyPsd@CJKnumber\#1%
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The patch of \@inmathwarn is needed to get rid of the infinite error loop with glyphs of other encodings (see the explanation above). Potentially the patch is dangerous, if the code in \ltoutenc.dtx changes. Checked with \LaTeX \texttt{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 (\LaTeX \texttt{2e} release \[1998/12/01\]). In the normal case \pdfstringdef is executed in a context where \protect has the meaning of \@typesetprotect (=\relax).

\def\@current@cmd#1{%
  \ifx\protect\@typeset@protect
    \@inmathwarn#1
  \fi
}

\def\@changed@cmd{%
  \expandafter\ifx\expandafter\@nil\string\protect\relax
  \@inmathwarn \@firstofone
  \fi
}
6.5.7 Unexpandable spaces

In \HyPsd@ProtectSpaces the space tokens are replaced by not expandable commands, that work like spaces:
• So they can caught by undelimited arguments.
• And they work in number, dimen, and skip assignments.

These properties are used in \texttt{\HyPsd@CheckCatcodes}.

\begin{verbatim}
1683 \def\HyPsd@LetUnexpandableSpace#1{\%
1684 \expandafter\futurelet\expandafter\string@ gobble\space\relax
1685 }
\end{verbatim}

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

\begin{verbatim}
1686 \def\HyPsd@LetUnexpandableSpace\HyPsd@UnexpandableSpace{\}
\end{verbatim}

\section{Marker for commands}

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

\begin{verbatim}
1687 \edef\HyPsd@XSPACE{\string#\string X}
1688 \edef\HyPsd@ITALCORR{\string#\string I}
1689 \edef\HyPsd@GLYPHERR{\string#\string G}
\end{verbatim}

\subsection{\texttt{\hspace} fix}

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

\begin{verbatim}
1690 \def\HyPsd@hspace#1{\HyPsd@@hspace#1*\END}
\end{verbatim}

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

\begin{verbatim}
1698 \def\HyPsd@hspacetext#1{\ifdim#1>\z@\space\fi}
\end{verbatim}

\subsection{Fix for AMS classes}

\begin{verbatim}
1699 \ltx@ifundefined{tocsection}{\%
1700 \let\HyPsd@AMSclassfix\relax
1701 }{%
1702 \def\HyPsd@AMSclassfix{%
1703 \let\tocpart\HyPsd@tocsection
1704 \let\tocchapter\HyPsd@tocsection
1705 \let\tocappendix\HyPsd@tocsection
1706 \let\tocsection\HyPsd@tocsection
1707 \let\tocsubsection\HyPsd@tocsection
1708 \let\tocsubsubsection\HyPsd@tocsection
1709 \let\tocparagraph\HyPsd@tocsection
1710 }%
\end{verbatim}

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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.
\nameref Macro \nameref calls the macro \nameref for star checking. The same methods like in \hspace is used.
\begin{verbatim}
def \nameref#1{\@nameref#1\END}
\end{verbatim}
\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
    \expandafter\expandafter\expandafter\@car
    \expandafter\expandafter\expandafter\@gobbletwo
    \csname r@#1\endcsname{}{}\@nil
  \fi
}
\end{verbatim}
\autoref Macro \autoref calls the macro \autoref for star checking. The same methods like in \hspace is used.
\begin{verbatim}
def \autoref#1{\@autoref#1\END}
\end{verbatim}
\autoref checks if a star is present.
\begin{verbatim}
def \autoref#1*#2\END{%
  \ifx\%#2\%
    \@autoref{#1}%
  \else
    \expandafter\@autoref
  \fi
}
\end{verbatim}
\autoref does the work and extracts the second argument.
\begin{verbatim}
def \autoref#1{%
  \expandafter\ifx\csname r@#1\endcsname\relax
    ??%
  \else
    \expandafter\expandafter\expandafter\expandafter\\\expandafter\expandafter\expandafter\expandafter\@car
    \expandafter\expandafter\expandafter\@gobbletwo
    \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\%#5\%
    \else
    \@autorefname#4.\@nil
  \fi
}\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: \texttt{\textbackslash cename} does the job, it defines the command to be \texttt{\textbackslash 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 \texttt{\textbackslash relax}). To avoid side effects this should be done in \texttt{\textbackslash pdfstringdef} shortly before the \texttt{\textbackslash def} job. But checking and defining all possible active characters of the full range (0 until 255) would take a while. \texttt{\textbackslash pdfstringdef} is slow enough, so this isn’t done.

\texttt{\textbackslash HyPsd@DefCommand} and \texttt{\textbackslash HyPsd@LetCommand} expands to the commands \texttt{\textbackslash def}-command and \texttt{\textbackslash let}-command with the meaning of \texttt{\textbackslash def} and \texttt{\textbackslash let}. So it is detected by \texttt{\textbackslash HyPsd@CheckCatcodes} and the command name \texttt{\textbackslash def}-command or \texttt{\textbackslash 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 \texttt{\textbackslash cename}. If the command is already defined, \texttt{\noexpand} prevents a further expansion, even though the command would expand to legal stuff. If the command don’t have the meaning of \texttt{\textbackslash relax}, \texttt{\textbackslash 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 \texttt{\textbackslash HyPsd@DefCommand} and \texttt{\textbackslash HyPsd@LetCommand} is that the first one also cancels this arguments, the parameter and definition text. The right side of the \texttt{\textbackslash let} commands cannot be canceled with an undelimited parameter because of a possible space token after \texttt{\futurelet}.

To avoid unmatched \texttt{\if...\iftrue} and \texttt{\let\if...\iffalse} tokens, the cases \texttt{\let\if...\iftrue} and \texttt{\let\if...\iffalse} are checked and ignored.
6.5.13 \ifnextchar

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

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

6.5.14 \protected@testopt@ifnextchar

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

6.6.1 Generic warning.

\HyPsd@Warning

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

\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\HyPsd@ProtectSpaces\callswiththeexpandedstring\HyPsd@@ProtectSpacesFi.

The expanded string is protected by 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}

\HyPsd@@ProtectSpacesFi

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

\begin{verbatim}
def\HyPsd@@ProtectSpacesFi#1 #2\HyPsd@End#3%{
  \ifx\scrollmode#2\scrollmode
  \HyPsd@RemoveMask#1\HyPsd@End#3%
  \else
  \edef#3{#1\HyPsd@UnexpandableSpace#2}\
  \expandafter\HyPsd@@ProtectSpacesFi#3\HyPsd@End#3%
  \fi
}
\end{verbatim}

Remove mask.

\HyPsd@RemoveMask

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

\begin{verbatim}
def\HyPsd@RemoveMask|\#1|\HyPsd@End#2{%
  \toks\expandafter{#1}%
  \xdef#2{\the\toks%}
\end{verbatim}

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6.6.3 Remove grouping braces

\HyPsd@@RemoveBraces is called with the expanded string, the end marked by \HyPsd@End, the expanded string again, but enclosed in braces and the string command. The first expanded string is scanned by the parameter text #1#2. By a comparison with the original form in #3 we can decide whether #1 is a single token or a group. To avoid the case that #2 is a group, the string is extended by a | before.

While removing the grouping braces an italic correction marker is inserted for supporting package xspace and letting ligatures broken. Because the string is already expanded, the \if commands should disappeared. So we can move some parts out of the argument of \ltx@ReturnAfterFi.

\def\HyPsd@@RemoveBracesFi#1#2\HyPsd@End#3\fi{%
The string can contain commands yet, so it is better to use \def instead of a shorter \edef. The two help macros limit the count of \expandafter.

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

6.6.4 Catcode check

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

\ltx@ifundefined{directlua}{% 
  \expandafter\ifx\csname\endcsname\relax\fi 
}% 

Check catcodes.

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

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

For the comparison with active characters, - cannot be used because it has the meaning of a blank space here. And active characters need to be checked, if they have been defined using \protected.
\HyPsd@AfterCountRemove
Counts like \penalty are removed silently.
\def\HyPsd@AfterCountRemove#1\HyPsd@End{% 
\edef\HyPsd@Rest{#1}% 
}\HyPsd@AfterDimenRemove
If the value of the dimen (\kern) is zero, it can be removed silently. All other values are difficult to interpret. Negative values do not work in bookmarks. Should positive values be removed or should they be replaced by space(s)? The following code replaces positive values greater than 1ex with a space and removes them else.
\def\HyPsd@AfterDimenRemove#1\HyPsd@End{% 
\ifdim\ifx\HyPsd@String\@empty\z@\else\dimen@\fi>1ex % 
\HyPsd@ReplaceSpaceWarning{\string\kern\space\the\dimen@}% 
\edef\HyPsd@Rest{\HyPsd@UnexpandableSpace #1}% 
\else 
\ifdim\dimen@=\z@ 
\else 
\HyPsd@RemoveSpaceWarning{\string\kern\space\the\dimen@}% 
\edef\HyPsd@Rest{#1}% 
\fi 
\fi 
\gdef\HyPsd@Rest{#1}% 
\fi 
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The glue part of skips do not work in PDF strings and are ignored. Skips (\hspace), that are not zero, have the same interpreting problems like dimens (see above).

\begin{verbatim}
def\HyPsd@AfterSkipRemove#1\HyPsd@End{\%  
  \ifdim\ifx\HyPsd@String\@empty\z@\else\skip@\fi>1ex \%  
    \HyPsd@ReplaceSpaceWarning{\string\hskip\space\the\skip@}\%  
  \gdef\HyPsd@Rest{\HyPsd@UnexpandableSpace #1}\%  
  \else\fi  
  \ifdim\skip@=\z@\else\fi  
    \HyPsd@RemoveSpaceWarning{\string\kern\space\the\skip@}\%  
  \fi  
  \gdef\HyPsd@Rest{#1}\%  
}\HyPsd@End{\%}
\end{verbatim}

Catcode warnings.

\begin{verbatim}
def\HyPsd@CatcodeWarning#1{\%  
  \HyPsd@Warning{\string Token not allowed in a PDF string (\ifHy@unicode Unicode\else PDFDocEncoding\fi):\MessageBreak removing `\HyPsd@RemoveCmdPrefix#1'\MessageBreak removed}\%  
}\HyPsd@End{\%}
\end{verbatim}

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

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

\HGsub To save tokens \HGstring is an wrapper for the command \HGsub that does all the work: In string stored in command \#3 it replaces the tokens \#1 with \#2.

\HGstring To save tokens in pdstringdef \HGstring is a wrapper, that expands argument \#1 before calling \HGsub.

\HGescape To escape TeX
6.6.7 Support for package xspace

\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#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 \texttt{\textbackslash 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{\ifx#1\empty\else\xdef#1{\376\377#1}\%\fi}\fi\fi\fi\fi\fi\fi\fi\fi\fi\fi\fi#1\%}
\end{verbatim}
\HyPsd@DoConvert
\HyPsd@DoEscape
\HyPsd@GetTwoBytes
\HyPsd@GetOneByte
\HyPsd@@GetNextTwoTokens
\HyPsd@Char
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 \etx here for performance reasons. Unhappily the results of divisions are rounded. Thus a circumvention via \dimexpr is used, e.g.:

\numexpr 123/4\relax is replaced by
\number\dimexpr.25\dimexpr 123sp\relax\relax
The two octet form of UTF-8 110aaabb (A) and 10cccd (B) must be converted into octal numbers 00a and bcd. The result is \8a\bcd (with a, b, c, d as octal numbers). The conversion equations:

\[
\begin{align*}
a &:= A/4 - 48 \\
b &:= A - 4 \times (A/4) \\
c &:= B/8 - 8 \times ((8 \times (B/8))/8) \\
d &:= B - 8 \times (B/8)
\end{align*}
\]

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

\[
\begin{align*}
a &:= A/4 - 56 \\
b &:= 2 \times (A - 4 \times (A/4)) + ((B - 128 < 32) \times 0 : 1) \\
c &:= B/4 - 32 - ((B - 128 < 32) \times 0 : 8) \\
d &:= B - 4 \times (B/4) \\
e &:= C/8 - 16
\end{align*}
\]
\[ f := C - 8 \times (C/8) \] (11)

Surrogates: 4 octets in UTF-8, a surrogate pair in UTF-16. High surrogate range: U+D800–U+DBFF, low surrogate range: U+DC00-U+DFFF.
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 \% illegal
    \else
      \ifnum#1>"FFFF
        High-surrogate code point. ("D800 = 55296, \p@ = 1pt = 65536sp)
        \expandafter\HyPsd@unichar\expandafter{\number\numexpr 55296+\dimexpr.0009765625\dimexpr\number#1sp-\p@\relax\relax\relax}
      \else
        \ifnum#1>"7FF \% unsupported (Unicode -> PDF Doc Encoding)
          \fi
      \else
        \fi
    \fi
  \else
    \fi
\def\HyPsd@UnicodeReplacementCharacter{9377\375}
\def\HyPsd@unichar@first@byte#1{%}
  \number\dimexpr.015625\dimexpr#1sp\relax\relax\relax
\expandafter\HyPsd@unichar@octtwo\expandafter{\number\numexpr#1-64*\number\dimexpr.015625\dimexpr#1sp\relax\relax\relax}
\fi
\fi
\else
  \fi
\else
  \number\dimexpr.015625\dimexpr#1sp\relax\relax\relax
\fi
\expandafter\HyPsd@unichar@octtwo\expandafter{\number\numexpr#1-64*\number\dimexpr.015625\dimexpr#1sp\relax\relax\relax}
\fi
\fi
\expandafter\HyPsd@unichar@second@byte\expandafter{%}
  \number\dimexpr.00390625\dimexpr#1sp\relax\relax\relax
\expandafter\HyPsd@unichar\expandafter{\number\numexpr#1-256*\number\dimexpr.00390625\dimexpr#1sp\relax\relax\relax\relax}
\fi
\fi
\else
  \fi
\else
  \number\dimexpr.00390625\dimexpr#1sp\relax\relax\relax
\fi
\expandafter\HyPsd@unichar\expandafter{\number\numexpr#1-9216\dimexpr.0009765625\dimexpr\number#1sp-\p@\relax\relax\relax}
\else
  \fi
\else
  \fi
\fi
\fi
\else
  \fi
\else
  \fi
\fi
6.6.10 Support for die faces (ifsym et. al.)

\HyPsd@DieFace  

Die faces are provided by

\begin{tabular}{|l|c|}
\hline
Package & Macro \\
\hline
ifsym & \Cube \\
epsdice & \epsdice \\
hhcount & \fcdice \\
\hline
\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.

\begin{verbatim}
\def\HyPsd@DieFace#1{\ifHy@unicode\ifnum#1<1 \HyPsd@UnicodeReplacementCharacter \else\ifnum#1>6 \9046\20\intcalcDec{#1}\fi\fi\else.\fi} \def\HyPsd@DieFaceLarge#1!{\ifnum#1>6 \expandafter\ltx@firstoftwo \else\expandafter\ltx@secondoftwo 69\fi} comes from file utf8x.def from package ucs.
\end{verbatim}
6.6.11 Support for moon phases of package china2e

\def\HyPsd@MoonPha#1{\% \ifcase\intcalcNum{#1} \% U+1F31A NEW MOON WITH FACE; \MoonPha{1} (china2e) \or \% 2 \HyPsd@UnicodeReplacementCharacter \or \% 3 \U+1F31D FULL MOON WITH FACE; \MoonPha{3} (china2e) \or \% 4 \U+1F31C LAST QUARTER MOON WITH FACE; \MoonPha{4} (china2e) \else \HyPsd@UnicodeReplacementCharacter \fi \%* \HyPsd@MoonPha -> \MoonPha

6.6.12 Support for package pifont

\def\HyPsd@ding#1{\% \ifHy@unicode \ifnum#1<32 \% \HyPsd@UnicodeReplacementCharacter \else \% U+1F31A NEW MOON WITH FACE; \ding{1} (pifont) \or \% 2 \HyPsd@UnicodeReplacementCharacter \or \% 3 \U+1F31D FULL MOON WITH FACE; \ding{3} (pifont) \or \% 4 \U+1F31C LAST QUARTER MOON WITH FACE; \ding{4} (pifont) \else \HyPsd@UnicodeReplacementCharacter \fi \\% Dingbats are not part of PDFDocEncoding

\HyPsd@ding

\def\HyPsd@ding#1!{% 
\ltx@ifundefined{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!164!}%
\else 
% 172..181 -> U+2460..U+2469
\9044\HyPsd@DecimalToOctalSecond{\IntCalcSub#1!176!}%
\fi
\fi
\fi
\fi
\csname HyPsd@ding@#1\endcsname
}%

\@namedef{HyPsd@ding@32}{\space}
% U+260E BLACK TELEPHONE
\@namedef{HyPsd@ding@37}{\9046\016}% U+260E
% U+261B BLACK RIGHT POINTING INDEX
\@namedef{HyPsd@ding@42}{\9046\033}% U+261B
% U+261E WHITE RIGHT POINTING INDEX
\@namedef{HyPsd@ding@43}{\9046\036}% U+261E
% U+2605 BLACK STAR
\@namedef{HyPsd@ding@72}{\9046\005}% U+2605
% U+25CF BLACK CIRCLE
\@namedef{HyPsd@ding@108}{\9045\317}% U+25CF
% U+25A0 BLACK SQUARE
\@namedef{HyPsd@ding@110}{\9045\240}% U+25A0
% U+25B2 BLACK UP-POINTING TRIANGLE
\@namedef{HyPsd@ding@115}{\9045\262}% U+25B2
% U+25BC BLACK DOWN-POINTING TRIANGLE
\@namedef{HyPsd@ding@116}{\9045\274}% U+25BC
% U+25C6 BLACK DIAMOND
\@namedef{HyPsd@ding@117}{\9045\306}% U+25C6
% U+25D7 RIGHT HALF BLACK CIRCLE
\@namedef{HyPsd@ding@119}{\9045\327}% U+25D7
% U+25E8 RIGHT DOUBLE CIRCLED ARROW
\@namedef{HyPsd@ding@168}{\textclubsuitblack}
% U+2666 BLACK SUIT
\@namedef{HyPsd@ding@169}{\textdiamondsuitblack}
% U+2664 DIAMOND SUIT
\@namedef{HyPsd@ding@170}{\textheartsuitblack}
% U+2665 HEART SUIT
\@namedef{HyPsd@ding@213}{\textrightarrow}
% U+2795 RIGHTWARDS ARROW
\@namedef{HyPsd@ding@214}{\textleftarrow}
% U+2796 LEFTWARDS ARROW
\@namedef{HyPsd@ding@225}{\textuparrow}
% U+2798 UPWARDS ARROW
\@namedef{HyPsd@ding@240}{\HyPsd@UnicodeReplacementCharacter}
7 Support of other packages

7.1 Class memoir

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

7.2 Package subfigure

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

\@ifpackageloaded{subfigure}{%
\ifundefined{sub@label}{%
\Hy@hypertexnamesfalse
\renewcommand*{\sub@label}{%}
\@bsphack
\subfig@oldlabel{#1}%
\iffilesw
\begingroup
\edef\@currentlabstr{%
\expandafter\strip@prefix\meaning\@currentlabelname
\protect\write\@auxout{%
\newlabel{sub@#1}{\@nameuse{@@thesub\@captype}}{	hepage}{%}
\expandafter\strip@period\@currentlabstr
\relax\relax\@@@ %
\protect\write\@auxout{}%}
\endgroup
\fi
\@esphack
}%
\@ifpackagelater{subfigure}{2002/03/26}{}{%
\renewcommand{\toclevel@subfigure}{1}%
\renewcommand{\toclevel@subtable}{1}%
}%
}%
\@esphack
\begingroup
\edef\@currentlabstr{%
\expandafter\strip@prefix\meaning\@currentlabelname
\protect\write\@auxout{%}
\relax\relax\@@@ %
\protect\write\@auxout{%
\newlabel{\@currentHref}{%}
\iffilesw
\begingroup
\edef\@currentlabstr{%
\expandafter\strip@prefix\meaning\@currentlabelname
\protect\write\@auxout{%}
\relax\relax\@@@ %
\protect\write\@auxout{}%}
\endgroup
\fi
\@esphack
}%
\@ifpackagelater{subfigure}{2002/03/26}{}{%
\renewcommand{\toclevel@subfigure}{1}%
\renewcommand{\toclevel@subtable}{1}%
}%
}%
\@esphack
\endgroup
\fi
\def\XR@addURL#1{\XR@@dURL#1{}{}{}{}\}
\def\XR@@dURL#1#2#3#4#5\{
{#1}{#2}%
}%

7.3 Package xr and xr-hyper

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

\ifundefined{XR@addURL}{%
% If reading external aux files check whether they have a non zero fourth field in \newlabel and if so, add the URL as the fifth field.
\def\XR@addURL#1{\XR@@dURL#1{}{}{}{}\}
\def\XR@@dURL#1#2#3#4#5\{
{#1}{#2}%
}%
Providing dummy definitions.

\def\HyperRaiseLinkDefault{\baselineskip}
\let\HyperRaiseLinkHook\@empty
\def\Hy@SaveSpaceFactor{%\global\Hy@SavedSpaceFactor=\ifhmode\spacefactor\else\z@\fi}%
\def\Hy@SaveSavedSpaceFactor{%\edef\Hy@RestoreSavedSpaceFactor{\global\Hy@SavedSpaceFactor=\the\Hy@SavedSpaceFactor\relax}}%
\def\Hy@raisedlink#1{%\ifvmode#1\else\Hy@SaveSpaceFactor\penalty\@M\fi}%
\let\HyperRaiseLinkHook\@empty
\def\Hy@false{false}

8 Help macros for links

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

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

\HyperRaiseLinkHook allows the user to reassign \HyperRaiseLinkLength.
Inserting a \special command to set a destination destroys the \lastskip value.

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

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

9.1 Help macros

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

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

\Hy@boolkey
\def\Hy@boolkey#1#2{%\edef\Hy@tempa{#2}\
    \lowercase\expandafter{\expandafter\def\expandafter\Hy@tempa\expandafter{\Hy@tempa}\
    \ifx\Hy@tempa\@empty\let\Hy@tempa\Hy@true\fi\ifx\Hy@tempa\Hy@true\else\ifx\Hy@tempa\Hy@false\else\let\Hy@tempa\relax\fi\fi\ifx\Hy@tempa\relax\Hy@WarnOptionValue{#2}{#1}{`true' or 'false'}%\else\Hy@Info{Option `#1' set `\Hy@tempa'}\csname Hy@#1\Hy@tempa\endcsname\fi\fi}}
Some options take a string value out of a limited set of values. Macro \Hy@CheckOptionValue checks whether the given value \texttt{#1} for option \texttt{#2} is a member of the value list \texttt{#3}.

\begin{verbatim}
\def\Hy@CheckOptionValue#1#2#3{\begingroup\edef\x{#1}\\@onelevel@sanitize\x\let\y=y\\def\do##1##2{\def\z{##1}\\@onelevel@sanitize\z\ifx\x\z\let\y=n\\let\do\@gobbletwo\fi}\ifx\y y\def\do##1##2{** `##1'\ifx\##2\else(##2)\fi\MessageBreak\Hy@Warning{Values of option `#2':\MessageBreak#3* An empty value disables the option.\MessageBreakUnknown value `\x'}\MessageBreak}\fi\MessageBreak}\\}
\end{verbatim}
9.2 Defining the options

\define@key{Hyp}{implicit}[true]{% 
\Hy@boolkey{implicit}{#1}% 
} %
\define@key{Hyp}{draft}[true]{% 
\Hy@boolkey{draft}{#1}% 
} %
\define@key{Hyp}{final}[true]{% 
\Hy@boolkey{final}{#1}% 
} %
\let\KV@Hyp@nolinks\KV@Hyp@draft
\def\Hy@ObsoletePaperOption#1{% 
\Hy@WarningNoLine{ %
Option `#1' is no longer used% 
} %
\define@key{Hyp}{#1}[true]{}% 
} %
\def\Hy@temp#1{% 
\define@key{Hyp}{#1}[true]{% 
\Hy@ObsoletePaperOption{#1}% 
} %
} %
If we are going to PDF via `\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 dvips processor.

```
2861 \Hy\@temp{a4paper}
2862 \Hy\@temp{a5paper}
2863 \Hy\@temp{b5paper}
2864 \Hy\@temp{letterpaper}
2865 \Hy\@temp{legalpaper}
2866 \Hy\@temp{executivepaper}
2867 \define@key{Hyp}{setpagesize}{true}{% 2868 \Hy@boolkey{setpagesize}{#1} % 2869 }
2870 \define@key{Hyp}{debug}{true}{% 2871 \Hy@boolkey{debug}{#1} % 2872 }
2873 \define@key{Hyp}{linktocpage}{true}{% 2874 \Hy@boolkey{linktocpage}{#1} % 2875 \ifHy@linktocpage 2876 \let\Hy@linktoc\Hy@linktoc@page 2877 \else 2878 \let\Hy@linktoc\Hy@linktoc@section 2879 \fi 2880 }
2881 \chardef\Hy@linktoc@none=0 % 2882 \chardef\Hy@linktoc@section=1 % 2883 \chardef\Hy@linktoc@page=2 % 2884 \chardef\Hy@linktoc@all=3 % 2885 \ifHy@linktocpage 2886 \let\Hy@linktoc\Hy@linktoc@page 2887 \else 2888 \let\Hy@linktoc\Hy@linktoc@section 2889 \fi 2890 \let\Hy@linktoc\Hy@linktoc@section
2891 \ifundef\Hy@linktoc@none{\% 2892 \Hy@Warning{\% 2893 Unexpected value `#1' of\MessageBreak 2894 option `linktoc' instead of `none', `section', `page' or `all'\MessageBreak 2895 }\% 2896 }\% 2897 }\% 2898 \expandafter\let\expandafter\Hy@linktoc 2899 \csname Hy@linktoc@#1\endcsname
2900 \% 2901 \\% 2902 \define@key{Hyp}{extension}{\def\XR@ext{#1}} 2903 \let\XR@ext\relax
2904 \\% 2905 \\% 2906 \\% 2907 \\% 2908 \\% 2909 }
```

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

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

\def\Hy@breaklinks@unsupported{%
\ifx\Hy@setbreaklinks\@gobble
\ifHy@breaklinks
\Hy@WarningNoLine{%
You have enabled option `breaklinks'.\MessageBreak
But driver `\Hy@driver.def' does not support this.\MessageBreak
Expect trouble with the link areas of broken links%
\}%
\fi
\fi
}

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

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

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

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

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

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

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

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

\define@key{Hyp}{unicode}[true]{%
\ifHy@unicode
\def\HyPsd@pdfencoding{unicode}%
\else
\fi
}

Determines whether an automatic anchor is put on each page

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

Are the page links done as plain arabic numbers, or do they follow the formatting of the package? The latter loses if you put in typesetting like \textbf or the like.

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

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

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

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

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

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

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

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

\define@key{Hyp}{unicode}[true]{%
\ifHy@unicode
\def\HyPsd@pdfencoding{unicode}%
\else
\fi
}
\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
}%
\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}%
\if\Hy@unicodetrue
\def\HyPsd@pdfencoding{#1}%
\if\HyPsd@pdfencoding\HyPsd@pdfencoding@auto
\HyPsd@LoadStringEnc
\fi
\else
\Hy@Warning{Cannot switch to unicode bookmarks}%
\let\HyPsd@pdfencoding\HyPsd@pdfencoding@pdfdoc
\fi
\else
\@onelevel@sanitize\HyPsd@temp
\Hy@Warning{Values of option `pdfencoding':\MessageBreak
`pdfdoc', `unicode', `auto'\MessageBreak
Ignoring unknown value `\HyPsd@temp'%}
}\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi
\fi
}%
10 Options for different drivers

10.1 Options for different drivers

10.2 Options for different drivers

10.3 Options for different drivers

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10.63 Options for different drivers

10.64 Options for different drivers

10.65 Options for different drivers

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\ifvlatex
  \ifnum\OpMode=2\relax
    \Hy@DviModetrue
  \else
    \def\Hy@DviErrMsg{\TeX\ is running, but not in DVI mode}%
  \fi
\else
  \def\Hy@DviErrMsg{\TeX\ is running, but not in DVI mode}%
\fi
\else
  \Hy@DviModetrue
\fi
\fi
\def\HyOpt@CheckDvi#1{%
  \ifHy@DviMode
    \expandafter\ltx@firstofone
  \else
    \Hy@Error{\
      Wrong DVI mode driver option \texttt{#1},\MessageBreak
      because \Hy@DviErrMsg}
  \fi
  \expandafter\ltx@gobble}
\DeclareVoidOption{tex4ht}{%
  \Hy@texhttrue
  \kvsetkeys{Hyp}{colorlinks=true}%
  \def\BeforeTeXIVht{\RequirePackage{color}}%
  \def\Hy@driver{htex4ht}%
  \def\MaybeStopEarly{%
    \Hy@Message{Stopped early}%
    \Hy@AtBeginDocument{%
      \PDF@FinishDoc
      \gdef\PDF@FinishDoc{}%
    }%
  }
}
\DeclareVoidOption{pdftex}{%
  \ifpdf
    \if\pdfextension\@undefined
      \def\Hy@driver{hpdftex}%
      \PassOptionsToPackage{pdftex}{color}%
    \else
      \def\Hy@driver{hluatex}%
      \PassOptionsToPackage{luatex}{color}%
    \fi
  \else
    \Hy@Error{\
      Wrong driver option \texttt{pdftex},\MessageBreak
      because pdf\TeX \ in PDF mode is not detected%}
  \fi
}
\DeclareVoidOption{luatex}{%
  \ifpdf
    \ifx\pdftexextension\@undefined
      \def\Hy@driver{hpdftex}%
      \PassOptionsToPackage{pdftex}{color}%
    \else
      \def\Hy@driver{hluatex}%
      \PassOptionsToPackage{luatex}{color}%
    \fi
  \fi
}
\else
         \Hy@Error(%
         Wrong driver option `\lualatex',\MessageBreak
         because luaTeX in PDF mode is not detected%\)
         \@ehc
         \fi
         \DeclareVoidOption{nativepdf}{%
         \HyOpt@CheckDvi{nativepdf}{% \def\Hy@driver{hdvips}\% \PassOptionsToPackage{dvips}{color}\% }%
         }
         \DeclareVoidOption{dvipdfm}{%
         \HyOpt@CheckDvi{dvipdfm}{% \def\Hy@driver{hdvipdfm}\% \PassOptionsToPackage{dvipdfmx}{color}\% }%
         }
         \DeclareVoidOption{dvipdfmx}{%
         \HyOpt@CheckDvi{dvipdfmx}{% \def\Hy@driver{hdvipdfm}\% \PassOptionsToPackage{dvipdfmx}{color}\% }%
         }
         \define@key{Hyp}{dvipdfmx-outline-open}{true}{%
         \expandafter\ifx\csname if#1\expandafter\endcsname
         \csname iftrue\endcsname
         \else
         \chardef\SpecialDvipdfmxOutlineOpen\z@\fi
         }
         \DeclareVoidOption{xetex}{%
         \ifxetex
         \def\Hy@driver{hxetex}\% \else
         \Hy@Error(%
         Wrong driver option `\xetex',\MessageBreak
         because XeTeX is not detected%\)
         \@ehc
         \fi
         }
         \DeclareVoidOption{pdfmark}{%
         \HyOpt@CheckDvi{pdfmark}{% \def\Hy@driver{hdvips}\% }%
         }
         \DeclareVoidOption{dvips}{%
         \HyOpt@CheckDvi{dvips}{% \def\Hy@driver{hdvips}\% \PassOptionsToPackage{dvips}{color}\% }%
         }
         \DeclareVoidOption{hypertex}{%
         \HyOpt@CheckDvi{hypertex}{% \def\Hy@driver{hypertex}\% }%
         }

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No more special treatment for \texttt{ps2pdf}. Let it sink or swim.

\def\Hy@driver{hdvips}\
\PassOptionsToPackage{dvips}{color}\
\DeclareVoidOption{textures}{\
\HyOpt@CheckDvi{textures}{\
\def\Hy@driver{htexture}\
}}\
\DeclareVoidOption{latex2html}{\
\HyOpt@CheckDvi{latex2html}{\
\Hy@AtBeginDocument{\@@latex2htmlX}\
}}\
\let\HyOpt@DriverFallback\ltx@empty
\define@key{Hyp}{driverfallback}{\
\ifHy@DviMode\
\def\HyOpt@DriverFallback{#1}\
\Hy@Match\HyOpt@DriverFallback{}{}{\
\Hy@Warning{Invalid driver `#1' for option\MessageBreak}
\let\HyOpt@DriverFallback\ltx@empty
}\
\fi
}\let\HyOpt@CustomDriver\ltx@empty
\define@key{Hyp}{customdriver}{\
\IfFileExists{#1.def}{\
\def\HyOpt@CustomDriver{#1}\
}{\
\Hy@Warning{Missing driver file `#1.def',
\MessageBreak}
\let\HyOpt@CustomDriver\ltx@empty
}}

\let\HyOpt@DriverFallback\ltx@empty
\define@key{Hyp}{driverfallback}{\
\ifHy@DviMode\
\def\HyOpt@DriverFallback{#1}\
\Hy@Match\HyOpt@DriverFallback{}{}{\
\Hy@Warning{Invalid driver `#1' for option\MessageBreak}
\let\HyOpt@DriverFallback\ltx@empty
}\
\fi
}

\def\Hy@boolkey{hyperfigures}{true}{% 
\Hy@boolkey{hyperfigures}{#1}% }

11 Options to add extra features

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

\def\Hy@boolkey{hyperfigures}{true}{% 
\Hy@boolkey{hyperfigures}{#1}% }
The automatic footnote linking can be disabled by option hyperfootnotes.

```
\def@key{Hyp}{hyperfootnotes}{true}{%
\Hy@boolkey{hyperfootnotes}{1}%
}
```

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

```
\def\back@none{none}
\def\back@section{section}
\def\back@page{page}
\def\back@slide{slide}
\def\backref{section}

\if\Hy@tempa
\lowercase{\def\Hy@tempa{#1}}%
\if\Hy@tempa\@empty
\let\Hy@tempa\back@section
\fi
\if\Hy@tempa\Hy@false
\let\Hy@tempa\back@none
\else
\Hy@WarnOptionValue{#1}{backref}{`section', `slide', `page', `none',\MessageBreak
or `false'}%
\fi
\fi
\fi
```

```
\def\pagebackref{true}{%
\edef\Hy@tempa{#1}%
\lowercase\expandafter{%
\expandafter\def\expandafter\Hy@tempa\expandafter{\Hy@tempa}%
\if\Hy@tempa\@empty
\let\Hy@tempa\Hy@true
\fi
\if\Hy@tempa\Hy@true
\PassOptionsToPackage{hyperpageref}{backref}%
\Hy@backreftrue
\else
\if\Hy@tempa\Hy@false
\Hy@backreffalse
\else
\Hy@WarnOptionValue{#1}{pagebackref}{`true' or `false'}%
\fi
\fi
\fi
```

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

Configuration of encap char.

12 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.

\def\HyLang@russian{%
\def\equationautorefname{\cyr\cyrv\cyrery\cyrr.}%
\def\footnoteautorefname{\cyr\cyrp\cyro\cyrd\cyrs\cyrt\cyrr. \cyrp\cyrr\cyri\cyrm.}%
}\def\HyLang@portuges{%
\def\equationautorefname{Equa\c c \c\-\ao} %
\def\footnoteautorefname{Nota de rodap\’e} %
\def\itemautorefname{Item} %
\def\figureautorefname{Figura} %
\def\tableautorefname{Tabela} %
\def\partautorefname{Parte} %
\def\appendixautorefname{Ap\’endice} %
\def\chapterautorefname{Cap\’itulo} %
\def\sectionautorefname{Se\c c} %
\def\subsectionautorefname{Subse\c c} %
\def\subsubsectionautorefname{Subsubse\c c} %
\def\paragraphautorefname{par\’agrafo} %
\def\subparagraphautorefname{subpar\’agrafo} %
\def\FancyVerbLineautorefname{linha} %
\def\theoremautorefname{Teorema} %
\def\pageautorefname{P\’agina} %
}\def\sectionautorefname{szakasz} %
\def\subsectionautorefname{alszakasz} %
\def\subsubsectionautorefname{alalszakasz} %
\def\paragraphautorefname{bekezd\’es} %
\def\subparagraphautorefname{albekezd\’es} %
\def\FancyVerbLineautorefname{ sor} %
\def\theoremautorefname{\cyr\cyrv\cyrery\cyrr} %
\def\pageautorefname{oldal} %
}
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 abbrevi-
ation 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.

The name of verbatim line. Here could be a standard of the abbreviation (used
very rare). But the author preprint publications (which have not any editor or
corrector) can use this abbreviation for the page reference. So the meaning of the
line reference can be read as reference to the page.
Commented names of the “verbatim line”: have different forms, also the nominative and accusative.

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

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

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

\Hypersetup{catalan}
Instead of package babel’s definition of \addto the implementation of package varoref is used. Additionally argument \#1 is checked for \relax.
More work is needed in case of options \texttt{vietnamese} and \texttt{vietnam}.

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

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

```latex
\DeclareVoidOption{arabic}{%
  \Hy@AtEndOfPackage{%
    \@ifundefined{T@PU}{}{%
      \input{puarenc.def}%
    }%
  }%
}%
```
13 Options to change appearance of links

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

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

14 Bookmarking

\begin{verbatim}
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname chapter\endcsname\relax
    \def\toclevel@part{0}%
\else
    \def\toclevel@part{-1}%
\fi
\def\toclevel@chapter{0}%
\def\toclevel@section{1}%
\def\toclevel@subsection{2}%
\def\toclevel@subsubsection{3}%
\def\toclevel@paragraph{4}%
\def\toclevel@subparagraph{5}%
\def\toclevel@figure{0}%
\def\toclevel@table{0}%
\ifpackageloaded{listings}{%
    \providecommand*{\theHlstlisting}{\thelstlisting}%
    \providecommand*{\toclevel@lstlisting}{0}%
}\else
\fi
\ifpackageloaded{listing}{%
    \providecommand*{\theHlisting}{\thelisting}%
}\else
\fi
\end{verbatim}
The depth of the outlines is controlled by option `bookmarksdepth'. The option acts globally and distinguishes three cases:

- **bookmarksdepth:** Without value hyperref uses counter `tocdepth` (compatible behaviour and default).

- **bookmarksdepth=<number>:** The depth is set to `<number>`.

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

`bookmarksopenlevel` to specify the open level. From Heiko Oberdiek.
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}%
}\def\Hy@temp#1{%
  \expandafter\Hy@@temp\csname @#1color\endcsname{#1}%
}\define@key{Hyp}{CJKbookmarks}{true}{%
  \Hy@boolkey{CJKbookmarks}{#1}%
}\def\Hy@temp#1{%
  \expandafter\Hy@@temp\csname @#1color\endcsname{#1}%
}\define@key{Hyp}{pagecolor}{%
  \Hy@WarningPageColor%
}\def\Hy@WarningPageColor{%
  \Hy@WarningNoLine{Option `pagecolor' is not available anymore}%
  \global\let\Hy@WarningPageColor\relax%
}\define@key{Hyp}{allcolors}{%
  \HyColor@HyperrefColor{#1}\@linkcolor
  \HyColor@HyperrefColor{#1}\@anchorcolor
  \HyColor@HyperrefColor{#1}\@citecolor
  \HyColor@HyperrefColor{#1}\@filecolor
  \HyColor@HyperrefColor{#1}\@urlcolor
  \HyColor@HyperrefColor{#1}\@menucolor
  \HyColor@HyperrefColor{#1}\@runcolor%
}\def\hyperbaseurl#1{\def\@baseurl{#1}}
\define@key{Hyp}{baseurl}{\hyperbaseurl{#1}}
\let\@baseurl\@empty
\def\hyperlinkfileprefix#1{\def\Hy@linkfileprefix{#1}}
\define@key{Hyp}{linkfileprefix}{\hyperlinkfileprefix{#1}}
\hyperlinkfileprefix{file:}

15 PDF-specific options

\pdffpagetransition The value of option pdffpagetransition is stored in \pdffpagetransition. Its initial value is set to \relax in order to be able to differentiate between a not used option
and an option with an empty value.
\let\@pdfpagetransition\relax
}\define@key{Hyp}{pdfpagetransition}{%
\def\@pdfpagetransition{#1}%
}\let\@pdfpageduration\relax
}\define@key{Hyp}{pdfpageduration}{%
\def\@pdfpageduration{#1}%
\Hy@Match\@pdfpageduration{}{%
^{(\[0-9\]+\.?[0-9]*|[0-9]*\.?[0-9]+)$%}
}else{%
\Hy@Warning{Invalid value `\@pdfpageduration' of option `pdfpageduration' is replaced by an empty value%}
\let\@pdfpageduration\ltx@empty
}%
}

The entry for the /Hid key in the page object is only necessary, if it is used and set to true for at least one time. If it is always false, then the /Hid key is not written to the pdf page object in order not to enlarge the pdf file.
\newif\ifHy@useHidKey
\Hy@useHidKeyfalse
}\define@key{Hyp}{pdfpagehidden}{true}{%
\Hy@boolkey{pdfpagehidden}{#1}%
\ifHy@pdfpagehidden
\global\Hy@useHidKeytrue
\fi
}

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

Package xcolor provides \XC@bordercolor since version 1.1. If the two spaces in the color specification are missing, then the value is processed as color specification from package xcolor by using \XC@bordercolor (since xcolor 2004/05/09 v1.11, versions 2005/03/24 v2.02 until 2006/11/28 v2.10 do not work because of a bug that is fixed in 2007/01/21 v2.11).
\def\Hy@ColorList{cite,file,link,menu,run,url}
\@for\Hy@temp::=\Hy@ColorList\do{%
\edef\Hy@temp{%
\noexpand\define@key{Hyp}{\Hy@temp bordercolor}{%
\noexpand\HyColor@HyperrefBorderColor
{##1}%
\expandafter\noexpand\csname @\Hy@temp bordercolor\endcsname
{hyperref}%
\{\Hy@temp bordercolor\}%
}%
}
\Hy@temp
\begin{verbatim}
| */D */{ */\HyPat@NonNegativeReal/{ */\HyPat@NonNegativeReal/}??}*/}
| */ *$$%
| }{}
| \Hy@Warning{%
| Invalid value `\@pdfborderstyle'\MessageBreak
| Option setting is ignored%
| \let\@pdfborderstyle\Hy@temp
| }
| \def\Hy@setpdfborder{%
| \ifx\@pdfborder\@empty
| /Border[\@pdfborder]%
| \else
| /BS<<\@pdfborderstyle>>%
| \fi
| }
| \Hy@DefNameKey{pdfpagemode}{%
| \do{UseNone}{%}
| \do{UseOutlines}{%}
| \do{UseThumbs}{%}
| \do{FullScreen}{%}
| \do{UseOC}{PDF 1.5}%
| \do{UseAttachments}{PDF 1.6}%
| }
| \Hy@DefNameKey{pdfnonfullscreenpagemode}{%
| \do{UseNone}{%}
| \do{UseOutlines}{%}
| \do{UseThumbs}{%}
| \do{FullScreen}{%}
| \do{UseOC}{PDF 1.5}%
| \do{UseAttachments}{PDF 1.6}%
| }
| \Hy@DefNameKey{pdfdirection}{%
| \do{L2R}{Left to right}%
| \do{R2L}{Right to left}%
| }
| \Hy@DefNameKey{pdfviewarea}{%
| \do{MediaBox}{%}
| \do{CropBox}{%}
| \do{BleedBox}{%}
| \do{TrimBox}{%}
| \do{ArtBox}{%}
| }
| \Hy@DefNameKey{pdfviewclip}{%
| \do{MediaBox}{%}
| \do{CropBox}{%}
| \do{BleedBox}{%}
| \do{TrimBox}{%}
| \do{ArtBox}{%}
| }
| \Hy@DefNameKey{pdfprintarea}{%
| \do{MediaBox}{%}
| \end{verbatim}

100
\newif\ifHyInfo@AddonUnsupported
\kv@set@family@handler{pdfinfo}{%
  \HyInfo@AddonHandler(#1){#2}%
}
\let\HyInfo@do\relax
\def\HyInfo@AddonHandler#1#2{%
  \ifx\kv@value\relax
    \Hy@Warning{%
      Option `pdfinfo': ignoring key `\kv@key' without value%
    }%
  \else
    \EdefEscapeName\HyInfo@KeyEscaped{\kv@key}%
    \EdefUnescapeName\HyInfo@Key{\HyInfo@KeyEscaped}%
    \expandafter\ifx\csname KV@pdfinfo@\HyInfo@Key\endcsname\relax
      \ifHyInfo@AddonUnsupported
        \Hy@Warning{%
          This driver does not support additional information entries, therefore `\kv@key' is ignored%
        }%
      \else
        \def\HyInfo@tmp##1{%
          \kv@define@key{pdfinfo}{##1}{%
            \HyXeTeX@CheckUnicode
            \HyPsd@XeTeXBigCharstrue
            \HyPsd@PrerenderUnicode{####1}%
            \pdfstringdef\HyInfo@Value{####1}%
            \global\expandafter
              \let\csname HyInfo@Value@##1\endcsname\HyInfo@Value
          }%
        }%
        \expandafter\HyInfo@tmp\expandafter{\HyInfo@Key}%
        \global\expandafter
          \let\csname KV@pdfinfo@\HyInfo@Key\endcsname\HyInfo@Value
        \xdef\HyInfo@AddonList{%
          \HyInfo@AddonList%
          \HyInfo@do{\HyInfo@Key}%
        }%
      \fi
    \fi
  \fi
}
\def\HyInfo@GenerateAddons{%
  \ifHyInfo@AddonUnsupported
    \else
  \global\expandafter\HyInfo@tmp##1{%}
    \kv@define@key{pdfinfo}{##1}{%
      \HyXeTeX@CheckUnicode
      \HyPsd@XeTeXBigCharstrue
      \HyPsd@PrerenderUnicode{####1}%
      \pdfstringdef\HyInfo@Value{####1}%
      \global\expandafter
        \let\csname HyInfo@Value@##1\endcsname\HyInfo@Value
    }%
  \}%
  \expandafter\HyInfo@tmp\expandafter{\HyInfo@Key}%
  \global\expandafter\let\csname KV@pdfinfo@\HyInfo@Key\endcsname\HyInfo@Value
  \xdef\HyInfo@AddonList{%
    \HyInfo@AddonList%
    \HyInfo@do{\HyInfo@Key}%
  }%
  \kv@parse@normalized{%}
  \kv@Key={#2}%
  %
  %
  \kv@processor@default{pdfinfo}%
  %}
  fi
  \else
  \kv@parse@normalized{%}
  \HyInfo@Key={#2}%
  %
  %
  \kv@processor@default{pdfinfo}%
  %}
  fi
  fi
}\def\HyInfo@GenerateAddons{%}
\ifHyInfo@AddonUnsupported
\fi
\def\HyInfo@Addons{\%}
\else
\begingroup
\toks@{\%}
\def\HyInfo@do##1{\%}
\edef\x{\toks@{\the\toks@}
/HyInfo@Key(\csname HyInfo@Value@##1\endcsname)\%}
\HyInfo@AddonList
\edef\x{\endgroup\def\noexpand\HyInfo@Addons{\the\toks@}\%}
\fi
\HyInfo@AddonList
\edef\x{\endgroup}
\expandafter\ifx\csname numexpr\endcsname\relax
\def\Hy@number#1{\expandafter\@firstofone\expandafter{\number#1}\%}
\else
\def\Hy@number#1{\the\numexpr#1\relax\%}
\fi
\define@key{Hyp}{pdfstartpage}{\ifx\%#1\%\let\@pdfstartpage\ltx@empty\else\edef\@pdfstartpage{\Hy@number{#1}}\fi}
\define@key{Hyp}{pdfstartview}{\ifx\%#1\%\let\@pdfstartview\ltx@empty\else\hypercalcbpdef\@pdfstartview{/#1}\fi}
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname numexpr\endcsname\relax
\def\Hy@number#1{\expandafter\@firstofone\expandafter{\number#1}\%}
\else
\def\Hy@number#1{\the\numexpr#1\relax\%}
\fi
\define@key{Hyp}{pdfview}{\calculate@pdfview#1 \%}
\define@key{Hyp}{pdflinkmargin}{\setpdflinkmargin{#1}}
\let\setpdflinkmargin\@gobble
\def\calculate@pdfview#1 #2\%{\def\@pdfview{#1}\ifx\%#2\%\def\@pdfviewparams{ -32768}\%\else\def\@pdfviewparams{ #2}\%\fi}
\begingroup\expandafter\expandafter\expandafter\endgroup
\edef\@pdfviewparams{ -32768}\%}
\else
\def\@pdfviewparams{ #2}\%}
\fi
\fi}
\expandafter\ifx\csname numexpr\endcsname\relax
\def\Hy@number#1{\expandafter\@firstofone\expandafter{\number#1}\%}
\else
\def\Hy@number#1{\the\numexpr#1\relax\%}
\fi
\define@key{Hyp}{pdfstartpage}{\ifx\%#1\%\let\@pdfstartpage\ltx@empty\else\edef\@pdfstartpage{\Hy@number{#1}}\fi}
\define@key{Hyp}{pdfstartview}{\ifx\%#1\%\let\@pdfstartview\ltx@empty\else\hypercalcbpdef\@pdfstartview{/#1}\fi}
\begingroup\expandafter\expandafter\expandafter\endgroup
\expandafter\ifx\csname numexpr\endcsname\relax
\def\Hy@number#1{\expandafter\@firstofone\expandafter{\number#1}\%}
\else
\def\Hy@number#1{\the\numexpr#1\relax\%}
\fi
\define@key{Hyp}{pdfview}{\calculate@pdfview#1 \%}
\define@key{Hyp}{pdflinkmargin}{\setpdflinkmargin{#1}}
\let\setpdflinkmargin\@gobble
\def\calculate@pdfview#1 #2\%{\def\@pdfview{#1}\ifx\%#2\%\def\@pdfviewparams{ -32768}\%\else\def\@pdfviewparams{ #2}\%\fi}
\begingroup\expandafter\expandafter\expandafter\endgroup
\edef\@pdfviewparams{ -32768}\%}
\else
\def\@pdfviewparams{ #2}\%}
\fi
\fi}
\expandafter\ifx\csname numexpr\endcsname\relax
\def\Hy@number#1{\expandafter\@firstofone\expandafter{\number#1}\%}
\else
\def\Hy@number#1{\the\numexpr#1\relax\%}
\fi
\define@key{Hyp}{pdfcenterwindow}[true]{\Hy@boolkey{pdfcenterwindow}{#1}%%
\define@key{Hyp}{pdfdisplaydoctitle}[true]{\Hy@boolkey{pdfdisplaydoctitle}{#1}%%
\define@key{Hyp}{pdfa}[true]{\Hy@boolkey{pdfa}{#1}%%
\define@key{Hyp}{pdfnewwindow}[true]{\def\Hy@temp{#1}%%
\ifx\Hy@temp\@empty\Hy@pdfnewwindowsetfalse
\else\Hy@pdfnewwindowsettrue
\Hy@boolkey{pdfnewwindow}{#1}%%
\fi}
\def\Hy@SetNewWindow{\ifHy@pdfnewwindowset
/\relax
\else/true\elsefalse\fi}
\Hy@DefNameKey{pdfpagelayout}{\do{SinglePage}{}%%
\do{OneColumn}{}%%
\do{TwoColumnLeft}{}%%
\do{TwoColumnRight}{}%%
\do{TwoPageLeft}{PDF 1.5}%%
\do{TwoPageRight}{PDF 1.5}%%}
\define@key{Hyp}{pdflang}{\edef\@pdflang{#1}%%
\def\Hy@temp{\relax}%%
\ifx\@pdflang\Hy@temp\let\@pdflang\relax
\else\ifx\@pdflang\ltx@empty\Hy@Match\@pdflang{icase}{^%\[a-z\]{1,8}(-[a-z0-9]{1,8})*%$}
\else\Hy@Match\@pdflang{icase}{^%( langtag%( language
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
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Test for unique extensions.

\Hy@Match{-\@pdflang}{icase}{-\[a-wyz0-9\]-}{\%
\Hy@Match\@pdflang{icase}{-x-}{\%
% remove privateuse
\edef\Hy@temp{-\@pdflang}{\%
% grandfathered/regular
| art-lojban%
| cel-gaulish%
| no-(bok |nyn)%
| zh-(guoyu |hakka |min |min-nan |xiang)%
}}%
$%$

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

$\def\@pdflang\relax$

$\ifx\@pdflang\relax$

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\[\text{Default values:}\]
\begin{verbatim}
\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}
\end{verbatim}
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.

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.
Add option \texttt{tex4ht} if package \texttt{tex4ht} is loaded.

15.1 Package \texttt{xspace} support

After processing options.
15.2 Option draft

\ifHy@draft
\let\hyper@anchor\@gobble
\let\hyper@@anchor\@gobble
\gdef\hyper@link#1#2#3{#3\Hy@xspace@end}%
\def\hyper@anchorstart#1#2{#2\Hy@xspace@end}%
\def\hyper@anchorend{\Hy@xspace@end}%
\let\hyper@linkstart\@gobbletwo
\def\hyper@linkend{\Hy@xspace@end}%
\def\hyper@linkurl#1#2{#1\Hy@xspace@end}%
\def\hyper@linkfile#1#2#3{#1\Hy@xspace@end}%
\def\hyper@link@[#1]#2#3#4{#4\Hy@xspace@end}%
\Acrobatmenu#1#2{\leavevmode#2\Hy@xspace@end}%
\let\PDF@SetupDoc\@empty
\let\PDF@FinishDoc\@empty
\let\@fifthoffive\@secondoftwo
\let\@secondoffive\@secondoftwo
\ReadBookmarks\relax
\WriteBookmarks\relax
\Hy@WarningNoLine{Draft mode on}\
\fi
\ifHy@pdfa
\ifnum\Hy@pdfversion<4
\kvsetkeys{Hyp}{pdfversion=1.4}%
\fi
\fi
\ifHy@DisableOption{pdfa}
\Hy@DisableOption{draft}%
\Hy@DisableOption{nolinks}%
\Hy@DisableOption{final}%
\fi

15.3 PDF/A

\ifHy@pdfa
\ifnum\Hy@pdfversion<4
\kvsetkeys{Hyp}{pdfversion=1.4}%
\fi
\fi
\ifHy@DisableOption{pdfa}
\Hy@DisableOption{draft}%
\Hy@DisableOption{nolinks}%
\Hy@DisableOption{final}%
\fi

\begingroup
\edef\x{#1}%
\@onelevel\sanitize\x
\ifx\x\Hy@NextPage
\let\y=Y%
\else
\ifx\x\Hy@PrevPage
\let\y=Y%
\else
\ifx\x\Hy@FirstPage
\let\y=Y%
\else
\ifx\x\Hy@LastPage
\let\y=Y%
\else
\let\y=N%
\fi
\fi
\fi
\fi
\fi
\fi
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 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.
If the driver is not given, find the right driver or use the default driver.

\let\HyOpt@DriverType\ltx@empty
\ifx\HyOpt@CustomDriver\ltx@empty
  \def\HyOpt@DriverType{ (autodetected)}%
  \providecommand*{\Hy@defaultdriver}{hypertex}%
  \ifpdf
    \ifx\pdfextension\@undefined
      \def\Hy@driver{hpdftex}%
    \else
      \def\Hy@driver{hluatex}%
    \fi
  \else
    \ifetex
      \def\Hy@driver{hxetex}%
    \else
      \ifnum\ifvtex\OpMode\else\m@ne\fi=10 %
        \def\Hy@driver{hvtexhtm}%
        \MaybeStopEarly{%
          \Hy@Message{Stopped early}%
          \Hy@AtBeginDocument{%
            \PDF@FinishDoc
            \gdef\PDF@FinishDoc{}}%
        }%
      \else
        \ifnum\ifvtex\OpMode\else\m@ne\fi=10 %
          \def\Hy@driver{hvtex}%
        \else
          \ifnum\ifvtex\OpMode\else\m@ne\fi=10 %
            \def\Hy@driver{hvtex}%
          \else
            \def\Hy@driver{hvtext}%
          \fi
        \fi
      \fi
    \fi
  \fi
\fi
\fi
Support for open outlines is enabled for Xe\TeX\ \>=\ 0.9995. I don’t know, if older versions also support this. AFAIK older dvipdfmx versions will break, thus the switch cannot be turned on by default.

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

15.4.2 Bookmarks
\def\WriteBookmarks{0}
\def\@bookmarkopenstatus#1{\
\ifHy@bookmarksopen
The purpose of the \texttt{\@firstofone}-number-space-construct is that no \texttt{\relax} will be inserted by \TeX\ before the \texttt{\else}:
\ifnum\@firstofone<\expandafter\@firstofone\expandafter\{\number\@bookmarksopenlevel\} % explicit space
\else
 -% \fi
\else
-% \fi
\fi
\fi
\fi
\ifHy@bookmarks
\Hy@Info{Bookmarks ON}%
\ifx\@pdfpagemode\@empty
\def\@pdfpagemode{UseOutlines}%
\fi
\else
\let\@bookmarkopenstatus\ltx@gobble
\Hy@Info{Bookmarks OFF}%
\Hy@AtEndOfPackage{%
\global\let\ReadBookmarks\relax
\global\let\WriteBookmarks\relax
}\% 
\fi
\fi
\let\@bookmarkopenstatus\ltx@gobble
\Hy@Info{Bookmarks OFF}%
\Hy@AtEndOfPackage{%
\global\let\ReadBookmarks\relax
\global\let\WriteBookmarks\relax
}\% 
\fi
\fi

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\DisableOption{bookmarks}

Add wrapper for setting standard catcodes (babel's shorthands).
\def\Hy@CatcodeWrapper#1{%  
  \let\Hy@EndWrap\ltx@empty  
  \def\TMP@EnsureCode##1##2{%  
    \edef\Hy@EndWrap{\Hy@EndWrap\catcode##1 \the\catcode##1\relax}  
    \catcode##1 ##2\relax  
  }%  
  \TMP@EnsureCode{10}{12}% ^^J  
  \TMP@EnsureCode{33}{12}% !  
  \TMP@EnsureCode{34}{12}% "  
  \TMP@EnsureCode{36}{3}% $(math)$  
  \TMP@EnsureCode{38}{4}% & (alignment)  
  \TMP@EnsureCode{39}{12}% '  
  \TMP@EnsureCode{40}{12}% (  
  \TMP@EnsureCode{41}{12}% )  
  \TMP@EnsureCode{42}{12}% *  
  \TMP@EnsureCode{44}{12}% ,  
  \TMP@EnsureCode{45}{12}% -  
  \TMP@EnsureCode{46}{12}% .  
  \TMP@EnsureCode{47}{12}% /  
  \TMP@EnsureCode{58}{12}% :  
  \TMP@EnsureCode{59}{12}% ;  
  \TMP@EnsureCode{60}{12}% <  
  \TMP@EnsureCode{61}{12}% =  
  \TMP@EnsureCode{62}{12}% >  
  \TMP@EnsureCode{63}{12}% ?  
  \TMP@EnsureCode{91}{12}% [  
  \TMP@EnsureCode{93}{12}% ]  
  \TMP@EnsureCode{94}{7}% ^ (superscript)  
  \TMP@EnsureCode{95}{8}% _ (subscript)  
  \TMP@EnsureCode{96}{12}% `  
  \TMP@EnsureCode{124}{12}% |  
  \TMP@EnsureCode{126}{13}% ~ (active)  
}  
\HyColor@UseColor

\BeginDocument{%  
  \ifHy@ocgcolorlinks
    \kvsetkeys{Hyp}{colorlinks}%  
    \ifHy@pdfa
      \MessageBreak
      PDF/A: Optional Content Groups are prohibited,\MessageBreak
      using `colorlinks' instead of `ocgcolorlinks'%\MessageBreak
    \fi
  \fi
  \ifHy@ocgcolorlinksfalse
  \else
  \DisableOption{ocgcolorlinks}%
  \fi
}  
\EndDocument
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.
If a next action is set, then also a new window should be opened. Otherwise AR
reclaims that it closes the current file with discarding the next actions.

\ifx\Hy@href@nextactionraw\@empty
\else
\Hy@pdffinewindowsettrue
\Hy@pdffinewindowtrue
\fi

Option ‘pdfremotestartview’.
\define@key{href}{pdfremotestartview}{%}
\setkeys{Hyp}{pdfremotestartview={#1}}%

Option ‘pdffinewindow’.
\let\KV@href@pdffinewindow\KV@Hyp@pdffinewindow
\let\KV@href@pdffinewindow@default\KV@Hyp@pdffinewindow@default
Option ‘ismap’.
\newif\ifHy@href@ismap
\define@key{href}{ismap}{true}{%
\ltx@ifUndef\Hy@href@ismap#1{%
\Hy@Error{Invalid value (#1) for key ‘ismap’.\MessageBreak
Permitted values are ‘true’ or ‘false’.\MessageBreak
Ignoring ‘ismap’\}%
}\@ehc
}\{%
\cname\Hy@href@ismap#1\endcsname
}%
}

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

Load package url.sty and save the meaning of the original \url in \nolinkurl.
\RequirePackage[url]
\let\HyOrg@url\url
\def\Hurl{\begingroup \Url}
\DeclareRobustCommand*{\nolinkurl}{\hyper@normalise\nolinkurl@}
\def\nolinkurl@#1{\Hurl{#1}}
\DeclareRobustCommand*{\url}{\hyper@normalise\url@}
\def\url@#1{\hyper@linkurl{\Hurl{#1}}{#1}}
\DeclareRobustCommand*{\hyperimage}{\hyper@normalise\hyper@image}
\providedefault\hyper@image[2]{2}
\def\hypertarget#1#2{%
\ifHy@nesting
\hyper@anchor{#1}{#2}%
\else
\hyper@anchor{#1}{\relax}{2}%
\fi
}

\hyperref is more complicated, as it includes the concept of a category of link, used to make the name. This is not really used in this package. \hyperdef sets up an anchor in the same way. They each have three parameters of category,
We also have a need to give a \LaTeX label to a hyper reference, to ease the pain of referring to it later. \hyperrefundefinedlink may be redefined by a user to add colour or other formatting.

We also have a need to give a \LaTeX label to a hyper reference, to ease the pain of referring to it later. \hyperrefundefinedlink may be redefined by a user to add colour or other formatting.
\def\label@hyperdef[#1]{% 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
\fi
}

16.1 Link box support for XeTeX

\newdimen\XeTeXLinkMargin
\setlength{\XeTeXLinkMargin}{2pt}
\ifxetex
\font\XeTeXLink@font=pzdr at 1sp
\newcommand*{\XeTeXLink@space}{%\begingroup
\XeTeXLink@font
\@xxxii
\endgroup}
\newcommand{\XeTeXLinkBox}[1]{%\begingroup
\leavevmode
\sbox\z@{#1}%%\begingroup
\dimen@=\dp\z@
\advance\dimen@\XeTeXLinkMargin
\setbox\tw@=\rlap{%\hb@xt@\XeTeXLinkMargin{\lower\dimen@}{\XeTeXLink@space}%
\has
}\%}
\dp\tw@=\dp\z@
\ht\tw@=\ht\z@
\copy\tw@
\copy\z@
\dimen@=\ht\z@
\advance\dimen@\XeTeXLinkMargin
\setbox\tw@=\rlap{%
\hb@xt@\XeTeXLinkMargin{\advance\dimen@0\XeTeXLinkMargin}
\setbox\tw@=\rlap{%
\hb@xt@0\XeTeXLinkMargin{\%}

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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, it's an internal link, otherwise we need to open another file or a URL. A link start has a type, and a URL.

\begin{verbatim}
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\def\hyper@link\let\Hy@reserved@a\relax
\@ifnextchar[\hyper@link@{\hyper@link@[link]}%
\def\hyper@link@[#1]#2#3#4{% #1: type #2: URL #3: destination name #4: text
\ltx@ifempty{#4}{% link text
\Hy@Warning{Suppressing empty link}%
}\begingroup
\protected@edef\Hy@tempa{#2}%
\edef\Hy@tempb{#3}%
\ifx\Hy@tempa\ltx@empty
\ifx\Hy@tempb\ltx@empty
\Hy@Warning{Suppressing link with empty target}%
\toks@{%
\endgroup
\hyper@link{#1}%
\else
\toks@{%
\expandafter\hyper@readexternallink#2\{#1}%
\endgroup
\ltx@secondoftwo%
\Hy@Warning{Suppressing empty link}%
}\endgroup
\protected@edef\Hy@tempa{\ltx@secondoftwo}%
\edef\Hy@tempb{\ltx@secondoftwo}%
\ifx\Hy@tempa\ltx@empty
\Hy@Warning{Suppressing link with empty target}%
\toks@{%
\endgroup
\ltx@secondoftwo%
}\endgroup
\else
\toks@{%
\endgroup
\fi
\else
\toks@{%
\endgroup\hyper@link{#1}%
}\endgroup
\expandafter\hyper@readexternallink#2\{#1}%
}\endgroup
\fi
\end{verbatim}
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.

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

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:

If the URL type is 'file', pass it for local opening
if it starts `run:`, its to launch an application.

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

\hyper@newdestlabel

\def\hyper@newdestlabel#1#2{\%
\begingroup
\Hy@safe@activestrue
\edef\x{\endgroup
\noexpand\@newl@bel{HyDL}{#1}{#2}}%
\x}%

\hyper@destlabel@hook

\providecommand*{\hyper@destlabel@hook}{}%
Provide a dummy default definition of \hyper@newdestlabel inside the .aux files.

AddLineBeginAux{% 
  \string\providecommand\string\hyper@newdestlabel[2]{}% 
}%}

19 Compatibility with the \LaTeX{}2html package

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

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

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

This is really too much. The \LaTeX{}2html package defines its own \hyperref{} command, with a different syntax. Was this always here? Its weird, anyway. We interpret it in the ‘printed’ way, since we are about fidelity to the page.

\let\@latex2htmlX\%
\let\hyperref\hyperimage
\def\hyperref##1##2##3##4{\ref{##4}##3}% anchor text for HTML
% text to print before label in print
% label
% post-label text in print
\ref{##4}##3}

20 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.

20.1 Field flags

The field flags are organized in a bit set.

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

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

\HyField@NewFlag
\#1: type: F annot flags, Ff field flags
\#2: PDF name
\#3: PDF position
5729 \def\HyField@NewFlag#1#2{% 
5730 \lowercase{\HyField@NewOption{#2}}%
5731 \lowercase{\HyField@NewBitsetFlag{#2}}{#2}{#1}%
5732 }

\HyField@NewFlagOnly
5733 \def\HyField@NewFlagOnly#1#2{% 
5734 \lowercase{\HyField@NewBitsetFlag{#2}}{#2}{#1}%
5735 }

\HyField@NewOption
\#1: option name
5736 \def\HyField@NewOption#1{% 
5737 \expandafter\newif\csname ifFld@#1\endcsname
5738 \define@key{Field}{#1}[true]{
5739 \lowercase{\Field@boolkey{##1}}{#1}%
5740 }
5741 }

\HyField@NewBitsetFlag
Package ‘bitset’ uses zero based positions, the PDF specification starts with one.
\#1: option
\#2: PDF name
\#3: type: F annot flags, Ff field flags
\#4: PDF position
5742 \def\HyField@NewBitsetFlag#1#2#3#4{% 
5743 \begingroup
5744 \count@=#4\relax
5745 \advance\count@\m@ne
5746 \def\x##1{% 
5747 \endgroup
5748 \expandafter\def\csname HyField@#3@#1\endcsname{##1}%
5749 \expandafter\ifs\csname HyField@#3@#1\endcsname\relax
5750 \expandafter\edef\csname HyField@#3@##1\endcsname{%
5751 \expandafter\edef\csname HyField@#3@##1\endcsname{%(##1)}#2%
5752 \}
5753 \else
5754 \expandafter\edef\csname HyField@#3@##1\endcsname{%
5755 \csname HyField@#3@##1\endcsname
5756 \%2%
5757 \}
5758 \fi
5759 \}
5760 \expandafter\x\expandafter\expandafter{\the\count@}%
5761 }

\HyField@UseFlag
The bit set is \HyField@#1
5762 \def\HyField@UseFlag#1#2{% 
5763 \lowercase{\HyField@UseFlag{#2}}{#1}%
5764 }

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\HyField@@UseFlag
\def\HyField@@UseFlag#1#2{\bitsetSetValue{HyField@#2}{\csname HyField@#2@#1\endcsname}}

The bit set is HyField@#1
\def\HyField@SetFlag#1#2{\lowercase{\HyField@@SetFlag{#2}}{#1}}

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

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

\begin{verbatim}
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}
\end{verbatim}
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.

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

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

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

20.1.2 Set submit flags

```
\HyField@FlagsSubmit
\def\HyField@FlagsSubmit{%
  \bitsetReset{HyField@Submit}%
  \ifcase\@nameuse{Fld@export}\Fld@export\ %
  % FDF
```
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{%
\bitsetIsEmpty{HyField@Submit}%
\let\Fld@submitflags\ltx@empty
\}%
\edef\Fld@submitflags{/Flags \bitsetGetDec{HyField@Submit}}%
}%

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20.1.5 Check box field

\HyField@FlagsCheckBox

20.1.6 Radio button field

\HyField@FlagsRadioButton

20.1.7 Text fields

\HyField@FlagsText
20.1.8 Choice fields

```latex
\HyField@FlagsChoice
```

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

\}

\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
\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
\else
\edef\Fld@flags{/Ff \bitsetGetDec{HyField@Ff}}%
\fi
\let\Fld@flags\ltx@empty
}%

\}
```
20.2 Choice field

\HyField@PDFChoices

#1: list of choices in key value syntax, key = exported name, value = displayed text.
Input: \Fld@default, \Fld@value, if\Fld@multiselect
Result: \Fld@choices with entries: /Opt, /DV, /V, /I.

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

\HyField@@PDFChoices

\def\HyField@@PDFChoices#1#2{% 
\ifx#2\relax
\else
\count@=0 
\@gobbletwo
\def#1{\Fld@choices} 
\endgroup

}
\def\HyTmp@optitem##1##2##3{\
  %
  \def\HyTmp@key{##2}\
  \ifx\HyTmp@key\Hyper@key\
    \HyTmp@optlist\
    \HyTmp@optitem{##1}{##2}{1}\
  \else\
    \expandafter\def\expandafter\HyTmp@optlist\expandafter{\
      \HyTmp@optlist\
      \HyTmp@optitem{##1}{##2}{##3}\
    }\
    \let\HyTmp@found=Y\
  \else\
    \expandafter\def\expandafter\HyTmp@optlist\expandafter{\
      \HyTmp@optlist\
      \HyTmp@optitem{##1}{##2}{##3}\
    }\
    \let\HyTmp@found=N\
  \fi\
  }\

\ifcase\count@\
  \or\
    \edef\HyTmp@optlist{\HyTmp@optlist}\
    \xdef\Fld@choices{\Fld@choices/#1\Hyper@key}\HyTmp@optlist\
    \else\
      \edef\HyTmp@optlist{\HyTmp@optlist}\
      \xdef\Fld@choices{\Fld@choices/#1\Hyper@key}\HyTmp@optlist\
    \fi\
  \fi\fi
\fi
\fi
\else\
  \edef\HyTmp@optlist{\HyTmp@optlist}\
  \xdef\Fld@choices{\Fld@choices/#1\Hyper@key}\HyTmp@optlist\
\fi
\HyField@SetKeys

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

\newif\iffld@checked
\newif\iffld@disabled
\Fld@checkedfalse
\Fld@disabledfalse
\newcount\Fld@menulength
\newdimen\Fld@Width
\newdimen\Fld@charsize
\Fld@charsize=10\p@
\def\Fld@maxlen{0}
\def\Fld@align{0}
\def\Fld@color{0 0 0 rg}
\def\Fld@bcolor{1 1 1}
\def\Fld@bordercolor{1 0 0}
\def\Fld@bordersep{1\p@}
\def\Fld@borderwidth{1}
\def\Fld@rotation{0}
\def\Form{\@ifnextchar[{{\@Form}{\@Form[]}}}
\def\endForm{\@endForm}
\newif\ifform@html
\Form@htmlfalse
\def\Form@boolkey#1#2{\csname Form@#2\ifx\relax#1\relax true\else#1\fi\endcsname}
\define@key{Form}{action}{\hyper@normalise\Hy@DefFormAction{#1}}
\def\Hy@DefFormAction{\def\Form@action}
\def\enc@@html{html}
\define@key{Form}{encoding}{\def\Hy@tempa{#1}
\ifx\Hy@tempa\enc@@html
\Form@htmltrue
\def\Fld@export{html}
\else
\Hy@Warning{\Form `encoding' key with 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'. Known values are `post' and `get'}}
\Form@htmltrue
\def\Fld@export{html}
\else
\Hy@Warning{\Form `encoding' key with 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'. Known values are `post' and `get'}}
\}

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\def\Form@method{\Hy@temp}
\ifcase\@nameuse{Form@method}\Hy@temp\%
\Fld@getmethodfalse
\else
\Fld@getmethodtrue
\fi
\}%
\Def\Form@method{}
\@namedef{Form@methodpost}{0}
\@namedef{Form@methodget}{1}
\newif\ifHyField@NeedAppearances
\def\HyField@NeedAppearancesfalse{%
\global\let\ifHyField@NeedAppearances\iffalse
\}
\def\HyField@NeedAppearancetrue{%
\global\let\ifHyField@NeedAppearances\iftrue
\}
\HyField@NeedAppearancetrue
\define@key{Form}{NeedAppearances}[true]{%
\edef\Hy@tempa{#1}%
\ifx\Hy@tempa\Hy@true
\HyField@NeedAppearancetrue
\else
\ifx\Hy@tempa\Hy@false
\HyField@NeedAppearancesfalse
\else
\Hy@Error{%
\Hy@Warning{
\Hy@texht
\newtoks\Field@toks
\Field@toks={ }%
\def\Field@addtoks#1#2{%
\edef\@processme{\Field@toks{\the\Field@toks space #1="#2"}}%
\@processme%
}
\def\Fld@checkequals#1=#2=#3\{%
\def\@currDisplay{#1}%
\Field@boolkey#1#2#3%
\name\Fld@#2\ifx\relax#1\relax\true\else#1\fi\endname
%
\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%
}
\def\@processem{
\Field@toks{
\the\Field@toks space #1="#2"}}%
\@processem%
}
\def\@WarnHTMLFieldOption#1{%
\Hy@Warning{%
\HTML field option `#1' is ignored%
}
\}
\if\@WarnHTMLFieldOption
\def\Fld@checkequals#1=#2=#3\{%
\def\@currDisplay{#1}%
\else
\def\@currDisplay{#1}%
\fi
\define@key{Field}{borderwidth}{%
\Hy@defaultbp\Fld@borderwidth{#1}%
}
\define@key{Field}{borderstyle}{%
\let\Hy@temp\Fld@borderstyle
\def\Fld@borderstyle{#1}%
\Hy@Match\Fld@borderstyle{}{%
^[SDBIU]\$%
}{%
\Hy@Warning{%
Invalid value `\@pdfborderstyle' for option `pdfborderstyle'. Valid values: S (Solid), D (Dashed), B (Beveled), I (Inset), U (Underline)
Option setting is ignored%
}{%
\let\Fld@borderstyle\Hy@temp
}}%
\define@key{Field}{bordersep}{%
\def\Fld@bordersep{#1}%
}
\ifHy@text\% \def\Hy@temp{onkeyup} \else \fi
\ifHy@select \def\Hy@temp{onselect} \else \fi
\ifHy@change \def\Hy@temp{onchange} \else \fi
\ifHy@keypress \def\Hy@temp{onkeypress} \else \fi
\ifHy@texht
\define@key{Field}{onclick}{\% \Field@addtoks{onclick}{#1}\% \%}
\else
\ifHy@pdfa
\define@key{Field}{onclick}{\Hy@Error{PDF/A: Action 'onclick' is prohibited}\%\%}
\else
\define@key{Field}{onclick}{\def\Fld@onclick@code{#1}\%\%}
\fi
\fi
\fi
\DeclareRobustCommand\TextField{
\@ifnextchar[\@TextField}{\@TextField\[]}
\DeclareRobustCommand\ChoiceMenu{
\@ifnextchar[\@ChoiceMenu}{\@ChoiceMenu\[]}
\DeclareRobustCommand\CheckBox{
\@ifnextchar[\@CheckBox}{\@CheckBox\[]}
\DeclareRobustCommand\PushButton{
\@ifnextchar[\@PushButton}{\@PushButton\[]}
\DeclareRobustCommand\Gauge{
\@ifnextchar[\@Gauge}{\@Gauge\[]}
\DeclareRobustCommand\Submit{
\@ifnextchar[\@Submit}{\@Submit\[]}
\DeclareRobustCommand\Reset{
\@ifnextchar[\@Reset}{\@Reset\[]}
\def\LayoutTextField#1#2{\def\Hy@temp{#1}
\ifx\Hy@temp\@empty
#2
\else
#1 #2
\fi}
\def\LayoutChoiceField#1#2{\def\Hy@temp{#1}
\ifx\Hy@temp\@empty
#2
\else
#1 #2
\fi}
\def\LayoutCheckField#1#2{% label, field
\ifHy@temp(#1)\% \fi
\ifHy@temp\@empty \else \fi
\def\LayoutPushButtonField#1{% button
#1 %
}\def\MakeRadioField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
\def\MakeCheckField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
\def\MakeTextField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
\def\MakeChoiceField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
\def\MakeButtonField#1{%
\sbox0{\hskip\Fld@borderwidth bp#1\hskip\Fld@borderwidth bp%}
\@tempdima\ht0 %
\advance\@tempdima by \Fld@borderwidth bp %
\advance\@tempdima by \Fld@borderwidth bp %
\ht0\@tempdima
\@tempdima\dp0 %
\advance\@tempdima by \Fld@borderwidth bp %
\advance\@tempdima by \Fld@borderwidth bp %
\dp0\@tempdima
\box0\relax
}%
\def\DefaultHeightofSubmit{14pt}
\def\DefaultWidthofSubmit{2cm}
\def\DefaultHeightofReset{14pt}
\def\DefaultWidthofReset{2cm}
\def\DefaultHeightofCheckBox{\normalbaselineskip}
\def\DefaultWidthofCheckBox{\normalbaselineskip}
\def\DefaultHeightofChoiceMenu{\normalbaselineskip}
\def\DefaultWidthofChoiceMenu{\normalbaselineskip}
\def\DefaultHeightofText{\normalbaselineskip}
\def\DefaultHeightofTextMultiline{4\normalbaselineskip}
\def\DefaultWidthofText{3cm}
\def\DefaultOptionsofSubmit{print,name=Submit,noexport}
\def\DefaultOptionsofReset{print,name=Reset,noexport}
\def\DefaultOptionsofPushButton{print}
\def\DefaultOptionsofCheckBox{print}
\def\DefaultOptionsofText{print}
\def\DefaultOptionsofChoiceMenu{print}
\def\DefaultOptionsofListBox{print}
\def\DefaultOptionsofComboBox{print,edit,sort}
\def\DefaultOptionsofPopdownBox{print}
\def\DefaultOptionsofRadio{print,notoggletooff}

21 Setup
\ifHy@hyperfigures
\Hy@Info{Hyper figures ON} %
22 Low-level utility macros

We need unrestricted access to the #, ~ and " characters, so make them nice macros.
\edef\hyper@hash{\string#}
\edef\hyper@tilde{\string~}
\edef\hyper@quote{\string"}

Support \label before \begin{document}.
\def\@currentHref{Doc-Start}
\let\Hy@footnote@currentHref@empty

We give the start of document a special label; this is used in backreferencing-by-section, to allow for cites before any sectioning commands. Set up PDF info.
\Hy@AtBeginDocument{%
\Hy@pdstringtrue
\PDF@SetupDoc
\let\PDF@SetupDoc@empty
\Hy@DisableOption{pdfpagescrop}%
\Hy@DisableOption{pdfpagemode}%
\Hy@DisableOption{pdfnonfullscreenpagemode}%
\Hy@DisableOption{pdfdirection}%
\Hy@DisableOption{pdfviewarea}%
\Hy@DisableOption{pdfviewclip}%
Localized nullifying of package

Sometimes we just don’t want the wretched package interfering with us. Define an environment we can put in manually, or include in a style file, which stops the hypertext functions doing anything. This is used, for instance, in the Elsevier classes, to stop hyperref playing havoc in the front matter.

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

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 hyperref playing havoc in the front matter.

\def\NoHyper{\let\hyper@link@[##1]##2##3##4{##4}\Hy@xspace@end}\
\let\hyper@@anchor##1##2{##2}\Hy@xspace@end\
\global\let\hyper@livelink\hyper@link\
\gdef\hyper@link##1##2##3{##3}\Hy@xspace@end\
\let\hyper@anchor\ltx@gobble\
\let\hyper@anchorstart\ltx@gobble\
\def\hyper@anchorend{\Hy@xspace@end}\
\let\hyper@linkstart\ltx@gobble\
\def\hyper@linkurl##1##2{##1}\Hy@xspace@end\
\def\hyper@linkfile##1##2##3{##1}\Hy@xspace@end\
\let\Hy@backout\@gobble\
\def\stop@hyper{\let\hyper@link@[##1]##2##3##4{##4}\Hy@xspace@end}\
\let\Hy@backout\@gobble\
\let\hyper@@anchor\ltx@gobble
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 hyperref low-level commands, but it would also be useful with people using normal hyperref, who really do not want the package loaded at all.

Some low-level commands:

Some top-level commands:
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}

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 \verb|\contentsline| and \verb|\newlabel| are defined to cope with the extra arguments.

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.

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

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.

\begingroup
\def\process@me#1\@nil#2{\expandafter\let\expandafter\x\csname @#2\endcsname\edef\y{\expandafter\strip@prefix\meaning\x}%\def\c##1#1##2\@nil{\ifx\##1\%\else\expandafter\gdef\csname Hy@#2\expandafter\endcsname\expandafter{\x}\fi}\expandafter\c\y\relax#1\@nil\expandafter\process@me\string\@latex@\@nil{title}\expandafter\process@me\string\@latex@\@nil{author}\endgroup\Hy@DisableOption{pdfusetitle}

Macro \Hy@UseMaketitleInfos is used in the driver files, before the information entries are used.

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

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

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

A possible \emoves its argument.

\def\Hy@UseMaketitleString#1{%\ltx@ifUndefined{Hy@#1}{}{\begingroup\let\Hy@saved@hook\pdfstringdefPreHook\let\pdfstringdefDisableCommands\expandafter\let\expandafter\\csname Hy@newline@title\endcsname\let\newline\%\def\and{; }\let\thanks\@gobble\expandafter\ifx\csname @pdf#1\endcsname\@empty\expandafter\pdfstringdef\csname @pdf#1\endcsname{\csname Hy@#1\endcsname\@empty}\fi\global\let\pdfstringdefPreHook\Hy@saved@hook\endgroup}}\def\Hy@newline@title#1{ #1}\def\Hy@newline@author#1{, #1}\def\Hy@UseMaketitleInfos{%\Hy@UseMaketitleString{title}%
Page numbers

This stuff is done by Heiko Oberdiek.

Every page

28.1 PDF /PageLabels

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

\thispdfpagelabel The command \thispdfpagelabel allows to label a special page without the redefinition of \thepage for the page.
The pagelabels are collected in `\HyPL@Labels` and set at the end of the document.

We have to know the the absolute page number and introduce a new counter for that.

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

Definitions for the PDF names of the \LaTeX pendants.

If a page is shipout and the page number is known, `\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.: \c@page. In the current implementation the check fails, if there is another \c@page before.
The second check tries to detect $\arabic{page}$ at the end of the definition text of $\texttt{\the\page}$.

\begin{verbatim}
7007 \def\HyPL@@CheckThePage#1#2\csname#3\endcsname\c@page#4\@nil{%
7008 \def\Hy@tempa(#4)%
7009 \def\Hy@tempb\csname\endcsname\c@page\%
7010 \ifx\Hy@tempa\Hy@tempb
7011 \expandafter\expandafter\ifx\csname HyPL#3\endcsname\relax
7012 \else
7013 \def\HyPL@Type(#3)%
7014 \def\HyPL@Prefix(#2)%
7015 \fi
7016 \else
7017 \begingroup
7018 \let\Hy@next\endgroup
7019 \let\Hy@next\undefined
7020 \def\arabic{\HyPL@Format(arabic)}%
7021 \def\Roman{\HyPL@Format(Roman)}%
7022 \def\roman{\HyPL@Format(roman)}%
7023 \def\Alph{\HyPL@Format(Alph)}%
7024 \def\alph{\HyPL@Format(alph)}%
7025 \protected@edef\Hy@temp{\arabic{page}}%
7026 \def\HyPL@Format#1#2{%
7027 \ifx\HyPL@found\undefined
7028 \expandafter\expandafter\ifx\csname c@#2\endcsname\c@page
7029 \expandafter\expandafter\noexpand\csname HyPL@found\endcsname{#1}%
7030 \else
7031 \expandafter\expandafter\noexpand\csname#1\endcsname{#2}%
7032 \fi
7033 \fi
7034 \fi
7035 }
\end{verbatim}

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

\begin{verbatim}
7036 \def\HyPL@Format#1#2{%
7037 \ifx\HyPL@found\undefined
7038 \expandafter\expandafter\ifx\csname c@#2\endcsname\c@page
7039 \expandafter\expandafter\noexpand\csname HyPL@found\endcsname{#1}%
7040 \else
7041 \expandafter\expandafter\noexpand\csname#1\endcsname{#2}%
7042 \fi
7043 \else
7044 \expandafter\expandafter\noexpand\csname#1\endcsname{#2}%
7045 \fi
7046 }
\end{verbatim}

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

\begin{verbatim}
7047 \def\HyPL@@@CheckThePage#1\HyPL@found#2#3\@nil{%
7048 \def\Hy@tempa(#3)%
7049 \def\Hy@tempb\HyPL@found\relax}%
7050 \ifx\Hy@tempa\Hy@tempb
7051 \def\HyPL@Type(#2)%
7052 \def\HyPL@Prefix(#1)%
7053 \fi
7054 }
\end{verbatim}
The \texttt{/PageLabels} entry does not make sense, if the absolute page numbers and the page labels are the same. Then \texttt{\HyPL@Labels} has the meaning of \texttt{\HyPL@Useless}.

\begin{verbatim}
\def\HyPL@Useless{0<</S/D>>}\
\end{verbatim}

The page labels are written to the PDF catalogue. The command \texttt{\Hy@PutCatalog} is defined in the driver files.

\begin{verbatim}
\def\HyPL@SetPageLabels{\@onelevel@sanitize\HyPL@Labels\
\ifx\HyPL@Labels\@empty\
\else\
\ifx\HyPL@Labels\HyPL@Useless\
\else\
\Hy@PutCatalog{/PageLabels<[/Nums[\HyPL@Labels]>>}\
\fi\
\fi\
\fi\
\g@addto@macro\Hy@EveryPageHook{\HyPL@EveryPage}\
\fi\
\end{verbatim}

Because of pdfTeX's \texttt{pdfcatalog} command the \texttt{/PageLabels} entry can set at end of document in the first run.

\begin{verbatim}
\def\Hy@PutCatalog{\pdf@idraftmode{\let\Hy@PutCatalog\ltx@gobble\}{\let\Hy@PutCatalog\pdfcatalog}}\
\end{verbatim}

The code for VTeX is more complicated, because it does not allow the direct access to the \texttt{/Catalog} object. The command scans its argument and looks for a \texttt{/PageLabels} entry.

VTeX 6.59g is the first version, that implements \texttt{\special{pdfpagelabels...}}. For this version \texttt{\VTeXversion} reports 660.

\begin{verbatim}
\providecommand*{\XR@ext}{pdf}\
\edef\Hy@VTeXversion{\ifx\VTeXversion\@undefined\z@\else\ifx\VTeXversion\relax\z@\else\VTeXversion\relax\fi\fi}\
\end{verbatim}
\HyPL@StorePageLabel \This macro adds the entry \#1 to \HyPL@Labels.

\ifHy@pdfpagelabels
\def\HyPL@StorePageLabel#1{%
\toks@\expandafter{\HyPL@Labels}%
\xdef\HyPL@Labels{\the\toks@	he\Hy@abspage<<#1>>}%
}%
\else
\def\HyPL@StorePageLabel#1{%
\ifx\Hy@vt\Hy@vt
\Hy@vt@PutCatalog#1/PageLabels<<#2>>#3\@nil{%}
\else
\immediate\special{pdfpagelabels #2}%
\fi
}%
\fi
\endgroup
\endinput

\atveryend This package atveryend is used to get behind the final clearpage and to avoid a clearpage in \AtEndDocument. Then the PDF catalog entry for \PageLabels is set.

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

28.1.2 \texttt{xetex}

\HyPsd@LoadUnicode
\Hy@unicodetrue
\if\HyPsd@pdfencoding\HyPsd@pdfencoding@unicode
\else
\let\HyPsd@pdfencoding\HyPsd@pdfencoding@auto
\fi

\HyPsd@LoadStringEnc
\define@key{Hyp}{unicode}{true}{% 
  \Hy@boolkey{unicode}{#1}{% 
  \if\Hy@unicode 
  \else
  \Hy@Warning{Xe\TeX\driver only supports `unicode=true'. Ignoring\MessageBreak 
  option setting `unicode=false'\MessageBreak 
  }% 
  \fi
\else
  \def\setpdflinkmargin#1{\begingroup
  \setlength{\dimen@}{#1}\special{dvipdfmx:config g \strip@pt\dimen@}\endgroup}
  \langle/xetex\rangle
Since 2016 (x)dvipdfmx has a special to control the spacing of annotation borders. So let's make use of it:
\def\setpdflinkmargin#1{\begingroup
  \setlength{\dimen@}{#1}\special{dvipdfmx:config g \strip@pt\dimen@}}
\langle/pdfmarkbase, dvipdfm, xetex\rangle
28.1.3 pdfmarkbase, dvipdfm, xetex
\def\setpdflinkmargin#1{\begingroup
  \setlength{\dimen@}{#1}\special{dvipdfmx:config g \strip@pt\dimen@}}
\langle/pdfmarkbase\rangle
\begin{group}
  \if\undefined{headerps@out}{\toks@}{% 
  \toks@\expandafter{\Hy@FirstPageHook}\% 
  \xdef\Hy@FirstPageHook{% 
  \noexpand\headerps@out{% 
    systemdict /pdfmark known\% 
    \% 
    userdict /?pdfmark systemdict /exec get put\% 
    }\% 
    userdict /?pdfmark systemdict /pop get put % 
  userdict /pdfmark systemdict /cleartomark get put\% 
  }\% 
  }\% 
  \the\toks@ 
  }\% 
  \% 
  \%
\Hy@PutCatalog

\begin{verbatim}
\def\Hy@PutCatalog#1{\pdfmark{pdfmark=/PUT,Raw={\string{Catalog\string} <<#1>>}}}
\end{verbatim}

\Hy@AtBeginDocument{\if\HyPL@Labels\@empty\Hy@WarningNoLine{Rerun to get /PageLabels entry}\fi\HyPL@SetPageLabels\let\HyPL@Entry\@gobble}

\HyPL@Entry

\begin{verbatim}
\def\HyPL@Entry#1{\edef\HyPL@Labels{\HyPL@Labels#1}}
\end{verbatim}

\endgroup

\Hy@PutCatalog

\begin{verbatim}
\def\Hy@PutCatalog#1{\pdfmark{pdfmark=/PUT,Raw={\string{Catalog\string} <<#1>>}}}
\end{verbatim}

\ifHy@pdfpagelabels
This macro writes a string to the .aux file.

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

\Hy@AtBeginDocument{\if\@filesw\immediate\write\@mainaux{\string\providecommand\string*\string\HyPL@Entry[1]{}\string\HyPL@Entry\string*\string\HyPL@Entry[1]{}}\fi}

\ifx\MaybeStopEarly\relax\else\Hy@stoppedearlytrue\fi

\end{verbatim}

\endgroup
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 $\texttt{\textbackslash label}$. This will fail badly if $\texttt{\textbackslash theH<name>}$ does not expand to a sensible reference. This means that classes or package which introduce new elements need to define an equivalent $\texttt{\textbackslash theH<name>}$ for every $\texttt{\textbackslash the<name>}$.

We do make a trap to make $\texttt{\textbackslash theH<name>}$ be the same as $\texttt{\arabic{<name>}}$, if $\texttt{\textbackslash theH<name>}$ 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 $\texttt{\@currentlabel}$? 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 $\texttt{subeqn}$ 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 $\texttt{\part}$ and $\texttt{\chapter}$.

Start with a fallback for equations

\[
%\begin{def}[Hy\@CounterExists{section}]{1}{%
%\begingroup\def\Hy\@CounterExists{section}{1}{%
%\begingroup\def\Hy\@CounterExists{section}{1}{%
%\begingroup\def\Hy\@CounterExists{section}{1}{%
%\begingroup\def\Hy\@CounterExists{section}{1}{%
%\begingroup\def\Hy\@CounterExists{section}{1}{%
%\begingroup\def\Hy\@CounterExists{section}{1}{%
%\begingroup\def\Hy\@CounterExists{section}{1}{%
%\begin{dgroup}\tex\IfUndefine{thechapter}{%
%\providecommand\theHsection{\arabic{section}}%
%\providecommand\theHchapter{\arabic{section}}%
%\providecommand\theHsubsubsection{\arabic{subsection}}%
%\providecommand\theHsubsubsection{\arabic{subsection}}%
%\providecommand\theHsubsubsection{\arabic{subsection}}%
%\providecommand\theHsubsubsection{\arabic{subsection}}%
%\providecommand\theHsubsubsection{\arabic{subsection}}%
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.

Tanmoy asked for this default handling of undefined \theH<name> situations. It really isn’t clear what would be ideal, whether to turn off hyperizing of unknown elements, to pick up the textual definition of the counter, or to default it to something like \arabic{name}. We take the latter course, slightly worriedly.

We do not want the handler for \refstepcounter to cut in during the processing of \item (we handle that separately), so we provide a bypass conditional.
AMS\LaTeX{} 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}
\let\Hy@saved@refstepcounter\refstepcounter
\ifpackageloaded{amsmath}{\newif\ifmeasuring@\measuring@false}
\def\hyper@refstepcounter#1{\
  \edef\This@name{#1}\
  \ifx\This@name\name@of@eq\
    \@ifundefined{theHequation}{\
      \make@stripped@name{\theequation}\%
    }{}\
  \fi\
  \HyCnt@ProvideTheHCounter{#1}\%
  \hyper@makecurrent{#1}\
  \ifmeasuring@\
  \else\
    \Hy@raisedlink{\
      \hyper@anchorstart{\@currentHref}\hyper@anchorend\
    }\
  \fi\
}
\Hy@ProvideTheHCounter
\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
      \csname theH#1\endcsname\
    }\
  }{}\
}
\Hy@LookForParentCounter
\def\HyCnt@LookForParentCounter#1#2{\%
  \@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\%
    }\
  }{\%
    \\ltx@LocalAppendToMacro\csname theH#1\expandafter\endcsname{\
      \expandafter\@arabic\csname c@#1\endcsname\%
    }\
    \%
    \cl@ckpt\%
    \let\@elt\HyOrg@elt\%
    \\expandafter\%
    \\ltx@LocalAppendToMacro\csname theH#1\expandafter\endcsname{\
      \expandafter\@arabic\csname c@#1\endcsname\%
    }\
    \%
    \%
    \%
    
    \%
  }\
}
\end{verbatim}

\texttt{\Hy@ProvideTheHCounter} \texttt{\theH<counter>} is not set for counters that are defined before \texttt{\hyperref} is loaded. In \texttt{\cl@ckpt}, the clear counter list of the artificial counter \texttt{\@ckpt}, \LaTeX{} remembers the defined counters (needed for \texttt{\include}). We check the clear counter lists, whether our counter is present. If we found it, then we add the parent counter value to \texttt{\theH<counter>}. The \texttt{\@elt} list is used in sanitized form for the comparison, because the list might contain other stuff than \texttt{\@elts}. Also it simplifies the implementation, because \LaTeX{}', substring search \texttt{\in@} can be used.

\begin{verbatim}
\def\Hy@LookForParentCounter#1#2{\%
  \@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\%
    }\
  }{\%
    \\ltx@LocalAppendToMacro\csname theH#1\expandafter\endcsname{\
      \expandafter\@arabic\csname c@#1\endcsname\%
    }\
    \%
    \%
    \%
    \%
  }\%
}
\end{verbatim}

\texttt{\Hy@LookForParentCounter}
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`.

```latex
\begingroup\expandafter\expandafter\expandafter\endgroup
\if\Hy@chapterstring\relax
\def\Hy@chapterstring{section}\
\else
\def\Hy@chapterstring{chapter}\
\fi
\def\Hy@appendixstring{appendix}
\def\Hy@chapapp{\Hy@chapterstring}
\ltx@IfUndefined{appendix}{\def\HyOrg@appendix{\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}}}\ltx@IfUndefined{theHsection}{\gdef\theHsection{\Hy@AlphNoErr{section}}}{\gdef\theHchapter{\Hy@AlphNoErr{chapter}}}}
```

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Because of Babel mucking around, nullify \textlatin when making names. And \@number because of babel's lrbabel.def.
\endcsname
\fi
\xdef\HyperGlobalCurrentHref{\Hy@param.\expandafter\strip@prefix\meaning\HyperGlobalCurrentHref}
\else
\Hy@GlobalStepCount\Hy@linkcounter
\xdef\HyperGlobalCurrentHref{\Hy@param.\the\Hy@linkcounter}
\fi
\endgroup
\let\HyperLocalCurrentHref\HyperGlobalCurrentHref
\ifHy@localanchorname
\let\@currentHref\HyperLocalCurrentHref
\else
\global\let\@currentHref\HyperGlobalCurrentHref
\fi
\def\Hy@MakeCurrentHref#1{\edef\HyperLocalCurrentHref{#1}\@onelevel@sanitize\HyperLocalCurrentHref\global\let\HyperGlobalCurrentHref\HyperLocalCurrentHref\let\HyperLocalCurrentHref\HyperGlobalCurrentHref
\ifHy@localanchorname
\let\@currentHref\HyperLocalCurrentHref
\else
\global\let\@currentHref\HyperGlobalCurrentHref
\fi
\def\Hy@MakeCurrentHrefAuto#1{\Hy@GlobalStepCount\Hy@linkcounter\Hy@param.\the\Hy@linkcounter
\def\@currentHlabel{\@currentHref}
\@ifpackageloaded{fancyvrb}{\@ifpackagelater{fancyvrb}{1998/05/20}{}{\FV@StepLineNo{\H@refstepcounter{FancyVerbLine}}}}}

\Hy@MakeCurrentHref
\def\Hy@MakeCurrentHrefAuto#1{\Hy@GlobalStepCount\Hy@linkcounter\Hy@param.\the\Hy@linkcounter
\def\@currentHlabel{\@currentHref}
\@ifpackageloaded{fancyvrb}{\@ifpackagelater{fancyvrb}{1998/05/20}{}{\FV@StepLineNo{\H@refstepcounter{FancyVerbLine}}}}}

\@currentHlabel is only defined for compatibility with package ‘hypdvips’.

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 \texttt{EveryPageAnchor} (see sec. 39). The link will not work if option pageanchor is set to false.

\begin{lstlisting}
\lastpage@putlabel
7496 \Hy@AtBeginDocument{%
7497 \@ifclassloaded{revtex4}{%
7498 \@namedef{ver@lastpage.sty}{1994/06/25}%
7499 }%
7500 \@ifpackageloaded{lastpage}{%
7501 \ifHy@pageanchor
7502 \else
7503 \Hy@WarningNoLine{%
7504 The \string\pageref{LastPage} link doesn't work with disabled option 'pageanchor'%
7505 }%
7506 }
7507 \\fi
7508 \def\lastpage@putlabel{%
7509 \addtocounter{page}{-1}%
7510 \if@filesw
7511 \begingroup
7512 \let\@number\@firstofone
7513 \ifHy@pageanchor
7514 \ifHy@hypertexnames
7515 \ifHy@plainpages
7516 \def\Hy@temp{\arabic{page}}%
7517 \else
7518 \Hy@unicodefalse
7519 \pdfstringdef\Hy@temp{\thepage}%
7520 \fi
7521 \else
7522 \def\Hy@temp{the\Hy@pagecounter}%
7523 \fi
7524 \fi
7525 \immediate\write\@auxout{%
7526 \string\newlabel
7527 {LastPage}{{}{\the\Hy@pagecounter}{}{\Hy@temp\fi}{}}%
7528 \ifHy@pageanchor page.\Hy@temp\fi{}}%
7529 }
7530 \endgroup
7531 \fi
7532 \addtocounter{page}{1}%
7533 }
7534 \ifclassloaded{revtex4}{%
7535 \begingroup
7536 \toks@\expandafter{\lastpage@putlabel}%
7537 \edef\x\endgroup
7538 \noexpand\lastpage@putlabel{%
7539 \noexpand\stepcounter{page}%
7540 \noexpand\thetoks@
7541 \noexpand\addtocounter{page}\noexpand\m@ne
7542 }
7543 }
7544 \x
7545 }%
7546 }
7547 }
\end{lstlisting}
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:
\ifdefpackage{titlesec}{%
Package titletoc support:
\@ifpackageloaded{titletoc}{%
\@def{\GobbleContent#1#2#3#4{\ignorespaces}}%
}{}

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

Package varioref redefines \refstepcounter, thus it needs fixing, if the package is loaded *after* hyperref.
\def{\Hy@varioref@refstepcounter#1}{\stepcounter{#1}
\protected@edef{\@currentlabel}{\csname p@#1\expandafter\endcsname\csname the#1\endcsname}}
\ifx{\refstepcounter}{\Hy@varioref@refstepcounter}
\let{\H@refstepcounter}{\refstepcounter}
\let{\refstepcounter}{\Hy@saved@refstepcounter}
\fi

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

Patch of \LT@array: replace \refstepcounter by the original \H@refstepcounter without anchor generation
\@ifpackageloaded{longtable}{{%
\begingroup
\def{\y}{\LT@array}
\@ifundefined{scr@LT@array}{{\@ifundefined{adl@LT@array}{{}}{\def{\y}{\adl@LT@array}}}}{\def{\y}{\scr@LT@array}}
\long\def{x}{\refstepcounter\#1\sharp\#2\@sharp\#3\#4\@nil{}}
\expandafter{\endgroup}
\expandafter\def\y[#1]{\sharp\#2{}}
\H@refstepcounter\#1}
}}
35 Equations

We want to make the whole equation a target anchor. Overload equation, temporarily reverting to original \refstepcounter. If, however, it is in AMSmath, 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.

\let\new@refstepcounter\refstepcounter
\let\H@equation\equation
\let\H@endequation\endequation
@ifpackageloaded{amsmath}{%
\long\def\Hy@temp{%
\incr@eqnum
\mathdisplay@push
\st@rredfalse \global\@eqnswtrue
\mathdisplay{equation}%
}%
\ifx\Hy@temp\equation
\else
\long\def\equation{%
\mathdisplay@push
\st@rredfalse \global\@eqnswtrue
\mathdisplay{equation}%
\incr@eqnum
}%
\fi
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 \texttt{all} the lines end with \texttt{\notag}, so there is no suitable anchor at all. In this case, pass by on the other side.

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.

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

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

Support for amsmath’s subequations:

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Support for package \texttt{amsthm} (Daniel Müllner): also \texttt{cleveref}.

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

\begin{verbatim}
\let\thm@indent\indent
\thm@headfont{\scshape}% heading font small caps
\def\Hy@temp#1#2#3{%
  \ifhmode\unskip\unskip\par\fi
  \normalfont
  \trivlist
  \let\thmheadnl\relax
  \let\thm@swap\@gobble
  \let\thm@indent\indent % indent
  \thm@headfont{\scshape}% heading font small caps
  \thm@notefont{\fontseries\mddefault\upshape}%
  \thm@headpunct{.}% add period after heading
  \thm@headsep 5\p@ plus\p@ minus\p@\relax
  \thm@space@setup
  #1% style overrides
  \@topsep \thm@preskip % used by thm head
  \@topsepadd \thm@postskip % used by @endparenv
\def\@tempa{#2}\ifx\@empty\@tempa
  \def\@tempa{\@oparg{@begintheorem{#3}{}}\["]%\fi
\@tempa
\edef\Hy@parentequation{%
  \ifundefined{\theequation}\theequation\theHequation
}\addtocounter{equation}{-1}%
\HyOrg@subequations
\def\theHequation{\theHparentequation\alph{equation}}%
\ignorespaces}
\fi
\fi
\end{verbatim}
non \texttt{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 \texttt{\textbackslash footnotemark} and \texttt{\textbackslash footnotetext} are used, force them to use un-hyper original.
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\H@footnote
\global\let\@currentHref\Hy@saved@currentHref
\hyper@linkstart\{\link\Hy@footnote\\currentHref\}
\@makefnmark
\hyper@linkend
\ifhmode\spacefactor\@x@sf\fi
\relax}

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

\@ifpackageloaded{tabularx}{
\let\HyOrg@TX@endtabularx\TX@endtabularx
\def\Hy@tabularx@hook{
\let\@footnotetext\H@@footnotetext
\let\@footnotemark\H@@footnotemark
\let\@mpfootnotetext\H@@mpfootnotetext
}
\begingroup
\toks0\expandafter{\TX@endtabularx}
\xdef\Hy@gtemp{\noexpand\Hy@tabularx@hook \the\toks0}
\endgroup
\let\TX@endtabularx\Hy@gtemp
}

Support for footnotes in p columns of longtable. Here \footnote commands are splitted into \footnotemark and a call of \footnotetext with the optional argument, that is not supported by hyperref. The result is a link by \footnotemark without valid anchor

\@ifpackageloaded{longtable}{
\CheckCommand*{\LT@p@ftntext}[1]{
\edef\@tempa{\the\LT@p@ftn}
\begingroup
\noexpand\c@footnote=\the\c@footnote\relax
\noexpand\protected@xdef\noexpand\@thefnmark{\noexpand\thempfn}
\noexpand\Hy@LT@footnotetext{\Hy@footnote\currentHref}
\endgroup
\par}
\long\def\LT@p@ftntext#1{
\edef\@tempa{\the\LT@p@ftn}
\noexpand\footnotetext[\@tempa{#1}]{\noexpand\Hy@footnote\currentHref}
\par}
\long\def\LT@p@ftntext#1{
\edef\@tempa{\noexpand\Hy@footnote\currentHref}
\par}
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.

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

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

\def\realfootnote{%
\@ifnextchar[@\@xfootnotenext[#1] {%
\stepcounter{@mpfn}%
\protected@xdef\@thefnmark{\thempfn}\H@@footnotemark\H@@footnotetext}
}\fi
\Hy@DisableOption{hyperfootnotes}

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37 Float captions

Make the float caption the hypertext anchor; curiously enough, we can’t just copy
the definition of \caption. Its all to do with expansion. It screws up. Sigh.

\caption{...

\endgroup
If we cannot have nesting, the anchor is empty.

If we cannot have nesting, the anchor is empty.

If we cannot have nesting, the anchor is empty.

If we cannot have nesting, the anchor is empty.

If we cannot have nesting, the anchor is empty.

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’.

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

However, lets make an attempt to get natbib right, because thats a powerful, important package. Patrick Daly (daly@linmpi.mpg.de) has provided hooks for us, so all we need to do is activate them.
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.

Package babel redefines \bibcite with macro \bbl@cite@choice. It needs to be overwritten to avoid the warning “Label(s) may have changed.”.

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

\begin{verbatim}
\providecommand*{\@BIBLABEL}{\biblabel}
\def\bibitem[#1]{\@skiphyperreftrue
\H@item[
\ifx\Hy@raisedlink\@empty
\hyper@anchorstart{cite.#2}\@extra@b@citeb]\@BIBLABEL{#1}\hyper@anchorend
\else
\Hy@raisedlink{\hyper@anchorstart{cite.#2}\@extra@b@citeb}\@BIBLABEL{#1}\fi
\hfill]
\@skiphyperreffalse
\if@filesw
\begingroup
\let\protect\noexpand\immediate\write\@auxout{\bibcite{#2}{#1}}
\endgroup
\fi
\ignorespaces
\end{verbatim}
Since \bibitem is doing its own labelling, call the raw version of \item, to avoid extra spurious labels
\begin{verbatim}
def@bibitem#1{% \@skiphyperreffalse\@item\@skiphyperreftime\HY@raisedlink{% \@if@filesw\begingroup\let\protect\noexpand\immediate\write\@auxout{\string\bibcite{#1}{\the\value{@listctr}}}\endgroup\fi\ignorespaces}{}
\end{verbatim}
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.
\begin{verbatim}
\let\protect\noexpand\immediate\write\@auxout{\string\bibcite{#1}{	he\value{@listctr}}}\fi
\end{verbatim}
No, life is too short. I am not going to understand the Revtex \texttt{\textbackslash collapse} macro, I shall just restore the original behaviour of \texttt{\textbackslash cite}; sigh. This is SO vile.
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 \begin{document}, because if har-
vard.sty is loaded and html.sty is present and detects pdf\TeX, then hyperref is
already loaded at the begin of harvard.sty, and the \newcommand macros causes
error messages.
\begin{verbatim}
\Ifpackageloaded{harvard}{%  
\HyAtBeginDocument{%  
\HyInfo{*** compatibility with harvard **** }%  
\Hyraiselinksfalse  
\def\harvardcite#1#2#3#4{%  
\global\@namedef{HAR@fn@#1}{\hyper@@link[cite]{cite.#1}{#2}}%  
\global\@namedef{HAR@an@#1}{\hyper@@link[cite]{cite.#1}{#3}}%  
\global\@namedef{HAR@yr@#1}{\hyper@@link[cite]{cite.#1}{#4}}%  
\global\@namedef{HAR@df@#1}{\csname HAR@fn@#1\endcsname}%  
}  
\def\HAR@citetoaux#1{%  
\if@filesw\immediate\write\@auxout{\string\citation{#1}}\fi%  
\ifHy@backref  
\ifx\@empty\@currentlabel  
\else  
\@bsphack  
\if@filesw  
\protected@write\@auxout{}{\string\backcite{#1}{\thepage}{\@currentlabel}{\@currentHref}}%  
\fi  
\@esphack  
\fi  
\fi  
\fi  
\def\harvarditem{%  
\if@filesw\immediate\write\@auxout{"\null}\
\else
\@bphack
\if@filesw
\protected@write\@auxout{}{%  
\string\writefile{bref}{%  
{\thepage}{\@currentlabel}{\@currentHref}%  
}  
}  
\fi  
\fi
\@esphack
\endverbatim

\end{verbatim}

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\HAR@checkcitations Package hyperref has added \hyper@link, so the original test \HAR@checkcitations will fail every time and always will appear the “Changed labels” warning. So we have to redefine \HAR@checkcitations:
\long\def\HAR@checkcitations#1#2#3#4{\def\HAR@tempa{\hypercite[cite]{}{cite.#1}{#2}}\expandafter\ifx\csname HAR@fn@#1\endcsname\HAR@tempa\def\HAR@tempa{\hypercite[cite]{}{cite.#1}{#3}}\expandafter\ifx\csname HAR@an@#1\endcsname\HAR@tempa\def\HAR@tempa{\hypercite[cite]{}{cite.#1}{#4}}\else\@tempswatrue\fi\else\@tempswatrue\fi\else\@tempswatrue\fi\else\fi\fi\else\fi\fi\fi\fi\fi\fi\fi

38.2 Package chicago
The links by \citeN and \shortciteN should include the closing parentheses.
\ifpackageloaded{chicago}{%
\citeN\def\citeN{%\def\@citeseppen{-1000}\def\@cite##1##2{##1}\def\citeauthoryear##1##2##3{##1 (##3\@cite@opt)}\@citedata@opt\long\def\@citedata@opt{%\let\@cite@opt\@empty\@ifnextchar[{\citeauthor\citeyear{}}]{}}\shortciteN\def\shortciteN{%\def\@citeseppen{-1000}\def\@cite##1##2{##2 (##3\@cite@opt)}\def\citeauthor\citeyear{##1 (##3\@cite@opt)}\@citedata@opt\long\def\@citedata@opt{%\let\@cite@opt\@empty\@ifnextchar[{\citeauthor\citeyear{}}]{}}\@ifpackageloaded{chicago}{%
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}{%
\def\Hy@SlidesFormatOptionalPage#1{%\}
\def\Hy@PageAnchorSlidesPlain{%
\edef\Hy@TempPageAnchor{\noexpand\hyper@@anchor{page.\the\c@slide.\the\c@overlay.\the\c@note%}
\ifnum\c@page=\ltx@one
\else.
\fi\the\c@page
\the\c@page
\fi
}%
\advance\c@page-\ltx@one
}%
\def\Hy@PageAnchorSlide{%
\advance\c@page\ltx@one
\pdfstringdef\@the@H@page{%
\ifnum\c@page>\ltx@one
\ltx@IfUndefined{theHpage}{% \Hy@SlidesFormatOptionalPage{\thepage}\%
\else
\def\Hy@TheSlideOptionalPage{}%
\fi
\advance\c@page-\ltx@one
\}
\protected@edef\Hy@TheSlideOptionalPage{% \Hy@SlidesFormatOptionalPage{\theHpage}\%
\}
\}
\protected@edef\Hy@TheSlideOptionalPage{% \Hy@SlidesFormatOptionalPage{\theHpage}\%
\}
\}
\else
\enddef\Hy@TheSlideOptionalPage{}%
\pdfstringdef\@the@H@page{%
\ifnum\c@page>\ltx@one
\ltx@IfUndefined{theHpage}{% \Hy@SlidesFormatOptionalPage{\thepage}\%
\else
\def\Hy@TheSlideOptionalPage{}%
\fi
\advance\c@page-\ltx@one
\}
\protected@edef\Hy@TheSlideOptionalPage{% \Hy@SlidesFormatOptionalPage{\theHpage}\%
\}
\}
\protected@edef\Hy@TheSlideOptionalPage{% \Hy@SlidesFormatOptionalPage{\theHpage}\%
\}
\enddef\Hy@TheSlideOptionalPage{}%
\pdfstringdef\@the@H@page{%
\ifnum\c@page>\ltx@one
\ltx@IfUndefined{theHpage}{% \Hy@SlidesFormatOptionalPage{\thepage}\%
\else
\def\Hy@TheSlideOptionalPage{}%
\fi
\advance\c@page-\ltx@one
\}
\protected@edef\Hy@TheSlideOptionalPage{% \Hy@SlidesFormatOptionalPage{\theHpage}\%
\}
\}
\protected@edef\Hy@TheSlideOptionalPage{% \Hy@SlidesFormatOptionalPage{\theHpage}\%
\}
\enddef\Hy@TheSlideOptionalPage{}%
\pdfstringdef\@the@H@page{%
\ifnum\c@page>\ltx@one
\ltx@IfUndefined{theHpage}{% \Hy@SlidesFormatOptionalPage{\thepage}\%
\else
\def\Hy@TheSlideOptionalPage{}%
\fi
\advance\c@page-\ltx@one
\}
\protected@edef\Hy@TheSlideOptionalPage{% \Hy@SlidesFormatOptionalPage{\theHpage}\%
\}
\}
\protected@edef\Hy@TheSlideOptionalPage{% \Hy@SlidesFormatOptionalPage{\theHpage}\%
\}
\enddef\Hy@TheSlideOptionalPage{}%
\pdfstringdef\@the@H@page{%
\ifnum\c@page>\ltx@one
\ltx@IfUndefined{theHpage}{% \Hy@SlidesFormatOptionalPage{\thepage}\%
\else
\def\Hy@TheSlideOptionalPage{}%
\fi
\advance\c@page-\ltx@one
\}
\protected@edef\Hy@TheSlideOptionalPage{% \Hy@SlidesFormatOptionalPage{\theHpage}\%
\}
\}
\protected@edef\Hy@TheSlideOptionalPage{% \Hy@SlidesFormatOptionalPage{\theHpage}\%
\}
\else
\enddef\Hy@TheSlideOptionalPage{}%
\pdfstringdef\@the@H@page{%
\ifnum\c@page>\ltx@one
\ltx@IfUndefined{theHpage}{% \Hy@SlidesFormatOptionalPage{\thepage}\%
\else
\def\Hy@TheSlideOptionalPage{}%
\fi
\advance\c@page-\ltx@one
\}
\protected@edef\Hy@TheSlideOptionalPage{% \Hy@SlidesFormatOptionalPage{\theHpage}\%
\}
\}
\protected@edef\Hy@TheSlideOptionalPage{% \Hy@SlidesFormatOptionalPage{\theHpage}\%
\}
\}{
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 \texttt{\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@Warning{No destination for bookmark of \string\addcontentsline,\MessageBreak destination is added}%
\phantomsection
\fi
\expandafter\ifx\csname toclevel@#2\endcsname\relax
\begingroup
\def\Hy@tempa{#1}\
\ifx\Hy@tempa\Hy@bookmarkstype\Hy@WarningNoLine{\MessageBreak bookmark level for unknown #2 defaults to 0}\
\else\Hy@Info{\MessageBreak bookmark level for unknown #2 defaults to 0}\
\fi
\endgroup
\expandafter\gdef\csname toclevel@#2\endcsname{0}
\fi
\edef\Hy@toclevel{\csname toclevel@#2\endcsname}
\Hy@writebookmark{\csname the#2\endcsname}{\@currentHref}{\Hy@toclevel}{#1}
\ifHy@verbose
\begingroup
\def\Hy@tempa{#3}
\@onelevel@sanitize\Hy@tempa
\let\temp@online\on@line
\let\on@line\@empty
\Hy@Info{\MessageBreak bookmark level for unknown #2 defaults to 0}\
\fi
\endgroup
\expandafter\ifx\csname toclevel@#2\endcsname\relax\expandafter\edef\csname toclevel@#2\endcsname{0}\fi
\endgroup
\expandafter\ifx\csname toclevel@#2\endcsname\relax\expandafter\edef\csname toclevel@#2\endcsname{0}\fi
\endgroup
\\endgroup
\\def\Hy@toclevel{\csname toclevel@#2\endcsname}
\Hy@writebookmark{\csname the#2\endcsname}
The page number might be empty. In this case the link for the page number is suppressed to avoid little link boxes.
New counters

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

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

AMS\LaTeX\ compatibility

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

Version 6.77p uses a patch by Ross Moore.
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.

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.
43 Included figures

Simply intercept the low level graphics package macro.

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.

```latex
\texttt{\ifHy@hyperindex}
\texttt{\def\HyInd@ParenLeft{}}
\texttt{\def\HyInd@ParenRight{}}
\texttt{\def\hyperindexformat{#1#2}{}}
\texttt{\let\HyOrg@hyperpage\hyperpage}
\texttt{\let\hyperpage@firstofone}
\texttt{\#1{\HyOrg@hyperpage(#2)}}
\texttt{\let\hyperpage\HyOrg@hyperpage}
\texttt{)\}}
\texttt{\Hy@nextfalse}
\texttt{\ifpackageloaded{multind}{\Hy@nexttrue}{}}
\texttt{\ifpackageloaded{index}{\Hy@nexttrue}{}}
\texttt{\ifpackageloaded{amsmidx}{\Hy@nexttrue}{}}
\texttt{\begingroup}
\texttt{\lccode`|\expandafter`\HyInd@EncapChar\relax}
\texttt{\lccode`\relax}
\texttt{\relax}
\texttt{\ifHy@next}
\texttt{\let\HyInd@org@wrindex@wrindex}
\texttt{\def\@wrindex#1#2{\HyInd@@wrindex{#1}#2\|\}}
\texttt{\def\HyInd@@wrindex#1#2|#3|#4\|}{\ifx\#3\%}
\texttt{\HyInd@org@wrindex{#1}{#2}\hyperpage\}}
\texttt{\else}
\texttt{\HyInd@org@wrindex{#1}{#2}}
\texttt{\relax}
\texttt{\fi}
\texttt{\def\@wrindex#1{|\@@wrindex#1\|\}}
\texttt{\def\@@wrindex#1|#2|#3\|}{\if@filesw}
\texttt{\ifx\#2\%}
\texttt{\protected@write\@indexfile{}{}}
```

200
\def\HyInd@DefKey#1{% 
\begingroup 
\let\protect\@unexpandable\protect 
\edef\Hy@temp{#1}% 
\ltx@onelevel@sanitize\Hy@temp 
\global\let\HyInd@key\Hy@temp 
\endgroup 
}% 
\fi 
\fi 
\Hy@DisableOption{hyperindex} 
\Hy@DisableOption{encap} 
\nohyperpage 
The definition of \nohyperpage is just a precaution. It is used to mark code that does not belong to a page number, but \nohyperpage is never executed. 
\def\nohyperpage#1{#1} 

This again is quite flaky, but allow for the common situation of a page range separated by en-rule. We split this into two different hyperlinked pages. 
\def\hyperpage#1{\HyInd@hyperpage#1\nohyperpage{}\@nil} 
\def\HyInd@hyperpage#1\nohyperpage#2#3\@nil{\HyInd@@hyperpage{#1}#2\def\Hy@temp{#3}% 
\ifx\Hy@temp\@empty \else \ltx@ReturnAfterFi{\HyInd@hyperpage#3\@nil}\fi} 
\def\HyInd@@hyperpage#1{\@hyperpage#1----\} 
\def\@hyperpage#1--#2--#3\{\ifx\#2\% \@commahyperpage{#1}\else \HyInd@pagelink{#1}--\HyInd@pagelink{#2}\fi} 
\def\@commahyperpage#1{\@@commahyperpage#1, ,\} 
\def\@@commahyperpage#1, #2,#3\{\ifx\#2\% \HyInd@pagelink{#1}\else \HyInd@pagelink{#1}, \HyInd@pagelink{#2}\fi} 

The argument of \hyperpage can be empty. And the line breaking algorithm of Makeindex can introduce spaces. So we have to remove them. 
\def\HyInd@pagelink#1{\begingroup \toks@={}}
45 Compatibility with foiltex

46 Compatibility with seminar slide package

This requires seminar.bg2, version 1.6 or later. Contributions by Denis Girou (denis.girou@idris.fr).
\def\Hy@slidetitle{#1}\% 
\fi 
\ifHy@hypertexnames 
\ifHy@naturalnames 
\hyper@@anchor{slideheading.\theslidesubsection}{\relax}\% 
\Hy@writebookmark 
\} \theslidesubsection\% 
\{slideheading.\theslidesubsection\% 
\{2\}% 
\{toc\}% 
\else 
\hyper@@anchor{slideheading.\theHslidesubsection}{\relax}\% 
\Hy@writebookmark 
\} \theslidesubsection\% 
\{slideheading.\theHslidesubsection\% 
\{2\}% 
\{toc\}% 
\fi 
\else 
\Hy@GlobalStepCount\Hy@linkcounter 
\hyper@@anchor{slideheading.\the\Hy@linkcounter}{\relax}\% 
\Hy@writebookmark 
\} \theslidesubsection\% 
\{slideheading.\the\Hy@linkcounter\% 
\{1\}% 
\{toc\}% 
\fi 
\fi 
\providecommand*{\listslidename}{List of Slides}\% 
\def\listofslides{% 
\section*{listslidename} 
\@mkboth{% 
\expandafter\MakeUppercase\listslidename 
\expandafter\MakeUppercase\listslidename }{% 
\expandafter\MakeUppercase\listslidename 
\expandafter\MakeUppercase\listslidename } 
\l@slide##1##2##3##4{% 
\slide@undottedcline{% 
\slidenumberline{##3}{\hyperlink{##4}{##2}}% 
}\}% 
\l@subslide\l@slide 
\@startlos 
\def\slide@contents{% 
\l@slide##1##2##3##4{% 
\slide@cline{\slidenumberline{##3}{\hyperlink{##4}{##2}}}{##3}% 
\l@subslide\@gobblefour 
\@startlos 
\def\Slide@contents{% 
\l@slide##1##2##3##4{% 
\slide@undottedcline{% 
\slidenumberline{##3}{\hyperlink{##4}{##2}}% 
}\}% 
\l@subslide\@gobblefour 
\@startlos 
\def\slide@contents{% 
\l@slide##1##2##3##4{% 
\slide@cline{\slidenumberline{##3}{\hyperlink{##4}{##2}}}{##3}% 
\l@subslide\@gobblefour 
\@startlos 
\def\slide@contents{%
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.)
\Hy@setref@link extracts the reference information entries, because \hyper@@link does not expand arguments for the automatic link type detection.

\def\Hy@setref@link#1#2#3#4#5#6\@nil#7{\begingroup\toks0={\hyper@@link{#5}{#4}}\toks1=\expandafter{\@fifthoffive#1}{}\@secondoffive#1\@secondoffive#1\edef\x{\endgroup\the\toks0 {\the\toks1}}\x}\def\@pagesetref#1#2#3{%csname, extract macro, ref
\ifx#1\relax\protect\G@refundefinedtrue\nfs@text\reset@font\bfseries ??%\@latex@warning{Reference `#3' on page \thepage \space undefined%}\else\protect\hyper@@link{\expandafter\@fifthoffive#1}{}\@fifthoffive#1\@secondoffive#1\fi}\def\HyRef@StarSetRef#1{\begingroup\Hy@safe@activestrue\ifx#1\relax\protect\G@refundefinedtrue\nfs@text\reset@font\bfseries ??%\@latex@warning{Reference `#3' on page \thepage \space undefined%}\else\@setref#1\null\fi\endgroup}

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

\def\HyRef@StarSetRef#1{\begingroup\Hy@safe@activestrue\ifx#1\relax\protect\G@refundefinedtrue\nfs@text\reset@font\bfseries ??%\@latex@warning{Reference `#3' on page \thepage \space undefined%}\else\@setref#1\null\fi\endgroup}
\edef\x{#1}\
\@onelevel@sanitize\x
\edef\x{\endgroup\@firstoffive}\x
\def\HyRef@StarSetRef#1#2#3({% 
\ifx#1\@undefined
\let#1\relax
\fi
\real@setref#1#3(#2)%
\def\@refstar#1{% 
\HyRef@StarSetRef#1@firstoffive
}%
\def\@pagerefstar#1{% 
\HyRef@StarSetRef#1@secondoffive
}%
\def\@namerefstar#1{% 
\HyRef@StarSetRef#1@thirdoffive
}%
\Hy@AtBeginDocument{% 
\@ifpackageloaded{varioref}{% 
\def\@Refstar#1{% 
\HyRef@StarSetRef#1\HyRef@MakeUppercaseFirstOfFive
}%
\def\HyRef@MakeUppercaseFirstOfFive#1#2#3#4#5{% 
\MakeUppercase#1%
}%
\DeclareRobustCommand*{\Ref}{% 
\ifstar\@Refstar\HyRef@Ref
}%
\def\HyRef@Ref#1{% 
\hyperref\[{#1}\]{\Ref*{#1}}%
}%
\ifdefined\vp@gerefstar
\renewcommand\Vref@star[2][]{% 
\begingroup
\let\T@pageref\@pagerefstar
\Ref*{#2}
\vpageref[#1]{#2}%
\endgroup
}%
\renewcommand\Vr@f[2][]{% 
\begingroup
\let\T@pageref\@pagerefstar
\hyperref\[{#2}\]{\Ref*{#1}}%
\endgroup
}%
Test if we are running new 2019 varioref or old one:
\ifdefined\vp@gerefstar
\renewcommand\Vref@star[2][]{% 
\begingroup
\let\T@pageref\@pagerefstar
\Ref*{#2}
\vpageref[#1]{#2}%
\endgroup
}%
\renewcommand\Vr@f[2][]{% 
\begingroup
\let\T@pageref\@pagerefstar
\hyperref\[{#2}\]{\Ref*{#1}}%
\endgroup
}%
\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{% link command, csname, refname
\HyRef@thisref(%
\expandafter\@fourthoffive#1\@empty\@empty\@empty\@empty\null )%
\expandafter\@fourthoffive#1\@empty\@empty\@empty\@empty}
\edef\HyRef@thisref{\expandafter\@firstoffive#1\@empty\@empty\@empty}
\else
\protect\G@refundefinedtrue
\nfss@text{\reset@font\bfseries ??}\%
\@latex@warning{Reference `#2' on page \thepage space undefined\%}
}\fi
\def\HyRef@testreftype\HyRef@thisref.\%}
\Hy@safe@activetrue
\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\@fifthoffive#1\@empty\@empty\@empty\@empty\null}{%?
\expandafter\@fourthoffive#1\@empty\@empty\@empty\@empty}{%?
\HyRef@currentHtag
\expandafter\@firstoffive#1\@empty\@empty\@empty}
\else
\protect\G@refundefinedtrue
\nfss@text{\reset@font\bfseries ??}\%
\@latex@warning{Reference `#2' on page \thepage space undefined\%}
\fi
\fi
\def\HyRef@currentHtag
\expandafter\@firstoffive#1\@empty\@empty\@empty
\null
\else

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.

\Hy@pstringdef

Therefore such strings should be passed through \Hy@pstringdef. The first argument holds a macro for the result, the second argument is the string that needs protecting. Since version 1.30.0 pdfTeX offers \pdfescapestring.
This driver is for Han The Thanh’s \TeX\ variant which produces PDF directly. This has new primitives to do PDF things, which usually translate almost directly to PDF code, so there is a lot of flexibility which we do not at present harness.

Set PDF version if requested by option pdfversion.

- pdftex 1.10a, 2003-01-16: \pdfoptionpdfminorversion
- pdftex 1.30, 2005-08-08: \pdfminorversion
The PDF version number could not be set, because some PDF objects are already written. The version should be set as early as possible:
9679 /Type/OCG
9680 /Name(Print)
9681 /Usage<<
9682 /Print<<
9683 /PrintState/ON
9684 >>
9685 /View<<
9686 /ViewState/OFF
9687 >>
9688 >>
9689 >>
9690 )%
9691 \edef\OBJ@OCG@print{\the\pdflastobj}\space 0 R}%
9692 \immediate\pdfobj{%
9693 \OBJ@OCG@view\space \OBJ@OCG@print
9694 ]%
9695 ]%
9696 )%
9697 \edef\OBJ@OCGs{\the\pdflastobj}\space 0 R}%
9698 \pdfcatalog{%
9699 /OCProperties<<%
9700 /OCGs \OBJ@OCGs
9701 /D<<%
9702 /OFF[\OBJ@OCG@print]%
9703 /AS[%
9704 <<%
9705 /Event/View%
9706 /OCGs \OBJ@OCGs
9707 /Category[/View]%
9708 >>%
9709 <<%
9710 /Event/Print%
9711 /OCGs \OBJ@OCGs
9712 /Category[/Print]%
9713 >>%
9714 <<%
9715 /Event/Export%
9716 /OCGs \OBJ@OCGs
9717 /Category[/Print]%
9718 >>%
9719 )%
9720 >>%
9721 >>%
9722 )%
9723 \begingroup
9724 \edef\x{\endgroup
9725 \pdfpageresources{%
9726 \the\pdfpageresources
9727 /Properties<<%
9728 /OCView \OBJ@OCG@view
9729 /OCPrint \OBJ@OCG@print
9730 >>%
9731 )%
9732 )%
9733 \x
9734 )%
9735 \Hy@AtBeginDocument{%
First, allow for some changes and additions to pdftex syntax:

\def\setpdflinkmargin#1{%
  \begingroup
  \setlength{\dimen@}{#1}%
  \expandafter\endgroup
  \expandafter\pdflinkmargin\the\dimen@relax
}\fi

First set up the default linking
\providecommand*\@pdfview{XYZ}

First define the anchors:
\Hy@WrapperDef\new@pdflink#1{%
  \ifhmode
    \@savsf\spacefactor
  \fi
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}
  \Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}
  \Hy@DestName\Hy@pstringDest\@pdfview
\}%
\fi
\endgroup
\pdfliteral page{EMC}%
}

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

First set up the default linking
\providecommand*\@pdfview{XYZ}

First define the anchors:
Wrap the call of \pdfdestname in \Hy@DestName. Then it can easier be catched by package hypdestopt.

\def\Hy@DestName#1#2{\pdfdestname{#1}#2\relax}

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

\providecommand*{\@pdfborder}{0 0 1}
\providecommand*{\@pdfborderstyle{}}
\def\Hy@undefinedname{UNDEFINED}
\def\find@pdflink#1#2{\leavevmode\protected@edef\Hy@testname{#2}\ifx\Hy@testname\@empty\Hy@Warning{Empty destination name, using \Hy@undefinedname}\let\Hy@testname\Hy@undefinedname\else\Hy@pstringdef\Hy@testname{\HyperDestNameFilter\expandafter{\Hy@testname}\relax}\fi\Hy@StartlinkName{\ifHy@pdfa/F 4\fi\Hy@setpdfborder\Hy@setpdfhighlight\ifx\CurrentBorderColor\relax\else/C[\CurrentBorderColor]\fi\Hy@testname\expandafter\Hy@colorlink\csname@#1color\endcsname}\Hy@endcolorlink\Hy@VerboseLinkStop\pdfendlink\fi\Hy@testname\expandafter\expandafter\Hy@colorlink\csname@#1color\endcsname\Hy@testname\Hy@endcolorlink\Hy@VerboseLinkStop\pdfendlink\fi\Hy@testname\expandafter\expandafter\Hy@colorlink\csname@#1color\endcsname\Hy@testname\Hy@endcolorlink\Hy@VerboseLinkStop\pdfendlink\fi\Hy@testname\expandafter\expandafter\Hy@colorlink\csname@#1color\endcsname\Hy@testname}
\def\hyper@linkfile#1#2#3{% anchor text, filename, linkname
\begingroup
\def\Hy@pstringF{#2}\
\Hy@CleanupFile\Hy@pstringF
\Hy@pstringdef\Hy@pstringF\Hy@pstringF
\Hy@pstringdef\Hy@pstringD{#3}\
\leavevmode
\pdfstartlink
attr{\
\Hy@setpdfborder
\Hy@setpdfhighlight
\ifx\@filebordercolor\relax
\else
/C[\@filebordercolor]\
\fi
}\%
user {\
/Subtype/Link\
\if\Hy@pdfa /F 4\fi
/A<<\
/F(\Hy@pstringF)\
/S/GoToR\
\Hy@SetNewWindow
If #3 is empty, page 0; if its a number, Page number, otherwise a named destination.
\afterassignment\xxx\count@=0\foo!%
\def\xxx#1!{% 
\if\xxx#1\xxx
foo was an integer
\else
it wasn't
\fi
\relax
\Hy@href@nextactionraw
\relax
\Hy@colorlink\@filecolor#1\Hy@xspace\end
\close@pdflink
\endgroup
}
\def\@hyper@launch run:#1\#2#3{% filename, anchor text linkname
\begingroup
\Hy@pstringdef\Hy@pstringF{#1}\
\Hy@pstringdef\Hy@pstringP{#3}\
\leavevmode
\pdfstartlink
attr{\
\Hy@setpdfborder
\Hy@setpdfhighlight
\ifx\@filebordercolor\relax
\else
/C[\@filebordercolor]\
\fi
}\%
user {\
/Subtype/Link\
\if\Hy@pdfa /F 4\fi
/A<<\
/F(\Hy@pstringF)\
/S/GoToR\
\Hy@SetNewWindow
If #3 is empty, page 0; if its a number, Page number, otherwise a named destination.
\afterassignment\xxx\count@=0\foo!%
\hyperpagetransition \@pdffpagetransition is initialized with \relax. So it indicates, if option pdffpage-
transition is used. First previous \Trans entries are removed. If a new /Trans
key exists, it is appended to \pdfpageattr.

\def\hyperpagetransition{%
  \ifx\@pdffpagetransition\relax

  \else

  \expandafter\Hy@RemoveTransPageAttr
  \the\pdfpageattr^^J/Trans{}>>\END

  \ifx\@pdffpagetransition\@empty

  \else

    \edef\@processme{%
      \global\pdfpageattr{\the\pdfpageattr

      ^^J/Trans << /S /@pdffpagetransition\space >>}%

    }%

  }%

  \@processme

  \fi

  \fi

}%

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

\def\Hy@RemoveTransPageAttr#1^^J/Trans#2#3>>#4\END{%

  \ifx\#2\%

    \global\pdfpageattr{#1}%

  \else

    \expandafter\Hy@RemoveTransPageAttr

  \fi

}
\hyperpageduration \@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.

10098 \else
10099 \Hy@RemoveTransPageAttr#1#4\END
10100 \fi
10101 \}

\hyperpageduration \@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.

10102 \def\hyperpageduration{%
10103 \ifx\@pdfpageduration\relax%
10104 \else
10105 \expandafter
10106 \Hy@RemoveDurPageAttr\the\pdfpageattr^^J/Dur{} \END
10107 \ifx\@pdfpageduration\@empty
10108 \else
10109 \edef\@processme{%
10110 \global\pdfpageattr{%
10111 \the\pdfpageattr
10112 ^^J/Dur \@pdfpageduration\space
10113 }%
10114 }%
10115 \@processme
10116 \fi
10117 \fi
10118 \}

\HyperRemoveDurPageAttr Macro \HyperRemoveDurPageAttr 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.

10119 \gdef\HyperRemoveDurPageAttr#1^^J/Dur#2#3 #4\END{%
10120 \ifx\#2\%
10121 \global\pdfpageattr{#1}%
10122 \else
10123 \Hy@RemoveDurPageAttr#1#4\END
10124 \fi
10125 }

\hyperpagehidden 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).

10126 \def\hyperpagehidden{%
10127 \ifHy@useHidKey
10128 \expandafter
10129 \Hy@RemoveHidPageAttr\the\pdfpageattr^^J/Hid{} \END
10130 \ifHy@pdfpagehidden
10131 \edef\@processme{%
10132 \global\pdfpageattr{%
10133 \the\pdfpageattr
10134 ^^J/Hid true % SPACE
10135 }%
10136 }%
10137 \@processme
10138 \fi
10139 \fi
10140 \}
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.

\begin{verbatim}
\def\Hy@RemoveHidPageAttr#1^^J/Hid#2#3 #4\END{\%
\ifx\#2\%
\global\pdfpageattr{#1}\%
\else
\Hy@RemoveHidPageAttr#1#4\END
\fi
\}
\pdf@ifdraftmode{}{\%
\g@addto@macro\Hy@EveryPageHook{\%
 \hyper@pagetransition
 \hyper@pageduration
 \hyper@pagehidden
 }\%
\}
\end{verbatim}

Also Xe\TeX support \pdfpagewidth and \pdfpageheight, but it does not provide \pdfhorigin and \pdfforigin.
47.2.1 Fix for problem with different nesting levels

\AtBeginShipoutFirst adds an additional box layer around the first output page. This disturbs pd\TeX’s low level link commands \pdstartlink and \pdefendl, 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 pd\TeX – 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 an additional box layer.

\def\Hy@FixNotFirstPage{% 
\gdef\Hy@FixNotFirstPage{% 
\setbox\AtBeginShipoutBox=\hbox{% 
\copy\AtBeginShipoutBox
}%
}%
}
\ltx@ifpackagelater{atbegshi}{2011/10/05}{% 
\AtBeginShipout{\Hy@FixNotFirstPage}%
}

\langle/pdftex\rangle

47.3 hypertext

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

\textbf{href}: html:<a href = "href_string">

\textbf{name}: html:<a name = "name_string">

\textbf{end}: html:</a>

\textbf{image}: html:<img src = "href_string">

\textbf{base_name}: html:<base href = "href_string">

The \textit{href}, \textit{name} and \textit{end} commands are used to do the basic hypertext operations of establishing links between sections of documents. The \textit{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 \textit{base_name} command is be used to communicate to the \textit{dvi} viewer the full (URL) location of the current document so that files specified by relative URL's may be retrieved correctly.

The \textit{href} and \textit{name} commands must be paired with an \textit{end} command later in the \LaTeX file — the \LaTeX commands between the two ends of a pair form an anchor in the document. In the case of an \textit{href} command, the anchor is to be highlighted in the \textit{dvi} viewer, and when clicked on will cause the scene to shift to the destination specified by \textit{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 \texttt{href="#name_string"} with the \textit{name_string} identical to the one in the name command) or as part of a URL (of the form \texttt{URL#name_string}). Here \textit{href_string} is a valid URL or local identifier, while \textit{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.

\langle/hypertext\rangle

\providecommand*{\XR@ext}{dvi}
\let\PDF@FinishDoc\ltx@empty
\def\PDF@SetupDoc{% 
\ifx\@baseurl\@empty 
\else 
\special{html:<base href="\@baseurl">}%
\fi
\if\ltx@empty
\else
\special{html:<base href="#"@baseurl">}%
\fi

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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).

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

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

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

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

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

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

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

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

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

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.

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).

147.4 dviwindo

[This was developed by David Carlisle]. Within a file dviwindo hyperlinking is used, for external URL’s a call to \wwwbrowser is made. (You can define this command before or after loading the hyperref package if the default c:/netscape/netscape is not suitable) Dviwindo could in fact handle external links
to dvi files on the same machine without calling a web browser, but that would mean parsing the URL to recognise such, and this is currently not done.

This was more or less blindly copied from the hypertex.cfg. For dvipwindo, \texttt{\$} \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.

\begin{verbatim}
providecommand*{\XR@ext}{dvi}
providecommand*{\wwwbrowser}{c:\string\netscape\string\netscape}
\Hy@WrapperDef\hyper@anchor#1{%
\Hy@SaveLastskip
\Hy@VerboseAnchor{#1}%
\begingroup
\let\protect=\string
\special{mark: #1}%
\endgroup
\Hy@activeanchortrue
\Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
\Hy@activeanchorfalse
\Hy@RestoreLastskip
}
\Hy@WrapperDef\hyper@anchorstart#1{%
\Hy@SaveLastskip
\Hy@VerboseAnchor{#1}%
\special{mark: #1}%
\Hy@activeanchortrue
}
\def\hyper@anchorend{%
\Hy@activeanchorfalse
\Hy@RestoreLastskip
}
\def\hyper@linkstart#1#2{%
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\special{button: %
10000000 %
\number\baselineskip\space #2%}
}
\def\hyper@linkend{%
\Hy@endcolorlink
}
\def\hyper@link#1#2#3{%
\Hy@VerboseLinkStart{#1}{#2}%
\leavevmode
\ifHy@raiselinks
\Hy@SaveSpaceFactor
\Hy@SaveSavedSpaceFactor
\sbox\@tempboxa{\Hy@RestoreSpaceFactor#3}%
\Hy@RestoreSavedSpaceFactor
\@linkdim\dp\@tempboxa
\lower\@linkdim\hbox{%
\special{button: %
\number\wd\@tempboxa\space
\number\ht\@tempboxa\space
#2%}
}
\endverbatim

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\def\hyper@linkfile#1#2#3{\begingroup \hyper@chars \leavevmode \ifHy@raiselinks \Hy@SaveSpaceFactor \Hy@SaveSavedSpaceFactor \sbox\@tempboxa{\Hy@RestoreSpaceFactor#1}% \Hy@RestoreSavedSpaceFactor \@linkdim\dp\@tempboxa \lower\@linkdim\hbox{% \special{button: \number\wd\@tempboxa\space \number\ht\@tempboxa\space #3,% file: #2%} \Hy@colorlink\@filecolor #1\Hy@xspace@end \Hy@endcolorlink \Hy@SaveSpaceFactor \Hy@endcolorlink} % \@linkdim\ht\@tempboxa \advance\@linkdim by -6.5\p@ \raise\@linkdim\hbox{}} \else \special{button: \number\wd\@tempboxa\space \number\ht\@tempboxa\space #3,% file: #2%} \Hy@colorlink\@filecolor #1\Hy@xspace@end \Hy@endcolorlink \fi \endgroup} \HyInfo@AddonUnsupportedtrue \def\PDF@FinishDoc{\Hy@UseMaketitleInfos \HyInfo@TrappedUnsupported \special{PDF: Keywords \@pdfkeywords} \special{PDF: Title \@pdftitle} \ifx\@pdfcreationdate\@empty \else \special{PDF: CreationDate \@pdfcreationdate} \fi \ifx\@pdfmoddate\@empty \else \special{PDF: CreationDate \@pdfcreationdate} \fi}
47.5 *dvipdfm/xetex* dvi to PDF converter

Provided by Mark Wicks (mwicks@kettering.edu)
\@pdfm@mark{dest (\HyperDestNameFilter{#1}) \[thispage /\x\]}% 
endgroup
\Hy@RestoreLastskip

providecommand*{\pdfview{XYZ}}
providecommand*{\pdfborder{0 0 1}}
providecommand*{\pdfborderstyle{}}
\def\hyper@anchor#1{\@pdfm@dest{#1}}
Use primitive counter arithmetic here to avoid amsmath redefining \stepcounter (github issue/13)
\def\PDF@SetupDoc{%
\edef\Hy@temp{%
\ifHy@pdftoolbar\else /HideToolbar true\fi
\ifHy@pdfmenubar\else /HideMenubar true\fi
\ifHy@pdfwindowui\else /HideWindowUI true\fi
\ifHy@pdffitwindow /FitWindow true\fi
\ifHy@pdfcenterwindow /CenterWindow true\fi
\ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi
\Hy@UseNameKey{NonFullScreenPageMode}\pdfnonfullscreenpagemode
\Hy@UseNameKey{Direction}\pdfdirection
\Hy@UseNameKey{ViewArea}\pdfviewarea
\Hy@UseNameKey{ViewClip}\pdfviewclip
\Hy@UseNameKey{PrintArea}\pdfprintarea
\Hy@UseNameKey{PrintClip}\pdfprintclip
\Hy@UseNameKey{PrintScaling}\pdfprintscaling
\Hy@UseNameKey{Duplex}\pdfduplex
\if\pdfpicktraybypdfsize\empty
\else
/PickTrayByPDFSize \pdfpicktraybypdfsize
\fi
\if\pdfprintpagerange\empty
\else
/PrintPageRange\pdfprintpagerange%
\fi
\if\pdfnumcopies\empty
\else
/NumCopies \pdfnumcopies
\fi
}\if\Hy@temp\empty
\else
/ViewerPreferences\Hy@temp%
\fi
\Hy@UseNameKey{PageLayout}\pdfpagelayout
}%
\ifx\@pdfstartpage\empty
\else
/OpenAction[@page\@pdfstartpage\@pdfstartview]%
\fi
\ifx\@baseurl\empty
\else
/URI<</Base(\@baseurl)>%}
\fi
\ifx\@pdftemplate\empty
\else
/Template\@pdftemplate%
\fi
\ifx\@pdfpagemode\empty
\else
/PageMode\@pdfpagemode%
\fi
\ifx\@temp\empty
\else
/ViewerPreferences<</@temp>%
\fi
\Hy@UseNameKey{PageLayout}\pdfpagelayout
}
XeTeX uses pdfTeX’s method \pdfpagewidth and \pdfpageheight for setting the paper size.

\begin{verbatim}
\AtBeginShipoutFirst{\ifHy@setpagesize
  \begingroup
  \ifdim\paperwidth>\z@ \ifdim\paperheight>\z@
    \special{papersize=\the\paperwidth,\the\paperheight}
  \fi
  \fi
  \fi}
  \endgroup
  \fi
\Hy@DisableOption{setpagesize}
\end{verbatim}

47.6 VTeX typesetting system


\begin{verbatim}
\providecommand*{\XR@ext}{htm}
\RequirePackage{vtexhtml}
\newif\if@Localurl
\let\PDF@FinishDoc\ltx@empty
\def\PDF@SetupDoc{\ifx\@baseurl\@empty
  \else
    \special{!direct <base href="\@baseurl">}
  \fi}
\def\@urltype{url}
\def\hyper@link#1#2#3{\Hy@VerboseLinkStart{#1}{#2}
  \leavevmode
  \special{!direct <a href="%\hyper@quote\hyper@hash\HyperDestNameFilter{#2}\hyper@quote">}
  #3\Hy@xspace@end \special{!direct </a>}}
\def\hyper@linkurl#1#2{\begingroup
  \hyper@chars
  \leavevmode
  \MathBSuppress=1\relax
  \special{!direct <a href="#1">}
  \HyperDestNameFilter{#2}\hyper@quote>}
\end{verbatim}
VTeX version 6.68 supports \mediawidth and \mediaheight. The \fifx 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.

\providecommand*{\@pdfview}{xyz}
\providecommand*{\@pdfborder}{0 0 1}
\providecommand*{\@pdfborderstyle}{}
\let\CurrentBorderColor\@linkbordercolor
\Hy@WrapperDef\hyper@anchor\#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}\
  \begingroup
    \let\protect=\string
    \hyper@chars
    \special{!aname \HyperDestNameFilter{#1};\@pdfview}%
  \endgroup
  \Hy@activeanchortrue
  \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}%
\Hy@WrapperDef\hyper@anchorstart\#1{%
  \Hy@SaveLastskip
  \Hy@VerboseAnchor{#1}\
  \begingroup
    \hyper@chars
    \special{!aname \HyperDestNameFilter{#1};\@pdfview}%
  \endgroup
  \Hy@activeanchortrue
}%
\def\hyper@anchorend{%
  \Hy@activeanchorfalse
  \Hy@RestoreLastskip
}%
\def\@urltype{url}
\def\Hy@undefinedname{UNDEFINED}
\def\hyper@linkstart#1#2{%
  \Hy@VerboseLinkStart{#1}{#2}\
  \Hy@pstringdef\Hy@pstringURI{#2}\
  \expandafter\Hy@colorlink\csname @#1color\endcsname
  \ltx@IfUndefined{@#1bordercolor}{%
    \let\CurrentBorderColor\relax
  }{%
    \edef\CurrentBorderColor{\csname @#1bordercolor\endcsname}%
  }%
  \def\Hy@tempa{#1}\
  \ifx\Hy@tempa\@urltype
    \special{!%
      aref <u=/Type/Action/S/URI/URI(\Hy@pstringURI)%
      \ifHy@href@ismap
        /IsMap true%
      \fi
      \Hy@href@nextactionraw
    }%
  \else
    \Hy@href@nextactionraw
  \fi
}
The following code (transition effects) is made by Alex Kostin. The code below makes sense for \TeX{} 7.02 or later. Please never use \verb|\ifnum\Hy@VTeXversion<702 %\else\def\hyper@pagetransition{\ifx\@pdfpagetransition\relax\else\ifx\@pdfpagetransition\@empty\Standard incantation.\else\hvtex@parse@trans\@pdfpagetransition\fi\fi}\fi| globally.

1. Does an old entry have to be deleted? 2. If 1=yes, how to delete?

I have to write an “honest” parser to convert raw PDF code into \TeX\ \special. (AVK)

Syntax of \TeX\ \special{\trans <transition_effect>}:

\begin{verbatim}
<transition_effect>:=[<transition_style>,<transition_duration>]
<transition_style>:=[<Blinds_effect>,<Box_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:

\begin{verbatim}
\def\hvtex@trans@effect@Blinds{\def\hvtex@trans@code{B}}%
\def\hvtex@trans@effect@Box{\def\hvtex@trans@code{X}}%
\def\hvtex@trans@effect@Dissolve{\def\hvtex@trans@code{D}}%
\def\hvtex@trans@effect@Glitter{\def\hvtex@trans@code{G}}%
\def\hvtex@trans@effect@Split{\def\hvtex@trans@code{S}}%
\def\hvtex@trans@effect@Wipe{\def\hvtex@trans@code{W}}%
\def\hvtex@trans@effect@R{\def\hvtex@trans@code{R}}%
\end{verbatim}

Optional parameters:

\begin{verbatim}
\def\hvtex@par@dimension{/Dm}%
\def\hvtex@par@direction{/Di}%
\def\hvtex@par@duration{/D}%
\def\hvtex@par@motion{/M}%
\end{verbatim}

Tokenizer:

\begin{verbatim}
\def\hvtex@gettoken{%
\expandafter\hvtex@gettoken@\hvtex@buffer@\nil
}\end{verbatim}

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Notice that tokens in the input buffer must be space delimited.

\def\hvtex@gettoken@#1 #2\@nil{% 
  \edef\hvtex@token{#1}%
  \edef\hvtex@buffer{#2}%
}%
\def\hvtex@parse@trans#1{%

  \let\hvtex@trans@code\@empty
  \let\hvtex@param@dimension\@empty
  \let\hvtex@param@direction\@empty
  \let\hvtex@param@duration\@empty
  \let\hvtex@param@motion\@empty

  \edef\hvtex@buffer{#1 \space}%

  First token is the PDF transition name without escape.

  \hvtex@gettoken
  \ifx\hvtex@token\@empty
    Leading space(s)?
    \ifx\hvtex@buffer\@empty
      The buffer is empty, nothing to do.
      \else
      \else \hvtex@gettoken
    \fi
    \else
    \fi
  \fi

  \csname hvtex@trans@effect@\hvtex@token\endcsname

  Now is time to parse optional parameters.

  \hvtex@trans@params
}%
\def\hvtex@trans@params{%

  \ifx\hvtex@buffer\@empty
    \else
    \hvtex@gettoken
    \let\hvtex@trans@par\hvtex@token
    \ifx\hvtex@buffer\@empty
      \else
      \else \hvtex@gettoken
    \fi
    \else
    \fi
  \else
    \hvtex@gettoken
  \fi

  \csname hvtex@trans@effect@\hvtex@token\endcsname

  Now is time to parse optional parameters.

  \hvtex@trans@params
}%
\def\hvtex@trans@params{%

  \ifx\hvtex@buffer\@empty
    \else
    \hvtex@gettoken
    \let\hvtex@param@dimension\hvtex@token
    \ifx\hvtex@buffer\@empty
      \else
      \else \hvtex@gettoken
    \fi
    \else
    \fi
  \else
    \hvtex@gettoken
  \fi

  /D is the effect duration in seconds. VTeX special takes it in milliseconds.

  \ifx\hvtex@param@dimension\@empty
    \else
    \else \hvtex@gettoken
  \fi
  \else
    \hvtex@gettoken
  \fi

  /M can be either /I or /O

  /Dm can be either /H or /V

  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

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Merge `<transition_effect>` and issue the special when possible. Too lazy to validate optional parameters.

\def\hvtex@produce@trans{\ifx\hvtex@buffer@empty
\let\next\hvtex@produce@trans
\else
\let\next\hvtex@trans@params
\fi
\next
}%

I'm not guilty of possible overflow.

\multiply\dimen@\@m
\edef\hvtex@trans@special{\hvtex@trans@code\hvtex@param@dimension\hvtex@param@motion}%
\else\if B\hvtex@trans@code
\edef\hvtex@trans@special{\hvtex@trans@code\hvtex@param@dimension}%
\else\if X\hvtex@trans@code
\edef\hvtex@trans@special{\hvtex@trans@code\hvtex@param@motion}%
\else\if W\hvtex@trans@code
\edef\hvtex@trans@special{\hvtex@trans@code\hvtex@param@direction}%
\else\if D\hvtex@trans@code
\let\hvtex@trans@special\hvtex@trans@code
\else\if R\hvtex@trans@code
\let\hvtex@trans@special\hvtex@trans@code
\else\if G\hvtex@trans@code
\edef\hvtex@trans@special{\hvtex@trans@code\hvtex@param@direction}%
\fi\fi\fi\fi\fi\fi\fi
\ifx\hvtex@trans@special\@empty
\else
\ifx\hvtex@param@duration\@empty
\else
\setlength{\dimen@}{\hvtex@param@duration\p@}%
\multiply\dimen@\@m
\edef\hvtex@trans@special{\hvtex@trans@special,\strip@pt\dimen@}%
\fi
\special{!trans \hvtex@trans@special}%
\fi
}%

And all the mess is just for this.

\special{\hvtex@trans@special}%
}%
\def\hyper@pageduration{\ifx\@pdfpageduration\relax
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}%
Caution: In opposition to the other drivers, the argument of \texttt{\special{onopen #1}} is a reference name. The VTeX's postscript mode will work with a version higher than 7.0x.

The command \texttt{\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

\begin{verbatim}
11650 \ifx\@pdfproducer\relax
11651 \def\@pdfproducer{VTeX}%
11652 \ifnum\Hy@VTeXversion>\z@
11653 \count\VTeXversion
11654 \divide\count\@100 %
11655 \edef\@pdfproducer{\@pdfproducer v\the\count\space\ifnum\count<10 0\fi\the\count\space(\ifcase\VTeXOS Windows\or Linux\or OS/2\or MacOS\or MacOS/X\space\ifx\gexmode\@undefined\else\space with GeX\fi)}%
11656 \multiply\count\@-100 %
11657 \advance\count\@\VTeXversion
11658 \edef\@pdfproducer{\@pdfproducer}%
11659 \@pdfproducer
11660 \ifnum\count<10 0\fi\the\count\%\ifx\VTeXOS\@undefined\else
11662 \ifnum\VTeXOS<6 %
11663 \space(%
11665 \ifcase\VTeXOS or Windows\or Linux\or OS/2\or MacOS\or MacOS/X%
11667 \fi
11668 \)%
11669 \fi
11670 \fi
11671 \fi
11672 \space
11673 \ifnum\OpMode=\ne PDF\else PS\fi
11674 \space backend%
11675 \ifx\gexmode\@undefined\else
11676 \ifnum\gexmode>\z@ space with GeX\fi
\end{verbatim}

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Current `pdffinfo` 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).

```latex
\def\PDF@SetupDoc{% 
  \ifx\@pdfpagescrop\@empty 
  \else 
  \special{!pdfinfo b=<\@pdfpagescrop>}% 
  \fi 
  \ifx\@pdfstartpage\@empty 
  \else 
    \ifx\@pdfstartview\@empty 
      \fi 
    \else 
      \special{!onopen Page\@pdfstartpage}% 
    \fi 
  \fi 
  \special{!pdfinfo p=</\@pdfpagemode>}% 
  \ifx\@baseurl\@empty 
  \else 
    \special{!pdfinfo u=<<</Base (\@baseurl)>>>}% 
  \fi 
  \fi 
  \special{!pdfinfo v=<<% 
    \ifHy@pdftoolbar\else /HideToolbar true\fi 
    \ifHy@pdfmenubar\else /HideMenubar true\fi 
    \ifHy@pdfwindowui\else /HideWindowUI true\fi 
    \ifHy@pdfdisplaydoctitle /DisplayDocTitle true\fi 
    \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenspagemode 
    \Hy@UseNameKey{Direction}\@pdfdirection 
    \Hy@UseNameKey{ViewArea}\@pdfviewarea 
    \Hy@UseNameKey{ViewClip}\@pdfviewclip 
    \Hy@UseNameKey{PrintArea}\@pdfprintarea 
    \Hy@UseNameKey{PrintClip}\@pdfprintclip 
    \Hy@UseNameKey{PrintScaling}\@pdfprintsclling 
    \Hy@UseNameKey{Duplex}\@pdfduplex 
    \fi 
  \special{!pdfpicktraybypdfsize\@empty 
      \else 
        /PickTrayByPDFSize @pdfpicktraybypdfsize 
      \fi 
  \special{!pdfprintpagerange\@empty 
      \else 
        \fi 
  255
```
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
```

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
```
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.

Drivers that load pdfmark.def have to provide the correct macro definitions of

\@pdfproducer for document information
\literalps@out PostScript output
\headerps@out PostScript output that goes in the header area

and the correct definitions of the following PostScript procedures:

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

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

\usepackage{hyperref}{setouterhbox}

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

\long\def\Hy@setouterhbox#1#2{\long\def\my@temp{#2}}
\def\Hy@breaklinksunhbox#1{\my@temp}
\newsavebox{\pdf@box}
\providecommand*{\Hy@setouterhbox}{\sbox}
\providecommand*{\Hy@breaklinksunhbox}{\unhbox}
\def\Hy@DEST{/DEST}
\def\pdf@rect#1{\begingroup
\begin{tabular}{|l|}
\hline
12160 \\end{tabular}
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…).
but if it can have multiple paragraphs you'd need one of these, but in that case
the measured box size would be wrong anyway.

\iffHy@breaklinks{#1}\else\box\pdf@box\fi
\iffHy@breaklinks{\#1}\else\box\pdf@box\fi

\ift\dim\dimen@=\z@ \literalps@out{H.R}\% \\
\else \raise\dimen@\hbox{\literalps@out{H.R}}\% \\
\fi
\Hy@RestoreSpaceFactor
\fi
\ifx\pdf@type\Hy@DEST \else \pdf@addtoksx{H.B}\% \\
\fi
\pdf@addtoksx{H.B}

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

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

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

% what is the type of pdfmark?
\define@key{PDF}{pdfmark}{\def\pdf@type{#1}\\
% what is the link type?
\define@key{PDF}{linktype}{\def\pdf@linktype{#1}\\
% named object?
\define@key{PDF}{objdef}{\edef\pdf@objdef{#1}\\
% parameter is a stream of PDF
\let\pdf@objdef@ltx@empty \\
\define@key{PDF}{Raw}{\pdf@addtoks{\#1}\\
% parameter is a name
\define@key{PDF}{Action}{\pdf@addtoks{\#1}{Action}\\
% parameter is an array
\define@key{PDF}{Border}{\pdf@addtoks{\#1}{\Hy@BorderArrayPatch}{Border}% hash-ok
\fi

\let\Hy@BorderArrayPatch@empty

\def\Hy@temp{\#1}\%
\ifx\Hy@temp@empty
\else
\pdf@addtoks{<<\#1>>}{BS}\%
\fi

\fi

% parameter is a dictionary
\define@key{PDF}{BorderStyle}{%
\edef\Hy@temp{#1}\%
\ifx\Hy@temp@empty
\else
\pdf@addtoks{#1}{BS}\%
\fi}

% parameter is a array
\define@key{PDF}{Color}{%
\ifx\relax#1\relax
\else
\pdf@addtoks{[#1]}{Color}\%
\fi}

% parameter is a string
\define@key{PDF}{Contents}{\pdf@addtoks{(#1)}{Contents}}

% parameter is a integer
\define@key{PDF}{Count}{\pdf@addtoks{#1}{Count}}

% parameter is a array
\define@key{PDF}{CropBox}{\pdf@addtoks{[#1]}{CropBox}}\%

% 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}}\%
\if\Hy@pstringDest@empty
\Hy@pdfmarkerrortrue
\Hy@Warning{Destination with empty name ignored}\%
\else
\pdf@addtoks{(#1) cvn}{Dest}\%
\fi

\define@key{PDF}{DestAnchor}{%}
\Hy@pstringdef\Hy@pstringDest{\HyperDestNameFilter{#1}}\%
\if\Hy@pstringDest@empty
\Hy@pdfmarkerrortrue
\Hy@Warning{Destination with empty name ignored}\%
\else
\pdf@addtoks{(#1) 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}{%
\if\Hy@pdfa
\pdf@addtoks{#1}{F}\%
\fi

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% parameter is a name
\define@key{PDF}{AcroHighlight}{% 
 \begingroup 
 \edef\x{#1}% 
 \expandafter\endgroup\ifx\x\@empty 
 \else 
 \pdf@addtoks{#1}{H}% 
 \fi 
 \endgroup 
% parameter is a string
% parameter is a string
\define@key{PDF}{ID}{\pdf@addtoks{[#1]}{ID}}% hash-ok
% parameter is a name
% parameter is a string
\define@key{PDF}{MacFile}{\pdf@addtoks{(#1)}{MacFile}}
% parameter is a string
% 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
% parameter is a integer or name
\define@key{PDF}{Page}{\pdf@addtoks{#1}{Page}}
% parameter is a name
% parameter is a string
\define@key{PDF}{PageMode}{\pdf@addtoks{#1}{PageMode}}
% parameter is a string
% parameter is a string
\define@key{PDF}{Subtype}{\pdf@addtoks{(#1)}{Subtype}}
% parameter is a string
% parameter is a string
\define@key{PDF}{Title}{\pdf@addtoks{(#1)}{Title}}
% parameter is a string
% parameter is a string
\define@key{PDF}{Unix}{\pdf@addtoks{(#1)}{Unix}}
% parameter is a string
% parameter is a string
\define@key{PDF}{UnixFile}{\pdf@addtoks{(#1)}{UnixFile}}
% parameter is an array
% parameter is a string
\define@key{PDF}{View}{\pdf@addtoks{(#1)}{View}}% hash-ok
% parameter is a string
% parameter is a string
\define@key{PDF}{WinFile}{\pdf@addtoks{(#1)}{WinFile}}

These are the keys used in the DOCINFO section.
\define@key{PDF}{Author}{\pdf@addtoks{(#1)}{Author}}
\define@key{PDF}{Creator}{\pdf@addtoks{(#1)}{Creator}}
\define@key{PDF}{CreationDate}{\pdf@addtoks{(#1)}{CreationDate}}
\define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
\define@key{PDF}{Producer}{\pdf@addtoks{(#1)}{Producer}}
\define@key{PDF}{Subject}{\pdf@addtoks{(#1)}{Subject}}
\define@key{PDF}{Keywords}{\pdf@addtoks{(#1)}{Keywords}}
\define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
\define@key{PDF}{Base}{\pdf@addtoks{(#1)}{Base}}
\define@key{PDF}{URI}{\pdf@addtoks{(#1)}{URI}}
\define@key{PDF}{Trapped}{% 
 \edef\Hy@temp{#1}% 
 \ifx\Hy@temp\@empty 
 \else 
 \fi 
 \endgroup
\pdfaddtoks{/#1}{Trapped}%
\fi
}
\def\Acrobatmenu#1#2{%
\EdefEscapeName\Hy@temp@menu{#1}%
\Hy@Acrobatmenu{#1}{#2}{%
\pdfmark{[#2]}{%
  linktype=menu,%
  pdfmark=/ANN,%
  AcroHighlight=\@pdfhighlight,%
  Border=\@pdfborder,%
  BorderStyle=\@pdfborderstyle,%
  Color=\@menubordercolor,%
  Action={</Subtype/Named/N/\Hy@temp@menu>>,}%
  Subtype=/Link,%
  PDFAFlags=4%
}}%
}

And now for some useful examples:
\def\PDFNextPage{\newif\Ifpdfnextchar\pdfnextcharfalse}
\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{\newif\Ifpdfnextchar\pdfnextchartrue}
\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.
\begingroup
\Hy@pstringdef\Hy@pstringURI{#2}\
hyper@chars
\leavevmode
\pdfmark[{#1}]{%
pdfmark=/ANN,%
linktype=url,%
AcroHighlight=\@pdfhighlight,%
Border=\@pdfborder,%
BorderStyle=\@pdfborderstyle,%
Color=\@urlbordercolor,%
Action={<<%
/Subtype/URI%
/URI(\Hy@pstringURI)%
\ifHy@href@ismap
/IsMap true%
\fi
>>},%
Subtype=/Link,%
PDFAFlags=4%
}%
\endgroup
}
def\hyper@linkfile#1#2#3{%
\begingroup
\def\Hy@pstringF{#2}
\Hy@CleanupFile\Hy@pstringF
\Hy@pstringdef\Hy@pstringF\Hy@pstringF
\Hy@pstringdef\Hy@pstringD{#3}
\Hy@MakeRemoteAction
\leavevmode
\pdfmark[{#1}]{%
pdfmark=/ANN,%
linktype=file,%
Subtype=/Link,%
PDFAFlags=4,%
AcroHighlight=\@pdfhighlight,%
Border=\@pdfborder,%
BorderStyle=\@pdfborderstyle,%
Color=\@filebordercolor,%
Action={%
<<%
/S/GoToR%
\Hy@SetNewWindow
/F(\Hy@pstringF)%
/D%
/ifx\[#3\]%
/\Hy@href@page@pdfremotestartview%
}else
(\Hy@pstringD)cvn%
fi
\Hy@href@nextactionraw
>>%
}%
}%
\endgroup
}
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 /Boder array are not taken literally, but interpreted by ghostscript using the resolution of the dvi driver. I don’t know how other distiller programs behaves in this manner.

```
/BorderArrayPatch{%
  [exch{%
    dup dup type/integertype eq exch type/realtype eq or%
    {BPToDvips}if%
  }forall]%
} def
```

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

```
/HyperBorder {1 PDFToDvips} def
/H.V {pdf@hoff pdf@voff null} def
/H.B {/Rect[pdf@llx pdf@lly pdf@urx pdf@ury]} def
```

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

```
/H.S {%
  currentpoint %
  HyperBorder add /pdf@lly exch def %
  dup DvipsToPDF 72 add /pdf@hoff exch def %
  HyperBorder sub /pdf@llx exch def%
} def
```

The calculation of upper left y is done without raising the point in TtX, by simply adding on the current \baselineskip to the current y. This is usually too much, so we remove a notional 2 points.

We have to see what the current baselineskip is, and convert it to the dvips coordinate system.

Argument: baselineskip in pt. The x and y coordinates of the current point, minus the baselineskip

```
/H.L {%
  2 sub dup%
  /HyperBasePt exch def %
  PDFToDvips /HyperBaseDvips exch def %
  currentpoint %
  HyperBaseDvips sub /pdf@ury exch def%
  /pdf@urx exch def%
} def
```

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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.
The rectangle around the links starts off *exactly* the size of the box; we will 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: \( pdf@lly = Y_c - \text{HyperBorder} \), \( pdf@hoff = X_c + 72 \), \( pdf@llx = X_c - \text{HyperBorder} \), \( pdf@ury = Y_c + \text{HyperBorder} \), \( pdf@urx = X_c + \text{HyperBorder} \).
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.

\texttt{\Hy@ps@CR}

The macro \texttt{\Hy@ps@CR} contains the end-of-line character.

Textures has two types of \texttt{special} command for inserting PostScript code directly into the dvi output. The ‘postscript’ way preserves TeX’s idea of where on the page the \texttt{special} occurred, but it wraps the contents with a \texttt{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 \texttt{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’ \texttt{special}.

\texttt{\def\literalps@out#1{\%} %}
\texttt{\special{postscript 0 0 transform}%}
\texttt{\special{rawpostscript itransform moveto\Hy@ps@CR #1}%} %
\texttt{}} %
\texttt{}} %

\texttt{\def\setpdflinkmargin#1{\%} %}
\texttt{\begingroup %}
\texttt{\setlength{\dimen@}{#1} %}
\texttt{\literalps@out{\%} %}
\texttt{\endgroup %}

\texttt{\def\setpdfinkmargin#1{\%} %}
\texttt{\begingroup %}
\texttt{\setlength{\dimen@}{#1} %}
\texttt{\literalps@out{\%} %}
\texttt{\endgroup %}

\texttt{\def\setpdfmarkmargin#1{\%} %}
\texttt{\begingroup %}
\texttt{\setlength{\dimen@}{#1} %}
\texttt{\literalps@out{\%} %}
\texttt{\endgroup %}

\texttt{\def\setpdfmarkmargin#1{\%} %}
\texttt{\begingroup %}
\texttt{\setlength{\dimen@}{#1} %}
\texttt{\literalps@out{\%} %}
\texttt{\endgroup %}
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.

12693 \def\headerps@out#1{% 
12694 \special{% 
12695 prepostscript TeXdict begin\Hy@ps@CR 
12696 #1\Hy@ps@CR 
12697 end% 
12698 }% 
12699 }% 
12700 %

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.

12701 \g@addto@macro\Hy@FirstPageHook{% 
12702 \headerps@out{% 
12703 /betterpdfmark {}% 
12704 systemdict begin % 
12705 dup /BP eq% 
12706 {cleartomark gsave nulldevice []}% 
12707 {dup /EP eq% 
12708 {cleartomark cleartomark grestore}% 
12709 {cleartomark}% 
12710 ifelse% 
12711 }ifelse % 
12712 end% 
12713 }def\Hy@ps@CR 
12714 ___pdfmark___ not{/pdfmark /betterpdfmark load def}if% 
12715 }% end of \headerps@out 
12716 }% end of \AtBeginShipoutFirst 
12717 % 
12718 \input{pdfmark.def}% 
12719 % 
12720 %fx\@pdfproducer\relax 
12721 \def\@pdfproducer{Textures + Distiller}% 
12722 \fi 
12723 \providecommand*\@pdfborder{0 0 1} 
12724 \providecommand*\@pdfborderstyle{} 
12725 \providecommand*\@pdfview{XYZ} 
12726 \providecommand*\@pdfviewparams{ H.V} 
12727 %

These are called at the start and end of unboxed links; their job is to leave available PS variables called pdfllx pdflly pdfurx pdfury, 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.

12728 \Hy@AtBeginDocument{% 
12729 \headerps@out{% 

Textures lives in normal points, I think. So conversion from one coordinate system to another involves doing nothing.

12730 /vsize \{\Hy@pageheight\} def% 
12731 /DvipsToPDF {} def% 
12732 /PDFToDvips {} def% 
12733 /BPToDvips {} def%
Textures provides built-in support for HyperTeX specials so this part combines code from hyperref.def with what is established by loading pdfmark.def, or any other driver.
Very poor implementation of \hyper@link without considering #1.

\def\hyper@link#1#2#3{%}
\Hy@VerboseLinkStart{#1}{#2}%
\hyper@linkurl{#3}{\#\HyperDestNameFilter{#2}}%
\Hy@endcolorlink%
}

\def\hyper@image#1#2{%
\begingroup
\hyper@chars
\special{html:<img src=\hyper@quote#1\hyper@quote>}%
\endgroup
}
\langle /textures \rangle

47.12 dvipsone

\subsection{dvipsone driver}
\% Over-ride the default setup macro in pdfmark driver to use Y\&Y
\% \| special \| commands.
\% \langle dvipsone \rangle
\% \langle \pdf \rangle
\% \langle ltx=empty \rangle
\% \langle \pdfborder{0 0 1} \rangle
\% \langle \pdfborderstyle{} \rangle
\% \langle \special{ps=\#1} \rangle
\% \langle \special{headertext=\#1} \rangle
\% input(pdfmark.def)\%
\HyInfo@AddonUnsupportedtrue
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 /Boder array are not taken literally, but interpreted by ghostscript using the resolution of the dvi driver. I don’t know how other distiller programs behaves in this manner.

\def\setpdflinkmargin#1{
  \begingroup
  \setlength{\dimen@}{#1}\space
  \literalps@out{\
    /HyperBorder{\strip@pt\dimen@ point PDFToDvips}def%}
  \endgroup
}

\setlength{\dimen@}{1pt}\space
\literalps@out{\
  /HyperBorder{1 PDFToDvips} def%
}

\def\setpdflinkmargin#1{...
47.13 TeX4ht

\providecommand*{\XR@ext}{html}
\let\Hy@raisedlink\ltx@empty
\@ifpackageloaded{tex4ht}{\Hy@InfoNoLine{tex4ht is already loaded}}{% 
\RequirePackage[htex4ht]{tex4ht}
\hyperlinkfileprefix{}
\let\PDF@FinishDoc\ltx@empty
\def\PDF@SetupDoc{%
\ifx\@baseurl\@empty
\else
\special{t4ht=<base href="/@baseurl">}%
\n
\Hy@WrapperDef\hyper@anchor#1{% 
\Hy@SaveLastskip
\Hy@VerboseAnchor{#1}%
\begingroup
\let\protect=\string
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">% 
\else
\begingroup
\hyper@chars
\special{t4ht=<a name=%
\hyper@quote\HyperDestNameFilter{#1}\hyper@quote>}%
\endgroup
\Hy@activeanchortrue
\def\@urltype{url}
\def\hyper@linkstart#1#2{% 
\Hy@VerboseLinkStart{#1}{#2}%
\expandafter\Hy@colorlink\csname @#1color\endcsname
\ifx\Hy@tempa\@urltype
\special{t4ht=<a href="/@baseurl">%
Poor implementation of \hyper@link without considering #1.
\let\autoref\ref
\let\rEfLiNK\UnDef
\def\rEfLiNK #1#2{#2}\
\fi
\let\backref\ltx@gobble
Fix for tex4ht.
\AtBeginDocument{\
\expandafter\let\expandafter\Hy@OrgMakeLabel\csname Make:Label\endcsname
\expandafter\def\csname Make:Label\endcsname#1#2{\
\ifhmode\
\Hy@SaveSpaceFactor
\else\
\global\Hy@SavedSpaceFactor=1000 %
\fi
\Hy@OrgMakeLabel{#1}{%
\Hy@RestoreSpaceFactor
#2\Hy@xspace@end%}
\Hy@SaveSpaceFactor
}}%
\AtEndDocument{}
⟨ /tex4ht ⟩
⟨ *tex4htcfg ⟩
\IfFileExists{\jobname.cfg}{\endinput}{}
Preamble{html}
\begin{document}%
\EndPreamble
\def\TeX{TeX}
\def\OMEGA{Omega}
\def\LaTeX{La\TeX}
\def\LaTeXe{La\TeX2e}
\def\eTeX{e-\TeX}
\def\MF{Metafont}
\def\MP{MetaPost}
\def\html{html}
\def\pdfmark{
\long\def\@Form[#1]{%
\g@addto@macro\Hy@FirstPageHook{%
\headerps@out{%
/_objdef{pdfDocEncoding}%/type/dict%
[ pdfDocEncoding ]
<<
/Type/Encoding
/Differences[285] 
\end
}}%
\end}
\begin{html}{document}
% 48 Driver-specific form support
48.1 pdfmarks
\long\def\@Form[#1]{%
\g@addto@macro\Hy@FirstPageHook{%
\headerps@out{%
/_objdef{pdfDocEncoding}%/type/dict%
/OBJ pdfmark%
[ pdfDocEncoding ]
<<
/Type/Encoding
/Differences[
285] 
\end
}}%
[1 setgray %
248 98 moveto %
248 2 lineto %
2 2 lineto %
4 4 lineto %
246 4 lineto %
246 96 lineto %
fill%
1 setgray %
2 /Helv 10 Tf 0 g]
\iffy@pdfa
\else
\iffHyField@NeedAppearances
/NeedAppearances true%
\fi
\fi
/PUT pdfmark%
{Catalog}%%
/AcroForm{aform}%%
/PUT pdfmark%
\kvsetkeys{Form}{#1}%%
}
13391 \let\@endForm\ltx@empty
13392 \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
13393 \Hy@Message{Sorry, pdfmark drivers do not support FORM gauges}%
13394 }
13395 \newcount\HyField@AnnotCount
13396 \HyField@AnnotCount=\z@
13397 \def\HyField@AdvanceAnnotCount{%
13398 \global\advance\HyField@AnnotCount\@ne
13399 }
13400 \def\HyField@TheAnnotCount{%
13401 \the\HyField@AnnotCount
13402 }
13403 \edef\Fld@pageobjref{/P{ThisPage}}
13404 \def\HyField@AddToFields#1{%
13405 \pdfmark{%
13406 pdfmark=/APPEND,%
13407 Raw={% 
13408 \string{afields\string}%
13409 \string(#1\HyField@TheAnnotCount\string)%
13410 )%
13411 }%
13412 \ifx\Fld@calculate@code\ltx@empty
13413 \else
13414 \pdfmark{%
13415 pdfmark=/APPEND,%
13416 Raw={% 
13417 \string{corder\string}%
13418 \string(#1\HyField@TheAnnotCount\string)%
13419 )%
13420 }%
13421 \fi
13422 }%
13423 \def\@TextField[#1]#2{% parameters, label
13424 \def\Fld@name{#2}%
13425 \let\Fld@default\ltx@empty
13426 \let\Fld@value\@empty
13427 \def\Fld@width{\DefaultWidthofText}%
13428 \def\Fld@height{%
13429 \if\Fld@multiline
13430 \DefaultHeightofTextMultiline
13431 \else
13432 \DefaultHeightofText
13433 \fi
13434 }
13435 \begingroup
13436 \expandafter\HyField@SetKeys\expandafter{%
13437 \DefaultOptionsofText,#1%
13438 }
13439 \HyField@FlagsText
13440 \if\Fld@hidden\def\Fld@width{\lsp}\fi
13441 \ifx\Fld@value\@empty\def\Fld@value{\Fld@default}\fi
13442 \HyField@AdvanceAnnotCount
13443 \LayoutTextField{#2}{%
13444 \leavevmode
13445 \Hy@escapeform\PDFForm@Text
13446 \pdfmark{MakeTextField{\Fld@width}{\Fld@height}}{%

289
\def\@ChoiceMenu[#1]{% parameters, label, choices
  \def\Fld@name{#2}\relax
  \let\Fld@default\relax
  \let\Fld@value\relax
  \def\Fld@width{\DefaultWidthofChoiceMenu}\relax
  \def\Fld@height{\DefaultHeightofChoiceMenu}\relax
  \begingroup
    \Fld@menulength=0 \relax
    \@tempdima\z@\relax
    \@for\@curropt:=#3\do{%
      \expandafter\Fld@checkequals\@curropt==\relax
      \Hy@StepCount\Fld@menulength\relax
      \settowidth{\@tempdimb}{\@currDisplay}\relax
      \ifdim\@tempdimb>\@tempdima\@tempdima\@tempdimb\fi
    }\relax
    \advance\@tempdima by 15\p@\relax
    \begingroup
      \HyField@SetKeys{#1}\relax
      \edef\x{\endgroup
        \noexpand\expandafter
        \noexpand\HyField@SetKeys
        \noexpand\expandafter{\
        \expandafter\csname DefaultOptionsof\endcsname}
      }\relax
      \HyField@SetKeys{#1}\relax
      \if\Fld@hidden\def\Fld@width{1sp}\fi\relax
      \if\Fld@value\relax\let\Fld@value\Fld@default\fi
      \if\Fld@radio\@@Radio{#3}\fi
    \else\fi
    \if\Fld@combo\@@ComboBox{}\fi
    \if\Fld@popdown\@@PopdownBox{}\fi
    \if\Fld@radio\@@Radio{#3}\fi
    \if\Fld@hidden\def\Fld@width{1sp}\fi
  \endgroup
}
\begingroup
\HyField@FlagsChoice
\ifdim\Fld@width<\@tempdima
\ifdim\@tempdima<1cm\@tempdima1cm\fi
\edef\Fld@width{\the\@tempdima}\fi
\fi\ifFld@combo
\else
\@tempdima=\the\Fld@menulength\Fld@charsize
\advance\@tempdima by \Fld@borderwidth bp\%\n\edef\Fld@height{\the\@tempdima}\fi
\@@Listbox{#3}\fi\endgroup
\fi\endgroup

\def\@@Radio#1{\Fld@listcount=0\%
\EdefEscapeName\Fld@default{\Fld@default}\%
\@for\@curropt:=#1\do{\expandafter\Fld@checkequals\@curropt==\%
\EdefEscapeName\@currValue{\@currValue}\%
\Hy@StepCount\Fld@listcount\@currDisplay\space
\Hy@escapeform\PDFForm@Radio
\ifnum\Fld@listcount=1 \HyField@AdvanceAnnotCount\fi
\pdfmark[\MakeRadioField{\Fld@width}{\Fld@height}]{\pdfmark=/ANN,\objdef=\ifnum\Fld@listcount=1 radio\HyField@TheAnnotCount\fi,\Raw={\PDFForm@Radio /AP <</N <</\@currValue\space {Check}>> >>}}\ifnum\Fld@listcount=1 \HyField@AddToFields{radio}\fi}
\newcount\Fld@listcount
\def\@@Listbox#1{\HyField@PDFChoices{#1}\%
\Hy@escapeform\PDFForm@List\HyField@AdvanceAnnotCount\pdfmark[\MakeChoiceField{\Fld@width}{\Fld@height}]{\pdfmark=/ANN,\objdef=list\HyField@TheAnnotCount,\Raw={\PDFForm@List}}\HyField@AddToFields{list}\%
\def\@PushButton[#1]#2{\Fld@name=#2\%
\HyField@PDFChoices{#1}\Hy@escapeform\PDFForm@List\HyField@AdvanceAnnotCount\pdfmark[\MakeChoiceField{\Fld@width}{\Fld@height}]{\pdfmark=/ANN,\objdef=list\HyField@TheAnnotCount,\Raw={\PDFForm@List}}\HyField@AddToFields{list}\%
\def\@PushButton[#1]#2{\Fld@name=#2}\%
\def\@PushButton[#1]#2{\Fld@name=#2}
}
\ifHy@pdfa
\Hy@Error{PDF/A: Reset action is prohibited}@@hc
\MakeButtonField{#2}%
\else
\HyField@FlagsPushButton
\ifFld@hidden\def\Fld@width{1sp}\fi
\Hy@escapeform\PDFForm@Reset
\HyField@AdvanceAnnotCount
\pdfmark{\MakeButtonField{#2}}{%
pdfmark=/ANN,%
objdef=reset\HyField@TheAnnotCount,%
Raw={\PDFForm@Reset}%
}%
\HyField@AddToFields{reset}%
\fi
\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}%
\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
\endgroup
\langle /pdfmark \rangle

48.2 HyperTeX
\def\@Form[#1]{% parameters, label
\Hy@Message{Sorry, HyperTeX does not support FORMs}%
\let\@endForm\ltx@empty
\def\@Gauge[#1]{% parameters, label
\Hy@Message{Sorry, HyperTeX does not support FORM gauges}%
\let\@endGauge\ltx@empty
\def\@TextField[#1]{% parameters, label
\Hy@Message{Sorry, HyperTeX does not support FORM text fields}%
13673  \def\@CheckBox[#1]{% parameters, label
13674    \Hy@Message{Sorry, HyperTeX does not support FORM checkboxes}%
13675  }
13676  \def\@ChoiceMenu[#1]{% parameters, label, choices
13677    \Hy@Message{Sorry, HyperTeX does not support FORM choice menus}%
13678  }
13679  \def\@PushButton[#1]{% parameters, label
13680    \Hy@Message{Sorry, HyperTeX does not support FORM pushbuttons}%
13681  }
13682  \def\@Reset[#1]{% parameters
13683    \Hy@Message{Sorry, HyperTeX does not support FORMs}%
13684  }
13685  \def\@Submit[#1]{% parameters
13686    \Hy@Message{Sorry, HyperTeX does not support FORMs}%
13687  }
13688  
13689  ⟨/hypertex⟩
13690
13691  48.3  TeX4ht
13692
13693  ⟨*tex4ht⟩
13694
13695  \def\@Form[#1]{% parameters
13696    \kvsetkeys{Form}{#1}%
13697    \HCode{<form action="\Form@action" method="\Form@method">}%
13698  }
13699
13700
13701
13702
13703
13704
13705
13706
13707
13708
13709
13710
13711
13712
13713
13714
13715
13716
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13718
13719
13720
13721
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13723
13724
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13726
13727

294
\def\@PushButton[#1]{% parameters, label
  \def\Fld@name{#2}\
  \bgroup
  \Field@toks={ }\kvsetkeys{Field}{#1}\
  \HCode{<input type="button" %
    name="\Fld@name" %
    value="#2" %
    \the\Field@toks>}%
  \HCode{</button>}\
  \egroup
}
\def\@Submit[#1]{\HCode{<button type="submit">#2</button>}}
\def\@Reset[#1]{\HCode{<button type="reset">#2</button>}}
\def\@CheckBox[#1]{% parameters, label
  \let\Hy@reserved@a@empty
  \def\Fld@name{#2}\
  \def\Fld@default{0}\
  \bgroup
  \Field@toks={ }\kvsetkeys{Field}{#1}\
  \HCode{<input type="checkbox" %
    \ifFld@checked checked \fi
    \ifFld@disabled disabled \fi
    \ifFld@readonly readonly \fi
    name="\Fld@name" %
    \ifFld@hidden type="hidden" \fi
    value="\Fld@default" %
    \the\Field@toks>}%
  #2%}
  \egroup
}\def\@Gauge[#1]{% parameters, label, minimum, maximum
  \Hy@Message{Sorry, pdftex does not support FORM gauges}}
\def\MakeFieldObject#1#2{
  \sbox0{#1}\
  \immediate\pdfxform0\expandafter\edef\csname #2Object\endcsname{\the\pdflastxform 0 R 296}}
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
\begin{verbatim}
\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}>\ltx@zero\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{\expandafter\HyField@AddCoField\HyField@cofields\ltx@empty\ltx@empty\ltx@empty}}\fi\endgroup}
\end{verbatim}
```
Same as \ding{123} of package pifont.
Laurent.Guillope@math.univ-nantes.fr (Laurent Guillope) persuades me that this was wrong: \SetupChoice{Fild@name}{Fild@listcount}. But I leave it here to remind me that it is untested.

\leavevmode
\leavevmode
\leavevmode
\leavevmode
\leavevmode
\leavevmode

\leavevmode
\leavevmode
\leavevmode
\leavevmode
\leavevmode
\leavevmode
\MakeButtonField{#2}\

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

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

\section*{48.5 dvipdfm, xetex}

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

\section*{\@Gauge}

\section*{\@Form}
\def\Fld@height{\%}
\if\Fld@multiline\DefaultHeightofTextMultiline\else\DefaultHeightofText\fi
\begingroup
\expandafter\HyField@SetKeys\expandafter{\DefaultOptionsofText,#1}\PDFForm@Name\HyField@FlagsText\if\Fld@hidden\def\Fld@width{1sp}\fi\if\Fld@value\@empty\def\Fld@value{\Fld@default}\fi\setbox\pdfm@box=\hbox{\MakeTextField{\Fld@width}{\Fld@height}}\HyField@AdvanceAnnotCount\LayoutTextField{#2}{\leavevmode\Hy@escapeform\PDFForm@Text\@pdfm@mark{ann @text\HyField@TheAnnotCount space}\dvipdfm@setdim << \PDFForm@Text >>}\unhbox\pdfm@box\HyField@AddToFields{text}\endgroup
\@ChoiceMenu
\def\@ChoiceMenu[#1]#2#3{% parameters, label, choices\def\Fld@name{#2}\let\Fld@default\relax\let\Fld@value\relax\def\Fld@width{\DefaultWidthofChoiceMenu}\def\Fld@height{\DefaultHeightofChoiceMenu}\begingroup\Fld@menulength=0 \@tempdima\z@\@for\@curropt:=#3\do{\expandafter\Fld@checkequals\@curropt==\%\Hy@StepCount\Fld@menulength\settowidth{\@tempdimb}{\@currDisplay}\ifdim\@tempdimb>\@tempdima\@tempdima\@tempdimb\fi\advance\@tempdima by 15\p@\begingroup\HyField@SetKeys{#1}\edef\x{\endgroup\noexpand\expandafter\noexpand\HyField@SetKeys\noexpand\expandafter{\noexpand\csname DefaultOptionsof\%
\if\Fld@radio

\leavevmode
\Hy@escapeform\PDFForm@Radio
\ifnum\Fld@listcount=1 %
\HyField@AdvanceAnnotCount
\fi
@pdfm@mark{%
ann %
\ifnum\Fld@listcount=1 %
@radio\HyField@TheAnnotCount%
\space
\fi
@dvipdfm@setdim
<<\PDFForm@Radio
/AP<</N<<(\@currValue /null)>>%}
>>%}
\unhcopy\pdfm@box% deliberate space between radio buttons
\ifnum\Fld@listcount=1 %
\HyField@AddToFields{radio}%
\fi
}%
\unhcopy\pdfm@box% deliberate space between radio buttons
\ifnum\Fld@listcount=1 %
\HyField@AddToFields{list}%
\fi
}

\@Listbox
\newcount\Fld@listcount
\edef\@@Listbox#1{%
\HyField@PDFChoices{#1}%
\setbox\pdfm@box=\hbox{%
\MakeChoiceField{\Fld@width}{\Fld@height}%
}%
\leavevmode
\Hy@escapeform\PDFForm@List
\HyField@AdvanceAnnotCount
\@pdfm@mark{%
ann @list\HyField@TheAnnotCount\space
@dvipdfm@setdim
<<\PDFForm@List>>%
}%
\unhbox\pdfm@box
\HyField@AddToFields{list}%
}

\@PushButton
\edef\@@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
\@Submit
\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\setbox\pdfm@box=\hbox{\MakeButtonField{#2}}\leavevmode\Hy@escapeform\PDFForm@Submit\HyField@AdvanceAnnotCount\@pdfm@mark{\ann @submit \HyField@TheAnnotCount\space}\dvipdfm@setdim<<\PDFForm@Submit>>\unhbox\pdfm@box\HyField@AddToFields{submit}\endgroup}

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

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

311
48.6 Common forms part

\Fld@pageobjref
\providecommand*{\Fld@pageobjref}{\relax}
\Hy@escapestring
\def\PDFForm@@Name#1{\percent
\begingroup
  \ifnum\Hy@pdfversion<5 % implementation note 117, PDF spec 1.7
  \ifHy@unicode
    \Hy@unicodefalse
  \fi
  \HyPsdxTeXObjecttrue
  \pdfstringdef\Hy@gtemp#1\
\endgroup
\let#1\Hy@gtemp
}

\Fld@additionalactions
\def\Fld@additionalactions{\percent
  \K input (keystroke) format
  \ifx\Fld@keystroke@code\@empty
    \else
      /K<</S/JavaScript/JS(\Hy@escapestring{\Fld@keystroke@code})>>\percent
    \fi
  \fi
  \F display format
  \ifx\Fld@format@code\@empty
    \else
      /F<</S/JavaScript/JS(\Hy@escapestring{\Fld@format@code})>>\percent
    \fi
  \fi
  \V validation
  \ifx\Fld@validate@code\@empty
    \else
      /V<</S/JavaScript/JS(\Hy@escapestring{\Fld@validate@code})>>\percent
    \fi
  \fi
  \C calculation
  \ifx\Fld@c...
E cursor enters the annotation’s active area.

\ifx Fld@onenter@code\@empty
\else
/E</S/JavaScript/JS(\Hy@escapestring{Fld@onenter@code})>>%
\fi

X cursor exits the annotation’s active area.

\ifx Fld@onexit@code\@empty
\else
/X</S/JavaScript/JS(\Hy@escapestring{Fld@onexit@code})>>%
\fi

/AA<<\Fld@@additionalactions>>%

/FT/Btn%

/Q \Fld@align

/R \Fld@rotation

/BC[\Fld@bordercolor]%
New code, the default value is used for all buttons

```latex
\def\PDFForm@Radio{%
/Subtype/Widget%
/Fld@annotflags
/Fld@pageobjref
/Fld@annotnames
/FT/Btn%
/Fld@flags
/H/P%
/BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
/MK<<%
/ifnum/Fld@rotation=\z@%
/else
/R \Fld@rotation
/ff
/ifx/Fld@bordercolor\relax
/else
/BC[\Fld@bordercolor]%
/ff
/ifx/Fld@bcolor\relax
/else
/BG[\Fld@bcolor]%
/ff
>>%
/DA(/Helv \strip@pt/Fld@charsize\space Tf%
/ifx/Fld@color@empty\else\space/Fld@color\fi)%
/Fld@choices
/Fld@additionalactions
}%
```

```latex
\ifx/Fld@default@empty
/V/Off%
/DV/Off%
/else
```

317
\PDFForm@Text
\def\PDFForm@Text{\%}
\def\PDFForm@Submit{\%}

\PDFForm@Text
\PDFForm@Submit
49 Bookmarks in the PDF file

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

15069 \def\phantomsection{\%}
15070 \Hy@MakeCurrentHrefAuto\{section\}*\%
15071 \Hy@raisedlink\{hyper@anchor\start\{\@currentHref\}\hyper@anchor\end\%
15072 \}
15073 \% \package

49.1 Bookmarks

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.

15090 \def\Hy@writebookmark#1#2#3#4#5{\%
15091 % section number, text, label, level, file
15092 \ifx\WriteBookmarks\relax\%
15093 \else\%
15094 \ifnum#4>\Hy@bookmarksdepth\relax\%
15095 \else\%
15096 \fi\%
15097 \fi\%
15098 \}
15099 \def\Hy@currentbookmarklevel{0}
15100 \def\Hy@numberline#1{#1} \%
15101 \def\@writetorep#1\{}\#1\}\{\#2\}\{\#3\}\{\#4\}\{\#5\}\%
15102 \fi\%
15103 \}
15104 \def\Hy@templa\{\#5\}\%
15105 \ifx\Hy@templa\Hy@bookmarkstype

320
In the call of \BOOKMARK the braces around \#4 are omitted, because it is not likely, that the level number contains ].

\newcommand{\currentpdfbookmark}{%\pdfbookmark[\Hy@currentbookmarklevel]{%}
\pdffilemark{\Hy@currentbookmarklevel}%}
Tobias Oetiker rightly points out that we need a way to force a bookmark entry. So we introduce \texttt{\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.

\begin{verbatim}
\renewcommand{\pdfbookmark}[3][0]{\Hy@writebookmark{}{#2}{#3.#1}{#1}{toc}\
\hyper@anchorstart{#3.#1}\hyper@anchorend}
\end{verbatim}

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

\subsection*{Rerun warning}

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

Plain octal codes doesn’t work with versions below 6.50. So for early versions hex numbers have to be used. It would be possible to program this instead of the large \texttt{\ifcase}, but I’m too lazy to sort that out now.
\Hy@safe@active\true
\escapechar=\%`\%
\def\@BOOKMARK[##1][##2][##3][##4][##5]{%
  \calc@bm@number{##5}%
}%
\InputIfFileExists{\jobname.out}{\}{\}
\ifx\WriteBookmarks\relax
\global\let\WriteBookmarks\relax
\fi
\def\@BOOKMARK[##1][##2][##3][##4][##5]{%
  \def\Hy@temp{##4}\
  ⟨\*
  pdftex
  ⟩
  \Hy@pstringdef\Hy@pstringName{\HyperDestNameFilter{##3}}%
  \Hy@OutlineName{}\Hy@pstringName{%
  ##2\check@bm@number{##3}%
}%
  ⟨\*
  pdfmark
  ⟩
  pdfmark{%
    pdfmark=/OUT,%
    Count={##2\check@bm@number{##3}},%
    Dest={##3},%
    Title=\expandafter\strip@prefix\meaning\Hy@temp%
  }
  ⟨\*
  dvipdfm | xetex
  ⟩
}%
\begingroup
\def\WriteBookmarks{0}
\InputIfFileExists{\jobname.out}{\}{\}{
\endgroup
\endgroup
\ifx\WriteBookmarks\relax\else
326
\fi
\ifx\WriteBookmarks\relax
\else
\end}
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:

\IfUndefined{\chapter}{\let\Hy@org@chapter\@chapter}{\def\@chapter{\def\Hy@next{\Hy@MakeCurrentHrefAuto{\Hy@chapapp*}\Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}}\ifnum\c@secnumdepth>\m@ne\ltx@ifUndefined{if@mainmatter}{\iftrue{\csname if@mainmatter\endcsname}}\fi\Hy@next\Hy@org@chapter}}

\IfUndefined{\part}{\let\Hy@org@part\@part}{\def\@part{\ifnum\Hy@secnum@part>\c@secnumdepth\phantomsection\fi\Hy@org@part}}

\IfUndefined{\section}{\let\Hy@org@section\@section}{\def\@section{\ifnum\Hy@secnum@section>\c@secnumdepth\phantomsection\fi\Hy@org@section}}

\IfUndefined{\subsection}{\let\Hy@org@subsection\@subsection}{\def\@subsection{\ifnum\Hy@secnum@subsection>\c@secnumdepth\phantomsection\fi\Hy@org@subsection}}

\IfUndefined{\subsubsection}{\let\Hy@org@subsubsection\@subsubsection}{\def\@subsubsection{\ifnum\Hy@secnum@subsubsection>\c@secnumdepth\phantomsection\fi\Hy@org@subsubsection}}

\IfUndefined{\paragraph}{\let\Hy@org@paragraph\@paragraph}{\def\@paragraph{\ifnum\Hy@secnum@paragraph>\c@secnumdepth\phantomsection\fi\Hy@org@paragraph}}

\IfUndefined{\subparagraph}{\let\Hy@org@subparagraph\@subparagraph}{\def\@subparagraph{\ifnum\Hy@secnum@subparagraph>\c@secnumdepth\phantomsection\fi\Hy@org@subparagraph}}
50 Compatibility with koma-script classes

Hard-wire in an unpleasant over-ride of koma-script '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.
51 Encoding definition files for encodings of PDF strings

This was contributed by Heiko Oberdiek.

51.1 PD1 encoding

\DeclareFontEncoding{PD1}{}{}

Accents

\DeclareTextAccent{\`}{PD1}{\textasciigrave}
\DeclareTextAccent{\'}{PD1}{\textacute}
\DeclareTextAccent{\^}{PD1}{\textasciicircum}
\DeclareTextAccent{\~}{PD1}{\texttilde}
\DeclareTextAccent{"}{PD1}{\textasciidieresis}
\DeclareTextAccent{\r}{PD1}{\textring}
\DeclareTextAccent{\v}{PD1}{\textasciicaron}
\DeclareTextAccent{\=}{PD1}{\textasciimacron}
\DeclareTextAccent{\b}{PD1}{\textmacronbelow}
\DeclareTextAccent{\d}{PD1}{\textdotbelow}
Special white space escape characters not for use in bookmarks but for other PDF strings.

Accent glyph names

\textasciibreve{b} \textasciiumlaut{b} \textcedilla{c} \textcircumflex{c} \textdieresis{c} \textdotbelow{d} \textmacron{d} \textmacron{e} \textdot{e} \textasciigrave{e} \textasciimacron{e} \textasciitilde{e} \texthungarumlaut{e} \textilde{e} 

U+0000 SPACE; *space, spacehackarabic
U+0021 EXCLAMATION MARK; exclam
U+0022 QUOTATION MARK; quotedbl
Slot \texttt{\textbackslash 237} (0x9F) is not defined in PDFDocEncoding.
The euro \texttt{\textbackslash 240} is inserted in version 1.3 of the pdf specification.

\texttt{\textbackslash 00A9} \texttt{\textasciidieresis} \texttt{\textbackslash 250} \texttt{\textcopyright} \texttt{\textregistered} \texttt{\textasciitilde}
Glyphs that consist of several characters.
15957 \DeclareTextCommand{\SS}{PD1}{SS}\
15958 \DeclareTextCommand{\textcelsius}{PD1}{\textdegree C}\

Aliases (german.sty)
15959 \DeclareTextCommand{\textglqq}{PD1}{\quotedblbase}\
15960 \DeclareTextCommand{\textgrqq}{PD1}{\textquotedblleft}\
15961 \DeclareTextCommand{\textglq}{PD1}{\quotesinglbase}\
15962 \DeclareTextCommand{\textgrq}{PD1}{\textquoteleft}\
15963 \DeclareTextCommand{\textflqq}{PD1}{\guillemotleft}\
15964 \DeclareTextCommand{\textfrqq}{PD1}{\guillemotright}\
15965 \DeclareTextCommand{\textflq}{PD1}{\guilsinglleft}\
15966 \DeclareTextCommand{\textfrq}{PD1}{\guilsinglright}\

Aliases (math names)
15967 \DeclareTextCommand{\textneg}{PD1}{\textlogicalnot}\
15968 \DeclareTextCommand{\texttimes}{PD1}{\textmultiply}\
15969 \DeclareTextCommand{\textdiv}{PD1}{\textdivide}\
15970 \DeclareTextCommand{\textpm}{PD1}{\textplusminus}\
15971 \DeclareTextCommand{\textcdot}{PD1}{\textperiodcentered}\
15972 \DeclareTextCommand{\textbeta}{PD1}{\ss}\

Polish aliases. PDF encoding does not have the characters, but it is useful to Poles to have the plain letters regardless. Requested by Wojciech Myszka (W.Myszka@imnt.pwr.wroc.pl).
15973 \DeclareTextCompositeCommand{\k}{PD1}{a}{a}% aogonek\
15974 \DeclareTextCompositeCommand{\'}{PD1}{c}{c}% cacute\
15975 \DeclareTextCompositeCommand{\k}{PD1}{e}{e}% eogonek\
15976 \DeclareTextCompositeCommand{\'}{PD1}{n}{n}% nacute\
15977 \DeclareTextCompositeCommand{\'}{PD1}{s}{s}% sacute\
15978 \DeclareTextCompositeCommand{\'}{PD1}{z}{z}% zacute\
15979 \DeclareTextCompositeCommand{\k}{PD1}{A}{A}% Aogonek\
15980 \DeclareTextCompositeCommand{\'}{PD1}{C}{C}% Cacute\
15981 \DeclareTextCompositeCommand{\k}{PD1}{E}{E}% Eogonek\
15982 \DeclareTextCompositeCommand{\'}{PD1}{N}{N}% Nacute\
15983 \DeclareTextCompositeCommand{\'}{PD1}{S}{S}% Sacute\
15984 \DeclareTextCompositeCommand{\'}{PD1}{Z}{Z}% Zacute\
15985 \DeclareTextCompositeCommand{\k}{PD1}{Z}{Z}% Zdot\

51.2 PU encoding
15986 ⟨*puenc⟩\
15987 ⟨/pd1enc⟩\

51.2.1 NFSS2 accents
15988 \DeclareFontEncoding{PU}{ }{}
15989 \DeclareFontCommand{PU}{ }{}

15990 \% U+0300 COMBINING GRAVE ACCENT; gravecmb, \textacutecmb
15991 \% U+0301 COMBINING ACUTE ACCENT; acutecmb, \textacutecmb
15992 \% U+0302 COMBINING CIRCUMFLEX ACCENT; circumflexcmb
15993 \% U+0303 COMBINING MACRON; macroncmb
15994 \% U+0304 COMBINING BREVE; brevecmb
15995 \% U+0306 COMBINING TILDE; tildecmb, \textacutecmb
15996 \% U+0307 COMBINING MACRON; macroncmb
15997 \% U+0309 COMBINING ENCIRCLED DOT, \textacutecmb
15998 \% U+030b COMBINING TILDE; tildecmb, \textacutecmb
15999 \% U+030c COMBINING STROKE OVER SHORT VOWEL; brevecmb
16000 \% U+030d COMBINING STROKE OVER SHORT VOWEL; brevecmb
16001 \% U+030e COMBINING STROKE OVER SHORT VOWEL; brevecmb
16002 \% U+030f COMBINING STROKE OVER SHORT VOWEL; brevecmb

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Double accents.

\empty is an artefact of the NFSS2 machinery, it gets inserted for empty arguments and spaces.

\DeclareTextCompositeCommand{\`}{PU}{\empty}{\textasciigrave}\
\DeclareTextCompositeCommand{\'}{PU}{\empty}{\textacute}\
\ DeclareTextCompositeCommand{\^}{PU}{\empty}{\textasciicircum}\
\DeclareTextCompositeCommand{\~}{PU}{\empty}{\texttilde}\
\ DeclareTextCompositeCommand{"}{PU}{\empty}{\textasciidieresis}\
\ DeclareTextCompositeCommand{\r}{PU}{\empty}{\textring}\
\DeclareTextCompositeCommand{\v}{PU}{\empty}{\textasciicaron}\
\DeclareTextCompositeCommand{\.}{PU}{\empty}{\textdotaccent}\
\DeclareTextCompositeCommand{\c}{PU}{\empty}{\textcedilla}\
\ DeclareTextCompositeCommand{\u}{PU}{\empty}{\textasciibreve}\
\ DeclareTextCompositeCommand{\G}{PU}{\empty}{\textdoublegrave}\
\ DeclareTextCompositeCommand{\textcircled}{PU}{\empty}{\textasciigrave}\
\ DeclareTextCompositeCommand{\textcircled}{PU}{\empty}{\textasciicircum}\
\ DeclareTextCompositeCommand{\textcircled}{PU}{\empty}{\texttilde}\
\ DeclareTextCompositeCommand{\textcircled}{PU}{\empty}{\textasciidieresis}\
\ DeclareTextCompositeCommand{\textcircled}{PU}{\empty}{\textring}\
\ DeclareTextCompositeCommand{\textcircled}{PU}{\empty}{\textring}\
\ DeclareTextCompositeCommand{\textcircled}{PU}{\empty}{\textasciicaron}\
\ DeclareTextCompositeCommand{\textcircled}{PU}{\empty}{\textdotaccent}\
\ DeclareTextCompositeCommand{\textcircled}{PU}{\empty}{\textdoublegrave}
51.2.2 Basic Latin: U+0000 to U+007F

Special white space escape characters.

\% U+0009 (CHARACTER TABULATION)
\% U+000A (LINE FEED)
\% U+000D (CARRIAGE RETURN)
\% U+0020 SPACE; space, spacehackarabic
\% U+0021 EXCLAMATION MARK; exclam
\% U+0022 QUOTATION MARK; quotedbl
\% U+0023 NUMBER SIGN; numbersign
\% U+0024 DOLLAR SIGN; dollar
\%* \textdollar -> \mathdollar
\%* \textdollar -> \EyesDollar (marvosym)
\% U+0025 PERCENT SIGN; percent
\% U+0026 AMPERSAND; ampersand
\%* \textampersand -> \binampersand (stmaryrd)
\%* \textampersand -> \with (cmll)
\% U+0027 APOSTROPHE; quotesingle
\% U+0028 LEFT PARENTHESIS; parenleft
\% U+0029 RIGHT PARENTHESIS; parenright
\% U+002A ASTERISK; asterisk; (?)
\% U+002B PLUS SIGN; plus; \MVPlus (marvosym)
\% U+002C COMMA; comma; \MVComma (marvosym)
\% U+002D HYPHEN-MINUS; hyphen; \MVMinus (marvosym)
\% U+002E FULL STOP; period; \MVPeriod (marvosym)
\% U+002F SOLIDUS; slash; \MVDivision (marvosym)
\% U+0030 DIGIT ZERO; zero; \MVZero (marvosym)
\% U+0031 DIGIT ONE; one; \MVOne (marvosym)
\% U+0032 DIGIT TWO; two; \MVTwo (marvosym)
\% U+0033 DIGIT THREE; three; \MVTThree (marvosym)
\% U+0034 DIGIT FOUR; four; \MVFour (marvosym)
\% U+0035 DIGIT FIVE; five; \MVFive (marvosym)
\16162 \DeclareTextCommand{\textMVFive}{PU}{\80\065}\%* U+0035
\16163 \% U+0036 DIGIT SIX; six; \MVSix (marvosym)
\16164 \DeclareTextCommand{\textMVSix}{PU}{\80\066}\%* U+0036
\16165 \% U+0037 DIGIT SEVEN; seven; \MVSeven (marvosym)
\16166 \DeclareTextCommand{\textMVSeven}{PU}{\80\067}\%* U+0037
\16167 \% U+0038 DIGIT EIGHT; eight; \MVEight (marvosym)
\16168 \DeclareTextCommand{\textMVEight}{PU}{\80\070}\%* U+0038
\16169 \% U+0039 DIGIT NINE; nine; \MVNine (marvosym)
\16170 \DeclareTextCommand{\textMVNine}{PU}{\80\071}\%* U+0039
\16171 \80\072: U+003A COLON; colon
\16172 \80\073: U+003B SEMICOLON; semicolon
\16173 \% U+003C LESS-THAN SIGN; less
\16174 \DeclareTextCommand{\textless}{PU}{<}\% \80\074 U+003C
\16175 \80\075: U+003D EQUALS SIGN; equal
\16176 \% U+003E GREATER-THAN SIGN; greater
\16177 \DeclareTextCommand{\textgreater}{PU}{>}\% \80\076 U+003E
\16178 \80\077: U+003F QUESTION MARK; question
\16179 \% U+0040 COMMERCIAL AT; at; \MVAt (marvosym)
\16180 \DeclareTextCommand{\textMVAt}{PU}{\80\100}\%* U+0040
\16181 \80\101: U+0041 LATIN CAPITAL LETTER A; A
\16182 \80\132: U+005A LATIN CAPITAL LETTER Z; Z
\16183 \80\133: U+005B LEFT SQUARE BRACKET; bracketleft
\16184 \% U+005C REVERSE SOLIDUS; backslash
\16185 \DeclareTextCommand{\textbackslash}{PU}{\80\134}\% U+005C
\16186 \80\135: U+005D RIGHT SQUARE BRACKET; bracketright
\16187 \% U+005E CIRCUMFLEX ACCENT; ascii\textasciicircum
\16188 \DeclareTextCommand{\textasciicircum}{PU}{\80\136}\% U+005E
\16189 \% U+005F LOW LINE; underscore
\16190 \%* \textasciigrave -> \mathasciigrave (LaTeX)
\16191 \% U+0060 GRAVE ACCENT; grave
\16192 \% U+0061 LATIN SMALL LETTER A; a
\16193 \% U+0068 LATIN SMALL LETTER H; h
\16194 \% U+0069 LATIN SMALL LETTER I; i
\16195 \DeclareTextCompositeCommand{\textbraceleft}{Pu}{}{\80\173}\% U+007B
\16196 \% U+007C VERTICAL LINE; \textbar, verticalbar
\16197 \%* \textbar -> \textvertline (tipa)
\16198 \% U+007D RIGHT CURLY BRACKET; brace\textbraceright
\16199 \% U+007E TILDE; \textasciitilde

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51.2.3 Latin-1 Supplement: U+0080 to U+00FF
\80\240: U+00A0 NO-BREAK SPACE; nbspace, nonbreakingspace
16198 % U+00A1 INVERTED EXCLAMATION MARK; exclamdown
16199 \DeclareTextCommand{\textexclamdown}{PU}{\80\241}% U+00A1
16200 % U+00A2 CENT SIGN; cent
16201 \DeclareTextCommand{\textcent}{PU}{\80\242}% U+00A2
16202 % U+00A3 POUND SIGN; sterling
16203 \DeclareTextCommand{\textsterling}{PU}{\80\243}% U+00A3
16204 *\textsterling -> \mathsterling (LaTeX)
16205 *\textsterling -> \pounds (LaTeX)
16206 % U+00A4 CURRENCY SIGN; currency
16207 \DeclareTextCommand{\textcurrency}{PU}{\80\244}% U+00A4
16208 % U+00A5 YEN SIGN; yen
16209 \DeclareTextCommand{\textyen}{PU}{\80\245}% U+00A5
16210 % U+00A6 BROKEN BAR; brokenbar
16211 \DeclareTextCommand{\textbrokenbar}{PU}{\80\246}% U+00A6
16212 *\textbrokenbar -> \brokenvert (wasysym)
16213 % U+00A7 SECTION SIGN; section
16214 \DeclareTextCommand{\textsection}{PU}{\80\247}% U+00A7
16215 *\textsection -> \mathsection (LaTeX)
16216 *\textsection -> \S (LaTeX)
16217 % U+00A8 DIAERESIS; dieresis
16218 \DeclareTextCommand{\textasciidieresis}{PU}{\80\250}% U+00A8
16219 % U+00A9 COPYRIGHT SIGN; copyright
16220 \DeclareTextCommand{\textcopyright}{PU}{\80\251}% U+00A9
16221 % U+00AA FEMININE ORDINAL INDICATOR; ordfeminine
16222 \DeclareTextCommand{\textordfeminine}{PU}{\80\252}% U+00AA
16223 % U+00AB LEFT-POINTING DOUBLE ANGLE QUOTATION MARK; guillemotleft
16224 \DeclareTextCommand{\guillemotleft}{PU}{\80\253}% U+00AB
16225 % U+00AC NOT SIGN; logicalnot
16226 \DeclareTextCommand{\textlogicalnot}{PU}{\80\254}% U+00AC
16227 \DeclareTextCommand{\textlnot}{PU}{\80\254}% U+00AC
16228 \80\255: U+00AD SOFT HYPHEN; sfthyphen, softhyphen
16229 % U+00AE REGISTERED SIGN; registered
16230 \DeclareTextCommand{\textregistered}{PU}{\80\256}% U+00AE
16231 % U+00AF MACRON; *macron, overscore
16232 \DeclareTextCommand{\textasciimacron}{PU}{\80\257}% U+00AF
16233 % U+00B0 DEGREE SIGN; degree
16234 \DeclareTextCommand{\textdegree}{PU}{\80\260}% U+00B0
16235 % U+00B1 PLUS-MINUS SIGN; plusminus
16236 \DeclareTextCommand{\textplusminus}{PU}{\80\261}% U+00B1
16237 % U+00B2 SUPERSCRIPT TWO; twosuperior
16238 \DeclareTextCommand{\texttwosuperior}{PU}{\80\262}% U+00B2
16239 % U+00B3 SUPERSCRIPT THREE; threesuperior
16240 \DeclareTextCommand{\textthreesuperior}{PU}{\80\263}% U+00B3
16241 % U+00B4 ACUTE ACCENT; acute
16242 \DeclareTextCommand{\textacute}{PU}{\80\264}% U+00B4
16243 % U+00B5 MICRO SIGN; mu, mu1
16244 \DeclareTextCommand{\textmu}{PU}{\80\265}% U+00B5
16245 % U+00B6 PILCROW SIGN; paragraph
16246 \DeclareTextCommand{\textparagraph}{PU}{\80\266}% U+00B6
16247 *\textparagraph -> \mathparagraph (LaTeX)
16248 % U+00B7 MIDDLE DOT; middot, *periodcentered
16249 \DeclareTextCommand{\textperiodcentered}{PU}{\80\267}% U+00B7

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\textmultiply \rightarrow \vartriangle (stmaryrd)
\textmultiply \rightarrow \MVMultiplication (marvosym)
\O
\U
\Y
\TH
\ss
\agrave
\acute
\circumflex
\breve
\check
\DeclareTextCompositeCommand{\'}{PU}{\i}{\80\355}% U+00ED
\DeclareTextCompositeCommand{\'}{PU}{i}{\80\355}% U+00ED
\% U+00EE LATIN SMALL LETTER I WITH CIRCUMFLEX; icircumflex
\DeclareTextCompositeCommand{\^}{PU}{i}{\80\356}% U+00EE
\DeclareTextCompositeCommand{\^}{PU}{\i}{\80\356}% U+00EE
\% U+00EF LATIN SMALL LETTER I WITH DIAERESIS; idieresis
\DeclareTextCompositeCommand{"}{PU}{i}{\80\357}% U+00EF
\DeclareTextCompositeCommand{"}{PU}{\i}{\80\357}% U+00EF
\% U+00F0 LATIN SMALL LETTER ETH; eth
\DeclareTextCommand{\dh}{PU}{\80\360}% U+00F0
%* \dh -> \eth (wsuipa, phonetic)
\% U+00F1 LATIN SMALL LETTER N WITH TILDE; ntilde
\DeclareTextCompositeCommand{\~}{PU}{n}{\80\361}% U+00F1
\% U+00F2 LATIN SMALL LETTER O WITH GRAVE; ograve
\DeclareTextCompositeCommand{\`}{PU}{o}{\80\362}% U+00F2
\% U+00F3 LATIN SMALL LETTER O WITH ACUTE; oacute
\DeclareTextCompositeCommand{'}{PU}{o}{\80\363}% U+00F3
\% U+00F4 LATIN SMALL LETTER O WITH CIRCUMFLEX; ocircumflex
\DeclareTextCompositeCommand{\^}{PU}{o}{\80\364}% U+00F4
\% U+00F5 LATIN SMALL LETTER O WITH TILDE; otilde
\DeclareTextCompositeCommand{\~}{PU}{o}{\80\365}% U+00F5
\% U+00F6 LATIN SMALL LETTER O WITH DIAERESIS; odieresis
\DeclareTextCompositeCommand{"}{PU}{o}{\80\366}% U+00F6
\% U+00F7 DIVISION SIGN; divide
\DeclareTextCommand{\textdivide}{PU}{\80\367}% U+00F7
\% U+00F8 LATIN SMALL LETTER O WITH STROKE; oslash
\DeclareTextCommand{\o}{PU}{\80\370}% U+00F8
\% U+00F9 LATIN SMALL LETTER U WITH GRAVE; ugrave
\DeclareTextCompositeCommand{\~}{PU}{u}{\80\371}% U+00F9
\% U+00FA LATIN SMALL LETTER U WITH ACUTE; uacute
\DeclareTextCompositeCommand{\u}{PU}{u}{\80\372}% U+00FA
\% U+00FB LATIN SMALL LETTER U WITH CIRCUMFLEX; ucircumflex
\DeclareTextCompositeCommand{\^}{PU}{u}{\80\373}% U+00FB
\% U+00FC LATIN SMALL LETTER U WITH DIAERESIS; uidieresis
\DeclareTextCompositeCommand{"}{PU}{u}{\80\374}% U+00FC
\% U+00FD LATIN SMALL LETTER U Y WITH ACUTE; yacute
\DeclareTextCompositeCommand{\textthorn}{PU}{\80\375}% U+00FD
\% U+00FE LATIN SMALL LETTER THORN; thorn;
\% tth, \textthorn (wasyym), \textthorn (tips)
\DeclareTextCommand{\th}{PU}{\80\376}% U+00FE
\% U+00FF LATIN SMALL LETTER Y WITH DIAERESIS; ydieresis
\DeclareTextCompositeCommand{\y}{PU}{\80\377}% U+00FF

51.2.4 Latin Extended-A: U+0080 to U+017F
\% U+0100 LATIN CAPITAL LETTER A WITH MACRON; Amacron
\DeclareTextCompositeCommand{\=}{PU}{A}{\81\000}% U+0100
\% U+0101 LATIN SMALL LETTER A WITH MACRON; amacron
\DeclareTextCompositeCommand{\u}{PU}{a}{\81\001}% U+0101
\% U+0102 LATIN CAPITAL LETTER A WITH BREVE; Abreve
\DeclareTextCompositeCommand{\~}{PU}{A}{\81\002}% U+0102
\% U+0103 LATIN SMALL LETTER A WITH BREVE; abreve
\DeclareTextCompositeCommand{\~}{PU}{a}{\81\003}% U+0103
\% U+0104 LATIN CAPITAL LETTER A WITH OGONEK; Aogonek
\DeclareTextCompositeCommand{\k}{PU}{A}{\81\004}% U+0104
\% U+0105 LATIN SMALL LETTER A WITH OGONEK; aogonek
The canonical name of U+0138, small letter kra, would be `\textkra`, following the glyph naming convention. However `latex/base/inputenc.dtx` has chosen `\textkra`.

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`.

There are no variants of letters ‘N’ or ‘n’ with a dot above or below (reasonable). Therefore the `\primus` accent is reused instead of making separate accent macros `\textapostrophe` and `\textsinglequote`.

The canonical name of U+013B, small letter l with caron, would be `\textlcaron`, following the glyph naming convention. However `latex/base/inputenc.dtx` has chosen `\textlcaron`.

There seems to be no variants of letters ‘L’ and ‘l’ with a middle dot above (reasonable). Therefore the `\middleaccent` accent is reused instead of making a separate accent macro `\textmiddletilde`.

The canonical name of U+013C, small letter n with caron, would be `\textncaron`, following the glyph naming convention. However `latex/base/inputenc.dtx` has chosen `\textncaron`.

There seem to be no variants of letters ‘N’ and ‘n’ with a middle dot after (reasonable). Therefore the `\middletilde` accent is reused instead of making separate accent macros `\textquotation` and `\textquoteright`.

There seem to be no variants of letters ‘L’ and ‘l’ with a stroke (reasonable). Therefore the `\stroke` accent is reused instead of making separate accent macros `\textlslash` and `\textlslash`.

There seem to be no variants of letters ‘N’ and ‘n’ with a stroke (reasonable). Therefore the `\stroke` accent is reused instead of making separate accent macros `\textnslash` and `\textnslash`.

There seem to be no variants of letters ‘N’ and ‘n’ preceded by an apostrophe (reasonable). Therefore the `\quotation` accent is reused instead of making separate accent macros `\textnapostrophe` and `\textnquoteright`.

There seem to be no variants of letters ‘N’ and ‘n’ preceded by a quotation mark (reasonable). Therefore the `\quotation` accent is reused instead of making separate accent macros `\textnquoteright` and `\textnquoteright`.

There seem to be no variants of letters ‘N’ and ‘n’ preceded by an apostrophe (reasonable). Therefore the `\quotation` accent is reused instead of making separate accent macros `\textnapostrophe` and `\textnquoteright`.

There seem to be no variants of letters ‘N’ and ‘n’ preceded by a quotation mark (reasonable). Therefore the `\quotation` accent is reused instead of making separate accent macros `\textnquoteright` and `\textnquoteright`.

There seem to be no variants of letters ‘N’ and ‘n’ preceded by an apostrophe (reasonable). Therefore the `\quotation` accent is reused instead of making separate accent macros `\textnapostrophe` and `\textnquoteright`.

There seem to be no variants of letters ‘N’ and ‘n’ preceded by a quotation mark (reasonable). Therefore the `\quotation` accent is reused instead of making separate accent macros `\textnquoteright` and `\textnquoteright`.

There seem to be no variants of letters ‘N’ and ‘n’ preceded by an apostrophe (reasonable). Therefore the `\quotation` accent is reused instead of making separate accent macros `\textnapostrophe` and `\textnquoteright`.

There seem to be no variants of letters ‘N’ and ‘n’ preceded by a quotation mark (reasonable). Therefore the `\quotation` accent is reused instead of making separate accent macros `\textnquoteright` and `\textnquoteright`.

There seem to be no variants of letters ‘N’ and ‘n’ preceded by an apostrophe (reasonable). Therefore the `\quotation` accent is reused instead of making separate accent macros `\textnapostrophe` and `\textnquoteright`.

There seem to be no variants of letters ‘N’ and ‘n’ preceded by a quotation mark (reasonable). Therefore the `\quotation` accent is reused instead of making separate accent macros `\textnquoteright` and `\textnquoteright`.

There seem to be no variants of letters ‘N’ and ‘n’ preceded by an apostrophe (reasonable). Therefore the `\quotation` accent is reused instead of making separate accent macros `\textnapostrophe` and `\textnquoteright`.

There seem to be no variants of letters ‘N’ and ‘n’ preceded by a quotation mark (reasonable). Therefore the `\quotation` accent is reused instead of making separate accent macros `\textnquoteright` and `\textnquoteright`.
51.2.5 Latin Extended-B: U+0180 to U+024F

16678 % U+0180 LATIN SMALL LETTER B WITH STROKE; bstroke; \textcrb (tipa)
An alternate glyph with the stroke through the bowl:
\textcrb \rightarrow \textbarb (wsuipa)
\textcrb \rightarrow \textbarb (wsuipa)
\textcrb \rightarrow \textbarb (wsuipa)

U+0180 LATIN CAPITAL LETTER B WITH HOOK; \textbhook (phonetica)
U+0181 LATIN SMALL LETTER C WITH HOOK; chook; \texttc (tipa)
U+0184 LATIN CAPITAL LETTER D WITH HOOK; Dhook; \textdhook (phonetic)
U+0188 LATIN SMALL LETTER E WITH HOOK; Ereversed
U+0189 LATIN SMALL LETTER F WITH HOOK; florin
U+0195 LATIN SMALL LETTER HV; hv; \texthvlig (tipa)
U+0199 LATIN SMALL LETTER L WITH BAR; \textbarl (tipa), \barl (wsuipa)
U+019B LATIN SMALL LETTER BARRED LAMBDA; lambdabar (txfonts/pxfonts)
U+01BB LATIN SMALL LETTER TWOWITHSTROKE; twostroke; \textctwo (tipa)
U+01BE LATIN SMALL LETTER N WITH LONG RIGHT LEG; nlegrightlong;
U+019E LATIN SMALL LETTER N WITH LONG RIGHT LEG; nlegrightlong;

U+0180 LATIN CAPITAL LETTER B WITH HOOK; \textbhook (phonetica)
U+0181 LATIN SMALL LETTER C WITH HOOK; chook; \texttc (tipa)
U+0184 LATIN CAPITAL LETTER D WITH HOOK; Dhook; \textdhook (phonetic)
U+0188 LATIN SMALL LETTER E WITH HOOK; Ereversed
U+0189 LATIN SMALL LETTER F WITH HOOK; florin
U+0195 LATIN SMALL LETTER HV; hv; \texthvlig (tipa)
U+0199 LATIN SMALL LETTER L WITH BAR; \textbarl (tipa), \barl (wsuipa)
U+019B LATIN SMALL LETTER BARRED LAMBDA; lambdabar (txfonts/pxfonts)
U+01BB LATIN SMALL LETTER TWOWITHSTROKE; twostroke; \textctwo (tipa)
U+01BE LATIN SMALL LETTER N WITH LONG RIGHT LEG; nlegrightlong;
\text{glottalinvertedstroke}; \textcrinvglotstop (tipa)
\DeclareTextCommand{\textcrinvglotstop}{PU}{\81\276}% U+01BE
\% U+01BF LATIN LETTER WYNN; wynn; \textwynn (tipa)
\DeclareTextCommand{\textwynn}{PU}{\81\277}% U+01BF
\% U+01C0 LATIN LETTER DENTAL CLICK/LATIN LETTER PIPE; clickden-
tal;
\text{pipe} (tipa)
\\DeclareTextCommand{\textpipe}{PU}{\81\300}% U+01C0
\%* \textpipe -> \textpipevar (tipx)
\% U+01C1 LATIN LETTER LATERAL CLICK/LATIN LETTER DOUBLE PIPE; clicklateral; \textdoublepipe (tipa)
\\DeclareTextCommand{\textdoublepipe}{PU}{\81\301}% U+01C1
\%* \textdoublepipe -> \textdoublepipevar (tipx)
\% U+01C2 LATIN LETTER ALVEOLAR CLICK/LATIN LETTER PIPE DOUBLE BAR;
\text{clickalveolar; \textdoublebarpipe (tipa)}
\\DeclareTextCommand{\textdoublebarpipe}{PU}{\81\302}% U+01C2
\%* \textdoublebarpipe -> \textdoublebarpipevar (tipx)
\% U+01CD LATIN CAPITAL LETTER A WITH CARON; Acaron
\\DeclareTextCompositeCommand{\v}{PU}{A}{\81\315}% U+01CD
\% U+01CE LATIN SMALL LETTER A WITH CARON; acaron
\\DeclareTextCompositeCommand{\v}{PU}{a}{\81\316}% U+01CE
\% U+01CF LATIN CAPITAL LETTER I WITH CARON; Icaron
\\DeclareTextCompositeCommand{\v}{PU}{I}{\81\317}% U+01CF
\% U+01D0 LATIN SMALL LETTER I WITH CARON; icaron
\\DeclareTextCompositeCommand{\v}{PU}{i}{\81\318}% U+01D0
\% U+01D1 LATIN CAPITAL LETTER O WITH CARON; Ocaron
\\DeclareTextCompositeCommand{\v}{PU}{O}{\81\321}% U+01D1
\% U+01D2 LATIN SMALL LETTER O WITH CARON; ocaron
\\DeclareTextCompositeCommand{\v}{PU}{o}{\81\322}% U+01D2
\% U+01D3 LATIN CAPITAL LETTER U WITH CARON; Ucaron
\\DeclareTextCompositeCommand{\v}{PU}{U}{\81\323}% U+01D3
\% U+01D4 LATIN SMALL LETTER U WITH CARON; ucaron
\\DeclareTextCompositeCommand{\v}{PU}{u}{\81\324}% U+01D4
\% U+01BD LATIN SMALL LETTER TURNED E; eturned; \textinve (wasysym)
\\DeclareTextCommand{\textinve}{PU}{\81\335}%* U+01BD
\% U+01E4 LATIN CAPITAL LETTER G WITH STROKE; Gstroke
\\DeclareTextCommand{\textGslash}{PU}{\81\344}% U+01E4
\% U+01E5 LATIN SMALL LETTER G WITH STROKE; gstroke
\\DeclareTextCommand{\textgslash}{PU}{\81\345}% U+01E5
\%* \textgslash -> \textcrg (tipa)
\% U+01E6 LATIN CAPITAL LETTER G WITH CARON; Gcaron
\\DeclareTextCompositeCommand{\v}{PU}{G}{\81\346}% U+01E6
\% U+01E7 LATIN SMALL LETTER G WITH CARON; gcaron
\\DeclareTextCompositeCommand{\v}{PU}{g}{\81\347}% U+01E7
\% U+01E8 LATIN CAPITAL LETTER K WITH CARON; Kcaron
\\DeclareTextCompositeCommand{\v}{PU}{K}{\81\348}% U+01E8
\% U+01E9 LATIN SMALL LETTER K WITH CARON; kcaron
\\DeclareTextCompositeCommand{\v}{PU}{k}{\81\350}% U+01E9
\% U+01EA LATIN CAPITAL LETTER O WITH OGONEK; Oogonek
\\DeclareTextCompositeCommand{\k}{PU}{O}{\81\351}% U+01EA
\% U+01EB LATIN SMALL LETTER O WITH OGONEK; ogonek
\\DeclareTextCompositeCommand{\k}{PU}{o}{\81\352}% U+01EB
\% U+01F0 LATIN SMALL LETTER J WITH CARON; jcaron
\\DeclareTextCompositeCommand{\v}{PU}{J}{\81\360}% U+01F0
\% U+01F0 LATIN SMALL LETTER J WITH CARON; jcaron
\\DeclareTextCompositeCommand{\v}{PU}{j}{\81\360}% U+01F0
\% U+01F0 LATIN SMALL LETTER J WITH CARON; jcaron
\\DeclareTextCompositeCommand{\v}{PU}{j}{\81\360}% U+01F0

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51.2.6 IPA Extensions: U+0250 to U+02AF

% U+0250 LATIN SMALL LETTER TURNED A; aturned; \textturna (tipa)
16889 \DeclareTextCommand{\textturna}{PU}{\82\120}% U+0250
16890 \%* \textturna -> \inva (wasysym)

% U+0233 LATIN SMALL LETTER Y WITH MACRON
16891 \ DeclareTextCommand{\texty}{PU}{\82\063}% U+0233
16892 \% U+0238 LATIN SMALL LETTER T WITH CURVE; \textctt (tipa)
16893 \ DeclareTextCommand{\textctt}{PU}{\82\066}% U+0238
16894 \%* \textctt -> \textcttstyle (textcomp)
16895 \%* \textcttstyle -> \textbarc (tipa)
16896 \ With bar instead of stroke:
16897 \%* \textcttstyle -> \textbarc (tipa)

51.2.6 IPA Extensions: U+0250 to U+02AF

% U+0250 LATIN SMALL LETTER TURNED A; aturned; \textturna (tipa)
16889 \ DeclareTextCommand{\textturna}{PU}{\82\120}% U+0250
16890 \%* \textturna -> \inva (wasysym)
\DeclareTextCommand{\textalpha}{PU}{\82\121}\ DeclareTextCommand{\textscripta}{PU}{\82\121}
\DeclareTextCommand{\textturnscripta}{PU}{\82\122}\ DeclareTextCommand{\texthtb}{PU}{\82\123}\ DeclareTextCommand{\textopeno}{PU}{\82\124}\ DeclareTextCommand{\textctc}{PU}{\82\125}\ DeclareTextCommand{\textctc}{PU}{\82\125}
\DeclareTextCommand{\textrtaild}{PU}{\82\126}\ DeclareTextCommand{\textrtaild}{PU}{\82\126}\ DeclareTextCommand{\textreve}{PU}{\82\130}\ DeclareTextCommand{\textniepsilon}{PU}{\82\133}\ DeclareTextCommand{\textrhookrevepsilon}{PU}{\82\135}\ DeclareTextCommand{\textcloserevepsilon}{PU}{\82\136}\ DeclareTextCommand{\textschwa}{PU}{\82\131}\ DeclareTextCommand{\textrhookschwa}{PU}{\82\132}\ DeclareTextCommand{\textniepsilon}{PU}{\82\133}\ DeclareTextCommand{\textNiepsilon}{PU}{\82\134}\ DeclareTextCommand{\textNiepsilon}{PU}{\82\135}\ DeclareTextCommand{\textNiepsilon}{PU}{\82\136}
% 
\DeclareTextCommand{\textbardotlessj}{PU}{\82\137}% U+025F
%* \textbardotlessj -> \barj (phonetic)
% U+0260 LATIN SMALL LETTER G WITH HOOK; ghook; \texthtg (tipa)
\DeclareTextCommand{\texthtg}{PU}{\82\140}% U+0260
%* \texthtg -> \hookg (wsuipa)
% U+0261 LATIN SMALL LETTER SCRIPT G; gscript; \textscriptg (tipa), \scriptg (wsuipa)
\DeclareTextCommand{\textscriptg}{PU}{\82\141}%* U+0261
%* \textscriptg -> \varg (phonetic)
% U+0262 LATIN LETTER SMALL CAPITAL G; \
texthth (tipa)
\DeclareTextCommand{\texthth}{PU}{\82\142}%* U+0262
%* \texthth -> \hookh (wsuipa)
%* \texthth -> \voicedh (phonetic)
% U+0267 LATIN SMALL LETTER HENG WITH HOOK; henghook; \text-
\ththeng (tipa)
\DeclareTextCommand{\texththeng}{PU}{\82\143}%* U+0267
%* \texththeng -> \hookheng (wsuipa)
% U+0268 LATIN SMALL LETTER I WITH STROKE;
% \textbari (tipa), \bari (wsuipa)
\DeclareTextCommand{\textbari}{PU}{\82\150}%* U+0268
%* \textbari -> \ibar (phonetic)
% U+0269 LATIN SMALL LETTER IOTA; iotalatin; \niiota (wsuipa)
\DeclareTextCommand{\textniiota}{PU}{\82\151}%* U+0269
% U+026A LATIN LETTER SMALL CAPITAL I; 
% \textsci (tipa), \sci (wsuipa)
\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 (wsuipa)
% U+026C LATIN SMALL LETTER L WITH BELT; 
% \textbeltl (tipa)
\DeclareTextCommand{\textbeltl}{PU}{\82\154}%* U+026C
%* \textbeltl -> \latfric (wsuipa)
% U+026D LATIN SMALL LETTER L WITH RETROFLEX HOOK;
% \hoookretroflex; \texttraill (tipa)
\DeclareTextCommand{\texttraill}{PU}{\82\155}%* U+026D
%* \texttraill -> \trail (wsuipa)
% U+026E LATIN SMALL LETTER LEZH; lezh; \textlyoghlig (tipa)
\DeclareTextCommand{\textlyoghlig}{PU}{\82\156}%* U+026E
% U+026F LATIN SMALL LETTER TURNED M; mturned; \textturnm (tipa)
\DeclareTextCommand{\textturnm}{PU}{\82\157}%* U+026F
%* \textturnm -> \invm (wsuipa)
\texttt{\textturnm} \rightarrow \rotm \text{ (phonetic)}

% U+0270 LATIN SMALL LETTER TURNED M WITH LONG LEG; mlonglegturned;
% \texttt{\textturnmrleg} \rightarrow \legm \text{ (wsuipa)}

%* U+0271 LATIN SMALL LETTER M WITH HOOK; mhook; \texttt{\textltailm} \rightarrow \abdentals (wsuipa)
%* \texttt{\textltailm} \rightarrow \emgma \text{ (phonetic)}

% U+0272 LATIN SMALL LETTER N WITH LEFT HOOK; nhookleft; \texttt{\textrtailn} \rightarrow \tailn \text{ (wsuipa)}
% U+0274 LATIN LETTER SMALL CAPITAL N; \texttt{\textscn} \text{ (tipa)}, \texttt{\scn} \text{ (wsuipa)}
% U+0275 LATIN LETTER SMALL CAPITAL OE; \texttt{\textscoelig} \text{ (tipa)}
% U+0277 LATIN SMALL LETTER CLOSED OMEGA; omegalatinclosed; \texttt{\textcloseomega} \rightarrow \closedniomega \text{ (wsuipa)}
% \texttt{\textcloseomega} \rightarrow \varomega \text{ (phonetic)}

% U+0278 LATIN SMALL LETTER PHI; philatin; \texttt{\textniphi} \text{ (wsuipa)}
% U+0279 LATIN SMALL LETTER TURNED R; rturned; \texttt{\textturnr} \rightarrow \invr \text{ (wsuipa)}
% \texttt{\textturnr} \rightarrow \rotr \text{ (phonetic)}

%* U+027A LATIN SMALL LETTER TURNED R WITH LONG LEG; rlonglegturned; \texttt{\textturnlonglegr} \rightarrow \invlegr \text{ (wsuipa)}
% U+027B LATIN SMALL LETTER TURNED R WITH HOOK; rhookturned; \texttt{\textturnrrtail} \rightarrow \tailinvr \text{ (wsuipa)}
% \texttt{\textturnrrtail} \rightarrow \tailr \text{ (wsuipa)}
% \texttt{\textturnrrtail} \rightarrow \tailinvr \text{ (wsuipa)}

% U+027C LATIN SMALL LETTER R WITH LONG LEG; rlongleg; \texttt{\textlonglegr} \rightarrow \legr \text{ (wsuipa)}
% U+027D LATIN SMALL LETTER R WITH TAIL; rhook; \texttt{\textrtailr} \rightarrow \taill (wsuipa)
% \texttt{\textrtailr} \rightarrow \tailvr \text{ (wsuipa)}
% \texttt{\textrtailr} \rightarrow \rfishhookr \text{ (tipa)}
% \texttt{\textrtailr} \rightarrow \texttt{\textfishhookr} \text{ (tipa)}

\DeclareTextCommand\textturnmrleg{PU}\{82\160\} \% U+0271
\DeclareTextCommand\textltailm{PU}\{82\163\} \% U+0273
\DeclareTextCommand\textrtailn{PU}\{82\164\} \% 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\textrtailr{PU}\{82\175\} \% U+027D
\DeclareTextCommand\textfishhookr{PU}\{82\176\} \% U+027E
% U+028F LATIN LETTER SMALL CAPITAL Y; \textscy (tipa), \scy (wsuipa)
\DeclareTextCommand{\textscy}{PU}{\82\217}% U+028F
% U+0290 LATIN SMALL LETTER Z WITH RETROFLEX HOOK; zretroflex-hook;
% \texttrtailz (tipa) \texttrtailz (wsuipa)
\DeclareTextCommand{\texttrtailz}{PU}{\82\220}% U+0290
% \texttrtailz -> \texttailz (wsuipa)
% U+0291 LATIN SMALL LETTER Z WITH CURL; zcurl; \textctz (tipa)
\DeclareTextCommand{\textctz}{PU}{\82\221}% U+0291
% \textctz -> \textcurlyz (wsuipa)
% U+0292 LATIN SMALL LETTER EZH/LATIN SMALL LETTER YOGH; ezh; \textyogh (tipa), \yogh (wsuipa)
\DeclareTextCommand{\textyogh}{PU}{\82\222}% U+0292
% U+0293 LATIN SMALL LETTER EZH WITH CURL/LATIN SMALL LETTER YOGH CURL;
% ezhcurl; \textctyogh (tipa)
\DeclareTextCommand{\textctyogh}{PU}{\82\223}% U+0293
% \textctyogh -> \textcurlyyogh (wsuipa)
% U+0294 LATIN LETTER GLOTTAL STOP; glottalstop; \textglotstop (tipa), \glotstop (wsuipa)
\DeclareTextCommand{\textglotstop}{PU}{\82\224}% U+0294
% \textglotstop -> \textejective (wsuipa)
% \textglotstop -> \textglottal (phonetic)
% U+0295 LATIN LETTER PHARYNGEAL VOICED FRICATIVE/ glottalstopreversed;
% \textrevglotstop (tipa), \revglotstop (wsuipa)
\DeclareTextCommand{\textrevglotstop}{PU}{\82\225}% U+0295
% \textrevglotstop -> \textreveject (wsuipa)
% U+0296 LATIN LETTER INVERTED GLOTTAL STOP; glottalstopinverted;
% \textinvglotstop (tipa), \invglotstop (wsuipa)
\DeclareTextCommand{\textinvglotstop}{PU}{\82\226}% U+0296
% U+0297 LATIN LETTER STRETCHED C; cstretched; \textstretchc (tipa)
\DeclareTextCommand{\textstretchc}{PU}{\82\227}% U+0297
% \textstretchc -> \textclickc (wsuipa)
% \textstretchc -> \textstretchcvar (tipx)
% U+0298 LATIN LETTER SMALL CAPITAL B; \textscb (tipa)
\DeclareTextCommand{\textscb}{PU}{\82\231}% U+0298
% U+0299 LATIN LETTER SMALL CAPITAL G WITH HOOK; Gsmallhook;
% \textbgb (tipa)
\DeclareTextCommand{\textbgb}{PU}{\82\230}% U+0299
% \textbgb -> \textgb (tipx)
% U+029A LATIN LETTER CLOSED OPEN E; eopenclosed;
% \textcloseepsilon (tipa)
\DeclareTextCommand{\textcloseepsilon}{PU}{\82\232}% U+029A
% U+029B LATIN LETTER SMALL CAPITAL G WITH HOOK; Gsmallhook;
% \texthtscg (tipa)
\DeclareTextCommand{\texthtscg}{PU}{\82\233}% U+029B
% U+029C LATIN LETTER SMALL CAPITAL H; \textsch (tipa)
\DeclareTextCommand{\textsch}{PU}{\82\234}% U+029C
% U+029D LATIN SMALL LETTER J WITH CROSSED-TAIL; jcrossted-tail; \textctj (tipa)
\DeclareTextCommand{\textctj}{PU}{\82\235}% U+029D
% U+029E LATIN SMALL LETTER TURNED K; kturned; \textctk (tipa)
\DeclareTextCommand{\textctk}{PU}{\82\236}% U+029E
% U+029F LATIN SMALL LETTER SMALL CAPITAL Y; \textscy (tipa), \scy (wsuipa)
17161 % U+029F LATIN LETTER SMALL CAPITAL L; \textscl (tipa)
17162 \DeclareTextCommand{\textscl}{PU}{\82\237}% U+029F
17163 % U+02A0 LATIN SMALL LETTER Q WITH HOOK; qhook; \texthtq (tipa)
17164 \DeclareTextCommand{\texthtq}{PU}{\82\240}% U+02A0
17165 % U+02A1 LATIN LETTER GLOTTAL STOP WITH STROKE; glottalstopstroke;
17166 % \textbarglotstop (tipa)
17167 \DeclareTextCommand{\textbarglotstop}{PU}{\82\241}% U+02A1
17168 % U+02A2 LATIN LETTER REVERSED GLOTTAL STOP WITH STROKE/
17169 % LATIN LETTER REVERSED GLOTTAL STOP BAR; glottalstopstrokereversed;
17170 % \textbarrevglotstop (tipa)
17171 \DeclareTextCommand{\textbarrevglotstop}{PU}{\82\242}% U+02A2
17172 % U+02A3 LATIN SMALL LETTER DZ DIGRAPH; dzaltone; \textdzlig (tipa)
17173 \DeclareTextCommand{\textdzlig}{PU}{\82\243}% U+02A3
17174 %* \textdzlig -> \dz (wsupipa)
17175 % U+02A4 LATIN SMALL LETTER DEZH DIGRAPH; dezh; \textdyoghlig (tipa)
17176 \DeclareTextCommand{\textdyoghlig}{PU}{\82\244}% U+02A4
17177 % U+02A5 LATIN SMALL LETTER DZ DIGRAPH WITH CURL; dzcurl;
17178 % \textdctzlig (tipa)
17179 % U+02A6 LATIN SMALL LETTER TS DIGRAPH; ts; \texttslig (tipa)
17180 % U+02A7 LATIN SMALL LETTER TESH DIGRAPH; tesh; \textteshlig (tipa)
17181 %* \textteshlig -> \tesh (wsupipa)
17182 % U+02A8 LATIN SMALL LETTER TC DIGRAPH WITH CURL; tccurl;
17183 % \texttctclig (tipa)
17184 %* \texttctclig -> \tch (wsupipa)
17185 % U+02A9 LATIN SMALL LETTER DZ DIGRAPH WITH CURL; dzcurl;
17186 % \textdzzlig (tipa)
17187 % U+02AA LATIN SMALL LETTER TESH DIGRAPH WITH CIRCUMflexion; tesh;
17188 % \texttsslig (tipa)
17189 %* \texttsslig -> \tesh (wsupipa)
17190 % U+02AC LATIN SMALL LETTER TESH DIGRAPH WITH TAIL; tesh;
17191 % \texttesslig (tipa)
17192 %* \texttesslig -> \tesh (wsupipa)
17193 \DeclareTextCommand{\texttesslig}{PU}{\82\257}% U+02AC
17194 \textasciicaron (tipa)
17195 \textprimstress (tipa)
17196 % U+02CC MODIFIER LETTER LOW VERTICAL LINE; verticallinelowmod;
17197 % \textsecstress (tipa)
17198 % U+02CB MODIFIER LETTER LEFT ARROWHEAD; arrowheadleftmod;
17199 % \texttleft (tipa)
17200 % U+02CC MODIFIER LETTER LEFT ARROWHEAD; arrowheadleftmod;
17201 % \texttleft (tipa)
17202 % U+02CB MODIFIER LETTER RIGHT ARROWHEAD; arrowheadrightmod;
17203 % \texttleft (tipa)
17204 % U+02CC MODIFIER LETTER RIGHT ARROWHEAD; arrowheadrightmod;
17205 % \texttleft (tipa)
17206 % U+02C7 CARON; caron
17207 \DeclareTextCommand{\texttasciicaron}{PU}{\82\307}% U+02C7
17208 % U+02C8 MODIFIER LETTER VERTICAL LINE; verticallinemod;
17209 % \textprimstress (tipa)
17210 \DeclareTextCommand{\textprimstress}{PU}{\82\310}% U+02C8
17211 % U+02CC MODIFIER LETTER LOW VERTICAL LINE; verticallinelowmod;
17212 % \texttasciicaron (tipa)

51.2.7 Spacing Modifier Letters: U+02B0 to U+02FF
17213 % U+02BD MODIFIER LETTER REVERSED COMMA;
17214 %\texttasciicaron (tipa)
17215 % U+02B0 MODIFIER LETTER LEFT ARROWHEAD; arrowheadleftmod;
17216 % \texttleft (tipa)
17217 % U+02B1 MODIFIER LETTER RIGHT ARROWHEAD; arrowheadrightmod;
17218 % \texttleft (tipa)
17219 % U+02B2 MODIFIER LETTER LEFT ARROWHEAD; arrowheadleftmod;
17220 % \texttleft (tipa)
17221 % U+02B3 MODIFIER LETTER RIGHT ARROWHEAD; arrowheadrightmod;
17222 % \texttleft (tipa)
17223 % U+02B4 MODIFIER LETTER LEFT ARROWHEAD; arrowheadleftmod;
17224 % \texttleft (tipa)
17225 % U+02B5 MODIFIER LETTER RIGHT ARROWHEAD; arrowheadrightmod;
17226 % \texttleft (tipa)
17227 % U+02B6 MODIFIER LETTER LEFT ARROWHEAD; arrowheadleftmod;
17228 % \texttleft (tipa)
17229 % U+02B7 MODIFIER LETTER RIGHT ARROWHEAD; arrowheadrightmod;
17230 % \texttleft (tipa)
17231 % U+02B8 MODIFIER LETTER LEFT ARROWHEAD; arrowheadleftmod;
17232 % \texttleft (tipa)
17233 % U+02B9 MODIFIER LETTER RIGHT ARROWHEAD; arrowheadrightmod;
17234 % \texttleft (tipa)
17235 % U+02BA MODIFIER LETTER LEFT ARROWHEAD; arrowheadleftmod;
17236 % \texttleft (tipa)
17237 % U+02BB MODIFIER LETTER RIGHT ARROWHEAD; arrowheadrightmod;
17238 % \texttleft (tipa)
17239 % U+02BC MODIFIER LETTER LEFT ARROWHEAD; arrowheadleftmod;
17240 % \texttleft (tipa)
17241 % U+02BD MODIFIER LETTER RIGHT ARROWHEAD; arrowheadrightmod;
17242 % \texttleft (tipa)
17243 % U+02BE MODIFIER LETTER LEFT ARROWHEAD; arrowheadleftmod;
17244 % \texttleft (tipa)
17245 % U+02BF MODIFIER LETTER RIGHT ARROWHEAD; arrowheadrightmod;
17246 % \texttleft (tipa)
17247 % U+02C0 MODIFIER LETTER REVERSED COMMA;
51.2.8 Combining Diacritical Marks: U+0300 to U+036F

51.2.9 Greek and Coptic: U+0370 to U+03FF
% U+038A GREEK CAPITAL LETTER OMICRON WITH TONOS; Omi-
% crontonos
% U+038C GREEK CAPITAL LETTER UPSILON WITH TONOS; Upsilontonos
% U+038E GREEK CAPITAL LETTER UPSILON WITH TONOS; Upsilontonos
% U+038F GREEK CAPITAL LETTER OMEGA WITH TONOS; Omegatonos
% U+0390 GREEK SMALL LETTER IOTA WITH DIALYTIKA AND TONOS; iotadieresistonos
% U+0391 GREEK CAPITAL LETTER ALPHA; Alpha
% U+0392 GREEK CAPITAL LETTER BETA; Beta
% U+0393 GREEK CAPITAL LETTER GAMMA; Gamma; \Gamma (LaTeX)
% U+0394 GREEK CAPITAL LETTER DELTA; Delta; \Delta (La-
TeX)
% U+0395 GREEK CAPITAL LETTER EPSILON; Epsilon
% U+0396 GREEK CAPITAL LETTER ZETA; Zeta
% U+0397 GREEK CAPITAL LETTER ETA; Eta
% U+0398 GREEK CAPITAL LETTER XI; Xi; \Xi (LaTeX)
% U+0399 GREEK CAPITAL LETTER OMICRON; Omicron
% U+03A0 GREEK CAPITAL LETTER PI; Pi
% U+03A1 GREEK CAPITAL LETTER RHO; Rho
% U+03A3 GREEK CAPITAL LETTER SIGMA; Sigma; \Sigma (LaTeX)
% U+03A4 GREEK CAPITAL LETTER TAU; Tau
% U+03A7 GREEK CAPITAL LETTER CHI; Chi
% U+03A8 GREEK CAPITAL LETTER PSI; Psi; \Psi (LaTeX)

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\textsigma \tau \upsilon \phi \chi \psi \omega
\textiota \upsilon \omicron \upsilon \omega
\Stigmagreek \stigmagreek
\Digammagreek \digammagreek
\Koppagreek \koppagreek
\Sampigreek
\backepsilon

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.
% kaverticalstrokecyrillic
\DeclareTextCommand{\cyrkvcrs}{PU}{\84\235}% U+049D
% U+049E CYRILLIC CAPITAL LETTER KA WITH STROKE; kastrokecyrillic
\DeclareTextCommand{\CYRKHCRS}{PU}{\84\236}% U+049E
% U+049F CYRILLIC SMALL LETTER KA WITH STROKE; kastrokecyrillic
\DeclareTextCommand{\cyrkhcrs}{PU}{\84\237}% U+049F
% U+04A0 CYRILLIC CAPITAL LETTER BASHKIR KA; kabashkircyrillic
\DeclareTextCommand{\CYRKBEAK}{PU}{\84\240}% U+04A0
% U+04A1 CYRILLIC SMALL LETTER BASHKIR KA; kabashkircyrillic
\DeclareTextCommand{\cyrkbeak}{PU}{\84\241}% U+04A1
% U+04A2 CYRILLIC CAPITAL LETTER EN WITH DESCENDER; endescendercyrillic
\DeclareTextCommand{\CYRNDSC}{PU}{\84\242}% U+04A2
% U+04A3 CYRILLIC SMALL LETTER EN WITH DESCENDER; endescendercyrillic
\DeclareTextCommand{\cyrndsc}{PU}{\84\243}% U+04A3
% U+04A4 CYRILLIC CAPITAL LIGATURE EN GHE; enghecyrillic
\DeclareTextCommand{\CYRNG}{PU}{\84\244}% U+04A4
% U+04A5 CYRILLIC SMALL LIGATURE EN GHE; enghecyrillic
\DeclareTextCommand{\cyrng}{PU}{\84\245}% U+04A5
% U+04A6 CYRILLIC CAPITAL LETTER PE WITH MIDDLE HOOK; pemiddlehookcyrillic
\DeclareTextCommand{\CYRPHK}{PU}{\84\246}% U+04A6
% U+04A7 CYRILLIC SMALL LETTER PE WITH MIDDLE HOOK; pemiddlehookcyrillic
\DeclareTextCommand{\cyrphk}{PU}{\84\247}% U+04A7
% U+04A8 CYRILLIC CAPITAL LETTER ABKHASIAN HA; Haabkhasiancyrillic
\DeclareTextCommand{\CYRABHHA}{PU}{\84\250}% U+04A8
% U+04A9 CYRILLIC SMALL LETTER ABKHASIAN HA; haabkhasiancyrillic
\DeclareTextCommand{\cyrabhha}{PU}{\84\251}% U+04A9
% U+04AA CYRILLIC CAPITAL LETTER ES WITH DESCENDER; esdescendercyrillic
\DeclareTextCommand{\CYRSDSC}{PU}{\84\252}% U+04AA
% U+04AB CYRILLIC SMALL LETTER ES WITH DESCENDER; esdescendercyrillic
\DeclareTextCommand{\cyrsdsc}{PU}{\84\253}% U+04AB
% U+04AC CYRILLIC CAPITAL LETTER TE WITH DESCENDER; Tedescendercyrillic
\DeclareTextCommand{\CYRTDSC}{PU}{\84\254}% U+04AC
% U+04AD CYRILLIC SMALL LETTER TE WITH DESCENDER; tedescendercyrillic
\DeclareTextCommand{\cyrtdsc}{PU}{\84\255}% U+04AD
% U+04AE CYRILLIC CAPITAL LETTER STRAIGHT U; Ustraightcyrillic
\DeclareTextCommand{\CYRY}{PU}{\84\256}% U+04AE
% U+04AF CYRILLIC SMALL LETTER STRAIGHT U; Ustraightcyrillic
\DeclareTextCommand{\cyrly}{PU}{\84\257}% U+04AF
% U+04B0 CYRILLIC CAPITAL LETTER STRAIGHT U WITH STROKE; Ustraitstrokecyrillic
\DeclareTextCommand{\CYRYHCRS}{PU}{\84\258}% U+04B0
% U+04B1 CYRILLIC SMALL LETTER STRAIGHT U WITH STROKE; Ustraitstrokecyrillic
\DeclareTextCommand{\cyrlyhcrs}{PU}{\84\259}% U+04B1
% U+04B2 CYRILLIC CAPITAL LETTER HA WITH DESCENDER; Hadescendercyrillic
\DeclareTextCompositeCommand{=}\{PU\}\{\cyri\}\{84\343\}% U+04E3 CYRILLIC SMALL LETTER I WITH MACRON; imacroncyrillic
\DeclareTextCompositeCommand{=}\{PU\}\{\cyri\}\{84\344\}% U+04E4 CYRILLIC CAPITAL LETTER I WITH DIAERESIS; idieresiscyrillic
\DeclareTextCompositeCommand{"}\{PU\}\{\cyri\}\{84\345\}% U+04E5 CYRILLIC SMALL LETTER I WITH DIAERESIS; idieresiscyrillic
\DeclareTextCompositeCommand{"}\{PU\}\{\cyri\}\{84\346\}% U+04E6 CYRILLIC CAPITAL LETTER O WITH DIAERESIS; Obarreddieresiscyrillic
\DeclareTextCompositeCommand{"}\{PU\}\{\cyri\}\{84\347\}% U+04E7 CYRILLIC SMALL LETTER O WITH DIAERESIS; obarreddieresiscyrillic
\DeclareTextCompositeCommand{"}\{PU\}\{\cyri\}\{84\348\}% U+04E8 CYRILLIC CAPITAL LETTER E WITH DIAERESIS; Ebarredcyrillic
\DeclareTextCompositeCommand{"}\{PU\}\{\cyri\}\{84\349\}% U+04E9 CYRILLIC SMALL LETTER E WITH DIAERESIS; ebarredcyrillic
\DeclareTextCompositeCommand{"}\{PU\}\{\cyri\}\{84\350\}% U+04EA CYRILLIC CAPITAL LETTER BARRED O WITH DIAERESIS; Obarredcyrillic
\DeclareTextCompositeCommand{"}\{PU\}\{\cyri\}\{84\351\}% U+04EB CYRILLIC SMALL LETTER BARRED O WITH DIAERESIS; obarredcyrillic
\DeclareTextCompositeCommand{"}\{PU\}\{\cyri\}\{84\352\}% U+04EC CYRILLIC CAPITAL LETTER YERU WITH DIAERESIS; yerudieresiscyrillic
\DeclareTextCompositeCommand{"}\{PU\}\{\cyri\}\{84\353\}% U+04ED CYRILLIC SMALL LETTER YERU WITH DIAERESIS; yerudieresiscyrillic
\DeclareTextCompositeCommand{"}\{PU\}\{\cyri\}\{84\354\}% U+04EE CYRILLIC CAPITAL LETTER E WITH DOUBLE ACUTE; Uhunlagumlautcyrillic
\DeclareTextCompositeCommand{"}\{PU\}\{\cyri\}\{84\355\}% U+04EF CYRILLIC SMALL LETTER E WITH DOUBLE ACUTE; uhunlagumlautcyrillic
\DeclareTextCompositeCommand{"}\{PU\}\{\cyri\}\{84\356\}% U+04F0 CYRILLIC CAPITAL LETTER GHE WITH DESCENDER; Gheidieresiscyrillic
\DeclareTextCompositeCommand{"}\{PU\}\{\cyri\}\{84\357\}% U+04F1 CYRILLIC SMALL LETTER GHE WITH DESCENDER; gheidieresiscyrillic
\DeclareTextCompositeCommand{\H}\{PU\}\{\cyri\}\{84\358\}% U+04F2 CYRILLIC CAPITAL LETTER CHE WITH DIAERESIS; Chedieresiscyrillic
\DeclareTextCompositeCommand{\H}\{PU\}\{\cyri\}\{84\359\}% U+04F3 CYRILLIC SMALL LETTER CHE WITH DIAERESIS; chedieresiscyrillic
\DeclareTextCompositeCommand{\H}\{PU\}\{\cyri\}\{84\360\}% U+04F4 CYRILLIC CAPITAL LETTER CHE WITH DIAERESIS; Chedieresiscyrillic
\DeclareTextCompositeCommand{\H}\{PU\}\{\cyri\}\{84\361\}% U+04F5 CYRILLIC SMALL LETTER CHE WITH DIAERESIS; chedieresiscyrillic
\DeclareTextCompositeCommand{\H}\{PU\}\{\cyri\}\{84\362\}% U+04F6 CYRILLIC CAPITAL LETTER GHE WITH DESCENDER; Gheidieresiscyrillic
\DeclareTextCompositeCommand{\H}\{PU\}\{\cyri\}\{84\363\}% U+04F7 CYRILLIC SMALL LETTER GHE WITH DESCENDER; gheidieresiscyrillic
\DeclareTextCompositeCommand{\H}\{PU\}\{\cyri\}\{84\364\}% U+04F8 CYRILLIC CAPITAL LETTER YERU WITH DIAERESIS; yerudieresiscyrillic
\DeclareTextCompositeCommand{\H}\{PU\}\{\cyri\}\{84\365\}% U+04F9 CYRILLIC SMALL LETTER YERU WITH DIAERESIS; yerudieresiscyrillic
\DeclareTextCompositeCommand{\H}\{PU\}\{\cyri\}\{84\366\}% U+04FA CYRILLIC CAPITAL LETTER GHE WITH STROKE AND
51.2.11 Hebrew: U+0590 to U+05FF

Macro names are taken from he8enc.def.

% U+05C3 HEBREW PUNCTUATION SOF PASUQ
\DeclareTextCommand{\sofpasuq}{PU}{\85\303}\% U+05C3
% U+05D0 HEBREW LETTER ALEF
\DeclareTextCommand{\hebalef}{PU}{\85\320}\% U+05D0
% U+05D1 HEBREW LETTER BET
\DeclareTextCommand{\hebbet}{PU}{\85\321}\% U+05D1
% U+05D2 HEBREW LETTER GIMEL
\DeclareTextCommand{\hebgimel}{PU}{\85\322}\% U+05D2
% U+05D3 HEBREW LETTER DALET
\DeclareTextCommand{\hebdal}{PU}{\85\323}\% U+05D3
% U+05D4 HEBREW LETTER HE
\DeclareTextCommand{\hebhe}{PU}{\85\324}\% U+05D4
% U+05D5 HEBREW LETTER VAV
\DeclareTextCommand{\hebvav}{PU}{\85\325}\% U+05D5
% U+05D6 HEBREW LETTER ZAYIN
\DeclareTextCommand{\hebzayin}{PU}{\85\326}\% U+05D6
% U+05D7 HEBREW LETTER HET
\DeclareTextCommand{\hebhet}{PU}{\85\327}\% U+05D7
% U+05D8 HEBREW LETTER TET
\DeclareTextCommand{\hebtet}{PU}{\85\330}\% U+05D8
% U+05D9 HEBREW LETTER YOD
\DeclareTextCommand{\hebyod}{PU}{\85\331}\% U+05D9
% U+05DA HEBREW LETTER FINAL KAF
\DeclareTextCommand{\hebfinalkaf}{PU}{\85\332}\% U+05DA
% U+05DB HEBREW LETTER KAF
\DeclareTextCommand{\hebkaf}{PU}{\85\333}\% U+05DB
% U+05DC HEBREW LETTER LAMED
\DeclareTextCommand{\heblamed}{PU}{\85\334}\% U+05DC
% U+05DD HEBREW LETTER FINAL MEM
\DeclareTextCommand{\hebfinalmem}{PU}{\85\335}\% U+05DD
% U+05DE HEBREW LETTER MEM
\ DeclareTextCommand{\hebmem}{PU}{\85\336}\% U+05DE
% U+05DF HEBREW LETTER FINAL NUN
\DeclareTextCommand{\hebfinalnun}{PU}{\85\337}\% U+05DF
% U+05E0 HEBREW LETTER NUN
\DeclareTextCommand{\hebnun}{PU}{\85\340}\% U+05E0
% U+05E1 HEBREW LETTER SAMEKH
\DeclareTextCommand{\hebsamekh}{PU}{\85\341}\% U+05E1
% U+05E2 HEBREW LETTER AYIN
\DeclareTextCommand{\hebayin}{PU}{\85\342}\% U+05E2
% U+05E3 HEBREW LETTER FINAL PE
\ DeclareTextCommand{\hebfinalpe}{PU}{\85\343}\% U+05E3
% U+05E4 HEBREW LETTER PE

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

51.2.13 Phonetic Extensions: U+1D00 to U+1D7F
% U+1D66 GREEK SUBSCRIPT SMALL LETTER BETA
\DeclareTextCommand{\textbetainferior}{PU}{\9035\146} %* U+1D66
% U+1D67 GREEK SUBSCRIPT SMALL LETTER GAMMA
\DeclareTextCommand{\textgammainferior}{PU}{\9035\147} %* U+1D67
% U+1D68 GREEK SUBSCRIPT SMALL LETTER RHO
\DeclareTextCommand{\textrhoinferior}{PU}{\9035\150} %* U+1D68
% U+1D69 GREEK SUBSCRIPT SMALL LETTER PHI
\DeclareTextCommand{\textphiinferior}{PU}{\9035\151} %* U+1D69
% U+1D6A GREEK SUBSCRIPT SMALL LETTER CHI
\DeclareTextCommand{\textchiinferior}{PU}{\9035\152} %* U+1D6A
% U+1D7B LATIN SMALL CAPITAL LETTER I WITH STROKE; \barsci (wsuipa)
\DeclareTextCommand{\textbarsci}{PU}{\9035\173} %* U+1D7B
% U+1D7D LATIN SMALL LETTER P WITH STROKE; \barp (wsuipa)
\DeclareTextCommand{\textbarp}{PU}{\9035\175} %* U+1D7D
% U+1D7E LATIN SMALL CAPITAL LETTER U WITH STROKE;
\DeclareTextCommand{\textbarscu}{PU}{\9035\176} %* U+1D7E

51.2.14 Phonetic Extensions Supplement: U+1D80 to U+1DBF
% U+1D8F LATIN SMALL LETTER A WITH RETROFLEX HOOK; \textrhooka (tipx)
\DeclareTextCommand{\textPUrhooka}{PU}{\9035\217} %* U+1D8F
%* \textPUrhooka -> \textrhooka (tipx)
% U+1D91 LATIN SMALL LETTER D WITH HOOK AND TAIL; \texthrtailed (tipa)
\DeclareTextCommand{\textthrtaild}{PU}{\9035\221} %* U+1D91
% U+1D92 LATIN SMALL LETTER E WITH RETROFLEX HOOK; \textrhooke (tipx)
\DeclareTextCommand{\textPUrhooke}{PU}{\9035\222} %* U+1D92
%* \textPUrhooke -> \textrhooke (tipx)
% U+1D93 LATIN SMALL LETTER OPEN E WITH RETROFLEX HOOK;
\DeclareTextCommand{\textPUrhookepsilon}{PU}{\9035\223} %* U+1D93
%* \textPUrhookepsilon -> \textrhookepsilon (tipx)
% U+1D97 LATIN SMALL LETTER OPEN O WITH RETROFLEX HOOK;
\DeclareTextCommand{\textPUrhookopeno}{PU}{\9035\227} %* U+1D97
%* \textPUrhookopeno -> \textrhookopeno (tipx)

51.2.15 Latin Extended Additional: U+1E00 to U+1EFF
% U+1E00 LATIN CAPITAL LETTER A WITH RING BELOW; Aringbelow
\DeclareTextCompositeCommand{\textsubring}{PU}{A}{\9036\000} % U+1E00
% U+1E01 LATIN SMALL LETTER A WITH RING BELOW; aringbelow
\DeclareTextCompositeCommand{\textsubring}{PU}{a}{\9036\001} % U+1E01
% U+1E02 LATIN CAPITAL LETTER B WITH DOT ABOVE; Bdotaccent
\DeclareTextCompositeCommand{}{B}{\9036\002} % U+1E02
% U+1E03 LATIN SMALL LETTER B WITH DOT ABOVE; bdotaccent
\DeclareTextCompositeCommand{}{b}{\9036\003} % U+1E03
% U+1E04 LATIN CAPITAL LETTER B WITH DOT BELOW; Bdotbelow
\DeclareTextCompositeCommand{}{B}{\9036\004} % U+1E04
% U+1E05 LATIN SMALL LETTER B WITH DOT BELOW; bdotbelow
\DeclareTextCompositeCommand{}{b}{\9036\005} % U+1E05
% U+1E06 LATIN CAPITAL LETTER B WITH LINE BELOW; Blinebelow
\DeclareTextCompositeCommand{}{B}{\9036\006} % U+1E06
% U+1E07 LATIN SMALL LETTER B WITH LINE BELOW; blinebelow
\DeclareTextCompositeCommand{}{b}{\9036\007} % U+1E07
\DeclareTextCompositeCommand{\textsubcircum}{PU}\{N\}{\9036\112}% U+1E4A
\DeclareTextCompositeCommand{\textsubcircum}{PU}\{n\}{\9036\113}% U+1E4B
\DeclareTextCompositeCommand{\textacutemacron}{PU}\{O\}{\9036\122}% U+1E52
\DeclareTextCompositeCommand{\textacutemacron}{PU}\{o\}{\9036\123}% U+1E53
\DeclareTextCompositeCommand{\textgravemacron}{PU}\{O\}{\9036\120}% U+1E50
\DeclareTextCompositeCommand{\textgravemacron}{PU}\{o\}{\9036\121}% U+1E51
\DeclareTextCompositeCommand{\textcirccircum}{PU}\{O\}{\9036\112}% U+1E4A
\DeclareTextCompositeCommand{\textcirccircum}{PU}\{o\}{\9036\113}% U+1E4B
\DeclareTextCompositeCommand{\textcircumflex}{PU}\{N\}{\9036\104}% U+1E44
\DeclareTextCompositeCommand{\textcircumflex}{PU}\{n\}{\9036\105}% U+1E45
\DeclareTextCompositeCommand{\textcircumflex}{PU}\{d\}{\9036\106}% U+1E46
\DeclareTextCompositeCommand{\textcircumflex}{PU}\{\d\}{\9036\107}% U+1E47
\DeclareTextCompositeCommand{\textcircumflex}{PU}\{b\}{\9036\110}% U+1E48
\DeclareTextCompositeCommand{\textcircumflex}{PU}\{\b\}{\9036\111}% U+1E49
\DeclareTextCompositeCommand{\textcircumflex}{PU}\{\textcircumflex\}\{N\}{\9036\112}% U+1E4A
\DeclareTextCompositeCommand{\textcircumflex}{PU}\{\textcircumflex\}\{n\}{\9036\113}% U+1E4B
\DeclareTextCompositeCommand{\textmacron}{PU}\{O\}{\9036\120}% U+1E50
\DeclareTextCompositeCommand{\textmacron}{PU}\{o\}{\9036\121}% U+1E51
\DeclareTextCompositeCommand{\textacutemacron}{PU}\{O\}{\9036\122}% U+1E52
\DeclareTextCompositeCommand{\textacutemacron}{PU}\{o\}{\9036\123}% U+1E53
\DeclareTextCompositeCommand{\textmacron}{PU}\{P\}{\9036\126}% U+1E56
\DeclareTextCompositeCommand{\textmacron}{PU}\{p\}{\9036\127}% U+1E57
\DeclareTextCompositeCommand{\textmacron}{PU}\{R\}{\9036\132}% U+1E5A
\DeclareTextCompositeCommand{\textmacron}{PU}\{r\}{\9036\133}% U+1E5B
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{N\}{\9036\130}% U+1E58
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{o\}{\9036\131}% U+1E59
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{R\}{\9036\136}% U+1E5E
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{r\}{\9036\137}% U+1E5F
\DeclareTextCompositeCommand{\textmacron}{PU}\{S\}{\9036\140}% U+1E60
\DeclareTextCompositeCommand{\textmacron}{PU}\{s\}{\9036\141}% U+1E61
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{N\}{\9036\130}% U+1E58
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{o\}{\9036\131}% U+1E59
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{R\}{\9036\136}% U+1E5E
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{r\}{\9036\137}% U+1E5F
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{S\}{\9036\140}% U+1E60
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{s\}{\9036\141}% U+1E61
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{R\}{\9036\136}% U+1E5E
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{r\}{\9036\137}% U+1E5F
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{S\}{\9036\140}% U+1E60
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{s\}{\9036\141}% U+1E61
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{R\}{\9036\136}% U+1E5E
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{r\}{\9036\137}% U+1E5F
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{S\}{\9036\140}% U+1E60
\DeclareTextCompositeCommand{\textmacron}{PU}\{\textmacron\}\{\textmacron\}\{s\}{\9036\141}% U+1E61
51.2.16 General Punctuation: U+2000 to U+206F

51.2.16.1 Zero Width Joiner: U+200C

51.2.16.2 Left SINGLE QUOTATION MARK: U+201C

51.2.16.3 Right SINGLE QUOTATION MARK: U+201D

51.2.16.4 DOUBLE LOW-9 QUOTATION MARK: U+201E

51.2.16.5 RIGHT DOUBLE QUOTATION MARK: U+201F

51.2.16.6 DOUBLE DAGGER: U+2020

51.2.16.7 DOUBLE DASH: U+2013

51.2.16.8 HORIZONTAL ELLIPSIS: U+2026
51.2.18 Currency Symbols: U+20A0 to U+20CF

- U+20A0 COLON SIGN; *colonmonetary, colonsign
- U+20A1 LIRA SIGN; afii08941, *lira
- U+20A4 NAIRA SIGN
- U+20A7 PESETA SIGN; peseta
- U+20A9 WON SIGN; won
- U+20AB DONG SIGN; dong
- U+20AC EURO SIGN; *Euro, euro

51.2.19 Letterlike Symbols: U+2100 to U+214F

- U+2103 DEGREE CELSIUS; centigrade
- U+210F PLANCK CONSTANT OVER TWO PI; \hslash (AmS)
- U+2111 BLACK-LETTER CAPITAL I (=imaginary part); Ifraktur; \Im (LaTeX)
- U+2117 SOUND RECORDING COPYRIGHT
- U+2118 GUARANI SIGN
- U+2121 SCRIPT SMALL L (=ell, liter); \ell (LaTeX)
\textthreefifths \textfourfifths \textonesixth \textfivesixths \textoneeighth \textthreeeighths \textfiveeighths \textseveneighths \textrevc \textzerothirds

51.2.21 Arrows: $\text{U+2190}$ to $\text{U+21FF}$

$\text{U+2190}$ \textleftarrow \textleftarrow \textuparrow \textrightarrow \textdownarrow \textleftrightarrow \textupdownarrow \textnwarrow \textnearrow \textsearrow \textswarrow \textnleftarrow \textnrightarrow \texttwoheadleftarrow \textntwoheadleftarrow \texttwoheaduparrow
\DeclareTextCommand\textdownharpoonright{PU}\{\041\302\}%* U+21C2
\ DeclareTextCommand\textdownharpoonleft\{PU\}\{\041\303\}%* U+21C3
\ U+21C4 RIGHTWARDS ARROW OVER LEFTWARDS ARROW; \arrowrightoverleft; \rightleftarrows (MnSymbol)
\ DeclareTextCommand\textdownharpoons\{PU\}\{\041\304\}%* U+21C5
\ U+21C6 LEFTWARDS ARROW OVER RIGHTWARDS ARROW; \arrowleftoverright;
\ DeclareTextCommand\textleftleftarrows\{PU\}\{\041\305\}%* U+21C6
\ U+21C7 LEFTWARDS PAIRED ARROWS; \leftleftarrows (AmS)
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\306\}%* U+21C7
\ U+21C8 UPWARDS PAIRED ARROWS; \upuparrows (AmS)
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\307\}%* U+21C8
\ U+21C9 RIGHTWARDS PAIRED ARROWS; \rightleftarrows (MnSymbol)
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\308\}%* U+21C9
\ U+21CA DOWNWARDS PAIRED ARROWS; \downdownarrows (AmS)
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\309\}%* U+21CA
\ U+21CB LEFTWARDS HARPOON OVER RIGHTWARDS HARPOON;
\ U+21CB LEFTWARDS HARPOON OVER RIGHTWARDS HARPOON;
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\310\}%* U+21CB
\ U+21CC RIGHTWARDS HARPOON OVER LEFTWARDS HARPOON;
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\311\}%* U+21CC
\ U+21CD LEFTWARDS DOUBLE ARROW WITH STROKE; \arrowleftdblstroke;
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\312\}%* U+21CD
\ U+21CE LEFT RIGHT DOUBLE ARROW WITH STROKE; \nLeftarrow (AmS)
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\313\}%* U+21CE
\ U+21CF RIGHTWARDS DOUBLE ARROW WITH STROKE, \arrowrightdblstroke;
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\314\}%* U+21CF
\ U+21D0 LEFTWARDS DOUBLE ARROW; \arrowdblleft, arrowleftdbl;
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\315\}%* U+21D0
\ U+21D1 UPWARDS DOUBLE ARROW; \arrowdblup; \Uparrow (LaTeX)
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\316\}%* U+21D1
\ U+21D2 RIGHTWARDS DOUBLE ARROW; \arrowdbright, dbarrowright;
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\317\}%* U+21D2
\ U+21D3 DOWNWARDS DOUBLE ARROW; \arrowdbldown; \Downarrow (LaTeX)
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\318\}%* U+21D3
\ U+21D4 LEFT RIGHT DOUBLE ARROW; \arrowdbboth;
\ DeclareTextCommand\textleftarrows\{PU\}\{\041\319\}%* U+21D4
\ U+21D5 UP DOWN DOUBLE ARROW; \arrowdblboth; \Downarrow (LaTeX)
18786 \DeclareTextCommand{\textUpdownarrow}{PU}{\9041\325}%* U+21D5
18787 \% U+21D6 NORTH WEST DOUBLE ARROW; \Nwarrow (MnSymbol)
18788 \DeclareTextCommand{\textNwarrow}{PU}{\9041\326}%* U+21D6
18789 \% U+21D7 NORTH EAST DOUBLE ARROW; \Nearrow (MnSymbol)
18790 \DeclareTextCommand{\textNearrow}{PU}{\9041\327}%* U+21D7
18791 \% U+21D8 SOUTH EAST DOUBLE ARROW; \Searrow (MnSymbol)
18792 \DeclareTextCommand{\textSearrow}{PU}{\9041\330}%* U+21D8
18793 \% U+21D9 SOUTH WEST DOUBLE ARROW; \Swarrow (MnSymbol)
18794 \DeclareTextCommand{\textSwarrow}{PU}{\9041\331}%* U+21D9
18795 \% U+21DA LEFTWARDS TRIPLE ARROW; \Lleftarrow (AmS)
18796 \DeclareTextCommand{\textLleftarrow}{PU}{\9041\332}%* U+21DA
18797 \% U+21DB RIGHTWARDS TRIPLE ARROW; \Rrightarrow (MnSymbol)
18798 \DeclareTextCommand{\textRrightarrow}{PU}{\9041\333}%* U+21DB
18799 \% U+21DC LEFTWARDS SQUIGGLE ARROW; \leftsquigarrow (mathabx)
18800 \DeclareTextCommand{\textleftsquigarrow}{PU}{\9041\334}%* U+21DC
18801 \% U+21DD RIGHTWARDS SQUIGGLE ARROW; \rightsquigarrow (mathabx)
18802 \DeclareTextCommand{\textrightsquigarrow}{PU}{\9041\335}%* U+21DD
18803 \% U+21E0 LEFTWARDS DASHED ARROW; arrowdashleft;
18804 \% \dashleftarrow (AmS)
18805 \DeclareTextCommand{\textdashleftarrow}{PU}{\9041\340}%* U+21E0
18806 \%* \textdashleftarrow -> \dashedleftarrow (MnSymbol)
18807 \% U+21E1 UPWARDS DASHED ARROW; arrowdashedup; \dasheduparrow (MnSymbol)
18808 \DeclareTextCommand{\textdasheduparrow}{PU}{\9041\341}%* U+21E1
18809 \% U+21E2 RIGHTWARDS DASHED ARROW; arrowdashedright; \dashedrightarrow (AmS)
18810 \DeclareTextCommand{\textdashedrightarrow}{PU}{\9041\342}%* U+21E2
18811 \%* \textdashedrightarrow -> \dashedrightarrow (MnSymbol)
18812 \% U+21E3 DOWNWARDS DASHED ARROW; arrowdasheddown; \dasheddownarrow (MnSymbol)
18813 \DeclareTextCommand{\textdasheddownarrow}{PU}{\9041\343}%* U+21E3
18814 \% U+21E8 RIGHTWARDS WHITE ARROW; \pointer (wasysym)
18815 \DeclareTextCommand{\textpointer}{PU}{\9041\350}%* U+21E8
18816 \% U+21F5 DOWNWARDS ARROW LEFTWARDS OF UPWARDS ARROW;
18817 \% \downuparrows (MnSymbol)
18818 \DeclareTextCommand{\textdownuparrows}{PU}{\9041\365}%* U+21F5
18819 \% U+21FD LEFTWARDS OPEN-HEADED ARROW; \leftarrowtriangle (stmaryrd)
18820 \DeclareTextCommand{\textleftarrowtriangle}{PU}{\9041\375}%* U+21FD
18821 \% U+21FE RIGHTWARDS OPEN-HEADED ARROW; \rightarrowtriangle (stmaryrd)
18822 \DeclareTextCommand{\textrightarrowtriangle}{PU}{\9041\376}%* U+21FE
18823 \% U+21FF LEFT RIGHT OPEN-HEADED ARROW; \leftrightarrowtriangle (stmaryrd)
18824 \DeclareTextCommand{\textleftrightarrowtriangle}{PU}{\9041\377}%* U+21FF

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

18825 \% U+2200 FOR ALL; \forall; \forall (LaTeX)
18826 \DeclareTextCommand{\textforall}{PU}{\9042\000}%* U+2200
18827 \% U+2201 COMPLEMENT; \complement (AmS)
18828 \DeclareTextCommand{\textcomplement}{PU}{\9042\001}%* U+2201
18829 \% U+2202 PARTIAL DIFFERENTIAL; \partial; \partial (LaTeX)
18830 \DeclareTextCommand{\textpartial}{PU}{\9042\002}%* U+2202
18831 \% U+2203 THERE EXISTS; \exists; \exists (LaTeX)
18832 \DeclareTextCommand{\textexists}{PU}{\9042\003}%* U+2203
18833 \% U+2204 THERE DOES NOT EXIST; \nexists (AmS)
18834 \DeclareTextCommand{\textnexists}{PU}{\9042\004}%* U+2204
18835 \% U+2205 EMPTY SET; \emptyset; \emptyset (LaTeX), \varnothing (AmS)
18836 \DeclareTextCommand{\textemptyset}{PU}{\9042\005}%* U+2205

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\% \textbump} \textbf{(txfonts/pxfonts)}
\% \textbf{U+224F U+0338}
\% \textbf{APPROACHES THE LIMIT; approaches; \doteq (LaTeX)}
\% \textbf{\textbf{\textbf{\textbf{MnSymbol}}}}
\% \textbf{U+2250 APPROACHES THE LIMIT; approaches; \doteq (LaTeX)}
\% \textbf{\textbf{\textbf{\textbf{U+2250 U+0338}}}}
\% \textbf{\textbf{\textbf{\textbf{U+2250}}} \textbf{\textbf{\textbf{\textbf{U+0338}}}}}
\% \textbf{U+2251 GEOMETRICALLY EQUAL TO; geometricallyequal;}
\% \textbf{\textbf{\textbf{\textbf{U+2251}}} \textbf{\textbf{\textbf{\textbf{U+0338}}}}}
\% \textbf{U+2252 APPROXIMATELY EQUAL TO OR THE IMAGE OF; approxe-
\% \textbf{\textbf{\textbf{\textbf{U+2252}}} \textbf{\textbf{\textbf{\textbf{U+0338}}}}}
\% \textbf{\textbf{\textbf{\textbf{U+2252U+0338}}}}
\% \textbf{U+2253 IMAGE OF OR APPROXIMATELY EQUAL TO; imageorapproxi-
\% \textbf{\textbf{\textbf{\textbf{U+2253}}} \textbf{\textbf{\textbf{\textbf{U+0338}}}}}
\% \textbf{U+2254 COLON EQUALS; \colonequals (colonequals)}
\% \textbf{\textbf{\textbf{\textbf{U+2254}}} \textbf{\textbf{\textbf{\textbf{U+0338}}}}}
\% \textbf{\textbf{\textbf{\textbf{U+2254U+0338}}}}
\% \textbf{U+2255 EQUALS COLON; \equalscolon (colonequals)}
\% \textbf{\textbf{\textbf{\textbf{U+2255}}} \textbf{\textbf{\textbf{\textbf{U+0338}}}}}
\% \textbf{\textbf{\textbf{\textbf{U+2255U+0338}}}}
\% \textbf{U+2256 RING IN EQUAL TO; \eqcirc (AmS)}
\% \textbf{\textbf{\textbf{\textbf{U+2256}}} \textbf{\textbf{\textbf{\textbf{U+0338}}}}}
\% \textbf{\textbf{\textbf{\textbf{U+2256U+0338}}}}
\% \textbf{\textbf{\textbf{\textbf{U+2257}}} \textbf{\textbf{\textbf{\textbf{U+0338}}}}}
\% \textbf{\textbf{\textbf{\textbf{U+2257U+0338}}}}
\% \textbf{\textbf{\textbf{\textbf{\textbf{U+2259}}} \textbf{\textbf{\textbf{\textbf{U+0338}}}}}}
\% \textbf{\textbf{\textbf{\textbf{\textbf{U+2259U+0338}}}}}
\% \textbf{\textbf{\textbf{\textbf{\textbf{U+225CU+0338}}}}}
\DeclareTextCommand{\textmultimapdotbothB}{PU}{\9042\267}%* U+22B7
\DeclareTextCommand{\textmultimap}{PU}{\9042\270}%* U+22B8
\DeclareTextCommand{\textveebar}{PU}{\9042\273}%* U+22BB
\DeclareTextCommand{\textbarwedge}{PU}{\9042\274}%* U+22BC
\DeclareTextCommand{\textstar}{PU}{\9042\306}%* U+22C6
\DeclareTextCommand{\textdivideontimes}{PU}{\9042\307}%* U+22C7
\DeclareTextCommand{\textbowtie}{PU}{\9042\310}%* \textbowtie \rightarrow \Bowtie (wasysym)
\DeclareTextCommand{\textltimes}{PU}{\9042\311}%* U+22C9
\DeclareTextCommand{\textrtimes}{PU}{\9042\312}%* U+22CA
\DeclareTextCommand{\textleftthreetimes}{PU}{\9042\313}%* U+22CB
\DeclareTextCommand{\textrightthreetimes}{PU}{\9042\314}%* U+22CC
\DeclareTextCommand{\textbacksimeq}{PU}{\9042\315}%* U+22CD
\DeclareTextCommand{\textcurlyvee}{PU}{\9042\316}%* \textcurlyvee \rightarrow \varcurlyvee (stmaryrd)
\DeclareTextCommand{\textcurlywedge}{PU}{\9042\317}%* \textcurlywedge \rightarrow \varcurlywedge (stmaryrd)
\DeclareTextCommand{\textgreaterdot}{PU}{\9042\326}%* U+22D6
\DeclareTextCommand{\textlessdot}{PU}{\9042\327}%* U+22D7
\DeclareTextCommand{\textlll}{PU}{\9042\330}%* U+22D8
\DeclareTextCommand{\textggg}{PU}{\9042\331}%* U+22D9
\DeclareTextCommand{\texttimes}{PU}{\9042\311}%* U+22CD
\DeclareTextCommand{\texttimes}{PU}{\9042\311}%* U+22CD
\[ \lesseqgtr \quad \gtreqless \quad \curlyeqprec \quad \curlyeqsucc \quad \npreccurlyeq \quad \nsucccurlyeq \quad \nsqsubseteq \quad \nsqsupseteq \quad \nsqsubsetneq \quad \nsqsupsetneq \quad \lnsim \quad \gnsim \quad \precnsim \quad \succnsim \quad \ntriangleleft \quad \ntriangleright \quad \ntrianglelefteq \quad \ntrianglerighteq \quad \vdots \quad \cdots \]
51.2.23 Miscellaneous Technical: U+2300 to U+23FF

% U+2300 DIAMETER SIGN; \diameter (mathabx, wasysym)
\DeclareTextCommand{\textdiameter}{PU}{\9043\000}%* U+2300

% U+2310 REVERSED NOT SIGN; \backneg (MnSymbol)
\DeclareTextCommand{\textbackneg}{PU}{\9043\020}%* U+2310

% U+2311 SQUARE LOZENGE; \wasylozenge (wasysym)
\DeclareTextCommand{\textwasylozenge}{PU}{\9043\021}%* U+2311

% U+2319 TURNED NOT SIGN; \invbackneg (MnSymbol)
\DeclareTextCommand{\textinvbackneg}{PU}{\9043\031}%* U+2319

% U+231A WATCH; \clock (wasysym)
\DeclareTextCommand{\textclock}{PU}{\9043\032}%* \textclock -> \Clocklogo (marvosym)
%* \textclock -> \ClockLogo (marvosym)

% U+231C TOP LEFT CORNER; \ulcorner (AmS)
\DeclareTextCommand{\textulcorner}{PU}{\9043\034}%* U+231C

% U+231D TOP RIGHT CORNER; \urcorner (AmS)
\DeclareTextCommand{\texturcorner}{PU}{\9043\035}%* U+231D

% U+231E BOTTOM LEFT CORNER; \llcorner (AmS)
\DeclareTextCommand{\textllcorner}{PU}{\9043\036}%* U+231E

% U+231F BOTTOM RIGHT CORNER; \lrcorner (AmS)
\DeclareTextCommand{\textlrcorner}{PU}{\9043\037}%* U+231F

% U+2322 FROWN; \frown (LaTeX)
\DeclareTextCommand{\textfrown}{PU}{\9043\042}%* U+2322

% U+2323 SMILE; \smile (LaTeX)
\DeclareTextCommand{\textsmile}{PU}{\9043\043}%* U+2323

% U+2328 KEYBOARD; \Keyboard (marvosym)
\DeclareTextCommand{\textKeyboard}{PU}{\9043\050}%* U+2328

% U+2329 LEFT-POINTING ANGLE BRACKET; angleleft; \langle (LaTeX)
\DeclareTextCommand{\textangleleft}{PU}{\9043\051}%* U+2329

% U+232A RIGHT-POINTING ANGLE BRACKET;angleright; \rangle (LaTeX)
\DeclareTextCommand{\textangleright}{PU}{\9043\052}%* U+232A

% U+2339 APL FUNCTIONAL SYMBOL QUAD DIVIDE; \APLinv (wasysym)
\DeclareTextCommand{\textAPLinv}{PU}{\9043\071}%* U+2339

% U+233C APL FUNCTIONAL SYMBOL QUAD CIRCLE; \Tumbler (marvosym)
\DeclareTextCommand{\textTumbler}{PU}{\9043\074}%* U+233C

% U+233D APL FUNCTIONAL SYMBOL CIRCLE STILE; \baro (stmaryrd)
\DeclareTextCommand{\textstmaryrdbaro}{PU}{\9043\075}% U+233D

% U+233F APL FUNCTIONAL SYMBOL SLASH BAR; \notslash (wasysym)
\DeclareTextCommand{\textnotslash}{PU}{\9043\077}%* U+233F

% U+2340 APL FUNCTIONAL SYMBOL BACKSLASH BAR; \notbackslash (wasysym)
\DeclareTextCommand{\textnotbackslash}{PU}{\9043\100}%* U+2340

% U+2342 APL FUNCTIONAL SYMBOL QUAD BACKSLASH; \boxbackslash (mathabx)
\DeclareTextCommand{\textboxbackslash}{PU}{\9043\102}%* U+2342

% U+2347 APL FUNCTIONAL SYMBOL QUAD LEFTWARDS ARROW; \APLleftarrowbox (wasysym)
\DeclareTextCommand{\textAPLleftarrowbox}{PU}{\9043\107}%* U+2347
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
\DeclareTextCompositeCommand{\textcircled}{PU}{9}{'9044\150}{U+2468}
\DeclareTextCompositeCommand{\textcircled}{PU}{10}{'9044\151}{U+2469}
\DeclareTextCompositeCommand{\textcircled}{PU}{11}{'9044\152}{U+246A}
\DeclareTextCompositeCommand{\textcircled}{PU}{12}{'9044\153}{U+246B}
\DeclareTextCompositeCommand{\textcircled}{PU}{13}{'9044\154}{U+246C}
\DeclareTextCompositeCommand{\textcircled}{PU}{14}{'9044\155}{U+246D}
\DeclareTextCompositeCommand{\textcircled}{PU}{15}{'9044\156}{U+246E}
\DeclareTextCompositeCommand{\textcircled}{PU}{16}{'9044\157}{U+246F}
\DeclareTextCompositeCommand{\textcircled}{PU}{A}{'9044\266}{U+24B6}
\DeclareTextCompositeCommand{\textcircled}{PU}{B}{'9044\267}{U+24B7}
\DeclareTextCompositeCommand{\textcircled}{PU}{C}{'9044\270}{U+24B8}
\DeclareTextCompositeCommand{\textcircled}{PU}{D}{'9044\271}{U+24B9}
\DeclareTextCompositeCommand{\textcircled}{PU}{E}{'9044\272}{U+24BA}
\DeclareTextCompositeCommand{\textcircled}{PU}{F}{'9044\273}{U+24BB}
\DeclareTextCompositeCommand{\textcircled}{PU}{G}{'9044\274}{U+24BC}
\DeclareTextCompositeCommand{\textcircled}{PU}{H}{'9044\275}{U+24BD}
\DeclareTextCompositeCommand{\textcircled}{PU}{I}{'9044\276}{U+24BE}
\DeclareTextCompositeCommand{\textcircled}{PU}{J}{'9044\277}{U+24BF}
\DeclareTextCompositeCommand{\textcircled}{PU}{K}{'9044\300}{U+24C0}
\DeclareTextCompositeCommand{\textcircled}{PU}{L}{'9044\301}{U+24C1}
\DeclareTextCompositeCommand{\textcircled}{PU}{M}{'9044\302}{U+24C2}
51.2.27 Box Drawing: U+2500 to 257F

51.2.28 Geometric Shapes: U+25A0 to U+25FF
gle;
\textbigtriangledown (LaTeX)
\DeclareTextCommand{\textbigtriangledown}{PU}{\9045\275}%* U+25BD
\DeclareTextCommand{\textRewind}{PU}{\9045\300}%* U+25C0
\DeclareTextCommand{\texttriangleleft}{PU}{\9045\301}%* U+25C1
\DeclareTextCommand{\textLHD}{PU}{\9045\304}%* U+25C4
\DeclareTextCommand{\textdiamond}{PU}{\9045\307}%* U+25C7
\DeclareTextCommand{\textlozenge}{PU}{\9045\312}%* U+25CA
\DeclareTextCommand{\textleftpointingtriangle}{PU}{\9045\326}%* U+25D6
\DeclareTextCommand{\textrightpointingtriangle}{PU}{\9045\327}%* U+25D7
\DeclareTextCommand{\textopenbullet}{PU}{\9045\346}%* U+25E6
\DeclareTextCommand{\textboxbar}{PU}{\9045\353}%* U+25EB
\DeclareTextCommand{\textbigcircle}{PU}{\9045\357}%* U+25EF
\textCloud (ifsym)
\DeclareTextCommand{\textCloud}{PU}{\9046\001}%* U+2601
\FiveStar (bbding)
\DeclareTextCommand{\textFiveStar}{PU}{\9046\005}%* U+2605
\FiveStarOpen (bbding)
\DeclareTextCommand{\textFiveStarOpen}{PU}{\9046\006}%* U+2606
\Phone (bbding)
\DeclareTextCommand{\textPhone}{PU}{\9046\016}%* U+260E
\boxempty (stmaryrd)
\DeclareTextCommand{\textboxempty}{PU}{\9046\020}%* U+2610
\CheckedBox (marvosym)
\DeclareTextCommand{\textCheckedbox}{PU}{\9046\021}%* U+2611
\CrossedBox (marvosym)
\DeclareTextCommand{\textCrossedbox}{PU}{\9046\022}%* U+2612
\Coffeecup (marvosym)
\DeclareTextCommand{\textCoffeecup}{PU}{\9046\025}%* U+2615
\HandCuffLeft (bbding)
\DeclareTextCommand{\textHandCuffLeft}{PU}{\9046\032}%* U+261A
\HandCuffRight (bbding)
\DeclareTextCommand{\textHandCuffRight}{PU}{\9046\033}%* U+261B

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

\textbigtriangledown (LaTeX)
\DeclareTextCommand{\textbigtriangledown}{PU}{\9045\275}%* U+25BD
\DeclareTextCommand{\textRewind}{PU}{\9045\300}%* U+25C0
\DeclareTextCommand{\texttriangleleft}{PU}{\9045\301}%* U+25C1
\DeclareTextCommand{\textLHD}{PU}{\9045\304}%* U+25C4
\DeclareTextCommand{\textdiamond}{PU}{\9045\307}%* U+25C7
\DeclareTextCommand{\textlozenge}{PU}{\9045\312}%* U+25CA
\DeclareTextCommand{\textleftpointingtriangle}{PU}{\9045\326}%* U+25D6
\DeclareTextCommand{\textrightpointingtriangle}{PU}{\9045\327}%* U+25D7
\DeclareTextCommand{\textopenbullet}{PU}{\9045\346}%* U+25E6
\DeclareTextCommand{\textboxbar}{PU}{\9045\353}%* U+25EB
\DeclareTextCommand{\textbigcircle}{PU}{\9045\357}%* U+25EF
\textCloud (ifsym)
\DeclareTextCommand{\textCloud}{PU}{\9046\001}%* U+2601
\FiveStar (bbding)
\DeclareTextCommand{\textFiveStar}{PU}{\9046\005}%* U+2605
\FiveStarOpen (bbding)
\DeclareTextCommand{\textFiveStarOpen}{PU}{\9046\006}%* U+2606
\Phone (bbding)
\DeclareTextCommand{\textPhone}{PU}{\9046\016}%* U+260E
\boxempty (stmaryrd)
\DeclareTextCommand{\textboxempty}{PU}{\9046\020}%* U+2610
\CheckedBox (marvosym)
\DeclareTextCommand{\textCheckedbox}{PU}{\9046\021}%* U+2611
\CrossedBox (marvosym)
\DeclareTextCommand{\textCrossedbox}{PU}{\9046\022}%* U+2612
\Coffeecup (marvosym)
\DeclareTextCommand{\textCoffeecup}{PU}{\9046\025}%* U+2615
\HandCuffLeft (bbding)
\DeclareTextCommand{\textHandCuffLeft}{PU}{\9046\032}%* U+261A
\HandCuffRight (bbding)
\DeclareTextCommand{\textHandCuffRight}{PU}{\9046\033}%* U+261B

408
\DeclareTextCommand{\textsaturn}{PU}{\9046\104}%* U+2644
%* \textsaturn -> \Saturn (marvosym)
\ DeclareTextCommand{\texturanus}{PU}{\9046\105}%* U+2645
%* \texturanus -> \Uranus (marvosym)
\ DeclareTextCommand{\textneptune}{PU}{\9046\106}%* U+2646
%* \textneptune -> \Neptune (marvosym)
\ DeclareTextCommand{\textpluto}{PU}{\9046\107}%* U+2647
%* \textpluto -> \Pluto (marvosym)
\ DeclareTextCommand{\textaries}{PU}{\9046\110}%* U+2648
%* \textaries -> \Aries (marvosym)
\ DeclareTextCommand{\texttaurus}{PU}{\9046\111}%* U+2649
%* \texttaurus -> \Taurus (marvosym)
\ DeclareTextCommand{\textgemini}{PU}{\9046\112}%* U+264A
%* \textgemini -> \Gemini (marvosym)
\ DeclareTextCommand{\textcancer}{PU}{\9046\113}%* U+264B
%* \textcancer -> \Cancer (marvosym)
\ DeclareTextCommand{\textleo}{PU}{\9046\114}%* U+264C
%* \textleo -> \Leo (marvosym)
\ DeclareTextCommand{\textvirgo}{PU}{\9046\115}%* U+264D
%* \textvirgo -> \Virgo (marvosym)
\ DeclareTextCommand{\textlibra}{PU}{\9046\116}%* U+264E
%* \textlibra -> \Libra (marvosym)
\ DeclareTextCommand{\textspadesuitblack}{PU}{\9046\140}% U+2660
%* \textspadesuitblack -> \spadesuit (MnSymbol)
\ DeclareTextCommand{\textheartsuitwhite}{PU}{\9046\141}% U+2661
%* \textheartsuitwhite -> \heartsuit (MnSymbol)
\ DeclareTextCommand{\textdiamondsuitwhite}{PU}{\9046\142}% U+2662
%* \textdiamondsuitwhite -> \diamondsuit (MnSymbol)
\ DeclareTextCommand{\textspadesuitblack}{PU}{\9046\140}% U+2660
\ DeclareTextCommand{\textheartsuitwhite}{PU}{\9046\141}% U+2661
\ DeclareTextCommand{\textdiamondsuitwhite}{PU}{\9046\142}% U+2662
410
% U+2663 BLACK CLUB SUIT; club, clubsuitblack; \clubsuit (LaTeX)
\DeclareTextCommand{\textclubsuitblack}{PU}{\9046\143}% U+2663
%* \textclubsuitblack -> \clubsuit (MnSymbol)
% U+2664 WHITE SPADE SUIT; spadesuitwhite
\DeclareTextCommand{\textspadesuitwhite}{PU}{\9046\144}% U+2664
% U+2665 BLACK HEART SUIT; heartsuitblack, heart
\DeclareTextCommand{\textheartsuitblack}{PU}{\9046\145}% U+2665
% U+2666 BLACK DIAMOND SUIT; diamond
\DeclareTextCommand{\textdiamondsuitblack}{PU}{\9046\146}% U+2666
% U+2667 WHITE CLUB SUIT; clubsuitwhite
\DeclareTextCommand{\textclubsuitwhite}{PU}{\9046\147}% U+2667
% U+2669 QUARTER NOTE; quarternote; \quarternote (wasyym, arev)
\DeclareTextCommand{\textquarternote}{PU}{\9046\151}%* U+2669
% U+266A EIGHTH NOTE; musicalnote; \textmusicalnote (textcomp)
\DeclareTextCommand{\textmusicalnote}{PU}{\9046\152}% U+266A
%* \textmusicalnote -> \eighthnote (wasyym, arev)
% U+266B BEAMED EIGHTH NOTES; eightheightbeamed; \twonotes (wasyym)
\DeclareTextCommand{\texttwonotes}{PU}{\9046\153}%* U+266B
% U+266C BEAMED SIXTEENTH NOTES; beamsixteenthnotes; \sixteenthnote (arev)
\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; \Recycling (marvosym)
\DeclareTextCommand{\textrecycle}{PU}{\9046\162}%* U+2672
%* \textrecycle -> \Recycling (marvosym)
% U+267F WHEELCHAIR SYMBOL; \Wheelchair (marvosym)
\DeclareTextCommand{\textWheelchair}{PU}{\9046\177}%* 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\226}%* U+2695
% U+2696 SCALES; \dsjuridical (dictsym)
\DeclareTextCommand{\textdsjuridical}{PU}{\9046\228}%* U+2696
% U+2697 ALEMBIC; \dschemical (dictsym)
\DeclareTextCommand{\textdschemical}{PU}{\9046\230}%* U+2697
% U+2698 FLOWER; \dsbiological (dictsym)
\DeclareTextCommand{\textdsbiological}{PU}{\9046\232}%* U+2698
% U+2699 STAFF OF HERMES; \dscommercial (dictsym)
\DeclareTextCommand{\textdscommercial}{PU}{\9046\233}%* U+2699
% U+269A OUTLINED WHITE STAR; \manstar (manfnt)
\DeclareTextCommand{\textmanstar}{PU}{\9046\235}%* U+269A
% U+269D OUTLINED WHITE STAR; \manstar (manfnt)
\DeclareTextCommand{\textmanstar}{PU}{\9046\237}%* U+269D
% U+26A0 WARNING SIGN; \danger (fourier)
\DeclareTextCommand{\textdanger}{PU}{\9046\240}%* U+26A0
% U+26A2 DOUBLE FEMALE SIGN; \FemaleFemale (marvosym)
\DeclareTextCommand{\textFemaleFemale}{PU}{\9046\242}%* U+26A2
% U+26A3 DOUBLE MALE SIGN; \MaleMale (marvosym)
% U+2745 TIGHT TRIFOLIATE SNOWFLAKE; \Snowflake (bbding)
% U+2746 HEAVY CHEVRON SNOWFLAKE; \SnowflakeChevronBold (bbding)
% U+2747 SPARKLE; \Sparkle (bbding)
% U+2748 HEAVY SPARKLE; \SparkleBold (bbding)
% U+2749 BALLOON-SPOKED ASTERISK; \AsteriskRoundedEnds (bbding)
% U+274A EIGHT TEARDROP-SPOKED PROPELLER ASTERISK; \EightFlowerPetalRemoved (bbding)
% U+274B HEAVY EIGHT TEARDROP-SPOKED PROPELLER ASTERISK; \EightAsterisk (bbding)
% U+274D SHADOWED WHITE CIRCLE; \CircleShadow (bbding)
% U+274F LOWER RIGHT DROP-SHADOWED WHITE SQUARE; \SquareShadowBottomRight (bbding)
% U+2750 UPPER RIGHT DROP-SHADOWED WHITE SQUARE; \SquareShadowTopRight (bbding)
% U+2751 LOWER RIGHT SHADOWED WHITE SQUARE; \SquareCastShadowBottomRight (bbding)
% U+2752 UPPER RIGHT SHADOWED WHITE SQUARE; \SquareCastShadowTopRight (bbding)
% U+2756 BLACK DIAMOND MINUS WHITE X; \OrnamentDiamandSolid (bbding)
% U+27C2 PERPENDICULAR; perpendicular; \perp (LaTeX)
% U+27C7 OR WITH DOT INSIDE; \veedot (MnSymbol)
% U+27D1 AND WITH DOT; \wedgedot (MnSymbol)
% U+27DC LEFT MULTIMAP; \leftspoon (MnSymbol)
% U+27E6 MATHEMATICAL LEFT WHITE SQUARE BRACKET
% U+27E7 MATHEMATICAL RIGHT WHITE SQUARE BRACKET

51.2.31 Miscellaneous Mathematical Symbols-A: U+27C0 to U+27EF
51.2.32 Supplemental Arrows-A: U+27F0 to U+27FF

\textcirclearrowleft \textcirclearrowright \longleftarrow \longrightarrow \longleftrightarrow \Longleftarrow \Longrightarrow

\textlongmapsto \textLongmapsto

\textnwsearrow \textneswarrow \textlhooknwarrow \textrhooknearrow \textlhooksearrow \textrhookswarrow

\leadsto \rcurvearrowne \lcurvearrowse \lcurvearrowsw \lcurvearrowsr

51.2.33 Supplemental Arrows-B: U+2900 to U+297F

\textnwsearrow \textneswarrow \textlhooknwarrow \textrhooknearrow \textlhooksearrow \textrhookswarrow

\leadsto \rcurvearrowne \lcurvearrowse \lcurvearrowsw \lcurvearrowsr
% curvearrowse (MnSymbol)
\DeclareTextCommand{\textrcurvearrowse}{PU}{\9051\067}%* U+2937
% U+2938 RIGHT-SIDE ARC CLOCKWISE ARROW; \curvearrowdown (MnSymbol)
\DeclareTextCommand{\textlcirclearrowdown}{PU}{\9051\070}%* U+2938
%* \textlcurvearrowdown -> \RightTorque (marvosym)
%* \textlcurvearrowdown -> \Righttorque (marvosym)
% U+2939 LEFT-SIDE ARC ANTICLOCKWISE ARROW; \rcurvearrowdown (MnSymbol)
\DeclareTextCommand{\textrcurvearrowdown}{PU}{\9051\071}%* U+2939
%* \textrcurvearrowdown -> \LeftTorque (marvosym)
%* \textrcurvearrowdown -> \Lefttorque (marvosym)
% U+293A TOP ARC ANTICLOCKWISE ARROW; \rcurivarrowleft (MnSymbol)
\DeclareTextCommand{\textlcurvarrowleft}{PU}{\9051\072}%* U+293A
% U+293B BOTTOM ARC ANTICLOCKWISE ARROW;
% \rcurvarrowright (MnSymbol)
\DeclareTextCommand{\textrcurvarrowright}{PU}{\9051\073}%* U+293B
% U+294A LEFT BARB UP RIGHT BARB DOWN HARPON; \leftthreetools (mathabx)
\DeclareTextCommand{\textleftthreetools}{PU}{\9051\074}%* U+294A
% U+294B LEFT BARB DOWN RIGHT BARB UP HARPON; \rightthreetools (mathabx)
\DeclareTextCommand{\textrightthreetools}{PU}{\9051\075}%* U+294B
% U+294C UP BARB RIGHT DOWN BARB LEFT HARPON; \updownthreetools (mathabx)
\DeclareTextCommand{\textupdownthreetools}{PU}{\9051\076}%* U+294C
% U+294D UP BARB LEFT DOWN BARB RIGHT HARPON; \updownthreetools (mathabx)
\DeclareTextCommand{\textupdownthreetools}{PU}{\9051\077}%* U+294D
% U+2962 LEFTWARDS HARPON WITH BARB UP ABOVE LEFTWARDS HARPON
\DeclareTextCommand{\textleftwardsharpoon}{PU}{\9051\078}%* U+2962
% U+2963 UPWARDS HARPON WITH BARB LEFT BESIDE UPWARDS HARPON
\DeclareTextCommand{\textupwardsharpoon}{PU}{\9051\079}%* U+2963
% U+2964 RIGHTWARDS HARPON WITH BARB UP ABOVE RIGHTWARDS HARPON
\DeclareTextCommand{\textrightwardsharpoon}{PU}{\9051\080}%* U+2964
% WITH BARB DOWN; \rightwardsharpoons (mathabx)
\DeclareTextCommand{\textrightwardsharpoons}{PU}{\9051\081}%* U+2965
% U+2966 DOWNWARDS HARPON WITH BARB LEFT BESIDE DOWNWARDS HARPON
\DeclareTextCommand{\textdownwardsharpoon}{PU}{\9051\082}%* U+2966
% U+2967 LEFTWARDS HARPON WITH BARB UP ABOVE LONG DASH;
\DeclareTextCommand{\textleftwardsharpoon}{PU}{\9051\083}%* U+2967
% \leftwardsharpoons (mathabx)
\DeclareTextCommand{\textleftwardsharpoons}{PU}{\9051\084}%* U+2968
% U+2969 B DOWNWARDS HARPON WITH BARB DOWN BELOW
\DeclareTextCommand{\textbardownwardsharpoon}{PU}{\9051\085}%* U+2969
% LONG DASH; \bardownwardsharpoons (mathabx)
\DeclareTextCommand{\textbardownwardsharpoons}{PU}{\9051\086}%* U+296A
% U+296B RIGHTWARDS HARPON WITH BARB UP ABOVE
\DeclareTextCommand{\textrightwardsharpoon}{PU}{\9051\087}%* U+296B
% LONG DASH; \rightwardsharpoons (mathabx)
\DeclareTextCommand{\textrightwardsharpoons}{PU}{\9051\088}%* U+296C
% U+296D RIGHTWARDS HARPON WITH BARB DOWN BELOW
\DeclareTextCommand{\textrightwardsharpoon}{PU}{\9051\089}%* U+296D
% U+296E UPWARDS HARPON WITH BARB LEFT BESIDE DOWN-
WARDS HARPOON
\% WITH BARB RIGHT; \updownharpoons (mathabx)
\DeclareTextCommand{\textupdownharpoons}{PU}{\9051\156}\%* U+296E
\% U+296F DOWNWARDS HARPOON WITH BARB LEFT BESIDE UPWARDS HARPOON
\% WITH BARB RIGHT; \downupharpoons (mathabx)
\DeclareTextCommand{\textdownupharpoons}{PU}{\9051\157}\%* U+296F
\% U+297F DOWN FISH TAIL
\DeclareTextCommand{\textmoo}{PU}{\9051\177\83\066}\%* U+297FU+0336
\% U+2987 Z NOTATION LEFT IMAGE BRACKET; \llparenthesis (stmaryrd)
\DeclareTextCommand{\textllparenthesis}{PU}{\9051\207}\%* U+2987
\% U+2988 Z NOTATION RIGHT IMAGE BRACKET; \rrparenthesis (stmaryrd)
\DeclareTextCommand{\textrrparenthesis}{PU}{\9051\210}\%* U+2988
\% U+29B0 REVERSED EMPTY SET; \invdiameter (wasysym)
\DeclareTextCommand{\textinvdiameter}{PU}{\9051\260}\%* U+29B0
\% U+29B6 CIRCLED VERTICAL BAR; \obar (stmaryrd)
\DeclareTextCommand{\textobar}{PU}{\9051\266}\%* \textobar -> \textvarobar (stmaryrd)
%* \textobar -> \circledbslash (txfonts/pxfonts)
%* \textobar -> \obackslash (mathabx)
%* \textobar -> \varobslash (stmaryrd)
\% U+29BA CIRCLE DIVIDED BY HORIZONTAL BAR AND TOP HALF
\% DIVIDED BY VERTICAL BAR; \obot (stmaryrd)
\DeclareTextCommand{\textobot}{PU}{\9051\272}\%* U+29B6
\%* \textobot -> \odplus (ulsy)
\% U+29BB CIRCLE WITH SUPERIMPOSED X; \NoChemicalCleaning (marvosym)
\DeclareTextCommand{\textNoChemicalCleaning}{PU}{\9051\273}\%* U+29BB
\% U+29C0 CIRCLED LESS-THAN; \olessthan (stmaryrd)
\DeclareTextCommand{\textolessthan}{PU}{\9051\300}\%* U+29C0
\%* \textolessthan -> \varolessthan (stmaryrd)
\% U+29C1 CIRCLED GREATER-THAN; \ogreaterthan (stmaryrd)
\DeclareTextCommand{\textogreaterthan}{PU}{\9051\301}\%* U+29C1
\%* \textogreaterthan -> \varogreaterthan (stmaryrd)
\% U+29C4 SQUARED RISING DIAGONAL SLASH; \boxslash (mathabx, stmaryrd)
\DeclareTextCommand{\textboxslash}{PU}{\9051\304}\%* U+29C4
\% U+29C5 SQUARED FALLING DIAGONAL SLASH; \boxbslash (mathabx, stmaryrd)
\DeclareTextCommand{\textboxbslash}{PU}{\9051\305}\%* U+29C5
\% U+29C6 SQUARED ASTERISK; \boxast (stmaryrd)
\DeclareTextCommand{\textboxast}{PU}{\9051\306}\%* U+29C6
\% U+29C7 SQUARED SMALL CIRCLE; \boxcircle (stmaryrd)
\DeclareTextCommand{\textboxcircle}{PU}{\9051\307}\%* U+29C7
\% U+29C8 SQUARED SQUARE; \boxbox (stmaryrd)
\DeclareTextCommand{\textboxbox}{PU}{\9051\310}\%* U+29C8
\% U+29D3 BLACK BOWTIE; \Valve (marvosym)
\DeclareTextCommand{\textValve}{PU}{\9051\323}\%* U+29D3
\% U+29DF DOUBLE-ENDED MULTIMAP; \multimapboth (txfonts/pxfonts)
\DeclareTextCommand{\textmultimapboth}{PU}{\9051\337}\%* U+29DF
\% U+29E2 SHUFFLE PRODUCT; \shuffle (shuffle)
\DeclareTextCommand{\textshuffle}{PU}{\9051\342}\%* U+29E2
\% U+2A04 N-ARY UNION OPERATOR WITH PLUS; \uplus (LaTeX)
\% U+2A00 TO U+2AFF

51.2.35 Supplemental Mathematical Operators: U+2A00 TO U+2AFF

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\DeclareTextCommand{\textprecneqq}{PU}{\9052\265}% U+2AB5 PRECEDES ABOVE NOT EQUAL TO; \precneqq (txfonts/pxfonts)
\DeclareTextCommand{\textsuccneqq}{PU}{\9052\266}% U+2AB6 SUCCEEDS ABOVE NOT EQUAL TO; \succneqq (txfonts/pxfonts)
\DeclareTextCommand{\textprecapprox}{PU}{\9052\267}% U+2AB7 PRECEDES ABOVE ALMOST EQUAL TO; \precapprox (AmS)
\DeclareTextCommand{\textnprecapprox}{PU}{\9052\267\83\070}% U+2AB7 SUBSET OF ABOVE EQUALS SIGN; \subseteqq (AmS)
\DeclareTextCommand{\textsupseteqq}{PU}{\9052\306}% U+2AC6 SUPERSET OF ABOVE EQUALS SIGN; \supseteqq (mathabx)
\DeclareTextCommand{\textdownmodels}{PU}{\9052\352}% U+2AEF VERTICAL LINE WITH CIRCLE ABOVE; \upmodels (MnSymbol)
\DeclareTextCommand{\textnupmodels}{PU}{\9052\353\83\070}% U+2AF4 TRIPLE VERTICAL BAR BINARY RELATION; \\interleave (atmaryrd)
51.2.36 Miscellaneous Symbols and Arrows: U+2B00 to U+2BFF

51.2.37 Latin Extended-C: U+2C60 to U+2C7F

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

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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)

\DeclareTextCommand{\textglqq}{PU}{\quotedblbase}%
\DeclareTextCommand{\textgrqq}{PU}{\textquotedblleft}%
\DeclareTextCommand{\textglq}{PU}{\quotesinglbase}%
\DeclareTextCommand{\textgrq}{PU}{\textquoteleft}%
\DeclareTextCommand{\textflqq}{PU}{\guillemotleft}%
\DeclareTextCommand{\textfrqq}{PU}{\guillemotright}%
\DeclareTextCommand{\textflq}{PU}{\guilsinglleft}%
\DeclareTextCommand{\textfrq}{PU}{\guilsinglright}%

Aliases (math names)

\DeclareTextCommand{\textneg}{PU}{\textlogicalnot}%*
\DeclareTextCommand{\texttimes}{PU}{\textmultiply}%*
\DeclareTextCommand{\textdiv}{PU}{\textdivide}%*
\DeclareTextCommand{\textpm}{PU}{\textplusminus}%*
\DeclareTextCommand{\textcdot}{PU}{\textperiodcentered}%*

\langle /puenc \rangle

51.3 PU encoding, additions for \vntex

This file is provided by Han The Thanh.

\langle */puvnc \rangle
51.4 PU encoding, additions for Arabic

This file is provided and maintained by Youssef Jabri.
\let\textdoublebarpipevar\textdoublebarpipe
\let\textrcrg\textgslash
\let\textdblig\textPUdblig
\let\textqplig\textPUqplig
\let\centoldstyle\textctc
\let\barc\textctc
\let\inva\textturna
\let\vara\textscripta
\let\rotvara\textturnscripta
\let\hookb\textthb
\let\hausab\textthb
\let\varopeno\textopeno
\let\curlyc\textctc
\let\taild\texttrtaill
\let\hookd\textthd
\let\hausd\textthd
\let\er\texthookschwa
\let\epsilon\textepsilon
\let\hookepsilon\texthookepsilon
\let\closedepsilon\textcloseepsilon
\let\barj\textbardotlessj
\let\hookg\textthg
\let\varg\textscriptg
\let\vod\textipagamma
\let\invh\textturnh
\let\udesc\textturnh
\let\hookh\textthh
\let\hookheng\textthheng
\let\ibar\textbari
\let\vari\textniota
\let\tildel\textltilde
\let\taill\texttrtaill
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\let\invm\textturnm
\let\rotm\textturnm
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\let\labdentalnas\textltailm
\let\emgma\textltailm
\let\nj\textltailn
\let\enya\textltailn
\let\tailn\texttrtaill
\let\closedniomega\textcloseomega
\let\varomega\textcloseomega
\let\invr\textturnr
\let\rotr\textturnr
\let\invlegr\textturnlonglegr
\let\legr\textlonglegr
\let\taill\texttrtaill
\let\flapr\textfishhookr
\let\flap\textfishhookr
\let\tails\texttrtails
\let\curlyesh\textctesh
\let\clickt\textturnt
\let\tailt\extrtailt
\let\ubar\textbaru
\let\rotOmega\textniupsilon
\let\invv\textturnv
\let\pwedge\textturnv
\let\invw\textturnw
\let\rotw\textturnw
\let\invy\textturny
\let\roty\textturny
\let\tailz\extrtailz
\let\curlyz\textctz
\let\curlyyogh\textctyogh
\let\ejective\textglotstop
\let\glottal\textglotstop
\let\reveject\textrevglotstop
\let\clickc\textstretchc
\let\textstretchcvar\textstretchc
\let\clickb\textbullseye
\let\textObullseye\textbullseye
\let\textctj\textctj
\let\textscm\textPUscm
\let\textsck\textPUsck
\let\textscp\textPUscp
\let\textrevscr\textPUrevscr
\let\textrhooka\textPUrhooka
\let\textrhooke\textPUrhooke
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\let\textdoublevertline\textbardbl
\let\dag\textdagger
\let\ddagger\textdaggerdbl
\let\ddag\textdaggerdbl
\let\mathellipsis\textellipsis
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\let\EURhv\texteuro
\let\EURcr\texteuro
\let\EURtm\texteuro
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\let\parr\textinvamp
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\let\MVRightarrow\extrarrow
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52  End of file hycheck.tex

\(*\check\)
\typeout{}
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