

# Hypertext marks in L<sup>A</sup>T<sub>E</sub>X

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## 1 Documentation overview for hyperref

The documentation for package `hyperref` consists of several files:

**Manual** The user documentation is also available as HTML.

**README** Here information is collected that is not yet in the manual: new features, package compatibility, limitations, known problems, ...

**ChangeLog** This file records the version history.

**Options** This file provides a short option summary.

**Bookmark talk, slides** Slides for the talk “PDF information and navigation elements with `hyperref`, `pdfTeX` and `thumbpdf`” at EuroT<sub>E</sub>X 1999.

**Bookmark talk, paper** The paper version of the talk.

Source code documentation:

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

**`backref.dtx`** “Back referencing from bibliographical citations”

**`nameref.dtx`** “Section name references in L<sup>A</sup>T<sub>E</sub>X”

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### 3 File hycheck.tex

Many commands of L<sup>A</sup>T<sub>E</sub>X or other packages cannot be overloaded, but have to be redefined by hyperref directly. If these commands change in newer versions, these changes are not noticed by hyperref. With this test file this situation can be checked. It defines the command `\checkcommand` that is more powerful than L<sup>A</sup>T<sub>E</sub>X's `\CheckCommand`, because it takes `\DeclareRobustCommand` and optional parameters better into account.

```
1 \langle *check\rangle
2 \documentclass{article}
3 \makeatletter
```

`\checklatex` Optional argument: release date of L<sup>A</sup>T<sub>E</sub>X.

```
4 \newcommand*{\checklatex}[1] [] {%
5   \typeout{}%
6   \typeout{* Format: 'LaTeX2e' #1}%
7   \typeout{\space\space Loaded: '\fmtname' \fmtversion}%
8 }%
```

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

```
9 \newcommand*{\checkpackage}[1] {%
10  \def\HyC@package{#1}%
11  \let\HyC@date\@empty
12  \@ifnextchar[\HyC@getDate\HyC@checkPackage
13 }
```

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

```
14 \def\HyC@getDate[#1] {%
15  \def\HyC@date{#1}%
16  \HyC@checkPackage
17 }
```

`\HyC@checkPackage`

```
18 \def\HyC@checkPackage{%
19  \typeout{}
20  \begingroup
21  \edef\x{\endgroup
22    \noexpand\RequirePackage{\HyC@package}%
23    \ifx\HyC@date\@empty\relax\else[\HyC@date]\fi%
24  }%
25  \x
26  \typeout{}%
27  \typeout{%
28    * Package '\HyC@package'%
29    \ifx\HyC@date\@empty
30    \else
31      \space\HyC@date
32    \fi
33  }%
34  \@ifundefined{ver@\HyC@package.sty}{%
35  }{%
36    \typeout{%
37      \space\space Loaded: '\HyC@package' %
38      \csname ver@\HyC@package.sty\endcsname
39    }%
40  }%
41 }
```

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

```

42 \newcommand*{\checkcommand}[1]{%
43   \begingroup
44   \ifx\long#1\relax
45     \expandafter\HyC@checklong
46   \else
47     \def\HyC@defcmd{#1}%
48     \expandafter\let\expandafter\HyC@next
49       \csname HyC@\expandafter\@gobble\string#1\endcsname
50     \expandafter\HyC@checkcommand
51   \fi
52 }
```

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

```

53 \def\HyC@checklong#1{%
54   \def\HyC@defcmd{\long#1}%
55   \expandafter\let\expandafter\HyC@next
56     \csname HyC@\expandafter\@gobble\string#1\endcsname
57   \HyC@checkcommand
58 }
```

`\HyC@checkcommand` The optional star of  $\text{\LaTeX}$ 's definitions is parsed.

```

59 \def\HyC@checkcommand{%
60   \ifx\HyC@next\relax
61     \PackageError{hycheck}{%
62       Unknown command '\expandafter\strip@prefix\meaning\HyC@cmd'%
63     }\@ehd
64     \expandafter\endinput
65   \fi
66   \@ifstar{%
67     \def\HyC@star{*}%
68     \HyC@check
69   }{%
70     \let\HyC@star\@empty
71     \HyC@check
72   }%
73 }
```

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

```

74 \def\HyC@check#1{%
75   \def\HyC@cmd{#1}%
76   \let\HyC@org@cmd#1%
77   \let#1\relax
78   \let\HyC@param\@empty
79   \HyC@Toks{}%
80   \let\HyC@org@optcmd\HyC@noValue
81   \let\HyC@org@robustcmd\HyC@noValue
82   \let\HyC@org@robustoptcmd\HyC@noValue
83   \HyC@next
84 }
```

`\HyC@noValue`

```

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

`\HyC@newcommand` The code for `\newcommand`.

```

86 \def\HyC@newcommand{%
87   \let\HyC@@cmd\HyC@cmd
88   \ifnextchar[\HyC@nc@opt\HyC@nc@noopt
89 }

```

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

```

90 \newtoks\HyC@Toks

```

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

```

91 \long\def\HyC@nc@noopt#1{%
92   \edef\x{%
93     \expandafter\noexpand\HyC@defcmd
94     \HyC@star
95     \expandafter\noexpand\HyC@cmd
96     \HyC@param\the\HyC@Toks
97   }%
98   \x{#1}%
99   \HyC@doCheck
100 }

```

`\HyC@nc@opt` This macro scans the first optional argument of a L<sup>A</sup>T<sub>E</sub>X definition (number of arguments).

```

101 \def\HyC@nc@opt[#1]{%
102   \def\HyC@param{[#1]}%
103   \ifnextchar[\HyC@nc@default\HyC@nc@noopt
104 }

```

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

```

105 \def\HyC@nc@default[#1]{%
106   \HyC@Toks={[#1]}%
107   \edef\HyC@optcmd{%
108     \expandafter\noexpand
109     \csname\expandafter\string\HyC@@cmd\endcsname
110   }%
111   \expandafter\let\expandafter\HyC@org@optcmd\HyC@optcmd
112   \HyC@nc@noopt
113 }

```

`\HyC@DeclareRobustCommand` `\DeclareRobustCommand{\cmd}` makes the command `\cmd` robust, that then calls `\cmd_` with an space at the end of the command name, defined by `\newcommand`. Therefore the further parsing is done by `\HyC@nc@opt` or `\HyC@nc@noopt` of the `\HyC@newcommand` chain.

```

114 \def\HyC@DeclareRobustCommand{%
115   \edef\HyC@robustcmd{%
116     \expandafter\noexpand
117     \csname\expandafter\expandafter\expandafter\@gobble
118     \expandafter\string\HyC@cmd\space\endcsname
119   }%
120   \expandafter\let\expandafter\HyC@org@robustcmd\HyC@robustcmd
121   \expandafter\let\HyC@robustcmd\relax
122   \let\HyC@@cmd\HyC@robustcmd
123   \ifnextchar[\HyC@nc@opt\HyC@nc@noopt
124 }

```

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

```

\HyC@edef
125 \def\HyC@def#1{%
126   \HyC@Toks={#1}%

```



```

127 \HyC@nc@noopt
128 }
129 \let\HyC@edef\HyC@def

```

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

```

130 \def\HyC@doCheck{%
131 \typeout{* Checking '\HyC@string\HyC@cmd':}%
132 \HyC@checkItem{cmd}%
133 \HyC@checkItem{robustcmd}%
134 \HyC@checkItem{optcmd}%
135 \HyC@checkItem{robustoptcmd}%
136 \endgroup
137 }

```

`\HyC@checkItem` A single check.

```

138 \def\HyC@checkItem#1{%
139 \expandafter\ifx\csname HyC@org@#1\endcsname\HyC@noValue
140 \else
141 \expandafter\expandafter\expandafter\ifx
142 \csname HyC@#1\expandafter\endcsname
143 \csname HyC@org@#1\endcsname
144 \expandafter\HyC@checkOk\csname HyC@#1\endcsname
145 \else
146 \expandafter\HyC@checkFailed
147 \csname HyC@#1\expandafter\endcsname
148 \csname HyC@org@#1\endcsname
149 \fi
150 \fi
151 }

```

`\HyC@string` Some shorthands.

```

\HyC@meaning 152 \def\HyC@string#1{\expandafter\string#1}
153 \def\HyC@meaning#1{\expandafter\meaning#1}

```

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

```

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

```

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

```

156 \def\HyC@checkFailed#1#2{%
157 \typeout{\space\space'\HyC@string#1' failed.}%
158 \typeout{\space\space* original: \meaning#2}%
159 \typeout{\space\space* expected: \HyC@meaning#1}%
160 }

161 % *****
162 </check>
163 <*package>

```

## 4 Package options and setup

### 4.1 Save catcodes

There are many packages that change the standard catcodes.

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

```

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

```

\Hy@SetCatcodes

```

180 \def\Hy@SetCatcodes{%
181   \@makeother\‘%
182   \@makeother\=%
183   \catcode\‘\$=3
184   \catcode\&=4
185   \catcode\^=7
186   \catcode\_ =8
187   \@makeother\|%
188   \@makeother\:%
189   \@makeother\(%
190   \@makeother\)%
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 }

```

\Hy@RestoreCatcodes

```

204 \begingroup
205   \def\x#1{\catcode\‘\noexpand#1=\the\catcode\‘#1\relax}%
206   \xdef\Hy@RestoreCatcodes{%
207     \the\toks@
208     \x\$%
209     \x\&%
210     \x\^%
211     \x\_%
212     \x\|%
213     \x\:%
214     \x\(%

```

```

215 \x\)%
216 \x\[%
217 \x\]%
218 \x\/%
219 \x\!%
220 \x\<%
221 \x\>%
222 \x\.%
223 \x\;%
224 \x\+%
225 \x\-%
226 \x\"%
227 \x\'%
228 }%
229 \endgroup

```

```
230 \Hy@SetCatcodes
```

It needs the December 95 release of L<sup>A</sup>T<sub>E</sub>X, because it uses `\protected@write`, and it defines commands in options; and the page setup internal code changed at that point. It'll probably break with the later releases!

```

231 \RequirePackage{keyval}[1997/11/10]
232 \def\Hy@Warning#1{\PackageWarning{hyperref}{#1}}
233 \def\Hy@WarningNoLine#1{\PackageWarningNoLine{hyperref}{#1}}
234 \def\Hy@Info#1{\PackageInfo{hyperref}{#1}}

```

## 4.2 Compatibility with format dumps

`\AfterBeginDocument` For use with pre-compiled formats, created using the `ldump` package, there needs to be 2 hooks for adding material delayed until `\begin{document}`. These are called `\AfterBeginDocument` and `\AtBeginDocument`. If `ldump` is not loaded, then a single hook suffices for normal L<sup>A</sup>T<sub>E</sub>X processing.

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

```

235 \@ifundefined{AfterBeginDocument}{%
236 \def\AfterBeginDocument{\AtBeginDocument}%
237 }{}%

```

## 4.3 Switches

```

238 \newif\ifHy@typexml
239 \newif\ifHy@activeanchor
240 \newif\ifHy@backref
241 \newif\ifHy@bookmarks
242 \newif\ifHy@bookmarksnumbered
243 \newif\ifHy@bookmarksopen
244 \newif\ifHy@breaklinks
245 \newif\ifHy@centerwindow
246 \newif\ifHy@CJKbookmarks
247 \newif\ifHy@colorlinks
248 \newif\ifHy@draft
249 \let\Hy@finaltrue\Hy@draftfalse
250 \let\Hy@finalfalse\Hy@drafttrue
251 \newif\ifHy@escapeform
252 \newif\ifHy@figures
253 \newif\ifHy@fitwindow
254 \newif\ifHy@frenchlinks

```

```

255 \newif\ifHy@hyperfootnotes
256 \newif\ifHy@hyperindex
257 \newif\ifHy@hypertextnames
258 \newif\ifHy@implicit
259 \newif\ifHy@linktocpage
260 \newif\ifHy@menubar
261 \newif\ifHy@naturalnames
262 \newif\ifHy@nesting
263 \newif\ifHy@newwindow
264 \newif\ifHy@pageanchor
265 \newif\ifHy@pagelabels
266 \newif\ifHy@pdfpagehidden
267 \newif\ifHy@pdfstring
268 \newif\ifHy@plainpages
269 \newif\ifHy@psize
270 \newif\ifHy@raiselinks
271 \newif\ifHy@seminarslides
272 \newif\ifHy@setpagesize
273 \newif\ifHy@texht
274 \newif\ifHy@toolbar
275 \newif\ifHy@unicode
276 \newif\ifHy@usetitle
277 \newif\ifHy@verbose
278 \newif\ifHy>windowui
279 \newif\ifHy@displaydoctitle

```

Defaults for the switches are now set.

```

280 \Hy@backreffalse
281 \Hy@bookmarksnumberedfalse
282 \Hy@bookmarksopenfalse
283 \Hy@bookmarkstrue
284 \Hy@breaklinksfalse
285 \Hy@centerwindowfalse
286 \Hy@CJKbookmarksfalse
287 \Hy@escapeformfalse
288 \Hy@figuresfalse
289 \Hy@fitwindowfalse
290 \Hy@hyperfootnotesttrue
291 \Hy@hyperindextrue
292 \Hy@hypertextnamesttrue
293 \Hy@implicittrue
294 \Hy@linktocpagefalse
295 \Hy@menubartrue
296 \Hy@naturalnamesfalse
297 \Hy@nestingfalse
298 \Hy@newwindowfalse
299 \Hy@pageanchorttrue
300 \Hy@pagelabelstrue
301 \Hy@pdfpagehiddenfalse
302 \Hy@pdfstringfalse
303 \Hy@plainpagesfalse
304 \Hy@raiselinksfalse
305 \Hy@setpagesizetrue
306 \Hy@texhtfalse
307 \Hy@toolbartrue
308 \Hy@typexmlfalse
309 \Hy@unicodedefalse
310 \Hy@usetitlefalse

```

```

311 \Hy@verbosefalse
312 \Hy>windowuitrue
313 \Hy@displaydoctitlefalse

```

## 5 Common help macros

`\Hy@StepCount`

```

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

```

`\Hy@GlobalStepCount`

```

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

316 \newdimen\@linkdim
317 \let\Hy@driver\@empty
318 \let\MaybeStopEarly\relax
319 \newcount\Hy@linkcounter
320 \newcount\Hy@pagecounter
321 \Hy@linkcounter0
322 \Hy@pagecounter0

```

### 5.1 Macros for recursions

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

```

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

```

### 5.2 Babel's protection of shorthand characters

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

```

325 \def\Hy@safe@activetrue{\csname @safe@activetrue\endcsname}
326 \def\Hy@safe@activesfalse{\csname @safe@activesfalse\endcsname}

```

### 5.3 Coordinate transformations

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

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

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

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

Example (T<sub>E</sub>X):

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

\hypercalcbp
327 \begingroup\expandafter\expandafter\expandafter\endgroup
328 \expandafter\ifx\csname dimexpr\endcsname\relax
329   \def\hypercalcbpdef#1#2{%
330     \begingroup
331       \toks@{}%
332       \HyCal@scan#2\hypercalcbp\@nil
333     \expandafter\endgroup
334     \expandafter\def\expandafter#1\expandafter{\the\toks@}%
335   }
336   \def\HyCal@scan#1\hypercalcbp#2\@nil{%
337     \toks@\expandafter{\the\toks@ #1}%
338     \ifx\#2\%
339       \else
340         \Hy@ReturnAfterFi{%
341           \HyCal@do#2\@nil
342         }%
343       \fi
344     }
345     \def\HyCal@do#1#2\@nil{%
346       \@ifpackageloaded{calc}{}%
347       \Hy@Warning{%
348         For calculations \string\hypercalcbp\space needs\MessageBreak
349         package calc or e-TeX%
350       }%
351     }%
352     \setlength{\dimen@}{#1}%
353     \setlength{\dimen@}{0.99626401\dimen@}%
354     \edef\x{%
355       \toks@{%
356         \the\toks@
357         \strip@pt\dimen@
358       }%
359     }\x
360     \HyCal@scan#2\@nil
361   }
362 \else
363   \def\hypercalcbp#1{%
364     \strip@pt\dimexpr 0.99626401\dimexpr #1\relax\relax
365   }
366   \def\hypercalcbpdef{\def}
367 \fi
```

## 6 Dealing with PDF strings

The PDF string stuff done by Heiko Oberdiek.  
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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:
 

<code>\\</code>	the backslash itself
<code>\), \((</code>	unbalanced parentheses
<code>\n, \r, \t, \b, \f</code>	special white space escape sequences
<code>\ddd</code>	octal character code <i>ddd</i>
- Strings are stored either in PDFDocEncoding, which is a superset of ISOLatin1 and is compatible with Unicode with character codes below 256, or in Unicode.

## 6.2 Definition of `\pdfstringdef`

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

Important: In T<sub>E</sub>X'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 T<sub>E</sub>X 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 T<sub>E</sub>X 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 T<sub>E</sub>X, because the tokens have only catcodes 10 until 12.

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

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

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

```
369 \begingroup
```

### 6.2.1 Preprocessing

**Octal escape sequences.** To avoid problems with eight bit or non printable characters, the octal escape notation is supported. So most glyphs in the encoding definitions for PD1 and PU produce these octal escape sequences. All three octal digits have to be used:

- Wrong results are avoided, if digits follow that are not part of the octal sequence.
- Macros rely on the fact that the octal sequences always consist of three digits (vtex driver, Unicode support).

The escape sequences start with a backslash. By `\string` it will be printed. Therefore it is ensured that the  $\TeX$  escape character indeed prints as a normal backslash. Eventually this line can be removed, because this is standard  $\LaTeX$  behaviour.

```
370 \escapechar'\%
```

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

```
371 \edef\0{\string\0}%
372 \edef\1{\string\1}%
373 \edef\2{\string\2}%
374 \edef\3{\string\3}%
```

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

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

```
375 \ifHy@unicode
376 \edef\8{\string\8}%
377 \edef\9{\string\9}%
378 \fontencoding{PU}%
379 \HyPsd@UTFviii
380 \else
381 \fontencoding{PD1}%
382 \fi
383 \enc@update
```

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

```
384 \@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).

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



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

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

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

```
387 \let\{\textbraceleft
388 \let\}\textbraceright
389 \let\\\textbackslash
390 \let\#\textnumbersign
391 \let\$\textdollar
392 \let\%\textpercent
393 \let\&\textampersand
394 % \let\~\textasciitilde
395 \let\_ \textunderscore
396 \let\P\textparagraph
397 \let\ldots\textellipsis
398 \let\dots\textellipsis
```

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

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

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

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

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

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

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

```
401 \def\TeX{\TeX}%
402 \def\LaTeX{La\TeX}%
403 \def\LaTeXe{LaTeX2e}%
404 \def\eTeX{e-\TeX}%
405 \def\MF{Metafont}%
406 \def\MP{Metapost}%
```

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

```
407 \let\emph\@firstofone
408 \let\textbf\@firstofone
409 \let\textit\@firstofone
410 \let\textmd\@firstofone
411 \let\textnormal\@firstofone
412 \let\textrm\@firstofone
413 \let\textsc\@firstofone
414 \let\textsf\@firstofone
415 \let\textsl\@firstofone
```

```

416 \let\texttt\@firstofone
417 \let\textup\@firstofone
418 \let\ttfamily\@empty
419 \let\sffamily\@empty
420 \let\itshape\@empty
421 \let\upshape\@empty
422 \let\bfseries\@empty
423 \let\rm\@empty
424 \let\Huge\@empty
425 \let\LARGE\@empty
426 \let\Large\@empty
427 \let\footnotesize\@empty
428 \let\huge\@empty
429 \let\large\@empty
430 \let\normalsize\@empty
431 \let\scriptsize\@empty
432 \let\small\@empty
433 \let\tiny\@empty

```

#### Package color.

```

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

```

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

```

435 \let\textlatin\@firstofone
436 \@ifundefined{language@group}{-}{%
437 \csname HyPsd@babel@language@group\endcsname
438 }%
439 \let\@safe@activetrue\relax
440 \let\@safe@activesfalse\relax

```

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

```

441 \let\cyr\relax

```

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

```

442 \let\es@roman\@Roman

```

#### Package german.

```

443 \let\glqq\textglqq
444 \let\grqq\textgrqq
445 \let\glq\textglq
446 \let\grq\textgrq
447 \let\flqq\textflqq
448 \let\frqq\textfrqq
449 \let\flq\textflq
450 \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}
451 \let\if@mid@expandable\@firstoftwo

```

### AMS classes.

```
452 \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.

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

**Commands of referencing and indexing systems.** Some  $\text{\LaTeX}$  commands that are legal in `\section` commands have to be disabled here.

```
454 \let\label@gobble
455 \let\index@gobble
456 \let\glossary@gobble
457 \let\href@secondoftwo
```

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

```
458 \let\ref\HyPsd@ref
459 \let\pageref\HyPsd@pageref
```

Also we need an expandable form of `\autoref`. Babel's shorthands are not supported inside the reference label.

```
460 \def\HyPsd@ar@get##1.##2\@nil{##1}%
461 \def\HyPsd@ar@tmp##1{%
462   \expandafter\expandafter\expandafter\HyPsd@ar@get
463   \expandafter\@fourthoffive##1\@empty\@empty.\@nil
464 }%
465 \def\auto@setref##1##2##3{%
466   \ifx##1\relax
467   \else
468     \csname\HyPsd@ar@tmp{##1}%
469     \expandafter\ifx\csname\HyPsd@ar@tmp{##1}\autorefname\endcsname
470       \relax
471     \else
472       \autoref%
473     \fi
474     name%
475   \endcsname
476   \space
477   \expandafter##2##1\@empty\@empty
478 \fi
479 }%
```

### Miscellaneous commands.

```
480 \let\leavevmode\@empty
481 \let\mbox\@empty
```

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

```
482 \def\halign{\pdfstringdefWarn\halign\@gobble}%
```

### Patch for cjk bookmarks.

```
483 \ifHy@CJKbookmarks
484 \HyPsd@CJKhook
485 \fi
```

**User hook.** The switch `\Hy@pdfstring` is turned on. So user commands can detect that they are processed not to be typeset 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 be added by the hook `\pdfstringdefPreHook`.

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

```
486 \Hy@pdfstringtrue
487 \pdfstringdefPreHook
```

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

```
488 \HyPsd@LetUnexpandableSpace\space
489 \HyPsd@LetUnexpandableSpace\ %
490 \HyPsd@LetUnexpandableSpace~%
491 \HyPsd@LetUnexpandableSpace\nobreakspace
```

**Package xspace.**

```
492 \@ifundefined{@xspace}{%
493   \let\xspace\HyPsd@ITALCORR
494 }{%
495   \let\xspace\HyPsd@XSPACE
496 }%
497 \let\/\HyPsd@ITALCORR
498 \let\bgroup\/%
499 \let\egroup\/%
```

**Redefinitions of miscellaneous commands.** Hyphenation does not make sense.

```
500 \let\discretionary\@gobbletwo
    \@ifstar is defined in  $\LaTeX$  as follows:
```

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

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

A mimicry of `\@ifnextchar` only with expandable 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:

```
501 \let\@ifnextchar\HyPsd@ifnextchar
502 \let\@ifnextchar\HyPsd@new@ifnextchar
503 \let\@protected@testopt\HyPsd@protected@testopt
```

## 6.2.2 Expansion

There are several possibilities to expand tokens within  $\LaTeX$ :

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

`\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.

`\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`. However a PDF reader isn't  $\TeX$ , so these tokens are viewed verbatim. So this version detects them now, and removes them with an descriptive warning for the user. As additional features xspace support is possible and grouping characters can be used without problems, because they are removed silently.

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

```
504     \begingroup
505     \let\GenericError\@gobblefour
506     \let\GenericWarning\@gobbletwo
507     \let\GenericInfo\@gobbletwo
```

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

```
508     \ifx\nofrenchguillemets\@undefined
509     \else
510     \nofrenchguillemets
511     \fi
```

**Definition commands and expansion.** Redefining the defining commands (see sec. 6.5.10). The original meaning of `\xdef` is saved in `\Hy@temp`.

```
512     \let\Hy@temp\xdef
513     \let\def\HyPsd@DefCommand
514     \let\gdef\HyPsd@DefCommand
515     \let\edef\HyPsd@DefCommand
516     \let\xdef\HyPsd@DefCommand
517     \let\futurelet\HyPsd@LetCommand
518     \let\let\HyPsd@LetCommand
519     \Hy@temp#1{#2}%
520     \endgroup
```

### 6.2.3 Postprocessing

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

```
521 \ifx#1\@empty
522 \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 take the following item into account, that makes things a little more complicate:

- $\TeX$  does not accept a space as an undelimited argument, it cancels space tokens while looking for an undelimited argument. Therefore we must protect the spaces now.
- An argument can be a single token or a group of many tokens. And within curly braces tokens aren't found 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 a marker for the xspace support.
- $\TeX$  silently removes the outermost 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.

```
523 \HyPsd@ProtectSpaces#1%
524 \let\HyPsd@String\@empty
525 \expandafter\HyPsd@RemoveBraces\expandafter{#1}%
526 \global\let#1\HyPsd@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 is unlikely.
- 7 superscript
- 8 subscript
- 11 letter
- 12 other
- 13 commands that are active characters.

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

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

```
527 \let\HyPsd@SPACEOPTI\relax
528 {%
529 \let\HyPsd@String\@empty
530 \expandafter\HyPsd@CheckCatcodes#1\HyPsd@End
531 \global\let#1\HyPsd@String
532}%
533 \expandafter\HyPsd@RemoveMask\expandafter
534 |\expandafter\@empty#1\HyPsd@End#1%
```

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

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

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

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

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

```
539 \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.lfd can produce an additional space before \guillemotright, because \lastskip and \unskip do not work. Therefore it is removed here.

```
540 \ifHy@unicode
541 \expandafter\HyPsd@StringSubst\csname 80\040\endcsname
542 \HyPsd@SPACEOPTI#1%
543 \edef\Hy@temp@A{\HyPsd@SPACEOPTI\HyPsd@SPACEOPTI\80\273}%
544 \expandafter\HyPsd@Subst\expandafter{\Hy@temp@A}%
545 {\HyPsd@SPACEOPTI\80\273}#1%
546 \else
547 \HyPsd@StringSubst{\040}\HyPsd@SPACEOPTI#1%
548 \expandafter\HyPsd@Subst\expandafter{%
549 \expandafter\HyPsd@SPACEOPTI\expandafter\HyPsd@SPACEOPTI
550 \string\273}\HyPsd@SPACEOPTI\273}#1%
551 \fi
```

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

```
552 \ifHy@unicode
553 \HyPsd@StringSubst{\)}{\80\051}#1%
554 \HyPsd@Subst){\80\051}#1%
555 \let\HyPsd@empty\relax
556 \expandafter\HyPsd@StringSubst\csname 80\051\endcsname
557 {\HyPsd@empty\80\051}#1%
558 \else
559 \HyPsd@StringSubst{\)}{\051}#1%
560 \HyPsd@Subst){\051}#1%
561 \let\HyPsd@empty\relax
```

```

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

```

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

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

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

```

564      \expandafter\HyPsd@Subst\expandafter{\}/\HyPsd@empty#1%
565      \@ifundefined{xspace}{%
566      }{%
567      \let\HyPsd@xspace\relax
568      \expandafter\HyPsd@Subst\expandafter
569      {\HyPsd@XSPACE}\HyPsd@xspace#1%
570      \let\HyPsd@xspace\HyPsd@doxspace
571      }%
572      \xdef#1{#1\HyPsd@empty}%

```

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

```

573 %      \HyPsd@Subst{---}\textemdash#1%
574 %      \HyPsd@Subst{--}\textendash#1%
575 %      \HyPsd@Subst{fi}\textfi#1%
576 %      \HyPsd@Subst{fl}\textfl#1%
577 %      \HyPsd@Subst{!'}\texttexclamdown#1%
578 %      \HyPsd@Subst{?'}\textquestiondown#1%

```

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

```

579      \let\HyPsd@empty\@empty

```

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

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

```

580      \ifHy@unicode
581      \HyPsd@StringSubst{\textparenleft#1%
582      \HyPsd@Subst{\textparenleft#1%
583      \else
584      \HyPsd@StringSubst{\(\050}#1%
585      \HyPsd@Subst{\050}#1%
586      \HyPsd@StringSubst{\050}{\string\)}#1%

```



```
587 \fi
```

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

With Unicode the spaces are replaced by their octal sequences.

```
588 \ifHy@unicode
589 \edef\HyPsd@SPACEOPTI{\80\040}%
590 \else
591 \let\HyPsd@SPACEOPTI\HyPsd@spaceopti
592 \fi
593 \xdef#1{#1\@empty}%
594 \fi
```

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

```
595 \ifHy@unicode
596 \HyPsd@ConvertToUnicode#1%
597 \fi
```

**User hook.** The hook `\pdfstringdefPostHook` can be used for the purpose to post-process the string further.

```
598 \pdfstringdefPostHook#1%
599 \endgroup
600 }
```

## 6.3 Encodings

### 6.3.1 PD1 encoding

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

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

```
601 \@ifundefined{T@PD1}{\input{pd1enc.def}}{}
602 \DeclareFontFamily{PD1}{pdf}{}
603 \DeclareFontShape{PD1}{pdf}{m}{n}{ <-> cmr10 }{}
604 \DeclareFontSubstitution{PD1}{pdf}{m}{n}
```

### 6.3.2 PU encoding

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

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

```
605 \def\HyPsd@InitUnicode{%
606 \ifundefined{T@PU}{\input{puenc.def}}{}%
607 \DeclareFontFamily{PU}{pdf}{}%
```

```

608 \DeclareFontShape{PU}{pdf}{m}{n}{ <-> cmr10 }{}%
609 \DeclareFontSubstitution{PU}{pdf}{m}{n}%
610 \let\HyPsd@InitUnicode\relax
611 }

```

## 6.4 Additional user commands

### 6.4.1 `\texorpdfstring`

`\texorpdfstring` While expanding the string in `\pdfstringdef` the switch `\ifHy@pdfstring` is set. This is used by the full expandable macro `\texorpdfstring`. It expects two arguments, the first contains the string that will be set and processed by T<sub>E</sub>X's stomach, the second contains the replacement for PDF strings.

```

612 \newcommand*{\texorpdfstring}{%
613   \ifHy@pdfstring
614     \expandafter\@secondoftwo
615   \else
616     \expandafter\@firstoftwo
617   \fi
618 }

```

### 6.4.2 Hooks for `\pdfstringdef`

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

```

619 \@ifundefined{pdfstringdefPreHook}{%
620   \let\pdfstringdefPreHook\@empty
621 }{}
622 \@ifundefined{pdfstringdefPostHook}{%
623   \let\pdfstringdefPostHook\@gobble
624 }{}

```

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

Macro `\pdfstringdefDisableCommands` avoids this, because it reuses the old meaning of the hook and appends the new code to `\pdfstringdefPreHook`, e.g.:

```

\pdfstringdefDisableCommands{%
  \let~\textasciitilde
  \def\url{\pdfstringdefWarn\url}%
  \let\textcolor\@gobble
}%

```

In the argument of `\pdfstringdefDisableCommands` the character `@` can be used in command names. So it is easy to use useful L<sup>A</sup>T<sub>E</sub>X commands like `\@gobble` or `\@firstofone`.

```

625 \def\pdfstringdefDisableCommands{%
626   \begingroup
627     \makeatletter
628     \HyPsd@DisableCommands
629 }

```

`\HyPsd@DisableCommands`

```

630 \long\def\HyPsd@DisableCommands#1{%

```

```

631 \toks0=\expandafter{\pdfstringdefPreHook}%
632 \toks1={#1}%
633 \xdef\pdfstringdefPreHook{\the\toks0 \the\toks1}%
634 \endgroup
635 }

```

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

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

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

```

636 \def\pdfstringdefWarn#1{%
637   \expandafter\noexpand\csname\<>-string#1\endcsname
638 }

```

## 6.5 Help macros for expansion

### 6.5.1 Babel languages

```

639 \newif\ifHy@next

  Nothing to do for english.
640 \@ifpackagewith{babel}{danish}{}%
641   \def\HyPsd@babel@danish{%
642     \declare@shorthand{danish}{"}{}}%
643     \declare@shorthand{danish}{"}{~}{-}%
644   }%
645 }{}
646 \Hy@nextfalse
647 \@ifpackagewith{babel}{dutch}{\Hy@nexttrue}{}%
648 \@ifpackagewith{babel}{afrikaans}{\Hy@nexttrue}{}%
649 \ifHy@next
650   \def\HyPsd@babel@dutch{%
651     \declare@shorthand{dutch}{"}{}}%
652     \declare@shorthand{dutch}{"}{~}{-}%
653   }%
654 \fi
655 \@ifpackagewith{babel}{finnish}{}%
656   \def\HyPsd@babel@finnish{%
657     \declare@shorthand{finnish}{"}{}}%
658   }%
659 }{}
660 \Hy@nextfalse
661 \@ifpackagewith{babel}{frenchb}{\Hy@nexttrue}{%
662 \@ifpackagewith{babel}{français}{\Hy@nexttrue}{%
663 \ifHy@next
664   \def\HyPsd@babel@frenchb{%
665     \def\guill@spacing{ }%
666   }%
667 \fi
668 \Hy@nextfalse
669 \@ifpackagewith{babel}{german}{\Hy@nexttrue}{}%
670 \@ifpackagewith{babel}{germanb}{\Hy@nexttrue}{}%
671 \@ifpackagewith{babel}{austrian}{\Hy@nexttrue}{%

```

```

672 \ifHy@next
673   \def\HyPsd@babel@german{%
674     \declare@shorthand{german}{f}{f}%
675     \declare@shorthand{german}{|}{|}%
676     \declare@shorthand{german}{~}{-}%
677   }%
678 \fi
679 \Hy@nextfalse
680 \@ifpackagewith{babel}{ngerman}{\Hy@nexttrue}{}%
681 \@ifpackagewith{babel}{ngermanb}{\Hy@nexttrue}{}%
682 \@ifpackagewith{babel}{naustrian}{\Hy@nexttrue}{}%
683 \ifHy@next
684   \def\HyPsd@babel@ngerman{%
685     \declare@shorthand{german}{|}{|}%
686     \declare@shorthand{german}{~}{-}%
687   }%
688 \fi
689 \Hy@nextfalse
690 \@ifpackagewith{babel}{usorbian}{\Hy@nexttrue}{}%
691 \@ifpackagewith{babel}{uppersorbian}{\Hy@nexttrue}{}%
692 \ifHy@next
693   \def\HyPsd@babel@usorbian{%
694     \declare@shorthand{usorbian}{f}{f}%
695     \declare@shorthand{usorbian}{|}{|}%
696   }%
697 \fi
698 \Hy@nextfalse
699 \@ifpackagewith{babel}{brazil}{\Hy@nexttrue}{}%
700 \@ifpackagewith{babel}{brazilian}{\Hy@nexttrue}{}%
701 \@ifpackagewith{babel}{portuges}{\Hy@nexttrue}{}%
702 \@ifpackagewith{babel}{portuguese}{\Hy@nexttrue}{}%
703 \ifHy@next
704   \def\HyPsd@babel@portuges{%
705     \declare@shorthand{portuges}{|}{|}%
706   }%
707 \fi
708 \Hy@nextfalse
709 \@ifpackagewith{babel}{russian}{\Hy@nexttrue}{}%
710 \@ifpackagewith{babel}{russianb}{\Hy@nexttrue}{}%
711 \ifHy@next
712   \def\HyPsd@babel@russian{%
713     \declare@shorthand{russian}{|}{|}%
714     \declare@shorthand{russian}{~}{-}%
715   }%
716 \fi
717 \Hy@nextfalse
718 \@ifpackagewith{babel}{ukrainian}{\Hy@nexttrue}{}%
719 \@ifpackagewith{babel}{ukraineb}{\Hy@nexttrue}{}%
720 \ifHy@next
721   \def\HyPsd@babel@ukrainian{%
722     \declare@shorthand{ukrainian}{|}{|}%
723     \declare@shorthand{ukrainian}{~}{-}%
724   }%
725 \fi
726 \@ifpackagewith{babel}{macedonian}{}%
727 \def\HyPsd@babel@macedonian{%
728   \declare@shorthand{macedonian}{|}{|}%

```

```

729 \declare@shorthand{macedonian}{~}{-}%
730 }%
731 {}
732 \@ifpackagewith{babel}{slovene}{%
733 \def\HyPsd@babel@slovene{%
734 \declare@shorthand{slovene}{~}{-}%
735 }%
736 {}
737 \@ifpackagewith{babel}{swedish}{%
738 \def\HyPsd@babel@swedish{%
739 \declare@shorthand{swedish}{~}{-}%
740 \declare@shorthand{swedish}{~}{-}%
741 }%
742 {}

```

### 6.5.2 CJK bookmarks

`\HyPsd@CJKhook` Some internal commands of package `cjk` are redefined to avoid error messages. For a rudimental support of CJK bookmarks the active characters are redefined so that they print themselves.

After preprocessing of Big5 encoded data the following string for a double-byte character is emitted:

```
^^7f<arg1>^^7f<arg2>^^7f
```

`<arg1>` is the first byte in the range (always  $> 0x80$ ); `<arg2>` is the second byte in decimal notation ( $\geq 0x40$ ).

```

743 \begingroup
744 \catcode"7F=\active
745 \toks@{%
746 \let\CJK@ignorespaces\empty
747 \def\CJK@char#1{\@gobbletwo}%
748 \let\CJK@charx\@gobblefour
749 \let\CJK@punctchar\@gobblefour
750 \def\CJK@punctcharx#1{\@gobblefour}%
751 \catcode"7F=\active
752 \def^^7f#1^^7f#2^^7f{%
753 \string #1\HyPsd@DecimalToOctal{#2}%
754 }%
755 % ... ?
756 \ifHy@unicode
757 \def\Hy@cjkpu{\80}%
758 \else
759 \let\Hy@cjkpu\@empty
760 \fi
761 \HyPsd@CJKActiveChars
762 }%
763 \count@=127
764 \@whilenum\count@<255 \do{%
765 \advance\count@ by 1
766 \lccode'\~= \count@
767 \lowercase{%
768 \toks@\expandafter{\the\toks@ ~}%
769 }%
770 }%
771 \toks@\expandafter{\the\toks@ !}%
772 \xdef\HyPsd@CJKhook{\the\toks@}%
773 \endgroup

```

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

```

774 \def\HyPsd@CJKActiveChars#1{%
775   \ifx#1!%
776     \let\HyPsd@CJKActiveChars\relax
777   \else
778     \edef#1{\noexpand\Hy@cjkpu\string#1}%
779   \fi
780   \HyPsd@CJKActiveChars
781 }
```

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

```

782 \def\HyPsd@DecimalToOctal#1{%
783   \ifcase #1 %
784     \000\or \001\or \002\or \003\or \004\or \005\or \006\or \007%
785     \or \010\or \011\or \012\or \013\or \014\or \015\or \016\or \017%
786     \or \020\or \021\or \022\or \023\or \024\or \025\or \026\or \027%
787     \or \030\or \031\or \032\or \033\or \034\or \035\or \036\or \037%
788     \or \040\or \041\or \042\or \043\or \044\or \045\or \046\or \047%
789     \or \050\or \051\or \052\or \053\or \054\or \055\or \056\or \057%
790     \or 0\or 1\or 2\or 3\or 4\or 5\or 6\or 7%
791     \or 8\or 9\or \072\or \073\or \074\or \075\or \076\or \077%
792     \or @\or A\or B\or C\or D\or E\or F\or G%
793     \or H\or I\or J\or K\or L\or M\or N\or O%
794     \or P\or Q\or R\or S\or T\or U\or V\or W%
795     \or X\or Y\or Z\or \133\or \134\or \135\or \136\or \137%
796     \or \140\or a\or b\or c\or d\or e\or f\or g%
797     \or h\or i\or j\or k\or l\or m\or n\or o%
798     \or p\or q\or r\or s\or t\or u\or v\or w%
799     \or x\or y\or z\or \173\or \174\or \175\or \176\or \177%
800     \or \200\or \201\or \202\or \203\or \204\or \205\or \206\or \207%
801     \or \210\or \211\or \212\or \213\or \214\or \215\or \216\or \217%
802     \or \220\or \221\or \222\or \223\or \224\or \225\or \226\or \227%
803     \or \230\or \231\or \232\or \233\or \234\or \235\or \236\or \237%
804     \or \240\or \241\or \242\or \243\or \244\or \245\or \246\or \247%
805     \or \250\or \251\or \252\or \253\or \254\or \255\or \256\or \257%
806     \or \260\or \261\or \262\or \263\or \264\or \265\or \266\or \267%
807     \or \270\or \271\or \272\or \273\or \274\or \275\or \276\or \277%
808     \or \300\or \301\or \302\or \303\or \304\or \305\or \306\or \307%
809     \or \310\or \311\or \312\or \313\or \314\or \315\or \316\or \317%
810     \or \320\or \321\or \322\or \323\or \324\or \325\or \326\or \327%
811     \or \330\or \331\or \332\or \333\or \334\or \335\or \336\or \337%
812     \or \340\or \341\or \342\or \343\or \344\or \345\or \346\or \347%
813     \or \350\or \351\or \352\or \353\or \354\or \355\or \356\or \357%
814     \or \360\or \361\or \362\or \363\or \364\or \365\or \366\or \367%
815     \or \370\or \371\or \372\or \373\or \374\or \375\or \376\or \377%
816   \fi
817 }
```

### 6.5.3 `\@inmathwarn-Patch`

`\HyPsd@inmathwarn` The patch of `\@inmathwarn` is needed to get rid of the infinite error loop with glyphs of other encodings (see the explanation above). Potentially the patch is dangerous, if the code in `ltoutenc.dtx` changes. Checked with  $\text{\LaTeX}$  2<sub>ε</sub> 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 (L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> release [1998/12/01]). In the normal case `\pdfstringdef` is executed in a context where `\protect` has the meaning of `\@typesetprotect` (`=\relax`).

```

\def\@current@cmd#1{%
  \ifx\protect\@typeset@protect
    \inmathwarn#1%
  \else
    \noexpand#1\expandafter\@gobble
  \fi}
\def\@changed@cmd#1#2{%
  \ifx\protect\@typeset@protect
    \inmathwarn#1%
    \expandafter\ifx\csname\cf@encoding\string#1\endcsname\relax
      \expandafter\ifx\csname ?\string#1\endcsname\relax
        \expandafter\def\csname ?\string#1\endcsname{%
          \TextSymbolUnavailable#1%
        }%
      \fi
      \global\expandafter\let
        \csname\cf@encoding\string#1\expandafter\endcsname
        \csname ?\string#1\endcsname
      \fi
      \csname\cf@encoding\string#1%
        \expandafter\endcsname
    \else
      \noexpand#1%
    \fi}
\gdef\TextSymbolUnavailable#1{%
  \@latex@error{%
    Command \protect#1 unavailable in encoding \cf@encoding%
  }\@eha}
\def\@inmathwarn#1{%
  \ifmmode
    \@latex@warning{Command \protect#1 invalid in math mode}%
  \fi}

818 \def\HyPsd@inmathwarn#1#2{%
819   \ifx#2\expandafter
820     \expandafter\ifx\csname\cf@encoding\string#1\endcsname\relax
821       \HyPsd@GLYPHERR
822       \expandafter\@gobble\string#1%
823     >%
824     \expandafter\expandafter\expandafter\HyPsd@EndWithElse
825   \else
826     \expandafter\expandafter\expandafter\HyPsd@GobbleFiFi
827   \fi
828 \else
829   \expandafter#2%
830 \fi
831 }
832 \def\HyPsd@GobbleFiFi#1\fi#2\fi{}
833 \def\HyPsd@EndWithElse#1\else\else}

```

#### 6.5.4 `\add@accent-Patch`

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

`\HyPsd@add@accent`

```
834 \def\HyPsd@add@accent#1#2{%
835   \HyPsd@GLYPHERR\expandafter\@gobble\string#1+\string#2>%
836   #2%
837 }%
```

### 6.5.5 Unexpandable spaces

`\HyPsd@LetUnexpandableSpace` In `\HyPsd@@ProtectSpaces` the space tokens are replaced by not expandable commands, that work like spaces:

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

These properties are used in `\HyPsd@CheckCatcodes`.

```
838 \def\HyPsd@LetUnexpandableSpace#1{%
839   \expandafter\futurelet\expandafter#1\expandafter\@gobble\space\relax
840 }
```

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

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

### 6.5.6 Marker for commands

`\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 # with catcode 12 marks the beginning of the extra information.

`\HyPsd@ITALCORR`  
`\HyPsd@GLYPHERR`

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

### 6.5.7 \hspace fix

`\HyPsd@hspace`

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

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

```
846 \def\HyPsd@@hspace#1*#2\END{%
847   \ifx\#2\%
848     \HyPsd@hspacetest{#1}%
849   \else
850     \expandafter\HyPsd@hspacetest
851   \fi
852 }
```

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

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



### 6.5.8 Fix for AMS classes

```

854 \@ifundefined{tocsection}{%
855   \let\HyPSD@AMSclassfix\relax
856 }{%
857   \def\HyPSD@AMSclassfix{%
858     \let\tocpart\HyPSD@tocsection
859     \let\tocchapter\HyPSD@tocsection
860     \let\tocappendix\HyPSD@tocsection
861     \let\tocsection\HyPSD@tocsection
862     \let\tocsubsection\HyPSD@tocsection
863     \let\tocsubsubsection\HyPSD@tocsection
864     \let\tocparagraph\HyPSD@tocsection
865   }%
866   \def\HyPSD@tocsection#1#2#3{%
867     \if @#2@ \else \if @#1@ \else #1 \fi #2. \fi
868     #3%
869   }%
870 }

```

### 6.5.9 Reference commands

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

```

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

```

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

```

872 \def\HyPsd@@ref#1*#2\END{%
873   \ifx\#2\%
874     \HyPsd@@@ref{#1}%
875   \else
876     \expandafter\HyPsd@@@ref
877   \fi
878 }%

```

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

```

879 \def\HyPsd@@@ref#1{%
880   \expandafter\ifx\csname r@#1\endcsname\relax
881     ??%
882   \else
883     \expandafter\expandafter\expandafter\@car\csname r@#1\endcsname\@nil
884   \fi
885 }

```

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

```

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

```

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

```

887 \def\HyPsd@@pageref#1*#2\END{%
888   \ifx\#2\%
889     \HyPsd@@@pageref{#1}%
890   \else
891     \expandafter\HyPsd@@@pageref
892   \fi
893 }

```

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

```

894 \def\HyPsd@@@pageref#1{%
895   \expandafter\ifx\csname r@#1\endcsname\relax
896     ??%
897   \else
898     \expandafter\expandafter\expandafter\expandafter
899     \expandafter\expandafter\expandafter\@car
900     \expandafter\expandafter\expandafter\@gobble
901     \csname r@#1\endcsname\@nil
902   \fi
903 }
```

### 6.5.10 Redefining the defining commands

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

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

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

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

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

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

```

\HyPsd@DefCommand
\HyPsd@LetCommand
904 \begingroup
905   \def\x#1#2{%
906     \endgroup
907     \let#1\def
908     \def\HyPsd@DefCommand##1##2##{%
909       #1%
910       \expandafter\noexpand
911       \csname\expandafter\@gobble\string##1\@empty\endcsname
912       \@gobble
913     }%
914     \let#2\let
915     \def\HyPsd@@@LetCommand##1{%
```

```

916 \expandafter\ifx\csname##1\expandafter\endcsname
917 \csname iftrue\endcsname
918 \pdfstringdefWarn\let
919 \expandafter\@gobble
920 \else
921 \expandafter\ifx\csname##1\expandafter\endcsname
922 \csname iffalse\endcsname
923 \pdfstringdefWarn\let
924 \expandafter\expandafter\expandafter\@gobble
925 \else
926 #2%
927 \expandafter\noexpand
928 \csname##1\expandafter\expandafter\expandafter\endcsname
929 \fi
930 \fi
931 }%
932 }%
933 \expandafter\x\csname <def>-command\expandafter\endcsname
934 \csname <let>-command\endcsname
935 \def\HyPsd@LetCommand#1{%
936 \expandafter\expandafter\expandafter\HyPsd@@LetCommand
937 \expandafter\expandafter\expandafter{%
938 \expandafter\@gobble\string#1\@empty
939 }%
940 }

```

### 6.5.11 \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.

```

941 \def\HyPsd@ifnextchar{%
942 \pdfstringdefWarn\ifnextchar
943 \expandafter\@gobbletwo\@gobble
944 }

```

`\HyPsd@new@ifnextchar` Package `amsgen.sty` redefines `\ifstar` using `\new@ifnextchar` instead of `\@ifnextchar`. See bug report latex/3662.

```

945 \def\HyPsd@new@ifnextchar{%
946 \pdfstringdefWarn\new@ifnextchar
947 \expandafter\@gobbletwo\@gobble
948 }

```

### 6.5.12 \@protected@testoptifnextchar

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

```

949 \def\HyPsd@protected@testopt#1{%
950 \pdfstringdefWarn#1%
951 \@gobbletwo
952 }

```

## 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:

```
953 \def\HyPsd@Warning#1{%
954   \begingroup
955     \def\space{ }%
956     \Hy@Warning{#1}%
957   \endgroup
958 }
```

### 6.6.2 Protecting spaces

`\HyPsd@ProtectSpaces` `\HyPsd@ProtectSpaces` calls with the expanded string `\HyPsd@@ProtectSpaces`. The expanded string is protected by `|` at the beginning and end of the expanded string. Because of this there can be no group at the beginning or end of the string and grouping characters are not removed by the call of `\HyPsd@@ProtectSpaces`.

```
959 \def\HyPsd@ProtectSpaces#1{%
960   \expandafter\HyPsd@@ProtectSpaces
961     \expandafter|\expandafter\@empty#1| \HyPsd@End#1%
962 }
```

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

```
963 \def\HyPsd@@ProtectSpaces#1 #2\HyPsd@End#3{%
964   \ifx\scrollmode#2\scrollmode
965     \HyPsd@RemoveMask#1\HyPsd@End#3%
966   \else
967     \gdef#3{#1\HyPsd@UnexpandableSpace#2}%
968     \Hy@ReturnAfterFi{%
969       \expandafter\HyPsd@@ProtectSpaces#3\HyPsd@End#3%
970     }%
971   \fi
972 }
```

### Remove mask.

`\HyPsd@RemoveMask` `\HyPsd@RemoveMask` removes the protecting `|`. It is used by `\HyPsd@@ProtectSpaces` and by the code in `\pdfstringdef` that removes the grouping characters.

```
973 \def\HyPsd@RemoveMask|#1|\HyPsd@End#2{%
974   \toks@\expandafter{#1}%
975   \xdef#2{\the\toks@}%
976 }
```

### 6.6.3 Remove grouping braces

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

```
977 \def\HyPsd@RemoveBraces#1{%
978   \ifx\scrollmode#1\scrollmode
979   \else
980     \Hy@ReturnAfterFi{%
981       \HyPsd@@RemoveBraces#1\HyPsd@End{#1}%
982     }%
983   \fi
984 }
```

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

While removing the grouping braces an italic correction marker is inserted for supporting package `xspace` and letting ligatures broken.

Because the string is already expanded, the `\if` commands should disappeared. So we can move some parts out of the argument of `\Hy@ReturnAfterFi`.

```

985 \def\HyPsd@@RemoveBraces#1#2\HyPsd@End#3{%
986   \def\Hy@temp@A{#1#2}%
987   \def\Hy@temp@B{#3}%
988   \ifx\Hy@temp@A\Hy@temp@B
989     \expandafter\def\expandafter\HyPsd@String\expandafter{%
990       \HyPsd@String#1%
991     }%
992     \Hy@ReturnAfterElseFi{%
993       \ifx\scrollmode#2\scrollmode
994       \else
995         \Hy@ReturnAfterFi{%
996           \HyPsd@RemoveBraces{#2}%
997         }%
998       \fi
999     }%
1000  \else
1001    \def\Hy@temp@A{#1}%
1002    \HyPsd@AppendItalcorr\HyPsd@String
1003    \Hy@ReturnAfterFi{%
1004      \ifx\Hy@temp@A\@empty
1005        \Hy@ReturnAfterElseFi{%
1006          \HyPsd@RemoveBraces{#2}%
1007        }%
1008      \else
1009        \Hy@ReturnAfterFi{%
1010          \HyPsd@ProtectSpaces\Hy@temp@A
1011          \HyPsd@AppendItalcorr\Hy@temp@A
1012          \expandafter\HyPsd@RemoveBraces\expandafter
1013            {\Hy@temp@A#2}%
1014        }%
1015      \fi
1016    }%
1017  \fi
1018 }

```

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

```

1019 \def\HyPsd@AppendItalcorr#1{%
1020   \expandafter\HyPsd@@AppendItalcorr\expandafter{\/}#1%
1021 }
1022 \def\HyPsd@@AppendItalcorr#1#2{%
1023   \expandafter\def\expandafter#2\expandafter{#2#1}%
1024 }

```

#### 6.6.4 Catcode check

Check catcodes.

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

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

```

1025 \def\HyPsd@CheckCatcodes#1#2\HyPsd@end{%
1026   \global\let\HyPsd@Rest\relax
1027   \ifcat\relax\noexpand#1\relax
1028     \ifx#1\protect
1029       \else
1030         \ifx#1\penalty
1031           \setbox\z@=\hbox{%
1032             \afterassignment\HyPsd@AfterCountRemove
1033             \count@=#2\HyPsd@end
1034           }%
1035         \else
1036           \ifx#1\kern
1037             \setbox\z@=\hbox{%
1038               \afterassignment\HyPsd@AfterDimenRemove
1039               \dimen@=#2\HyPsd@end
1040             }%
1041           \else
1042             \ifx#1\hskip
1043               \setbox\z@=\hbox{%
1044                 \afterassignment\HyPsd@AfterSkipRemove
1045                 \skip@=#2\HyPsd@end
1046               }%
1047             \else
1048               \HyPsd@CatcodeWarning{#1}%
1049             \fi
1050           \fi
1051         \fi
1052       \fi
1053     \else
1054       \ifcat#1 %SPACE
1055         \expandafter\def\expandafter\HyPsd@String\expandafter{%
1056           \HyPsd@String\HyPsd@SPACEOPTI
1057         }%
1058       \else
1059         \ifcat$#1%
1060           \HyPsd@CatcodeWarning{math shift}%
1061         \else
1062           \ifcat&#1%
1063             \HyPsd@CatcodeWarning{alignment tab}%
1064           \else
1065             \ifcat^#1%
1066               \HyPsd@CatcodeWarning{superscript}%
1067             \else
1068               \ifcat_#1%
1069                 \HyPsd@CatcodeWarning{subscript}%
1070             \else
1071               \expandafter\def\expandafter\HyPsd@String\expandafter{%

```

```

1072             \HyPsd@String#1%
1073         }%
1074     \fi
1075 \fi
1076 \fi
1077 \fi
1078 \fi
1079 \fi
1080 \ifx\HyPsd@Rest\relax
1081     \Hy@ReturnAfterElseFi{%
1082     \ifx\scrollmode#2\scrollmode
1083     \else
1084         \Hy@ReturnAfterFi{%
1085         \HyPsd@CheckCatcodes#2\HyPsd@End
1086     }%
1087 \fi
1088 }%
1089 \else
1090     \Hy@ReturnAfterFi{%
1091     \ifx\HyPsd@Rest\@empty
1092     \else
1093         \expandafter\HyPsd@CheckCatcodes\HyPsd@Rest\HyPsd@End
1094     \fi
1095 }%
1096 \fi
1097 }

```

### Remove counts, dimens, skips.

`\HyPsd@AfterCountRemove` Counts like `\penalty` are removed silently.

```

1098 \def\HyPsd@AfterCountRemove#1\HyPsd@End{%
1099     \gdef\HyPsd@Rest{#1}%
1100 }

```

`\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.

```

1101 \def\HyPsd@AfterDimenRemove#1\HyPsd@End{%
1102     \ifdim\ifx\HyPsd@String\@empty\z@\else\dimen@ \fi > 1ex
1103     \HyPsd@ReplaceSpaceWarning{\string\kern\space\the\dimen@}%
1104     \gdef\HyPsd@Rest{\HyPsd@UnexpandableSpace #1}%
1105 \else
1106     \ifdim\dimen@=\z@
1107     \else
1108         \HyPsd@RemoveSpaceWarning{\string\kern\space\the\dimen@}%
1109     \fi
1110     \gdef\HyPsd@Rest{#1}%
1111 \fi
1112 }

```

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

```

1113 \def\HyPsd@AfterSkipRemove#1\HyPsd@End{%
1114     \ifdim\ifx\HyPsd@String\@empty\z@\else\skip@ \fi > 1ex
1115     \HyPsd@ReplaceSpaceWarning{\string\hskip\space\the\skip@}%

```

```

1116 \gdef\HyPsd@Rest{\HyPsd@UnexpandableSpace #1}%
1117 \else
1118 \ifdim\skip@=\z@
1119 \else
1120 \HyPsd@RemoveSpaceWarning{\string\kern\space\the\skip@}%
1121 \fi
1122 \gdef\HyPsd@Rest{#1}%
1123 \fi
1124 }

```

### Catcode warnings.

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

```

1125 \def\HyPsd@CatcodeWarning#1{%
1126 \HyPsd@Warning{%
1127 Token not allowed in a PDFDocEncoded string,%
1128 \MessageBreak removing '\HyPsd@RemoveCmdPrefix#1'%
1129 }%
1130 }
1131 \begingroup
1132 \catcode'\|=0
1133 \catcode'\|=12
1134 \gdef\HyPsd@RemoveCmdPrefix#1{%
1135 \expandafter\HyPsd@@RemoveCmdPrefix
1136 \string#1|@empty\<>-|@empty|@empty
1137 }%
1138 \gdef\HyPsd@@RemoveCmdPrefix#1\<>-#2|@empty#3|@empty{#1#2}%
1139 \endgroup

```

\HyPsd@RemoveSpaceWarning

```

1140 \def\HyPsd@RemoveSpaceWarning#1{%
1141 \HyPsd@Warning{%
1142 Token not allowed in a PDFDocEncoded string:%
1143 \MessageBreak #1\MessageBreak
1144 removed%
1145 }%
1146 }

```

\HyPsd@ReplaceSpaceWarning

```

1147 \def\HyPsd@ReplaceSpaceWarning#1{%
1148 \HyPsd@Warning{%
1149 Token not allowed in a PDFDocEncoded string:%
1150 \MessageBreak #1\MessageBreak
1151 replaced by space%
1152 }%
1153 }

```

### 6.6.5 Check for wrong glyphs

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

```

1154 \def\HyPsd@GlyphProcess#1\relax#2\@empty{%
1155 \expandafter\def\expandafter\HyPsd@String\expandafter{%
1156 \HyPsd@String#1%
1157 }%
1158 \ifx\#2\%

```



```

1159 \else
1160   \Hy@ReturnAfterFi{%
1161     \HyPsd@GlyphProcessWarning#2\@empty
1162   }%
1163 \fi
1164 }
1165 \def\HyPsd@GlyphProcessWarning#1>#2\@empty{%
1166   \HyPsd@Warning{%
1167     Glyph not defined in %
1168     P\ifHy@unicode U\else D1\fi\space encoding,\MessageBreak
1169     removing '@backslashchar#1'%
1170   }%
1171   \HyPsd@GlyphProcess#2\@empty
1172 }

```

### 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`.

```

1173 \def\HyPsd@spaceopti#1{ % first space
1174   \ifx\HyPsd@spaceopti#1%
1175     \040%
1176   \else
1177     #1%
1178   \fi
1179 }%

```

### 6.6.6 Replacing tokens

`\HyPsd@Subst` To save tokens `\HyPsd@StringSubst` is an wrapper for the command `\HyPsd@Subst` that does all the work: In string stored in command #3 it replaces the tokens #1 with #2.

- #1 Exact the tokens that should be replaced.
- #2 The replacement (don't need to be expanded).
- #3 Command with the string.

```

1180 \def\HyPsd@Subst#1#2#3{%
1181   \def\HyPsd@@Replace##1#1##2\END{%
1182     ##1%
1183     \ifx\##2\%
1184       \else
1185         #2%
1186         \Hy@ReturnAfterFi{%
1187           \HyPsd@@Replace##2\END
1188         }%
1189       \fi
1190     }%
1191   \xdef#3{%
1192     \expandafter\HyPsd@@Replace#3#1\END
1193   }%
1194 }

```

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

```

1195 \def\HyPsd@StringSubst#1{%
1196   \expandafter\HyPsd@Subst\expandafter{\string#1}%
1197 }

```

### 6.6.7 Support for package xspace

`\HyPsd@doxspace` `\xspace` does not work, because it uses a `\futurelet` that cannot be executed in  $\TeX$ 's mouth. So this implementation uses an argument to examine the next token. In a previous version I reused `\@xspace`, but this version is shorter and easier to understand.

```

1198 \def\HyPsd@doxspace#1{%
1199   \ifx#1\relax\else
1200     \ifx#1.\else
1201       \ifx#1:\else
1202         \ifx#1,\else
1203           \ifx#1;\else
1204             \ifx#1!\else
1205               \ifx#1?\else
1206                 \ifx#1/\else
1207                   \ifx#1-\else
1208                     \ifx#1'\else
1209                       \HyPsd@SPACEOPTI
1210                     \fi
1211                   \fi
1212                 \fi
1213               \fi
1214             \fi
1215           \fi
1216         \fi
1217       \fi
1218     \fi
1219   \fi
1220   #1%
1221 }%
```

### 6.6.8 Converting to Unicode

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

```

1222 \begingroup
1223   \catcode'\|=0
1224   \catcode'\|=12
```

`\HyPsd@ConvertToUnicode`

```

1225 |gdef|HyPsd@ConvertToUnicode#1{%
1226   |xdef#1{%
1227     |expandafter|HyPsd@DoConvert#1|@empty|@empty|@empty
1228   }%
1229   |xdef#1{%
1230     |ifx#1|@empty
1231     |else
1232       \376\377%
1233       #1%
1234     |fi
1235   }%
1236 }
```

`\HyPsd@DoConvert`

```

1237 |gdef|HyPsd@DoConvert#1{%
1238   |ifx#1|@empty
```

```

1239     |else
1240     |Hy@ReturnAfterFi{%
1241     |ifx#1\%
1242     \%
1243     |expandafter|HyPsd@DoEscape
1244     |else
1245     \000#1%
1246     |expandafter|HyPsd@DoConvert
1247     |fi
1248     }%
1249     |fi
1250 }

```

\HyPsd@DoEscape

```

1251 |gdef|HyPsd@DoEscape#1{%
1252 |ifx#19%
1253 |expandafter|HyPsd@GetTwoBytes
1254 |else
1255 |Hy@ReturnAfterFi{%
1256 |ifx#18%
1257 00%
1258 |expandafter|HyPsd@GetTwoBytes
1259 |else
1260 #1%
1261 |expandafter|HyPsd@GetOneByte
1262 |fi
1263 }%
1264 |fi
1265 }

```

\HyPsd@GetTwoBytes

```

1266 |gdef|HyPsd@GetTwoBytes#1\#2#3#4{%
1267 #1\#2#3#4%
1268 |HyPsd@DoConvert
1269 }

```

\HyPsd@GetOneByte

```

1270 |gdef|HyPsd@GetOneByte#1#2{%
1271 #1#2%
1272 |HyPsd@DoConvert
1273 }
1274 |endgroup

```

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

```

1275 \def\HyPsd@GetNextTwoTokens#1#2#3\END#4{%
1276 \xdef#4{#4#1#2}%
1277 \HyPsd@@ConvertToUnicode#3\END#4%
1278 }

```

## 6.6.9 Support for UTF-8 input encoding

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

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

```

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

1279 \begingroup\expandafter\expandafter\expandafter\endgroup
1280 \expandafter\ifx\csname numexpr\endcsname\relax
1281   \let\HyPsd@UTFviii\relax
1282 \else
1283   \def\HyPsd@UTFviii{%
1284     \let\UTFviii@two@octets\HyPsd@UTFviii@two
1285     \let\UTFviii@three@octets\HyPsd@UTFviii@three
1286     \let\unichar\HyPsd@unichar
1287   }%

```

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.

$$a := A/4 - 48 \quad (1)$$

$$b := A - 4 * (A/4) \quad (2)$$

$$c := B/8 - 8 * ((8 * (B/8))/8) \quad (3)$$

$$d := B - 8 * (B/8) \quad (4)$$

$$(5)$$

```

1288 \def\HyPsd@UTFviii@two#1#2{%
1289   \expandafter\HyPsd@UTFviii@two
1290   \number\dimexpr.25\dimexpr'#1sp\expandafter\relax\expandafter|
1291   \number'#1\expandafter|
1292   \number\dimexpr.125\dimexpr'#2sp\expandafter\relax\expandafter|
1293   \number'#2 \@nil
1294 }%
1295 \def\HyPsd@UTFviii@two#1#2#3#4\@nil{%
1296   \expandafter\8
1297   \number\dimexpr #1-48\expandafter\relax
1298   \csname\number\dimexpr #2-4*#1\relax\expandafter\endcsname
1299   \number\dimexpr #3-8*
1300   \number\dimexpr.125\dimexpr#3sp\relax\relax\expandafter\relax
1301   \number\dimexpr #4-8*#3\relax
1302 }%

```

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

$$a := A/4 - 56 \quad (6)$$

$$b := 2 * (A - 4 * (A/4)) + ((B - 128 < 32)?0 : 1) \quad (7)$$

$$c := B/4 - 32 - ((B - 128 < 32)?0 : 8) \quad (8)$$

$$d := B - 4 * (B/4) \quad (9)$$

$$e := C/8 - 16 \quad (10)$$

$$f := C - 8 * (C/8) \quad (11)$$

$$(12)$$

```

1303 \def\HyPsd@UTFviii@three#1#2#3{%
1304   \expandafter\HyPsd@UTFviii@three

```

```

1305 \number\dimexpr.25\dimexpr'#1sp\expandafter\relax\expandafter|
1306 \number'#1\expandafter|
1307 \number\ifnum\numexpr'#2-128\relax <32 0\else 1\fi\expandafter|
1308 \number\dimexpr.25\dimexpr'#2sp\expandafter\relax\expandafter|
1309 \number'#2\expandafter|
1310 \number\dimexpr.125\dimexpr'#3sp\expandafter\relax\expandafter|
1311 \number'#3 \@nil
1312 }%
1313 \def\HyPsd@UTFviii@@three#1|#2|#3|#4|#5|#6|#7\@nil{%
1314 \expandafter\9%
1315 \number\numexpr #1-56\expandafter\relax
1316 \number\numexpr 2*(#2-4*#1)+#3\expandafter\relax
1317 \number\numexpr #4 - 32 -\ifcase#3 0\else 8\fi\expandafter\relax
1318 \csname\number\numexpr #5-4*#4\relax\expandafter\endcsname
1319 \number\numexpr #6-16\expandafter\relax
1320 \number\numexpr #7-8*#6\relax
1321 }%

```

Four octet form: 11110aab (A), 10bccdd (B), 10deeeff (C), and 10ggghhh (D). The result are two surrogate characters 110010aabbccddd and 11001eeeffggghhh, or as octal numbers \931a\bcd and \931e\fgh. The conversion equations:

$$a := A/2 - 120 \quad (13)$$

$$b := (isodd(A)?2 : 0) + (B/32 - 4) \quad (14)$$

$$c := (B - 32 * (B/32))/4 \quad (15)$$

$$d := 2 * (B - 4 * (B/4)) + (C/32 - 4) \quad (16)$$

$$e := (C - 32 * (C/32))/4 \quad (17)$$

$$f := C - 4 * C/4 \quad (18)$$

$$g := D/8 - 16 \quad (19)$$

$$h := D - 8 * (D/8) \quad (20)$$

$$(21)$$

```

1322 \def\HyPsd@UTFviii@four#1{%
1323 \expandafter\HyPsd@UTFviii@@four\number'#1|
1324 }%
1325 \def\HyPsd@UTFviii@@four#1|#2|#3|#4{%
1326 \expandafter\HyPsd@UTFviii@@@four\number#1\expandafter|
1327 \number'#2\expandafter|
1328 \number\dimexpr.03125\dimexpr'#2sp\expandafter|
1329 \number'#3\expandafter|
1330 \number\dimexpr.03125\dimexpr'#3sp\expandafter|
1331 \number'#4\expandafter|
1332 \number\dimexpr.125\dimexpr'#4|
1333 }%
1334 \def\HyPsd@UTFviii@@@four#1|#2|#3|#4|#5|#6|#7|{%
1335 \931%
1336 \number\numexpr\dimexpr.5\dimexpr#1sp\relax\relax -120\relax
1337 \csname\number\numexpr\ifodd#1 2\else 0\fi +#3-4\relax\endcsname
1338 \number\dimexpr.25\dimexpr #2sp - 32\dimexpr#3sp\relax\relax\relax
1339 % ...
1340 }%

```

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

```

1341 \def\HyPsd@unichar#1{%
1342 \ifHy@unicode

```

```

1343 \ifnum#1>"10FFFF %
1344 \HyPsd@UnicodeReplacementCharacter % illegal
1345 \else
1346 \ifnum#1>"FFFF %

```

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

```

1347 \expandafter\HyPsd@unichar\expandafter{%
1348 \number\numexpr 55296+%
1349 \dimexpr.0009765625\dimexpr\number#1sp-\p@
1350 \relax\relax\relax
1351 }%

```

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

```

1352 \expandafter\HyPsd@unichar\expandafter{%
1353 \number\numexpr#1-9216%
1354 -1024*\dimexpr.0009765625\dimexpr\number#1sp-\p@
1355 \relax\relax\relax
1356 }%
1357 \else
1358 \ifnum#1>"7FF %
1359 \9%
1360 \expandafter\HyPsd@unichar@first@byte\expandafter{%
1361 \number
1362 \dimexpr.00390625\dimexpr\number#1sp\relax\relax
1363 }%
1364 \else
1365 \8%
1366 \number\dimexpr.00390625\dimexpr\number#1sp\relax\relax
1367 \fi
1368 \expandafter\HyPsd@unichar@second@byte\expandafter{%
1369 \number
1370 \numexpr#1-256*\number
1371 \dimexpr.00390625\dimexpr\number#1sp\relax\relax\relax
1372 }%
1373 \fi
1374 \fi
1375 \else
1376 .% unsupported (Unicode -> PDF Doc Encoding)
1377 \fi
1378 }%
1379 \def\HyPsd@UnicodeReplacementCharacter{\9377\375}
1380 \def\HyPsd@unichar@first@byte#1{%
1381 \number\dimexpr.015625\dimexpr#1sp\relax\relax
1382 \expandafter\HyPsd@unichar@octtwo\expandafter{%
1383 \number
1384 \numexpr#1-64*\number\dimexpr.015625\dimexpr#1sp\relax\relax\relax
1385 }%
1386 }%
1387 \def\HyPsd@unichar@second@byte#1{%
1388 \csname\number\dimexpr.015625\dimexpr#1sp\relax\relax\endcsname
1389 \expandafter\HyPsd@unichar@octtwo\expandafter{%
1390 \number
1391 \numexpr#1-64*\number\dimexpr.015625\dimexpr#1sp\relax\relax\relax
1392 }%
1393 }%
1394 \def\HyPsd@unichar@octtwo#1{%
1395 \number\dimexpr.125\dimexpr#1sp\relax\relax
1396 \number\numexpr#1-8*\number\dimexpr.125\dimexpr#1sp\relax\relax\relax

```

```

1397 }%
1398 \fi

```

## 7 Support of other packages

### 7.1 Class memoir

```

1399 \@ifclassloaded{memoir}{%
1400   \AtEndOfPackage{\RequirePackage{memhfixc}}%
1401 }{}

```

### 7.2 Package subfigure

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

```

1402 \@ifpackageloaded{subfigure}{%
1403   \@ifundefined{sub@label}{%
1404     \Hy@hypertextnamesfalse
1405   }{%
1406     \renewcommand*{\sub@label}[1]{%
1407       \@bsphack
1408       \subfig@oldlabel{#1}%
1409       \if@filesw
1410         \begingroup
1411           \edef\@currentlabstr{%
1412             \expandafter\strip@prefix\meaning\@currentlabelname
1413           }%
1414           \protected@write\@auxout{}{%
1415             \string\newlabel{sub@#1}{%
1416               {\@nameuse{@@thesub}\@capttype}}%
1417             {\thepage}%
1418             {\expandafter\strip@period\@currentlabstr\relax.\relax\@@@}%
1419             {\@currentHref}%
1420             {}%
1421           }%
1422         }%
1423       \endgroup
1424     }%
1425     \@esphack
1426   }%
1427   \@ifpackagelater{subfigure}{2002/03/26}{%
1428     \providecommand*{\toclevel@subfigure}{1}%
1429     \providecommand*{\toclevel@subtable}{1}%
1430   }%
1431 }%
1432 }{}

```

### 7.3 Package xr and xr-hyper

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

```

1433 \@ifundefined{XR@addURL}{%
1434 }{}

```

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.

```

1435 \def\xr@addURL#1{\xr@dURL#1{}{}{}{}\\}%

```

```

1436 \def\XR@dURL#1#2#3#4#5\{%
1437   {#1}-{#2}%
1438   \if!#4!%
1439   \else
1440     {#3}-{#4}-{\XR@URL}%
1441   \fi
1442 }%
1443 }

1444 \def\Hy@true{true}
1445 \def\Hy@false{false}

    Providing dummy definitions.

1446 \let\literalps@out@gobble
1447 \newcommand\pdfbookmark[3] [] {}
1448 \let\Acrobatmenu@gobble
1449 \def\Hy@writebookmark#1#2#3#4#5{%

```

## 8 Help macros for links

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

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

```

1450 \let\HyperRaiseLinkLength\@tempdima
1451 \let\HyperRaiseLinkHook\@empty
1452 \def\HyperRaiseLinkDefault{\baselineskip}

\HyperRaiseLinkHook allows the user to reassign \HyperRaiseLinkLength.

1453 \def\Hy@raisedlink#1{%
1454   \setlength\HyperRaiseLinkLength\HyperRaiseLinkDefault
1455   \HyperRaiseLinkHook
1456   \ifvmode
1457     #1%
1458   \else
1459     \penalty\@M
1460     \smash{\raise\HyperRaiseLinkLength\hbox{#1}}%
1461   \fi
1462 }

```

<pre> \Hy@SaveLastskip \Hy@RestoreLastskip </pre>	<p>Inserting a <code>\special</code> command to set a destination destroys the <code>\lastskip</code> value.</p> <pre> 1463 \def\Hy@SaveLastskip{% 1464   \let\Hy@RestoreLastskip\relax 1465   \ifvmode 1466     \ifdim\lastskip=\z@ 1467       \let\Hy@RestoreLastskip\nobreak 1468     \else 1469       \begingroup 1470       \skip@=-\lastskip </pre>
---	---



```

1471     \edef\x{%
1472     \endgroup
1473     \def\noexpand\Hy@RestoreLastskip{%
1474     \noexpand\ifvmode
1475     \noexpand\nobreak
1476     \vskip\the\skip@
1477     \vskip\the\lastskip\relax
1478     \noexpand\fi
1479     }%
1480     }%
1481     \x
1482     \fi
1483   \else
1484     \ifhmode
1485       \ifdim\lastskip=\z@
1486         \let\Hy@RestoreLastskip\nobreak
1487       \else
1488         \begingroup
1489         \skip@=-\lastskip
1490         \edef\x{%
1491         \endgroup
1492         \def\noexpand\Hy@RestoreLastskip{%
1493         \noexpand\ifhmode
1494         \noexpand\nobreak
1495         \hskip\the\skip@
1496         \hskip\the\lastskip\relax
1497         \noexpand\fi
1498         }%
1499         }%
1500         \x
1501         \fi
1502       \fi
1503     \fi
1504   }%

```

## 9 Options

### 9.1 Help macros

\Hy@boolkey

```

1505 \def\Hy@boolkey{\@dblarg\Hy@@boolkey}
1506 \def\Hy@@boolkey[#1]#2#3{%
1507   \lowercase{\def\Hy@tempa{#3}}%
1508   \ifx\Hy@tempa\@empty
1509     \let\Hy@tempa\Hy@true
1510   \fi
1511   \ifx\Hy@tempa\Hy@true
1512   \else
1513     \ifx\Hy@tempa\Hy@false
1514     \else
1515       \let\Hy@tempa\relax
1516     \fi
1517   \fi
1518   \ifx\Hy@tempa\relax
1519     \Hy@WarnOptionValue{#3}{#1}{‘true’ or ‘false’}%
1520   \else

```

```

1521 \Hy@Info{Option ‘#1’ set ‘\Hy@tempa’}%
1522 \csname Hy@#2\Hy@tempa\endcsname
1523 \fi
1524 }

```

\Hy@WarnOptionValue

```

1525 \def\Hy@WarnOptionValue#1#2#3{%
1526 \Hy@Warning{%
1527 Unexpected value ‘#1’\MessageBreak
1528 of option ‘#2’ instead of\MessageBreak
1529 #3%
1530 }
1531 }

```

\Hy@DisableOption

```

1532 \def\Hy@DisableOption#1{%
1533 \@ifundefined{KV@Hyp@#1@default}{%
1534 \define@key{Hyp}{#1}%
1535 }{%
1536 \define@key{Hyp}{#1}[]%
1537 }%
1538 {\Hy@WarnOptionDisabled{#1}}%
1539 }

```

\Hy@WarnOptionDisabled

```

1540 \def\Hy@WarnOptionDisabled#1{%
1541 \Hy@Warning{%
1542 Option ‘#1’ has already been used,\MessageBreak
1543 setting the option has no effect%
1544 }%
1545 }

```

\Hy@CheckOptionValue Some options take a string value out of a limited set of values. Macro \Hy@CheckOptionValue checks whether the given value #1 for option #2 is a member of the value list #3.

```

1546 \def\Hy@CheckOptionValue#1#2#3{%
1547 \begingroup
1548 \edef\x{#1}%
1549 \@onelevel@sanitize\x
1550 \let\y=y%
1551 \def\do##1##2{%
1552 \def\z{##1}%
1553 \@onelevel@sanitize\z
1554 \ifx\x\z
1555 \let\y=n%
1556 \let\do\@gobbletwo
1557 \fi
1558 }%
1559 #3%
1560 \ifx\y y%
1561 \def\do##1##2{%
1562 * ‘##1’%
1563 \ifx\\##2\\\else\space(##2)\fi
1564 \MessageBreak
1565 }%
1566 \Hy@Warning{%
1567 Values of option ‘#2’:\MessageBreak
1568 #3%

```

```

1569      * An empty value disables the option.\MessageBreak
1570      Unknown value '\x'%
1571    }%
1572  \fi
1573 \endgroup
1574 }

\Hy@DefNameKey #1: option name
#2: \do list with known values, first argument of \do is value, second argument is a
comment.
1575 \def\Hy@DefNameKey#1{%
1576   \expandafter\Hy@@DefNameKey\csname @#1\endcsname{#1}%
1577 }

\Hy@@DefNameKey #1: macro for value storage
#2: option name
#3: \do list with known values.
1578 \def\Hy@@DefNameKey#1#2#3{%
1579   \define@key{Hyp}{#2}{%
1580     \edef#1{##1}%
1581     \ifx#1\@empty
1582     \else
1583       \Hy@CheckOptionValue{##1}{#2}{#3}%
1584     \fi
1585   }%
1586   \let#1\@empty
1587 }

\Hy@UseNameKey
1588 \def\Hy@UseNameKey#1#2{%
1589   \ifx#2\@empty
1590   \else
1591     /#1/#2%
1592   \fi
1593 }

```

## 9.2 Defining the options

```

1594 \define@key{Hyp}{implicit}[true]{%
1595   \Hy@boolkey{implicit}{#1}%
1596 }
1597 \define@key{Hyp}{draft}[true]{%
1598   \Hy@boolkey{draft}{#1}%
1599 }
1600 \define@key{Hyp}{final}[true]{%
1601   \Hy@boolkey{final}{#1}%
1602 }
1603 \let\KV@Hyp@nolinks\KV@Hyp@draft
1604 \define@key{Hyp}{a4paper}[true]{%
1605   \def\special@paper{210mm,297mm}%
1606   \def\Hy@pageheight{842}%
1607 }
1608 \define@key{Hyp}{a5paper}[true]{%
1609   \def\special@paper{148mm,210mm}%
1610   \def\Hy@pageheight{595}%
1611 }

```

```

1612 \define@key{Hyp}{b5paper}[true]{%
1613   \def\special@paper{176mm,250mm}%
1614   \def\Hy@pageheight{709}%
1615 }
1616 \define@key{Hyp}{letterpaper}[true]{%
1617   \def\special@paper{8.5in,11in}%
1618   \def\Hy@pageheight{792}%
1619 }
1620 \define@key{Hyp}{legalpaper}[true]{%
1621   \def\special@paper{8.5in,14in}%
1622   \def\Hy@pageheight{1008}%
1623 }
1624 \define@key{Hyp}{executivepaper}[true]{%
1625   \def\special@paper{7.25in,10.5in}%
1626   \def\Hy@pageheight{720}%
1627 }
1628 \define@key{Hyp}{setpagesize}[true]{%
1629   \Hy@boolkey{setpagesize}{#1}%
1630 }
1631 \define@key{Hyp}{debug}[true]{%
1632   \Hy@boolkey{debug}{verbose}{#1}%
1633 }
1634 \define@key{Hyp}{linktopage}[true]{%
1635   \Hy@boolkey{linktopage}{#1}%
1636 }
1637 \define@key{Hyp}{extension}{\def\XR@ext{#1}}
1638 \def\XR@ext{dvi}
1639 \define@key{Hyp}{verbose}[true]{%
1640   \Hy@boolkey{verbose}{#1}%
1641 }
1642 \define@key{Hyp}{typexml}[true]{%
1643   \Hy@boolkey{typexml}{#1}%
1644 }

```

If we are going to PDF via HyperTeX `\special` commands, the dvips (-z option) processor does not know the *height* of a link, as it works solely on the position of the closing `\special`. If we use this option, the `\special` is raised up by the right amount, to fool the dvi processor.

```

1645 \define@key{Hyp}{raiselinks}[true]{%
1646   \Hy@boolkey{raiselinks}{#1}%
1647 }

```

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

```

1648 \define@key{Hyp}{breaklinks}[true]{%
1649   \Hy@boolkey{breaklinks}{#1}%
1650 }

```

Determines whether an automatic anchor is put on each page

```

1651 \define@key{Hyp}{pageanchor}[true]{%
1652   \Hy@boolkey{pageanchor}{#1}%
1653 }

```

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.

```

1654 \define@key{Hyp}{plainpages}[true]{%
1655   \Hy@boolkey{plainpages}{#1}%
1656 }

```

Are the names for anchors made as per the HyperTeX system, or do they simply use what L<sup>A</sup>T<sub>E</sub>X provides?

```

1657 \define@key{Hyp}{naturalnames}[true]{%
1658   \Hy@boolkey{naturalnames}{#1}%
1659 }

```

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

```

1660 \define@key{Hyp}{hypertexnames}[true]{%
1661   \Hy@boolkey{hypertexnames}{#1}%
1662 }

```

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

```

1663 \define@key{Hyp}{nesting}[true]{%
1664   \Hy@boolkey{nesting}{#1}%
1665 }

```

```

1666 \define@key{Hyp}{unicode}[true]{%
1667   \Hy@boolkey{unicode}{#1}%
1668   \HyPsd@InitUnicode
1669 }

```

## 10 Options for different drivers

```

1670 \define@key{Hyp}{hyperref}[true]{%
1671 \define@key{Hyp}{tex4ht}[true]{%
1672   \def\XR@ext{html}%
1673   \Hy@texhttrue
1674   \def\Hy@raisedlink{}%
1675   \setkeys{Hyp}{colorlinks=true}%
1676   \def\BeforeTeXIVht{\usepackage{color}}%
1677   \def\Hy@driver{htex4ht}%
1678   \def\MaybeStopEarly{%
1679     \typeout{Hyperref stopped early}%
1680     \AfterBeginDocument{\PDF@FinishDoc}%
1681     \endinput
1682   }%
1683 }
1684 \define@key{Hyp}{pdftex}[true]{%
1685   \def\Hy@driver{hpdftex}%
1686   \def\XR@ext{pdf}%
1687   \PassOptionsToPackage{pdftex}{color}%
1688   \Hy@breaklinkstrue
1689 }
1690 \define@key{Hyp}{dvipdf}[true]{%
1691   \Hy@WarningNoLine{%
1692     Option 'dvipdf' is deprecated.\MessageBreak
1693     See the user manual for available driver options%
1694   }%
1695 }
1696 \define@key{Hyp}{nativepdf}[true]{%
1697   \def\Hy@driver{hdvips}%
1698   \def\Hy@raisedlink{}%
1699   \def\XR@ext{pdf}%
1700 }
1701 \define@key{Hyp}{dvipdfm}[true]{%
1702   \def\Hy@driver{hdvipdfm}%
1703   \def\XR@ext{pdf}%
1704   \Hy@breaklinkstrue
1705 }
1706 \define@key{Hyp}{dvipdfmx}[true]{%

```

```

1707 \def\Hy@driver{hdvipdfm}%
1708 \def\XR@ext{pdf}%
1709 \Hy@breaklinkstrue
1710 }
1711 \define@key{Hyp}{xetex}[true]{%
1712 \def\Hy@driver{hdvipdfm}%
1713 \def\XR@ext{pdf}%
1714 \Hy@breaklinkstrue
1715 }
1716 \define@key{Hyp}{pdfmark}[true]{%
1717 \def\Hy@driver{hdvips}%
1718 \def\Hy@raisedlink{}%
1719 \def\XR@ext{pdf}%
1720 }
1721 \define@key{Hyp}{dvips}[true]{%
1722 \def\Hy@driver{hdvips}%
1723 \def\Hy@raisedlink{}%
1724 \def\XR@ext{pdf}%
1725 }
1726 \define@key{Hyp}{hypertex}[true]{%
1727 \def\Hy@driver{hypertex}%
1728 }
1729 \let\Hy@MaybeStopNow\relax
1730 \define@key{Hyp}{vtex}[true]{%
1731 \begingroup\expandafter\expandafter\expandafter\endgroup
1732 \expandafter\ifx\csname OpMode\endcsname\relax
1733 \latex@error{Non-VTeX processor}{}%
1734 \global\let\Hy@MaybeStopNow\endinput
1735 \endinput
1736 \else
1737 \ifnum 0\ifnum\OpMode<1 1\fi \ifnum\OpMode>3 1\fi =0 %
1738 \def\XR@ext{pdf}%
1739 \def\Hy@driver{hvtex}%
1740 \else
1741 \ifnum\OpMode=10\relax
1742 \def\XR@ext{htm}%
1743 \def\Hy@driver{hvtexhtm}%
1744 \def\MaybeStopEarly{%
1745 \typeout{Hyperref stopped early}%
1746 \AfterBeginDocument{\PDF@FinishDoc}%
1747 \endinput
1748 }%
1749 \else
1750 \latex@error{Mode (\the\OpMode) has no hyperref driver}{}%
1751 \global\let\Hy@MaybeStopNow\endinput
1752 \endinput
1753 \fi
1754 \fi
1755 \fi
1756 }
1757 \define@key{Hyp}{vtexpdfmark}[true]{%
1758 \begingroup\expandafter\expandafter\expandafter\endgroup
1759 \expandafter\ifx\csname OpMode\endcsname\relax
1760 \latex@error{Non-VTeX processor}{}%
1761 \let\Hy@MaybeStopNow\endinput
1762 \endinput
1763 \else

```

```

1764 \ifnum 0\ifnum\OpMode<1 1\fi \ifnum\OpMode>3 1\fi =0 %
1765 \def\XR@ext{pdf}%
1766 \def\Hy@driver{hvtexmrk}%
1767 \def\Hy@raisedlink{}%
1768 \else
1769 \@latex@error{Mode (\the\OpMode) has no hyperref driver}{}%
1770 \let\Hy@MaybeStopNow\endinput
1771 \endinput
1772 \fi
1773 \fi
1774 }
1775 \define@key{Hyp}{dviwindo}[true]{%
1776 \def\Hy@driver{hdvwind}%
1777 \setkeys{Hyp}{colorlinks}%
1778 \PassOptionsToPackage{dviwindo}{color}%
1779 }
1780 \define@key{Hyp}{dvipsone}[true]{%
1781 \def\XR@ext{pdf}%
1782 \def\Hy@driver{hdvipson}%
1783 \def\Hy@raisedlink{}%
1784 }
1785 \define@key{Hyp}{textures}[true]{%
1786 \def\XR@ext{pdf}%
1787 \def\Hy@driver{htexture}%
1788 }
1789 \define@key{Hyp}{latex2html}[true]{%
1790 \AtBeginDocument{\@latextohtmlX}%
1791 }

```

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

```

1792 \define@key{Hyp}{ps2pdf}[true]{%
1793 \def\Hy@driver{hdvips}%
1794 \def\Hy@raisedlink{}%
1795 \providecommand*\@pdfborder{0 0 1}%
1796 }

```

## 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.

```

1797 \define@key{Hyp}{hyperfigures}[true]{%
1798 \Hy@boolkey[hyperfigures]{figures}{#1}%
1799 }

```

The automatic footnote linking can be disabled by option hyperfootnotes.

```

1800 \define@key{Hyp}{hyperfootnotes}[true]{%
1801 \Hy@boolkey[hyperfootnotes]{#1}%
1802 }

```

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

```

1803 \def\back@none{none}
1804 \def\back@section{section}
1805 \def\back@page{page}
1806 \def\back@slide{slide}
1807 \define@key{Hyp}{backref}[section]{%
1808 \lowercase{\def\Hy@tempa{#1}}%
1809 \ifx\Hy@tempa\@empty
1810 \let\Hy@tempa\back@section

```

```

1811 \fi
1812 \ifx\Hy@tempa\Hy@false
1813   \let\Hy@tempa\back@none
1814 \fi
1815 \ifx\Hy@tempa\back@slide
1816   \let\Hy@tempa\back@section
1817 \fi
1818 \ifx\Hy@tempa\back@page
1819   \PassOptionsToPackage{hyperpageref}{backref}%
1820   \Hy@backreftrue
1821 \else
1822   \ifx\Hy@tempa\back@section
1823     \PassOptionsToPackage{hyperref}{backref}%
1824     \Hy@backreftrue
1825   \else
1826     \ifx\Hy@tempa\back@none
1827       \Hy@backreffalse
1828     \else
1829       \Hy@WarnOptionValue{#1}{backref}{%
1830         'section', 'slide', 'page', 'none', \MessageBreak
1831         or 'false'}%
1832     \fi
1833   \fi
1834 \fi
1835 }
1836 \define@key{Hyp}{pagebackref}[true]{%
1837   \lowercase{\def\Hy@tempa{#1}}%
1838   \ifx\Hy@tempa\@empty
1839     \let\Hy@tempa\Hy@true
1840   \fi
1841   \ifx\Hy@tempa\Hy@true
1842     \PassOptionsToPackage{hyperpageref}{backref}%
1843     \Hy@backreftrue
1844   \else
1845     \ifx\Hy@tempa\Hy@false
1846       \Hy@backreffalse
1847     \else
1848       \Hy@WarnOptionValue{#1}{pagebackref}{'true' or 'false'}%
1849     \fi
1850   \fi
1851 }

```

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

```

1852 \define@key{Hyp}{hyperindex}[true]{%
1853   \Hy@boolkey{hyperindex}{#1}%
1854 }

```

Configuration of encap char.

```

1855 \define@key{Hyp}{encap}[\l]{%
1856   \def\HyInd@EncapChar{#1}%
1857 }

```

## 12 Language options

The \autoref feature depends on the language.

```

1858 \def\HyLang@english{%

```



```

1859 \def\equationautorefname{Equation}%
1860 \def\footnoteautorefname{footnote}%
1861 \def\itemautorefname{item}%
1862 \def\figureautorefname{Figure}%
1863 \def\tableautorefname{Table}%
1864 \def\partautorefname{Part}%
1865 \def\appendixautorefname{Appendix}%
1866 \def\chapterautorefname{chapter}%
1867 \def\sectionautorefname{section}%
1868 \def\subsectionautorefname{subsection}%
1869 \def\subsubsectionautorefname{subsubsection}%
1870 \def\paragraphautorefname{paragraph}%
1871 \def\subparagraphautorefname{subparagraph}%
1872 \def\FancyVerbLineautorefname{line}%
1873 \def\theoremautorefname{Theorem}%
1874 }
1875 \def\HyLang@german{%
1876 \def\equationautorefname{Gleichung}%
1877 \def\footnoteautorefname{Fu\ss note}%
1878 \def\itemautorefname{Punkt}%
1879 \def\figureautorefname{Abbildung}%
1880 \def\tableautorefname{Tabelle}%
1881 \def\partautorefname{Teil}%
1882 \def\appendixautorefname{Anhang}%
1883 \def\chapterautorefname{Kapitel}%
1884 \def\sectionautorefname{Abschnitt}%
1885 \def\subsectionautorefname{Unterabschnitt}%
1886 \def\subsubsectionautorefname{Unterunterabschnitt}%
1887 \def\paragraphautorefname{Absatz}%
1888 \def\subparagraphautorefname{Unterabsatz}%
1889 \def\FancyVerbLineautorefname{Zeile}%
1890 \def\theoremautorefname{Theorem}%
1891 }
1892 \def\HyLang@portuges{%
1893 \def\equationautorefname{Equa\c c\~ao}%
1894 \def\footnoteautorefname{Nota de rodap\~e}%
1895 \def\itemautorefname{Item}%
1896 \def\figureautorefname{Figura}%
1897 \def\tableautorefname{Tabela}%
1898 \def\partautorefname{Parte}%
1899 \def\appendixautorefname{Ap\~endice}%
1900 \def\chapterautorefname{Cap\~itulo}%
1901 \def\sectionautorefname{Se\c c\~ao}%
1902 \def\subsectionautorefname{Subse\c c\~ao}%
1903 \def\subsubsectionautorefname{Subsubse\c c\~ao}%
1904 \def\paragraphautorefname{par\~agrafo}%
1905 \def\subparagraphautorefname{subpar\~agrafo}%
1906 \def\FancyVerbLineautorefname{linha}%
1907 \def\theoremautorefname{Teorema}%
1908 }
1909 \def\HyLang@spanish{%
1910 \def\equationautorefname{Ecuaci\~on}%
1911 \def\footnoteautorefname{Nota a pie de p\~agina}%
1912 \def\itemautorefname{Elemento}%
1913 \def\figureautorefname{Figura}%
1914 \def\tableautorefname{Tabla}%
1915 \def\partautorefname{Parte}%

```

```

1916 \def\appendixautorefname{Ap\'endice}%
1917 \def\chapterautorefname{Cap\'itulo}%
1918 \def\sectionautorefname{Secci\'on}%
1919 \def\subsectionautorefname{Subsecci\'on}%
1920 \def\subsubsectionautorefname{Subsubsecci\'on}%
1921 \def\paragraphautorefname{P\'arrafo}%
1922 \def\subparagraphautorefname{Subp\'arrafo}%
1923 \def\FancyVerbLineautorefname{L\'inea}%
1924 \def\theoremautorefname{Teorema}%
1925 }
1926 \def\HyLang@afrikaans{%
1927 \def\equationautorefname{Vergelyking}%
1928 \def\footnoteautorefname{Voetnota}%
1929 \def\itemautorefname{Item}%
1930 \def\figureautorefname{Figuur}%
1931 \def\tableautorefname{Tabel}%
1932 \def\partautorefname{Deel}%
1933 \def\appendixautorefname{Bylae}%
1934 \def\chapterautorefname{Hoofstuk}%
1935 \def\sectionautorefname{Afdeling}%
1936 \def\subsectionautorefname{Subafdeling}%
1937 \def\subsubsectionautorefname{Subsubafdeling}%
1938 \def\paragraphautorefname{Paragraaf}%
1939 \def\subparagraphautorefname{Subparagraaf}%
1940 \def\FancyVerbLineautorefname{Lyn}%
1941 \def\theoremautorefname{Teorema}%
1942 }
1943 \def\HyLang@french{%
1944 \def\equationautorefname{\`Equation}%
1945 \def\footnoteautorefname{note}%
1946 \def\itemautorefname{item}%
1947 \def\figureautorefname{Figure}%
1948 \def\tableautorefname{Tableau}%
1949 \def\partautorefname{Partie}%
1950 \def\appendixautorefname{Appendice}%
1951 \def\chapterautorefname{chapitre}%
1952 \def\sectionautorefname{section}%
1953 \def\subsectionautorefname{sous-section}%
1954 \def\subsubsectionautorefname{sous-sous-section}%
1955 \def\paragraphautorefname{paragraphe}%
1956 \def\subparagraphautorefname{sous-paragraphe}%
1957 \def\FancyVerbLineautorefname{ligne}%
1958 \def\theoremautorefname{Th\'eor\'eme}%
1959 }
1960 \def\HyLang@vietnamese{%
1961 \def\equationautorefname{Ph\uhorn{}\ohorn{}ng tr\'inh}%
1962 \def\footnoteautorefname{Ch\'u th\'ich}%
1963 \def\itemautorefname{m\du{c}}%
1964 \def\figureautorefname{H\'inh}%
1965 \def\tableautorefname{B\h{a}ng}%
1966 \def\partautorefname{Ph\'acircumflex{}n}%
1967 \def\appendixautorefname{Ph\d{u} l\d{u}c}%
1968 \def\chapterautorefname{ch\uhorn{}\ohorn{}ng}%
1969 \def\sectionautorefname{m\du{c}}%
1970 \def\subsectionautorefname{m\du{c}}%
1971 \def\subsubsectionautorefname{m\du{c}}%
1972 \def\paragraphautorefname{\dj{}o\d{a}n}%

```

```

1973 \def\subparagraphautorefname{\dj}{o}{d}{a}{n}%
1974 \def\FancyVerbLineautorefname{d\'ong}%
1975 \def\theoremautorefname{DJ}{d}{i}{nh} 1\'y}%
1976 }

```

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

```

1977 \def\HyLang@addto#1#2{%
1978   #2%
1979   \@temptokena{#2}%
1980   \ifx#1\relax
1981     \let#1\@empty
1982   \fi
1983   \ifx#1\undefined
1984     \edef#1{\the\@temptokena}%
1985   \else
1986     \toks@\expandafter{#1}%
1987     \edef#1{\the\toks@\the\@temptokena}%
1988   \fi
1989   \@temptokena{}\toks@\@temptokena
1990 }

1991 \def\HyLang@DeclareLang#1#2{%
1992   \begingroup
1993     \edef\x##1##2{%
1994       \noexpand\ifx##2\relax
1995         \errmessage{No definitions for language #2' found!}%
1996       \noexpand\fi
1997     \endgroup
1998     \noexpand\define@key{Hyp}{#1}[]{%
1999       \noexpand\HyLang@addto{\noexpand##1}{\noexpand##2}%
2000     }%
2001   }%
2002   \expandafter\x\csname extras#1\expandafter\endcsname
2003     \csname HyLang@#2\endcsname
2004 }

2005 \HyLang@DeclareLang{english}{english}
2006 \HyLang@DeclareLang{UKenglish}{english}
2007 \HyLang@DeclareLang{british}{english}
2008 \HyLang@DeclareLang{USenglish}{english}
2009 \HyLang@DeclareLang{american}{english}
2010 \HyLang@DeclareLang{german}{german}
2011 \HyLang@DeclareLang{austrian}{german}
2012 \HyLang@DeclareLang{ngerman}{german}
2013 \HyLang@DeclareLang{naustrian}{german}
2014 \HyLang@DeclareLang{brazil}{portuges}
2015 \HyLang@DeclareLang{brazilian}{portuges}
2016 \HyLang@DeclareLang{portuguese}{portuges}
2017 \HyLang@DeclareLang{spanish}{spanish}
2018 \HyLang@DeclareLang{afrikaans}{afrikaans}
2019 \HyLang@DeclareLang{french}{french}
2020 \HyLang@DeclareLang{frenchb}{french}
2021 \HyLang@DeclareLang{francais}{french}
2022 \HyLang@DeclareLang{acadian}{french}
2023 \HyLang@DeclareLang{canadien}{french}

```

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

```

2024 \define@key{Hyp}{vietnamese}[]{}%
2025 \HyLang@addto\extrasvietnamese\HyLang@vietnamese

```

```

2026 \AtEndOfPackage{%
2027   \ifundefined{T@PU}{-}{%
2028     \input{puvnenc.def}%
2029   }%
2030 }%
2031 }
2032 \define@key{Hyp}{vietnam}[]{%
2033   \HyLang@addto\extrasvietnam\HyLang@vietnamese
2034 \AtEndOfPackage{%
2035   \ifundefined{T@PU}{-}{%
2036     \input{puvnenc.def}%
2037   }%
2038 }%
2039 }

```

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

```

2040 \define@key{Hyp}{arabic}[]{%
2041   \AtEndOfPackage{%
2042     \ifundefined{T@PU}{-}{%
2043       \input{puarenc.def}%
2044     }%
2045   }%
2046 }

```

## 13 Options to change appearance of links

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

```

2047 \define@key{Hyp}{colorlinks}[true]{%
2048   \Hy@boolkey{colorlinks}{#1}%
2049   \ifHy@colorlinks
2050     \def\pdfborder{0 0 0}%
2051     \let\pdfborderstyle\@empty
2052   \fi
2053 }
2054 \define@key{Hyp}{frenchlinks}[true]{%
2055   \Hy@boolkey{frenchlinks}{#1}%
2056 }

```

## 14 Bookmarking

```

2057 \define@key{Hyp}{bookmarks}[true]{%
2058   \Hy@boolkey{bookmarks}{#1}%
2059 }
2060 \define@key{Hyp}{bookmarksopen}[true]{%
2061   \Hy@boolkey{bookmarksopen}{#1}%
2062 }

```

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.

```

2063 \let\Hy@bookmarksdepth\c@tocdepth
2064 \define@key{Hyp}{bookmarksdepth}[]{%
2065   \begingroup
2066     \edef\x{#1}%
2067     \ifx\x\empty
2068       \global\let\Hy@bookmarksdepth\c@tocdepth
2069     \else
2070       \@ifundefined{toclevel@x}{%
2071         \@onelevel@sanitize\x
2072         \edef\y{\expandafter\@car\x\@nil}%
2073         \ifcase 0\expandafter\ifx\y-1\fi
2074           \expandafter\ifnum\expandafter'\y>47 %
2075             \expandafter\ifnum\expandafter'\y<58 1\fi\fi\relax
2076           \Hy@Warning{Unknown document division name (\x)}%
2077         \else
2078           \setbox\z@=\hbox{%
2079             \count@=\x
2080             \xdef\Hy@bookmarksdepth{\the\count@}%
2081           }%
2082         \fi
2083       }{%
2084         \setbox\z@=\hbox{%
2085           \count@=\csname toclevel@x\endcsname
2086           \xdef\Hy@bookmarksdepth{\the\count@}%
2087         }%
2088       }%
2089     \fi
2090   \endgroup
2091 }

```

`'bookmarksopenlevel'` to specify the open level. From Heiko Oberdieck.

```

2092 \define@key{Hyp}{bookmarksopenlevel}{%
2093   \def\@bookmarksopenlevel{#1}%
2094 }
2095 \def\@bookmarksopenlevel{\maxdimen}
2096 % 'bookmarkstype' to specify which 'toc' file to mimic
2097 \define@key{Hyp}{bookmarkstype}{%
2098   \def\Hy@bookmarkstype{#1}%
2099 }
2100 \def\Hy@bookmarkstype{toc}

```

Richard Curnow [richard@curnow.demon.co.uk](mailto:richard@curnow.demon.co.uk) suggested this functionality. It adds section numbers etc to bookmarks.

```

2101 \define@key{Hyp}{bookmarksnumbered}[true]{%
2102   \Hy@boolkey{bookmarksnumbered}{#1}%
2103 }

```

Option `CJKbookmarks` enables the patch for CJK bookmarks.

```

2104 \define@key{Hyp}{CJKbookmarks}[true]{%
2105   \Hy@boolkey{CJKbookmarks}{#1}%
2106 }
2107 \define@key{Hyp}{linkcolor}{\def\@linkcolor{#1}}
2108 \define@key{Hyp}{anchorcolor}{\def\@anchorcolor{#1}}
2109 \define@key{Hyp}{citecolor}{\def\@citecolor{#1}}

```

```

2110 \define@key{Hyp}{urlcolor}{\def\@urlcolor{#1}}
2111 \define@key{Hyp}{menucolor}{\def\@menucolor{#1}}
2112 \define@key{Hyp}{filecolor}{\def\@filecolor{#1}}
2113 \define@key{Hyp}{pagecolor}{\def\@pagecolor{#1}}

```

Default values:

```

2114 \def\@linkcolor{red}
2115 \def\@anchorcolor{black}
2116 \def\@citecolor{green}
2117 \def\@filecolor{cyan}
2118 \def\@urlcolor{magenta}
2119 \def\@menucolor{red}
2120 \def\@pagecolor{red}
2121 \def\hyperbaseurl#1{\def\@baseurl{#1}}
2122 \define@key{Hyp}{baseurl}{\hyperbaseurl{#1}}
2123 \let\@baseurl\empty
2124 \def\hyperlinkfileprefix#1{\def\Hy@linkfileprefix{#1}}
2125 \define@key{Hyp}{linkfileprefix}{\hyperlinkfileprefix{#1}}
2126 \hyperlinkfileprefix{file:}

```

## 15 PDF-specific options

`\pdfpagetransition` The value of option `pdfpagetransition` is stored in `\pdfpagetransition`. Its initial value is set to `\relax` in order to be able to differentiate between a not used option and an option with an empty value.

```

2127 \let\pdfpagetransition\relax
2128 \define@key{Hyp}{pdfpagetransition}{\def\pdfpagetransition{#1}}

```

`\pdfpageduration` The value of option `pdfpageduration` is stored in `\pdfpageduration`. Its initial value is set to `\relax` in order to be able to differentiate between a not used option and an option with an empty value.

```

2129 \let\pdfpageduration\relax
2130 \define@key{Hyp}{pdfpageduration}{\def\pdfpageduration{#1}}

```

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

```

2131 \newif\ifHy@useHidKey
2132 \Hy@useHidKeyfalse
2133 \define@key{Hyp}{pdfpagehidden}[true]{%
2134   \Hy@boolkey{pdfpagehidden}{#1}%
2135   \ifHy@pdfpagehidden
2136     \global\Hy@useHidKeytrue
2137   \fi
2138 }

```

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).

```

2139 \def\Hy@ColorList{cite,file,link,menu,page,run,url}
2140 \@for\Hy@temp:=\Hy@ColorList\do{%

```

```

2141 \edef\Hy@temp{%
2142   \noexpand\define@key{Hyp}{\Hy@temp bordercolor}{%
2143     \noexpand\Hy@bordercolor{\Hy@temp}{##1}{ }%
2144   }%
2145 }%
2146 \Hy@temp
2147 }
2148 \def\Hy@bordercolor#1#2#3{%
2149   \begingroup
2150     \Hy@safe@activestru
2151     \@ifundefined{XC@edef}{\edef}{\XC@edef}\x{#2}%
2152     \expandafter\Hy@CheckColorSpec\x#3#3\@nil{#1}{#2}%
2153 }
2154 \def\Hy@CheckColorSpec#1 #2 #3\@nil#4#5{%
2155   \ifx\#3\%
2156     \@ifundefined{XC@bordercolor}{%
2157       \Hy@Warning{%
2158         Unsupported color specification (#4bordercolor).\MessageBreak
2159         Load package 'xcolor' (version >= 2.11) first.\MessageBreak
2160         Ignoring color specification%
2161       }%
2162     \endgroup
2163   }{%
2164     \endgroup
2165     \XC@bordercolor{#4}{#5}%
2166   }%
2167 \else
2168   \endgroup
2169   \@namedef{@#4bordercolor}{#5}%
2170 \fi
2171 }

2172 \define@key{Hyp}{pdfhighlight}{\def\@pdfhighlight{#1}}
2173 \Hy@DefNameKey{pdfhighlight}{%
2174   \do{/I}{Invert}%
2175   \do{/N}{None}%
2176   \do{/O}{Outline}%
2177   \do{/P}{Push}%
2178 }
2179 \define@key{Hyp}{pdfborder}{\def\@pdfborder{#1}}
2180 \define@key{Hyp}{pdfborderstyle}{\def\@pdfborderstyle{#1}}
2181 \def\Hy@setpdfborder{%
2182   \ifx\@pdfborder\@empty
2183   \else
2184     /Border[\@pdfborder]%
2185   \fi
2186   \ifx\@pdfborderstyle\@empty
2187   \else
2188     /BS<<\@pdfborderstyle>>%
2189   \fi
2190 }
2191 \Hy@DefNameKey{pdfpagemode}{%
2192   \do{UseNone}{}%
2193   \do{UseOutlines}{}%
2194   \do{UseThumbs}{}%
2195   \do{FullScreen}{}%
2196   \do{UseOC}{PDF 1.5}%
2197   \do{UseAttachments}{PDF 1.6}%

```

```

2198 }
2199 \Hy@DefNameKey{pdfnonfullscreenpagemode}{%
2200   \do{UseNone}{}%
2201   \do{UseOutlines}{}%
2202   \do{UseThumbs}{}%
2203   \do{FullScreen}{}%
2204   \do{UseOC}{PDF 1.5}%
2205   \do{UseAttachments}{PDF 1.6}%
2206 }
2207 \Hy@DefNameKey{pdfdirection}{%
2208   \do{L2R}{Left to right}%
2209   \do{R2L}{Right to left}%
2210 }
2211 \Hy@DefNameKey{pdfviewarea}{%
2212   \do{MediaBox}{}%
2213   \do{CropBox}{}%
2214   \do{BleedBox}{}%
2215   \do{TrimBox}{}%
2216   \do{ArtBox}{}%
2217 }
2218 \Hy@DefNameKey{pdfviewclip}{%
2219   \do{MediaBox}{}%
2220   \do{CropBox}{}%
2221   \do{BleedBox}{}%
2222   \do{TrimBox}{}%
2223   \do{ArtBox}{}%
2224 }
2225 \Hy@DefNameKey{pdfprintarea}{%
2226   \do{MediaBox}{}%
2227   \do{CropBox}{}%
2228   \do{BleedBox}{}%
2229   \do{TrimBox}{}%
2230   \do{ArtBox}{}%
2231 }
2232 \Hy@DefNameKey{pdfprintclip}{%
2233   \do{MediaBox}{}%
2234   \do{CropBox}{}%
2235   \do{BleedBox}{}%
2236   \do{TrimBox}{}%
2237   \do{ArtBox}{}%
2238 }
2239 \Hy@DefNameKey{pdfprintscaling}{%
2240   \do{AppDefault}{}%
2241   \do{None}{}%
2242 }
2243 \Hy@DefNameKey{pdfduplex}{%
2244   \do{Simplex}{}%
2245   \do{DuplexFlipShortEdge}{}%
2246   \do{DuplexFlipLongEdge}{}%
2247 }
2248 \Hy@DefNameKey{pdfpicktraybypdfsize}{%
2249   \do{true}{}%
2250   \do{false}{}%
2251 }
2252 \define@key{Hyp}{pdfprintpagerange}{%
2253   \def\@pdfprintpagerange{#1}%
2254 }

```



```

2255 \Hy@DefNameKey{pdfnumcopies}{%
2256   \do{2}{two copies}%
2257   \do{3}{three copies}%
2258   \do{4}{four copies}%
2259   \do{5}{five copies}%
2260 }
2261 \define@key{Hyp}{pdfusetitle}[true]{%
2262   \Hy@boolkey[pdfusetitle]{usetitle}{#1}%
2263 }
2264 \define@key{Hyp}{pdftitle}{\pdfstringdef\@pdftitle{#1}}
2265 \define@key{Hyp}{pdfauthor}{\pdfstringdef\@pdfauthor{#1}}
2266 \define@key{Hyp}{pdfproducer}{\pdfstringdef\@pdfproducer{#1}}
2267 \define@key{Hyp}{pdfcreator}{\pdfstringdef\@pdfcreator{#1}}
2268 \define@key{Hyp}{pdfcreationdate}{\pdfstringdef\@pdfcreationdate{#1}}
2269 \define@key{Hyp}{pdfmoddate}{\pdfstringdef\@pdfmoddate{#1}}
2270 \define@key{Hyp}{pdfsubject}{\pdfstringdef\@pdfsubject{#1}}
2271 \define@key{Hyp}{pdfkeywords}{\pdfstringdef\@pdfkeywords{#1}}
2272 \define@key{Hyp}{pdfview}{\calculate@pdfview#1 \}
2273 \define@key{Hyp}{pdflinkmargin}{\setpdflinkmargin{#1}}
2274 \let\setpdflinkmargin\@gobble
2275 \def\calculate@pdfview#1 #2\{%
2276   \def\@pdfview{#1}%
2277   \ifx\@#2\%
2278     \def\@pdfviewparams{ -32768}%
2279   \else
2280     \def\@pdfviewparams{ #2}%
2281   \fi
2282 }
2283 \define@key{Hyp}{pdfstartpage}{\def\@pdfstartpage{#1}}
2284 \define@key{Hyp}{pdfstartview}{%
2285   \ifx\@#1\%
2286     \def\@pdfstartview{}%
2287   \else
2288     \hypercalcbpdef\@pdfstartview{ /#1 }%
2289   \fi
2290 }
2291 \define@key{Hyp}{pdfpagescrop}{\edef\@pdfpagescrop{#1}}
2292 \define@key{Hyp}{pdftoolbar}[true]{%
2293   \Hy@boolkey[pdftoolbar]{toolbar}{#1}%
2294 }
2295 \define@key{Hyp}{pdfmenubar}[true]{%
2296   \Hy@boolkey[pdfmenubar]{menubar}{#1}%
2297 }
2298 \define@key{Hyp}{pdfwindowui}[true]{%
2299   \Hy@boolkey[pdfwindowui]{windowui}{#1}%
2300 }
2301 \define@key{Hyp}{pdffitwindow}[true]{%
2302   \Hy@boolkey[pdffitwindow]{fitwindow}{#1}%
2303 }
2304 \define@key{Hyp}{pdfcenterwindow}[true]{%
2305   \Hy@boolkey[pdfcenterwindow]{centerwindow}{#1}%
2306 }
2307 \define@key{Hyp}{pdfdisplaydoctitle}[true]{%
2308   \Hy@boolkey[pdfdisplaydoctitle]{displaydoctitle}{#1}%
2309 }
2310 \define@key{Hyp}{pdfnewwindow}[true]{%
2311   \Hy@boolkey[pdfnewwindow]{newwindow}{#1}%

```

```

2312 }
2313 \Hy@DefNameKey{pdfpagelayout}{%
2314   \do{SinglePage}{}%
2315   \do{OneColumn}{}%
2316   \do{TwoColumnLeft}{}%
2317   \do{TwoColumnRight}{}%
2318   \do{TwoPageLeft}{PDF 1.5}%
2319   \do{TwoPageRight}{PDF 1.5}%
2320 }
2321 \define@key{Hyp}{pdflang}{%
2322   \def\@pdflang{#1}%
2323 }
2324 \define@key{Hyp}{pdfpagelabels}[true]{%
2325   \Hy@boolkey[pdfpagelabels]{pagelabels}{#1}%
2326 }
2327 \define@key{Hyp}{pdfescapeform}[true]{%
2328   \Hy@boolkey[pdfescapeform]{escapeform}{#1}%
2329 }

```

Default values:

```

2330 \def\@linkbordercolor{1 0 0}
2331 \def\@urlbordercolor{0 1 1}
2332 \def\@menubordercolor{1 0 0}
2333 \def\@filebordercolor{0 .5 .5}
2334 \def\@runbordercolor{0 .7 .7}
2335 \def\@citebordercolor{0 1 0}
2336 \def\@pagebordercolor{1 1 0}
2337 \def\@pdfhighlight{/I}
2338 \def\@pdftitle{}
2339 \def\@pdfauthor{}
2340 \let\@pdfproducer\relax
2341 \def\@pdfcreator{LaTeX with hyperref package}
2342 \def\@pdfcreationdate{}
2343 \def\@pdfmoddate{}
2344 \def\@pdfsubject{}
2345 \def\@pdfkeywords{}
2346 \def\@pdfpagescrop{}
2347 \def\@pdfstartview{/Fit }
2348 \def\@pdfstartpage{1}
2349 \def\@pdfprintpagerange{}
2350 \def\@pdflang{}
2351 \let\PDF@SetupDoc\@empty
2352 \let\PDF@FinishDoc\@empty
2353 \let\phantomsection\@empty
2354 \@ifundefined{stockwidth}{%
2355   \edef\special@paper{\the\paperwidth,\the\paperheight}
2356 }{%
2357   \edef\special@paper{\the\stockwidth,\the\stockheight}
2358 }
2359 \begingroup
2360   \dimen@=\@ifundefined{stockheight}{\paperheight}{\stockheight}\relax
2361   \dimen@=0.99626401\dimen@
2362   \xdef\Hy@pageheight{\strip@pt\dimen@}
2363 \endgroup
2364 \def\HyInd@EncapChar{||}
2365 \def\hypersetup{\setkeys{Hyp}}

```

Allow the user to use `\ExecuteOptions` in the `cfg` file even though this package does not use the normal option mechanism. Use `\hyper@normalise` as a scratch macro, since it is going to be defined in a couple of lines anyway.

```

2366 \let\hyper@normalise\ExecuteOptions
2367 \let\ExecuteOptions\hypersetup
2368 \Hy@RestoreCatcodes
2369 \InputIfFileExists{hyperref.cfg}{-}{-}
2370 \Hy@SetCatcodes
2371 \let\ExecuteOptions\hyper@normalise
2372 \Hy@MaybeStopNow

```

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

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

```

2373 \RequirePackage{kvoptions}[2006/08/17]

```

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

```

2374 \@ifpackageloaded{tex4ht}{%
2375   \@ifpackagewith{hyperref}{tex4ht}{-}{-}%
2376   \PassOptionsToPackage{tex4ht}{hyperref}%
2377 }%
2378 }{}

2379 \let\ReadBookmarks\relax
2380 \ProcessKeyvalOptions{Hyp}

```

After processing options.

```

2381 \AtBeginDocument{%
2382   \ifHy@draft
2383     \let\hyper@@anchor@gobble
2384     \gdef\hyper@link#1#2#3{#3}%
2385     \let\hyper@anchorstart@gobble
2386     \let\hyper@anchorend@empty
2387     \let\hyper@linkstart@gobbletwo
2388     \let\hyper@linkend@empty
2389     \def\hyper@linkurl#1#2{#1}%
2390     \def\hyper@linkfile#1#2#3{#1}%
2391     \def\Acrobatmenu#1#2{#2}%
2392     \let\PDF@SetupDoc@empty
2393     \let\PDF@FinishDoc@empty
2394     \let\@fifthoffive\@secondoftwo
2395     \let\@secondoffive\@secondoftwo
2396     \let\ReadBookmarks\relax
2397     \let\WriteBookmarks\relax
2398     \Hy@WarningNoLine{ draft mode on}%
2399   \fi
2400   \Hy@DisableOption{draft}%
2401   \Hy@DisableOption{nolinks}%
2402   \Hy@DisableOption{final}%
2403 }%

```

If option `unicode` is already processed, then the command `\HyPsd@InitUnicode` is cleared after execution. Then the option code only sets the meaning of the switch `\ifHy@unicode`.

```

2404 \ifx\HyPsd@InitUnicode\relax
2405   \define@key{Hyp}{unicode}[true]{%
2406     \Hy@boolkey{unicode}{#1}%

```

```

2407 }
2408 \else
2409   \define@key{Hyp}{unicode}[true]{%
2410     \Hy@boolkey{unicode}{#1}%
2411     \ifHy@unicode
2412       \Hy@WarningNoLine{Set package option 'unicode' first\MessageBreak
2413         in order to load unicode support%
2414       }%
2415     \Hy@unicodedefalse
2416   \fi
2417 }
2418 \fi

```

The macro `\HyPsd@InitUnicode` is no longer needed.

```

2419 \let\HyPsd@InitUnicode\@undefined

```

## 15.1 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.

```

2420 \Hy@nextfalse
2421 \@ifpackagewith{babel}{spanish}{\Hy@nexttrue}{}
2422 \@ifpackagewith{babel}{galician}{\Hy@nexttrue}{}
2423 \@ifpackagewith{babel}{estonian}{\Hy@nexttrue}{}
2424 \ifHy@next
2425   \let\texttilde~%
2426 \fi

2427 \ifHy@figures
2428   \Hy@Info{Hyper figures ON}
2429 \else
2430   \Hy@Info{Hyper figures OFF}
2431 \fi

2432 \ifHy@nesting
2433   \Hy@Info{Link nesting ON}
2434 \else
2435   \Hy@Info{Link nesting OFF}
2436 \fi

2437 \ifHy@hyperindex
2438   \Hy@Info{Hyper index ON}
2439 \else
2440   \Hy@Info{Hyper index OFF}
2441 \fi

2442 \ifHy@plainpages
2443   \Hy@Info{Plain pages ON}
2444 \else
2445   \Hy@Info{Plain pages OFF}
2446 \fi

2447 \ifHy@backref
2448   \Hy@Info{Backreferencing ON}
2449 \else
2450   \Hy@Info{Backreferencing OFF}
2451 \fi

2452 \ifHy@typexml
2453   \AtEndOfPackage{\RequirePackage{color}\RequirePackage{nameref}}
2454 \fi

2455 \Hy@DisableOption{typexml}
2456 \ifHy@implicit

```

```

2457 \typeout{Implicit mode ON; LaTeX internals redefined}%
2458 \else
2459 \typeout{Implicit mode OFF; no redefinition of LaTeX internals}%
2460 \def\MaybeStopEarly{%
2461   \typeout{Hyperref stopped early}%
2462   \AfterBeginDocument{\PDF@FinishDoc}%
2463   \endinput
2464 }%
2465 \AtBeginDocument{%
2466   \let\autoref\ref
2467   \ifx\@pdfpagemode\@empty
2468     \gdef\@pdfpagemode{UseNone}%
2469   \fi
2470   \global\Hy@backreffalse
2471 }%
2472 \AtEndOfPackage{%
2473   \global\let\ReadBookmarks\relax
2474   \global\let\WriteBookmarks\relax
2475 }%
2476 \fi
2477 \Hy@DisableOption{implicit}

```

### 15.1.1 Driver loading

```

2478 \AtEndOfPackage{%
2479   \@ifpackageloaded{tex4ht}{%
2480     \def\Hy@driver{htex4ht}%
2481     \Hy@texhttrue
2482   }{}%
2483   \ifx\Hy@driver\@empty
2484     \providecommand*\Hy@defaultdriver{hypertex}%
2485     \begingroup\expandafter\expandafter\expandafter\endgroup
2486     \expandafter\ifx\csname pdfoutput\endcsname\relax
2487       \begingroup\expandafter\expandafter\expandafter\endgroup
2488       \expandafter\ifx\csname OpMode\endcsname\relax
2489         \begingroup\expandafter\expandafter\expandafter\endgroup
2490         \expandafter\ifx\csname XeTeXversion\endcsname\relax
2491           \let\Hy@driver\Hy@defaultdriver
2492         \else
2493           \def\Hy@driver{hdvipdfm}%
2494         \fi
2495       \else
2496         \ifnum 0\ifnum\OpMode<1 1\fi \ifnum\OpMode>3 1\fi =0 %
2497           \def\Hy@driver{hvtex}%
2498           \def\XR@ext{pdf}%
2499         \else
2500           \ifnum\OpMode=10\relax
2501             \def\XR@ext{htm}%
2502             \def\Hy@driver{hvtexhtm}%
2503             \def\MaybeStopEarly{%
2504               \typeout{Hyperref stopped early}%
2505               \AfterBeginDocument{\PDF@FinishDoc}%
2506             \endinput
2507             }%
2508           \else
2509             \let\Hy@driver\Hy@defaultdriver
2510           \fi

```

```

2511         \fi
2512     \fi
2513 \else
2514     \ifnum\pdfoutput<1 %
2515         \let\Hy@driver\Hy@defaultdriver
2516     \else
2517         \def\Hy@driver{hpdftex}%
2518         \def\XR@ext{pdf}%
2519         \PassOptionsToPackage{pdftex}{color}%
2520         \Hy@breaklinkstrue
2521     \fi
2522 \fi
2523 \ifx\Hy@driver\Hy@defaultdriver
2524     \def\Hy@temp{hdvips}%
2525     \ifx\Hy@temp\Hy@driver
2526         \def\Hy@raisedlink{}%
2527         \def\XR@ext{pdf}%
2528     \fi
2529     \def\Hy@temp{hdvipdfm}%
2530     \ifx\Hy@temp\Hy@driver
2531         \def\XR@ext{pdf}%
2532         \Hy@breaklinkstrue
2533     \fi
2534     \def\Hy@temp{hdviwind}%
2535     \ifx\Hy@temp\Hy@driver
2536         \setkeys{Hyp}{colorlinks}%
2537         \PassOptionsToPackage{dviwindo}{color}%
2538     \fi
2539     \def\Hy@temp{hdvipson}%
2540     \ifx\Hy@temp\Hy@driver
2541         \def\XR@ext{pdf}%
2542         \def\Hy@raisedlink{}%
2543     \fi
2544     \def\Hy@temp{textures}%
2545     \ifx\Hy@temp\Hy@driver
2546         \def\XR@ext{pdf}%
2547     \fi
2548 \fi
2549 \typeout{*hyperref using default driver \Hy@driver*}%
2550 \else
2551     \typeout{*hyperref using driver \Hy@driver*}%
2552 \fi
2553 \input{\Hy@driver.def}%
2554 \let\@unprocessedoptions\relax
2555 \Hy@RestoreCatcodes
2556 }
2557 \Hy@DisableOption{tex4ht}
2558 \Hy@DisableOption{pdftex}
2559 \Hy@DisableOption{dvipdf}
2560 \Hy@DisableOption{nativepdf}
2561 \Hy@DisableOption{dvipdfm}
2562 \Hy@DisableOption{pdfmark}
2563 \Hy@DisableOption{dvips}
2564 \Hy@DisableOption{hypertex}
2565 \Hy@DisableOption{vtex}
2566 \Hy@DisableOption{vtexpdfmark}
2567 \Hy@DisableOption{dviwindo}

```

```

2568 \Hy@DisableOption{dvipsone}
2569 \Hy@DisableOption{textures}
2570 \Hy@DisableOption{latex2html}
2571 \Hy@DisableOption{ps2pdf}
2572 \Hy@DisableOption{xetex}

```

### 15.1.2 Bookmarks

```

2573 \def\WriteBookmarks{0}
2574 \def\@bookmarkopenstatus#1{%
2575   \ifHy@bookmarksopen

```

The purpose of the \@firstofone-number-space-construct is that no \relax will be inserted by T<sub>E</sub>X before the \else:

```

2576   \ifnum#1<\expandafter\@firstofone\expandafter
2577       {\number\@bookmarkopenlevel} % explicit space
2578   \else
2579   -%
2580   \fi
2581 \else
2582 -%
2583 \fi
2584 }
2585 \ifHy@bookmarks
2586   \Hy@Info{Bookmarks ON}%
2587   \ifx\@pdfpagemode\@empty
2588     \def\@pdfpagemode{UseOutlines}%
2589   \fi
2590 \else
2591   \def\@bookmarkopenstatus#1{%
2592     \Hy@Info{Bookmarks OFF}%
2593     \AtEndOfPackage{%
2594       \global\let\ReadBookmarks\relax
2595       \global\let\WriteBookmarks\relax
2596     }
2597     \ifx\@pdfpagemode\@empty
2598       \def\@pdfpagemode{UseNone}%
2599     \fi
2600 \fi
2601 \Hy@DisableOption{bookmarks}

```

\Hy@colorlink expects a macro as argument. It contains the color specification.

```

2602 \AtBeginDocument{%
2603   \ifHy@colorlinks
2604     \ifHy@typexml\else\RequirePackage{color}\fi
2605     \def\Hy@colorlink#1{%
2606       \begingroup
2607         \expandafter\Hy@colorscan\expandafter#1#1\@nil%
2608       }%
2609       \def\Hy@colorscan#1{%
2610         \@ifnextchar[% ]
2611         {%
2612           \Hy@@colorscan
2613         }{%
2614           \expandafter\color\expandafter#1\@car{}%
2615         }%
2616       }%
2617       \def\Hy@@colorscan#1\@nil{\color#1}%
2618       \def\Hy@endcolorlink{\endgroup}%

```

```

2619 \Hy@Info{Link coloring ON}%
2620 \else
2621 \ifHy@frenchlinks
2622 \def\Hy@colorlink#1{\begingroup\fontshape{sc}\selectfont}%
2623 \def\Hy@endcolorlink{\endgroup}%
2624 \Hy@Info{French linking ON}%
2625 \else
for grouping consistency:
2626 \def\Hy@colorlink#1{\begingroup}%
2627 \def\Hy@endcolorlink{\endgroup}%
2628 \Hy@Info{Link coloring OFF}%
2629 \fi
2630 \fi
2631 \Hy@DisableOption{colorlinks}%
2632 \Hy@DisableOption{frenchlinks}%
2633 \ifHy@texht
2634 \long\def\@firstoffive#1#2#3#4#5{#1}%
2635 \long\def\@secondoffive#1#2#3#4#5{#2}%
2636 \long\def\@thirdoffive#1#2#3#4#5{#3}%
2637 \long\def\@fourthoffive#1#2#3#4#5{#4}%
2638 \long\def\@fifthoffive#1#2#3#4#5{#5}%
2639 \providecommand*\@safe@activetrue{}%
2640 \providecommand*\@safe@activesfalse{}%
2641 \def\T@ref#1{%
2642 \Hy@safe@activetrue
2643 \expandafter\@setref\csname r@#1\endcsname\@firstoffive{#1}%
2644 \Hy@safe@activesfalse
2645 }%
2646 \def\T@pageref#1{%
2647 \Hy@safe@activetrue
2648 \expandafter\@setref\csname r@#1\endcsname\@secondoffive{#1}%
2649 \Hy@safe@activesfalse
2650 }%
2651 \else
2652 \ifHy@typexml\else\RequirePackage{nameref}\fi
2653 \fi
2654 \DeclareRobustCommand\ref{\@ifstar\@refstar\T@ref}%
2655 \DeclareRobustCommand\pageref{%
2656 \@ifstar\@pagerefstar\T@pageref
2657 }%
2658 }
2659 \AfterBeginDocument{%
2660 \ifHy@texht
2661 \else
2662 \ReadBookmarks
2663 \fi
2664 }

2665 \ifHy@backref
2666 \RequirePackage{backref}
2667 \else
2668 \let\Hy@backout\@gobble
2669 \fi
2670 \Hy@DisableOption{backref}
2671 \Hy@DisableOption{pagebackref}
2672 \Hy@activeanchorfalse

```



## 16 User hypertext macros

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

```
2673 \begingroup
2674   \endlinechar=-1
2675   \catcode'\^M\active
2676   \catcode'\%\active
2677   \catcode'\#\active
2678   \catcode'\_\active
2679   \catcode'\$\active
2680   \gdef\hyper@normalise{
2681     \begingroup
2682     \catcode'\^M\active
2683     \def^^M{ }
2684     \catcode'\%\active
2685     \let%\@percentchar
2686     \let\%\@percentchar
2687     \catcode'\#\active
2688     \def#{\hyper@hash}
2689     \def\#{\hyper@hash}
2690     \@makeother\&
2691     \edef\textunderscore{\string_}
2692     \let\_ \textunderscore
2693     \catcode'\_\active
2694     \let\_ \textunderscore
2695     \let~\hyper@tilde
2696     \let~\hyper@tilde
2697     \let\textasciitilde\hyper@tilde
2698     \let\\\@backslashchar
2699     \edef$\string$}
2700     \Hy@safe@activetrue
2701     \hyper@n@rmalise
2702   }
2703   \catcode'\#=6
2704   \gdef\hyper@n@rmalise#1#2{
2705     \edef\Hy@tempa{
2706       \endgroup
2707       \noexpand#1{\Hy@RemovePercentCr#2%\^M\@nil}
2708     }
2709     \Hy@tempa
2710   }
2711   \gdef\Hy@RemovePercentCr#1%\^M#2\@nil{
2712     #1
2713     \ifx\limits#2\limits
2714     \else
2715       \Hy@ReturnAfterFi{
2716         \Hy@RemovePercentCr #2\@nil
2717       }
2718     \fi
2719   }
2720 \endgroup
2721 \providecommand*\hyper@chars{%
```

```

2722 \let\#\hyper@hash
2723 \let%\@percentchar
2724 }

2725 \def\hyperlink#1#2{%
2726   \hyper@@link{#1}{#2}%
2727 }

2728 \DeclareRobustCommand*\href{\hyper@normalise\href@}
2729 \begingroup
2730   \catcode'\$=6
2731   \catcode'\#=12
2732   \gdef\href$1{\expandafter\href@split$1##\}
2733   \gdef\href@split$1#$2#$3\{\%
2734     \hyper@@link{$1}{$2}%
2735   }
2736 \endgroup

```

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

```

2737 \RequirePackage{url}
2738 \let\HyOrg@url\url
2739 \def\Hurl{\begingroup \Url}
2740 \let\nolinkurl\Hurl
2741 \DeclareRobustCommand*\url{\hyper@normalise\url@}
2742 \def\url@#1{\hyper@linkurl{\Hurl{#1}}{#1}}

2743 \DeclareRobustCommand*\hyperimage{\hyper@normalise\hyper@image}
2744 \providecommand\hyper@image[2]{#2}

2745 \def\hypertarget#1#2{%
2746   \ifHy@nesting
2747     \hyper@@anchor{#1}{#2}%
2748   \else
2749     \hyper@@anchor{#1}{\relax}#2%
2750   \fi
2751 }

```

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

```

2752 \DeclareRobustCommand*\hyperref{\%
2753   \@ifnextchar[{\Hy@babelnormalise\label@hyperref}\@hyperref
2754 }

2755 \def\Hy@babelnormalise#1[#2]{%
2756   \begingroup
2757     \Hy@safe@activetrue
2758     \edef\Hy@tempa{%
2759       \endgroup
2760       \noexpand#1[#2]}%
2761  }%
2762 \Hy@tempa
2763 }

2764 \def\@hyperref{\hyper@normalise\@hyperref}
2765 \def\@hyperref#1#2#3{%
2766   \edef\ref@one{\ifx\#2\\\else#2.\fi#3}%
2767   \expandafter\tryhyper@link\ref@one\{#1}%
2768 }

```

```

2769 \def\tryhyper@link#1\#2{%
2770   \hyper@@link{#2}{#1}%
2771 }

2772 \def\hyperdef{\@ifnextchar[{\label@hyperdef}{\@hyperdef}}
2773 \def\@hyperdef#1#2#3{%, category, name, text
2774   \ifHy@nesting
2775     \hyper@@anchor{#1.#2}{#3}%
2776   \else
2777     \hyper@@anchor{#1.#2}{\relax}#3%
2778   \fi
2779 }

```

We also have a need to give a L<sup>A</sup>T<sub>E</sub>X *label* to a hyper reference, to ease the pain of referring to it later.

```

2780 \def\label@hyperref[#1]{%
2781   \expandafter\label@\hyperref\csname r@#1\endcsname{#1}%
2782 }%
2783 \def\label@\hyperref#1#2#3{%
2784   \ifx#1\relax
2785     \protect\G@refundefinedtrue
2786     \@latex@warning{%
2787       Hyper reference ‘#2’ on page \thepage \space undefined%
2788     }%
2789     \hyper@@link{}{??}{#3}%
2790   \else
2791     \hyper@@link{\expandafter\@fifthoffive#1}%
2792       {\expandafter\@fourthoffive#1\@empty\@empty}{#3}%
2793   \fi
2794 }
2795 \def\label@hyperdef[#1]#2#3#4{ label name, category, name,
2796                               % anchor text
2797   \@bsphack
2798   \if@filesw
2799     \protected@write\@auxout{%
2800       {\string\newlabel{#1}{#2}{#3}{#4}}%
2801     \fi
2802   \@esphack
2803   \ifHy@nesting
2804     \hyper@@anchor{#2.#3}{#4}%
2805   \else
2806     \hyper@@anchor{#2.#3}{\relax}#4%
2807   \fi
2808 }

```

## 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.

```

2809 \def\hyper@@link{\let\Hy@reserveda\relax
2810   \@ifnextchar[{\hyper@link@}{\hyper@link@[link]}}%
2811 }
2812 \def\hyper@link@[#1]#2#3#4{%
2813   \begingroup
2814     \protected@edef\Hy@tempa{#2}%

```

```

2815 \Hy@safe@activetrue
2816 \edef\x{#3}%
2817 \ifx\Hy@tempa\@empty
2818 \toks0{\hyper@link{#1}}%
2819 \else
2820 \toks0{\expandafter\hyper@readexternallink#2\{#1}}%
2821 \fi
2822 \toks1{#{#4}}%
2823 \edef\x{\endgroup
2824 \the\toks0 \x\the\toks1 %
2825 }%
2826 \x
2827 }

```

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.

```

2828 \def\hyper@readexternallink#1\#2#3#4{%

```

Parameters are:

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

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

```

2829 \expandafter\@hyper@readexternallink{#2}{#3}{#4}#1::\{#1}%
2830 }

```

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

```

2831 \def\@pdftempwordfile{file}%
2832 \def\@pdftempwordrun{run}%
2833 \def\@hyper@readexternallink#1#2#3#4:#5:#6\#7{%

```

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

```

2834 \ifx\#6\%
2835 \expandafter\@hyper@linkfile file:#7\{#3}{#2}%
2836 \else
2837 \ifx\#4\%
2838 \expandafter\@hyper@linkfile file:#7\{#3}{#2}%
2839 \else

```

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

```

2840 \def\@pdftempa{#4}%
2841 \ifx\@pdftempa\@pdftempwordfile
2842 \expandafter\@hyper@linkfile#7\{#3}{#2}%
2843 \else

```

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

```
2844      \ifx\@pdftempa\@pdftempwordrun
2845      \expandafter\@hyper@launch#7\{\#3}\#2}%
2846      \else
```

otherwise its a URL

```
2847      \hyper@linkurl{\#3}\#7\ifx\#2\\\else\hyper@hash#2\fi}%
2848      \fi
2849      \fi
2850      \fi
2851      \fi
2852 }
```

By default, turn run: into file:

```
2853 \def\@hyper@launch run:#1\#2#3{% filename, anchor text, linkname
2854   \hyper@linkurl{\#2}\Hy@linkfileprefix#1\ifx\#3\\\else\hyper@hash#3\fi}%
2855 }
```

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

```
2856 \def\@hyper@linkfile file:#1\#2#3{%
2857   %file url,link string, name
2858   \filename@parse{\#1}%
2859   \ifx\filename@ext\relax
2860     \edef\filename@ext{\XR@ext}%
2861   \fi
2862   \def\use@file{\filename@area\filename@base.\filename@ext}%
2863   \ifx\filename@ext\XR@ext
2864     \hyper@linkfile{\#2}\{use@file}\#3}%
2865   \else
2866     \ifx\@baseurl\@empty
2867       \hyper@linkurl{\#2}\{
2868         \Hy@linkfileprefix\use@file\ifx\#3\\\else\hyper@hash#3\fi
2869       }\%
2870     \else
2871       \hyper@linkurl{\#2}\{use@file\ifx\#3\\\else\hyper@hash#3\fi}%
2872     \fi
2873   \fi
2874 }
```

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

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

```
2875 \long\def\hyper@@anchor#1#2{\@hyper@@anchor#1\relax#2\relax}
2876 \long\def\@hyper@@anchor#1\relax#2#3\relax{%
2877   \ifx\#1\%
2878     #2\Hy@WarningNoLine{empty link? #1: #2#3}%
2879   \else
2880     \def\anchor@spot{\#2#3}%
2881     \let\put@me@back\@empty
2882     \ifx\relax#2\relax
2883     \else
2884       \ifHy@nesting
2885       \else
```

```

2886     \ifcat a\noexpand#2\relax
2887     \else
2888         \ifcat 0\noexpand#2 \relax
2889         \else
2890             \typeout{Anchor start is not alphanumeric %
2891             on input line\the\inputlineno%
2892             }%
2893             \let\anchor@spot\@empty
2894             \def\put@me@back{#2#3}%
2895         \fi
2896     \fi
2897 \fi
2898 \fi
2899 \ifHy@activeanchor
2900     \anchor@spot
2901 \else
2902     \hyper@anchor{#1}%
2903 \fi
2904 \expandafter\put@me@back
2905 \fi
2906 \let\anchor@spot\@empty
2907 }

```

## 18 Compatibility with the *L<sup>A</sup>T<sub>E</sub>X2html* 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.

```

2908 \let\htmladding\hyperimage
2909 \def\htmladdnormallink#1#2{\href{#2}{#1}}
2910 \def\htmladdnormallinkfoot#1#2{\href{#2}{#1}\footnote{#2}}
2911 \def\htmlref#1#2{% anchor text, label
2912     \label@hyperref[{#2}]{#1}%
2913 }

```

This is really too much. The *L<sup>A</sup>T<sub>E</sub>X2html* 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.

```

2914 \def\@@latextohtmlX{%
2915     \let\hhyperref\hyperref
2916     \def\hyperref##1##2##3##4{% anchor text for HTML
2917         % text to print before label in print
2918         % label
2919         % post-label text in print
2920         ##2\ref{##4}##3%
2921     }%
2922 }

```

## 19 Forms creation

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

wants to make PDF forms.

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

```
2923 \newif\ifFld@checked
2924 \newif\ifFld@hidden
2925 \newif\ifFld@multiline
2926 \newif\ifFld@readonly
2927 \newif\ifFld@disabled
2928 \newif\ifFld@password
2929 \newif\ifFld@radio
2930 \newif\ifFld@combo
2931 \newif\ifFld@popdown
2932 \Fld@multilinefalse
2933 \Fld@checkedfalse
2934 \Fld@hiddenfalse
2935 \Fld@readonlyfalse
2936 \Fld@disabledfalse
2937 \Fld@radiofalse
2938 \Fld@combofalse
2939 \Fld@popdownfalse
2940 \Fld@passwordfalse
2941 \newcount\Fld@menulength
2942 \newdimen\Fld@Width
2943 \newdimen\Fld@charsize
2944 \Fld@charsize=10\p@
2945 \def\Fld@maxlen{0}
2946 \def\Fld@align{0}
2947 \def\Fld@color{0 0 0}
2948 \def\Fld@bcolor{1 1 1}
2949 \def\Fld@bordercolor{1 0 0}
2950 \def\Fld@bordersep{1\p@}
2951 \def\Fld@borderwidth{1}
2952 \def\Fld@borderstyle{S}
2953 \def\Fld@cbsymbol{4}
2954 \newtoks\Choice@toks
2955 \def\Fld@ifnextchar[{\@Form}{\@Form[]}]
2956 \def\Fld@endForm{\@endForm}
2957 \newif\ifForm@html
2958 \Form@htmlfalse
2959 \def\Fld@boolkey#1#2{%
2960   \csname Form@#2\ifx\relax#1\relax true\else#1\fi\endcsname
2961 }
2962 \define@key{Form}{action}{%
2963   \hyper@normalise\Hy@DefFormAction{#1}%
2964 }
2965 \def\Hy@DefFormAction{\def\Fld@action}
2966 \def\Fld@enc@html{html}
2967 \define@key{Form}{encoding}{%
2968   \def\Hy@tempa{#1}%
2969   \ifx\Hy@tempa\Fld@enc@html
2970     \Form@htmltrue
2971   \else
2972     \typeout{hyperref: form 'encoding' key set to #1 %
2973     -- unknown type%
2974   }%
2975   \Form@htmlfalse
2976 \fi
2977 }
```

```

2978 \define@key{Form}{method}{%
2979   \def\Form@method{#1}%
2980 }
2981 \def\Form@method{}
2982 \def\Field@boolkey#1#2{%
2983   \csname Fld@#2\ifx\relax#1\relax true\else#1\fi\endcsname
2984 }
2985 \newtoks\Field@toks
2986 \Field@toks={ }%
2987 \def\Field@addtoks#1#2{%
2988   \edef\@processme{\Field@toks{\the\Field@toks\space #1="#2"}}%
2989   \@processme
2990 }
2991 \def\Fld@checkequals#1=#2=#3\\{%
2992   \def\@currDisplay{#1}%
2993   \ifx\\#2\\%
2994     \def\@currValue{#1}%
2995   \else
2996     \def\@currValue{#2}%
2997   \fi
2998 }
2999 \define@key{Field}{loc}{%
3000   \def\Fld@loc{#1}%
3001 }
3002 \define@key{Field}{multiline}[true]{%
3003   \lowercase{\Field@boolkey{#1}}{multiline}%
3004 }
3005 \define@key{Field}{checked}[true]{%
3006   \lowercase{\Field@boolkey{#1}}{checked}%
3007 }
3008 \define@key{Field}{hidden}[true]{%
3009   \lowercase{\Field@boolkey{#1}}{hidden}%
3010 }
3011 \define@key{Field}{readonly}[true]{%
3012   \lowercase{\Field@boolkey{#1}}{readonly}%
3013 }
3014 \define@key{Field}{disabled}[true]{%
3015   \lowercase{\Field@boolkey{#1}}{disabled}%
3016 }
3017 \define@key{Field}{password}[true]{%
3018   \lowercase{\Field@boolkey{#1}}{password}%
3019 }
3020 \define@key{Field}{radio}[true]{%
3021   \lowercase{\Field@boolkey{#1}}{radio}%
3022 }
3023 \define@key{Field}{combo}[true]{%
3024   \lowercase{\Field@boolkey{#1}}{combo}%
3025 }
3026 \define@key{Field}{popdown}[true]{%
3027   \lowercase{\Field@boolkey{#1}}{popdown}%
3028 }
3029 \define@key{Field}{accesskey}{%
3030   \Field@addtoks{accesskey}{#1}%
3031 }
3032 \define@key{Field}{tabkey}{%
3033   \Field@addtoks{tabkey}{#1}%
3034 }

```



```

3035 \define@key{Field}{name}{%
3036   \def\Fld@name{#1}%
3037 }
3038 \define@key{Field}{width}{%
3039   \def\Fld@width{#1}%
3040   \Field@Width#1\setbox0=\hbox{m}%
3041 }
3042 \define@key{Field}{maxlen}{%
3043   \def\Fld@maxlen{#1}%
3044 }
3045 \define@key{Field}{menulength}{%
3046   \Fld@menulength=#1\relax
3047 }
3048 \define@key{Field}{height}{%
3049   \def\Fld@height{#1}%
3050 }
3051 \define@key{Field}{charsize}{%
3052   \Fld@charsize#1%
3053 }
3054 \define@key{Field}{fillcolor}{%
3055   \def\Fld@fillcolor{#1}%
3056 }
3057 \define@key{Field}{borderwidth}{%
3058   \def\Fld@borderwidth{#1}%
3059 }
3060 \define@key{Field}{borderstyle}{%
3061   \def\Fld@borderstyle{#1}%
3062 }
3063 \define@key{Field}{bordersep}{%
3064   \def\Fld@bordersep{#1}%
3065 }
3066 \define@key{Field}{default}{%
3067   \def\Fld@default{#1}%
3068 }
3069 \define@key{Field}{align}{%
3070   \def\Fld@align{#1}%
3071 }
3072 \define@key{Field}{value}{%
3073   \def\Fld@value{#1}%
3074 }
3075 \define@key{Field}{checkboxsymbol}{%
3076   \def\Fld@cbsymbol{#1}%
3077 }

3078 \define@key{Field}{backgroundcolor}{%
3079   \Hy@fieldcolor{bcolor}{#1}{ }{backgroundcolor}%
3080 }
3081 \define@key{Field}{bordercolor}{%
3082   \Hy@fieldcolor{bordercolor}{#1}{ }{bordercolor}%
3083 }
3084 \define@key{Field}{color}{%
3085   \Hy@fieldcolor{color}{#1}{ }{color}%
3086 }
3087 \def\Hy@fieldcolor#1#2#3#4{%
3088   \begingroup
3089     \Hy@safe@activetrue
3090     \@ifundefined{XC@edef}{\edef}{\XC@edef}\x{#2}%
3091     \expandafter\Hy@FieldCheckColorSpec\x#3#3\@nil{#1}{#2}{#4}%

```

```

3092 }
3093 \def\Hy@FieldCheckColorSpec#1 #2 #3\@nil#4#5#6{%
3094   \ifx\#3\%
3095     \ifundefined{XC@bordercolor}{%
3096       \Hy@Warning{%
3097         Unsupported color specification (#6).\MessageBreak
3098         Load package 'xcolor' (version >= 2.11) first.\MessageBreak
3099         Ignoring color specification%
3100       }%
3101     \endgroup
3102   }{%
3103     \endgroup
3104     \XC@bordercolor{temp}{#5}%
3105     \expandafter\let\csname Fld@#4\endcsname\@tempbordercolor
3106   }%
3107 \else
3108   \endgroup
3109   \@namedef{Fld@#4}{#5}%
3110 \fi
3111 }

3112 \def\Fld@format@code{}
3113 \def\Fld@validate@code{}
3114 \def\Fld@calculate@code{}
3115 \def\Fld@keystroke@code{}
3116 \def\Fld@onfocus@code{}
3117 \def\Fld@onblur@code{}
3118 \def\Fld@onmousedown@code{}
3119 \def\Fld@onmouseup@code{}
3120 \def\Fld@onenter@code{}
3121 \def\Fld@onexit@code{}
3122 \define@key{Field}{keystroke}{%
3123   \def\Fld@keystroke@code{#1}%
3124 }
3125 \define@key{Field}{format}{%
3126   \def\Fld@format@code{#1}%
3127 }
3128 \define@key{Field}{validate}{%
3129   \def\Fld@validate@code{#1}%
3130 }
3131 \define@key{Field}{calculate}{%
3132   \def\Fld@calculate@code{#1}%
3133 }
3134 \define@key{Field}{onfocus}{%
3135   \def\Fld@onfocus@code{#1}%
3136 }
3137 \define@key{Field}{onblur}{%
3138   \def\Fld@onblur@code{#1}%
3139 }
3140 \define@key{Field}{onenter}{%
3141   \def\Fld@onenter@code{#1}%
3142 }
3143 \define@key{Field}{onexit}{%
3144   \def\Fld@onexit@code{#1}%
3145 }
3146 \define@key{Field}{onselect}{%
3147   \Field@addtoks{onselect}{#1}%
3148 }

```

```

3149 \define@key{Field}{onchange}{%
3150   \Field@addtoks{onchange}{#1}%
3151 }
3152 \define@key{Field}{onclick}{%
3153   \def\Fld@onclick{#1}%
3154   \Field@addtoks{onclick}{#1}%
3155 }
3156 \define@key{Field}{ondblclick}{%
3157   \Field@addtoks{ondblclick}{#1}%
3158 }
3159 \define@key{Field}{onmousedown}{%
3160   \Field@addtoks{onmousedown}{#1}%
3161 }
3162 \define@key{Field}{onmouseup}{%
3163   \Field@addtoks{onmouseup}{#1}%
3164 }
3165 \define@key{Field}{onmouseover}{%
3166   \Field@addtoks{onmouseover}{#1}%
3167 }
3168 \define@key{Field}{onmousemove}{%
3169   \Field@addtoks{onmousemove}{#1}%
3170 }
3171 \define@key{Field}{onmouseout}{%
3172   \Field@addtoks{onmouseout}{#1}%
3173 }
3174 \define@key{Field}{onkeypress}{%
3175   \Field@addtoks{onkeypress}{#1}%
3176 }
3177 \define@key{Field}{onkeydown}{%
3178   \Field@addtoks{onkeydown}{#1}%
3179 }
3180 \define@key{Field}{onkeyup}{%
3181   \Field@addtoks{onkeyup}{#1}%
3182 }
3183 %
3184 \DeclareRobustCommand\TextField{%
3185   \@ifnextchar[{\@TextField}{\@TextField[]}%
3186 }
3187 \DeclareRobustCommand\ChoiceMenu{%
3188   \@ifnextchar[{\@ChoiceMenu}{\@ChoiceMenu[]}%
3189 }
3190 \DeclareRobustCommand\CheckBox{%
3191   \@ifnextchar[{\@CheckBox}{\@CheckBox[]}%
3192 }
3193 \DeclareRobustCommand\PushButton{%
3194   \@ifnextchar[{\@PushButton}{\@PushButton[]}%
3195 }
3196 \DeclareRobustCommand\Gauge{%
3197   \@ifnextchar[{\@Gauge}{\@Gauge[]}%
3198 }
3199 \DeclareRobustCommand\Submit{%
3200   \@ifnextchar[{\@Submit}{\@Submit[]}%
3201 }
3202 \DeclareRobustCommand\Reset{%
3203   \@ifnextchar[{\@Reset}{\@Reset[]}%
3204 }
3205 \def\LayoutTextField#1#2{% label, field

```

```

3206 #1 #2%
3207 }
3208 \def\LayoutChoiceField#1#2{% label, field
3209 #1 #2%
3210 }
3211 \def\LayoutCheckField#1#2{% label, field
3212 #1 #2%
3213 }
3214 \def\LayoutPushButtonField#1{% button
3215 #1%
3216 }
3217 \def\MakeRadioField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
3218 \def\MakeCheckField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
3219 \def\MakeTextField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
3220 \def\MakeChoiceField#1#2{\vbox to #2{\hbox to #1{\hfill}\vfill}}
3221 \def\MakeButtonField#1{%
3222 \sbox0{%
3223 \hskip\Fld@borderwidth bp#1\hskip\Fld@borderwidth bp%
3224 }%
3225 \@tempdima\ht0
3226 \advance\@tempdima by \Fld@borderwidth bp
3227 \advance\@tempdima by \Fld@borderwidth bp
3228 \ht0\@tempdima
3229 \@tempdima\dp0
3230 \advance\@tempdima by \Fld@borderwidth bp
3231 \advance\@tempdima by \Fld@borderwidth bp
3232 \dp0\@tempdima
3233 \box0\relax
3234 }
3235 \def\DefaultHeightofSubmit{14pt}
3236 \def\DefaultWidthofSubmit{2cm}
3237 \def\DefaultHeightofReset{14pt}
3238 \def\DefaultWidthofReset{2cm}
3239 \def\DefaultHeightofCheckBox{\baselineskip}
3240 \def\DefaultWidthofCheckBox{\baselineskip}
3241 \def\DefaultHeightofChoiceMenu{\baselineskip}
3242 \def\DefaultWidthofChoiceMenu{\baselineskip}
3243 \def\DefaultHeightofText{\baselineskip}
3244 \def\DefaultWidthofText{3cm}

```

## 20 Setup

```

3245 \ifHy@figures
3246 \Hy@Info{Hyper figures ON}
3247 \else
3248 \Hy@Info{Hyper figures OFF}
3249 \fi
3250 \ifHy@nesting
3251 \Hy@Info{Link nesting ON}
3252 \else
3253 \Hy@Info{Link nesting OFF}
3254 \fi
3255 \ifHy@hyperindex
3256 \Hy@Info{Hyper index ON}
3257 \else
3258 \Hy@Info{Hyper index OFF}

```

```

3259 \fi
3260 \ifHy@backref
3261   \Hy@Info{backreferencing ON}
3262 \else
3263   \Hy@Info{backreferencing OFF}
3264 \fi
3265 \ifHy@colorlinks
3266   \Hy@Info{Link coloring ON}
3267 \else
3268   \Hy@Info{Link coloring OFF}
3269 \fi

```

## 21 Low-level utility macros

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

```

3270 \edef\hyper@hash{\string#}
3271 \edef\hyper@tilde{\string~}
3272 \edef\hyper@quote{\string"}
3273 \let\@currentHref\@empty
3274 \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.

```

3275 \AfterBeginDocument{%
3276   \Hy@pdfstringtrue
3277   \PDF@SetupDoc
3278   \let\PDF@SetupDoc\@empty
3279   \Hy@DisableOption{pdfpagescrop}%
3280   \Hy@DisableOption{pdfpagemode}%
3281   \Hy@DisableOption{pdfnonfullscreenpagemode}%
3282   \Hy@DisableOption{pdfdirection}%
3283   \Hy@DisableOption{pdfviewarea}%
3284   \Hy@DisableOption{pdfviewclip}%
3285   \Hy@DisableOption{pdfprintarea}%
3286   \Hy@DisableOption{pdfprintclip}%
3287   \Hy@DisableOption{pdfprintsclaling}%
3288   \Hy@DisableOption{pdfduplex}%
3289   \Hy@DisableOption{pdfpicktraybypdfsize}%
3290   \Hy@DisableOption{pdfprintpagerange}%
3291   \Hy@DisableOption{pdfnumcopies}%
3292   \Hy@DisableOption{pdfstartview}%
3293   \Hy@DisableOption{pdfstartpage}%
3294   \Hy@DisableOption{pdftoolbar}%
3295   \Hy@DisableOption{pdfmenubar}%
3296   \Hy@DisableOption{pdfwindowui}%
3297   \Hy@DisableOption{pdfwindow}%
3298   \Hy@DisableOption{pdfcenterwindow}%
3299   \Hy@DisableOption{pdfdisplaydoctitle}%
3300   \Hy@DisableOption{pdfpagelayout}%
3301   \Hy@DisableOption{pdflang}%
3302   \Hy@DisableOption{baseurl}%
3303   \ifHy@texht\else\hyper@anchorstart{Doc-Start}\hyper@anchorend\fi
3304   \Hy@pdfstringfalse
3305 }

```

## 22 Localized nullifying of package

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

```
3306 \def\NoHyper{%
3307   \def\hyper@link@{##1}##2##3##4{##4}%
3308   \def\hyper@@anchor##1{%
3309     \global\let\hyper@livelink\hyper@link
3310     \gdef\hyper@link##1##2##3{##3}%
3311     \def\hyper@anchorstart##1{%
3312       \let\hyper@anchorend\@empty
3313       \def\hyper@linkstart##1##2{%
3314         \let\hyper@linkend\@empty
3315         \def\hyper@linkurl##1##2{##1}%
3316         \def\hyper@linkfile##1##2##3{##1}%
3317         \let\Hy@backout\@gobble
3318       }
3319       \def\stop@hyper{%
3320         \def\hyper@link@{##1}##2##3##4{##4}%
3321         \let\Hy@backout\@gobble
3322         \def\hyper@@anchor##1{%
3323           \def\hyper@link##1##2##3{##3}%
3324           \def\hyper@anchorstart##1{%
3325             \let\hyper@anchorend\@empty
3326             \def\hyper@linkstart##1##2{%
3327               \let\hyper@linkend\@empty
3328               \def\hyper@linkurl##1##2{##1}%
3329               \def\hyper@linkfile##1##2##3{##1}%
3330             }
3331             \def\endNoHyper{%
3332               \global\let\hyper@link\hyper@livelink
3333             }
3334           }
3335         }
3336       }
3337     }
3338   }
3339 }
3340 \endNoHyper
3341 \end{package}
```

## 23 Package nohyperref

This package is introduced by Sebastian Rahtz.

Package nohyperref is a dummy package that defines some low level and some top-level commands. It is done for jadetex, which calls hyperref low-level commands, but it would also be useful with people using normal hyperref, who really do not want the package loaded at all.

Some low-level commands:

```
3335 \def\*nohyperref{
3336   \let\hyper@@anchor\@gobble
3337   \def\hyper@link#1#2#3{#3}%
3338   \let\hyper@anchorstart\@gobble
3339   \let\hyper@anchorend\@empty
3340   \let\hyper@linkstart\@gobbletwo
3341   \let\hyper@linkend\@empty
3342   \def\hyper@linkurl#1#2{#1}%
3343   \def\hyper@linkfile#1#2#3{#1}%
3344   \let\PDF@SetupDoc\@empty
3345   \let\PDF@FinishDoc\@empty
3346 }
```

Some top-level commands:

```

3346 \let\Acrobatmenu\@gobble
3347 \let\pdfstringdefDisableCommands\@gobbletwo
3348 \let\texorpdfstring\@firstoftwo
3349 \let\pdfbookmark\@undefined
3350 \newcommand\pdfbookmark[3] [] {}
3351 \let\phantomsection\@empty
3352 \let\hypersetup\@gobble
3353 \let\hyperbaseurl\@gobble
3354 \let\href\@gobble
3355 \let\hyperdef\@gobbletwo
3356 \let\hyperlink\@gobble
3357 \let\hypertarget\@gobble
3358 \def\hyperref{\@ifnextchar[\@gobbleopt{\expandafter\@gobbletwo\@gobble}}
3359 \long\def\@gobbleopt[#1]{}
3360 \let\hyperpage\@empty
3361 \nohyperref

```

## 24 The Mangling Of Aux and Toc Files

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

```

3362 \*package
3363 \AfterBeginDocument{%

```

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

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

```

3364 \if@filesw
3365   \ifHy@typexml
3366     \immediate\closeout\@mainaux
3367     \immediate\openout\@mainaux\jobname.aux
3368     \immediate\write\@auxout{<relaxxml>\relax}%
3369   \fi
3370   \immediate\write\@auxout{%
3371     \string\ifx\string\hyper@anchor\string\@undefined^^J%
3372     \global\let\string\oldcontentsline\string\contentsline^^J%
3373     \gdef\string\contentsline%
3374       \string#1\string#2\string#3\string#4{%
3375       \string\oldcontentsline%
3376       {\string#1}{\string#2}{\string#3}}^^J%
3377     \global\let\string\oldnewlabel\string\newlabel^^J%
3378     \gdef\string\newlabel\string#1\string#2{%
3379     \string\newlabelxx{\string#1}\string#2}^^J%
3380     \gdef\string\newlabelxx%
3381     \string#1\string#2\string#3\string#4\string#5\string#6{%
3382     \string\oldnewlabel{\string#1}{\string#2}{\string#3}}^^J%

```

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

```

3383   \string\AtEndDocument{%
3384     \let\string\contentsline\string\oldcontentsline^^J%
3385     \let\string\newlabel\string\oldnewlabel^^J%

```

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

```

3386     \string\else^^J%
3387     \global\let\string\hyper@last\relax^^J%
3388     \string\fi^^J%
3389   }%
3390 \fi

```

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.

```

3391 \ifx\hyper@last\@undefined
3392   \def\@starttoc#1{%
3393     \begingroup
3394       \makeatletter
3395       \IfFileExists{\jobname.#1}{%
3396         \Hy@WarningNoLine{%
3397           old #1 file detected, not used; run LaTeX again%
3398         }%
3399       }{%
3400         \if@filesw
3401           \expandafter\newwrite\csname tf@#1\endcsname
3402           \immediate\openout\csname tf@#1\endcsname \jobname.#1\relax
3403         \fi
3404         \@nobreakfalse
3405       \endgroup
3406     }%
3407   \def\newlabel#1#2{\@newl@bel r{#1}{#2}{-}{-}{-}}%
3408 \fi
3409 }

```

## 25 Title strings

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

```

3410 \ifHy@usetitle
3411   \let\HyOrg@title\title
3412   \let\HyOrg@author\author
3413   \def\title{\@ifnextchar[{\Hy@scanopttitle}{\Hy@scantitle}}%
3414   \def\Hy@scanopttitle[#1]{%
3415     \gdef\Hy@title{#1}%
3416     \HyOrg@title[{#1}]%
3417   }%
3418   \def\Hy@scantitle#1{%
3419     \gdef\Hy@title{#1}%
3420     \HyOrg@title{#1}%
3421   }
3422   \def\author{\@ifnextchar[{\Hy@scanoptauthor}{\Hy@scanauthor}}%
3423   \def\Hy@scanoptauthor[#1]{%
3424     \gdef\Hy@author{#1}%
3425     \HyOrg@author[{#1}]%
3426   }%
3427   \def\Hy@scanauthor#1{%
3428     \gdef\Hy@author{#1}%

```



```

3429 \HyOrg@author{#1}%
3430 }

```

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

```

3431 \begingroup
3432 \def\process@me#1\@nil#2{%
3433 \expandafter\let\expandafter\x\csname @#2\endcsname
3434 \edef\y{\expandafter\strip@prefix\meaning\x}%
3435 \def\c##1##2\@nil{%
3436 \ifx\\##1\\%
3437 \else
3438 \expandafter\gdef\csname Hy@#2\expandafter\endcsname
3439 \expandafter{\x}%
3440 \fi
3441 }%
3442 \expandafter\c\y\relax#1\@nil
3443 }%
3444 \expandafter\process@me\string\@latex@\@nil{title}%
3445 \expandafter\process@me\string\@latex@\@nil{author}%
3446 \endgroup
3447 \fi
3448 \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.

```

3449 \def\Hy@UseMaketitleString#1{%
3450 \@ifundefined{Hy@#1}{-}{%
3451 \begingroup
3452 \let\Hy@saved@hook\pdfstringdefPreHook
3453 \pdfstringdefDisableCommands{%
3454 \expandafter\let\expandafter\\\csname Hy@newline@#1\endcsname
3455 \let\newline\\%
3456 }%
3457 \expandafter\ifx\csname @pdf#1\endcsname\@empty
3458 \expandafter\pdfstringdef\csname @pdf#1\endcsname{%
3459 \csname Hy@#1\endcsname\@empty
3460 }%
3461 \fi
3462 \global\let\pdfstringdefPreHook\Hy@saved@hook
3463 \endgroup
3464 }%
3465 }
3466 \def\Hy@newline@title#1{ #1}
3467 \def\Hy@newline@author#1{, #1}
3468 \def\Hy@UseMaketitleInfos{%
3469 \Hy@UseMaketitleString{title}%
3470 \Hy@UseMaketitleString{author}%
3471 }

```

## 26 Page numbers

This stuff is done by Heiko Oberdiek.

### 26.1 PDF /PageLabels

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

```
3472 \ifHy@pagelabels
3473   \begingroup\expandafter\expandafter\expandafter\endgroup
3474   \expandafter\ifx\csname thepage\endcsname\relax
3475     \Hy@pagelabelsfalse
3476     \Hy@WarningNoLine{%
3477       Option 'pdfpagelabels' is turned off\MessageBreak
3478       because \string\thepage\space is undefined%
3479     }%
3480     \csname fi\endcsname
3481     \csname iffalse\expandafter\endcsname
3482     \fi
```

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

```
3483 \def\thispdfpagelabel#1{%
3484   \gdef\HyPL@thisLabel{#1}%
3485 }
3486 \global\let\HyPL@thisLabel\relax
```

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

```
3487 \def\HyPL@Labels{}
```

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

```
3488 \newcount\Hy@abspage
3489 \Hy@abspage=0
```

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

```
3490 \def\HyPL@LastType{init}%
3491 \def\HyPL@LastNumber{0}%
3492 \def\HyPL@LastPrefix{}
```

Definitions for the PDF names of the L<sup>A</sup>T<sub>E</sub>X pendants.

```
3493 \def\HyPL@arabic{D}%
3494 \def\HyPL@Roman{R}%
3495 \def\HyPL@roman{r}%
3496 \def\HyPL@Alph{A}%
3497 \def\HyPL@alph{a}%
```

`\HyPL@EveryPage` If a page is shipout and the page number is known, `\HyPL@EveryPage` has to be called. It stores the current page label.

```
3498 \def\HyPL@EveryPage{%
3499   \begingroup
3500   \ifx\HyPL@thisLabel\relax
3501     \let\HyPL@page\thepage
3502   \else
3503     \let\HyPL@page\HyPL@thisLabel
3504     \global\let\HyPL@thisLabel\relax
3505   \fi
3506   \let\HyPL@Type\relax
```

```

3507 \ifnum\the\c@page>0
3508 \expandafter\HyPL@CheckThePage\HyPL@page\@nil
3509 \fi
3510 \let\Hy@temp Y%
3511 \ifx\HyPL@Type\HyPL@LastType
3512 \else
3513 \let\Hy@temp N%
3514 \fi
3515 \ifx\HyPL@Type\relax
3516 \pdfstringdef\HyPL@Prefix{\HyPL@page}%
3517 \else
3518 \pdfstringdef\HyPL@Prefix\HyPL@Prefix
3519 \fi
3520 \ifx\HyPL@Prefix\HyPL@LastPrefix
3521 \else
3522 \let\Hy@temp N%
3523 \fi
3524 \if Y\Hy@temp
3525 \advance\c@page by -1
3526 \ifnum\HyPL@LastNumber=\the\c@page\relax
3527 \else
3528 \let\Hy@temp N%
3529 \fi
3530 \Hy@StepCount\c@page
3531 \fi
3532 \if N\Hy@temp
3533 \ifx\HyPL@Type\relax
3534 \HyPL@StorePageLabel{/P (\HyPL@Prefix)}%
3535 \else
3536 \HyPL@StorePageLabel{%
3537 \ifx\HyPL@Prefix\@empty
3538 \else
3539 /P (\HyPL@Prefix)
3540 \fi
3541 /S /\csname HyPL\HyPL@Type\endcsname
3542 \ifnum\the\c@page=1
3543 \else
3544 \space/St \the\c@page
3545 \fi
3546 }%
3547 \fi
3548 \fi
3549 \xdef\HyPL@LastNumber{\the\c@page}%
3550 \global\let\HyPL@LastType\HyPL@Type
3551 \global\let\HyPL@LastPrefix\HyPL@Prefix
3552 \endgroup
3553 \Hy@GlobalStepCount\Hy@abspage
3554 }

```

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

```

3555 \def\HyPL@CheckThePage#1\@nil{%
3556 \HyPL@@CheckThePage{#1}#1\csname\endcsname\c@page\@nil
3557 }

```

`\HyPL@@CheckThePage` The first check is, is `\thepage` is defined such as in  $\text{\LaTeX}$ , e. g.: `\csname @arabic\endcsname\c@page`. In the current implemenation the check fails, if there is another `\csname` before.

The second check tries to detect `\arabic{page}` at the end of the definition text of

```

\thepage.
3558 \def\HyPL@@CheckThePage#1#2\csname#3\endcsname\c@page#4\@nil{%
3559 \def\Hy@tempa{#4}%
3560 \def\Hy@tempb{\csname\endcsname\c@page}%
3561 \ifx\Hy@tempa\Hy@tempb
3562 \expandafter\ifx\csname HyPL#3\endcsname\relax
3563 \else
3564 \def\HyPL@Type{#3}%
3565 \def\HyPL@Prefix{#2}%
3566 \fi
3567 \else
3568 \begingroup
3569 \let\Hy@next\endgroup
3570 \let\HyPL@found\@undefined
3571 \def\arabic{\HyPL@Format{arabic}}%
3572 \def\Roman{\HyPL@Format{Roman}}%
3573 \def\roman{\HyPL@Format{roman}}%
3574 \def\Alph{\HyPL@Format{Alph}}%
3575 \def\alph{\HyPL@Format{alph}}%
3576 \protected@edef\Hy@temp{#1}%
3577 \ifx\HyPL@found\relax
3578 \toks@{\expandafter{\Hy@temp}}%
3579 \edef\Hy@next{\endgroup
3580 \noexpand\HyPL@@CheckThePage\the\toks@
3581 \noexpand\HyPL@found\relax\noexpand\@nil
3582 }%
3583 \fi
3584 \Hy@next
3585 \fi
3586 }

```

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

```

3587 \def\HyPL@Format#1#2{%
3588 \ifx\HyPL@found\@undefined
3589 \expandafter\ifx\csname c@#2\endcsname\c@page
3590 \expandafter\noexpand\csname HyPL@found\endcsname{#1}%
3591 \else
3592 \expandafter\noexpand\csname#1\endcsname{#2}%
3593 \fi
3594 \else
3595 \expandafter\noexpand\csname#1\endcsname{#2}%
3596 \fi
3597 }

```

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

```

3598 \def\HyPL@@CheckThePage#1\HyPL@found#2#3\@nil{%
3599 \def\Hy@tempa{#3}%
3600 \def\Hy@tempb{\HyPL@found\relax}%
3601 \ifx\Hy@tempa\Hy@tempb
3602 \def\HyPL@Type{#2}%
3603 \def\HyPL@Prefix{#1}%
3604 \fi
3605 }

```

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

```

3606 \providecommand*{\HyPL@StorePageLabel}[1]{}

\HyPL@Useless The /PageLabels entry does not make sense, if the absolute page numbers and the page
labels are the same. Then \HyPL@Labels has the meaning of \HyPL@Useless.
3607 \def\HyPL@Useless{0 << /S /D >> }%
3608 \@onelevel@sanitize\HyPL@Useless

\HyPL@SetPageLabels The page labels are written to the PDF catalogue. The command \Hy@PutCatalog is
defined in the driver files.
3609 \def\HyPL@SetPageLabels{%
3610     \@onelevel@sanitize\HyPL@Labels
3611     \ifx\HyPL@Labels\@empty
3612     \else
3613         \ifx\HyPL@Labels\HyPL@Useless
3614         \else
3615             \Hy@PutCatalog{/PageLabels << /Nums [\HyPL@Labels] >>}%
3616         \fi
3617     \fi
3618 }

\HyPL@EveryPage Without option ‘pdfpagelabels’ we need a dummy for \HyPL@EveryPage.
3619 \else
3620 \let\HyPL@EveryPage\@empty
3621 \fi

Option ‘pdfpagelabels’ has been used and is now disabled.
3622 \Hy@DisableOption{pdfpagelabels}
3623 </package>

```

### 26.1.1 pdfTeX and VTeX

Because of pdfTeX’s `\pdfcatalog` command the `/PageLabels` entry can set at end of document in the first run.

`\Hy@PutCatalog`

```

3624 <pdfTeX>\let\Hy@PutCatalog\pdfcatalog

The code for VTeX is more complicate, because it does not allow the direct access to the
/Catalog object. The command scans its argument and looks for a /PageLabels entry.
VTeX 6.59g is the first version, that implements \special{!pdfpagelabels...}.
For this version \VTeXversion reports 660.
3625 <*vTeX>
3626 \edef\Hy@VTeXversion{%
3627     \ifx\VTeXversion\@undefined
3628         \z@
3629     \else
3630         \ifx\VTeXversion\relax
3631             \z@
3632         \else
3633             \VTeXversion
3634         \fi
3635     \fi
3636 }
3637 \begingroup

```

```

3638 \ifnum\Hy@VTeXversion<660 %
3639   \gdef\Hy@PutCatalog#1{%
3640     \Hy@WarningNoLine{%
3641       VTeX 6.59g or above required for pdfpagelabels%
3642     }%
3643   }
3644 \else
3645   \gdef\Hy@PutCatalog#1{%
3646     \Hy@vt@PutCatalog#1/PageLabels <<>>\@nil
3647   }
3648   \gdef\Hy@vt@PutCatalog#1/PageLabels <<#2>>#3\@nil{%
3649     \ifx\#2\%
3650       \else
3651         \immediate\special{!pdfpagelabels #2}%
3652       \fi
3653     }
3654   \fi
3655 \endgroup
3656 \</vtex>

3657 \<*pdfTeX | vtex>

```

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

```

3658 \ifHy@pagelabels
3659   \def\HyPL@StorePageLabel#1{%
3660     \toks@{\expandafter{\HyPL@Labels}}%
3661     \xdef\HyPL@Labels{%
3662       \the\toks@
3663       \the\Hy@abspage\space<< #1 >> %
3664     }%
3665   }

```

At the end of the document, `\clearpage` tries to make sure, that no further pages will follow. Then the PDF catalog entry for `\PageLabels` is set.

```

3666 \AtEndDocument{\clearpage\HyPL@SetPageLabels}
3667 \fi
3668 \</pdfTeX | vtex>

```

### 26.1.2 pdfmarkbase, dvipdfm

`\Hy@PutCatalog`

```

3669 \<dvipdfm>\def\Hy@PutCatalog#1{\@pdfmark{docview << #1 >>}}
3670 \<*pdfmarkbase>
3671 \def\Hy@PutCatalog#1{%
3672   \pdfmark{pdfmark=/PUT,Raw={\string{Catalog\string} << #1 >>}}%
3673 }
3674 \</pdfmarkbase>

3675 \<*pdfmarkbase | dvipdfm>
3676 \ifHy@pagelabels

```

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

```

3677 \def\HyPL@StorePageLabel#1{%
3678   \if@filesw
3679     \begingroup
3680     \edef\Hy@tempa{\the\Hy@abspage\space<< #1 >> }%

```

```

3681         \immediate\write\@mainaux{%
3682             \string\HyPL@Entry{\Hy@tempa}%
3683         }%
3684     \endgroup
3685 \fi
3686 }

```

Write a dummy definition of `\HyPL@Entry` for the case, that the next run is done without hyperref. A marker for the rerun warning is set and the `/PageLabels` is written.

```

3687 \AfterBeginDocument{%
3688     \if@filesw
3689         \immediate\write\@mainaux{%
3690             \string\providecommand\string*\string\HyPL@Entry[1]{}%
3691         }%
3692     \fi
3693     \ifx\HyPL@Labels\@empty
3694         \Hy@WarningNoLine{Rerun to get /PageLabels entry}%
3695     \else
3696         \HyPL@SetPageLabels
3697     \fi
3698     \let\HyPL@Entry\@gobble
3699 }%

```

`\HyPL@Entry`

```

3700 \def\HyPL@Entry#1{%
3701     \expandafter\gdef\expandafter\HyPL@Labels\expandafter{%
3702         \HyPL@Labels
3703         #1%
3704     }%
3705 }

3706 \fi
3707 </pdfmarkbase | dvipdfm>
3708 <*package>
3709 \MaybeStopEarly

```

## 27 Automated L<sup>A</sup>T<sub>E</sub>X hypertext cross-references

Anything which can be referenced advances some counter; we overload this to put in a hypertext starting point (with no visible anchor), and make a note of that for later use in `\label`. This will fail badly if `\theH<name>` does not expand to a sensible reference. This means that classes or package which introduce new elements need to define an equivalent `\theH<name>` for every `\the<name>`. We do make a trap to make `\theH<name>` be the same as `\arabic{<name>}`, if `\theH<name>` is not defined, but this is not necessarily a good idea. Alternatively, the ‘naturalnames’ option uses whatever L<sup>A</sup>T<sub>E</sub>X provides, which may be useable. But then its up to you to make sure these are legal PDF and HTML names. The ‘hypertextnames=false’ option just makes up arbitrary names.

All the shenanigans is to make sure section numbers etc are always arabic, separated by dots. Who knows how people will set up `\@currentlabel`? If they put spaces in, or brackets (quite legal) then the hypertext processors will get upset.

But this is flaky, and open to abuse. Styles like `subeqn` will mess it up, for starters. Appendices are an issue, too. We just hope to cover most situations. We can at least cope with the standard sectioning structure, allowing for `\part` and `\chapter`.

Start with a fallback for equations

```

3710 \newcommand\theHequation{\theHsection.\arabic{equation}}
3711 \@ifundefined{thepart}{\newcommand\theHpart{\arabic{part}}}{%
3712 \@ifundefined{thechapter}{%
3713   \newcommand\theHsection    {\arabic{section}}
3714   \newcommand\theHfigure     {\arabic{figure}}
3715   \newcommand\theHtable     {\arabic{table}}
3716 }{%
3717   \newcommand\theHchapter    {\arabic{chapter}}
3718   \newcommand\theHfigure     {\theHchapter.\arabic{figure}}
3719   \newcommand\theHtable     {\theHchapter.\arabic{table}}
3720   \newcommand\theHsection    {\theHchapter.\arabic{section}}
3721 }
3722 \newcommand\theHsubsection    {\theHsection.\arabic{subsection}}
3723 \newcommand\theHsubsubsection{\theHsubsection.\arabic{subsubsection}}
3724 \newcommand\theHparagraph     {\theHsubsubsection.\arabic{paragraph}}
3725 \newcommand\theHsubparagraph  {\theHparagraph.\arabic{subparagraph}}
3726 \newcommand\theHtheorem       {\theHsection.\arabic{theorem}}
3727 \newcommand\theHthm           {\theHsection.\arabic{thm}}

```

Thanks to Greta Meyer (gbd@pop.cwru.edu) for making me realize that enumeration starts at 0 for every list! But `\item` occurs inside `\trivlist`, so check if its a real `\item` before incrementing counters.

```

3728 \let\H@item\item
3729 \newcounter{Item}
3730 \def\theHItem{\arabic{Item}}
3731 \def\item{%
3732   \@hyper@itemfalse
3733   \if@nmbbrlist\@hyper@itemtrue\fi
3734   \H@item
3735 }
3736 \newcommand\theHenumi    {\theHItem}
3737 \newcommand\theHenumii   {\theHItem}
3738 \newcommand\theHenumiii  {\theHItem}
3739 \newcommand\theHenumiv   {\theHItem}
3740 \newcommand\theHHfootnote {\arabic{Hfootnote}}
3741 \newcommand\theHmpfootnote{\arabic{mpfootnote}}
3742 \let\theHHmpfootnote\theHHfootnote

```

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

```

3743 \let\H@refstepcounter\refstepcounter
3744 \edef\name@of@eq{equation}%
3745 \edef\name@of@slide{slide}%

```

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

```

3746 \newif\if@hyper@item
3747 \newif\if@skiphyperref
3748 \@hyper@itemfalse
3749 \@skiphyperreffalse
3750 \def\refstepcounter#1{%
3751   \H@refstepcounter{#1}%
3752   \edef\This@name{#1}%
3753   \ifx\This@name\name@of@slide
3754     \else
3755       \if@skiphyperref

```



```

3756 \else
3757 \if@hyper@item
3758 \stepcounter{Item}%
3759 \hyper@refstepcounter{Item}%
3760 \else
3761 \hyper@refstepcounter{#1}%
3762 \fi
3763 \fi
3764 \fi
3765 }

```

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

```

3766 \@ifpackageloaded{amsmath}{\newif\ifmeasuring@\measuring@false}

```

`\hyper@refstepcounter`

```

3767 \def\hyper@refstepcounter#1{%
3768 \edef\This@name{#1}%
3769 \ifx\This@name\name@of@eq
3770 \make@stripped@name{\theequation}%
3771 \let\theHequation\newname
3772 \fi
3773 \@ifundefined{theH#1}{%
3774 \expandafter\def\csname theH#1\endcsname{\arabic{#1}}%
3775 }{}%
3776 \hyper@makecurrent{#1}%
3777 \ifmeasuring@
3778 \else
3779 \Hy@raisedlink{%
3780 \hyper@anchorstart{\@currentHref}\hyper@anchorend
3781 }%
3782 \fi
3783 }

```

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`.

```

3784 \begingroup\expandafter\expandafter\expandafter\endgroup
3785 \expandafter\ifx\csname chapter\endcsname\relax
3786 \def\Hy@chapterstring{section}%
3787 \else
3788 \def\Hy@chapterstring{chapter}%
3789 \fi
3790 \def\Hy@appendixstring{appendix}
3791 \def\Hy@chapapp{\Hy@chapterstring}
3792 \let\HyOrg@appendix\appendix
3793 \def\appendix{%
3794 \@ifundefined{chapter}%
3795 {\gdef\theHsection{\Alph{section}}}%
3796 {\gdef\theHchapter{\Alph{chapter}}}%
3797 \xdef\Hy@chapapp{\Hy@appendixstring}%
3798 \HyOrg@appendix
3799 }

```

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

```

3800 \def\hyper@makecurrent#1{%
3801   \begingroup
3802     \edef\Hy@param{#1}%
3803     \ifx\Hy@param\Hy@chapterstring
3804       \let\Hy@param\Hy@chapapp
3805     \fi
3806     \ifHy@hypertextnames
3807       \let\@number\@firstofone
3808     \ifHy@naturalnames
3809       \let\textlatin\@firstofone
3810       \xdef\@currentHlabel{\csname the#1\endcsname}%
3811     \else
3812       \xdef\@currentHlabel{\csname theH#1\endcsname}%
3813     \fi
3814     \xdef\@currentHref{%
3815       \Hy@param.\expandafter\strip@prefix\meaning\@currentHlabel
3816     }%
3817   \else
3818     \Hy@GlobalStepCount\Hy@linkcounter
3819     \xdef\@currentHref{\Hy@param.the\Hy@linkcounter}%
3820   \fi
3821 \endgroup
3822 }

3823 \@ifpackageloaded{fancyvrb}{%
3824   \def\FV@StepLineNo{%
3825     \FV@SetLineNo
3826     \def\FV@StepLineNo{\H@refstepcounter{FancyVerbLine}}%
3827     \FV@StepLineNo
3828   }%
3829 }{}

```

## 28 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 `hypertextnames` and `plainpages`) is used to get the page anchor name as in `\@hyperfixhead` (see sec. 37). The link will not work if option `pageanchor` is set to false.

```

\lastpage@putlabel
3830 \AtBeginDocument{%
3831   \@ifpackageloaded{lastpage}{%
3832     \ifHy@pageanchor
3833     \else
3834       \Hy@WarningNoLine{%
3835         The \string\pageref{LastPage} link doesn't work\MessageBreak
3836         with disabled option 'pageanchor'%
3837       }%
3838     \fi
3839     \def\lastpage@putlabel{%
3840       \addtocounter{page}{-1}%
3841       \if@filesw

```

```

3842     \begingroup
3843     \let\@number\@firstofone
3844     \ifHy@pageanchor
3845         \ifHy@hypertextnames
3846             \ifHy@plainpages
3847                 \def\Hy@temp{\arabic{page}}%
3848             \else
3849                 \Hy@unicodedefalse
3850                 \pdfstringdef\Hy@temp{\thepage}%
3851             \fi
3852         \else
3853             \def\Hy@temp{\the\Hy@pagecounter}%
3854         \fi
3855     \fi
3856     \immediate\write\@auxout{%
3857         \string\newlabel
3858         {LastPage}{\thepage}{\thepage}%
3859         \ifHy@pageanchor page.\Hy@temp\fi}%
3860     }%
3861 \endgroup
3862 \fi
3863 \addtocounter{page}{1}%
3864 }%
3865 }{}%
3866 }
3867 \</package>
3868 \<*check>
3869 \checkpackage{lastpage}[1994/06/25]
3870 \checkcommand\def\lastpage@putlabel{%
3871     \addtocounter{page}{-1}%
3872     \immediate\write\@auxout{%
3873         \string\newlabel{LastPage}{\thepage}%
3874     }%
3875     \addtocounter{page}{1}%
3876 }
3877 \</check>
3878 \<*package>

```

## 29 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.

```

3879 \def\hypergetref#1{\getrefbykeydefault{#1}{}}
3880 \def\hypergetpageref#1{\getrefbykeydefault{#1}{page}{0}}

```

## 30 Package titlesec and titletoc support

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

Package titlesec support:

```

3881 \@ifpackageloaded{titlesec}{%
3882     \def\ttl@Hy@steplink#1{%
3883         \Hy@GlobalStepCount\Hy@linkcounter
3884         \xdef\@currentHref{#1*.\the\Hy@linkcounter}%

```

```

3885 \def\ttl@Hy@saveanchor{%
3886 \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
3887 }%
3888 }%
3889 \def\ttl@Hy@refstepcounter#1{%
3890 \let\ttl@b\Hy@raisedlink
3891 \def\Hy@raisedlink##1{\def\ttl@Hy@saveanchor{\Hy@raisedlink{##1}}}%
3892 \refstepcounter{#1}%
3893 \let\Hy@raisedlink\ttl@b
3894 }%
3895 }{}

Package titletoc support:
3896 \@ifpackageloaded{titletoc}{%
3897 \def\ttl@gobblecontents#1#2#3#4{\ignorespaces}%
3898 }{}

```

## 31 Package varioref support

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

```

3899 \def\Hy@varioref@undefined{{{???}{??}{}}{}}
3900 \@ifpackageloaded{varioref}{%
3901 \def\vref@pagenum#1#2{%
3902 \ifundefined{r@#2}{%
3903 \expandafter\let\csname r@#2\endcsname\Hy@varioref@undefined
3904 }{}%
3905 \edef#1{\getpagerefnumber{#2}}%
3906 }%
3907 }{}

```

## 32 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

```

3908 \@ifpackageloaded{longtable}{%
3909 \begingroup
3910 \def\y{\LT@array}%
3911 \ifundefined{scr@LT@array}{\def\y{\scr@LT@array}}%
3912 \long\def\x\refstepcounter#1#2\@sharp#3#4\@nil{%
3913 \expandafter\endgroup
3914 \expandafter\def\y[#1]##2{%
3915 \H@refstepcounter{#1}%
3916 \hyper@makecurrent{table}%
3917 #2\@sharp####4%
3918 }%
3919 }%
3920 \expandafter\expandafter\expandafter\x\y[#1]{#2}\@nil

```

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

```

3921 \begingroup
3922 \def\x#1\ifvoid\LT@firsthead\copy#2\@nil{%

```

```

3923 \endgroup
3924 \def\LT@start{%
3925     #1%
3926     \hyper@refstepcounter{table}%
3927     \ifvoid\LT@firsthead\copy
3928     #2%
3929     }%
3930 }%
3931 \expandafter\x\LT@start\@nil
3932 }{}

```

### 33 Equations

We want to make the whole equation a target anchor. Overload equation, temporarily reverting to original `\refstepcounter`. If, however, it is in AMS math, we do not do anything, as the tag mechanism is used there (see section 40). 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.

```

3933 \let\new@refstepcounter\refstepcounter
3934 \let\H@equation\equation
3935 \let\H@endequation\endequation
3936 \ifpackageloaded{amsmath}{%
3937     \long\def\Hy@temp{%
3938         \incr@eqnum
3939         \mathdisplay@push
3940         \st@rredfalse \global\@eqnswtrue
3941         \mathdisplay{equation}%
3942     }%
3943     \ifx\Hy@temp\equation
3944         \expandafter\ifx\csname if@fleqn\expandafter\endcsname
3945             \csname iftrue\endcsname
3946     \else
3947         \long\def\equation{%
3948             \mathdisplay@push
3949             \st@rredfalse \global\@eqnswtrue
3950             \mathdisplay{equation}%
3951             \incr@eqnum
3952         }%
3953     \fi
3954 \fi
3955 }{}%
3956 \def\equation{%
3957     \let\refstepcounter\H@refstepcounter
3958     \H@equation
3959     \make@stripped@name{\theequation}%
3960     \let\theHequation\newname
3961     \hyper@makecurrent{equation}%
3962     \Hy@raisedlink{\hyper@anchorstart{\@currentHref}}%
3963     \let\refstepcounter\new@refstepcounter
3964 }%
3965 \def\endequation{\Hy@raisedlink{\hyper@anchorend}\H@endequation}%
3966 }

```

My goodness, why can't L<sup>A</sup>T<sub>E</sub>X be consistent? Why is `\eqnarray` set up differently from other objects?

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

```

3967 \newif\if@eqnstar
3968 \@eqnstarfalse
3969 \let\H@eqnarray\eqnarray
3970 \let\H@endeqnarray\endeqnarray
3971 \def\eqnarray{%
3972   \let\Hy@reserved@a\relax
3973   \def\@currentHref{%
3974     \H@eqnarray
3975     \if@eqnstar
3976     \else
3977       \ifx\\ \@currentHref\\
3978       \else
3979         \make@stripped@name{\theequation}%
3980         \let\theHequation\newname
3981         \hyper@makecurrent{equation}%
3982         \hyper@anchorstart{\@currentHref}\hyper@anchorend
3983       \fi
3984     \fi
3985 }
3986 \def\endeqnarray{%
3987   \H@endeqnarray
3988 }

```

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

```

3989 \@namedef{eqnarray*}{%
3990   \def\@eqnocr{\nonumber\@seqnocr}\@eqnstartrue\eqnarray
3991 }
3992 \@namedef{endeqnarray*}{%
3993   \nonumber\endeqnarray\@eqnstarfalse
3994 }

```

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

```

3995 \@ifundefined{subeqnarray}{}{%
3996   \let\H@subeqnarray\subeqnarray
3997   \let\H@endsubeqnarray\endsubeqnarray
3998   \def\subeqnarray{%
3999     \let\Hy@reserved@a\relax
4000     \H@subeqnarray
4001     \make@stripped@name{\theequation}%
4002     \let\theHequation\newname
4003     \hyper@makecurrent{equation}%
4004     \hyper@anchorstart{\@currentHref}\hyper@anchorend
4005   }%
4006   \def\endsubeqnarray{%
4007     \H@endsubeqnarray
4008   }%
4009   \newcommand\theHsubequation{\theHequation\alpha{subequation}}%
4010 }

```

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

```

4011 \def\make@stripped@name#1{%
4012   \begingroup
4013     \escapechar\m@ne

```

```

4014 \global\let\newname\@empty
4015 \protected@edef\Hy@tempa{#1}%
4016 \edef\@tempb{%
4017   \noexpand\@tfor\noexpand\Hy@tempa:=%
4018   \expandafter\strip@prefix\meaning\Hy@tempa
4019 }%
4020 \@tempb\do{%
4021   \if\Hy@tempa\else
4022     \if}\Hy@tempa\else
4023     \xdef\newname{\newname\Hy@tempa}%
4024   \fi
4025 \fi
4026 }%
4027 \endgroup
4028 }

```

## 34 Footnotes

The footnote mark is a hypertext link, and the text is a target. We separately number the footnotes sequentially through the text, separately from whatever labels the text assigns. Too hard to keep track of markers otherwise. If the raw forms `\footnotemark` and `\footnotetext` are used, force them to use un-hyper original.

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

```

4029 \@ifpackageloaded{tabularx}{\Hy@hyperfootnotesfalse}{}
4030 \ifHy@hyperfootnotes
4031   \newcounter{Hfootnote}
4032   \let\H@@footnotetext\@footnotetext
4033   \let\H@@footnotemark\@footnotemark
4034   \def\@xfootnotenext[#1]{%
4035     \begingroup
4036       \csname c@\@mpfn\endcsname #1\relax
4037       \unrestored@protected\xdef\@thefnmark{\thempfn}%
4038     \endgroup
4039     \ifx\@footnotetext\@mpfootnotetext
4040       \expandafter\H@@mpfootnotetext
4041     \else
4042       \expandafter\H@@footnotetext
4043     \fi
4044   }%
4045   \def\@xfootnotemark[#1]{%
4046     \begingroup
4047       \c@footnote #1\relax
4048       \unrestored@protected\xdef\@thefnmark{\thefootnote}%
4049     \endgroup
4050     \H@@footnotemark
4051   }%
4052   \let\H@@mpfootnotetext\@mpfootnotetext
4053   \long\def\@mpfootnotetext#1{%
4054     \H@@mpfootnotetext{%
4055       \ifHy@nesting
4056         \hyper@@anchor{\Hy@footnote@currentHref}{#1}%
4057       \else
4058         \Hy@raisedlink{%
4059           \hyper@@anchor{\Hy@footnote@currentHref}{\relax}%
4060         }#1%
4061       \fi

```

```

4062 }%
4063 }%
4064 \long\def\@footnotetext#1{%
4065   \H\@footnotetext{%
4066     \ifHy@nesting
4067       \hyper@@anchor{\Hy@footnote@currentHref}{#1}%
4068     \else
4069       \Hy@raisedlink{%
4070         \hyper@@anchor{\Hy@footnote@currentHref}{\relax}%
4071       }%
4072       \let\@currentHlabel\Hy@footnote@currentHlabel
4073       \let\@currentHref\Hy@footnote@currentHref
4074       \let\@currentlabelname\@empty
4075       #1%
4076     \fi
4077   }%
4078 }%

```

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.

```

4079 \def\@footnotemark{%
4080   \leavevmode
4081   \ifhmode\edef\x@sf{\the\spacefactor}\nobreak\fi
4082   \stepcounter{Hfootnote}%
4083   \global\let\Hy@saved@currentHlabel\@currentHlabel
4084   \global\let\Hy@saved@currentHref\@currentHref
4085   \hyper@makecurrent{Hfootnote}%
4086   \global\let\Hy@footnote@currentHlabel\@currentHlabel
4087   \global\let\Hy@footnote@currentHref\@currentHref
4088   \global\let\@currentHlabel\Hy@saved@currentHlabel
4089   \global\let\@currentHref\Hy@saved@currentHref
4090   \hyper@linkstart{link}{\Hy@footnote@currentHref}%
4091   \@makefnmark
4092   \hyper@linkend
4093   \ifhmode\spacefactor\x@sf\fi
4094   \relax
4095 }%

```

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.

```

4096 \@ifpackageloaded{longtable}{%
4097   \CheckCommand*\LT@p@ftntext}[1]{%
4098     \edef\@tempa{%
4099       \the\LT@p@ftn
4100       \noexpand\footnotetext[\the\c@footnote]%
4101     }%
4102     \global\LT@p@ftn\expandafter{\@tempa{#1}}%
4103   }%
4104   \long\def\LT@p@ftntext#1{%
4105     \edef\@tempa{%
4106       \the\LT@p@ftn
4107       \begingroup
4108         \noexpand\c@footnote=\the\c@footnote\relax
4109         \noexpand\protected@xdef

```



```

4110         \noexpand\@thefnmark{\noexpand\thempfn}%
4111         \noexpand\protected@xdef\noexpand\@thefnmark{%
4112         \noexpand\thempfn
4113     }%
4114     \expandafter\expandafter\expandafter\noexpand
4115     \expandafter\expandafter\expandafter\Hy@LT@footnotetext
4116     \expandafter\expandafter\expandafter{%
4117     \expandafter\Hy@footnote@currentHref\expandafter
4118     }\expandafter{\Hy@footnote@currentHlabel}%
4119 }%
4120 \global\LT@p@ftn\expandafter{%
4121     \@tempa{#1}%
4122     \endgroup
4123 }%
4124 }%
4125 \long\def\Hy@LT@footnotetext#1#2#3{%
4126     \H@@footnotetext{%
4127         \ifHy@nesting
4128         \hyper@@anchor{#1}{#3}%
4129     \else
4130         \Hy@raisedlink{%
4131         \hyper@@anchor{#1}{\relax}%
4132         }%
4133         \def\@currentHlabel{#2}%
4134         \def\@currentHref{#1}%
4135         \let\@currentlabelname\@empty
4136         #3%
4137     \fi
4138     }%
4139 }%
4140 }-}%

```

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.

```

4141 \let\HyOrg@maketitle\maketitle
4142 \def\maketitle{%
4143     \let\Hy@saved@footnotemark\@footnotemark
4144     \let\Hy@saved@footnotetext\@footnotetext
4145     \let\@footnotemark\H@@footnotemark
4146     \let\@footnotetext\H@@footnotetext
4147     \@ifnextchar[\Hy@maketitle@optarg{% ]
4148     \HyOrg@maketitle
4149     \Hy@maketitle@end
4150 }%
4151 }%
4152 \def\Hy@maketitle@optarg[#1]{%
4153     \HyOrg@maketitle[#1]%
4154     \Hy@maketitle@end
4155 }%
4156 \def\Hy@maketitle@end{%
4157     \ifx\@footnotemark\H@@footnotemark
4158         \let\@footnotemark\Hy@saved@footnotemark
4159     \fi
4160     \ifx\@footnotetext\H@@footnotetext
4161         \let\@footnotetext\Hy@saved@footnotetext
4162     \fi
4163 }%

```

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

```

4164 \def\realfootnote{%
4165   \@ifnextchar[\@xfootnote{%
4166     \stepcounter{\@mpfn}%
4167     \protected@xdef\@thefnmark{\thempfn}%
4168     \H@@footnotemark\H@@footnotetext
4169   }%
4170 }%

4171 \fi
4172 \Hy@DisableOption{hyperfootnotes}

4173 </package>
4174 <*check>
4175 \checklatex
4176 \checkcommand\def\@xfootnotenext[#1]{%
4177   \begingroup
4178     \csname c@\@mpfn\endcsname #1\relax
4179     \unrestored@protected@xdef\@thefnmark{\thempfn}%
4180   \endgroup
4181   \@footnotetext
4182 }
4183 \checkcommand\def\@xfootnotemark[#1]{%
4184   \begingroup
4185     \c@footnote #1\relax
4186     \unrestored@protected@xdef\@thefnmark{\thefootnote}%
4187   \endgroup
4188   \@footnotemark
4189 }
4190 \checkcommand\def\@footnotemark{%
4191   \leavevmode
4192   \ifhmode\edef\@x@sf{\the\spacefactor}\nobreak\fi
4193   \@makefnmark
4194   \ifhmode\spacefactor\@x@sf\fi
4195   \relax
4196 }
4197 </check>
4198 <*package>

```

## 35 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.

```

4199 \def\caption{%
4200   \ifx\@capttype\@undefined
4201     \@latex@error{\noexpand\caption outside float}\@ehd
4202     \expandafter\@gobble
4203   \else
4204     \H@refstepcounter\@capttype
4205     \@ifundefined{fst@\@capttype}{%
4206       \let\Hy@tempa\@caption
4207     }{%
4208       \let\Hy@tempa\Hy@float@caption
4209     }%
4210     \expandafter\@firstofone
4211   \fi

```

```

4212 {\@dblarg{\Hy@tempa\@capttype}}%
4213 }
4214 \long\def\@caption#1[#2]#3{%
4215   \hyper@makecurrent{\@capttype}%
4216   \def\@currentlabelname{#2}%
4217   \par\addcontentsline{\csname ext@#1\endcsname}{#1}{%
4218     \protect\numberline{\csname the#1\endcsname}{\ignorespaces #2}%
4219   }%
4220   \begingroup
4221     \@parboxrestore
4222     \if@minipage
4223       \setminipage
4224     \fi
4225     \normalsize
4226     \@makecaption{\csname fnum@#1\endcsname}{%
4227       \ignorespaces

```

If we cannot have nesting, the anchor is empty.

```

4228     \ifHy@nesting
4229       \hyper@@anchor{\@currentHref}{#3}%
4230     \else
4231       \Hy@raisedlink{\hyper@@anchor{\@currentHref}{\relax}}#3%
4232     \fi
4233   }%
4234   \par
4235 \endgroup
4236 }

```

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.

```

4237 \let\Hy@float@caption\@caption
4238 \@ifpackageloaded{float}{%
4239   \def\Hy@float@caption{%
4240     \hyper@makecurrent{\@capttype}%
4241     \float@caption
4242   }
4243   \let\HyOrg@float@makebox\float@makebox
4244   \renewcommand{\float@makebox}[1]{%
4245     \HyOrg@float@makebox{%
4246       #1\relax
4247     \begingroup
4248       \hyper@makecurrent{\@capttype}%
4249       \hyper@@anchor{\@currentHref}{\relax}%
4250     \endgroup
4251   }%
4252 }%
4253 }{}

4254 \</package>
4255 \<*check>
4256 \checklatex[1999/06/01 - 2000/06/01]
4257 \checkcommand\def\caption{%
4258   \ifx\@capttype\undefined
4259     \@latex@error{\noexpand\caption outside float}\@ehd
4260     \expandafter\@gobble
4261   \else
4262     \refstepcounter\@capttype
4263     \expandafter\@firstofone
4264   \fi

```

```

4265 {\@dblarg{\@caption\@capttype}}%
4266 }
4267 \checkcommand\long\def\@caption#1[#2]#3{%
4268   \par
4269   \addcontentsline{\csname ext@#1\endcsname}{#1}%
4270   {\protect\numberline{\csname the#1\endcsname}{\ignorespaces #2}}%
4271   \begingroup
4272     \@parboxrestore
4273     \if@minipage
4274       \setminipage
4275     \fi
4276     \normalsize
4277     \@makecaption{\csname fnum@#1\endcsname}{\ignorespaces #3}\par
4278   \endgroup
4279 }
4280 \</check>
4281 \<*package>

```

## 36 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*, *chapterbib*, and *drftcite* may break.

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

```

4282 \def\hyper@natlinkstart#1{%
4283   \Hy@backout{#1}%
4284   \hyper@linkstart{cite}{cite.#1}%
4285   \def\hyper@nat@current{#1}%
4286 }
4287 \def\hyper@natlinkend{%
4288   \hyper@linkend
4289 }
4290 \def\hyper@natlinkbreak#1#2{%
4291   \hyper@linkend#1\hyper@linkstart{cite}{cite.#2}%
4292 }
4293 \def\hyper@natanchorstart#1{%
4294   \Hy@raisedlink{\hyper@anchorstart{cite.#1}}%
4295 }
4296 \def\hyper@natanchorend{\hyper@anchorend}

```

Do not play games if we have *natbib* support. Macro `extra@binfo` added for *chapterbib* support.

```

4297 \@ifundefined{NAT@parse}{%
4298   \def\bibcite#1#2{%
4299     \newl@bel{b}{#1\@extra@binfo}{\hyper@link{cite}{cite.#1}{#2}}%
4300   }%
4301   \gdef\@extra@binfo{}%

```

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

```

4302 \let\Hy@bibcite\bibcite
4303 \begingroup

```

```

4304 \ifundefined{bbl@cite@choice}{\%
4305 \g@addto@macro\bbl@cite@choice{\%
4306 \let\bibcite\Hy@bibcite
4307 }%
4308 }%
4309 \endgroup
\@BIBLABEL is working around a ‘feature’ of RevTeX.
4310 \providecommand*\@BIBLABEL{\@biblabel}%
4311 \def\@lbibitem[#1]#2{%
4312 \@skiphyperreftrue
4313 \H@item[%
4314 \ifx\Hy@raisedlink\@empty
4315 \hyper@anchorstart{cite.#2}\@BIBLABEL{#1}\hyper@anchorend
4316 \else
4317 \Hy@raisedlink{\hyper@anchorstart{cite.#2}\hyper@anchorend}%
4318 \@BIBLABEL{#1}%
4319 \fi
4320 \hfill
4321 ]%
4322 \@skiphyperreffalse
4323 \if@filesw
4324 \begingroup
4325 \let\protect\noexpand
4326 \immediate\write\@auxout{%
4327 \string\bibcite{#2}{#1}%
4328 }%
4329 \endgroup
4330 \fi
4331 \ignorespaces
4332 }%

```

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

```

4333 \def\@bibitem#1{%
4334 \@skiphyperreftrue\H@item\@skiphyperreffalse
4335 \Hy@raisedlink{\hyper@anchorstart{cite.#1}\relax\hyper@anchorend}%
4336 \if@filesw
4337 \begingroup
4338 \let\protect\noexpand
4339 \immediate\write\@auxout{%
4340 \string\bibcite{#1}{\the\value{\@listctr}}%
4341 }%
4342 \endgroup
4343 \fi
4344 \ignorespaces
4345 }%
4346 \{}

4347 \</package>
4348 \<*check>
4349 \checklatex
4350 \checkcommand\def\@lbibitem[#1]#2{%
4351 \item[\@biblabel{#1}\hfill]%
4352 \if@filesw
4353 {%
4354 \let\protect\noexpand
4355 \immediate\write\@auxout{%
4356 \string\bibcite{#2}{#1}%

```

```

4357     }%
4358   }%
4359 \fi
4360 \ignorespaces
4361 }
4362 \checkcommand\def\@bibitem#1{%
4363   \item
4364   \if@filesw
4365     \immediate\write\@auxout{%
4366       \string\bibcite{#1}{\the\value{\@listctr}}}%
4367   }%
4368 \fi
4369 \ignorespaces
4370 }
4371 </check>
4372 <*package>

```

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

```

4373 \ifclassloaded{revtex}{%
4374   \Hy@Info{*** compatibility with revtex **** }%
4375   \def\revtex@checking#1#2{%
4376     \expandafter\let\expandafter\T@temp\csname b@#1\endcsname
4377     \expandafter\def\csname b@#1\endcsname{#2}%
4378     \SetMaxRnhefLabel{#1}%
4379     \expandafter\let\csname b@#1\endcsname\T@temp
4380   }%

```

Tanmoy provided this replacement for CITE<sub>X</sub>. Lord knows what it does. For chapterbib added: `extra@b@citeb`

```

4381 \ifundefined{CITE}{\def\CITE{\@cite}}{%
4382 \providecommand*{\@extra@b@citeb}{}%
4383 \def\CITE[#1]#2{%
4384   \let\@citea\@empty
4385   \leavevmode
4386   \unskip
4387   $^{}%
4388   \scriptstyle
4389   \CITE{%
4390     \for\@citeb:=#2\do{%
4391       \@citea
4392       \def\@citea{\penalty\@m\ }%
4393       \edef\@citeb{\expandafter\@firstofone\@citeb}%
4394       \if@filesw
4395         \immediate\write\@auxout{\string\citation{\@citeb}}%
4396       \fi
4397       \ifundefined{b@\@citeb\extra@b@citeb}{%
4398         \mbox{\reset@font\bfseries ?}%
4399         \G@refundefinedtrue
4400         \latex@warning{%
4401           Citation ‘\@citeb’ on page \thepage \space undefined%
4402         }%
4403       }{%
4404         {\csname b@\@citeb\extra@b@citeb\endcsname}%
4405       }%
4406     }%
4407   }{#1}%

```

```

4408   }$%
4409   }%

```

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

```

4410   \def\@citex[#1]#2{%
4411     \let\@citea\@empty
4412     \@cite{%
4413       \@for\@citeb:=#2\do{%
4414         \@citea
4415         \def\@citea{,\penalty\@m\ }%
4416         \edef\@citeb{\expandafter\@firstofone\@citeb}%
4417         \if@filesw
4418           \immediate\write\@auxout{\string\citation{\@citeb}}%
4419         \fi
4420         \@ifundefined{b@\@citeb\@extra@b@citeb}{%
4421           \mbox{\reset@font\bfseries ?}%
4422           \G@refundefinedtrue
4423           \@latex@warning{%
4424             Citation ‘\@citeb’ on page \thepage \space undefined%
4425           }%
4426         }{%
4427           \hbox{\csname b@\@citeb\@extra@b@citeb\endcsname}%
4428         }%
4429       }%
4430     }{#1}%
4431   }%
4432 }{}

```

### 36.1 Package harvard

Override Peter Williams’ Harvard package; we have to a) make each of the citation types into a link; b) make each citation write a backref entry, and c) kick off a backreference section for each bibliography entry.

The redefinitions have to be deferred to \begin{document}, because if harvard.sty is loaded and html.sty is present and detects pdfTEX, then hyperref is already loaded at the begin of harvard.sty, and the \newcommand macros causes error messages.

```

4433 \@ifpackageloaded{harvard}{%
4434   \AtBeginDocument{%
4435     \Hy@Info{*** compatibility with harvard *** }%
4436     \Hy@raiselinksfalse
4437     \def\harvardcite#1#2#3#4{%
4438       \global\@namedef{HAR@fn@#1}{\hyper@link[cite]{\cite.#1}{#2}}%
4439       \global\@namedef{HAR@an@#1}{\hyper@link[cite]{\cite.#1}{#3}}%
4440       \global\@namedef{HAR@yr@#1}{\hyper@link[cite]{\cite.#1}{#4}}%
4441       \global\@namedef{HAR@df@#1}{\csname HAR@fn@#1\endcsname}%
4442     }%
4443     \def\HAR@citetoaux#1{%
4444       \if@filesw\immediate\write\@auxout{\string\citation{#1}}\fi%
4445       \ifHy@backref
4446         \ifx\@empty\@currentlabel
4447         \else
4448           \@bsphack
4449           \if@filesw
4450             \protected@write\@auxout{}{%
4451               \string\writefile{brf}{%
4452                 \string\backcite{#1}{%

```

```

4453         {\thepage}{\@currentlabel}{\@currentHref}%
4454     }%
4455 }%
4456 }%
4457 \fi
4458 \@esphack
4459 \fi
4460 \fi
4461 }%
4462 \def\harvarditem{%
4463     \@ifnextchar[{\@harvarditem}{\@harvarditem[\null]}%
4464 }%
4465 \def\@harvarditem[#1]#2#3#4#5\par{%
4466     \item[]%
4467     \hyper@anchorstart{cite.#4}\relax\hyper@anchorend
4468     \if@filesw
4469         \begingroup
4470         \def\protect##1{\string ##1\space}%
4471         \ifthenelse{\equal{#1}{\null}}%
4472             {\def\next{{#4}{#2}{#2}{#3}}}%
4473             {\def\next{{#4}{#2}{#1}{#3}}}%
4474         \immediate\write\@auxout{\string\harvardcite\codeof\next}%
4475         \endgroup
4476     \fi
4477     \protect\hspace*{-\labelwidth}%
4478     \protect\hspace*{-\labelsep}%
4479     \ignorespaces
4480     #5%
4481     \ifHy@backref
4482         \newblock
4483         \backref{\csname br@#4\endcsname}%
4484     \fi
4485     \par
4486 }%

```

\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:

```

4487 \long\def\HAR@checkcitations#1#2#3#4{%
4488     \def\HAR@tempa{\hyper@@link[cite]{}{cite.#1}{#2}}%
4489     \expandafter\ifx\csname HAR@fn@#1\endcsname\HAR@tempa
4490         \def\HAR@tempa{\hyper@@link[cite]{}{cite.#1}{#3}}%
4491         \expandafter\ifx\csname HAR@an@#1\endcsname\HAR@tempa
4492             \def\HAR@tempa{\hyper@@link[cite]{}{cite.#1}{#4}}%
4493             \expandafter\ifx\csname HAR@yr@#1\endcsname\HAR@tempa
4494                 \else
4495                     \@tempswatrue
4496                 \fi
4497             \else
4498                 \@tempswatrue
4499             \fi
4500         \else
4501             \@tempswatrue
4502         \fi
4503     }%
4504 }%
4505 }{}

```



## 36.2 Package chicago

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

```
4506 \@ifpackageloaded{chicago}{%

\citeN
4507   \def\citeN{%
4508     \def\@citesep{--1000}%
4509     \def\@cite##1##2{##1}%
4510     \def\citeauthoryear##1##2##3{##1 (##3\@cite@opt)}}%
4511     \@citedata@opt
4512   }%

\shortciteN
4513   \def\shortciteN{%
4514     \def\@citesep{--1000}%
4515     \def\@cite##1##2{##1}%
4516     \def\citeauthoryear##1##2##3{##2 (##3\@cite@opt)}}%
4517     \@citedata@opt
4518   }%

\@citedata@opt
4519   \def\@citedata@opt{%
4520     \let\@cite@opt\@empty
4521     \@ifnextchar [{%
4522       \@tempswatrue
4523       \@citedatax@opt
4524     }{%
4525       \@tempswafalse
4526       \@citedatax[]%
4527     }%
4528   }%

\@citedatax@opt
4529   \def\@citedatax@opt[#1]{%
4530     \def\@cite@opt{, #1}%
4531     \@citedatax[#1]}%
4532   }

4533 }{}
```

## 37 Page numbers

Give every page an automatic number anchor. This involves, sigh, overloading  $\LaTeX$ 's output bits and pieces, which must be dangerous. This used to be `\@shipoutsetup`, now `\@begindvi`. We cannot even overload this, as it sets itself to null. SIGH.

```
4534 \def\@begindvi{%
4535   \unvbox \@begindvibox
4536   \Hy@begindvi
4537   \global\let\@begindvi\Hy@begindvi
4538 }
4539 \def\Hy@begindvi{%
4540   \@hyperfixhead
4541   \HyPL@EveryPage
4542 }
```

```

4543 \def\pagenumbering#1{%
4544   \global\c@page \one
4545   \gdef\thepage{\csname @#1\endcsname\c@page}%
4546 }

```

This is needed for some unremembered reason...

```

4547 \let\HYPERPAGEANCHOR\hyperpageanchor

```

Macro \@hyperfixhead calls \hyper@pagetransition and \hyper@pageduration. Therefore empty definitions are provided for drivers that do not define these macros.

The last page should not contain a /Dur key, because there is no page after the last page. Therefore at the last page there should be a command \hypersetup{pdfpageduration={}}. This can be set with \AtEndDocument, but it can be too late, if the last page is already finished, or too early, if lots of float pages will follow. Therefore currently nothing is done by hyperref.

```

4548 \providecommand*\hyper@pagetransition{}
4549 \providecommand*\hyper@pageduration{}
4550 \providecommand*\hyper@pagehidden{}

```

This where we supply a destination for each page. Test to see if there is some sort of header. The test used to be \expandafter\ifx\expandafter\@empty\H@old@thehead.

\@hyperfixhead

```

4551 \def\@hyperfixhead{%
4552   \Hy@DistillerDestFix
4553   \ifHy@pageanchor
4554     \ifHy@hypertextnames
4555     \ifHy@plainpages
4556       \gdef\Hy@TempPageAnchor{\hyper@@anchor{page.\the\c@page}}%
4557     \else
4558       \begingroup
4559         \let\@number\@firstofone
4560         \Hy@unicodedefalse
4561         \pdfstringdef\@the@H@page{\thepage}%
4562       \endgroup
4563       \gdef\Hy@TempPageAnchor{\hyper@@anchor{page.\@the@H@page}}%
4564     \fi
4565   \else
4566     \Hy@GlobalStepCount\Hy@pagecounter
4567     \gdef\Hy@TempPageAnchor{\hyper@@anchor{page.\the\Hy@pagecounter}}%
4568   \fi
4569 \else
4570   \let\Hy@TempPageAnchor\@empty
4571 \fi
4572 \let\H@old@thehead\@thehead
4573 \if^\@thehead~%
4574   \def\H@old@thehead{\hfil}%
4575 \fi
4576 \ifHy@texht
4577   \def\@thehead{}%
4578 \else
4579   \ifHy@seminarslides
4580     \begingroup
4581       \let\leavevmode\relax
4582       \Hy@TempPageAnchor\relax
4583       \hyper@pagetransition
4584       \hyper@pageduration
4585       \hyper@pagehidden

```

```

4586     \endgroup
4587     \else
4588     \def\@thehead{%
4589     \Hy@TempPageAnchor\relax
4590     \hyper@pagetransition
4591     \hyper@pageduration
4592     \hyper@pagehidden
4593     \H@old@thehead
4594     }%
4595     \fi
4596 \fi
4597 \ifx\PDF@FinishDoc\@empty
4598 \else
4599     \PDF@FinishDoc
4600     \gdef\PDF@FinishDoc{}%
4601 \fi
4602 }

```

## 38 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.

```

4603 \begingroup\expandafter\expandafter\expandafter\endgroup
4604 \expandafter\ifx\csname chapter\endcsname\relax
4605     \def\toclevel@part{0}
4606 \else
4607     \def\toclevel@part{-1}
4608 \fi
4609 \def\toclevel@chapter{0}
4610 \def\toclevel@section{1}
4611 \def\toclevel@subsection{2}
4612 \def\toclevel@subsubsection{3}
4613 \def\toclevel@paragraph{4}
4614 \def\toclevel@subparagraph{5}
4615 \def\toclevel@figure{0}
4616 \def\toclevel@table{0}
4617 \ifpackageloaded{listings}{%
4618     \providecommand*\theHlstlisting{\thelstlisting}%
4619     \providecommand*\toclevel@lstlisting{0}%
4620 }{}
4621 \ifpackageloaded{listing}{%
4622     \providecommand*\theHlisting{\thelisting}%
4623     \providecommand*\toclevel@listing{0}%
4624 }{}
4625 \def\addcontentsline#1#2#3{% toc extension, type, tag
4626     \begingroup
4627     \let\label\@gobble
4628     \let\textlatin\@firstofone
4629     \ifx\@currentHref\@empty
4630     \Hy@Warning{%
4631         No destination for bookmark of \string\addcontentsline,%
4632         \MessageBreak destination is added%
4633     }%
4634     \phantomsection
4635     \fi

```

```

4636 \expandafter\ifx\csname toplevel@#2\endcsname\relax
4637 \begingroup
4638 \def\Hy@tempa{#1}%
4639 \ifx\Hy@tempa\Hy@bookmarkstype
4640 \Hy@WarningNoLine{bookmark level for unknown #2 defaults to 0}%
4641 \else
4642 \Hy@Info{bookmark level for unknown #2 defaults to 0}%
4643 \fi
4644 \endgroup
4645 \expandafter\gdef\csname toplevel@#2\endcsname{0}%
4646 \fi
4647 \edef\Hy@toplevel{\csname toplevel@#2\endcsname}%
4648 \Hy@writebookmark{\csname the#2\endcsname}%
4649 {#3}%
4650 {\@currentHref}%
4651 {\Hy@toplevel}%
4652 {#1}%
4653 \ifHy@verbose
4654 \def\Hy@tempa{#3}%
4655 \@onelevel@sanitize\Hy@tempa
4656 \typeout{pdfTeX: bookmark at \the\inputlineno:
4657 {\csname the#2\endcsname}
4658 {\Hy@tempa}
4659 {\@currentHref}%
4660 {\Hy@toplevel}%
4661 {#1}%
4662 }%
4663 \fi
4664 \addtocontents{#1}{%
4665 \protect\contentsline{#2}{#3}{\thepage}{\@currentHref}%
4666 }%
4667 \endgroup
4668 }
4669 \def\contentsline#1#2#3#4{%
4670 \ifx\#4\%
4671 \csname l@#1\endcsname{#2}{#3}%
4672 \else
4673 \ifHy@linktopage
4674 \csname l@#1\endcsname{#2}{%
4675 \hyper@linkstart{link}{#4}{#3}\hyper@linkend
4676 }%
4677 \else
4678 \csname l@#1\endcsname{%
4679 \hyper@linkstart{link}{#4}{#2}\hyper@linkend
4680 }{#3}%
4681 \fi
4682 \fi
4683 }
4684 \end{package}
4685 \end{check}
4686 \checklatex
4687 \checkcommand\def\addcontentsline#1#2#3{%
4688 \addtocontents{#1}{\protect\contentsline{#2}{#3}{\thepage}}%
4689 }
4690 \checkcommand\def\contentsline#1{\csname l@#1\endcsname}
4691 \end{check}
4692 \end{package}

```

## 39 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.

```
4693 \let\H@definecounter\@definecounter
4694 \def\@definecounter#1{%
4695   \H@definecounter{#1}%
4696   \expandafter\def\csname theH#1\endcsname{\arabic{#1}}%
4697 }
```

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.

```
4698 \let\H@newctr\@newctr
4699 \def\@newctr#1[#2]{%
4700   \H@newctr#1[#2]%
4701   \expandafter\def\csname theH#1\endcsname{%
4702     \csname the\@ifundefined{theH#2}{-}{H}#2\endcsname.\arabic{#1}%
4703   }%
4704 }
```

## 40 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.

```
4705 \let\Hmake@df@tag@@\make@df@tag@@
4706 \def\make@df@tag@@#1{%
4707   \Hmake@df@tag@@{#1}%
4708   \Hy@GlobalStepCount\Hy@linkcounter
4709   \xdef\@currentHref{AMS.\the\Hy@linkcounter}%
4710   \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
4711 }
4712 \let\Hmake@df@tag@@@\make@df@tag@@@
4713 \def\make@df@tag@@@#1{%
4714   \Hmake@df@tag@@@{#1}%
4715   \Hy@GlobalStepCount\Hy@linkcounter
4716   \xdef\@currentHref{AMS.\the\Hy@linkcounter}%
4717   \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
4718 }
```

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

```
4719 \@ifpackagewith{hyperref}{pdf $\TeX$ }{%
4720   \let\H@seteqlabel\@seteqlabel
4721   \def\@seteqlabel#1{%
4722     \H@seteqlabel{#1}%
4723     \xdef\@currentHref{AMS.\the\Hy@linkcounter}%
4724     \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
4725   }%
4726 }{}
```

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

```
\let\H@tagform@\tagform@
```

```

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

```

#### 40.1 \@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.

```

4727 \let\HyOrg@addtoreset\@addtoreset
4728 \def\@addtoreset#1#2{%
4729   \HyOrg@addtoreset{#1}{#2}%
4730   \expandafter\xdef\csname theH#1\endcsname{%
4731     \expandafter\noexpand
4732     \csname the\@ifundefined{theH#2}{H#2\endcsname
4733     .\noexpand\the\noexpand\value{#1}}%
4734   }%
4735 }

```

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

```

4736 </package>
4737 <*check>
4738 \checkpackage{amsmath}[1999/12/14 - 2000/06/06]
4739 \checkcommand\newcommand{\numberwithin}[3][\arabic]{%
4740   \@ifundefined{c@#2}{\@nocounterr{#2}}{%
4741     \@ifundefined{c@#3}{\@nocnterr{#3}}{%
4742       \@addtoreset{#2}{#3}%
4743       \@xp\xdef\csname the#2\endcsname{%
4744         \@xp@nx\csname the#3\endcsname .\@nx#1{#2}%
4745       }%
4746     }%
4747   }%
4748 }%
4749 </check>
4750 <*package>
4751 \@ifpackageloaded{amsmath}{%
4752   \@ifpackagelater{amsmath}{1999/12/14}{%
4753     \renewcommand*{\numberwithin}[3][\arabic]{%
4754       \@ifundefined{c@#2}{\@nocounterr{#2}}{%
4755         \@ifundefined{c@#3}{\@nocnterr{#3}}{%
4756           \HyOrg@addtoreset{#2}{#3}%
4757           \@xp\xdef\csname the#2\endcsname{%
4758             \@xp@nx\csname the#3\endcsname .\@nx#1{#2}%
4759           }%
4760           \@xp\xdef\csname theH#2\endcsname{%
4761             \@xp@nx
4762             \csname the\@ifundefined{theH#3}{H#3\endcsname
4763             .\@nx#1{#2}}%
4764           }%
4765         }%
4766       }%
4767     }%
4768   }{%
4769     \Hy@WarningNoLine{%

```

```

4770 \string\numberwithin\space of package ‘amsmath’
4771 only fixed\MessageBreak
4772 for version 2000/06/06 v2.12 or newer%
4773 }%
4774 }
4775 }{}

```

## 41 Included figures

Simply intercept the low level graphics package macro.

```

4776 \ifHy@figures
4777 \let\Hy@Gin@setfile\Gin@setfile
4778 \def\Gin@setfile#1#2#3{%
4779 \hyperimage{#3}{\Hy@Gin@setfile{#1}{#2}{#3}}%
4780 }
4781 \fi
4782 \Hy@DisableOption{hyperfigures}

```

## 42 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 boldening 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.

```

4783 \ifHy@hyperindex
4784 \def\HyInd@ParenLeft{()%
4785 \def\HyInd@ParenRight{)%}
4786 \Hy@nextfalse
4787 \@ifpackageloaded{multind}{\Hy@nexttrue}{}%
4788 \@ifpackageloaded{index}{\Hy@nexttrue}{}%
4789 \begingroup
4790 \lccode‘\|=\expandafter‘\HyInd@EncapChar\relax
4791 \lowercase{\endgroup
4792 \ifHy@next
4793 \let\HyInd@org@wrindex\@wrindex
4794 \def\@wrindex#1#2{\HyInd@wrindex{#1}#2||\}%
4795 \def\HyInd@wrindex#1#2|#3|#4\{\%
4796 \ifx\|#3\%
4797 \HyInd@org@wrindex{#1}{#2|hyperpage}%
4798 \else
4799 \def\Hy@temp@A{#3}%
4800 \ifcase0\ifx\Hy@temp@A\HyInd@ParenLeft 1\fi
4801 \ifx\Hy@temp@A\HyInd@ParenRight 1\fi
4802 \relax
4803 \HyInd@org@wrindex{#1}{#2|#3}%
4804 \else
4805 \HyInd@org@wrindex{#1}{#2|#3hyperpage}%
4806 \fi
4807 \fi

```

```

4808     }%
4809   \else
4810     \def\@wrindex#1{\@wrindex#1||\}
4811     \def\@wrindex#1|#2|#3\{\%
4812       \if@files
4813         \ifx\#2\%
4814           \protected@write\@indexfile{}\%
4815             \string\indexentry{#1|hyperpage}{\thepage}%
4816         }%
4817       \else
4818         \def\Hy@temp@A{#2}%
4819         \ifcase0\ifx\Hy@temp@A\HyInd@ParenLeft 1\fi
4820           \ifx\Hy@temp@A\HyInd@ParenRight 1\fi
4821         \relax
4822         \protected@write\@indexfile{}\%
4823           \string\indexentry{#1|#2}{\thepage}%
4824         }%
4825       \else
4826         \protected@write\@indexfile{}\%
4827           \string\indexentry{#1|#2hyperpage}{\thepage}%
4828         }%
4829       \fi
4830     \fi
4831   \fi
4832 \endgroup
4833 \@esphack
4834 }%
4835 \fi
4836 }%
4837 \fi
4838 \Hy@DisableOption{hyperindex}
4839 \Hy@DisableOption{encap}

```

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.

```

4840 \def\hyperpage#1{\@hyperpage#1---\}
4841 \def\@hyperpage#1--#2--#3\{\%
4842   \ifx\#2\%
4843     \@commahyperpage{#1}%
4844   \else
4845     \HyInd@pagelink{#1}--\HyInd@pagelink{#2}%
4846   \fi
4847 }
4848 \def\@commahyperpage#1{\@commahyperpage#1, ,\}
4849 \def\@commahyperpage#1, #2,#3\{\%
4850   \ifx\#2\%
4851     \HyInd@pagelink{#1}%
4852   \else
4853     \HyInd@pagelink{#1}, \HyInd@pagelink{#2}%
4854   \fi
4855 }

```

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

```

4856 \def\HyInd@pagelink#1{\%
4857   \begingroup
4858     \toks@={}%
4859     \HyInd@removespaces#1 \@nil

```



```

4860 \endgroup
4861 }
4862 \def\HyInd@removespaces#1 #2\@nil{%
4863   \toks@=\expandafter{\the\toks@#1}%
4864   \ifx\#2\%
4865     \edef\x{\the\toks@}%
4866     \ifx\x\@empty
4867       \else
4868         \hyperlink{page.\the\toks@}{\the\toks@}%
4869       \fi
4870     \else
4871       \Hy@ReturnAfterFi{%
4872         \HyInd@removespaces#2\@nil
4873       }%
4874     \fi
4875 }

```

### 43 Compatibility with foiltex

```

4876 \@ifclassloaded{foils}{%
4877   \providecommand*\ext@table{lot}%
4878   \providecommand*\ext@figure{lof}%
4879 }{}

```

### 44 Compatibility with seminar slide package

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

```

4880 \@ifclassloaded{seminar}{%
4881   \Hy@seminarslidestrue\newcommand\theHslide{\arabic{slide}}%
4882 }{%
4883   \Hy@seminarslidesfalse
4884 }
4885 \@ifpackageloaded{slidesec}{%
4886   \newcommand\theHslidesection {\arabic{slidesection}}%
4887   \newcommand\theHslidesubsection{%
4888     \theHslidesection.\arabic{slidesubsection}}%
4889 }%
4890 \def\slide@heading[#1]#2{%
4891   \H@refstepcounter{slidesection}%
4892   \@addtoreset{slidesubsection}{slidesection}%
4893   \addtocontents{los}{%
4894     \protect\l@slide{\the\c@slidesection}{\ignorespaces#1}%
4895     {\@SCTR}{slideheading.\theslidesection}}%
4896 }%
4897 \def\Hy@tempa{#2}%
4898 \ifx\Hy@tempa\@empty
4899   \else
4900     {%
4901       \edef\@currentlabel{%
4902         \csname p@slidesection\endcsname\theslidesection
4903       }%
4904       \makeslideheading{#2}%
4905     }%
4906   \fi
4907   \gdef\theslideheading{#1}%

```

```

4908 \gdef\theslidesubheading{}%
4909 \ifHy@bookmarksnumbered
4910 \def\Hy@slidetitle{\theslidesection\space #1}%
4911 \else
4912 \def\Hy@slidetitle{#1}%
4913 \fi
4914 \ifHy@hypertextnames
4915 \ifHy@naturalnames
4916 \hyper@@anchor{slideheading.\theslidesection}{\relax}%
4917 \Hy@writebookmark
4918 {\theslidesection}%
4919 {\Hy@slidetitle}%
4920 {slideheading.\theslidesection}%
4921 {1}%
4922 {toc}%
4923 \else
4924 \hyper@@anchor{slideheading.\theHslidesection}{\relax}%
4925 \Hy@writebookmark
4926 {\theslidesection}%
4927 {\Hy@slidetitle}%
4928 {slideheading.\theHslidesection}%
4929 {1}%
4930 {toc}%
4931 \fi
4932 \else
4933 \Hy@GlobalStepCount\Hy@linkcounter
4934 \hyper@@anchor{slideheading.\the\Hy@linkcounter}{\relax}%
4935 \Hy@writebookmark
4936 {\theslidesection}%
4937 {\Hy@slidetitle}%
4938 {slideheading.\the\Hy@linkcounter}%
4939 {1}%
4940 {toc}%
4941 \fi
4942 }%
4943 \def\slide@subheading[#1]#2{%
4944 \H@refstepcounter{slidesubsection}%
4945 \addtocontents{los}{%
4946 \protect\l@subslide{\the\c@slidesubsection}{\ignorespaces#1}%
4947 {\@SCTR}{slideheading.\theslidesubsection}%
4948 }%
4949 \def\Hy@tempa{#2}%
4950 \ifx\Hy@tempa\@empty
4951 \else
4952 {%
4953 \edef\@currentlabel{%
4954 \csname p@slidesubsection\endcsname\theslidesubsection
4955 }%
4956 \makeslidesubheading{#2}%
4957 }%
4958 \fi
4959 \gdef\theslidesubheading{#1}%
4960 \ifHy@bookmarksnumbered
4961 \def\Hy@slidetitle{\theslidesubsection\space #1}%
4962 \else
4963 \def\Hy@slidetitle{#1}%
4964 \fi

```

```

4965 \ifHy@hypertextnames
4966 \ifHy@naturalnames
4967 \hyper@@anchor{slideheading.\theslidesubsection}{\relax}%
4968 \Hy@writebookmark
4969 {\theslidesubsection}%
4970 {\Hy@slidetitle}%
4971 {slideheading.\theslidesubsection}%
4972 {2}%
4973 {toc}%
4974 \else
4975 \hyper@@anchor{slideheading.\theHslidesubsection}{\relax}%
4976 \Hy@writebookmark
4977 {\theslidesubsection}%
4978 {\Hy@slidetitle}%
4979 {slideheading.\theHslidesubsection}%
4980 {2}%
4981 {toc}%
4982 \fi
4983 \else
4984 \Hy@GlobalStepCount\Hy@linkcounter
4985 \hyper@@anchor{slideheading.\the\Hy@linkcounter}{\relax}%
4986 \Hy@writebookmark
4987 {\theslidesubsection}%
4988 {\Hy@slidetitle}%
4989 {slideheading.\the\Hy@linkcounter}%
4990 {1}%
4991 {toc}%
4992 \fi
4993 }%
4994 \providecommand*{\listslidenam}{List of Slides}%
4995 \def\listofslides{%
4996 \section*{%
4997 \listslidenam
4998 \@mkboth{%
4999 \expandafter\MakeUppercase\listslidenam
5000 }{%
5001 \expandafter\MakeUppercase\listslidenam
5002 }%
5003 }%
5004 \def\l@slide##1##2##3##4{%
5005 \slide@undottedcline{%
5006 \slidenumberline{##3}{\hyperlink{##4}{##2}}%
5007 }{%
5008 }%
5009 \let\l@subslide\l@slide
5010 \@startlos
5011 }%
5012 \def\slide@contents{%
5013 \def\l@slide##1##2##3##4{%
5014 \slide@cline{\slidenumberline{##3}{\hyperlink{##4}{##2}}}{##3}%
5015 }%
5016 \let\l@subslide\@gobblefour
5017 \@startlos
5018 }%
5019 \def\Slide@contents{%
5020 \def\l@slide##1##2##3##4{%
5021 \ifcase\l@slide@flag

```

```

5022 \message{##1 ** \the\c@slide@section}%
5023 \ifnum##1>\c@slide@section
5024 \def\lslide@flag{1}%
5025 {%
5026 \large
5027 \slide@cline{%
5028 \slidenumberline{$\rightarrow\bullet$}%
5029 {\hyperlink{##4}{##2}}%
5030 }{##3}%
5031 }%
5032 \else
5033 {%
5034 \large
5035 \slide@cline{%
5036 \slidenumberline{$\sur\d;\bullet$}%
5037 {\hyperlink{##4}{##2}}%
5038 }{##3}%
5039 }%
5040 \fi
5041 \or
5042 \def\lslide@flag{2}%
5043 {%
5044 \large
5045 \slide@cline{%
5046 \slidenumberline{$\bullet$}%
5047 {\hyperlink{##4}{##2}}%
5048 }{##3}%
5049 }%
5050 \or
5051 {%
5052 \large
5053 \slide@cline{%
5054 \slidenumberline{$\bullet$}%
5055 {\hyperlink{##4}{##2}}%
5056 }{##3}%
5057 }%
5058 \fi
5059 }%
5060 \def\l@subslide##1##2##3##4{%
5061 \ifnum\lslide@flag=1
5062 \undottedtocline{2}{3.8em}{3.2em}{\hyperlink{##4}{##2}}{}%
5063 \fi
5064 }%
5065 \def\lslide@flag{0}%
5066 \@startlos
5067 }%
5068 }{}

```

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.)

```

5069 \ifHy@texht
5070 \expandafter\endinput
5071 \fi
5072 \let\real@setref\@setref
5073 \def\@setref#1#2#3{% csname, extract group, refname
5074 \ifx#1\relax
5075 \protect\G@refundefinedtrue

```

```

5076 \nfss@text{\reset@font\bfseries ??}%
5077 \latex@warning{%
5078   Reference '#3' on page \thepage \space undefined%
5079 }%
5080 \else
5081 \expandafter\Hy@setref@link#1\@empty\@empty\@nil{#2}%
5082 \fi
5083 }

```

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

```

5084 \def\Hy@setref@link#1#2#3#4#5#6\@nil#7{%
5085 \begingroup
5086 \toks0={\hyper@@link{#5}{#4}}%
5087 \toks1=\expandafter{#7{#1}{#2}{#3}{#4}{#5}}%
5088 \edef\x{\endgroup
5089   \the\toks0 {\the\toks1 }}%
5090 }%
5091 \x
5092 }
5093 \def\@pagesetref#1#2#3{% csname, extract macro, ref
5094 \ifx#1\relax
5095 \protect\G@refundefinedtrue
5096 \nfss@text{\reset@font\bfseries ??}%
5097 \latex@warning{%
5098   Reference '#3' on page \thepage \space undefined%
5099 }%
5100 \else
5101 \protect\hyper@@link
5102 {\expandafter\@fifthoffive#1}%
5103 {page.\expandafter\@secondoffive#1}%
5104 {\expandafter\@secondoffive#1}%
5105 \fi
5106 }
5107 \end{package}
5108 \check
5109 \checklatex
5110 \checkcommand\def\@setref#1#2#3{%
5111 \ifx#1\relax
5112 \protect\G@refundefinedtrue
5113 \nfss@text{\reset@font\bfseries ??}%
5114 \latex@warning{%
5115   Reference '#3' on page \thepage\space undefined%
5116 }%
5117 \else
5118 \expandafter#2#1\@null
5119 \fi
5120 }
5121 \end{check}
5122 \end{package}

```

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

```

5123 \def\@refstar#1{%
5124 \Hy@safe@activetrue
5125 \expandafter\real@setref\csname r@#1\endcsname\@firstoffive{#1}%
5126 \Hy@safe@activesfalse
5127 }

```

```

5128 \def\@pagerefstar#1{%
5129   \Hy@safe@activetrue
5130   \expandafter\real@setref\csname r@#1\endcsname\@secondoffive{#1}%
5131   \Hy@safe@activesfalse
5132 }
5133 \DeclareRobustCommand\autoref{%
5134   \@ifstar{\HyRef@autoref\@gobbletwo}{\HyRef@autoref\hyper@link}%
5135 }
5136 \def\HyRef@autoref#1#2{%
5137   \begingroup
5138     \Hy@safe@activetrue
5139     \expandafter\HyRef@autosetref\csname r@#2\endcsname{#2}{#1}%
5140   \endgroup
5141 }
5142 \def\HyRef@autosetref#1#2#3{% link command, csname, refname
5143   \ifcase 0\ifx#1\relax 1\fi\ifx#1\Hy@varioref@undefined 1\fi\relax
5144     \edef\HyRef@thisref{\expandafter\@fourthoffive#1\@empty\@empty\@empty}%
5145     \expandafter\HyRef@testreftype\HyRef@thisref\\%
5146     \Hy@safe@activesfalse
5147     #3{%
5148       \expandafter\@fifthoffive#1%
5149     }{%
5150       \expandafter\@fourthoffive#1\@empty\@empty\@empty
5151     }{%
5152       \HyRef@currentHtag
5153       \expandafter\@firstoffive#1\@empty\@empty\@empty
5154       \null
5155     }%
5156   \else
5157     \protect\G@refundefinedtrue
5158     \nfss@text{\reset@font\bfseries ??}%
5159     \@latex@warning{%
5160       Reference ‘#2’ on page \thepage\space undefined%
5161     }%
5162   \fi
5163 }
5164 \def\HyRef@testreftype#1.#2\\{%
5165   \@ifundefined{#1autorefname}{%
5166     \@ifundefined{#1name}{%
5167       \def\HyRef@currentHtag{%
5168         \@latex@warning{no tag name for #1 at \the\inputlineno}%
5169       }{%
5170         \edef\HyRef@currentHtag{%
5171           \expandafter\noexpand\csname#1name\endcsname
5172           \noexpand~%
5173         }%
5174       }%
5175     }{%
5176       \edef\HyRef@currentHtag{%
5177         \expandafter\noexpand\csname#1autorefname\endcsname
5178         \noexpand~%
5179       }%
5180     }%
5181   }
5182 \def\HyRef@currentHtag{}

```

Defaults for the names that \autoref uses.

```

5183 \providecommand*{\AMSautorefname}{\equationautorefname}

```

```

5184 \providecommand*\Hfootnoteautorefname{\footnoteautorefname}
5185 \providecommand*\Itemautorefname{\itemautorefname}
5186 \providecommand*\itemautorefname{item}
5187 \providecommand*\equationautorefname{Equation}
5188 \providecommand*\footnoteautorefname{footnote}
5189 \providecommand*\itemautorefname{item}
5190 \providecommand*\figureautorefname{Figure}
5191 \providecommand*\tableautorefname{Table}
5192 \providecommand*\partautorefname{Part}
5193 \providecommand*\appendixautorefname{Appendix}
5194 \providecommand*\chapterautorefname{chapter}
5195 \providecommand*\sectionautorefname{section}
5196 \providecommand*\subsectionautorefname{subsection}
5197 \providecommand*\subsubsectionautorefname{subsubsection}
5198 \providecommand*\paragraphautorefname{paragraph}
5199 \providecommand*\subparagraphautorefname{subparagraph}
5200 \providecommand*\FancyVerbLineautorefname{line}
5201 \providecommand*\theoremautorefname{Theorem}
5202 \end{package}

```

## 45 Configuration files

### 45.1 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`.

```

5203 < *pdfTeX | dvipdfm | vtex | pdfmarkbase | dviwindo >
5204 \begingroup \expandafter \expandafter \expandafter \endgroup
5205 \expandafter \ifx \csname pdfescapestring \endcsname \relax
5206   \begingroup
5207     \catcode'\| = 0 %
5208     \makeother\| %
5209     |@firstofone{ \endgroup
5210       |def |Hy@pstringdef#1#2{%
5211         |edef#1{#2}%
5212         |@onelevel@sanitize#1%
5213         |edef#1{| \expandafter |Hy@ExchangeBackslash#1\|@nil}%
5214         |edef#1{| \expandafter |Hy@ExchangeLeftParenthesis#1(|@nil}%
5215         |edef#1{| \expandafter |Hy@ExchangeRightParenthesis#1)|@nil}%
5216       }%
5217       |def |Hy@ExchangeBackslash#1\#2|@nil{%
5218         #1%
5219         |ifx|\#2\| %
5220         |else
5221           \| %
5222           |Hy@ReturnAfterFi{%
5223             |Hy@ExchangeBackslash#2|@nil
5224           }%
5225         |fi
5226       }%
5227   }

```

```

5228 \def\Hy@ExchangeLeftParenthesis#1(#2\@nil{%
5229   #1%
5230   \ifx\#2\%
5231   \else
5232     \@backslashchar(%
5233     \Hy@ReturnAfterFi{%
5234     \Hy@ExchangeLeftParenthesis#2\@nil
5235   }%
5236   \fi
5237 }
5238 \def\Hy@ExchangeRightParenthesis#1)#2\@nil{%
5239   #1%
5240   \ifx\#2\%
5241   \else
5242     \@backslashchar)%
5243     \Hy@ReturnAfterFi{%
5244     \Hy@ExchangeRightParenthesis#2\@nil
5245   }%
5246   \fi
5247 }
5248 \else
5249 \def\Hy@pstringdef#1#2{%
5250   \edef#1{\pdfescapestring{#2}}%
5251 }%
5252 \fi
5253 </pdfTeX | dvipdfm | vTeX | pdfmarkbase | dviwindo>

```

## 45.2 pdfTeX

5254 <\*pdfTeX>

This driver is for Han The Thanh's T<sub>E</sub>X 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.

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

```

5255 \def\setpdflinkmargin#1{\pdflinkmargin#1}
5256 \ifx\pdfstartlink\undefined% less than version 14
5257   \let\pdfstartlink\pdfannotlink
5258   \let\pdflinkmargin\@tempdima
5259   \let\pdfxform\pdfform
5260   \let\pdflastxform\pdflastform
5261   \let\pdfrefxform\pdfrefform
5262 \else
5263   \pdflinkmargin1pt
5264 \fi

```

First set up the default linking

```
5265 \providecommand*\@pdfview{XYZ}
```

First define the anchors:

```

5266 \def\new@pdflink#1{%
5267   \ifHy@verbose
5268     \typeout{pdfTeX: define anchor at line \the\inputlineno: #1}%
5269   \fi
5270   \Hy@SaveLastskip
5271   \Hy@pstringdef\Hy@pstringDest{#1}%
5272   \Hy@DestName\Hy@pstringDest\@pdfview
5273   \Hy@RestoreLastskip
5274 }

```



```

5275 \let\pdf@endanchor\@empty
\Hy@DestName Wrap the call of \pdfdest name in \Hy@DestName. Then it can easier be caught by
package hypdestopt.
5276 \def\Hy@DestName#1#2{%
5277   \pdfdest name{#1}#2\relax
5278 }

```

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.

```

5279 \providecommand*\@pdfborder{0 0 1}
5280 \providecommand*\@pdfborderstyle{}
5281 \def\Hy@undefinedname{UNDEFINED}
5282 \def\find@pdflink#1#2{%
5283   \leavevmode
5284   \protected@edef\Hy@testname{#2}%
5285   \ifx\Hy@testname\@empty
5286     \let\Hy@testname\Hy@undefinedname
5287   \else
5288     \Hy@pstringdef\Hy@testname\Hy@testname
5289   \fi
5290   \Hy@StartlinkName{%
5291     \Hy@setpdfborder
5292     \ifx\@pdfhighlight\@empty
5293       \else
5294         /H\@pdfhighlight
5295       \fi
5296       /C[\CurrentBorderColor]%
5297   }\Hy@testname
5298   \expandafter\Hy@colorlink\csname @#1color\endcsname
5299 }
5300 \def\Hy@StartlinkName#1#2{%
5301   \pdfstartlink attr{#1}goto name{#2}\relax
5302 }
5303 \def\close@pdflink{\Hy@endcolorlink\pdfendlink}
5304 \def\hyper@anchor#1{\new@pdflink{#1}\anchor@spot\pdf@endanchor}
5305 \def\hyper@anchorstart#1{\new@pdflink{#1}\Hy@activeanchortrue}
5306 \def\hyper@anchorend{\pdf@endanchor\Hy@activeanchorfalse}
5307 \def\hyper@linkstart#1#2{%
5308   \edef\CurrentBorderColor{\csname @#1bordercolor\endcsname}%
5309   \find@pdflink{#1}{#2}}
5310 \def\hyper@linkend{\close@pdflink}
5311 \def\hyper@link#1#2#3{%
5312   \edef\CurrentBorderColor{\csname @#1bordercolor\endcsname}%
5313   \find@pdflink{#1}{#2}#3\close@pdflink
5314 }
5315 \def\CurrentBorderColor{\@linkbordercolor}
5316 \def\hyper@linkurl#1#2{%
5317   \beginngroup
5318     \Hy@pstringdef\Hy@pstringURI{#2}%
5319     \hyper@chars
5320     \leavevmode
5321     \pdfstartlink
5322       attr{%
5323         \Hy@setpdfborder

```

```

5324      \ifx\@pdfhighlight\@empty
5325      \else
5326      /H\@pdfhighlight
5327      \fi
5328      /C[\@urlbordercolor]%
5329      }%
5330      user{%
5331      /Subtype/Link%
5332      /A<<%
5333      /Type/Action%
5334      /S/URI%
5335      /URI(\Hy@pstringURI)%
5336      >>%
5337      }%
5338      \relax
5339      \Hy@colorlink\@urlcolor#1%
5340      \close@pdflink
5341      \endgroup
5342      }
5343      \def\hyper@linkfile#1#2#3{% anchor text, filename, linkname
5344      \beginngroup
5345      \Hy@pstringdef\Hy@pstringF{#2}%
5346      \Hy@pstringdef\Hy@pstringD{#3}%
5347      \leavevmode
5348      \pdfstartlink
5349      attr{%
5350      \Hy@setpdfborder
5351      \ifx\@pdfhighlight\@empty
5352      \else
5353      /H\@pdfhighlight
5354      \fi
5355      /C[\@filebordercolor]%
5356      }%
5357      user {%
5358      /Subtype/Link%
5359      /A<<%
5360      /F(\Hy@pstringF)%
5361      /S/GoToR%
5362      \ifHy@newwindow /NewWindow true\fi

```

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

```

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

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

5363      \ifx\@#3\@
5364      /D[0 \@pdfstartview]%
5365      \else
5366      /D(\Hy@pstringD)%
5367      \fi
5368      >>%
5369      }%

```

```

5370      \relax
5371      \Hy@colorlink\@filecolor#1%
5372      \close@pdflink
5373  \endgroup
5374 }
5375 \def\@hyper@launch run:#1\#2#3{% filename, anchor text linkname
5376  \begin{group}
5377    \Hy@pstringdef\Hy@pstringF{#1}%
5378    \Hy@pstringdef\Hy@pstringP{#3}%
5379    \leavevmode
5380    \pdfstartlink
5381      attr{%
5382        \Hy@setpdfborder
5383        \ifx\@pdfhighlight\@empty
5384          \else
5385            /H\@pdfhighlight
5386          \fi
5387        /C[\@runbordercolor]%
5388      }%
5389      user {%
5390        /Subtype/Link%
5391        /A<<%
5392          /F(\Hy@pstringF)%
5393          /S/Launch%
5394          \ifHy@newwindow /NewWindow true\fi
5395          \ifx\#3\%
5396            \else
5397              /Win<</P(\Hy@pstringP)/F(\Hy@pstringF)>>%
5398            \fi
5399          >>%
5400        }%
5401      \relax
5402      \Hy@colorlink\@filecolor#2%
5403      \close@pdflink
5404  \endgroup
5405 }

```

\@pdfproducer

```

5406 \ifx\@pdfproducer\relax
5407   \def\@pdfproducer{pdfTeX}
5408   \ifx\@pdfproducer\@undefined
5409     \else
5410       \ifx\@pdfproducer\relax
5411         \else
5412           \ifnum\@pdfproducer>0 %
5413             \def\@pdfproducer{pdfTeX}
5414           \fi
5415         \fi
5416       \fi
5417       \ifx\@pdfproducer\@undefined
5418         \else
5419           \ifnum\@pdfproducer<100 %
5420             \edef\@pdfproducer{%
5421               \@pdfproducer
5422               \the\@pdfproducer.\@pdfproducerrevision
5423             }
5424           \else

```

```

5425 \ifnum\pdfTeXversion<130 %
5426 \edef\@pdfproducer{%
5427 \@pdfproducer-%
5428 \expandafter\@car\the\pdfTeXversion\@empty\@nil.%
5429 \expandafter\@cdr\the\pdfTeXversion\@empty\@nil
5430 \pdfTeXrevision
5431 }
5432 \else
5433 \ifnum\pdfTeXversion<140 %
5434 \else
5435 \def\@pdfproducer{pdfTeX}%
5436 \fi
5437 \edef\@pdfproducer{%
5438 \@pdfproducer-%
5439 \expandafter\@car\the\pdfTeXversion\@empty\@nil.%
5440 \expandafter\@cdr\the\pdfTeXversion\@empty\@nil.%
5441 \pdfTeXrevision
5442 }%
5443 \fi
5444 \fi
5445 \fi
5446 \fi

```

\PDF@SetupDox

```

5447 \def\PDF@SetupDoc{%
5448 \ifx\@pdfpagescrop\@empty
5449 \else
5450 \edef\process@me{%
5451 \pdfpagesattr={%
5452 /CropBox[\@pdfpagescrop]%
5453 \expandafter\ifx\expandafter\\\the\pdfpagesattr\\%
5454 \else
5455 ^^J\the\pdfpagesattr
5456 \fi
5457 }%
5458 }%
5459 \process@me
5460 \fi
5461 \Hy@pstringdef\Hy@pstringB{\@baseurl}%
5462 \pdfcatalog{%
5463 /PageMode/\@pdfpagemode
5464 \ifx\@baseurl\@empty
5465 \else
5466 /URI<</Base(\Hy@pstringB)>>%
5467 \fi
5468 }%
5469 \ifx\@pdfstartview\@empty
5470 \else
5471 openaction goto page \@pdfstartpage {\@pdfstartview}%
5472 \fi
5473 \edef\Hy@temp{%
5474 \ifHy@toolbar\else /HideToolbar true\fi
5475 \ifHy@menubar\else /HideMenubar true\fi
5476 \ifHy@windowui\else /HideWindowUI true\fi
5477 \ifHy@fitwindow /FitWindow true\fi
5478 \ifHy@centerwindow /CenterWindow true\fi
5479 \ifHy@displaydoctitle /DisplayDocTitle true\fi

```

```

5480 \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
5481 \Hy@UseNameKey{Direction}\@pdfdirection
5482 \Hy@UseNameKey{ViewArea}\@pdfviewarea
5483 \Hy@UseNameKey{ViewClip}\@pdfviewclip
5484 \Hy@UseNameKey{PrintArea}\@pdfprintarea
5485 \Hy@UseNameKey{PrintClip}\@pdfprintclip
5486 \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
5487 \Hy@UseNameKey{Duplex}\@pdfduplex
5488 \ifx\@pdfpicktraybypdfsize\@empty
5489 \else
5490 /PickTrayByPDFSize \@pdfpicktraybypdfsize
5491 \fi
5492 \ifx\@pdfprintpagerange\@empty
5493 \else
5494 /PrintPageRange[\@pdfprintpagerange]%
5495 \fi
5496 \ifx\@pdfnumcopies\@empty
5497 \else
5498 /NumCopies \@pdfnumcopies
5499 \fi
5500 }%
5501 \pdfcatalog{%
5502 \ifx\Hy@temp\@empty
5503 \else
5504 /ViewerPreferences<<\Hy@temp>>%
5505 \fi
5506 \Hy@UseNameKey{PageLayout}\@pdfpagelayout
5507 \ifx\@pdflang\@empty
5508 \else
5509 /Lang(\@pdflang)%
5510 \fi
5511 }%
5512 }

```

#### \PDF@FinishDoc

```

5513 \def\PDF@FinishDoc{%
5514 \Hy@UseMaketitleInfos
5515 \pdfinfo{%
5516 /Author(\@pdfauthor)%
5517 /Title(\@pdftitle)%
5518 /Subject(\@pdfsubject)%
5519 /Creator(\@pdfcreator)%
5520 \ifx\@pdfcreationdate\@empty
5521 \else
5522 /CreationDate(\@pdfcreationdate)%
5523 \fi
5524 \ifx\@pdfmoddate\@empty
5525 \else
5526 /ModDate(\@pdfmoddate)%
5527 \fi
5528 \ifx\@pdfproducer\relax
5529 \else
5530 /Producer(\@pdfproducer)%
5531 \fi
5532 /Keywords(\@pdfkeywords)%
5533 }%
5534 \Hy@DisableOption{pdfauthor}%

```

```

5535 \Hy@DisableOption{pdftitle}%
5536 \Hy@DisableOption{pdfsubject}%
5537 \Hy@DisableOption{pdfcreator}%
5538 \Hy@DisableOption{pdfcreationdate}%
5539 \Hy@DisableOption{pdfmoddate}%
5540 \Hy@DisableOption{pdfproducer}%
5541 \Hy@DisableOption{pdfkeywords}%
5542 }

```

`\hyper@pagetransition` `\@pdfpagetransition` is initialized with `\relax`. So it indicates, if option `pdfpagetransition` is used. First previous `/Trans` entries are removed. If a new `/Trans` key exists, it is appended to `\pdfpageattr`.

```

5543 \def\hyper@pagetransition{%
5544   \ifx\@pdfpagetransition\relax
5545   \else
5546     \expandafter\Hy@RemoveTransPageAttr\the\pdfpageattr^^J/Trans{>>\END
5547     \ifx\@pdfpagetransition\@empty
5548     \else
5549       \edef\@processme{%
5550         \global\pdfpageattr{%
5551           \the\pdfpageattr
5552           ^^J/Trans << /S /\@pdfpagetransition\space >>%
5553         }%
5554       }%
5555       \@processme
5556     \fi
5557   \fi
5558 }

```

`\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.

```

5559 \gdef\Hy@RemoveTransPageAttr#1^^J/Trans#2#3>>#4\END{%
5560   \ifx\#2\%
5561     \global\pdfpageattr{#1}%
5562   \else
5563     \Hy@RemoveTransPageAttr#1#4\END
5564   \fi
5565 }

```

`\hyper@pageduration` `\@pdfpageduration` is initialized with `\relax`. So it indicates, if option `pdfpageduration` is used. First previous `/Dur` entries are removed. If a new `/Dur` key exists, it is appended to `\pdfpageattr`.

```

5566 \def\hyper@pageduration{%
5567   \ifx\@pdfpageduration\relax
5568   \else
5569     \expandafter\Hy@RemoveDurPageAttr\the\pdfpageattr^^J/Dur{ } \END
5570     \ifx\@pdfpageduration\@empty
5571     \else
5572       \edef\@processme{%
5573         \global\pdfpageattr{%
5574           \the\pdfpageattr
5575           ^^J/Dur \@pdfpageduration\space
5576         }%
5577       }%
5578       \@processme

```

```

5579 \fi
5580 \fi
5581 }

```

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

```

5582 \gdef\Hy@RemoveDurPageAttr#1^^J/Dur#2#3 #4\END{%
5583 \ifx\#2\%
5584 \global\pdfpageattr{#1}%
5585 \else
5586 \Hy@RemoveDurPageAttr#1#4\END
5587 \fi
5588 }

```

`\hyper@pagehidden` The boolean value of the key `/Hid` is stored in switch `\ifHy@pdfpagehidden`. First previous `/Hid` entries are removed, then the new one is appended, if the value is true (the PDF default is false).

```

5589 \def\hyper@pagehidden{%
5590 \ifHy@useHidKey
5591 \expandafter\Hy@RemoveHidPageAttr\the\pdfpageattr^^J/Hid{} \END
5592 \ifHy@pdfpagehidden
5593 \edef\@processme{%
5594 \global\pdfpageattr{%
5595 \the\pdfpageattr
5596 ^^J/Hid true % SPACE
5597 }%
5598 }%
5599 \@processme
5600 \fi
5601 \fi
5602 }

```

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

```

5603 \gdef\Hy@RemoveHidPageAttr#1^^J/Hid#2#3 #4\END{%
5604 \ifx\#2\%
5605 \global\pdfpageattr{#1}%
5606 \else
5607 \Hy@RemoveHidPageAttr#1#4\END
5608 \fi
5609 }

```

Let us explicitly turn on PDF generation; they can reverse this decision in the document, but since we are emitting PDF links anyway, we *must* be in PDF mode.

```

5610 \pdfoutput=1
5611 \pdfcompresslevel=9
5612 \AtBeginDocument{%
5613 \ifHy@setpagesize
5614 \expandafter\@firstofone
5615 \else
5616 \expandafter\@gobble
5617 \fi

```

```

5618 {%
5619   \@ifclassloaded{seminar}{%
5620     \setlength{\pdfhorigin}{1truein}%
5621     \setlength{\pdfvorigin}{1truein}%
5622     \ifportrait
5623       \ifdim\paperwidth=\z@
5624       \else
5625         \setlength{\pdfpagewidth}{\strip@pt\paperwidth truept}%
5626       \fi
5627       \ifdim\paperheight=\z@
5628       \else
5629         \setlength{\pdfpageheight}{\strip@pt\paperheight truept}%
5630       \fi
5631     \else
5632       \ifdim\paperheight=\z@
5633       \else
5634         \setlength{\pdfpagewidth}{\strip@pt\paperheight truept}%
5635       \fi
5636       \ifdim\paperwidth=\z@
5637       \else
5638         \setlength{\pdfpageheight}{\strip@pt\paperwidth truept}%
5639       \fi
5640     \fi
5641   }{%
5642     \@ifundefined{stockwidth}{%
5643       \ifdim\paperwidth=\z@
5644       \else
5645         \setlength{\pdfpagewidth}{\paperwidth}%
5646       \fi
5647       \ifdim\paperheight=\z@
5648       \else
5649         \setlength{\pdfpageheight}{\paperheight}%
5650       \fi
5651     }{%
5652       \ifdim\stockwidth=\z@
5653       \else
5654         \setlength{\pdfpagewidth}{\stockwidth}%
5655       \fi
5656       \ifdim\stockheight=\z@
5657       \else
5658         \setlength{\pdfpageheight}{\stockheight}%
5659       \fi
5660     }%
5661   }%
5662 }%
5663 \Hy@DisableOption{setpagesize}%
5664 }
5665 \def\Acrobatmenu#1#2{%
5666   \leavevmode
5667   \pdfstartlink
5668   attr{%
5669     \Hy@setpdfborder
5670     \ifx\@pdfhighlight\@empty
5671     \else
5672       /H\@pdfhighlight
5673     \fi
5674     /C[\@menubordercolor]%

```



```

5675     }%
5676     user{
5677         /Subtype /Link
5678         /A<<%
5679         /S/Named/N/#1%
5680         >>%
5681     }%
5682     \relax
5683     \Hy@colorlink\@menucolor#2\close@pdflink
5684 }
5685 </pdfTeX>
5686 <*hypertex>

```

### 45.3 hypertex

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:

**href:** `html:<a href = "href_string">`

**name:** `html:<a name = "name_string">`

**end:** `html:</a>`

**image:** `html:<img src = "href_string">`

**base\_name:** `html:<base href = "href_string">`

The *href*, *name* and *end* commands are used to do the basic hypertext operations of establishing links between sections of documents. The *image* command is intended (as with current html viewers) to place an image of arbitrary graphical format on the page in the current location. The *base\_name* command is be used to communicate to the *dvi* viewer the full (URL) location of the current document so that files specified by relative URL's may be retrieved correctly.

The *href* and *name* commands must be paired with an *end* command later in the  $\TeX$  file — the  $\TeX$  commands between the two ends of a pair form an *anchor* in the document. In the case of an *href* command, the *anchor* is to be highlighted in the *dvi* viewer, and when clicked on will cause the scene to shift to the destination specified by *href\_string*. The *anchor* associated with a *name* command represents a possible location to which other hypertext links may refer, either as local references (of the form `href="#name_string"` with the *name\_string* identical to the one in the *name* command) or as part of a URL (of the form `URL#name_string`). Here *href\_string* is a valid URL or local identifier, while *name\_string* could be any string at all: the only caveat is that ‘” characters should be escaped with a backslash (`\`), and if it looks like a URL name it may cause problems.

```

5687 \def\PDF@FinishDoc{}
5688 \def\PDF@SetupDoc{%
5689     \ifx\@baseurl\@empty
5690     \else
5691         \special{html:<base href="\@baseurl">}%
5692     \fi
5693 }
5694 \def\hyper@anchor#1{%
5695     \Hy@SaveLastskip
5696     \begingroup

```

```

5697 \let\protect=\string
5698 \hyper@chars
5699 \special{html:<a name=\hyper@quote #1\hyper@quote>}%
5700 \endgroup
5701 \Hy@activeanchortrue
5702 \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
5703 \special{html:</a>}%
5704 \Hy@activeanchorfalse
5705 \Hy@RestoreLastskip
5706 }
5707 \def\hyper@anchorstart#1{%
5708 \Hy@SaveLastskip
5709 \begingroup
5710 \hyper@chars
5711 \special{html:<a name=\hyper@quote#1\hyper@quote>}%
5712 \endgroup
5713 \Hy@activeanchortrue
5714 }
5715 \def\hyper@anchorend{%
5716 \special{html:</a>}%
5717 \Hy@activeanchorfalse
5718 \Hy@RestoreLastskip
5719 }
5720 \def\@urltype{url}
5721 \def\hyper@linkstart#1#2{%
5722 \expandafter\Hy@colorlink\csname @#1color\endcsname
5723 \def\Hy@tempa{#1}%
5724 \ifx\Hy@tempa\@urltype
5725 \special{html:<a href=\hyper@quote#2\hyper@quote>}%
5726 \else
5727 \begingroup
5728 \hyper@chars
5729 \special{html:<a href=\hyper@quote\##2\hyper@quote>}%
5730 \endgroup
5731 \fi
5732 }
5733 \def\hyper@linkend{%
5734 \special{html:</a>}%
5735 \Hy@endcolorlink
5736 }
5737 \def\hyper@linkfile#1#2#3{%
5738 \hyper@linkurl{#1}{\Hy@linkfileprefix#2\ifx\\#3\\else\##3\fi}%
5739 }
5740 \def\hyper@linkurl#1#2{%

```

If we want to raise up the final link `\special`, we need to get its height; ask me why  $\LaTeX$  constructs make this totally foul up, and make us revert to basic  $\TeX$ . I do not know.

```

5741 \leavevmode
5742 \ifHy@raiselinks
5743 \setbox\@tempboxa=\color@hbox #1\color@endbox
5744 \@linkdim\dp\@tempboxa
5745 \lower\@linkdim\hbox{%
5746 \hyper@chars
5747 \special{html:<a href=\hyper@quote#2\hyper@quote>}%
5748 }%
5749 \Hy@colorlink\@urlcolor#1%
5750 \@linkdim\ht\@tempboxa

```

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

```

5751 \advance\@linkdim by -6.5\p@
5752 \raise\@linkdim\hbox{\special{html:</a>}}%
5753 \Hy@endcolorlink
5754 \else
5755 \begingroup
5756 \hyper@chars
5757 \special{html:<a href=\hyper@quote#2\hyper@quote>}%
5758 \Hy@colorlink\@urlcolor#1%
5759 \special{html:</a>}%
5760 \Hy@endcolorlink
5761 \endgroup
5762 \fi
5763 }
5764 \def\hyper@link#1#2#3{%
5765 \hyper@linkurl{#3}{##2}%
5766 }

5767 \def\hyper@image#1#2{%
5768 \begingroup
5769 \hyper@chars
5770 \special{html:<img src=\hyper@quote#1\hyper@quote>}%
5771 \endgroup
5772 }
5773 </hypertex>
5774 <*dviwindo>

```

## 45.4 dviwindo

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

This was more or less blindly copied from the hypertex cfg. For dviwindo,  $\LaTeX$  must specify the size of the active area for links. For some hooks this information is available but for some, the start and end of the link are specified separately in which case a fixed size area of 10000000sp wide by \baselineskip high is used.

```

5775 \providecommand*\wwwbrowser{c:\string\netscape\string\netscape}
5776 \def\hyper@anchor#1{%
5777 \Hy@SaveLastskip
5778 \begingroup
5779 \let\protect=\string
5780 \special{mark: #1}%
5781 \endgroup
5782 \Hy@activeanchortrue
5783 \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
5784 \Hy@activeanchorfalse
5785 \Hy@RestoreLastskip
5786 }
5787 \def\hyper@anchorstart#1{%
5788 \Hy@SaveLastskip
5789 \special{mark: #1}%

```

```

5790 \Hy@activeanchortrue
5791 }
5792 \def\hyper@anchorend{%
5793 \Hy@activeanchorfalse
5794 \Hy@RestoreLastskip
5795 }
5796 \def\hyper@linkstart#1#2{%
5797 \expandafter\Hy@colorlink\csname @#1color\endcsname
5798 \special{button:
5799 10000000
5800 \number\baselineskip\space
5801 #2%
5802 }%
5803 }
5804 \def\hyper@linkend{%
5805 \Hy@endcolorlink
5806 }
5807 \def\hyper@link#1#2#3{%
5808 \setbox\@tempboxa=\color@hbox #3\color@endbox
5809 \leavevmode
5810 \ifHy@raiselinks
5811 \@linkdim\dp\@tempboxa
5812 \lower\@linkdim\hbox{%
5813 \special{button:
5814 \number\wd\@tempboxa\space
5815 \number\ht\@tempboxa\space
5816 #2%
5817 }%
5818 \expandafter\Hy@colorlink\csname @#1color\endcsname#3%
5819 \Hy@endcolorlink
5820 }%
5821 \@linkdim\ht\@tempboxa
5822 \advance\@linkdim by -6.5\p@
5823 \raise\@linkdim\hbox{}%
5824 \else
5825 \special{button:
5826 \number\wd\@tempboxa\space
5827 \number\ht\@tempboxa\space
5828 #2%
5829 }%
5830 \expandafter\Hy@colorlink\csname @#1color\endcsname#3\Hy@endcolorlink
5831 \fi
5832 }
5833 \def\hyper@linkurl#1#2{%
5834 \begingroup
5835 \hyper@chars
5836 \leavevmode
5837 \setbox\@tempboxa=\color@hbox #1\color@endbox
5838 \ifHy@raiselinks
5839 \@linkdim\dp\@tempboxa
5840 \lower\@linkdim\hbox{%
5841 \special{button:
5842 \number\wd\@tempboxa\space
5843 \number\ht\@tempboxa\space
5844 launch: \wwwbrowser\space
5845 #2%
5846 }%

```

```

5847      \Hy@colorlink\@urlcolor#1\Hy@endcolorlink
5848    }%
5849    \@linkdim\ht\@tempboxa
5850    \advance\@linkdim by -6.5\p@
5851    \raise\@linkdim\hbox{}}%
5852  \else
5853    \special{button:
5854      \number\wd\@tempboxa\space
5855      \number\ht\@tempboxa\space
5856      launch: \wwwbrowser\space
5857      #2%
5858    }%
5859    \Hy@colorlink\@urlcolor#1\Hy@endcolorlink
5860  \fi
5861 \endgroup
5862 }
5863 \def\hyper@linkfile#1#2#3{%
5864 \begingroup
5865   \hyper@chars
5866   \leavevmode
5867   \setbox\@tempboxa=\color@hbox #1\color@endbox
5868   \ifHy@raiselinks
5869     \@linkdim\dp\@tempboxa
5870     \lower\@linkdim\hbox{%
5871       \special{button:
5872         \number\wd\@tempboxa\space
5873         \number\ht\@tempboxa\space
5874         #3,
5875         file: #2%
5876       }%
5877       \Hy@colorlink\@filecolor#1\Hy@endcolorlink
5878     }%
5879     \@linkdim\ht\@tempboxa
5880     \advance\@linkdim by -6.5\p@
5881     \raise\@linkdim\hbox{}}%
5882   \else
5883     \special{button:
5884       \number\wd\@tempboxa\space
5885       \number\ht\@tempboxa\space
5886       #3,
5887       file: #2
5888     }%
5889     \Hy@colorlink\@filecolor#1\Hy@endcolorlink
5890   \fi
5891 \endgroup
5892 }
5893 \ifx\@pdfproducer\relax
5894   \def\@pdfproducer{dviwindo + Distiller}
5895 \fi
5896 \def\PDF@FinishDoc{%
5897   \Hy@UseMaketitleInfos
5898   \special{PDF: Keywords \@pdfkeywords}%
5899   \special{PDF: Title \@pdftitle}%
5900   \special{PDF: Creator \@pdfcreator}%
5901   \ifx\@pdfcreationdate\@empty
5902   \else
5903     \special{PDF: CreationDate \@pdfcreationdate}%

```

```

5904 \fi
5905 \ifx\@pdfmoddate\@empty
5906 \else
5907   \special{PDF: ModDate \@pdfmoddate}%
5908 \fi
5909 \special{PDF: Author \@pdfauthor}%
5910 \ifx\@pdfproducer\relax
5911 \else
5912   \special{PDF: Producer \@pdfproducer}%
5913 \fi
5914 \special{PDF: Subject \@pdfsubject}%
5915 \Hy@DisableOption{pdfauthor}%
5916 \Hy@DisableOption{pdftitle}%
5917 \Hy@DisableOption{pdfsubject}%
5918 \Hy@DisableOption{pdfcreator}%
5919 \Hy@DisableOption{pdfcreationdate}%
5920 \Hy@DisableOption{pdfmoddate}%
5921 \Hy@DisableOption{pdfproducer}%
5922 \Hy@DisableOption{pdfkeywords}%
5923 }
5924 \def\PDF@SetupDoc{%
5925   \ifx\@baseurl\@empty
5926   \else
5927     \special{PDF: Base \@baseurl}%
5928   \fi
5929   \ifx\@pdfpagescrop\@empty\else
5930     \special{PDF: BBox \@pdfpagescrop}%
5931   \fi
5932   \pdfmark{pdfmark=/DOCVIEW,
5933     Page=\@pdfstartpage,
5934     View=\@pdfstartview,
5935     PageMode=/\@pdfpagemode
5936   }%
5937   \ifx\@pdfpagescrop\@empty
5938   \else
5939     \pdfmark{pdfmark=/PAGES,CropBox=\@pdfpagescrop}%
5940   \fi
5941   \edef\Hy@temp{%
5942     \ifHy@toolbar\else /HideToolbar true\fi
5943     \ifHy@menubar\else /HideMenubar true\fi
5944     \ifHy>windowui\else /HideWindowUI true\fi
5945     \ifHy@fitwindow /FitWindow true\fi
5946     \ifHy@centerwindow /CenterWindow true\fi
5947     \ifHy@displaydoctitle /DisplayDocTitle true\fi
5948     \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
5949     \Hy@UseNameKey{Direction}\@pdfdirection
5950     \Hy@UseNameKey{ViewArea}\@pdfviewarea
5951     \Hy@UseNameKey{ViewClip}\@pdfviewclip
5952     \Hy@UseNameKey{PrintArea}\@pdfprintarea
5953     \Hy@UseNameKey{PrintClip}\@pdfprintclip
5954     \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
5955     \Hy@UseNameKey{Duplex}\@pdfduplex
5956     \ifx\@pdfpicktraybypdfsize\@empty
5957     \else
5958       /PickTrayByPDFSize \@pdfpicktraybypdfsize
5959     \fi
5960     \ifx\@pdfprintpagerange\@empty

```

```

5961     \else
5962         /PrintPageRange[\@pdfprintpagerange]%
5963     \fi
5964     \ifx\@pdfnumcopies\@empty
5965     \else
5966         /NumCopies \@pdfnumcopies
5967     \fi
5968 }%
5969 \pdfmark{pdfmark=/PUT,
5970     Raw={%
5971         \string{Catalog\string} <<
5972         \ifx\Hy@temp\@empty
5973         \else
5974             /ViewerPreferences<<\Hy@temp>>%
5975         \fi
5976         \Hy@UseNameKey{PageLayout}\@pdfpagelayout
5977         \ifx\@pdflang\@empty
5978         \else
5979             /Lang(\@pdflang)%
5980         \fi
5981     >>%
5982 }%
5983 }%
5984 }
5985 </dviwindo>
5986 <*dvipdfm>

```

## 45.5 dvipdfm dvi to PDF converter

Provided by Mark Wicks (mwicks@kettering.edu)

```

5987 \newsavebox{\pdfm@box}
5988 \def\@pdfm@mark#1{\special{pdf:#1}}
5989 \def\@pdfm@dest#1{%
5990     \Hy@SaveLastskip
5991     \begingroup
5992         \Hy@pstringdef\Hy@pstringDest{#1}%
5993         \def\x{XYZ}%
5994         \ifx\x\@pdfview
5995             \def\x{XYZ @xpos @ypos null}%
5996         \else
5997             \def\x{FitH}%
5998             \ifx\x\@pdfview
5999                 \def\x{FitH @ypos}%
6000             \else
6001                 \def\x{FitBH}%
6002                 \ifx\x\@pdfview
6003                     \def\x{FitBH @ypos}%
6004                 \else
6005                     \def\x{FitV}%
6006                     \ifx\x\@pdfview
6007                         \def\x{FitV @xpos}%
6008                     \else
6009                         \def\x{FitBV}%
6010                         \ifx\x\@pdfview
6011                             \def\x{FitBV @xpos}%
6012                         \else
6013                             \def\x{Fit}%

```

```

6014         \ifx\x\@pdfview
6015         \let\x\@pdfview
6016     \else
6017         \def\x{FitB}%
6018         \ifx\x\@pdfview
6019         \let\x\@pdfview
6020     \else
6021         \def\x{FitR}%
6022         \ifx\x\@pdfview
6023         \Hy@Warning{'pdfview=FitR' is not supported}%
6024         \def\x{XYZ @xpos @ypos null}%
6025     \else
6026         \@onelevel@sanitize\@pdfview
6027         \Hy@Warning{Unknown value '\@pdfview' for pdfview}%
6028         \def\x{XYZ @xpos @ypos null}%
6029     \fi
6030 \fi
6031 \fi
6032 \fi
6033 \fi
6034 \fi
6035 \fi
6036 \fi
6037 \pdfmark{dest (\Hy@pstringDest) [@thispage /\x]}%
6038 \endgroup
6039 \Hy@RestoreLastskip
6040 }
6041 \providecommand*\@pdfview{XYZ}
6042 \providecommand*\@pdfborder{0 0 1}
6043 \providecommand*\@pdfborderstyle{}
6044 \def\hyper@anchor#1{%
6045     \pdfmark{dest{#1}}%
6046 }
6047 \def\hyper@anchorstart#1{%
6048     \Hy@activeanchortrue
6049     \pdfmark{dest{#1}}%
6050 }
6051 \def\hyper@anchorend{%
6052     \Hy@activeanchorfalse
6053 }
6054 \def\Hy@undefinedname{UNDEFINED}
6055 \def\hyper@linkstart#1#2{%
6056     \protected@edef\Hy@testname{#2}%
6057     \ifx\Hy@testname\@empty
6058         \let\Hy@testname\Hy@undefinedname
6059     \else
6060         \Hy@pstringdef\Hy@testname\Hy@testname
6061     \fi
6062     \pdfmark{%
6063         bann <<
6064         /Type /Annot
6065         /Subtype /Link
6066         \Hy@setpdfborder
6067         /C [\csname @#1bordercolor\endcsname]
6068         /A <<
6069         /S /GoTo
6070         /D (\Hy@testname)

```



```

6071     >>
6072     >>
6073 }%
6074 \expandafter\Hy@colorlink\csname @#1color\endcsname
6075 }
6076 \def\hyper@linkend{%
6077   \Hy@endcolorlink
6078   \@pdfm@mark{eann}%
6079 }
6080 \def\hyper@link#1#2#3{%
6081   \hyper@linkstart{#1}{#2}#3\hyper@linkend
6082 }
6083 \def\hyper@linkfile#1#2#3{%
6084   \Hy@pstringdef\Hy@pstringF{#2}%
6085   \Hy@pstringdef\Hy@pstringD{#3}%
6086   \leavevmode
6087   \@pdfm@mark{%
6088     bann <<
6089     /Type /Annot
6090     /Subtype /Link
6091     \Hy@setpdfborder
6092     /C [\@filebordercolor]
6093     /A <<
6094     /S /GoToR
6095     /F (\Hy@pstringF)
6096     /D \ifx\#3\[/0 \pdfstartview\else(\Hy@pstringD)\fi\space
6097     \ifHy@newwindow /NewWindow true \fi
6098     >>
6099     >>%
6100   }%
6101   \Hy@colorlink\@filecolor#1\Hy@endcolorlink
6102   \@pdfm@mark{eann}%
6103 }
6104 \def\@hyper@launch run:#1\#2#3{% filename, anchor text linkname
6105   \Hy@pstringdef\Hy@pstringF{#1}%
6106   \Hy@pstringdef\Hy@pstringP{#3}%
6107   \leavevmode
6108   \@pdfm@mark{%
6109     bann <<
6110     /Type /Annot
6111     /Subtype /Link
6112     \Hy@setpdfborder
6113     /C [\@filebordercolor]
6114     /A <<
6115     /S /Launch
6116     /F (\Hy@pstringF)
6117     \ifHy@newwindow /NewWindow true \fi
6118     \ifx\#3\%
6119     \else
6120       /Win << /P (\Hy@pstringP) /F (\Hy@pstringF) >>
6121     \fi
6122     >>
6123     >>%
6124   }%
6125   \Hy@colorlink\@filecolor#2\Hy@endcolorlink
6126   \@pdfm@mark{eann}%
6127 }

```

```

6128 \def\hyper@linkurl#1#2{%
6129   \Hy@pstringdef\Hy@pstringURI{#2}%
6130   \leavevmode
6131   \@pdfm@mark{%
6132     bann <<
6133       /Type /Annot
6134       /Subtype /Link
6135       \Hy@setpdfborder
6136       /C [\@urlbordercolor]
6137       /A <<
6138         /S /URI
6139         /URI (\Hy@pstringURI)
6140       >>
6141     >>%
6142   }%
6143   \Hy@colorlink\@urlcolor#1\Hy@endcolorlink
6144   \@pdfm@mark{eann}%
6145 }
6146 \def\Acrobatmenu#1#2{%
6147   \leavevmode
6148   \@pdfm@mark{%
6149     bann <<
6150       /Type /Annot
6151       /Subtype /Link
6152       /A <<
6153         /S /Named
6154         /N /#1
6155       >>
6156       \Hy@setpdfborder
6157       /C [\@menubordercolor]
6158     >>%
6159   }%
6160   \Hy@colorlink\@menucolor#2\Hy@endcolorlink
6161   \@pdfm@mark{eann}%
6162 }
6163 \ifx\@pdfproducer\relax
6164   \def\@pdfproducer{dvipdfm}
6165 \fi
6166 \def\PDF@FinishDoc{%
6167   \Hy@UseMaketitleInfos
6168   \@pdfm@mark{%
6169     docinfo <<
6170       /Title (\@pdftitle)
6171       /Subject (\@pdfsubject)
6172       /Creator (\@pdfcreator)
6173       \ifx\@pdfcreationdate\@empty
6174       \else
6175         /CreationDate(\@pdfcreationdate) %
6176       \fi
6177       \ifx\@pdfmoddate\@empty
6178       \else
6179         /ModDate(\@pdfmoddate) %
6180       \fi
6181       /Author (\@pdfauthor)
6182       \ifx\@pdfproducer\relax
6183       \else
6184         /Producer (\@pdfproducer)

```

```

6185     \fi
6186     /Keywords (\@pdfkeywords)
6187     >>%
6188 }%
6189 \Hy@DisableOption{pdfauthor}%
6190 \Hy@DisableOption{pdftitle}%
6191 \Hy@DisableOption{pdfsubject}%
6192 \Hy@DisableOption{pdfcreator}%
6193 \Hy@DisableOption{pdfcreationdate}%
6194 \Hy@DisableOption{pdfmoddate}%
6195 \Hy@DisableOption{pdfproducer}%
6196 \Hy@DisableOption{pdfkeywords}%
6197 }

6198 \def\PDF@SetupDoc{%
6199   \edef\Hy@temp{%
6200     \ifHy@toolbar\else /HideToolbar true\fi
6201     \ifHy@menubar\else /HideMenubar true\fi
6202     \ifHy@windowui\else /HideWindowUI true\fi
6203     \ifHy@fitwindow /FitWindow true\fi
6204     \ifHy@centerwindow /CenterWindow true\fi
6205     \ifHy@displaydoctitle /DisplayDocTitle true\fi
6206     \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
6207     \Hy@UseNameKey{Direction}\@pdfdirection
6208     \Hy@UseNameKey{ViewArea}\@pdfviewarea
6209     \Hy@UseNameKey{ViewClip}\@pdfviewclip
6210     \Hy@UseNameKey{PrintArea}\@pdfprintarea
6211     \Hy@UseNameKey{PrintClip}\@pdfprintclip
6212     \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
6213     \Hy@UseNameKey{Duplex}\@pdfduplex
6214     \ifx\@pdfpicktraybypdfsize\@empty
6215     \else
6216       /PickTrayByPDFSize \@pdfpicktraybypdfsize
6217     \fi
6218     \ifx\@pdfprintpagerange\@empty
6219     \else
6220       /PrintPageRange[\@pdfprintpagerange]%
6221     \fi
6222     \ifx\@pdfnumcopies\@empty
6223     \else
6224       /NumCopies \@pdfnumcopies
6225     \fi
6226   }%
6227   \Hy@pstringdef\Hy@pstringB{\@baseurl}%
6228   \@pdfm@mark{%
6229     docview <<%
6230     \ifx\@pdfstartview\@empty
6231     \else
6232       /OpenAction[\@page\@pdfstartpage\@pdfstartview]%
6233     \fi
6234     \ifx\@baseurl\@empty
6235     \else
6236       /URI<</Base(\Hy@pstringB)>>%
6237     \fi
6238     /PageMode/\@pdfpagemode
6239     \ifx\Hy@temp\@empty
6240     \else
6241       /ViewerPreferences<<\Hy@temp>>%

```

```

6242     \fi
6243     \Hy@UseNameKey{PageLayout}\@pdfpagelayout
6244     \ifx\@pdflang\@empty
6245     \else
6246         /Lang(\@pdflang)%
6247     \fi
6248     >>%
6249 }%
6250 \ifx\@pdfpagescrop\@empty
6251 \else
6252     \@pdfm@mark{put @pages <</CropBox[\@pdfpagescrop]>>}
6253 \fi
6254 }
6255 \</dvipdfm>

```

## 45.6 VTeX typesetting system

Provided by MicroPress, May 1998. They require VTeX version 6.02 or newer; see <http://www.micropress-inc.com/> for details.

```

6256 \*vtexhtml)
6257 \RequirePackage{vtexhtml}
6258 \newif\if@Localurl
6259 \def\PDF@FinishDoc{}
6260 \def\PDF@SetupDoc{%
6261     \ifx\@baseurl\@empty
6262     \else
6263         \special{!direct <base href="\@baseurl">}%
6264     \fi
6265 }
6266 \def\@urltype{url}
6267 \def\hyper@link#1#2#3{%
6268     \leavevmode
6269     \special{!direct <a href=\hyper@quote\hyper@hash#2\hyper@quote>}%
6270     #3%
6271     \special{!direct </a>}%
6272 }
6273 \def\hyper@linkurl#1#2{%
6274     \begingroup
6275         \hyper@chars
6276         \leavevmode
6277         \MathBSuppress=1\relax
6278         \special{!direct <a href=\hyper@quote#2\hyper@quote>}%
6279         #1%
6280         \MathBSuppress=0\relax
6281         \special{!direct </a>}%
6282     \endgroup
6283 }
6284 \def\hyper@linkfile#1#2#3{%
6285     \hyper@linkurl{#1}{\Hy@linkfileprefix#2\ifx\\#3\\else\##3\fi}%
6286 }
6287 \def\hyper@linkstart#1#2{%
6288     \def\Hy@tempa{#1}\ifx\Hy@tempa\@urltype
6289         \@Localurltrue
6290         \special{!direct <a href=\hyper@quote#2\hyper@quote>}%
6291     \else
6292         \@Localurlfalse
6293     \begingroup

```

```

6294     \hyper@chars
6295     \special{!aref #2}%
6296   \endgroup
6297 \fi
6298 }
6299 \def\hyper@linkend{%
6300   \if@Localurl
6301     \special{!endaref}%
6302   \else
6303     \special{!direct </a>}%
6304   \fi
6305 }
6306 \def\hyper@anchorstart#1{%
6307   \Hy@SaveLastskip
6308   \begingroup
6309     \hyper@chars
6310     \special{!aname #1}%
6311     \special{!direct <a name=\hyper@quote#1\hyper@quote>}%
6312   \endgroup
6313   \Hy@Activeanchortrue
6314 }
6315 \def\hyper@anchorend{%
6316   \special{!direct </a>}%
6317   \Hy@Activeanchorfalse
6318   \Hy@RestoreLastskip
6319 }
6320 \def\hyper@anchor#1{%
6321   \Hy@SaveLastskip
6322   \begingroup
6323     \let\protect=\string
6324     \hyper@chars
6325     \leavevmode
6326     \special{!aname #1}%
6327     \special{!direct <a name=\hyper@quote #1\hyper@quote>}%
6328   \endgroup
6329   \Hy@Activeanchortrue
6330   \bgroup\anchor@spot\egroup
6331   \special{!direct </a>}%
6332   \Hy@Activeanchorfalse
6333   \Hy@RestoreLastskip
6334 }
6335 \def\@Form[#1]{\typeout{Sorry, TeXpider does not yet support FORMs}}
6336 \def\@endForm{}
6337 \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
6338   \typeout{Sorry, TeXpider does not yet support FORM gauges}%
6339 }
6340 \def\@TextField[#1]#2{% parameters, label
6341   \typeout{Sorry, TeXpider does not yet support FORM text fields}%
6342 }
6343 \def\@CheckBox[#1]#2{% parameters, label
6344   \typeout{Sorry, TeXpider does not yet support FORM checkboxes}%
6345 }
6346 \def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
6347   \typeout{Sorry, TeXpider does not yet support FORM choice menus}%
6348 }
6349 \def\@PushButton[#1]#2{% parameters, label
6350   \typeout{Sorry, TeXpider does not yet support FORM pushbuttons}%

```

```

6351 }
6352 \def\@Reset[#1]#2{\typeout{Sorry, TeXpider does not yet support FORMs}}
6353 \def\@Submit[#1]#2{\typeout{Sorry, TeXpider does not yet support FORMs}}
6354 \vtxhtml)
6355 \vtx

```

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

```

6356 \ifx\mediaheight\@undefined
6357 \else
6358   \ifx\mediaheight\relax
6359   \else
6360     \ifHy@setpagesize
6361       \providecommand*\VTeXInitMediaSize{%
6362         \ifundefined{stockwidth}{%
6363           \ifdim\paperheight>0pt %
6364             \setlength\mediaheight\paperheight
6365           \fi
6366           \ifdim\paperheight>0pt %
6367             \setlength\mediawidth\paperwidth
6368           \fi
6369         }{%
6370           \ifdim\stockheight>0pt %
6371             \setlength\mediaheight\stockheight
6372           \fi
6373           \ifdim\stockwidth>0pt %
6374             \setlength\mediawidth\stockwidth
6375           \fi
6376         }%
6377       }%
6378       \AtBeginDocument{\VTeXInitMediaSize}%
6379     \fi
6380     \Hy@DisableOption{setpagesize}%
6381   \fi
6382 \fi

```

Older versions of VTeX require xyz in lower case.

```

6383 \providecommand*\@pdfview{xyz}
6384 \providecommand*\@pdfborder{0 0 1}
6385 \providecommand*\@pdfborderstyle{}
6386 \def\CurrentBorderColor{\@linkbordercolor}
6387 \def\hyper@anchor#1{%
6388   \Hy@SaveLastskip
6389   \begingroup
6390     \let\protect=\string
6391     \hyper@chars
6392     \special{!aname #1;\@pdfview}%
6393   \endgroup
6394   \Hy@activeanchortrue
6395   \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
6396   \Hy@activeanchorfalse
6397   \Hy@RestoreLastskip
6398 }
6399 \def\hyper@anchorstart#1{%
6400   \Hy@SaveLastskip
6401   \begingroup
6402     \hyper@chars

```

```

6403 \special{!aname #1;\pdfview}%
6404 \endgroup
6405 \Hy@activeanchortrue
6406 }
6407 \def\hyper@anchorend{%
6408 \Hy@activeanchorfalse
6409 \Hy@RestoreLastskip
6410 }
6411 \def\@urltype{url}
6412 \def\Hy@undefinedname{UNDEFINED}
6413 \def\hyper@linkstart#1#2{%
6414 \Hy@pstringdef\Hy@pstringURI{#2}%
6415 \expandafter\Hy@colorlink\csname @#1color\endcsname
6416 \edef\CurrentBorderColor{\csname @#1bordercolor\endcsname}%
6417 \def\Hy@tempa{#1}%
6418 \ifx\Hy@tempa\@urltype
6419 \special{!%
6420 \a href <u=/Type /Action /S /URI /URI (\Hy@pstringURI)>;%
6421 \a <\Hy@setpdfborder /C [\CurrentBorderColor]>%
6422 }%
6423 \else
6424 \protected@edef\Hy@testname{#2}%
6425 \ifx\Hy@testname\@empty
6426 \let\Hy@testname\Hy@undefinedname
6427 \fi
6428 \special{!%
6429 \a href \Hy@testname;%
6430 \a <\Hy@setpdfborder /C [\CurrentBorderColor]>%
6431 }%
6432 \fi
6433 }
6434 \def\hyper@linkend{%
6435 \special{!endaref}%
6436 \Hy@endcolorlink
6437 }
6438 \def\hyper@linkfile#1#2#3{%
6439 \leavevmode
6440 \special{!%
6441 \a href <%
6442 \ifnum\Hy@VTeXversion>753 \ifHy@newwindow n\fi\fi
6443 f=#2>#3;%
6444 \a <\Hy@setpdfborder /C [\@filebordercolor]>%
6445 }%
6446 \Hy@colorlink\@filecolor#1\Hy@endcolorlink
6447 \special{!endaref}%
6448 }
6449 \def\hyper@linkurl#1#2{%
6450 \begingroup
6451 \Hy@pstringdef\Hy@pstringURI{#2}%
6452 \hyper@chars
6453 \leavevmode
6454 \special{!%
6455 \a href <u=/Type /Action /S /URI /URI (\Hy@pstringURI)>;%
6456 \a <\Hy@setpdfborder /C [\@urlbordercolor]>%
6457 }%
6458 \Hy@colorlink\@urlcolor#1\Hy@endcolorlink
6459 \special{!endaref}%

```

```

6460 \endgroup
6461 }
6462 \def\hyper@link#1#2#3{%
6463   \edef\CurrentBorderColor{\csname @#1bordercolor\endcsname}%
6464   \leavevmode
6465   \protected@edef\Hy@testname{#2}%
6466   \ifx\Hy@testname\empty
6467     \let\Hy@testname\Hy@undefinedname
6468   \fi
6469   \special{!%
6470     aref \Hy@testname;%
6471     a=<\Hy@setpdfborder /C [\CurrentBorderColor]>%
6472   }%
6473   \expandafter\Hy@colorlink\csname @#1color\endcsname#3\Hy@endcolorlink
6474   \special{!endaref}%
6475 }
6476 \def\hyper@image#1#2{%
6477   \hyper@linkurl{#2}{#1}%
6478 }
6479 \def\@hyper@launch run:#1\#2#3{%
6480   \Hy@pstringdef\Hy@pstringF{#1}%
6481   \Hy@pstringdef\Hy@pstringP{#3}%
6482   \leavevmode
6483   \special{!aref
6484     <u=%
6485     /Type /Action
6486     /S /Launch
6487     /F (\Hy@pstringF)
6488     \ifHy@newwindow /NewWindow true \fi
6489     \ifx\#3\else /Win << /F (\Hy@pstringF) /P (\Hy@pstringP) >> \fi%
6490   >;%
6491   a=<\Hy@setpdfborder /C [\@runbordercolor]>%
6492   }%
6493   \Hy@colorlink\@filecolor#2\Hy@endcolorlink
6494   \special{!endaref}%
6495 }
6496 \def\Acrobatmenu#1#2{%
6497   \leavevmode
6498   \special{!%
6499     aref <u=/S /Named /N /#1>;%
6500     a=<\Hy@setpdfborder /C [\@menubordercolor]>%
6501   }%
6502   \Hy@colorlink\@menucolor#2\Hy@endcolorlink
6503   \special{!endaref}%
6504 }

```

The following code (transition effects) is made by Alex Kostin.

The code below makes sense for  $\text{\TeX}$  7.02 or later.

Please never use `\@ifundefined{VTeXversion}{...}{...}` globally.

```

6505 \ifnum\Hy@VTeXversion<702 %
6506 \else
6507   \def\hyper@pagetransition{%
6508     \ifx\@pdfpagetransition\relax
6509     \else
6510       \ifx\@pdfpagetransition\empty

```

Standard incantation.

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



```

6511     \else
6512     \hvtex@parse@trans\@pdfpagetransition
6513     \fi
6514 \fi
6515 }

```

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

Syntax of  $\text{\TeX}$  \special{!trans <transition\_effect>}:

```

<transition_effect> ::= <transition_style>[,<transition_duration>]
<transition_style> ::= <Blinds_effect> | <Box_effect> |
                        <Dissolve_effect> | <Glitter_effect> |
                        <Split_effect> | <Wipe_effect>
<Blinds_effect> ::= B[<effect_dimension>]
<Box_effect> ::= X[<effect_motion>]
<Dissolve_effect> ::= D
<Glitter_effect> ::= G[<effect_direction>]
<Split_effect> ::= S[<effect_motion>][<effect_dimension>]
<Wipe_effect> ::= W[<effect_direction>]
<Replace_effect> ::= R
<effect_direction> ::= <number>
<effect_dimension> ::= H | V
<effect_motion> ::= I | O
<transition_duration> ::= <number>

```

Transition codes:

```

6516 \def\hvtex@trans@effect@Blinds{\def\hvtex@trans@code{B}}
6517 \def\hvtex@trans@effect@Box{\def\hvtex@trans@code{X}}
6518 \def\hvtex@trans@effect@Dissolve{\def\hvtex@trans@code{D}}
6519 \def\hvtex@trans@effect@Glitter{\def\hvtex@trans@code{G}}
6520 \def\hvtex@trans@effect@Split{\def\hvtex@trans@code{S}}
6521 \def\hvtex@trans@effect@Wipe{\def\hvtex@trans@code{W}}
6522 \def\hvtex@trans@effect@R{\def\hvtex@trans@code{R}}

```

Optional parameters:

```

6523 \def\hvtex@par@dimension{/Dm}
6524 \def\hvtex@par@direction{/Di}
6525 \def\hvtex@par@duration{/D}
6526 \def\hvtex@par@motion{/M}

```

Tokenizer:

```

6527 \def\hvtex@gettoken{\expandafter\hvtex@gettoken@\hvtex@buffer\@nil}

```

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

```

6528 \def\hvtex@gettoken@#1 #2\@nil{%
6529     \edef\hvtex@token{#1}%
6530     \edef\hvtex@buffer{#2}%
6531 }
6532 \def\hvtex@parse@trans#1{%

```

Initializing code:

```

6533 \let\hvtex@trans@code\@empty
6534 \let\hvtex@param@dimension\@empty
6535 \let\hvtex@param@direction\@empty
6536 \let\hvtex@param@duration\@empty
6537 \let\hvtex@param@motion\@empty
6538 \edef\hvtex@buffer{#1\space}%

```

First token is the PDF transition name without escape.

```
6539 \hvtex@gettoken
6540 \ifx\hvtex@token\@empty
```

Leading space(s)?

```
6541 \ifx\hvtex@buffer\@empty
```

The buffer is empty, nothing to do.

```
6542 \else
6543 \hvtex@gettoken
6544 \fi
6545 \fi
6546 \csname hvtex@trans@effect@\hvtex@token\endcsname
```

Now is time to parse optional parameters.

```
6547 \hvtex@trans@params
6548 }
```

Reentrant macro to parse optional parameters.

```
6549 \def\hvtex@trans@params{%
6550 \ifx\hvtex@buffer\@empty
6551 \else
6552 \hvtex@gettoken
6553 \let\hvtex@trans@par\hvtex@token
6554 \ifx\hvtex@buffer\@empty
6555 \else
6556 \hvtex@gettoken
6557 \ifx\hvtex@trans@par\hvtex@par@duration
```

/D is the effect duration in seconds. V<sub>T</sub><sub>E</sub>X special takes it in milliseconds.

```
6558 \let\hvtex@param@duration\hvtex@token
6559 \else \ifx\hvtex@trans@par\hvtex@par@motion
```

/M can be either /I or /O

```
6560 \expandafter\edef\expandafter\hvtex@param@motion
6561 \expandafter{\expandafter\@gobble\hvtex@token}%
6562 \else \ifx\hvtex@trans@par\hvtex@par@dimension
```

/Dm can be either /H or /V

```
6563 \expandafter\edef\expandafter\hvtex@param@dimension
6564 \expandafter{\expandafter\@gobble\hvtex@token}%
6565 \else \ifx\hvtex@trans@par\hvtex@par@direction
```

Valid values for /Di are 0, 270, 315 (the Glitter effect) or 0, 90, 180, 270 (the Wipe effect).

```
6566 \let\hvtex@param@direction\hvtex@token
6567 \fi\fi\fi\fi
6568 \fi
6569 \fi
6570 \ifx\hvtex@buffer\@empty
6571 \let\next\hvtex@produce@trans
6572 \else
6573 \let\next\hvtex@trans@params
6574 \fi
6575 \next
6576 }
```

Merge <transition\_effect> and issue the special when possible. Too lazy to validate optional parameters.

```
6577 \def\hvtex@produce@trans{%
```

```

6578 \let\vtex@trans@special\@empty
6579 \if S\hvtex@trans@code
6580 \edef\vtex@trans@special{\hvtex@trans@code
6581 \hvtex@param@dimension\hvtex@param@motion}%
6582 \else \if B\hvtex@trans@code
6583 \edef\vtex@trans@special{\hvtex@trans@code\hvtex@param@dimension}%
6584 \else \if X\hvtex@trans@code
6585 \edef\vtex@trans@special{\hvtex@trans@code\hvtex@param@motion}%
6586 \else \if W\hvtex@trans@code
6587 \edef\vtex@trans@special{\hvtex@trans@code\hvtex@param@direction}%
6588 \else \if D\hvtex@trans@code
6589 \let\vtex@trans@special\hvtex@trans@code
6590 \else \if R\hvtex@trans@code
6591 \let\vtex@trans@special\hvtex@trans@code
6592 \else \if G\hvtex@trans@code
6593 \edef\vtex@trans@special{\hvtex@trans@code\hvtex@param@direction}%
6594 \fi\fi\fi\fi\fi\fi\fi
6595 \ifx\vtex@trans@special\@empty
6596 \else
6597 \ifx\hvtex@param@duration\@empty
6598 \else
6599 \setlength{\dimen@}{\hvtex@param@duration\p@}%

```

I'm not guilty of possible overflow.

```

6600 \multiply\dimen@\@m
6601 \edef\vtex@trans@special{\vtex@trans@special,\strip@pt\dimen@}%
6602 \fi

```

And all the mess is just for this.

```

6603 \special{!trans \vtex@trans@special}%
6604 \fi
6605 }

6606 \def\hyper@pageduration{%
6607 \ifx\@pdfpageduration\relax
6608 \else
6609 \ifx\@pdfpageduration\@empty
6610 \special{!duration-}%
6611 \else
6612 \special{!duration \@pdfpageduration}%
6613 \fi
6614 \fi
6615 }

6616 \def\hyper@pagehidden{%
6617 \ifHy@useHidKey
6618 \special{!hidden\ifHy@pdfpagehidden +\else -\fi}%
6619 \fi
6620 }
6621 \fi

```

Caution: In opposite to the other drivers, the argument of `\special{!onopen #1}` is a reference name. The VTeX's postscript mode will work with a version higher than 7.0x.

The command `\VTeXOS` is defined since version 7.45. Magic values encode the operating system:

- 1: WinTel
- 2: Linux
- 3: OS/2
- 4: MacOS
- 5: MacOS/X

```

6622 \ifx\@pdfproducer\relax
6623   \def\@pdfproducer{VTeX}
6624   \ifnum\Hy@VTeXversion>\z@
6625     \count@\VTeXversion
6626     \divide\count@ 100
6627     \edef\@pdfproducer{\@pdfproducer\space v\the\count@}
6628     \multiply\count@ -100
6629     \advance\count@\VTeXversion
6630     \edef\@pdfproducer{%
6631       \@pdfproducer
6632       .\ifnum\count@<10 0\fi\the\count@
6633       \ifx\VTeXOS\@undefined\else
6634         \ifnum\VTeXOS>0 %
6635           \ifnum\VTeXOS<6 %
6636             \space(
6637             \ifcase\VTeXOS
6638             \or Windows\or Linux\or OS/2\or MacOS\or MacOS/X%
6639             \fi
6640             )%
6641           \fi
6642         \fi
6643       \fi
6644       ,\space
6645       \ifnum\OpMode=\@ne PDF\else PS\fi
6646       \space backend%
6647       \ifx\gexmode\@undefined\else
6648         \ifnum\gexmode>\z@\space with GeX\fi
6649       \fi
6650     }
6651   \fi
6652 \fi

```

Current !pdfinfo key syntax:

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

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

```

6653 \def\PDF@SetupDoc{%
6654   \ifx\@pdfpagescrop\@empty
6655   \else
6656     \special{!pdfinfo b=<\@pdfpagescrop>}%
6657   \fi

```

```

6658 \special{!onopen Page\pdfstartpage}%
6659 \special{!pdfinfo p=</\pdfpagemode>}%
6660 \ifx\@baseurl\@empty
6661 \else
6662 \special{!pdfinfo u=<<</Base (\@baseurl)>>>}%
6663 \fi
6664 \special{!pdfinfo v=<<<%
6665 \ifHy@toolbar\else /HideToolbar true\fi
6666 \ifHy@menubar\else /HideMenubar true\fi
6667 \ifHy@windowui\else /HideWindowUI true\fi
6668 \ifHy@fitwindow /FitWindow true\fi
6669 \ifHy@centerwindow /CenterWindow true\fi
6670 \ifHy@displaydoctitle /DisplayDocTitle true\fi
6671 \Hy@UseNameKey{NonFullScreenPageMode}\pdfnonfullscreenpagemode
6672 \Hy@UseNameKey{Direction}\pdfdirection
6673 \Hy@UseNameKey{ViewArea}\pdfviewarea
6674 \Hy@UseNameKey{ViewClip}\pdfviewclip
6675 \Hy@UseNameKey{PrintArea}\pdfprintarea
6676 \Hy@UseNameKey{PrintClip}\pdfprintclip
6677 \Hy@UseNameKey{PrintScaling}\pdfprintscaling
6678 \Hy@UseNameKey{Duplex}\pdfduplex
6679 \ifx\@pdfpicktraybypdfsize\@empty
6680 \else
6681 /PickTrayByPDFSize \pdfpicktraybypdfsize
6682 \fi
6683 \ifx\@pdfprintpagerange\@empty
6684 \else
6685 /PrintPageRange[\pdfprintpagerange]%
6686 \fi
6687 \ifx\@pdfnumcopies\@empty
6688 \else
6689 /NumCopies \pdfnumcopies
6690 \fi
6691 >>>}%
6692 \ifx\@pdfpagelayout\@empty
6693 \else
6694 \special{!pdfinfo l=</\pdfpagelayout\space>}%
6695 \fi
6696 }%
6697 \def\PDF@FinishDoc{%
6698 \Hy@UseMaketitleInfos
6699 \special{!pdfinfo a=<\pdfauthor>}%
6700 \special{!pdfinfo t=<\pdftitle>}%
6701 \special{!pdfinfo s=<\pdfsubject>}%
6702 \special{!pdfinfo c=<\pdfcreator>}%
6703 \ifx\@pdfproducer\relax
6704 \else
6705 \special{!pdfinfo r=<\pdfproducer>}%
6706 \fi
6707 \special{!pdfinfo k=<\pdfkeywords>}%
6708 \Hy@DisableOption{pdfauthor}%
6709 \Hy@DisableOption{pdftitle}%
6710 \Hy@DisableOption{pdfsubject}%
6711 \Hy@DisableOption{pdfcreator}%
6712 \Hy@DisableOption{pdfcreationdate}%
6713 \Hy@DisableOption{pdfmoddate}%
6714 \Hy@DisableOption{pdfproducer}%

```

```

6715 \Hy@DisableOption{pdfkeywords}%
6716 }
6717 </vtex>

```

## 45.7 Fix for Adobe bug number 466320

If a destination occurs at the very begin of a page, the destination is moved to the previous page by Adobe Distiller 5. As workaround Adobe suggests:

```

/showpage {
  //showpage
  clippath stroke erasepage
} bind def

```

But unfortunately this fix generates an empty page at the end of the document. Therefore another fix is used by writing some clipped text.

```

6718 <dviwindo>\def\literalps@out#1{\special{ps:#1}}%
6719 <package>\providecommand*\Hy@DistillerDestFix{}
6720 <*pdfmark | dviwindo>
6721 \def\Hy@DistillerDestFix{%
6722   \begingroup
6723     \let\x\literalps@out

```

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

```

6724   \ifnum \@ifundefined{OpMode}{0}{%
6725     \@ifundefined{gexmode}{0}{%
6726       \ifnum\gexmode>0 \OpMode\else 0\fi
6727     }>1 %
6728   \def\x##1{%
6729     \immediate\special{!=##1}%
6730   }%
6731 \fi
6732 \x{%
6733   /product where{%
6734     pop %
6735     product(Distiller)search{%
6736       pop pop pop %
6737       version(.)search{%
6738         exch pop exch pop%
6739         (3011)eq{%
6740           gsave %
6741           newpath 0 0 moveto closepath clip%
6742           /Courier findfont 10 scalefont setfont %
6743           72 72 moveto(.)show %
6744           grestore%
6745         }if%
6746       }{pop}ifelse%
6747     }{pop}ifelse%
6748   }if%
6749   }%
6750 \endgroup
6751 }
6752 </pdfmark | dviwindo>

```

## 45.8 Direct pdfmark support (dvipdf and pdfmark)

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

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

and the correct definitions of the following PostScript procedures:

<code>H.S</code>	start of anchor, link or rect
<code>#1 H.A</code>	end of anchor, argument=baselineskip in pt
<code>#1 H.L</code>	end of link, argument=baselineskip in pt
<code>H.R</code>	end of rect
<code>H.B</code>	raw rect code

```

6753 <*pdfmark | dvipdf>
6754 \def\hyper@anchor#1{%
6755   \Hy@SaveLastskip
6756   \begingroup
6757     \pdfmark[\anchor@spot]{%
6758       pdfmark=/DEST,%
6759       linktype=anchor,%
6760       View=/\@pdfview \@pdfviewparams,%
6761       DestAnchor={#1}%
6762     }%
6763   \endgroup
6764   \Hy@RestoreLastskip
6765 }
6766 <*dvipdf>
6767 \def\hyper@anchorstart#1{\Hy@activeanchortrue}
6768 \def\hyper@anchorend{\Hy@activeanchorfalse}
6769 \def\hyper@linkstart#1#2{%
6770   \expandafter\Hy@colorlink\csname @#1color\endcsname
6771   \xdef\hyper@currentanchor{#2}%
6772 }
6773 \def\hyper@linkend{%
6774   \Hy@endcolorlink
6775 }
6776 </dvipdf>
6777 <*pdfmark>
6778 \@ifundefined{hyper@anchorstart}{\endinput}{}
6779 \def\hyper@anchorstart#1{%
6780   \Hy@SaveLastskip
6781   \literalps@out{H.S}%
6782   \xdef\hyper@currentanchor{#1}%
6783   \Hy@activeanchortrue
6784 }
6785 \def\hyper@anchorend{%
6786   \literalps@out{\strip@pt@and@otherjunk\baselineskip\space H.A}%
6787   \pdfmark{%
6788     pdfmark=/DEST,%
6789     linktype=anchor,%
6790     View=/\@pdfview \@pdfviewparams,%
6791     DestAnchor=\hyper@currentanchor,%
6792     Raw=H.B%
6793   }%
6794   \Hy@activeanchorfalse
6795   \Hy@RestoreLastskip
6796 }
6797 \def\hyper@linkstart#1#2{%
6798   \ifHy@breaklinks

```

```

6799 \else
6800   \leavevmode\hbox\bgroup
6801 \fi
6802 \expandafter\Hy@colorlink\csname @#1color\endcsname
6803 \literalps@out{H.S}%
6804 \xdef\hyper@currentanchor{#2}%
6805 \gdef\hyper@currentlinktype{#1}%
6806 }
6807 \def\hyper@linkend{%
6808   \literalps@out{\strip@pt@and@otherjunk\baselineskip\space H.L}%
6809   \edef\Hy@tempcolor{\csname @\hyper@currentlinktype bordercolor\endcsname}%
6810   \pdfmark{%
6811     pdfmark=/ANN,%
6812     linktype=link,%
6813     Subtype=/Link,%
6814     Dest=\hyper@currentanchor,%
6815     AcroHighlight=\@pdfhighlight,%
6816     Border=\@pdfborder,%
6817     BorderStyle=\@pdfborderstyle,%
6818     Color=\Hy@tempcolor,%
6819     Raw=H.B%
6820   }%
6821   \Hy@endcolorlink
6822   \ifHy@breaklinks
6823   \else
6824     \egroup
6825   \fi
6826 }
6827 \<pdfmark>

```

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.

```

6828 \begingroup
6829 \catcode'P=12
6830 \catcode'T=12
6831 \lowercase{\endgroup
6832 \gdef\rem@ptetc#1.#2PT#3!{#1\ifnum#2>\z@.#2\fi}%
6833 }
6834 \def\strip@pt@and@otherjunk#1{\expandafter\rem@ptetc\the#1!}
6835 \</pdfmark>

```

\hyper@pagetransition

```

6836 \def\hyper@pagetransition{%
6837   \ifx\@pdfpagetransition\relax
6838   \else
6839     \ifx\@pdfpagetransition\@empty
6840       % 1. Does an old entry have to be deleted?
6841       % 2. If 1=yes, how to delete?
6842     \else
6843       \pdfmark{%
6844         pdfmark=/PUT,%
6845         Raw={%
6846           \string{ThisPage\string}%
6847           <</Trans << /S /\@pdfpagetransition\space >> >>%
6848         }%
6849       }%

```



```

6850 \fi
6851 \fi
6852 }

```

\hyper@pageduration

```

6853 \def\hyper@pageduration{%
6854 \ifx\@pdfpageduration\relax
6855 \else
6856 \ifx\@pdfpageduration\@empty
6857 % 1. Does an old entry have to be deleted?
6858 % 2. If 1=yes, how to delete?
6859 \else
6860 \pdfmark{%
6861 pdfmark=/PUT,%
6862 Raw={%
6863 \string{ThisPage\string}%
6864 <</Dur \@pdfpageduration>>%
6865 }%
6866 }%
6867 \fi
6868 \fi
6869 }

```

\hyper@pagehidden

```

6870 \def\hyper@pagehidden{%
6871 \ifHy@useHidKey
6872 \pdfmark{%
6873 pdfmark=/PUT,%
6874 Raw={%
6875 \string{ThisPage\string}%
6876 <</Hid \ifHy@pdfpagehidden true\else false\fi>>%
6877 }%
6878 }%
6879 \fi
6880 }

6881 </pdfmark>
6882 \def\hyper@image#1#2{%
6883 \hyper@linkurl{#2}{#1}}
6884 \def\Hy@undefinedname{UNDEFINED}
6885 \def\hyper@link#1#2#3{%
6886 \edef\Hy@tempcolor{\csname @#1bordercolor\endcsname}%
6887 \begin{group}
6888 \protected@edef\Hy@testname{#2}%
6889 \ifx\Hy@testname\@empty
6890 \let\Hy@testname\Hy@undefinedname
6891 \fi
6892 <*\dvi{pdf}>
6893 \pdfmark[#{#3}]{%
6894 pdfmark=/LNK,%
6895 {},%
6896 linktype={#1},%
6897 AcroHighlight=\@pdfhighlight,%
6898 Border=\@pdfborder,%
6899 BorderStyle=\@pdfborderstyle,%
6900 Color=\Hy@tempcolor,%
6901 Dest=\Hy@testname

```

```

6902 }%
6903 </dvipdf>
6904 <*pdfmarkbase>
6905   \pdfmark[#{3}]{%
6906     Color=\Hy@tempcolor,%
6907     linktype={#1},%
6908     AcroHighlight=\@pdfhighlight,%
6909     Border=\@pdfborder,%
6910     BorderStyle=\@pdfborderstyle,%
6911     pdfmark=/ANN,%
6912     Subtype=/Link,%
6913     Dest=\Hy@testname
6914   }%
6915 </pdfmarkbase>
6916 \endgroup
6917 }
6918 \newtoks\pdf@docset
6919 \def\PDF@FinishDoc{%
6920   \Hy@UseMaketitleInfos
6921   \let\Hy@temp\@empty
6922   \ifx\@pdfcreationdate\@empty
6923   \else
6924     \def\Hy@temp{CreationDate=\@pdfcreationdate,}%
6925   \fi
6926   \ifx\@pdfmoddate\@empty
6927   \else
6928     \expandafter\def\expandafter\Hy@temp\expandafter{%
6929       \Hy@temp
6930       ModDate=\@pdfmoddate,%
6931     }%
6932   \fi
6933   \ifx\@pdfproducer\relax
6934   \else
6935     \expandafter\def\expandafter\Hy@temp\expandafter{%
6936       \Hy@temp
6937       Producer=\@pdfproducer,%
6938     }%
6939   \fi
6940   \expandafter
6941   \pdfmark\expandafter{%
6942     \Hy@temp
6943     pdfmark=/DOCINFO,%
6944     Title=\@pdftitle,%
6945     Subject=\@pdfsubject,%
6946     Creator=\@pdfcreator,%
6947     Author=\@pdfauthor,%
6948     Keywords=\@pdfkeywords
6949   }%
6950   \Hy@DisableOption{pdfauthor}%
6951   \Hy@DisableOption{pdftitle}%
6952   \Hy@DisableOption{pdfsubject}%
6953   \Hy@DisableOption{pdfcreator}%
6954   \Hy@DisableOption{pdfcreationdate}%
6955   \Hy@DisableOption{pdfmoddate}%
6956   \Hy@DisableOption{pdfproducer}%
6957   \Hy@DisableOption{pdfkeywords}%
6958 }

```

```

6959 \def\PDF@SetupDoc{%
6960   \pdfmark{%
6961     pdfmark=/DOCVIEW,%
6962     Page=\@pdfstartpage,%
6963     View=\@pdfstartview,%
6964     PageMode=/\@pdfpagemode
6965   }%
6966   \ifx\@pdfpagescrop\@empty
6967   \else
6968     \pdfmark{pdfmark=/PAGES,CropBox=\@pdfpagescrop}%
6969   \fi
6970   \edef\Hy@temp{%
6971     \ifHy@toolbar\else /HideToolbar true\fi
6972     \ifHy@menubar\else /HideMenubar true\fi
6973     \ifHy>windowui\else /HideWindowUI true\fi
6974     \ifHy@fitwindow /FitWindow true\fi
6975     \ifHy@centerwindow /CenterWindow true\fi
6976     \ifHy@displaydoctitle /DisplayDocTitle true\fi
6977     \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
6978     \Hy@UseNameKey{Direction}\@pdfdirection
6979     \Hy@UseNameKey{ViewArea}\@pdfviewarea
6980     \Hy@UseNameKey{ViewClip}\@pdfviewclip
6981     \Hy@UseNameKey{PrintArea}\@pdfprintarea
6982     \Hy@UseNameKey{PrintClip}\@pdfprintclip
6983     \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
6984     \Hy@UseNameKey{Duplex}\@pdfduplex
6985     \ifx\@pdfpicktraybypdfsize\@empty
6986     \else
6987       /PickTrayByPDFSize \@pdfpicktraybypdfsize
6988     \fi
6989     \ifx\@pdfprintpagerange\@empty
6990     \else
6991       /PrintPageRange[\@pdfprintpagerange]%
6992     \fi
6993     \ifx\@pdfnumcopies\@empty
6994     \else
6995       /NumCopies \@pdfnumcopies
6996     \fi
6997   }%
6998   \Hy@pstringdef\Hy@pstringB{\@baseurl}%
6999   \pdfmark{%
7000     pdfmark=/PUT,%
7001     Raw={%
7002       \string{Catalog\string} <<
7003       \ifx\Hy@temp\@empty
7004       \else
7005         /ViewerPreferences<<\Hy@temp>>%
7006       \fi
7007       \Hy@UseNameKey{PageLayout}\@pdfpagelayout
7008       \ifx\@pdflang\@empty
7009       \else
7010         /Lang(\@pdflang)%
7011       \fi
7012       \ifx\@baseurl\@empty
7013       \else
7014         /URI << /Base (\Hy@pstringB) >>%
7015       \fi

```

```

7016     >>%
7017   }%
7018 }%
7019 }
7020 </pdfmark | dvipdf>
7021 <*pdfmarkbase | dvipdf>

```

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.

```

7022 \newif\ifHy@pdfmarkerror
7023 \def\pdfmark{\@ifnextchar [{\pdfmark@}{\pdfmark@[]}}
7024 \def\pdfmark@[#1]#2{%
7025   \Hy@pdfmarkerrorfalse
7026   \edef\@processme{\noexpand\pdf@toks={\the\pdf@defaulttoks}}%
7027   \@processme
7028   \let\pdf@type\relax
7029   \setkeys{PDF}{#2}%
7030   \ifHy@pdfmarkerror
7031   \else
7032     \ifx\pdf@type\relax
7033       \Hy@WarningNoLine{no pdfmark type specified in #2!!}%
7034       \ifx\#1\relax\else\pdf@rect{#1}\fi
7035     \else
7036       \ifx\#1\relax
7037 <pdfmarkbase> \literalps@out{[\the\pdf@toks\space\pdf@type\space pdfmark]}%
7038 <dvipdf> \literalps@out{/ANN >>}%
7039     \else
7040       \ifundefined{@\pdf@linktype color}{%
7041         \Hy@colorlink\@linkcolor
7042       }{%
7043         \expandafter\Hy@colorlink
7044           \csname @\pdf@linktype color\endcsname
7045       }%
7046       \pdf@rect{#1}%
7047 <pdfmarkbase> \literalps@out{[\the\pdf@toks\space\pdf@type\space pdfmark]}%
7048 <dvipdf> \literalps@out{/ANN >>}%
7049       \Hy@endcolorlink
7050     \fi
7051   \fi
7052 }%
7053 }

```

The complicated bit is working out the right enclosing rectangle of some piece of T<sub>E</sub>X text, needed by the /Rect key. This solution originates with Toby Thain (toby@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}

```

```
7054 \newsavebox{\pdf@box}
```

```

7055 \providecommand*{\Hy@setouterhbox}{\sbox}
7056 \providecommand*{\Hy@breaklinksunhbox}{\unhbox}
7057 \def\pdf@rect#1{%
7058   \dviptf \literalps@out{/ANN \pdf@type\space\the\pdf@toks\space <<}&#1%
7059   \leavevmode
7060   \ifHy@breaklinks
7061     \Hy@setouterhbox\pdf@box{#1}%
7062   \else
7063     \sbox\pdf@box{#1}%
7064   \fi
7065   \dimen@ht\pdf@box
7066   \ifdim\dp\pdf@box=\z@
7067     \literalps@out{H.S}%
7068   \else
7069     \lower\dp\pdf@box\hbox{\literalps@out{H.S}}%
7070   \fi

```

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

```

7071   \ifHy@breaklinks
7072     \expandafter\Hy@breaklinksunhbox
7073   \else
7074     \expandafter\box
7075   \fi
7076   \pdf@box

```

but if it can have multiple paragraphs you'd need one of these, but in that case the measured box size would be wrong anyway.

```

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

7077   \ifdim\dimen@=\z@
7078     \literalps@out{H.R}%
7079   \else
7080     \raise\dimen@\hbox{\literalps@out{H.R}}%
7081   \fi
7082   \pdf@addtoksx{H.B}%
7083 }

```

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.

```

7084 \newtoks\pdf@toks
7085 \newtoks\pdf@defaulttoks
7086 \pdf@defaulttoks={}
7087 \def\pdf@addtoks#1#2{%
7088   \edef\@processme{\pdf@toks{\the\pdf@toks\space /#2 #1}}%
7089   \@processme
7090 }
7091 \def\pdf@addtoksx#1{%
7092   \edef\@processme{\pdf@toks{\the\pdf@toks\space #1}}%
7093   \@processme
7094 }
7095 \def\PDFdefaults#1{%
7096   \pdf@defaulttoks={#1}%
7097 }

```

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

```

7098 % what is the type of pdfmark?

```

```

7099 \define@key{PDF}{pdfmark}{\def\pdf@type{#1}}
7100 % what is the link type?
7101 \define@key{PDF}{linktype}{\def\pdf@linktype{#1}}
7102 \def\pdf@linktype{link}
7103 % parameter is a stream of PDF
7104 \define@key{PDF}{Raw}{\pdf@addtoks{#1}}
7105 % parameter is a name
7106 \define@key{PDF}{Action}{\pdf@addtoks{#1}{Action}}
7107 % parameter is a array
7108 \define@key{PDF}{Border}{%
7109   \edef\Hy@temp{#1}%
7110   \ifx\Hy@temp\@empty
7111     \else
7112       \pdf@addtoks{[#1]}{Border}%
7113   \fi
7114 }
7115 % parameter is a dictionary
7116 \define@key{PDF}{BorderStyle}{%
7117   \edef\Hy@temp{#1}%
7118   \ifx\Hy@temp\@empty
7119     \else
7120       \pdf@addtoks{<<#1>>}{BS}%
7121   \fi
7122 }
7123 % parameter is a array
7124 \define@key{PDF}{Color}{\pdf@addtoks{[#1]}{Color}}
7125 % parameter is a string
7126 \define@key{PDF}{Contents}{\pdf@addtoks{(#1)}{Contents}}
7127 % parameter is a integer
7128 \define@key{PDF}{Count}{\pdf@addtoks{#1}{Count}}
7129 % parameter is a array
7130 \define@key{PDF}{CropBox}{\pdf@addtoks{[#1]}{CropBox}}
7131 % parameter is a string
7132 \define@key{PDF}{DOSFile}{\pdf@addtoks{(#1)}{DOSFile}}
7133 % parameter is a string or file
7134 \define@key{PDF}{DataSource}{\pdf@addtoks{(#1)}{DataSource}}
7135 % parameter is a destination
7136 \define@key{PDF}{Dest}{%
7137   \Hy@pstringdef\Hy@pstringDest{#1}%
7138   \ifx\Hy@pstringDest\@empty
7139     \Hy@pdfmarkerrortrue
7140     \Hy@Warning{Destination with empty name ignored}%
7141   \else
7142     \pdf@addtoks{(\Hy@pstringDest) cvn}{Dest}%
7143   \fi
7144 }
7145 \define@key{PDF}{DestAnchor}{%
7146   \Hy@pstringdef\Hy@pstringDest{#1}%
7147   \ifx\Hy@pstringDest\@empty
7148     \Hy@pdfmarkerrortrue
7149     \Hy@Warning{Destination with empty name ignored}%
7150   \else
7151     \pdf@addtoks{(\Hy@pstringDest) cvn}{Dest}%
7152   \fi
7153 }
7154 % parameter is a string
7155 \define@key{PDF}{Dir}{\pdf@addtoks{(#1)}{Dir}}

```

```

7156 % parameter is a string
7157 \define@key{PDF}{File}{\pdf@addtoks{(#1)}{File}}
7158 % parameter is a int
7159 \define@key{PDF}{Flags}{\pdf@addtoks{#1}{Flags}}
7160 % parameter is a name
7161 \define@key{PDF}{AcroHighlight}{%
7162   \begingroup
7163     \edef\x{#1}%
7164     \expandafter\endgroup\ifx\x\@empty
7165     \else
7166       \pdf@addtoks{#1}{H}%
7167     \fi
7168 }
7169 % parameter is a string
7170 \define@key{PDF}{ID}{\pdf@addtoks{[#1]}{ID}}
7171 % parameter is a string
7172 \define@key{PDF}{MacFile}{\pdf@addtoks{(#1)}{MacFile}}
7173 % parameter is a string
7174 \define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
7175 % parameter is a string
7176 \define@key{PDF}{Op}{\pdf@addtoks{(#1)}{Op}}
7177 % parameter is a Boolean
7178 \define@key{PDF}{Open}{\pdf@addtoks{#1}{Open}}
7179 % parameter is a integer or name
7180 \define@key{PDF}{Page}{\pdf@addtoks{#1}{Page}}
7181 % parameter is a name
7182 \define@key{PDF}{PageMode}{\pdf@addtoks{#1}{PageMode}}
7183 % parameter is a string
7184 \define@key{PDF}{Params}{\pdf@addtoks{(#1)}{Params}}
7185 % parameter is a array
7186 \define@key{PDF}{Rect}{\pdf@addtoks{[#1]}{Rect}}
7187 % parameter is a integer
7188 \define@key{PDF}{SrcPg}{\pdf@addtoks{#1}{SrcPg}}
7189 % parameter is a name
7190 \pdfmarkbase\define@key{PDF}{Subtype}{\pdf@addtoks{#1}{Subtype}}
7191 \dvipdf\define@key{PDF}{Subtype}{\pdf@addtoks{#1}{}}
7192 % parameter is a string
7193 \define@key{PDF}{Title}{\pdf@addtoks{(#1)}{Title}}
7194 % parameter is a string
7195 \define@key{PDF}{Unix}{\pdf@addtoks{(#1)}{Unix}}
7196 % parameter is a string
7197 \define@key{PDF}{UnixFile}{\pdf@addtoks{(#1)}{UnixFile}}
7198 % parameter is an array
7199 \define@key{PDF}{View}{\pdf@addtoks{[#1]}{View}}
7200 % parameter is a string
7201 \define@key{PDF}{WinFile}{\pdf@addtoks{(#1)}{WinFile}}

```

These are the keys used in the DOCINFO section.

```

7202 \define@key{PDF}{Author}{\pdf@addtoks{(#1)}{Author}}
7203 \define@key{PDF}{Creator}{\pdf@addtoks{(#1)}{Creator}}
7204 \define@key{PDF}{CreationDate}{\pdf@addtoks{(#1)}{CreationDate}}
7205 \define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
7206 \define@key{PDF}{Producer}{\pdf@addtoks{(#1)}{Producer}}
7207 \define@key{PDF}{Subject}{\pdf@addtoks{(#1)}{Subject}}
7208 \define@key{PDF}{Keywords}{\pdf@addtoks{(#1)}{Keywords}}
7209 \define@key{PDF}{ModDate}{\pdf@addtoks{(#1)}{ModDate}}
7210 \define@key{PDF}{Base}{\pdf@addtoks{(#1)}{Base}}
7211 \define@key{PDF}{URI}{\pdf@addtoks{#1}{URI}}

```

```

7212 </pdfmarkbase | dvipdf>
7213 <*pdfmark | dvipdf>
7214 \def\Acrobatmenu#1#2{%
7215   \pdfmark[{#2}] {%
7216     linktype=menu,%
7217     pdfmark=/ANN,%
7218     AcroHighlight=\@pdfhighlight,%
7219     Border=\@pdfborder,%
7220     BorderStyle=\@pdfborderstyle,%
7221     Action={<< /Subtype /Named /N /#1 >>},%
7222     Subtype=/Link%
7223   }%
7224 }

```

And now for some useful examples:

```

7225 \def\PDFNextPage{\@ifnextchar[{\PDFNextPage@}{\PDFNextPage@[]}}
7226 \def\PDFNextPage@[#1]#2{%
7227   \pdfmark[{#2}] {%
7228     #1,%
7229     Border=\@pdfborder,%
7230     BorderStyle=\@pdfborderstyle,%
7231     Color=.2 .1 .5,%
7232     pdfmark=/ANN,%
7233     Subtype=/Link,%
7234     Page=/Next%
7235   }%
7236 }
7237 \def\PDFPreviousPage{%
7238   \@ifnextchar[{\PDFPreviousPage@}{\PDFPreviousPage@[]}%
7239 }
7240 \def\PDFPreviousPage@[#1]#2{%
7241   \pdfmark[{#2}] {%
7242     #1,%
7243     Border=\@pdfborder,%
7244     BorderStyle=\@pdfborderstyle,%
7245     Color=.4 .4 .1,%
7246     pdfmark=/ANN,%
7247     Subtype=/Link,%
7248     Page=/Prev%
7249   }%
7250 }
7251 \def\PDFOpen#1{%
7252   \pdfmark{#1,pdfmark=/DOCVIEW}%
7253 }

```

This is not as simple as it looks; if we make the argument of this macro eg `\pageref{foo}` and expect it to expand to ‘3’, we need a special version of `\pageref` which does *not* produce ‘3’. . . . David Carlisle looked at this bit and provided the solution, as ever!

```

7254 \def\PDFPage{\@ifnextchar[{\PDFPage@}{\PDFPage@[]}}
7255 \def\PDFPage@[#1]#2#3{%
7256   \let\pageref\simple@pageref
7257   \pdfmark[{#3}] {%
7258     #1,%
7259     Page={#2},%
7260     AcroHighlight=\@pdfhighlight,%
7261     Border=\@pdfborder,%
7262     BorderStyle=\@pdfborderstyle,%
7263     Color=\@pagebordercolor,%

```



```

7264 pdfmark=/ANN,%
7265 Subtype=/Link%
7266 }%
7267 }
7268 \def\simple@pageref#1{%
7269 \expandafter\ifx\csname r@#1\endcsname\relax
7270 0%
7271 \else
7272 \expandafter\expandafter\expandafter
7273 \@secondoffive\csname r@#1\endcsname
7274 \fi}

```

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

```

7275 \def\hyper@linkurl#1#2{%
7276 \begingroup
7277 \Hy@pstringdef\Hy@pstringURI{#2}%
7278 \hyper@chars
7279 \leavevmode
7280 \pdfmarkbase{
7281 \pdfmark[{#1}]{%
7282 pdfmark=/ANN,%
7283 linktype=url,%
7284 AcroHighlight=\pdfhighlight,%
7285 Border=\pdfborder,%
7286 BorderStyle=\pdfborderstyle,%
7287 Color=\urlbordercolor,%
7288 Action={<< /Subtype /URI /URI (\Hy@pstringURI) >>},%
7289 Subtype=/Link%
7290 }%
7291 \pdfmarkbase}
7292 \dvi{
7293 \pdfmark[{#1}]{%
7294 pdfmark=/LNK,%
7295 linktype=url,%
7296 AcroHighlight=\pdfhighlight,%
7297 Border=\pdfborder,%
7298 BorderStyle=\pdfborderstyle,%
7299 Color=\urlbordercolor,%
7300 Action={URI /URI <\Hy@hstringURI>}%
7301 }%
7302 \dvi}
7303 \endgroup
7304 }
7305 \def\hyper@linkfile#1#2#3{%
7306 \begingroup
7307 \Hy@pstringdef\Hy@pstringF{#2}%
7308 \Hy@pstringdef\Hy@pstringD{#3}%
7309 \leavevmode
7310 \pdfmark{
7311 \pdfmark[{#1}]{%
7312 pdfmark=/ANN,%
7313 Subtype=/Link,%
7314 AcroHighlight=\pdfhighlight,%
7315 Border=\pdfborder,%
7316 BorderStyle=\pdfborderstyle,%
7317 linktype=file,%
7318 Color=\filebordercolor,%
7319 Action={<<

```

```

7320      /S /GoToR
7321      \ifHy@newwindow /NewWindow true \fi
7322      /F (\Hy@pstringF)
7323      /D \ifx\#3\[0 \@pdfstartview]\else(\Hy@pstringD) cvn\fi
7324      >>}%
7325    }%
7326  \pdfmark
7327  \*dvipdf
7328    \pdfmark[{\#1}]{%
7329      pdfmark=/LNK,%
7330      linktype=file,%
7331      AcroHighlight=\@pdfhighlight,%
7332      Border=\@pdfborder,%
7333      BorderStyle=\@pdfborderstyle,%
7334      Color=\@filebordercolor,%
7335      Action={<<
7336        /S /GoToR
7337        \ifHy@newwindow /NewWindow true \fi
7338        /F (\Hy@pstringF)
7339        /D \ifx\#3\[0 \@pdfstartview]\else(\Hy@pstringD) cvn\fi
7340        >>}%
7341      }%
7342  \dvipdf
7343  \endgroup
7344 }
7345 \def\@hyper@launch run:#1\#2#3{%
7346   \begingroup
7347     \Hy@pstringdef\Hy@pstringF{\#1}%
7348     \Hy@pstringdef\Hy@pstringP{\#3}%
7349     \leavevmode
7350   \pdfmark
7351     \pdfmark[{\#2}]{%
7352       pdfmark=/ANN,%
7353       Subtype=/Link,%
7354       AcroHighlight=\@pdfhighlight,%
7355       Border=\@pdfborder,%
7356       BorderStyle=\@pdfborderstyle,%
7357       linktype=file,%
7358       Color=\@filebordercolor,%
7359       Action={<<
7360         /S /Launch
7361         \ifHy@newwindow /NewWindow true \fi
7362         /F (\Hy@pstringF)
7363         \ifx\#3\%
7364         \else
7365           /Win << /P (\Hy@pstringP) /F (\Hy@pstringF) >>
7366         \fi
7367         >>}%
7368       }%
7369     \pdfmark
7370   \*dvipdf
7371     \pdfmark[{\#2}]{%
7372       pdfmark=/LNK,%
7373       linktype=file,%
7374       AcroHighlight=\@pdfhighlight,%
7375       Border=\@pdfborder,%
7376       BorderStyle=\@pdfborderstyle,%

```

```

7377      Color=\@filebordercolor,%
7378      Action={<<
7379          /S /GoToR
7380          \ifHy@newwindow /NewWindow true \fi
7381          /F (\Hy@pstringF)
7382          \ifx\#3\%
7383          \else
7384          /Win << /P (\Hy@pstringP) /F (\Hy@pstringF) >>
7385          \fi
7386          >>}%
7387      }%
7388 \endgroup
7389 \endgroup
7390 }
7391 \pdfmark | dvipdf)

```

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

## 45.9 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.

```

7392 (*dvips)
7393 \input{pdfmark.def}%
7394 \ifx\@pdfproducer\relax
7395   \def\@pdfproducer{dvips + Distiller}
7396 \fi
7397 \def\literalps@out#1{\special{ps:SDict begin #1 end}}%
7398 \def\headerps@out#1{\special{! #1}}%
7399 \providecommand*\@pdfborder{0 0 12}
7400 \providecommand*\@pdfborderstyle{}
7401 \providecommand*\@pdfview{XYZ}
7402 \providecommand*\@pdfviewparams{ H.V}
7403 \AtBeginDvi{%
7404   \headerps@out{%

```

Unless I am going mad, this *appears* to be the relationship between the default coordinate system (PDF), and dvips;

```

/DvipsToPDF { .01383701 div Resolution div } def
/PDFToDvips { .01383701 mul Resolution mul } def

```

the latter's coordinates are resolution dependent, but what that .01383701 is, who knows? well, almost everyone except me, I expect... And yes, Maarten Gelderman <mgelderman@econ.vu.nl> points out that its 1/72.27 (the number of points to an inch, big points to inch is 1/72). This also suggests that the code would be more understandable (and exact) if 0.013 div would be replaced by 72.27 mul, so here we go. If this isn't right, I'll revert it.

```

7405   /DvipsToPDF { 72.27 mul Resolution div } def
7406   /PDFToDvips { 72.27 div Resolution mul } 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.

```

7407   /HyperBorder { 1 PDFToDvips } def

```

```

7408 /H.V {pdf@hoff pdf@voff null} def
7409 /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

```

7410 /H.S {
7411   currentpoint
7412   HyperBorder add /pdf@lly exch def
7413   dup DvipsToPDF /pdf@hoff exch def
7414   HyperBorder sub /pdf@llx exch def
7415 } def

```

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

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

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

```

7416 /H.L {
7417   2 sub dup
7418   /HyperBasePt exch def
7419   PDFToDvips /HyperBaseDvips exch def
7420   currentpoint
7421   HyperBaseDvips sub /pdf@ury exch def
7422   /pdf@urx exch def
7423 } def
7424 /H.A {
7425   H.L
7426 % |pdf@voff| = the distance from the top of the page to a point
7427 % |\baselineskip| above the current point in PDF coordinates
7428   currentpoint exch pop
7429   vsize 72 sub exch DvipsToPDF
7430   HyperBasePt sub % baseline skip
7431   sub /pdf@voff exch def
7432 } def
7433 /H.R {
7434   currentpoint
7435   HyperBorder sub /pdf@ury exch def
7436   HyperBorder add /pdf@urx exch def
7437 % |pdf@voff| = the distance from the top of the page to the current point, in
7438 % PDF coordinates
7439   currentpoint exch pop vsize 72 sub
7440   exch DvipsToPDF sub /pdf@voff exch def
7441 } def
7442 systemdict /pdfmark known
7443 {
7444   userdict /?pdfmark systemdict /exec get put
7445 }{
7446   userdict /?pdfmark systemdict /pop get put
7447   userdict /pdfmark systemdict /cleartomark get put
7448 }
7449 ifelse
7450 }%
7451 }
7452 \AfterBeginDocument{%
7453   \ifx\special@paper\empty\else
7454     \ifHy@setpagesize

```

```

7455     \special{papersize=\special@paper}%
7456     \fi
7457     \Hy@DisableOption{setpagesize}%
7458     \fi
7459 }
7460 </dvips>

```

## 45.10 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.

```

7461 <*vtexpdfmark>
7462 \input{pdfmark.def}%
7463 \ifx\@pdfproducer\relax
7464   \ifnum\OpMode=\@ne
7465     \def\@pdfproducer{VTeX}
7466   \else
7467     \def\@pdfproducer{VTeX + Distiller}
7468   \fi
7469 \fi
7470 \def\literalps@out#1{\special{pS:#1}}%
7471 \def\headerps@out#1{\immediate\special{pS:#1}}%
7472 \providecommand*\@pdfborder{0 0 1}
7473 \providecommand*\@pdfborderstyle{}
7474 \providecommand*\@pdfview{XYZ}
7475 \providecommand*\@pdfviewparams{ H.V}
7476 \AtBeginDvi{%
7477   \headerps@out{%
7478     /vsize {\Hy@pageheight} def

```

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

```

7479     /HyperBorder {1} def
7480     /H.V {pdf@hoff pdf@voff null} def
7481     /H.B {/Rect[pdf@llx pdf@lly pdf@urx pdf@ury]} def

```

H.S (start of anchor, link, or rect) stores the  $x$  and  $y$  coordinates of the current point, in PDF coordinates: pdf@lly =  $Y_c - \text{HyperBorder}$ , pdf@hoff =  $X_c + 72$ , pdf@llx =  $X_c - \text{HyperBorder}$

```

7482     /H.S {
7483       currentpoint
7484       HyperBorder sub
7485       /pdf@lly exch def
7486       dup 72 add /pdf@hoff exch def
7487       HyperBorder sub
7488       /pdf@llx exch def
7489     } def

```

The  $x$  and  $y$  coordinates of the current point, minus the \baselineskip: pdf@ury =  $Y_c + \text{HyperBasePt} + \text{HyperBorder}$ , pdf@urx =  $X_c + \text{HyperBorder}$

```

7490     /H.L {
7491       2 sub
7492       /HyperBasePt exch def
7493       currentpoint
7494       HyperBasePt add HyperBorder add

```

```

7495     /pdf@ury exch def
7496     HyperBorder add
7497     /pdf@urx exch def
7498   } def
7499   /H.A {
7500     H.L
7501     currentpoint exch pop
7502     vsize 72 sub exch
7503     HyperBasePt add add
7504     /pdf@voff exch def
7505   } def
pdf@ury =  $Y_c$  + HyperBorder, pdf@urx =  $X_c$  + HyperBorder
7506   /H.R {
7507     currentpoint
7508     HyperBorder add
7509     /pdf@ury exch def
7510     HyperBorder add
7511     /pdf@urx exch def
7512     currentpoint exch pop vsize 72 sub add
7513     /pdf@voff exch def
7514   } def
7515   systemdict /pdfmark known
7516   {
7517     userdict /?pdfmark systemdict /exec get put
7518   }{
7519     userdict /?pdfmark systemdict /pop get put
7520     userdict /pdfmark systemdict /cleartomark get put
7521   }
7522   ifelse
7523 }%
7524 }
7525 </vtexpdfmark>

```

## 45.11 Textures

At the suggestion of Jacques Distler (distler@golem.ph.utexas.edu), try to derive a suitable driver for Textures. This was initially a copy of dvips, with some guesses about Textures behaviour. Ross Moore (ross@maths.mq.edu.au) has added modifications for better compatibility, and to support use of pdfmark.

Start by defining a macro that expands to the end-of-line character. This will be used to format the appearance of PostScript code, to enhance readability, and avoid excessively long lines which might otherwise become broken to bad places.

`\Hy@ps@CR` The macro `\Hy@ps@CR` contains the end-of-line character.

```

7526 <*textures>
7527 \begingroup
7528   \obeylines %
7529   \gdef\Hy@ps@CR{\noexpand
7530     }%
7531 \endgroup %

```

Textures has two types of `\special` command for inserting PostScript code directly into the dvi output. The ‘postscript’ way preserves TeX’s idea of where on the page the `\special` occurred, but it wraps the contents with a `save–restore` pair, and adjusts the user-space coordinate system for local drawing commands. The ‘rawpostscript’ way simply inserts code, without regard for the location on the page.

Thus, to put arbitrary PostScript coding at a fixed location requires using *both* `\special` constructions. It works by pushing the device-space coordinates onto the operand stack, where they can be used to transform back to the correct user-space coordinates for the whole page, within a ‘rawpostscript’ `\special`.

```

7532 \def\literalps@out#1{%
7533   \special{postscript 0 0 transform}%
7534   \special{rawpostscript itransform moveto\Hy@ps@CR #1}%
7535 }%
7536 %

```

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.

```

7537 \def\headerps@out#1{%
7538   \special{%
7539     prepostscript TeXdict begin\Hy@ps@CR
7540       #1\Hy@ps@CR
7541     end%
7542   }%
7543 }%
7544 %

```

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.

```

7545 \AtBeginDvi{%
7546   \headerps@out{%
7547     /betterpdfmark {%
7548       systemdict begin
7549         dup /BP eq
7550         {cleartomark gsave nulldevice []
7551          {dup /EP eq
7552           {cleartomark cleartomark grestore}
7553           {cleartomark}
7554           ifelse
7555         }ifelse
7556       end
7557     }def\Hy@ps@CR
7558     __pdfmark__ not{/pdfmark /betterpdfmark load def}if
7559     systemdict /pdfmark known
7560     {
7561       userdict /?pdfmark systemdict /load get put
7562     }{
7563       userdict /?pdfmark systemdict /pop get put
7564     }
7565     ifelse
7566   }% end of \headerps@out
7567 }% end of \AtBeginDvi
7568 %
7569 \input{pdfmark.def}%
7570 %
7571 \ifx\@pdfproducer\relax
7572   \def\@pdfproducer{Textures + Distiller}%
7573 \fi
7574 \providecommand*\@pdfborder{0 0 1}
7575 \providecommand*\@pdfborderstyle{}
7576 \providecommand*\@pdfview{XYZ}
7577 \providecommand*\@pdfviewparams{ H.V}

```

7578 %

These are called at the start and end of unboxed links; their job is to leave available PS variables called pdf@llx pdf@lly pdf@urx pdf@ury, which are the coordinates of the bounding rectangle of the link, and pdf@hoff pdf@voff which are the PDF page offsets. The Rect pair are called at the LL and UR corners of a box known to T<sub>E</sub>X.

7579 \headerps@out{%

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

```

7580 /vsize {\Hy@pageheight} def
7581 /DvipsToPDF {} def
7582 /PDFToDvips {} def
7583 /HyperBorder { 1 PDFToDvips } def\Hy@ps@CR
7584 /H.V {pdf@hoff pdf@voff null} def\Hy@ps@CR
7585 /H.B {/Rect[pdf@llx pdf@lly pdf@urx pdf@ury]} def\Hy@ps@CR
7586 /H.S {
7587   currentpoint
7588   HyperBorder add /pdf@lly exch def
7589   dup DvipsToPDF /pdf@hoff exch def
7590   HyperBorder sub /pdf@llx exch def
7591 } def\Hy@ps@CR
7592 /H.L {
7593   2 sub
7594   PDFToDvips /HyperBase exch def
7595   currentpoint
7596   HyperBase sub /pdf@ury exch def
7597   /pdf@urx exch def
7598 } def\Hy@ps@CR
7599 /H.A {
7600   H.L
7601   currentpoint exch pop
7602   vsize 72 sub exch DvipsToPDF
7603   HyperBase sub % baseline skip
7604   sub /pdf@voff exch def
7605 } def\Hy@ps@CR
7606 /H.R {
7607   currentpoint
7608   HyperBorder sub /pdf@ury exch def
7609   HyperBorder add /pdf@urx exch def
7610   currentpoint exch pop vsize 72 sub
7611   exch DvipsToPDF sub /pdf@voff exch def
7612 } def\Hy@ps@CR
7613 }

7614 \AfterBeginDocument{%
7615   \ifHy@colorlinks
7616     \headerps@out{/PDFBorder{/Border [0 0 0]}def}%
7617   \fi
7618 }
```

Textures provides built-in support for HyperT<sub>E</sub>X specials so this part combines code from `hypertex.def` with what is established by loading `pdfmark.def`, or any other driver.

```

7619 \expandafter\let\expandafter\keepPDF@SetupDoc
7620 \csname PDF@SetupDoc\endcsname
7621 \def\PDF@SetupDoc{%
7622   \ifx\@baseurl\@empty
7623   \else
```



```

7624 \special{html:<base href="\@baseurl">}%
7625 \fi
7626 \keepPDF@SetupDoc
7627 }
7628 \def\hyper@anchor#1{%
7629 \Hy@SaveLastskip
7630 \begingroup
7631 \let\protect=\string
7632 \special{html:<a name=\hyper@quote #1\hyper@quote>}%
7633 \endgroup
7634 \Hy@activeanchortrue
7635 \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
7636 \special{html:</a>}%
7637 \Hy@activeanchorfalse
7638 \Hy@RestoreLastskip
7639 }
7640 \def\hyper@anchorstart#1{%
7641 \Hy@SaveLastskip
7642 \begingroup
7643 \hyper@chars
7644 \special{html:<a name=\hyper@quote#1\hyper@quote>}%
7645 \endgroup
7646 \Hy@activeanchortrue
7647 }
7648 \def\hyper@anchorend{%
7649 \special{html:</a>}%
7650 \Hy@activeanchorfalse
7651 \Hy@RestoreLastskip
7652 }
7653 \def\@urltype{url}
7654 \def\hyper@linkstart#1#2{%
7655 \expandafter\Hy@colorlink\csname @#1color\endcsname
7656 \def\Hy@tempa{#1}%
7657 \ifx\Hy@tempa\@urltype
7658 \special{html:<a href=\hyper@quote#2\hyper@quote>}%
7659 \else
7660 \begingroup
7661 \hyper@chars
7662 \special{html:<a href=\hyper@quote\##2\hyper@quote>}%
7663 \endgroup
7664 \fi
7665 }
7666 \def\hyper@linkend{%
7667 \special{html:</a>}%
7668 \Hy@endcolorlink
7669 }
7670 \def\hyper@linkfile#1#2#3{%
7671 \hyper@linkurl{#1}{\Hy@linkfileprefix#2\ifx\#3\\\else\##3\fi}%
7672 }
7673 \def\hyper@linkurl#1#2{%
7674 \leavevmode
7675 \ifHy@raiselinks
7676 \setbox\@tempboxa=\color@hbox #1\color@endbox
7677 \@linkdim\dp\@tempboxa
7678 \lower\@linkdim\hbox{%
7679 \hyper@chars
7680 \special{html:<a href=\hyper@quote#2\hyper@quote>}%

```

```

7681    }%
7682    \Hy@colorlink\@urlcolor#1%
7683    \@linkdim\ht\@tempboxa
7684    \advance\@linkdim by -6.5\p@
7685    \raise\@linkdim\hbox{\special{html:</a>}}%
7686    \Hy@endcolorlink
7687  \else
7688    \begingroup
7689    \hyper@chars
7690    \special{html:<a href=\hyper@quote#2\hyper@quote>}%
7691    \Hy@colorlink\@urlcolor#1%
7692    \special{html:</a>}%
7693    \Hy@endcolorlink
7694  \endgroup
7695  \fi
7696 }
7697 \def\hyper@link#1#2#3{%
7698   \hyper@linkurl{#3}{\##2}%
7699 }
7700 \def\hyper@image#1#2{%
7701   \begingroup
7702   \hyper@chars
7703   \special{html:<img src=\hyper@quote#1\hyper@quote>}%
7704   \endgroup
7705 }
7706 </textures>

```

## 45.12 dvipsone

```

7707 % \subsection{dvipsone driver}
7708 % Over-ride the default setup macro in pdfmark driver to use Y\&Y
7709 % |\special| commands.
7710 < *dvipsone>
7711 \providecommand*\@pdfborder{0 0 65781}
7712 \providecommand*\@pdfborderstyle{}
7713 \input{pdfmark.def}%
7714 \ifx\@pdfproducer\relax
7715   \def\@pdfproducer{dvipsone + Distiller}
7716 \fi
7717 \def\literalps@out#1{\special{ps:#1}}%
7718 \def\headerps@out#1{\special{! #1}}%
7719 \def\PDF@FinishDoc{%
7720   \Hy@UseMaketitleInfos
7721   \special{PDF: Keywords \@pdfkeywords}%
7722   \special{PDF: Title \@pdftitle}%
7723   \special{PDF: Creator \@pdfcreator}%
7724   \ifx\@pdfcreationdate\@empty
7725   \else
7726     \special{PDF: CreationDate \@pdfcreationdate}%
7727   \fi
7728   \ifx\@pdfmoddate\@empty
7729   \else
7730     \special{PDF: ModDate \@pdfmoddate}%
7731   \fi
7732   \special{PDF: Author \@pdfauthor}%
7733   \ifx\@pdfproducer\relax
7734   \else

```

```

7735     \special{PDF: Producer \@pdfproducer}%
7736 \fi
7737 \special{PDF: Subject \@pdfsubject}%
7738 \Hy@DisableOption{pdfauthor}%
7739 \Hy@DisableOption{pdftitle}%
7740 \Hy@DisableOption{pdfsubject}%
7741 \Hy@DisableOption{pdfcreator}%
7742 \Hy@DisableOption{pdfcreationdate}%
7743 \Hy@DisableOption{pdfmoddate}%
7744 \Hy@DisableOption{pdfproducer}%
7745 \Hy@DisableOption{pdfkeywords}%
7746 }
7747 \def\PDF@SetupDoc{%
7748     \pdfmark{%
7749         pdfmark=/DOCVIEW,
7750         Page=\@pdfstartpage,
7751         View=\@pdfstartview,
7752         PageMode=/\@pdfpagemode
7753     }%
7754     \ifx\@pdfpagescrop\@empty
7755     \else
7756         \pdfmark{pdfmark=/PAGES,CropBox=\@pdfpagescrop}%
7757     \fi
7758     \edef\Hy@temp{%
7759         \ifHy@toolbar\else /HideToolbar true\fi
7760         \ifHy@menubar\else /HideMenubar true\fi
7761         \ifHy@windowui\else /HideWindowUI true\fi
7762         \ifHy@fitwindow /FitWindow true\fi
7763         \ifHy@centerwindow /CenterWindow true\fi
7764         \ifHy@displaydoctitle /DisplayDocTitle true\fi
7765         \Hy@UseNameKey{NonFullScreenPageMode}\@pdfnonfullscreenpagemode
7766         \Hy@UseNameKey{Direction}\@pdfdirection
7767         \Hy@UseNameKey{ViewArea}\@pdfviewarea
7768         \Hy@UseNameKey{ViewClip}\@pdfviewclip
7769         \Hy@UseNameKey{PrintArea}\@pdfprintarea
7770         \Hy@UseNameKey{PrintClip}\@pdfprintclip
7771         \Hy@UseNameKey{PrintScaling}\@pdfprintscaling
7772         \Hy@UseNameKey{Duplex}\@pdfduplex
7773         \ifx\@pdfpicktraybypdfsize\@empty
7774         \else
7775             /PickTrayByPDFSize \@pdfpicktraybypdfsize
7776         \fi
7777         \ifx\@pdfprintpagerange\@empty
7778         \else
7779             /PrintPageRange[\@pdfprintpagerange]%
7780         \fi
7781         \ifx\@pdfnumcopies\@empty
7782         \else
7783             /NumCopies \@pdfnumcopies
7784         \fi
7785     }%
7786     \Hy@pstringdef\Hy@pstringB{\@baseurl}%
7787     \pdfmark{%
7788         pdfmark=/PUT,%
7789         Raw={%
7790             \string{Catalog\string} <<
7791             \ifx\Hy@temp\@empty

```

```

7792         \else
7793             /ViewerPreferences<<\Hy@temp>>%
7794         \fi
7795         \Hy@UseNameKey{PageLayout}\@pdfpagelayout
7796         \ifx\@pdflang\@empty
7797         \else
7798             /Lang(\@pdflang)%
7799         \fi
7800         \ifx\@baseurl\@empty
7801         \else
7802             /URI << /Base (\Hy@pstringB) >>%
7803         \fi
7804     >>%
7805 }%
7806 }%
7807 }
7808 \providecommand*\@pdfview{XYZ}
7809 \providecommand*\@pdfviewparams{ %
7810     gsave revscl currentpoint grestore
7811     72 add exch pop null exch null
7812 }

```

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 T<sub>E</sub>X.

```
7813 \special{headertext=
```

dvipsone lives in scaled points; does this mean 65536 or 65781?

```

7814 /DvipsToPDF { 65781 div } def
7815 /PDFToDvips { 65781 mul } def
7816 /HyperBorder { 1 PDFToDvips } def
7817 /H.B {/Rect[pdf@llx pdf@lly pdf@urx pdf@ury]} def
7818 /H.S {
7819     currentpoint
7820     HyperBorder add /pdf@lly exch def
7821     dup DvipsToPDF /pdf@hoff exch def
7822     HyperBorder sub /pdf@llx exch def
7823 } def
7824 /H.L {
7825     2 sub
7826     PDFToDvips /HyperBase exch def
7827     currentpoint
7828     HyperBase sub /pdf@ury exch def
7829     /pdf@urx exch def
7830 } def
7831 /H.A {
7832     H.L
7833     currentpoint exch pop
7834     HyperBase sub % baseline skip
7835     DvipsToPDF /pdf@voff exch def
7836 } def
7837 /H.R {
7838     currentpoint
7839     HyperBorder sub /pdf@ury exch def
7840     HyperBorder add /pdf@urx exch def
7841     currentpoint exch pop DvipsToPDF /pdf@voff exch def

```

```

7842 } def
7843 systemdict
7844 /pdfmark known
7845 {
7846   userdict /?pdfmark /exec load put
7847 }{
7848   userdict /?pdfmark /pop load put
7849   userdict /pdfmark systemdict /cleartomark get put
7850 }
7851 ifelse
7852 }
7853 </dvipsone>
7854 <*dvipdf>
7855 \def\literalps@out#1{\special{pdf: #1}}%
7856 \providecommand*\@pdfborder{0 0 1}
7857 \providecommand*\@pdfborderstyle{}
7858 </dvipdf>

```

### 45.13 TeX4ht

```

7859 <*tex4ht>
7860 \@ifpackageloaded{tex4ht}
7861 { \typeout{hyperref tex4ht: tex4ht already loaded}}%
7862 { \RequirePackage[htex4ht]{tex4ht}}
7863 \def\PDF@FinishDoc{}
7864 \def\PDF@SetupDoc{%
7865   \ifx\@baseurl\@empty
7866   \else
7867     \special{t4ht=<base href="\@baseurl">}%
7868   \fi
7869 }
7870 \def\hyper@anchor#1{%
7871   \Hy@SaveLastskip
7872   \begingroup
7873     \let\protect=\string
7874     \special{t4ht=<a name=\hyper@quote #1\hyper@quote>}%
7875   \endgroup
7876   \Hy@activeanchortrue
7877   \Hy@colorlink\@anchorcolor\anchor@spot\Hy@endcolorlink
7878   \special{t4ht=</a>}%
7879   \Hy@activeanchorfalse
7880   \Hy@RestoreLastskip
7881 }
7882 \def\hyper@anchorstart#1{%
7883   \Hy@SaveLastskip
7884   \begingroup
7885     \hyper@chars\special{t4ht=<a name=\hyper@quote#1\hyper@quote>}%
7886   \endgroup
7887   \Hy@activeanchortrue
7888 }
7889 \def\hyper@anchorend{%
7890   \special{t4ht=</a>}%
7891   \Hy@activeanchorfalse
7892   \Hy@RestoreLastskip
7893 }
7894 \def\@urltype{url}
7895 \def\hyper@linkstart#1#2{%
7896   \expandafter\Hy@colorlink\curname @#1color\endcsname

```

```

7897 \def\Hy@tempa{#1}%
7898 \ifx\Hy@tempa\@urltype
7899   \special{t4ht=<a href=\hyper@quote#2\hyper@quote>}%
7900 \else
7901   {\hyper@chars\special{t4ht=<a href=\hyper@quote\##2\hyper@quote>}}%
7902 \fi
7903 }
7904 \def\hyper@linkend{%
7905   \special{t4ht=</a>}%
7906   \Hy@endcolorlink
7907 }
7908 \def\hyper@linkfile#1#2#3{%
7909   \hyper@linkurl{#1}{\Hy@linkfileprefix#2\ifx\##3\\\else\##3\fi}%
7910 }
7911 \def\hyper@linkurl#1#2{%
7912   \leavevmode
7913   \ifHy@raiselinks
7914     \setbox\@tempboxa=\color@hbox #1\color@endbox
7915     \@linkdim\dp\@tempboxa
7916     \lower\@linkdim\hbox{%
7917       \begingroup
7918         \hyper@chars\special{t4ht=<a href=\hyper@quote#2\hyper@quote>}}%
7919       \endgroup
7920     }%
7921     \Hy@colorlink\@urlcolor#1\Hy@endcolorlink
7922     \@linkdim\ht\@tempboxa
7923     \advance\@linkdim by -6.5\p@
7924     \raise\@linkdim\hbox{\special{t4ht=</a>}}%
7925   \else
7926     \begingroup
7927       \hyper@chars
7928       \special{t4ht=<a href=\hyper@quote#2\hyper@quote>}}%
7929       \Hy@colorlink\@urlcolor#1\Hy@endcolorlink
7930       \special{t4ht=</a>}}%
7931     \endgroup
7932   \fi
7933 }
7934 \def\hyper@link#1#2#3{%
7935   \hyper@linkurl{#3}{\##2}%
7936 }
7937 \def\hyper@image#1#2{%
7938   \begingroup
7939     \hyper@chars
7940     \special{t4ht=<img src=\hyper@quote#1\hyper@quote>}}%
7941   \endgroup
7942 }
7943 \let\autoref\ref
7944 \ifx\rEfLiNK\UnDef
7945   \def\rEfLiNK #1#2{#2}%
7946 \fi
7947 \def\backref#1{}
7948 </tex4ht>
7949 < *tex4htcfg>
7950 \IfFileExists{\jobname.cfg}{\endinput}{}
7951 \Preamble{html}
7952 \begin{document}
7953 \EndPreamble

```

```

7954 \def\TeX{\TeX}
7955 \def\OMEGA{\Omega}
7956 \def\LaTeX{\LaTeX}
7957 \def\LaTeXe{\LaTeX2e}
7958 \def\eTeX{e-TeX}
7959 \def\MF{Metafont}
7960 \def\MP{Metapost}
7961 \</tex4htcfg>

```

## 46 Driver-specific form support

### 46.1 pdfmarks

```

7962 <*pdfmark>
7963 \long\def\@Form[#1]{%
7964 \AtBeginDvi{%
7965   \headerps@out{%
7966 [ /_objdef {pdfDocEncoding}
7967 /type /dict
7968 /OBJ pdfmark
7969 [ {pdfDocEncoding}
7970 << /Type /Encoding
7971   /Differences [ 24 /breve /caron /circumflex /dotaccent
7972 /hungarumlaut /ogonek /ring /tilde 39 /quotesingle 96 /grave 128
7973 /bullet /dagger /daggerdbl /ellipsis /emdash /endash /florin /fraction
7974 /guilsinglleft /guilsinglright /minus /perthousand /quotedblbase
7975 /quotedblleft /quotedblright /quoteleft /quoteright /quotesinglbase
7976 /trademark /fi /fl /Lslash /OE /Scaron /Ydieresis /Zcaron /dotlessi
7977 /lslash /oe /scaron /zcaron 164 /currency 166 /brokenbar 168 /dieresis
7978 /copyright /ordfeminine 172 /logicalnot /.notdef /registered /macron
7979 /degree /plusminus /twosuperior /threesuperior /acute /mu 183
7980 /periodcentered /cedilla /onesuperior /ordmasculine 188 /onequarter
7981 /onehalf /threequarters 192 /Agrave /Aacute /Acircumflex /Atilde
7982 /Adieresis /Aring /AE /Ccedilla /Egrave /Eacute /Ecircumflex
7983 /Edieresis /Igrave /Iacute /Icircumflex /Idieresis /Eth /Ntilde
7984 /Ograve /Oacute /Ocircumflex /Otilde /Odieresis /multiply /Oslash
7985 /Ugrave /Uacute /Ucircumflex /Udieresis /Yacute /Thorn /germandbls
7986 /agrave /aacute /acircumflex /atilde /adieresis /aring /ae /ccedilla
7987 /egrave /eacute /ecircumflex /edieresis /igrave /iacute /icircumflex
7988 /idieresis /eth /ntilde /ograve /oacute /ocircumflex /otilde
7989 /odieresis /divide /oslash /ugrave /uacute /ucircumflex /udieresis
7990 /yacute /thorn /ydieresis ]
7991 >>
7992 /PUT pdfmark
7993 [ /_objdef {ZaDb}
7994 /type /dict
7995 /OBJ pdfmark
7996 [ {ZaDb}
7997 <<
7998 /Type /Font
7999 /Subtype /Type1
8000 /Name /ZaDb
8001 /BaseFont /ZapfDingbats
8002 >>
8003 /PUT pdfmark
8004 [ /_objdef {Helv}
8005 /type /dict
8006 /OBJ pdfmark

```

```

8007 [ {Helv}
8008 <<
8009 /Type /Font
8010 /Subtype /Type1
8011 /Name /Helv
8012 /BaseFont /Helvetica
8013 /Encoding {pdfDocEncoding}
8014 >>
8015 /PUT pdfmark
8016 [ /_objdef {aform}
8017 /type /dict
8018 /OBJ pdfmark
8019 [ /_objdef {afields}
8020 /type /array
8021 /OBJ pdfmark
8022 {
8023 [/BBox [0 0 100 100] /_objdef {Check} /BP pdfmark
8024 1 0 0 setrgbcolor /ZapfDingbats 80 selectfont 20 20 moveto (4) show
8025 [/EP pdfmark
8026 [/BBox [0 0 100 100] /_objdef {Cross} /BP pdfmark
8027 1 0 0 setrgbcolor /ZapfDingbats 80 selectfont 20 20 moveto (8) show
8028 [/EP pdfmark
8029 [/BBox [0 0 250 100] /_objdef {Submit} /BP pdfmark 0.6 setgray 0 0 250
8030 100 rectfill 1 setgray 2 2 moveto 2 98 lineto 248 98 lineto 246 96
8031 lineto 4 96 lineto 4 4 lineto fill 0.34 setgray 248 98 moveto 248 2
8032 lineto 2 2 lineto 4 4 lineto 246 4 lineto 246 96 lineto fill
8033 /Helvetica 76 selectfont 0 setgray 8 22.5 moveto (Submit) show
8034 [/EP pdfmark
8035 [/BBox [0 0 250 100] /_objdef {SubmitP} /BP pdfmark 0.6 setgray 0 0
8036 250 100 rectfill 0.34 setgray 2 2 moveto 2 98 lineto 248 98 lineto 246
8037 96 lineto 4 96 lineto 4 4 lineto fill 1 setgray 248 98 moveto 248 2
8038 lineto 2 2 lineto 4 4 lineto 246 4 lineto 246 96 lineto fill
8039 /Helvetica 76 selectfont 0 setgray 10 20.5 moveto (Submit) show
8040 [/EP pdfmark
8041 } ?pdfmark
8042 [ {aform}
8043 <<
8044 /Fields {afields}
8045 /DR << /Font << /ZaDb {ZaDb} /Helv {Helv} >> >>
8046 /DA (/Helv 10 Tf 0 g )
8047 /CO {corder}
8048 /NeedAppearances true
8049 >>
8050 /PUT pdfmark
8051 [ \string{Catalog\string}
8052 <<
8053 /AcroForm {aform}
8054 >>
8055 /PUT pdfmark
8056 [ /_objdef {corder} /type /array /OBJ pdfmark % dps
8057 }}%
8058 \setkeys{Form}{#1}%
8059 }
8060 \def\@endForm{}
8061 \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
8062 \typeout{Sorry, pdfmark drivers do not support FORM gauges}%
8063 }

```



```

8064 \def\@TextField[#1]#2{% parameters, label
8065   \def\Fld@name{#2}%
8066   \def\Fld@default{}%
8067   \let\Fld@value\@empty
8068   \def\Fld@width{\DefaultWidthofText}%
8069   \def\Fld@height{\DefaultHeightofText}%
8070   \ifFld@multiline
8071     \begingroup
8072       \dimen@=\DefaultHeightofText
8073       \dimen@=4\dimen@
8074       \edef\x{\endgroup
8075         \def\noexpand\Fld@height{\the\dimen@}%
8076       }%
8077     \x
8078   \fi
8079   \bgroup
8080     \Field@toks={ }%
8081     \setkeys{Field}{#1}%
8082     \ifFld@hidden\def\Fld@width{1sp}\fi
8083     \ifx\Fld@value\@empty\def\Fld@value{\Fld@default}\fi
8084     \LayoutTextField{#2}{%
8085       \Hy@escapeform\PDFForm@Text
8086       \pdfmark[\MakeTextField{\Fld@width}{\Fld@height}]{%
8087         pdfmark=/ANN,Raw={\PDFForm@Text}%
8088       }%
8089     }%
8090   \egroup
8091 }
8092 \def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
8093   \def\Fld@name{#2}%
8094   \let\Fld@default\relax
8095   \let\Fld@value\relax
8096   \def\Fld@width{\DefaultWidthofChoiceMenu}%
8097   \def\Fld@height{\DefaultHeightofChoiceMenu}%
8098   \bgroup
8099     \Fld@menulength=0
8100     \@tempdima\z@
8101     \for\@curropt:=#3\do{%
8102       \expandafter\Fld@checkequals\@curropt==\%
8103       \Hy@StepCount\Fld@menulength
8104       \settowidth{\@tempdimb}{\@currDisplay}%
8105       \ifdim\@tempdimb>\@tempdima\@tempdima\@tempdimb\fi
8106     }%
8107     \advance\@tempdima by 15\p@
8108     \Field@toks={ }%
8109     \setkeys{Field}{#1}%
8110     \ifFld@hidden\def\Fld@width{1sp}\fi
8111     \LayoutChoiceField{#2}{%
8112       \ifFld@radio
8113         \@Radio{#3}%
8114       \else
8115         {%
8116           \ifdim\Fld@width<\@tempdima
8117             \ifdim\@tempdima<1cm\@tempdima1cm\fi
8118             \edef\Fld@width{\the\@tempdima}%
8119           \fi
8120           \def\Fld@flags{}%

```

```

8121         \ifFld@combo\def\Fld@flags{/Ff 917504}\fi
8122         \ifFld@popdown\def\Fld@flags{/Ff 131072}\fi
8123         \ifx\Fld@flags\empty
8124             \@tempdima=\the\Fld@menulength\Fld@charsize
8125             \advance\@tempdima by \Fld@borderwidth bp
8126             \advance\@tempdima by \Fld@borderwidth bp
8127             \edef\Fld@height{\the\@tempdima}%
8128         \fi
8129         \@@ListBox{#3}%
8130     }%
8131 \fi
8132 }%
8133 \egroup
8134 }
8135 \def\@@Radio#1{%
8136     \Fld@listcount=0
8137     \@for\@curropt:=#1\do{%
8138         \expandafter\Fld@checkequals\@curropt==\%
8139         \Hy@StepCount\Fld@listcount
8140         \@currDisplay\space
8141         \Hy@escapeform\PDFForm@Radio
8142         \pdfmark[\MakeRadioField{\Fld@width}{\Fld@height}]{%
8143             pdfmark=/ANN,%
8144             Raw={\PDFForm@Radio /AP <</N <</\@currValue\space {Check}>> >>}%
8145         } % deliberate space between radio buttons
8146     }%
8147 }
8148 \newcount\Fld@listcount
8149 \def\@@ListBox#1{%
8150     \Choice@toks={ }%
8151     \Fld@listcount=0
8152     \@for\@curropt:=#1\do{%
8153         \expandafter\Fld@checkequals\@curropt==\%
8154         \Hy@StepCount\Fld@listcount
8155         \edef\@processme{%
8156             \Choice@toks{\the\Choice@toks [(\@currValue) (\@currDisplay)]}%
8157         }\@processme
8158     }%
8159     \Hy@escapeform\PDFForm@List
8160     \pdfmark[\MakeChoiceField{\Fld@width}{\Fld@height}]{%
8161         pdfmark=/ANN,Raw={\PDFForm@List}%
8162     }%
8163 }
8164 \def\@PushButton[#1]#2{% parameters, label
8165     \def\Fld@name{#2}%
8166     \bgroup
8167         \Field@toks={ }%
8168         \setkeys{Field}{#1}%
8169         \ifFld@hidden\def\Fld@width{1sp}\fi
8170         \LayoutPushButtonField{%
8171             \Hy@escapeform\PDFForm@Push
8172             \pdfmark[\MakeButtonField{#2}]{%
8173                 pdfmark=/ANN,Raw={\PDFForm@Push}%
8174             }%
8175         }%
8176     \egroup
8177 }

```

```

8178 \def\@Submit[#1]#2{%
8179   \Field@toks={ }%
8180   \def\Fld@width{\DefaultWidthofSubmit}%
8181   \def\Fld@height{\DefaultHeightofSubmit}%
8182   \bgroup
8183     \def\Fld@name{Submit}%
8184     \setkeys{Field}{#1}%
8185     \ifFld@hidden\def\Fld@width{1sp}\fi
8186     \Hy@escapeform\PDFForm@Submit
8187     \pdfmark[\MakeButtonField{#2}]{%
8188       pdfmark=/ANN,%
8189       Raw={\PDFForm@Submit /AP << /N {Submit} /D {SubmitP} >>}}%
8190     }%
8191   \egroup
8192 }
8193 \def\@Reset[#1]#2{%
8194   \Field@toks={ }%
8195   \def\Fld@width{\DefaultWidthofReset}%
8196   \def\Fld@height{\DefaultHeightofReset}%
8197   \bgroup
8198     \def\Fld@name{Reset}%
8199     \setkeys{Field}{#1}%
8200     \ifFld@hidden\def\Fld@width{1sp}\fi
8201     \Hy@escapeform\PDFForm@Reset
8202     \pdfmark[\MakeButtonField{#2}]{%
8203       pdfmark=/ANN,Raw={\PDFForm@Reset}%
8204     }%
8205   \egroup
8206 }
8207 \def\@CheckBox[#1]#2{% parameters, label
8208   \def\Fld@name{#2}%
8209   \def\Fld@default{0}%
8210   \bgroup
8211     \def\Fld@width{\DefaultWidthofCheckBox}%
8212     \def\Fld@height{\DefaultHeightofCheckBox}%
8213     \Field@toks={ }%
8214     \setkeys{Field}{#1}%
8215     \ifFld@hidden\def\Fld@width{1sp}\fi
8216     \LayoutCheckField{#2}{%
8217       \Hy@escapeform\PDFForm@Check
8218       \pdfmark[\MakeCheckField{\Fld@width}{\Fld@height}]{%
8219         pdfmark=/ANN,Raw={\PDFForm@Check}%
8220       }%
8221     }%
8222   \egroup
8223 }
8224 \pdfmark

```

## 46.2 dvipdf

```

8225 \dvipdf
8226 \def\@Form[#1]{\typeout{Sorry, I do not support FORMs}}
8227 \def\@endForm{}
8228 \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
8229   \typeout{Sorry, dvipdf does not support FORM gauges}%
8230 }
8231 \def\@TextField[#1]#2{% parameters, label
8232   \typeout{Sorry, dvipdf does not support FORM text fields}%

```

```

8233 }
8234 \def\@CheckBox[#1]#2{% parameters, label
8235   \typeout{Sorry, dvipdf does not support FORM checkboxes}%
8236 }
8237 \def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
8238   \typeout{Sorry, dvipdf does not support FORM choice menus}%
8239 }
8240 \def\@PushButton[#1]#2{% parameters, label
8241   \typeout{Sorry, dvipdf does not support FORM pushbuttons}%
8242 }
8243 \def\@Reset[#1]#2{\typeout{Sorry, dvipdf does not support FORMs}}
8244 \def\@Submit[#1]#2{\typeout{Sorry, dvipdf does not support FORMs}}
8245 \end{dvipdf}

```

### 46.3 HyperTeX

```

8246 \hypertex
8247 \def\@Form[#1]{\typeout{Sorry, HyperTeX does not support FORMs}}
8248 \def\@EndForm{}
8249 \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
8250   \typeout{Sorry, HyperTeX does not support FORM gauges}%
8251 }
8252 \def\@TextField[#1]#2{% parameters, label
8253   \typeout{Sorry, HyperTeX does not support FORM text fields}%
8254 }
8255 \def\@CheckBox[#1]#2{% parameters, label
8256   \typeout{Sorry, HyperTeX does not support FORM checkboxes}%
8257 }
8258 \def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
8259   \typeout{Sorry, HyperTeX does not support FORM choice menus}%
8260 }
8261 \def\@PushButton[#1]#2{% parameters, label
8262   \typeout{Sorry, HyperTeX does not support FORM pushbuttons}%
8263 }
8264 \def\@Reset[#1]#2{\typeout{Sorry, HyperTeX does not support FORMs}}
8265 \def\@Submit[#1]#2{\typeout{Sorry, HyperTeX does not support FORMs}}
8266 \end{hypertex}

```

### 46.4 TeX4ht

```

8267 \tex4ht
8268 \def\@Form[#1]{%
8269   \setkeys{Form}{#1}%
8270   \HCode{<form action="\Form@action" method="\Form@method">}%
8271 }
8272 \def\@EndForm{\HCode{</form>}}
8273 \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
8274   \typeout{Sorry, TeX4ht does not support gauges}%
8275 }
8276 \def\@TextField[#1]#2{% parameters, label
8277   \let\Hy@reserved@a\@empty
8278   \def\Fld@name{#2}%
8279   \def\Fld@default{}%
8280   \bgroup
8281     \Field@toks={ }%
8282     \setkeys{Field}{#1}%
8283     \HCode{<label for="\Fld@name">#2</label>}%
8284     \ifFld@password
8285       \@@PasswordField

```

```

8286     \else
8287         \@@TextField
8288     \fi
8289 \egroup
8290 }
8291 \def\@@PasswordField{%
8292     \HCode{%
8293         <input type="password"
8294             id="\Fld@name"
8295             name="\Fld@name"
8296             \ifFld@hidden type="hidden"\fi
8297             value="\Fld@default"
8298             \the\Field@toks
8299         >%
8300     }%
8301 }
8302 \def\@@TextField{%
8303     \ifFld@multiline
8304         \HCode{<textarea
8305             \ifFld@readonly readonly \fi
8306             id="\Fld@name"
8307             name="\Fld@name"
8308             \ifFld@hidden type="hidden"\fi
8309             \the\Field@toks>%
8310     }%
8311     \Fld@default
8312     \HCode{</textarea>}%
8313 \else
8314     \HCode{<input type="text"
8315         \ifFld@readonly readonly \fi
8316         id="\Fld@name"
8317         name="\Fld@name"
8318         \ifFld@hidden type="hidden"\fi
8319         value="\Fld@default" \the\Field@toks>
8320     }%
8321 \fi
8322 }
8323 \def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
8324     \def\Fld@name{#2}%
8325     \def\Fld@default{ }%
8326     \let\Hy@reserved@a\relax
8327     \bgroup
8328     \expandafter\Fld@findlength#3\\%
8329     \Field@toks={ }%
8330     \setkeys{Field}{#1}%
8331     #2%
8332     \ifFld@radio
8333         \expandafter\@@Radio#3\\%
8334     \else
8335         \expandafter\@@Menu#3\\%
8336     \fi
8337 \egroup
8338 }
8339 \def\Fld@findlength#1\\{%
8340     \Fld@menulength=0
8341     \@for\@currupt:=#1\do{\Hy@StepCount\Fld@menulength}%
8342 }

```

```

8343 \def\@Menu#1\{\%
8344   \HCode{<select size="\the\Fld@menulength"
8345     name="\Fld@name" \the\Field@toks>}%
8346   \@for\@curropt:=#1\do{%
8347     \expandafter\Fld@checkequals\@curropt==\%
8348     \HCode{<option
8349       \ifx\@curropt\Fld@default selected \fi
8350       value="\@currValue">\@currDisplay</option>%
8351     }%
8352   }%
8353   \HCode{</select>}}%
8354 }
8355 \def\@Radio#1\{\%
8356   \@for\@curropt:=#1\do{%
8357     \expandafter\Fld@checkequals\@curropt==\%
8358     \HCode{<input type="radio"
8359       \ifx\@curropt\Fld@default checked \fi
8360       name="\Fld@name"
8361       value="\@currValue"
8362       \the\Field@toks>%
8363     }%
8364     \@currDisplay
8365   }%
8366 }
8367 \def\@PushButton[#1]#2{% parameters, label
8368   \def\Fld@name{#2}%
8369   \bgroup
8370     \Field@toks={ }%
8371     \setkeys{Field}{#1}%
8372     \HCode{<input type="button"
8373       name="\Fld@name"
8374       value="#2"
8375       \the\Field@toks>%
8376     }%
8377     \HCode{</button>}}%
8378   \egroup
8379 }
8380 \def\@Submit[#1]#2{%
8381   \HCode{<button type="submit">#2</button>}}%
8382 }
8383 \def\@Reset[#1]#2{%
8384   \HCode{<button type="reset">#2</button>}}%
8385 }
8386 \def\@CheckBox[#1]#2{% parameters, label
8387   \let\Hy@reserved@a\@empty
8388   \def\Fld@name{#2}%
8389   \def\Fld@default{0}%
8390   \bgroup
8391     \Field@toks={ }%
8392     \setkeys{Field}{#1}%
8393     \HCode{<input type="checkbox"
8394       \ifFld@checked checked \fi
8395       \ifFld@disabled disabled \fi
8396       \ifFld@readonly readonly \fi
8397       name="\Fld@name"
8398       \ifFld@hidden type="hidden"\fi
8399       value="\Fld@default"

```

```

8400     \the\Field@toks>%
8401     #2%
8402   }%
8403   \egroup
8404 }
8405 </tex4ht>

```

## 46.5 pdfTeX

```

8406 <*pdfTeX>
8407 \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
8408   \typeout{Sorry, pdfTeX does not support FORM gauges}%
8409 }
8410 \def\MakeFieldObject#1#2{\sbox0{#1}%
8411   \immediate\pdfxform0 %
8412   \expandafter\edef\csname #2Object\endcsname{%
8413     \the\pdflastxform\space 0 R%
8414   }%
8415 % \hbox to Opt{\hskip-\maxdimen{\pdfrefxform \the\pdflastxform}}%
8416 }%
8417 \def\@Form[#1]{%
8418   \@ifundefined{textcolor}{\let\textcolor\@gobble}{}%
8419   \setkeys{Form}{#1}%
8420   \ifnum\pdfTeXversion>13
8421     \pdfrefobj\OBJ@pdfdocencoding
8422     \pdfrefobj\OBJ@ZaDb
8423     \pdfrefobj\OBJ@Helv
8424     \pdfrefobj\OBJ@acroform
8425   \fi
8426   \pdfcatalog{/AcroForm \OBJ@acroform\space 0 R}%
8427   \MakeFieldObject{%

```

Same as \ding{123} of package pifont.

```

8428   \begingroup
8429     \fontfamily{pzd}%
8430     \fontencoding{U}%
8431     \fontseries{m}%
8432     \fontshape{n}%
8433     \selectfont
8434     \char123 %
8435   \endgroup
8436 }{Ding}%
8437 \MakeFieldObject{\fbox{\textcolor{yellow}{\textsf{Submit}}}}{Submit}%
8438 \MakeFieldObject{\fbox{\textcolor{yellow}{\textsf{SubmitP}}}}{SubmitP}%
8439 }
8440 \def\@endForm{}
8441 \def\@TextField[#1]#2{% parameters, label
8442   \def\Fld@name{#2}%
8443   \def\Fld@default{}%
8444   \let\Fld@value\@empty
8445   \def\Fld@width{\DefaultWidthofText}%
8446   \def\Fld@height{\DefaultHeightofText}%
8447   \ifFld@multiline
8448     \begingroup
8449       \dimen@=\DefaultHeightofText
8450       \dimen@=4\dimen@
8451       \edef\x{\endgroup
8452         \def\noexpand\Fld@height{\the\dimen@}%
8453       }%

```

```

8454 \x
8455 \fi
8456 \bgroup
8457 \Field@toks={ }%
8458 \setkeys{Field}{#1}%
8459 \ifFld@hidden\def\Fld@width{1sp}\fi
8460 \ifx\Fld@value\empty\def\Fld@value{\Fld@default}\fi
8461 \LayoutTextField{#2}{%
8462 \Hy@escapeform\PDFForm@Text
8463 \pdfstartlink user {\PDFForm@Text}\relax
8464 \MakeTextField{\Fld@width}{\Fld@height}\pdfendlink
8465 }%
8466 \egroup
8467 }
8468 \def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
8469 \def\Fld@name{#2}%
8470 \let\Fld@default\relax
8471 \let\Fld@value\relax
8472 \def\Fld@width{\DefaultWidthofChoiceMenu}%
8473 \def\Fld@height{\DefaultHeightofChoiceMenu}%
8474 \bgroup
8475 \Fld@menulength=0
8476 \@tempdima\z@
8477 \@for\@curropt:=#3\do{%
8478 \expandafter\Fld@checkequals\@curropt==\%
8479 \Hy@StepCount\Fld@menulength
8480 \settowidth{\@tempdimb}{\@currDisplay}%
8481 \ifdim\@tempdimb>\@tempdima\@tempdima\@tempdimb\fi
8482 }%
8483 \advance\@tempdima by 15\p@
8484 \Field@toks={ }%
8485 \setkeys{Field}{#1}%
8486 \ifFld@hidden\def\Fld@width{1sp}\fi
8487 \ifx\Fld@value\relax
8488 \let\Fld@value\Fld@default
8489 \fi
8490 \LayoutChoiceField{#2}{%
8491 \ifFld@radio
8492 \@@Radio{#3}%
8493 \else
8494 {%
8495 \ifdim\Fld@width<\@tempdima
8496 \ifdim\@tempdima<1cm\@tempdima1cm\fi
8497 \edef\Fld@width{\the\@tempdima}%
8498 \fi
8499 \def\Fld@flags{}%
8500 \ifFld@combo\def\Fld@flags{/Ff 917504}\fi
8501 \ifFld@popdown\def\Fld@flags{/Ff 131072}\fi
8502 \ifx\Fld@flags\empty
8503 \@tempdima=\the\Fld@menulength\Fld@charsize
8504 \advance\@tempdima by \Fld@borderwidth bp
8505 \advance\@tempdima by \Fld@borderwidth bp
8506 \edef\Fld@height{\the\@tempdima}%
8507 \fi
8508 \@@ListBox{#3}%
8509 }%
8510 \fi

```



```

8511 }%
8512 \egroup
8513 }
8514 \def\@@Radio#1{%
8515   \Fld@listcount=0
8516   \@for\@curropt:=#1\do{%
8517     \expandafter\Fld@checkequals\@curropt==\%
8518     \Hy@StepCount\Fld@listcount
8519     \@currDisplay\space
8520     \leavevmode
8521     \Hy@escapeform\PDFForm@Radio
8522     \pdfstartlink user {%
8523       \PDFForm@Radio
8524       /AP <<
8525       /N <<

```

Laurent.Guillope@math.univ-nantes.fr (Laurent Guillope) persuades me that this was wrong: `/\Fld@name\the\Fld@listcount`. But I leave it here to remind me that it is untested.

```

8526       /\@currValue\space \DingObject
8527       >>
8528       >>
8529   }%
8530   \relax
8531   \MakeRadioField{\Fld@width}{\Fld@height}\pdfendlink
8532   \space% deliberate space between radio buttons
8533 }%
8534 }
8535 \newcount\Fld@listcount
8536 \def\@@Listbox#1{%
8537   \Choice@toks={ }%
8538   \Fld@listcount=0
8539   \@for\@curropt:=#1\do{%
8540     \expandafter\Fld@checkequals\@curropt==\%
8541     \Hy@StepCount\Fld@listcount
8542     \edef\@processme{%
8543       \Choice@toks{\the\Choice@toks [(\@currValue) (\@currDisplay)]}%
8544     }\@processme
8545   }%
8546   \leavevmode
8547   \Hy@escapeform\PDFForm@List
8548   \pdfstartlink user {\PDFForm@List}\relax
8549   \MakeChoiceField{\Fld@width}{\Fld@height}%
8550   \pdfendlink
8551 }
8552 \def\@PushButton[#1]#2{% parameters, label
8553   \def\Fld@name{#2}%
8554   \bgroup
8555     \Field@toks={ }%
8556     \setkeys{Field}{#1}%
8557     \ifFld@hidden\def\Fld@width{1sp}\fi
8558     \LayoutPushButtonField{%
8559       \leavevmode
8560       \Hy@escapeform\PDFForm@Push
8561       \pdfstartlink user {\PDFForm@Push}\relax
8562       \MakeButtonField{#2}%
8563       \pdfendlink
8564     }%

```

```

8565 \egroup
8566 }
8567 \def\@Submit[#1]#2{%
8568   \Field@toks={ }%
8569   \def\Fld@width{\DefaultWidthofSubmit}%
8570   \def\Fld@height{\DefaultHeightofSubmit}%
8571   \bgroup
8572     \def\Fld@name{Submit}%
8573     \setkeys{Field}{#1}%
8574     \ifFld@hidden\def\Fld@width{1sp}\fi
8575     \leavevmode
8576     \Hy@escapeform\PDFForm@Submit
8577     \pdfstartlink user {%
8578       \PDFForm@Submit
8579       /AP << /N \SubmitObject\space /D \SubmitPObject >>
8580     }%
8581     \relax
8582     \MakeButtonField{#2}%
8583     \pdfendlink
8584 \egroup
8585 }
8586 \def\@Reset[#1]#2{%
8587   \Field@toks={ }%
8588   \def\Fld@width{\DefaultWidthofReset}%
8589   \def\Fld@height{\DefaultHeightofReset}%
8590   \bgroup
8591     \def\Fld@name{Reset}%
8592     \setkeys{Field}{#1}%
8593     \ifFld@hidden\def\Fld@width{1sp}\fi
8594     \leavevmode
8595     \Hy@escapeform\PDFForm@Reset
8596     \pdfstartlink user {\PDFForm@Reset}\relax
8597     \MakeButtonField{#2}%
8598     \pdfendlink
8599 \egroup
8600 }
8601 \def\@CheckBox[#1]#2{% parameters, label
8602   \def\Fld@name{#2}%
8603   \def\Fld@default{0}%
8604   \bgroup
8605     \def\Fld@width{\DefaultWidthofCheckBox}%
8606     \def\Fld@height{\DefaultHeightofCheckBox}%
8607     \Field@toks={ }%
8608     \setkeys{Field}{#1}%
8609     \ifFld@hidden\def\Fld@width{1sp}\fi
8610     \LayoutCheckField{#2}{%
8611       \Hy@escapeform\PDFForm@Check
8612       \pdfstartlink user {\PDFForm@Check}\relax
8613       \MakeCheckField{\Fld@width}{\Fld@height}%
8614       \pdfendlink
8615     }%
8616 \egroup
8617 }
8618 \pdfobj { << /Type /Encoding /Differences [ 24 /breve /caron
8619 /circumflex /dotaccent /hungarumlaut /ogonek /ring /tilde 39
8620 /quotesingle 96 /grave 128 /bullet /dagger /daggerdbl /ellipsis
8621 /emdash /endash /florin /fraction /guilsinglleft /guilsinglright

```

```

8622 /minus /perthousand /quotedblbase /quotedblleft /quotedblright
8623 /quoteright /quotesinglbase /trademark /fi /fl /Lslash /OE
8624 /Scaron /Ydieresis /Zcaron /dotlessi /lslash /oe /scaron /zcaron 164
8625 /currency 166 /brokenbar 168 /dieresis /copyright /ordfeminine 172
8626 /logicalnot /.notdef /registered /macron /degree /plusminus
8627 /twosuperior /threesuperior /acute /mu 183 /periodcentered /cedilla
8628 /onesuperior /ordmasculine 188 /onequarter /onehalf /threequarters 192
8629 /Agrave /Aacute /Acircumflex /Atilde /Adieresis /Aring /AE /Ccedilla
8630 /Egrave /Eacute /Ecircumflex /Edieresis /Igrave /Iacute /Icircumflex
8631 /Idieresis /Eth /Ntilde /Ograve /Oacute /Ocircumflex /Otilde
8632 /Odieresis /multiply /Oslash /Ugrave /Uacute /Ucircumflex /Udieresis
8633 /Yacute /Thorn /germandbls /agrave /aacute /acircumflex /atilde
8634 /adieresis /aring /ae /ccedilla /egrave /eacute /ecircumflex
8635 /edieresis /igrave /iacute /icircumflex /idieresis /eth /ntilde
8636 /ograve /oacute /ocircumflex /otilde /odieresis /divide /oslash
8637 /ugrave /uacute /ucircumflex /udieresis /yacute /thorn /ydieresis ] >>
8638 }
8639 \edef\OBJ@pdfdocencoding{\the\pdflastobj}
8640 \pdfobj {
8641   <<
8642     /Type /Font
8643     /Subtype /Type1
8644     /Name /ZaDb
8645     /BaseFont /ZapfDingbats
8646 >>
8647 }
8648 \edef\OBJ@ZaDb{\the\pdflastobj}
8649 \pdfobj { <<
8650   /Type /Font
8651   /Subtype /Type1
8652   /Name /Helv
8653   /BaseFont /Helvetica
8654   /Encoding \OBJ@pdfdocencoding\space 0 R
8655 >>
8656 }
8657 \edef\OBJ@Helv{\the\pdflastobj}
8658 \pdfobj {
8659   <<
8660     /Fields []
8661     /DR <<
8662       /Font << /ZaDb \OBJ@ZaDb\space 0 R /Helv \OBJ@Helv\space 0 R >>
8663     >>
8664     /DA (/Helv 10 Tf 0 g )
8665     /NeedAppearances true
8666   >>
8667 }
8668 \edef\OBJ@acroform{\the\pdflastobj}
8669 \pdfobj {

```

## 46.6 dvipdfm

D. P. Story adapted the pdf<sub>T</sub><sub>E</sub>X forms part for dvipdfm, of which version 0.12.7b or higher is required because of a bug.

```
8670 < *dvipdfm >
```

\@Gauge

```

8671 \def\@Gauge[#1]#2#3#4{% parameters, label, minimum, maximum
8672   \typeout{Sorry, dvipdfm does not support FORM gauges}%

```

```

8673 }

\@Form
8674 \def\@Form[#1]{%
8675   \ifundefined{textcolor}{\let\textcolor\@gobble}{}%
8676   \setkeys{Form}{#1}%
8677   \@pdfm@mark{obj @afields [ ]}%
8678   \@pdfm@mark{obj @corder [ ]}%
8679   \@pdfm@mark{%
8680     obj @aform <<
8681       /Fields @afields
8682       /DR << /Font << /ZaDb @OBJZaDb /Helv @OBJHelv >> >>
8683       /DA (/Helv 10 Tf 0 g )
8684       /CO @corder
8685       /NeedAppearances true
8686     >>%
8687   }%
8688   \@pdfm@mark{put @catalog << /AcroForm @aform >>}%
8689 }

\@endForm
8690 \def\@endForm{}

\dvipdfm@setdim \dvipdfm@setdim sets dimensions for ann using \pdfm@box.
8691 \def\dvipdfm@setdim{%
8692   height \the\ht\pdfm@box\space
8693   width \the\wd\pdfm@box\space
8694   depth \the\dp\pdfm@box\space
8695 }

\@TextField
8696 \def\@TextField[#1]#2{% parameters, label
8697   \def\Fld@name{#2}%
8698   \def\Fld@default{}%
8699   \let\Fld@value\@empty
8700   \def\Fld@width{\DefaultWidthofText}%
8701   \def\Fld@height{\DefaultHeightofText}%
8702   \ifFld@multiline
8703     \begingroup
8704       \dimen@=\DefaultHeightofText
8705       \dimen@=4\dimen@
8706       \edef\x{\endgroup
8707         \def\noexpand\Fld@height{\the\dimen@}%
8708       }%
8709     \x
8710   \fi
8711   \bgroup
8712     \Field@toks={ }%
8713     \setkeys{Field}{#1}%
8714     \ifFld@hidden\def\Fld@width{1sp}\fi
8715     \ifx\Fld@value\@empty\def\Fld@value{\Fld@default}\fi
8716     \setbox\pdfm@box=\hbox{%
8717       \MakeTextField{\Fld@width}{\Fld@height}%
8718     }%
8719     \LayoutTextField{#2}{%
8720       \Hy@escapeform\PDFForm@Text
8721       \@pdfm@mark{%

```

```

8722      ann @\Fld@name\space \dvipdfm@setdim << \PDFForm@Text >>%
8723    }%
8724  }%
8725  \unhbox\pdfm@box
8726  \@pdfm@mark{put @afields @\Fld@name}% record in @afields array
8727  \egroup
8728 }

```

\@ChoiceMenu

```

8729 \def\@ChoiceMenu[#1]#2#3{% parameters, label, choices
8730   \def\Fld@name{#2}%
8731   \let\Fld@default\relax
8732   \let\Fld@value\relax
8733   \def\Fld@width{\DefaultWidthofChoiceMenu}%
8734   \def\Fld@height{\DefaultHeightofChoiceMenu}%
8735   \bgroup
8736     \Fld@menulength=0
8737     \@tempdima\z@
8738     \@for\@curropt:=#3\do{%
8739       \expandafter\Fld@checkequals\@curropt==\%
8740       \Hy@StepCount\Fld@menulength
8741       \settowidth{\@tempdimb}{\@currDisplay}%
8742       \ifdim\@tempdimb>\@tempdima\@tempdima\@tempdimb\fi
8743     }%
8744     \advance\@tempdima by 15\p@
8745     \Field@toks={ }%
8746     \setkeys{Field}{#1}%
8747     \ifFld@hidden\def\Fld@width{1sp}\fi
8748     \LayoutChoiceField{#2}{%
8749       \ifFld@radio
8750         \@@Radio{#3}%
8751       \else
8752         {%
8753           \ifdim\Fld@width<\@tempdima
8754             \ifdim\@tempdima<1cm\@tempdima1cm\fi
8755             \edef\Fld@width{\the\@tempdima}%
8756           \fi
8757           \def\Fld@flags{%
8758             \ifFld@combo\def\Fld@flags{/Ff 917504}\fi
8759             \ifFld@popdown\def\Fld@flags{/Ff 131072}\fi
8760             \ifx\Fld@flags\@empty
8761               \@tempdima=\the\Fld@menulength\Fld@charsize
8762               \advance\@tempdima by \Fld@borderwidth bp
8763               \advance\@tempdima by \Fld@borderwidth bp
8764               \edef\Fld@height{\the\@tempdima}%
8765             \fi
8766             \@@Listbox{#3}%
8767           }%
8768         \fi
8769       }%
8770     \egroup
8771 }

```

\@@Radio

```

8772 \def\@@Radio#1{%
8773   \Fld@listcount=0
8774   \setbox\pdfm@box=\hbox{\MakeRadioField{\Fld@width}{\Fld@height}}%

```

```

8775 \@for\@curropt:=#1\do{%
8776   \expandafter\Fld@checkequals\@curropt==\\%
8777   \Hy@StepCount\Fld@listcount
8778   \@currDisplay\space
8779   \leavevmode
8780   \Hy@escapeform\PDFForm@Radio
8781   \@pdfm@mark{%
8782     ann \ifnum\Fld@listcount=1 @\Fld@name\space\fi
8783     \dvipdfm@setdim
8784     <<
8785     \PDFForm@Radio\space
8786     /AP << /N << /\@currValue /null >> >>
8787     >>%
8788   }%
8789   \unhcopy\pdfm@box\space% deliberate space between radio buttons
8790   \ifnum\Fld@listcount=1\@pdfm@mark{put @afields @\Fld@name}\fi
8791 }%
8792 }

```

\Fld@listcount

```

8793 \newcount\Fld@listcount

```

\@@ListBox

```

8794 \def\@@ListBox#1{%
8795   \Choice@toks={ }%
8796   \Fld@listcount=0
8797   \@for\@curropt:=#1\do{%
8798     \expandafter\Fld@checkequals\@curropt==\\%
8799     \Hy@StepCount\Fld@listcount
8800     \edef\@processme{%
8801       \Choice@toks{\the\Choice@toks [(\@currValue) (\@currDisplay)]}%
8802     }\@processme
8803   }%
8804   \setbox\pdfm@box=\hbox{\MakeChoiceField{\Fld@width}{\Fld@height}}%
8805   \leavevmode
8806   \Hy@escapeform\PDFForm@List
8807   \@pdfm@mark{%
8808     ann @\Fld@name\space\dvipdfm@setdim
8809     << \PDFForm@List >>%
8810   }%
8811   \unhbox\pdfm@box
8812   \@pdfm@mark{put @afields @\Fld@name}%
8813 }

```

\@PushButton

```

8814 \def\@PushButton[#1]#2{% parameters, label
8815   \def\Fld@name{#2}%
8816   \bgroup
8817   \Field@toks={ }%
8818   \setkeys{Field}{#1}%
8819   \ifFld@hidden\def\Fld@width{1sp}\fi
8820   \setbox\pdfm@box=\hbox{\MakeButtonField{#2}}%
8821   \LayoutPushButtonField{%
8822     \leavevmode
8823     \Hy@escapeform\PDFForm@Push
8824     \@pdfm@mark{%
8825       ann @\Fld@name\space\dvipdfm@setdim

```

```

8826         << \PDFForm@Push >>%
8827     }%
8828 }%
8829 \unhbox\pdfm@box
8830 \@pdfm@mark{put @afields @\Fld@name}%
8831 \egroup
8832 }

\@Submit

8833 \def\@Submit[#1]#2{%
8834     \Field@toks={ }%
8835     \def\Fld@width{\DefaultWidthofSubmit}%
8836     \def\Fld@height{\DefaultHeightofSubmit}%
8837     \bgroup
8838         \def\Fld@name{Submit}%
8839         \setkeys{Field}{#1}%
8840         \ifFld@hidden\def\Fld@width{1sp}\fi
8841         \setbox\pdfm@box=\hbox{\MakeButtonField{#2}}%
8842         \leavevmode
8843         \Hy@escapeform\PDFForm@Submit
8844         \@pdfm@mark{%
8845             ann @\Fld@name\space\dvipdfm@setdim
8846             << \PDFForm@Submit >>%
8847         }%
8848         \unhbox\pdfm@box%
8849         \@pdfm@mark{put @afields @\Fld@name}%
8850     \egroup
8851 }

\@Reset

8852 \def\@Reset[#1]#2{%
8853     \Field@toks={ }%
8854     \def\Fld@width{\DefaultWidthofReset}%
8855     \def\Fld@height{\DefaultHeightofReset}%
8856     \bgroup
8857         \def\Fld@name{Reset}%
8858         \setkeys{Field}{#1}%
8859         \ifFld@hidden\def\Fld@width{1sp}\fi
8860         \setbox\pdfm@box=\hbox{\MakeButtonField{#2}}%
8861         \leavevmode
8862         \Hy@escapeform\PDFForm@Reset
8863         \@pdfm@mark{%
8864             ann @\Fld@name\space\dvipdfm@setdim
8865             << \PDFForm@Reset >>%
8866         }%
8867         \unhbox\pdfm@box
8868         \@pdfm@mark{put @afields @\Fld@name}%
8869     \egroup
8870 }

\@CheckBox

8871 \def\@CheckBox[#1]#2{% parameters, label
8872     \def\Fld@name{#2}%
8873     \def\Fld@default{0}%
8874     \bgroup
8875         \def\Fld@width{\DefaultWidthofCheckBox}%
8876         \def\Fld@height{\DefaultHeightofCheckBox}%

```

```

8877 \Field@toks={ }%
8878 \setkeys{Field}{#1}%
8879 \ifFld@hidden\def\Fld@width{1sp}\fi
8880 \setbox\pdfm@box=\hbox{\MakeCheckField{\Fld@width}{\Fld@height}}%
8881 \LayoutCheckField{#2}{%
8882 \Hy@escapeform\PDFForm@Check
8883 \@pdfm@mark{%
8884 ann @\Fld@name\space\dvipdfm@setdim
8885 << \PDFForm@Check >>%
8886 }%
8887 \unhbox\pdfm@box
8888 \@pdfm@mark{put @afields @\Fld@name}%
8889 }%
8890 \egroup
8891 }

8892 \@pdfm@mark{obj @OBJpdfdocencoding << /Type /Encoding /Differences [%
8893 24 /breve /caron /circumflex /dotaccent /hungarumlaut /ogonek /ring
8894 /tilde
8895 39 /quotesingle
8896 96 /grave
8897 128 /bullet /dagger /daggerdbl /ellipsis /emdash /endash /florin
8898 /fraction /guilsinglleft /guilsinglright /minus /perthousand
8899 /quotedblbase /quotedblleft /quotedblright /quoteleft /quoteright
8900 /quotesinglbase /trademark /fi /fl /Lslash /OE /Scaron /Ydieresis
8901 /Zcaron /dotlessi /lslash /oe /scaron /zcaron
8902 164 /currency
8903 166 /brokenbar
8904 168 /dieresis /copyright /ordfeminine
8905 172 /logicalnot /.notdef /registered /macron /degree /plusminus
8906 /twosuperior /threesuperior /acute /mu
8907 183 /periodcentered /cedilla /onesuperior /ordmasculine
8908 188 /onequarter /onehalf /threequarters
8909 192 /Agrave /Aacute /Acircumflex /Atilde /Adieresis /Aring /AE
8910 /Ccedilla /Egrave /Eacute /Ecircumflex /Edieresis /Igrave /Iacute
8911 /Icircumflex /Idieresis /Eth /Ntilde /Ograve /Oacute /Ocircumflex
8912 /Otilde /Odieresis /multiply /Oslash /Ugrave /Uacute /Ucircumflex
8913 /Udieresis /Yacute /Thorn /germandbls /agrave /aacute /acircumflex
8914 /atilde /adieresis /aring /ae /ccedilla /egrave /eacute
8915 /ecircumflex /edieresis /igrave /iacute /icircumflex /idieresis
8916 /eth /ntilde /ograde /oacute /ocircumflex /otilde /odieresis
8917 /divide /oslash /ugrave /uacute /ucircumflex /udieresis /yacute
8918 /thorn /ydieresis%
8919 ] >>
8920 }
8921 \@pdfm@mark{obj @OBJZaDb
8922 <<
8923 /Type /Font
8924 /Subtype /Type1
8925 /Name /ZaDb
8926 /BaseFont /ZapfDingbats
8927 >>
8928 }
8929 \@pdfm@mark{obj @OBJHelv
8930 <<
8931 /Type /Font
8932 /Subtype /Type1
8933 /Name /Helv

```



```

8934 /BaseFont /Helvetica
8935 /Encoding @OBJpdfdocencoding
8936 >>
8937 }
8938 </dvipdfm>

```

## 46.7 Common forms part

```
8939 <*pdfform>
```

\Hy@escapestring

```

8940 \begingroup\expandafter\expandafter\expandafter\endgroup
8941 \expandafter\ifx\csname pdfescapestring\endcsname\relax
8942 \let\Hy@escapestring\@firstofone
8943 \def\Hy@escapeform#1{%
8944 \ifHy@escapeform
8945 \def\Hy@escapestring##1{%
8946 \noexpand\Hy@escapestring{\noexpand##1}%
8947 }%
8948 \edef\Hy@temp{#1}%
8949 \expandafter\Hy@@escapeform\Hy@temp\Hy@escapestring{}\@nil
8950 \def\Hy@escapestring##1{%
8951 \@ifundefined{Hy@esc@\string##1}{%
8952 ##1%
8953 \ThisShouldNotHappen
8954 }{%
8955 \csname Hy@esc@\string##1\endcsname
8956 }%
8957 }%
8958 \else
8959 \let\Hy@escapestring\@firstofone
8960 \fi
8961 }%
8962 \def\Hy@@escapeform#1\Hy@escapestring#2#3\@nil{%
8963 \ifx\\#3\\%
8964 \else
8965 \expandafter\Hy@pstringdef\csname Hy@esc@\string#2\endcsname{#2}%
8966 \Hy@ReturnAfterFi{%
8967 \Hy@@escapeform#3\@nil
8968 }%
8969 \fi
8970 }%
8971 \else
8972 \def\Hy@escapeform#1{%
8973 \ifHy@escapeform
8974 \let\Hy@escapestring\pdfescapestring
8975 \else
8976 \let\Hy@escapestring\@firstofone
8977 \fi
8978 }%
8979 \Hy@escapeform{}%
8980 \fi

```

\PDFForm@Check

```

8981 \def\PDFForm@Check{%
8982 /Subtype /Widget
8983 \ifFld@hidden /F 6 \else /F 4 \fi

```

```

8984 /T (\Hy@escapestring{\Fld@name})
8985 /Q \Fld@align\space
8986 /BS << /W \Fld@borderwidth\space /S \Fld@borderstyle\space >>
8987 /MK <<
8988 /BC [\Fld@bordercolor]
8989 \ifx\Fld@bcolor\@empty
8990 \else
8991 /BG [\Fld@bcolor]
8992 \fi
8993 /CA (\Hy@escapestring{\Fld@cbsymbol})
8994 >>
8995 /DA (/ZaDb \strip@pt\Fld@charsize\space Tf \Fld@color\space rg)
8996 /FT /Btn
8997 /H /P
8998 \ifFld@checked /V /Yes \else /V /Off \fi
8999 }

```

\PDFForm@Push

```

9000 \def\PDFForm@Push{%
9001 /Subtype/Widget
9002 \ifFld@hidden /F 6\else /F 4\fi
9003 /T(\Hy@escapestring{\Fld@name})%
9004 /FT/Btn%
9005 /Ff 65540
9006 /H/P%
9007 /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
9008 /MK<<%
9009 /BC[\Fld@bordercolor]%
9010 >>%
9011 /A<</S/JavaScript/JS(\Hy@escapestring{\Fld@onclick})>>%
9012 }

```

\Fld@additionalactions

```

9013 \def\Fld@additionalactions{%
9014 /AA <<

```

K input (keystroke) format

```

9015 \ifx\Fld@keystroke@code\@empty
9016 \else
9017 /K<</S/JavaScript/JS(\Hy@escapestring{\Fld@keystroke@code})>>%
9018 \fi

```

F display format

```

9019 \ifx\Fld@format@code\@empty
9020 \else
9021 /F<</S/JavaScript/JS(\Hy@escapestring{\Fld@format@code})>>%
9022 \fi

```

V validation

```

9023 \ifx\Fld@validate@code\@empty
9024 \else
9025 /V<</S/JavaScript/JS(\Hy@escapestring{\Fld@validate@code})>>%
9026 \fi

```

C calculation

```

9027 \ifx\Fld@calculate@code\@empty
9028 \else
9029 /C<</S/JavaScript/JS(\Hy@escapestring{\Fld@calculate@code})>>%
9030 \fi

```

Fo receiving the input focus

```
9031 \ifx\Fld@onfocus@code\@empty
9032 \else
9033 /Fo<</S/JavaScript/JS(\Hy@escapestring{\Fld@onfocus@code})>>%
9034 \fi
```

Bl loosing the input focus (blurred)

```
9035 \ifx\Fld@onblur@code\@empty
9036 \else
9037 /Bl<</S/JavaScript/JS(\Hy@escapestring{\Fld@onblur@code})>>%
9038 \fi
```

D pressing the mouse button (down)

```
9039 \ifx\Fld@onmousedown@code\@empty
9040 \else
9041 /D<</S/JavaScript/JS(\Hy@escapestring{\Fld@onmousedown@code})>>%
9042 \fi
```

U releasing the mouse button (up)

```
9043 \ifx\Fld@onmouseup@code\@empty
9044 \else
9045 /U<</S/JavaScript/JS(\Hy@escapestring{\Fld@onmouseup@code})>>%
9046 \fi
```

E cursor enters the annotation's active area.

```
9047 \ifx\Fld@onenter@code\@empty
9048 \else
9049 /E<</S/JavaScript/JS(\Hy@escapestring{\Fld@onenter@code})>>%
9050 \fi
```

X cursor exits the annotation's active area.

```
9051 \ifx\Fld@onexit@code\@empty
9052 \else
9053 /X<</S/JavaScript/JS(\Hy@escapestring{\Fld@onexit@code})>>%
9054 \fi
9055 >>%
9056 }
```

\PDFForm@List

```
9057 \def\PDFForm@List{%
9058 /Subtype/Widget%
9059 \ifFld@hidden /F 6\else /F 4\fi
9060 /T(\Hy@escapestring{\Fld@name})%
9061 /FT/Ch%
9062 /Q \Fld@align
9063 /BS<</W \Fld@borderwidth /S/\Fld@borderstyle>>%
9064 /MK<<%
9065 /BC[\Fld@bordercolor]%
9066 \ifx\Fld@bcolor\@empty
9067 \else
9068 /BG[\Fld@bcolor]%
9069 \fi
9070 >>%
9071 /DA(/Helv \strip@pt\Fld@charsize\space Tf \Fld@color\space rg)%
9072 /Opt[\the\Choice@toks]%
9073 \ifx\Fld@default\relax
9074 \else
9075 /DV(\Hy@escapestring{\Fld@default})%
9076 \fi
```

```

9077 \ifx\Fld@value\relax
9078 \else
9079 /V(\Hy@escapestring{\Fld@value})%
9080 \fi
9081 \Fld@additionalactions
9082 \Fld@flags
9083 }

```

#### \PDFForm@Radio

```

9084 \def\PDFForm@Radio{%
9085 /Subtype/Widget%
9086 \ifFld@hidden /F 6\else /F 4\fi
9087 /T(\Hy@escapestring{\Fld@name})%
9088 /FT/Btn%
9089 /Ff 49152%
9090 /H/P
9091 /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
9092 /MK<<%
9093 /BC[\Fld@bordercolor]%
9094 \ifx\Fld@bcolor\@empty
9095 \else
9096 /BG[\Fld@bcolor]%
9097 \fi
9098 /CA(H)%
9099 >>%
9100 /DA(/ZaDb \strip@pt\Fld@charsize\space Tf \Fld@color\space rg)%
9101 \ifx\@currValue\Fld@default
9102 /V/\Fld@default
9103 \else
9104 /V/Off%
9105 \fi
9106 \Fld@additionalactions
9107 }

```

#### \PDFForm@Text

```

9108 \def\PDFForm@Text{%
9109 /Subtype/Widget%
9110 \ifFld@hidden /F 6\else /F 4\fi
9111 /T(\Hy@escapestring{\Fld@name})
9112 /Q \Fld@align
9113 /FT/Tx%
9114 /BS<</W \Fld@borderwidth\space /S /\Fld@borderstyle>>%
9115 /MK<<%
9116 /BC[\Fld@bordercolor]%
9117 \ifx\Fld@bcolor\@empty
9118 \else
9119 /BG[\Fld@bcolor]%
9120 \fi
9121 >>%
9122 /DA(/Helv \strip@pt\Fld@charsize\space Tf \Fld@color\space rg)%
9123 /DV(\Hy@escapestring{\Fld@default})%
9124 /V(\Hy@escapestring{\Fld@value})%
9125 \Fld@additionalactions
9126 \ifFld@multiline
9127 \ifFld@readonly /Ff 4097\else /Ff 4096\fi
9128 \else
9129 \ifFld@password

```

```

9130      \ifFld@readonly /Ff 8193\else /Ff 8192\fi
9131      \else
9132      \ifFld@readonly /Ff 1\fi
9133      \fi
9134 \fi
9135 \ifnum\Fld@maxlen>0/MaxLen \Fld@maxlen \fi
9136 }

```

\PDFForm@Submit

```

9137 \def\PDFForm@Submit{%
9138   /Subtype/Widget%
9139   \ifFld@hidden /F 6\else /F 4\fi
9140   /T(\Hy@escapestring{\Fld@name})%
9141   /FT/Btn%
9142   /Ff 65540%
9143   /H/P%
9144   /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
9145   /MK<<%
9146     /BC[\Fld@bordercolor]%
9147   >>%
9148   /A<<%
9149     /S/SubmitForm%
9150     /F<<%
9151       /FS/URL%
9152       /F(\Hy@escapestring{\Form@action})%
9153     >>%
9154     \ifForm@html /Flags 4\fi
9155   >>%
9156 }

```

\PDFForm@Reset

```

9157 \def\PDFForm@Reset{%
9158   /Subtype/Widget%
9159   \ifFld@hidden /F 6\else /F 4\fi
9160   /T(\Hy@escapestring{\Fld@name})%
9161   /FT/Btn%
9162   /H/P%
9163   /DA(/Helv \strip@pt\Fld@charsize\space Tf 0 0 1 rg)%
9164   /Ff 65540%
9165   /MK<<%
9166     /BC[\Fld@bordercolor]%
9167     /CA (Clear)
9168     /AC (Done)
9169   >>%
9170   /BS<</W \Fld@borderwidth/S/\Fld@borderstyle>>%
9171   /A<</S/ResetForm>>%
9172 }

9173 </pdfform>
9174 <*package>

```

## 47 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  $\text{\LaTeX}$  macros.

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

```

9175 \def\phantomsection{%
9176   \Hy@GlobalStepCount\Hy@linkcounter
9177   \xdef\@currentHref{section*.\the\Hy@linkcounter}%
9178   \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
9179 }
9180 \</package>

```

## 47.1 Bookmarks

```

9181 \<*outlines>

```

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

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

```

9182 \def\Hy@writebookmark#1#2#3#4#5{% section number, text, label, level, file
9183   \ifx\WriteBookmarks\relax%
9184   \else
9185     \ifnum#4>\Hy@bookmarksdepth\relax
9186     \else
9187       \@writetorep{#1}{#2}{#3}{#4}{#5}%
9188     \fi
9189   \fi}
9190 \def\Hy@currentbookmarklevel{0}
9191 \def\Hy@numberline#1{#1 }
9192 \def\@writetorep#1#2#3#4#5{%
9193   \begingroup
9194     \edef\Hy@tempa{#5}%
9195     \ifx\Hy@tempa\Hy@bookmarkstype
9196       \edef\Hy@level{#4}%
9197       \ifx\Hy@levelcheck Y%
9198         \@tempcnta\Hy@level\relax
9199         \advance\@tempcnta by -1
9200         \ifnum\Hy@currentbookmarklevel<\@tempcnta
9201           \advance\@tempcnta by -\Hy@currentbookmarklevel\relax
9202           \advance\@tempcnta by 1
9203           \Hy@Warning{%
9204             Difference (\the\@tempcnta) between bookmark levels is %
9205             greater \MessageBreak than one, level fixed%
9206           }%
9207           \@tempcnta\Hy@currentbookmarklevel
9208           \advance\@tempcnta by 1
9209           \edef\Hy@level{\the\@tempcnta}%
9210         \fi
9211       \else
9212         \global\let\Hy@levelcheck Y%
9213       \fi
9214       \global\let\Hy@currentbookmarklevel\Hy@level
9215       \@tempcnta\Hy@level\relax
9216       \expandafter\xdef\csname Parent\Hy@level\endcsname{#3}%
9217       \advance\@tempcnta by -1

```

```

9218 \edef\Hy@tempa{#3}%
9219 \edef\Hy@tempb{\csname Parent\the\@tempcnta\endcsname}%
9220 \ifx\Hy@tempa\Hy@tempb
9221   \Hy@Warning{%
9222     The anchor of a bookmark and its parent's must not%
9223     \MessageBreak be the same. Added a new anchor%
9224   }%
9225   \phantomsection
9226 \fi
9227 \ifHy@bookmarksnumbered
9228   \let\numberline\Hy@numberline
9229   \let\partnumberline\Hy@numberline
9230   \let\chapternumberline\Hy@numberline
9231 \else
9232   \let\numberline\@gobble
9233   \let\partnumberline\@gobble
9234   \let\chapternumberline\@gobble
9235 \fi
9236 \pdfstringdef\Hy@tempa{#2}%
9237 \if@filesw
9238   \protected@write\@outlinefile{}{%
9239     \protect\BOOKMARK
9240       [\Hy@level] [\@bookmarkopenstatus{\Hy@level}] {#3}%
9241     {\Hy@tempa}{\Hy@tempb}%
9242   }%
9243 \fi
9244 \fi
9245 \endgroup
9246 }

```

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

```

9247 \newcommand{\currentpdfbookmark}{%
9248   \pdfbookmark[\Hy@currentbookmarklevel]%
9249 }
9250 \newcommand{\subpdfbookmark}{%
9251   \@tempcnta\Hy@currentbookmarklevel
9252   \Hy@StepCount\@tempcnta
9253   \expandafter\pdfbookmark\expandafter[\the\@tempcnta]%
9254 }
9255 \newcommand{\belowpdfbookmark}[2]{%
9256   \@tempcnta\Hy@currentbookmarklevel
9257   \Hy@StepCount\@tempcnta
9258   \expandafter\pdfbookmark\expandafter[\the\@tempcnta]{#1}{#2}%
9259   \advance\@tempcnta by -1
9260   \xdef\Hy@currentbookmarklevel{\the\@tempcnta}%
9261 }

```

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

```

9262 \renewcommand\pdfbookmark[3][0]{%
9263   \Hy@writebookmark{}{#2}{#3.#1}{#1}{toc}%
9264   \hyper@anchorstart{#3.#1}\hyper@anchorend
9265 }
9266 \def\BOOKMARK{\@ifnextchar[\@BOOKMARK]{\@BOOKMARK[1] [-]}}
9267 \def\@BOOKMARK[#1]{\@ifnextchar[\@BOOKMARK[#1]]{\@BOOKMARK[#1] [-]}}

```

The macros for calculating structure of outlines are derived from those by Petr Olsak used

in the texinfo pdf macros.

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.

```
9268 \*vtx\
```

```
9269 \newcount\@serial@counter\@serial@counter=1\relax
```

\hv@pdf@char Plain octal codes doesn't work with versions below 6.50. So for early versions hex numbers have to be used. It would be possible to program this instead of the large \ifcase, but I'm too lazy to sort that out now.

```
9270 \begingroup
9271   \catcode'\ '=12
9272   \ifnum\Hy@VTeXversion<650 %
9273     \catcode'\ "=12
9274     \gdef\hv@pdf@char#1#2#3{%
9275       \char
9276       \ifcase'#1#2#3
9277         "00\or"01\or"02\or"03\or"04\or"05\or"06\or"07%
9278         \or"08\or"09\or"0A\or"0B\or"0C\or"0D\or"0E\or"0F%
9279         \or"10\or"11\or"12\or"13\or"14\or"15\or"16\or"17%
9280         \or"18\or"19\or"1A\or"1B\or"1C\or"1D\or"1E\or"1F%
9281         \or"20\or"21\or"22\or"23\or"24\or"25\or"26\or"27%
9282         \or"28\or"29\or"2A\or"2B\or"2C\or"2D\or"2E\or"2F%
9283         \or"30\or"31\or"32\or"33\or"34\or"35\or"36\or"37%
9284         \or"38\or"39\or"3A\or"3B\or"3C\or"3D\or"3E\or"3F%
9285         \or"40\or"41\or"42\or"43\or"44\or"45\or"46\or"47%
9286         \or"48\or"49\or"4A\or"4B\or"4C\or"4D\or"4E\or"4F%
9287         \or"50\or"51\or"52\or"53\or"54\or"55\or"56\or"57%
9288         \or"58\or"59\or"5A\or"5B\or"5C\or"5D\or"5E\or"5F%
9289         \or"60\or"61\or"62\or"63\or"64\or"65\or"66\or"67%
9290         \or"68\or"69\or"6A\or"6B\or"6C\or"6D\or"6E\or"6F%
9291         \or"70\or"71\or"72\or"73\or"74\or"75\or"76\or"77%
9292         \or"78\or"79\or"7A\or"7B\or"7C\or"7D\or"7E\or"7F%
9293         \or"80\or"81\or"82\or"83\or"84\or"85\or"86\or"87%
9294         \or"88\or"89\or"8A\or"8B\or"8C\or"8D\or"8E\or"8F%
9295         \or"90\or"91\or"92\or"93\or"94\or"95\or"96\or"97%
9296         \or"98\or"99\or"9A\or"9B\or"9C\or"9D\or"9E\or"9F%
9297         \or"A0\or"A1\or"A2\or"A3\or"A4\or"A5\or"A6\or"A7%
9298         \or"A8\or"A9\or"AA\or"AB\or"AC\or"AD\or"AE\or"AF%
9299         \or"B0\or"B1\or"B2\or"B3\or"B4\or"B5\or"B6\or"B7%
9300         \or"B8\or"B9\or"BA\or"BB\or"BC\or"BD\or"BE\or"BF%
9301         \or"C0\or"C1\or"C2\or"C3\or"C4\or"C5\or"C6\or"C7%
9302         \or"C8\or"C9\or"CA\or"CB\or"CC\or"CD\or"CE\or"CF%
9303         \or"D0\or"D1\or"D2\or"D3\or"D4\or"D5\or"D6\or"D7%
9304         \or"D8\or"D9\or"DA\or"DB\or"DC\or"DD\or"DE\or"DF%
9305         \or"E0\or"E1\or"E2\or"E3\or"E4\or"E5\or"E6\or"E7%
9306         \or"E8\or"E9\or"EA\or"EB\or"EC\or"ED\or"EE\or"EF%
9307         \or"F0\or"F1\or"F2\or"F3\or"F4\or"F5\or"F6\or"F7%
9308         \or"F8\or"F9\or"FA\or"FB\or"FC\or"FD\or"FE\or"FF%
9309       \fi
9310     }
9311   \else
9312     \gdef\hv@pdf@char{\char'}
9313   \fi
9314 \endgroup
```



\@@BOOKMARK

```

9315 \def\@@BOOKMARK[#1][#2]#3#4#5{%
9316   \expandafter\edef\csname @count@#3\endcsname{\the\@serial@counter}%
9317   \edef\@mycount{\the\@serial@counter}%
9318   \Hy@StepCount\@serial@counter
9319   \edef\@parcount{%
9320     \expandafter\ifx\csname @count@#5\endcsname\relax
9321     0%
9322     \else
9323       \csname @count@#5\endcsname
9324     \fi
9325   }%
9326   \immediate\special{!outline #3;p=\@parcount,i=\@mycount,s=\ifx#2-c\else
9327 o\fi,t=#4}%
9328 }%

```

\ReadBookmarks

```

9329 \def\ReadBookmarks{%
9330   \begingroup
9331     \def\0{\hv@pdf@char 0}%
9332     \def\1{\hv@pdf@char 1}%
9333     \def\2{\hv@pdf@char 2}%
9334     \def\3{\hv@pdf@char 3}%
9335     \def\({}%
9336     \def\)}%
9337     \def\do##1{%
9338       \ifnum\the\catcode'##1=\active
9339       \@makeother##1%
9340       \fi
9341     }%
9342     \dospecials
9343     \InputIfFileExists{\jobname.out}{-}{-}%
9344   \endgroup
9345   \ifx\WriteBookmarks\relax
9346   \else
9347     \if@filesw
9348       \newwrite\@outlinefile
9349       \immediate\openout\@outlinefile=\jobname.out
9350       \ifHy@typexml
9351         \immediate\write\@outlinefile{<relaxxml>\relax}%
9352       \fi
9353     \fi
9354   \fi
9355 }

9356 </vtex>
9357 <!*vtex>
9358 \def\ReadBookmarks{%
9359   \begingroup
9360     \escapechar='\'%
9361     \let\escapechar\@gobble %
9362     \def\@@BOOKMARK [##1][##2]##3##4##5{\calc@bm@number{##5}}%
9363     \InputIfFileExists{\jobname.out}{-}{-}%
9364     \ifx\WriteBookmarks\relax
9365       \global\let\WriteBookmarks\relax
9366     \fi
9367     \def\@@BOOKMARK[##1][##2]##3##4##5{%

```

```

9368     \def\Hy@temp{##4}%
9369 \<pdftex>
9370     \Hy@pstringdef\Hy@pstringName{##3}%
9371     \Hy@OutlineName{}\Hy@pstringName{%
9372         ##2\check@bm@number{##3}%
9373     }{%
9374         \expandafter\strip@prefix\meaning\Hy@temp
9375     }%
9376 \</pdftex>
9377 \<pdfmark>
9378     \Hy@pstringdef\Hy@pstringName{##3}%
9379     \pdfmark{%
9380         pdfmark=/OUT,%
9381         Count={##2\check@bm@number{##3}},%
9382         Dest={\Hy@pstringName},%
9383         Title=\expandafter\strip@prefix\meaning\Hy@temp
9384     }%
9385 \</pdfmark>
9386 \<dvipdfm>
9387     \Hy@pstringdef\Hy@pstringName{##3}%
9388     \@pdfm@mark{%
9389         outline ##1 <<
9390             /Title (\expandafter\strip@prefix\meaning\Hy@temp)
9391             /A <<
9392                 /S /GoTo
9393                 /D (\Hy@pstringName)
9394             >>
9395         >>
9396     }%
9397 \</dvipdfm>
9398 }%
9399 {%
9400     \def\WriteBookmarks{0}%
9401     \InputIfFileExists{\jobname.out}{\}{\}%
9402 }%
9403 {%\escapechar\m@ne\InputIfFileExists{\jobname.out}{\}{\}}%
9404 \ifx\WriteBookmarks\relax
9405 \else
9406     \if@files
9407         \newwrite\@outlinefile
9408         \immediate\openout\@outlinefile=\jobname.out
9409         \ifHy@typexml
9410             \immediate\write\@outlinefile{<relaxxml>\relax}%
9411         \fi
9412     \fi
9413 \fi
9414 \endgroup
9415 }
9416 \<pdftex>
9417 \def\Hy@OutlineName#1#2#3#4{%
9418     \pdfoutline goto name{#2}count#3{#4}%
9419 }
9420 \</pdftex>
9421 \def\check@bm@number#1{%
9422     \expandafter\ifx\csname B_#1\endcsname\relax
9423     0%
9424     \else

```

```

9425 \csname B_#1\endcsname
9426 \fi
9427 }
9428 \def\calc@bm@number#1{%
9429 \@tempcnta=\check@bm@number{#1}\relax
9430 \advance\@tempcnta by1
9431 \expandafter\xdef\csname B_#1\endcsname{\the\@tempcnta}%
9432 }
9433 \!/vtex>

```

This code is added, so that option ‘pdfpagenumbers’ works with option ‘implicit’ (suggestion of Sebastian Rahtz).

```

9434 \ifHy@implicit
9435 \else
9436 \def\@beginvdi{%
9437 \unvbox\@beginvibox
9438 \HyPL@EveryPage
9439 \global\let\@beginvdi\HyPL@EveryPage
9440 }%
9441 \expandafter\endinput
9442 \fi

9443 </outlines>
9444 <*outlines | hypertex>

9445 \let\H@old@ssect\@ssect
9446 \def\@ssect#1#2#3#4#5{%
9447 \H@old@ssect{#1}{#2}{#3}{#4}{#5}%
9448 \phantomsection
9449 }

9450 \let\H@old@schapter\@schapter
9451 \def\@schapter#1{%
9452 \H@old@schapter{#1}%
9453 \begingroup
9454 \let\@mkboth\@gobbletwo
9455 \Hy@GlobalStepCount\Hy@linkcounter
9456 \xdef\@currentHref{\Hy@chapapp*.\the\Hy@linkcounter}%
9457 \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
9458 \endgroup
9459 }

```

If there is no chapter number (\frontmatter or \backmatter) then \refstepcounter{chapter} is not executed, so there will be no destination for \ddcontentsline. So \@chapter is overloaded to avoid this:

```

9460 \@ifundefined{@chapter}{-}{%
9461 \let\Hy@org@chapter\@chapter
9462 \def\@chapter{%
9463 \def\Hy@next{%
9464 \Hy@GlobalStepCount\Hy@linkcounter
9465 \xdef\@currentHref{\Hy@chapapp*.\the\Hy@linkcounter}%
9466 \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
9467 }%
9468 \ifnum\c@secnumdepth>\m@ne
9469 \@ifundefined{if@mainmatter}%
9470 \iftrue{\csname if@mainmatter\endcsname}%
9471 \let\Hy@next\relax
9472 \fi
9473 \fi
9474 \Hy@next

```

```

9475 \Hy@org@chapter
9476 }%
9477 }

9478 \let\H@old@part\@part
9479 \begingroup\expandafter\expandafter\expandafter\endgroup
9480 \expandafter\ifx\csname chapter\endcsname\relax
9481 \let\Hy@secnum@part\z@
9482 \else
9483 \let\Hy@secnum@part\m@ne
9484 \fi
9485 \def\@part{%
9486 \ifnum\Hy@secnum@part>\c@secnumdepth
9487 \phantomsection
9488 \fi
9489 \H@old@part
9490 }

9491 \let\H@old@spart\@spart
9492 \def\@spart#1{%
9493 \H@old@spart{#1}%
9494 \Hy@GlobalStepCount\Hy@linkcounter
9495 \xdef\@currentHref{part*.\the\Hy@linkcounter}%
9496 \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
9497 }

9498 \let\H@old@sect\@sect
9499 \def\@sect#1#2#3#4#5#6[#7]#8{%
9500 \ifnum #2>\c@secnumdepth
9501 \Hy@GlobalStepCount\Hy@linkcounter
9502 \xdef\@currentHref{section*.\the\Hy@linkcounter}%
9503 \fi
9504 \H@old@sect{#1}{#2}{#3}{#4}{#5}{#6}[#7]{#8}%
9505 \ifnum #2>\c@secnumdepth
9506 \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
9507 \fi
9508 }

9509 </outlines | hypertex>
9510 <*outlines>

9511 \expandafter\def\csname Parent-4\endcsname{}
9512 \expandafter\def\csname Parent-3\endcsname{}
9513 \expandafter\def\csname Parent-2\endcsname{}
9514 \expandafter\def\csname Parent-1\endcsname{}
9515 \expandafter\def\csname Parent0\endcsname{}
9516 \expandafter\def\csname Parent1\endcsname{}
9517 \expandafter\def\csname Parent2\endcsname{}
9518 \expandafter\def\csname Parent3\endcsname{}
9519 \expandafter\def\csname Parent4\endcsname{}

9520 </outlines>

```

## 48 Compatibility with koma-script classes

```
9521 <*outlines | hypertex>
```

Hard-wire in an unpleasant over-ride of komascript ‘scrbook’ class for 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.

```
9522 \def\Hy@tempa{%
```

```

9523 \def\@addchap[##1]##2{%
9524   \typeout{##2}%
9525   \if@twoside
9526     \mkboth{##1}{}%
9527   \else
9528     \mkboth{}{##1}%
9529   \fi
9530   \addtocontents{lof}{\protect\addvspace{10\p@}}%
9531   \addtocontents{lot}{\protect\addvspace{10\p@}}%
9532   \Hy@GlobalStepCount\Hy@linkcounter
9533   \xdef\@currentHref{\Hy@chapapp*.\the\Hy@linkcounter}%
9534   \Hy@raisedlink{\hyper@anchorstart{\@currentHref}\hyper@anchorend}%
9535   \if@twocolumn
9536     \@topnewpage[\@makeschapterhead{##2}]%
9537   \else
9538     \@makeschapterhead{##2}%
9539     \@afterheading
9540   \fi
9541   \addcontentsline{toc}{chapter}{##1}%
9542 }%
9543 }
9544 \@ifclassloaded{scrbook}{%
9545   \@ifclasslater{scrbook}{2001/01/01}{%
9546     \let\Hy@tempa\@empty
9547   }{}%
9548 }{%
9549   \@ifclassloaded{scrreprt}{%
9550     \@ifclasslater{scrreprt}{2001/01/01}{%
9551       \let\Hy@tempa\@empty
9552     }{}%
9553   }{}%
9554   \let\Hy@tempa\@empty
9555 }%
9556 }%
9557 \Hy@tempa
9558 </outlines | hypertext>

```

## 49 Encoding definition files for encodings of PDF strings

This was contributed by Heiko Oberdiek oberdiek@ruf.uni-freiburg.de

### 49.1 PD1 encoding

```

9559 <*pd1enc>
9560 \DeclareFontEncoding{PD1}{}{}

```

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

```

9561 \DeclareTextCommand{\textLF}{PD1}{\012} % line feed
9562 \DeclareTextCommand{\textCR}{PD1}{\015} % carriage return
9563 \DeclareTextCommand{\textHT}{PD1}{\011} % horizontal tab
9564 \DeclareTextCommand{\textBS}{PD1}{\010} % backspace
9565 \DeclareTextCommand{\textFF}{PD1}{\014} % formfeed

```

Accents

```

9566 \DeclareTextAccent{\'}{PD1}{\textgrave}
9567 \DeclareTextAccent{\'}{PD1}{\textacute}
9568 \DeclareTextAccent{\`}{PD1}{\textcircumflex}
9569 \DeclareTextAccent{\~}{PD1}{\texttilde}

```

```

9570 \DeclareTextAccent{"}{PD1}{\textdieresis}
9571 \DeclareTextAccent{\r}{PD1}{\textring}
9572 \DeclareTextAccent{\v}{PD1}{\textcaron}
9573 \DeclareTextAccent{\.}{PD1}{\textdotaccent}
9574 \DeclareTextAccent{\c}{PD1}{\textcedilla}
9575 \DeclareTextCompositeCommand{'}{PD1}{\@empty}{\textgrave}
9576 \DeclareTextCompositeCommand{'}{PD1}{\@empty}{\textacute}
9577 \DeclareTextCompositeCommand{^}{PD1}{\@empty}{\textcircumflex}
9578 \DeclareTextCompositeCommand{~}{PD1}{\@empty}{\texttilde}
9579 \DeclareTextCompositeCommand{"}{PD1}{\@empty}{\textdieresis}
9580 \DeclareTextCompositeCommand{\r}{PD1}{\@empty}{\textring}
9581 \DeclareTextCompositeCommand{\v}{PD1}{\@empty}{\textcaron}
9582 \DeclareTextCompositeCommand{\.}{PD1}{\@empty}{\textdotaccent}
9583 \DeclareTextCompositeCommand{\c}{PD1}{\@empty}{\textcedilla}
9584 \DeclareTextCommand{\k}{PD1}[1]{\TextSymbolUnavailable{\k{#1}}#1}

```

#### Accent glyph names

```

9585 \DeclareTextCommand{\textbreve}{PD1}{\030} % breve
9586 \DeclareTextCommand{\textcaron}{PD1}{\031} % caron
9587 \DeclareTextCommand{\textcircumflex}{PD1}{\032} % circumflex
9588 \DeclareTextCommand{\textdotaccent}{PD1}{\033} % dotaccent
9589 \DeclareTextCommand{\texthungarumlaut}{PD1}{\034} % hungarumlaut
9590 \DeclareTextCommand{\textogonek}{PD1}{\035} % ogonek
9591 \DeclareTextCommand{\textring}{PD1}{\036} % ring
9592 \DeclareTextCommand{\texttilde}{PD1}{\037} % tilde

```

\040: space

\041: exclam

```

9593 \DeclareTextCommand{\textquotedbl}{PD1}{\string"} % quotedbl \042
9594 \DeclareTextCommand{\textnumbersign}{PD1}{\043} % numbersign
9595 \DeclareTextCommand{\textdollar}{PD1}{\044} % dollar
9596 \DeclareTextCommand{\textpercent}{PD1}{\045} % percent
9597 \DeclareTextCommand{\textampersand}{PD1}{\046} % ampersand

```

\047: quotesingle

```

9598 \DeclareTextCommand{\textparenleft}{PD1}{\string\()} % parenleft \050
9599 \DeclareTextCommand{\textparenright}{PD1}{\string\)} % parenright \051

```

\052: asterisk

\053: plus

\054: comma

\055: hyphen

\056: period

\057: slash

\060... \071: 0...9

\072: colon

\073: semicolon

```

9600 \DeclareTextCommand{\textless}{PD1}{<} % less \074

```

\075: equal

```

9601 \DeclareTextCommand{\textgreater}{PD1}{>} % greater \076

```

\077: question

\100: at

\101... \132: A...Z

\133: bracketleft

```

9602 \DeclareTextCommand{\textbackslash}{PD1}{\134} % backslash

```

\135: bracketright

```

9603 \DeclareTextCommand{\textasciicircum}{PD1}{\136} % asciicircum

```

```

9604 \DeclareTextCommand{\textunderscore}{PD1}{\137} % underscore

```

```

9605 \DeclareTextCommand{\textgrave}{PD1}{\140} % grave
\141... \172: a...z
9606 \DeclareTextCompositeCommand{\.}{PD1}{i}{i} % i
9607 \DeclareTextCommand{\textbraceleft}{PD1}{\173} % braceleft
9608 \DeclareTextCommand{\textbar}{PD1}{|} % bar
9609 \DeclareTextCommand{\textbraceright}{PD1}{\175} % braceright
9610 \DeclareTextCommand{\textasciitilde}{PD1}{\176} % asciitilde

```

No glyph \177 in PDFDocEncoding.

```

9611 \DeclareTextCommand{\textbullet}{PD1}{\200} % bullet
9612 \DeclareTextCommand{\textdagger}{PD1}{\201} % dagger
9613 \DeclareTextCommand{\textdaggerdbl}{PD1}{\202} % daggerdbl
9614 \DeclareTextCommand{\textellipsis}{PD1}{\203} % ellipsis
9615 \DeclareTextCommand{\textemdash}{PD1}{\204} % emdash
9616 \DeclareTextCommand{\textendash}{PD1}{\205} % endash
9617 \DeclareTextCommand{\textflorin}{PD1}{\206} % florin
9618 \DeclareTextCommand{\textfractionmark}{PD1}{/} % fraction, \207
9619 \DeclareTextCommand{\guilsinglleft}{PD1}{\210} % guilsinglleft
9620 \DeclareTextCommand{\guilsinglright}{PD1}{\211} % guilsinglright
9621 \DeclareTextCommand{\textminus}{PD1}{-} % minus, \212
9622 \DeclareTextCommand{\textperthousand}{PD1}{\213} % perthousand
9623 \DeclareTextCommand{\quotedblbase}{PD1}{\214} % quotedblbase
9624 \DeclareTextCommand{\textquotedblleft}{PD1}{\215} % quotedblleft
9625 \DeclareTextCommand{\textquotedblright}{PD1}{\216} % quotedblright
9626 \DeclareTextCommand{\textquoteleft}{PD1}{\217} % quoteleft
9627 \DeclareTextCommand{\textquoteright}{PD1}{\220} % quoteright
9628 \DeclareTextCommand{\quotesinglbase}{PD1}{\221} % quotesinglbase
9629 \DeclareTextCommand{\texttrademark}{PD1}{\222} % trademark
9630 \DeclareTextCommand{\textfi}{PD1}{fi} % fi ?? \223
9631 \DeclareTextCommand{\textfl}{PD1}{fl} % fl ?? \224
9632 \DeclareTextCommand{\L}{PD1}{L} % Lslash, \225
9633 \DeclareTextCommand{\OE}{PD1}{\226} % OE
9634 \DeclareTextCompositeCommand{\v}{PD1}{S}{\227} % Scaron
9635 \DeclareTextCompositeCommand{\"}{PD1}{Y}{\230} % Ydieresis
9636 \DeclareTextCommand{\IJ}{PD1}{\230}
9637 \DeclareTextCompositeCommand{\v}{PD1}{Z}{Z} % Zcaron, \231
9638 \DeclareTextCommand{\i}{PD1}{i} % dotlessi, \232
9639 \DeclareTextCommand{\l}{PD1}{l} % lslash, \233
9640 \DeclareTextCommand{\oe}{PD1}{\234} % oe
9641 \DeclareTextCompositeCommand{\v}{PD1}{s}{\235} % scaron
9642 \DeclareTextCompositeCommand{\v}{PD1}{z}{z} % zcaron, \236

```

No glyph \237 in PDFDocEncoding.

The euro \240 is inserted in version 1.3 of the pdf specification.

```

9643 \DeclareTextCommand{\texteuro}{PD1}{\240} % Euro
9644 \DeclareTextCommand{\textexclamdown}{PD1}{\241} % exclamdown
9645 \DeclareTextCommand{\textcent}{PD1}{\242} % cent
9646 \DeclareTextCommand{\textsterling}{PD1}{\243} % sterling
9647 \DeclareTextCommand{\textcurrency}{PD1}{\244} % currency
9648 \DeclareTextCommand{\textyen}{PD1}{\245} % yen
9649 \DeclareTextCommand{\textbrokenbar}{PD1}{\246} % brokenbar
9650 \DeclareTextCommand{\textsection}{PD1}{\247} % section
9651 \DeclareTextCommand{\textdieresis}{PD1}{\250} % dieresis
9652 \DeclareTextCommand{\textcopyright}{PD1}{\251} % copyright
9653 \DeclareTextCommand{\textordfeminine}{PD1}{\252} % ordfeminine
9654 \DeclareTextCommand{\guillemotleft}{PD1}{\253} % guillemotleft
9655 \DeclareTextCommand{\textlogicalnot}{PD1}{\254} % logicalnot

```

No glyph \255 in PDFDocEncoding.

9656 \DeclareTextCommand{\textregistered}{PD1}{\256} % registered  
 9657 \DeclareTextCommand{\textmacron}{PD1}{\257} % macron  
 9658 \DeclareTextCommand{\textdegree}{PD1}{\260} % degree  
 9659 \DeclareTextCommand{\textplusminus}{PD1}{\261} % plusminus  
 9660 \DeclareTextCommand{\texttwosuperior}{PD1}{\262} % twosuperior  
 9661 \DeclareTextCommand{\textthreesuperior}{PD1}{\263} % threesuperior  
 9662 \DeclareTextCommand{\textacute}{PD1}{\264} % acute  
 9663 \DeclareTextCommand{\textmu}{PD1}{\265} % mu  
 9664 \DeclareTextCommand{\textparagraph}{PD1}{\266} % paragraph  
 9665 \DeclareTextCommand{\textperiodcentered}{PD1}{\267} % periodcentered  
 9666 \DeclareTextCommand{\textcedilla}{PD1}{\270} % cedilla  
 9667 \DeclareTextCommand{\textonesuperior}{PD1}{\271} % onesuperior  
 9668 \DeclareTextCommand{\textordmasculine}{PD1}{\272} % ordmasculine  
 9669 \DeclareTextCommand{\guillemotright}{PD1}{\273} % guillemotright  
 9670 \DeclareTextCommand{\textonequarter}{PD1}{\274} % onequarter  
 9671 \DeclareTextCommand{\textonehalf}{PD1}{\275} % onehalf  
 9672 \DeclareTextCommand{\textthreequarters}{PD1}{\276} % threequarters  
 9673 \DeclareTextCommand{\textquestiondown}{PD1}{\277} % questiondown  
 9674 \DeclareTextCompositeCommand{\`}{PD1}{A}{\300} % Agrave  
 9675 \DeclareTextCompositeCommand{\'}{PD1}{A}{\301} % Aacute  
 9676 \DeclareTextCompositeCommand{\~}{PD1}{A}{\302} % Acircumflex  
 9677 \DeclareTextCompositeCommand{\`}{PD1}{A}{\303} % Atilde  
 9678 \DeclareTextCompositeCommand{\"}{PD1}{A}{\304} % Adieresis  
 9679 \DeclareTextCompositeCommand{\r}{PD1}{A}{\305} % Aring  
 9680 \DeclareTextCommand{\AE}{PD1}{\306} % AE  
 9681 \DeclareTextCompositeCommand{\c}{PD1}{C}{\307} % Ccedilla  
 9682 \DeclareTextCompositeCommand{\`}{PD1}{E}{\310} % Egrave  
 9683 \DeclareTextCompositeCommand{\'}{PD1}{E}{\311} % Eacute  
 9684 \DeclareTextCompositeCommand{\~}{PD1}{E}{\312} % Ecircumflex  
 9685 \DeclareTextCompositeCommand{\"}{PD1}{E}{\313} % Edieresis  
 9686 \DeclareTextCompositeCommand{\`}{PD1}{I}{\314} % Igrave  
 9687 \DeclareTextCompositeCommand{\'}{PD1}{I}{\315} % Iacute  
 9688 \DeclareTextCompositeCommand{\~}{PD1}{I}{\316} % Icircumflex  
 9689 \DeclareTextCompositeCommand{\"}{PD1}{I}{\317} % Idieresis  
 9690 \DeclareTextCommand{\DH}{PD1}{\320} % Eth  
 9691 \DeclareTextCommand{\DJ}{PD1}{\320} % Eth  
 9692 \DeclareTextCompositeCommand{\`}{PD1}{N}{\321} % Ntilde  
 9693 \DeclareTextCompositeCommand{\`}{PD1}{O}{\322} % Ograve  
 9694 \DeclareTextCompositeCommand{\'}{PD1}{O}{\323} % Oacute  
 9695 \DeclareTextCompositeCommand{\~}{PD1}{O}{\324} % Ocircumflex  
 9696 \DeclareTextCompositeCommand{\`}{PD1}{O}{\325} % Otilde  
 9697 \DeclareTextCompositeCommand{\"}{PD1}{O}{\326} % Odieresis  
 9698 \DeclareTextCommand{\textmultiply}{PD1}{\327} % multiply  
 9699 \DeclareTextCommand{\O}{PD1}{\330} % Oslash  
 9700 \DeclareTextCompositeCommand{\`}{PD1}{U}{\331} % Ugrave  
 9701 \DeclareTextCompositeCommand{\'}{PD1}{U}{\332} % Uacute  
 9702 \DeclareTextCompositeCommand{\~}{PD1}{U}{\333} % Ucircumflex  
 9703 \DeclareTextCompositeCommand{\"}{PD1}{U}{\334} % Udieresis  
 9704 \DeclareTextCompositeCommand{\'}{PD1}{Y}{\335} % Yacute  
 9705 \DeclareTextCommand{\TH}{PD1}{\336} % Thorn  
 9706 \DeclareTextCommand{\ss}{PD1}{\337} % germandbls  
 9707 \DeclareTextCompositeCommand{\`}{PD1}{a}{\340} % agrave  
 9708 \DeclareTextCompositeCommand{\'}{PD1}{a}{\341} % aacute  
 9709 \DeclareTextCompositeCommand{\~}{PD1}{a}{\342} % acircumflex  
 9710 \DeclareTextCompositeCommand{\`}{PD1}{a}{\343} % atilde  
 9711 \DeclareTextCompositeCommand{\"}{PD1}{a}{\344} % adieresis  
 9712 \DeclareTextCompositeCommand{\r}{PD1}{a}{\345} % aring



```

9713 \DeclareTextCommand{\ae}{PD1}{\346} % ae
9714 \DeclareTextCompositeCommand{\c}{PD1}{c}{\347} % ccedilla
9715 \DeclareTextCompositeCommand{\' }{PD1}{e}{\350} % egrave
9716 \DeclareTextCompositeCommand{\' }{PD1}{e}{\351} % eacute
9717 \DeclareTextCompositeCommand{\^ }{PD1}{e}{\352} % ecircumflex
9718 \DeclareTextCompositeCommand{\"}{PD1}{e}{\353} % edieresis
9719 \DeclareTextCompositeCommand{\' }{PD1}{i}{\354} % igrave
9720 \DeclareTextCompositeCommand{\' }{PD1}{i}{\354} % igrave
9721 \DeclareTextCompositeCommand{\' }{PD1}{i}{\355} % iacute
9722 \DeclareTextCompositeCommand{\' }{PD1}{i}{\355} % iacute
9723 \DeclareTextCompositeCommand{\^ }{PD1}{i}{\356} % icircumflex
9724 \DeclareTextCompositeCommand{\^ }{PD1}{i}{\356} % icircumflex
9725 \DeclareTextCompositeCommand{\"}{PD1}{i}{\357} % idieresis
9726 \DeclareTextCompositeCommand{\"}{PD1}{i}{\357} % idieresis
9727 \DeclareTextCommand{\dh}{PD1}{\360} % eth
9728 \DeclareTextCompositeCommand{\~ }{PD1}{n}{\361} % ntilde
9729 \DeclareTextCompositeCommand{\' }{PD1}{o}{\362} % ograve
9730 \DeclareTextCompositeCommand{\' }{PD1}{o}{\363} % oacute
9731 \DeclareTextCompositeCommand{\^ }{PD1}{o}{\364} % ocircumflex
9732 \DeclareTextCompositeCommand{\^ }{PD1}{o}{\365} % otilde
9733 \DeclareTextCompositeCommand{\"}{PD1}{o}{\366} % odieresis
9734 \DeclareTextCommand{\textdivide}{PD1}{\367} % divide
9735 \DeclareTextCommand{\o}{PD1}{\370} % oslash
9736 \DeclareTextCompositeCommand{\' }{PD1}{u}{\371} % ugrave
9737 \DeclareTextCompositeCommand{\' }{PD1}{u}{\372} % uacute
9738 \DeclareTextCompositeCommand{\^ }{PD1}{u}{\373} % ucircumflex
9739 \DeclareTextCompositeCommand{\"}{PD1}{u}{\374} % udieresis
9740 \DeclareTextCompositeCommand{\' }{PD1}{y}{\375} % yacute
9741 \DeclareTextCommand{\th}{PD1}{\376} % thorn
9742 \DeclareTextCompositeCommand{\"}{PD1}{y}{\377} % ydieresis
9743 \DeclareTextCommand{\ij}{PD1}{\377}

```

Glyphs that consist of several characters.

```

9744 \DeclareTextCommand{\SS}{PD1}{SS}
9745 \DeclareTextCommand{\textcelsius}{PD1}{\textdegree C}

```

Aliases (german.sty)

```

9746 \DeclareTextCommand{\textglqq}{PD1}{\quotedblbase}
9747 \DeclareTextCommand{\textgrqq}{PD1}{\textquotedblleft}
9748 \DeclareTextCommand{\textglq}{PD1}{\quotesinglbase}
9749 \DeclareTextCommand{\textgrq}{PD1}{\textquoteleft}
9750 \DeclareTextCommand{\textflqq}{PD1}{\guillemotleft}
9751 \DeclareTextCommand{\textfrqq}{PD1}{\guillemotright}
9752 \DeclareTextCommand{\textflq}{PD1}{\guilsinglleft}
9753 \DeclareTextCommand{\textfrq}{PD1}{\guilsinglright}

```

Aliases (math names)

```

9754 \DeclareTextCommand{\textneg}{PD1}{\textlogicalnot}
9755 \DeclareTextCommand{\texttimes}{PD1}{\textmultiply}
9756 \DeclareTextCommand{\textdiv}{PD1}{\textdivide}
9757 \DeclareTextCommand{\textpm}{PD1}{\textplusminus}
9758 \DeclareTextCommand{\textcdot}{PD1}{\textperiodcentered}
9759 \DeclareTextCommand{\textbeta}{PD1}{\ss}

```

Polish aliases. PDF encoding does not have the characters, but it is useful to Poles to have the plain letters regardless. Requested by Wojciech Myszka ;W.Myszka@immt.pwr.wroc.pl;

```

9760 \DeclareTextCompositeCommand{\k}{PD1}{a}{a} % aogonek
9761 \DeclareTextCompositeCommand{\' }{PD1}{c}{c} % cacute
9762 \DeclareTextCompositeCommand{\k}{PD1}{e}{e} % eogonek
9763 \DeclareTextCompositeCommand{\' }{PD1}{n}{n} % nacute

```

```

9764 \DeclareTextCompositeCommand{\'}{PD1}{s}{s} % sacute
9765 \DeclareTextCompositeCommand{\'}{PD1}{z}{z} % zacute
9766 \DeclareTextCompositeCommand{\.}{PD1}{z}{z} % zdot
9767 \DeclareTextCompositeCommand{\k}{PD1}{A}{A} % Aogonek
9768 \DeclareTextCompositeCommand{\'}{PD1}{C}{C} % Cacute
9769 \DeclareTextCompositeCommand{\k}{PD1}{E}{E} % Eogonek
9770 \DeclareTextCompositeCommand{\'}{PD1}{N}{N} % Nacute
9771 \DeclareTextCompositeCommand{\'}{PD1}{S}{S} % Sacute
9772 \DeclareTextCompositeCommand{\'}{PD1}{Z}{Z} % Zacute
9773 \DeclareTextCompositeCommand{\.}{PD1}{Z}{Z} % Zdot
9774 (/pdlenc)

```

## 49.2 PU encoding

```

9775 (*puenc)
9776 \DeclareFontEncoding{PU}{}{}

```

### 49.2.1 Basic Latin

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

```

9777 \DeclareTextCommand{\textLF}{PU}{\80\012} % line feed
9778 \DeclareTextCommand{\textCR}{PU}{\80\015} % carriage return
9779 \DeclareTextCommand{\textHT}{PU}{\80\011} % horizontal tab
9780 \DeclareTextCommand{\textBS}{PU}{\80\010} % backspace
9781 \DeclareTextCommand{\textFF}{PU}{\80\014} % formfeed

```

#### Accents

```

9782 \DeclareTextAccent{\'}{PU}{\textgrave}
9783 \DeclareTextAccent{\'}{PU}{\textacute}
9784 \DeclareTextAccent{\`}{PU}{\textcircumflex}
9785 \DeclareTextAccent{\~}{PU}{\texttilde}
9786 \DeclareTextAccent{\"}{PU}{\textdieresis}
9787 \DeclareTextAccent{\r}{PU}{\textring}
9788 \DeclareTextAccent{\v}{PU}{\textcaron}
9789 \DeclareTextAccent{\.}{PU}{\textdotaccent}
9790 \DeclareTextAccent{\c}{PU}{\textcedilla}
9791 \DeclareTextAccent{\U}{PU}{\textbreve}
9792 \DeclareTextAccent{\C}{PU}{\textdoublegrave}
9793 \DeclareTextCompositeCommand{\'}{PU}{\@empty}{\textgrave}
9794 \DeclareTextCompositeCommand{\'}{PU}{\@empty}{\textacute}
9795 \DeclareTextCompositeCommand{\`}{PU}{\@empty}{\textcircumflex}
9796 \DeclareTextCompositeCommand{\~}{PU}{\@empty}{\texttilde}
9797 \DeclareTextCompositeCommand{\"}{PU}{\@empty}{\textdieresis}
9798 \DeclareTextCompositeCommand{\r}{PU}{\@empty}{\textring}
9799 \DeclareTextCompositeCommand{\v}{PU}{\@empty}{\textcaron}
9800 \DeclareTextCompositeCommand{\.}{PU}{\@empty}{\textdotaccent}
9801 \DeclareTextCompositeCommand{\c}{PU}{\@empty}{\textcedilla}
9802 \DeclareTextCompositeCommand{\U}{PU}{\@empty}{\textbreve}
9803 \DeclareTextCompositeCommand{\C}{PU}{\@empty}{\textdoublegrave}
9804 \DeclareTextCommand{\=}{PU}[1]{\TextSymbolUnavailable{={#1}}#1}
9805 \DeclareTextCommand{\H}{PU}[1]{\TextSymbolUnavailable{\H{#1}}#1}
9806 \DeclareTextCommand{\k}{PU}[1]{\TextSymbolUnavailable{\k{#1}}#1}
9807 \DeclareTextCommand{\u}{PU}[1]{\TextSymbolUnavailable{\u{#1}}#1}

```

#### Accent glyph names

```

9808 \DeclareTextCommand{\textbreve}{PU}{\80\030} % breve
9809 \DeclareTextCommand{\textcaron}{PU}{\80\031} % caron
9810 \DeclareTextCommand{\textcircumflex}{PU}{\80\032} % circumflex
9811 \DeclareTextCommand{\textdotaccent}{PU}{\80\033} % dotaccent

```

```

9812 \DeclareTextCommand{\texthungarumlaut}{PU}{\80\034} % hungarumlaut
9813 \DeclareTextCommand{\textogonek}{PU}{\80\035} % ogonek
9814 \DeclareTextCommand{\textring}{PU}{\80\036} % ring
9815 \DeclareTextCommand{\texttilde}{PU}{\80\037} % tilde
9816 \DeclareTextCommand{\textdoublegrave}{PU}{\83\017} % double grave
\040: space
\041: exclam
9817 \DeclareTextCommand{\textquotedbl}{PU}{\string"} % quotedbl \80\042
9818 \DeclareTextCommand{\textnumbersign}{PU}{\80\043} % numbersign
9819 \DeclareTextCommand{\textdollar}{PU}{\80\044} % dollar
9820 \DeclareTextCommand{\textpercent}{PU}{\80\045} % percent
9821 \DeclareTextCommand{\textampersand}{PU}{\80\046} % ampersand
\047: quotesingle
9822 \DeclareTextCommand{\textparenleft}{PU}{\80\050} % parenleft
9823 \DeclareTextCommand{\textparenright}{PU}{\80\051} % parenright
\052: asterisk
\053: plus
\054: comma
\055: hyphen
\056: period
\057: slash
\060... \071: 0...9
\072: colon
\073: semicolon
9824 \DeclareTextCommand{\textless}{PU}{<} % less \80\074
\075: equal
9825 \DeclareTextCommand{\textgreater}{PU}{>} % greater \80\076
\077: question
\100: at
\101... \132: A...Z
\133: bracketleft
9826 \DeclareTextCommand{\textbackslash}{PU}{\80\134} % backslash
\135: bracketright
9827 \DeclareTextCommand{\textasciicircum}{PU}{\80\136} % asciicircum
9828 \DeclareTextCommand{\textunderscore}{PU}{\80\137} % underscore
9829 \DeclareTextCommand{\textgrave}{PU}{\80\140} % grave
\141... \172: a...z
9830 \DeclareTextCompositeCommand{.}{PU}{i}{i} % i
9831 \DeclareTextCommand{\j}{PU}{j} % jdotless
9832 \DeclareTextCommand{\textbraceleft}{PU}{\80\173} % braceleft
9833 \DeclareTextCommand{\textbar}{PU}{|} % bar
9834 \DeclareTextCommand{\textbraceright}{PU}{\80\175} % braceright
9835 \DeclareTextCommand{\textasciitilde}{PU}{\80\176} % asciitilde
No glyph \177 in PDFDocEncoding.

```

## 49.2.2 Latin-1 Supplement

```

9836 \DeclareTextCommand{\textminus}{PU}{-} % minus, \80\212
9837 \DeclareTextCommand{\textfi}{PU}{fi} % fi ?? \80\223
9838 \DeclareTextCommand{\textfl}{PU}{fl} % fl ?? \80\224

```

There are two positions for the glyphs from \80\225 until \80\236. See the test files testbmoe., testbml, testbmisc, testbmzc, and testbmyi for details. Problematic are all positions, but especially \OE, \oe, and \i.

```
9839 \DeclareTextCommand{\OE}{PU}{OE} % OE
9840 \DeclareTextCommand{\oe}{PU}{oe} % oe
```

The euro \240 is inserted in version 1.3 of the pdf specification.

```
9841 \DeclareTextCommand{\textexclamdown}{PU}{\80\241} % exclamdown
9842 \DeclareTextCommand{\textcent}{PU}{\80\242} % cent
9843 \DeclareTextCommand{\textsterling}{PU}{\80\243} % sterling
9844 \DeclareTextCommand{\textcurrency}{PU}{\80\244} % currency
9845 \DeclareTextCommand{\textyen}{PU}{\80\245} % yen
9846 \DeclareTextCommand{\textbrokenbar}{PU}{\80\246} % brokenbar
9847 \DeclareTextCommand{\textsection}{PU}{\80\247} % section
9848 \DeclareTextCommand{\textdieresis}{PU}{\80\250} % dieresis
9849 \DeclareTextCommand{\textcopyright}{PU}{\80\251} % copyright
9850 \DeclareTextCommand{\textordfeminine}{PU}{\80\252} % ordfeminine
9851 \DeclareTextCommand{\guillemotleft}{PU}{\80\253} % guillemotleft
9852 \DeclareTextCommand{\textlogicalnot}{PU}{\80\254} % logicalnot
```

No glyph \255 in PDFDocEncoding.

```
9853 \DeclareTextCommand{\textregistered}{PU}{\80\256} % registered
9854 \DeclareTextCommand{\textmacron}{PU}{\80\257} % macron
9855 \DeclareTextCommand{\textdegree}{PU}{\80\260} % degree
9856 \DeclareTextCommand{\textplusminus}{PU}{\80\261} % plusminus
9857 \DeclareTextCommand{\texttwosuperior}{PU}{\80\262} % twosuperior
9858 \DeclareTextCommand{\textthreesuperior}{PU}{\80\263} % threesuperior
9859 \DeclareTextCommand{\textacute}{PU}{\80\264} % acute
9860 \DeclareTextCommand{\textmu}{PU}{\80\265} % mu
9861 \DeclareTextCommand{\textparagraph}{PU}{\80\266} % paragraph
9862 \DeclareTextCommand{\textperiodcentered}{PU}{\80\267} % periodcentered
9863 \DeclareTextCommand{\textcedilla}{PU}{\80\270} % cedilla
9864 \DeclareTextCommand{\textonesuperior}{PU}{\80\271} % onesuperior
9865 \DeclareTextCommand{\textordmasculine}{PU}{\80\272} % ordmasculine
9866 \DeclareTextCommand{\guillemotright}{PU}{\80\273} % guillemotright
9867 \DeclareTextCommand{\textonequarter}{PU}{\80\274} % onequarter
9868 \DeclareTextCommand{\textonehalf}{PU}{\80\275} % onehalf
9869 \DeclareTextCommand{\textthreequarters}{PU}{\80\276} % threequarters
9870 \DeclareTextCommand{\textquestiondown}{PU}{\80\277} % questiondown
9871 \DeclareTextCompositeCommand{\`}{PU}{A}{\80\300} % Agrave
9872 \DeclareTextCompositeCommand{\'}{PU}{A}{\80\301} % Aacute
9873 \DeclareTextCompositeCommand{\^}{PU}{A}{\80\302} % Acircumflex
9874 \DeclareTextCompositeCommand{\~}{PU}{A}{\80\303} % Atilde
9875 \DeclareTextCompositeCommand{\"}{PU}{A}{\80\304} % Adieresis
9876 \DeclareTextCompositeCommand{\r}{PU}{A}{\80\305} % Aring
9877 \DeclareTextCommand{\AE}{PU}{\80\306} % AE
9878 \DeclareTextCompositeCommand{\c}{PU}{C}{\80\307} % Ccedilla
9879 \DeclareTextCompositeCommand{\`}{PU}{E}{\80\310} % Egrave
9880 \DeclareTextCompositeCommand{\'}{PU}{E}{\80\311} % Eacute
9881 \DeclareTextCompositeCommand{\^}{PU}{E}{\80\312} % Ecircumflex
9882 \DeclareTextCompositeCommand{\"}{PU}{E}{\80\313} % Edieresis
9883 \DeclareTextCompositeCommand{\`}{PU}{I}{\80\314} % Igrave
9884 \DeclareTextCompositeCommand{\'}{PU}{I}{\80\315} % Iacute
9885 \DeclareTextCompositeCommand{\^}{PU}{I}{\80\316} % Icircumflex
9886 \DeclareTextCompositeCommand{\"}{PU}{I}{\80\317} % Idieresis
9887 \DeclareTextCommand{\DH}{PU}{\80\320} % Eth
9888 \DeclareTextCompositeCommand{\~}{PU}{N}{\80\321} % Ntilde
9889 \DeclareTextCompositeCommand{\`}{PU}{O}{\80\322} % Ograve
9890 \DeclareTextCompositeCommand{\'}{PU}{O}{\80\323} % Oacute
```

```

9891 \DeclareTextCompositeCommand{\`}{PU}{0}{\80\324} % Ocircumflex
9892 \DeclareTextCompositeCommand{\~}{PU}{0}{\80\325} % Otilde
9893 \DeclareTextCompositeCommand{\"}{PU}{0}{\80\326} % Odieresis
9894 \DeclareTextCommand{\textmultiply}{PU}{\80\327} % multiply
9895 \DeclareTextCommand{\O}{PU}{\80\330} % Oslash
9896 \DeclareTextCompositeCommand{\'}{PU}{U}{\80\331} % Ugrave
9897 \DeclareTextCompositeCommand{\'}{PU}{U}{\80\332} % Uacute
9898 \DeclareTextCompositeCommand{\^}{PU}{U}{\80\333} % Ucircumflex
9899 \DeclareTextCompositeCommand{\"}{PU}{U}{\80\334} % Udieresis
9900 \DeclareTextCompositeCommand{\'}{PU}{Y}{\80\335} % Yacute
9901 \DeclareTextCommand{\TH}{PU}{\80\336} % Thorn
9902 \DeclareTextCommand{\ss}{PU}{\80\337} % germanbls
9903 \DeclareTextCompositeCommand{\'}{PU}{a}{\80\340} % agrave
9904 \DeclareTextCompositeCommand{\'}{PU}{a}{\80\341} % aacute
9905 \DeclareTextCompositeCommand{\^}{PU}{a}{\80\342} % acircumflex
9906 \DeclareTextCompositeCommand{\~}{PU}{a}{\80\343} % atilde
9907 \DeclareTextCompositeCommand{\"}{PU}{a}{\80\344} % adieresis
9908 \DeclareTextCompositeCommand{\r}{PU}{a}{\80\345} % aring
9909 \DeclareTextCommand{\ae}{PU}{\80\346} % ae
9910 \DeclareTextCompositeCommand{\c}{PU}{c}{\80\347} % ccedilla
9911 \DeclareTextCompositeCommand{\'}{PU}{e}{\80\350} % egrave
9912 \DeclareTextCompositeCommand{\'}{PU}{e}{\80\351} % eacute
9913 \DeclareTextCompositeCommand{\^}{PU}{e}{\80\352} % ecircumflex
9914 \DeclareTextCompositeCommand{\"}{PU}{e}{\80\353} % edieresis
9915 \DeclareTextCompositeCommand{\'}{PU}{i}{\80\354} % igrave
9916 \DeclareTextCompositeCommand{\'}{PU}{i}{\80\354} % igrave
9917 \DeclareTextCompositeCommand{\'}{PU}{i}{\80\355} % iacute
9918 \DeclareTextCompositeCommand{\'}{PU}{i}{\80\355} % iacute
9919 \DeclareTextCompositeCommand{\^}{PU}{i}{\80\356} % icircumflex
9920 \DeclareTextCompositeCommand{\^}{PU}{i}{\80\356} % icircumflex
9921 \DeclareTextCompositeCommand{\"}{PU}{i}{\80\357} % idieresis
9922 \DeclareTextCompositeCommand{\"}{PU}{i}{\80\357} % idieresis
9923 \DeclareTextCommand{\dh}{PU}{\80\360} % eth
9924 \DeclareTextCompositeCommand{\~}{PU}{n}{\80\361} % ntilde
9925 \DeclareTextCompositeCommand{\'}{PU}{o}{\80\362} % ograve
9926 \DeclareTextCompositeCommand{\'}{PU}{o}{\80\363} % oacute
9927 \DeclareTextCompositeCommand{\^}{PU}{o}{\80\364} % ocircumflex
9928 \DeclareTextCompositeCommand{\~}{PU}{o}{\80\365} % otilde
9929 \DeclareTextCompositeCommand{\"}{PU}{o}{\80\366} % odieresis
9930 \DeclareTextCommand{\textdivide}{PU}{\80\367} % divide
9931 \DeclareTextCommand{\o}{PU}{\80\370} % oslash
9932 \DeclareTextCompositeCommand{\'}{PU}{u}{\80\371} % ugrave
9933 \DeclareTextCompositeCommand{\'}{PU}{u}{\80\372} % uacute
9934 \DeclareTextCompositeCommand{\^}{PU}{u}{\80\373} % ucircumflex
9935 \DeclareTextCompositeCommand{\"}{PU}{u}{\80\374} % udieresis
9936 \DeclareTextCompositeCommand{\'}{PU}{y}{\80\375} % yacute
9937 \DeclareTextCommand{\th}{PU}{\80\376} % thorn
9938 \DeclareTextCompositeCommand{\"}{PU}{y}{\80\377} % ydieresis
9939 \DeclareTextCommand{\ij}{PU}{\80\377}

```

Glyphs that consist of several characters.

```
9940 \DeclareTextCommand{\SS}{PU}{SS}
```

Aliases (german.sty)

```

9941 \DeclareTextCommand{\textglqq}{PU}{\quotedblbase}
9942 \DeclareTextCommand{\textgrqq}{PU}{\textquotedblleft}
9943 \DeclareTextCommand{\textglq}{PU}{\quotesinglbase}
9944 \DeclareTextCommand{\textgrq}{PU}{\textquoteleft}
9945 \DeclareTextCommand{\textflqq}{PU}{\guillemotleft}

```

```

9946 \DeclareTextCommand{\textfrqq}{PU}{\guillemotright}
9947 \DeclareTextCommand{\textflq}{PU}{\guilsinglleft}
9948 \DeclareTextCommand{\textfrq}{PU}{\guilsinglright}

```

Aliases (math names)

```

9949 \DeclareTextCommand{\textneg}{PU}{\textlogicalnot}
9950 \DeclareTextCommand{\texttimes}{PU}{\textmultiply}
9951 \DeclareTextCommand{\textdiv}{PU}{\textdivide}
9952 \DeclareTextCommand{\textpm}{PU}{\textplusminus}
9953 \DeclareTextCommand{\textcdot}{PU}{\textperiodcentered}

```

### 49.2.3 Latin Extended-A

```

9954 \DeclareTextCompositeCommand{\=}{PU}{A}{\81\000}% Amacron
9955 \DeclareTextCompositeCommand{\=}{PU}{a}{\81\001}% amacron
9956 \DeclareTextCompositeCommand{\u}{PU}{A}{\81\002}% Abreve
9957 \DeclareTextCompositeCommand{\u}{PU}{a}{\81\003}% abreve
9958 \DeclareTextCompositeCommand{\k}{PU}{A}{\81\004}% Aogonek
9959 \DeclareTextCompositeCommand{\k}{PU}{a}{\81\005}% aogonek
9960 \DeclareTextCompositeCommand{\'}{PU}{C}{\81\006}% Cacute
9961 \DeclareTextCompositeCommand{\'}{PU}{c}{\81\007}% cacute
9962 \DeclareTextCompositeCommand{\`}{PU}{C}{\81\010}% Ccircumflex
9963 \DeclareTextCompositeCommand{\`}{PU}{c}{\81\011}% ccircumflex
9964 \DeclareTextCompositeCommand{\.}{PU}{C}{\81\012}% Cdot
9965 \DeclareTextCompositeCommand{\.}{PU}{c}{\81\013}% cdot
9966 \DeclareTextCompositeCommand{\v}{PU}{C}{\81\014}% Ccaron
9967 \DeclareTextCompositeCommand{\v}{PU}{c}{\81\015}% ccaron
9968 \DeclareTextCompositeCommand{\v}{PU}{D}{\81\016}% Dcaron
9969 \DeclareTextCompositeCommand{\v}{PU}{d}{\81\017}% dcaron
9970 \DeclareTextCommand{\DJ}{PU}{\81\020}% Dslash
9971 \DeclareTextCommand{\dj}{PU}{\81\021}% dslash
9972 \DeclareTextCompositeCommand{\=}{PU}{E}{\81\022}% Emacron
9973 \DeclareTextCompositeCommand{\=}{PU}{e}{\81\023}% emacron
9974 \DeclareTextCompositeCommand{\u}{PU}{E}{\81\024}% Ebreve
9975 \DeclareTextCompositeCommand{\u}{PU}{e}{\81\025}% ebreve
9976 \DeclareTextCompositeCommand{\.}{PU}{E}{\81\026}% Edot
9977 \DeclareTextCompositeCommand{\.}{PU}{e}{\81\027}% edot
9978 \DeclareTextCompositeCommand{\k}{PU}{E}{\81\030}% Eogonek
9979 \DeclareTextCompositeCommand{\k}{PU}{e}{\81\031}% eogonek
9980 \DeclareTextCompositeCommand{\v}{PU}{E}{\81\032}% Ecaron
9981 \DeclareTextCompositeCommand{\v}{PU}{e}{\81\033}% ecaron
9982 \DeclareTextCompositeCommand{\`}{PU}{G}{\81\034}% Gcircumflex
9983 \DeclareTextCompositeCommand{\`}{PU}{g}{\81\035}% gcircumflex
9984 \DeclareTextCompositeCommand{\u}{PU}{G}{\81\036}% Gbreve
9985 \DeclareTextCompositeCommand{\u}{PU}{g}{\81\037}% gbreve
9986 \DeclareTextCompositeCommand{\.}{PU}{G}{\81\040}% Gdot
9987 \DeclareTextCompositeCommand{\.}{PU}{g}{\81\041}% gdot
9988 \DeclareTextCompositeCommand{\c}{PU}{G}{\81\042}% Gcedilla
9989 \DeclareTextCompositeCommand{\c}{PU}{g}{\81\043}% gcedilla
9990 \DeclareTextCompositeCommand{\`}{PU}{H}{\81\044}% Hcircumflex
9991 \DeclareTextCompositeCommand{\`}{PU}{h}{\81\045}% hcircumflex
9992 \DeclareTextCommand{\textHslash}{PU}{\81\046}% Hslash
9993 \DeclareTextCommand{\textHslash}{PU}{\81\047}% hslash
9994 \DeclareTextCompositeCommand{\~}{PU}{I}{\81\050}% Itilde
9995 \DeclareTextCompositeCommand{\~}{PU}{i}{\81\051}% itilde
9996 \DeclareTextCompositeCommand{\~}{PU}{i}{\81\051}% itilde
9997 \DeclareTextCompositeCommand{\=}{PU}{I}{\81\052}% Imacron
9998 \DeclareTextCompositeCommand{\=}{PU}{i}{\81\053}% imacron
9999 \DeclareTextCompositeCommand{\=}{PU}{i}{\81\053}% imacron

```

```

10000 \DeclareTextCompositeCommand{\u}{PU}{I}{\81\054} % Ibreve
10001 \DeclareTextCompositeCommand{\u}{PU}{i}{\81\055} % ibreve
10002 \DeclareTextCompositeCommand{\u}{PU}{\i}{\81\055} % ibreve
10003 \DeclareTextCompositeCommand{\k}{PU}{I}{\81\056} % Iogonek
10004 \DeclareTextCompositeCommand{\k}{PU}{i}{\81\057} % iogonek
10005 \DeclareTextCompositeCommand{\k}{PU}{\i}{\81\057} % iogonek
10006 \DeclareTextCompositeCommand{\.}{PU}{I}{\81\060} % Idot
10007 \DeclareTextCommand{\i}{PU}{\81\061} % idotless
10008 % IJlig
10009 % ijlig
10010 \DeclareTextCompositeCommand{\`}{PU}{J}{\81\064} % Jcircumflex
10011 \DeclareTextCompositeCommand{\`}{PU}{j}{\81\065} % jcircumflex
10012 \DeclareTextCompositeCommand{\`}{PU}{\j}{\81\065} % jcircumflex
10013 \DeclareTextCompositeCommand{\c}{PU}{K}{\81\066} % Kcedilla
10014 \DeclareTextCompositeCommand{\c}{PU}{k}{\81\067} % kcedilla
10015 % kgreen
10016 \DeclareTextCompositeCommand{\'}{PU}{L}{\81\071} % Lacute
10017 \DeclareTextCompositeCommand{\'}{PU}{l}{\81\072} % lacute
10018 \DeclareTextCompositeCommand{\c}{PU}{L}{\81\073} % Lcedilla
10019 \DeclareTextCompositeCommand{\c}{PU}{l}{\81\074} % lcedilla
10020 \DeclareTextCompositeCommand{\v}{PU}{L}{\81\075} % Lcaron
10021 \DeclareTextCompositeCommand{\v}{PU}{l}{\81\076} % lcaron
10022 % L middle dot
10023 % l middle dot
10024 \DeclareTextCommand{\L}{PU}{\81\101} % Lslash
10025 \DeclareTextCommand{\l}{PU}{\81\102} % lslash
10026 \DeclareTextCompositeCommand{\'}{PU}{N}{\81\103} % Nacute
10027 \DeclareTextCompositeCommand{\'}{PU}{n}{\81\104} % nacute
10028 \DeclareTextCompositeCommand{\c}{PU}{N}{\81\105} % Ncedilla
10029 \DeclareTextCompositeCommand{\c}{PU}{n}{\81\106} % ncedilla
10030 \DeclareTextCompositeCommand{\v}{PU}{N}{\81\107} % Ncaron
10031 \DeclareTextCompositeCommand{\v}{PU}{n}{\81\110} % ncaron
10032 % n apostrophe
10033 \DeclareTextCommand{\NG}{PU}{\81\112} % NG
10034 \DeclareTextCommand{\ng}{PU}{\81\113} % ng
10035 \DeclareTextCompositeCommand{\=}{PU}{O}{\81\114} % Omacron
10036 \DeclareTextCompositeCommand{\=}{PU}{o}{\81\115} % omacron
10037 \DeclareTextCompositeCommand{\u}{PU}{O}{\81\116} % Obreve
10038 \DeclareTextCompositeCommand{\u}{PU}{o}{\81\117} % obreve
10039 \DeclareTextCompositeCommand{\H}{PU}{O}{\81\120} % Odoubleacute
10040 \DeclareTextCompositeCommand{\H}{PU}{o}{\81\121} % odoubleacute
10041 \DeclareTextCommand{\OE}{PU}{\81\122} % OE
10042 \DeclareTextCommand{\oe}{PU}{\81\123} % oe
10043 \DeclareTextCompositeCommand{\'}{PU}{R}{\81\124} % Racute
10044 \DeclareTextCompositeCommand{\'}{PU}{r}{\81\125} % racute
10045 \DeclareTextCompositeCommand{\c}{PU}{R}{\81\126} % Rcedilla
10046 \DeclareTextCompositeCommand{\c}{PU}{r}{\81\127} % rcedilla
10047 \DeclareTextCompositeCommand{\v}{PU}{R}{\81\130} % Rcaron
10048 \DeclareTextCompositeCommand{\v}{PU}{r}{\81\131} % rcaron
10049 \DeclareTextCompositeCommand{\'}{PU}{S}{\81\132} % Sacute
10050 \DeclareTextCompositeCommand{\'}{PU}{s}{\81\133} % sacute
10051 \DeclareTextCompositeCommand{\`}{PU}{S}{\81\134} % Scircumflex
10052 \DeclareTextCompositeCommand{\`}{PU}{s}{\81\135} % scircumflex
10053 \DeclareTextCompositeCommand{\c}{PU}{S}{\81\136} % Scedilla
10054 \DeclareTextCompositeCommand{\c}{PU}{s}{\81\137} % scedilla
10055 \DeclareTextCompositeCommand{\v}{PU}{S}{\81\140} % Scaron
10056 \DeclareTextCompositeCommand{\v}{PU}{s}{\81\141} % scaron

```

```

10057 \DeclareTextCompositeCommand{\c}{PU}{T}{\81\142} % Tcedilla
10058 \DeclareTextCompositeCommand{\c}{PU}{t}{\81\143} % tcedilla
10059 \DeclareTextCompositeCommand{\v}{PU}{T}{\81\144} % Tcaron
10060 \DeclareTextCompositeCommand{\v}{PU}{t}{\81\145} % tcaron
10061 \DeclareTextCommand{\textTslash}{PU}{\81\146} % Tslash
10062 \DeclareTextCommand{\texttslash}{PU}{\81\147} % tslash
10063 \DeclareTextCompositeCommand{\~}{PU}{U}{\81\150} % Utilde
10064 \DeclareTextCompositeCommand{\~}{PU}{u}{\81\151} % utilde
10065 \DeclareTextCompositeCommand{\=}{PU}{U}{\81\152} % Umacron
10066 \DeclareTextCompositeCommand{\=}{PU}{u}{\81\153} % umacron
10067 \DeclareTextCompositeCommand{\u}{PU}{U}{\81\154} % Ubreve
10068 \DeclareTextCompositeCommand{\u}{PU}{u}{\81\155} % ubreve
10069 \DeclareTextCompositeCommand{\r}{PU}{U}{\81\156} % Uring
10070 \DeclareTextCompositeCommand{\r}{PU}{u}{\81\157} % uring
10071 \DeclareTextCompositeCommand{\H}{PU}{U}{\81\160} % Udoubbleacute
10072 \DeclareTextCompositeCommand{\H}{PU}{u}{\81\161} % udoubbleacute
10073 \DeclareTextCompositeCommand{\k}{PU}{U}{\81\162} % Ugonek
10074 \DeclareTextCompositeCommand{\k}{PU}{u}{\81\163} % ugonek
10075 \DeclareTextCompositeCommand{\^}{PU}{W}{\81\164} % Wcircumflex
10076 \DeclareTextCompositeCommand{\^}{PU}{w}{\81\165} % wcircumflex
10077 \DeclareTextCompositeCommand{\^}{PU}{Y}{\81\166} % Ycircumflex
10078 \DeclareTextCompositeCommand{\^}{PU}{y}{\81\167} % ycircumflex
10079 \DeclareTextCompositeCommand{\"}{PU}{Y}{\81\170} % Ydieresis
10080 \DeclareTextCommand{\IJ}{PU}{\81\170}
10081 \DeclareTextCompositeCommand{\'}{PU}{Z}{\81\171} % Zacute
10082 \DeclareTextCompositeCommand{\'}{PU}{z}{\81\172} % zacute
10083 \DeclareTextCompositeCommand{\.}{PU}{Z}{\81\173} % Zdot
10084 \DeclareTextCompositeCommand{\.}{PU}{z}{\81\174} % zdot
10085 \DeclareTextCompositeCommand{\v}{PU}{Z}{\81\175} % Zcaron
10086 \DeclareTextCompositeCommand{\v}{PU}{z}{\81\176} % zcaron

```

#### 49.2.4 Latin Extended-B

```

10087 \DeclareTextCommand{\textflorin}{PU}{\81\222} % florin
10088 \DeclareTextCompositeCommand{\v}{PU}{A}{\81\315} % Acaron
10089 \DeclareTextCompositeCommand{\v}{PU}{a}{\81\316} % acaron
10090 \DeclareTextCompositeCommand{\v}{PU}{I}{\81\317} % Icaron
10091 \DeclareTextCompositeCommand{\v}{PU}{i}{\81\320} % icaron
10092 \DeclareTextCompositeCommand{\v}{PU}{i}{\81\320} % icaron
10093 \DeclareTextCompositeCommand{\v}{PU}{O}{\81\321} % Ocaron
10094 \DeclareTextCompositeCommand{\v}{PU}{o}{\81\322} % ocaron
10095 \DeclareTextCompositeCommand{\v}{PU}{U}{\81\323} % Ucaron
10096 \DeclareTextCompositeCommand{\v}{PU}{u}{\81\324} % ucaron
10097 \DeclareTextCommand{\textGslash}{PU}{\81\344} % Gslash
10098 \DeclareTextCommand{\textgslash}{PU}{\81\345} % gslash
10099 \DeclareTextCompositeCommand{\v}{PU}{G}{\81\346} % Gcaron
10100 \DeclareTextCompositeCommand{\v}{PU}{g}{\81\347} % gcaron
10101 \DeclareTextCompositeCommand{\v}{PU}{K}{\81\350} % Kcaron
10102 \DeclareTextCompositeCommand{\v}{PU}{k}{\81\351} % kcaron
10103 \DeclareTextCompositeCommand{\k}{PU}{O}{\81\352} % Oogonek
10104 \DeclareTextCompositeCommand{\k}{PU}{o}{\81\353} % oogonek

```

#### 49.2.5 Greek

```

10105 \DeclareTextCompositeCommand{\'}{PU}{\textAlpha}{\83\206}
10106 \DeclareTextCompositeCommand{\'}{PU}{\textEpsilon}{\83\210}
10107 \DeclareTextCompositeCommand{\'}{PU}{\textEta}{\83\211}
10108 \DeclareTextCompositeCommand{\'}{PU}{\textIota}{\83\212}
10109 \DeclareTextCompositeCommand{\'}{PU}{\textOmicron}{\83\214}

```



```

10110 \DeclareTextCompositeCommand{\'}{PU}{\textUpsilon}{\83\216}
10111 \DeclareTextCompositeCommand{\'}{PU}{\textOmega}{\83\217}
10112 \DeclareTextCommand{\textIotadieresis}{PU}{\83\252}
10113 \DeclareTextCompositeCommand{\'}{PU}{\textIotadieresis}{\83\220}
10114 \DeclareTextCommand{\textAlpha}{PU}{\83\221}
10115 \DeclareTextCommand{\textBeta}{PU}{\83\222}
10116 \DeclareTextCommand{\textGamma}{PU}{\83\223}
10117 \DeclareTextCommand{\textDelta}{PU}{\83\224}
10118 \DeclareTextCommand{\textEpsilon}{PU}{\83\225}
10119 \DeclareTextCommand{\textZeta}{PU}{\83\226}
10120 \DeclareTextCommand{\textEta}{PU}{\83\227}
10121 \DeclareTextCommand{\textTheta}{PU}{\83\230}
10122 \DeclareTextCommand{\textIota}{PU}{\83\231}
10123 \DeclareTextCommand{\textKappa}{PU}{\83\232}
10124 \DeclareTextCommand{\textLambda}{PU}{\83\233}
10125 \DeclareTextCommand{\textMu}{PU}{\83\234}
10126 \DeclareTextCommand{\textNu}{PU}{\83\235}
10127 \DeclareTextCommand{\textXi}{PU}{\83\236}
10128 \DeclareTextCommand{\textOmicron}{PU}{\83\237}
10129 \DeclareTextCommand{\textPi}{PU}{\83\240}
10130 \DeclareTextCommand{\textRho}{PU}{\83\241}
10131 \DeclareTextCommand{\textSigma}{PU}{\83\243}
10132 \DeclareTextCommand{\textTau}{PU}{\83\244}
10133 \DeclareTextCommand{\textUpsilon}{PU}{\83\245}
10134 \DeclareTextCommand{\textPhi}{PU}{\83\246}
10135 \DeclareTextCommand{\textChi}{PU}{\83\247}
10136 \DeclareTextCommand{\textPsi}{PU}{\83\250}
10137 \DeclareTextCommand{\textOmega}{PU}{\83\251}
10138 \DeclareTextCompositeCommand{"}{PU}{\textIota}{\83\252}
10139 \DeclareTextCompositeCommand{"}{PU}{\textUpsilon}{\83\253}
10140 \DeclareTextCompositeCommand{\'}{PU}{\textalpha}{\83\254}
10141 \DeclareTextCompositeCommand{\'}{PU}{\textepsilon}{\83\255}
10142 \DeclareTextCompositeCommand{\'}{PU}{\texteta}{\83\256}
10143 \DeclareTextCompositeCommand{\'}{PU}{\textiota}{\83\257}
10144 \DeclareTextCommand{\textupsilonacute}{PU}{\83\315}
10145 \DeclareTextCompositeCommand{"}{PU}{\textupsilonacute}{\83\260}
10146 \DeclareTextCommand{\textalpha}{PU}{\83\261}
10147 \DeclareTextCommand{\textbeta}{PU}{\83\262}
10148 \DeclareTextCommand{\textgamma}{PU}{\83\263}
10149 \DeclareTextCommand{\textdelta}{PU}{\83\264}
10150 \DeclareTextCommand{\textepsilon}{PU}{\83\265}
10151 \DeclareTextCommand{\textzeta}{PU}{\83\266}
10152 \DeclareTextCommand{\texteta}{PU}{\83\267}
10153 \DeclareTextCommand{\texttheta}{PU}{\83\270}
10154 \DeclareTextCommand{\textiota}{PU}{\83\271}
10155 \DeclareTextCommand{\textkappa}{PU}{\83\272}
10156 \DeclareTextCommand{\textlambda}{PU}{\83\273}
10157 \DeclareTextCommand{\textmu}{PU}{\83\274}
10158 \DeclareTextCommand{\textnu}{PU}{\83\275}
10159 \DeclareTextCommand{\textxi}{PU}{\83\276}
10160 \DeclareTextCommand{\textomicron}{PU}{\83\277}
10161 \DeclareTextCommand{\textpi}{PU}{\83\300}
10162 \DeclareTextCommand{\textrho}{PU}{\83\301}
10163 \DeclareTextCommand{\textvarsigma}{PU}{\83\302}
10164 \DeclareTextCommand{\textsigma}{PU}{\83\303}
10165 \DeclareTextCommand{\texttau}{PU}{\83\304}
10166 \DeclareTextCommand{\textupsilon}{PU}{\83\305}

```

```

10167 \DeclareTextCommand{\textphi}{PU}{\83\306}
10168 \DeclareTextCommand{\textchi}{PU}{\83\307}
10169 \DeclareTextCommand{\textpsi}{PU}{\83\310}
10170 \DeclareTextCommand{\textomega}{PU}{\83\311}
10171 \DeclareTextCompositeCommand{"}{PU}{\textiota}{\83\312}
10172 \DeclareTextCompositeCommand{"}{PU}{\textupsilon}{\83\313}
10173 \DeclareTextCompositeCommand{'}{PU}{\textomicron}{\83\314}
10174 \DeclareTextCompositeCommand{'}{PU}{\textupsilon}{\83\315}
10175 \DeclareTextCompositeCommand{'}{PU}{\textomega}{\83\316}
10176 \DeclareTextCommand{\textvartheta}{PU}{\83\321}
10177 \DeclareTextCommand{\textvarphi}{PU}{\83\325}
10178 \DeclareTextCommand{\textvarpi}{PU}{\83\326}
10179 \DeclareTextCommand{\textdigamma}{PU}{\83\334}
10180 \DeclareTextCommand{\textvarkappa}{PU}{\83\360}
10181 \DeclareTextCommand{\textvarrho}{PU}{\83\361}

```

## 49.2.6 Cyrillic

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

```

10182 \DeclareTextCommand{\CYRYO}{PU}{\84\001}% IO
10183 \DeclareTextCompositeCommand{"}{PU}{\CYRE}{\84\001}%
10184 \DeclareTextCommand{\CYRDJE}{PU}{\84\002}% DJE
10185 \DeclareTextCompositeCommand{'}{PU}{\CYRG}{\84\003}% GJE
10186 \DeclareTextCommand{\CYRIE}{PU}{\84\004}% ukrainian IE
10187 \DeclareTextCommand{\CYRDZE}{PU}{\84\005}% DZE
10188 \DeclareTextCommand{\CYRII}{PU}{\84\006}% byelorussian-ukrainian I
10189 \DeclareTextCommand{\CYRYI}{PU}{\84\007}% YI
10190 \DeclareTextCommand{\CYRJE}{PU}{\84\010}% JE
10191 \DeclareTextCommand{\CYRLJE}{PU}{\84\011}% LJE
10192 \DeclareTextCommand{\CYRNJE}{PU}{\84\012}% NJE
10193 \DeclareTextCommand{\CYRTSHE}{PU}{\84\013}% TSHE
10194 \DeclareTextCompositeCommand{'}{PU}{\CYRK}{\84\014}% KJE
10195 \DeclareTextCommand{\CYRUSHRT}{PU}{\84\016}% short U
10196 \DeclareTextCommand{\CYRDZHE}{PU}{\84\017}% DZHE
10197 \DeclareTextCommand{\CYRA}{PU}{\84\020}% A
10198 \DeclareTextCommand{\CYRB}{PU}{\84\021}% BE
10199 \DeclareTextCommand{\CYRV}{PU}{\84\022}% VE
10200 \DeclareTextCommand{\CYRG}{PU}{\84\023}% GHE
10201 \DeclareTextCommand{\CYRD}{PU}{\84\024}% DE
10202 \DeclareTextCommand{\CYRE}{PU}{\84\025}% IE
10203 \DeclareTextCommand{\CYRZH}{PU}{\84\026}% ZHE
10204 \DeclareTextCommand{\CYRZ}{PU}{\84\027}% ZE
10205 \DeclareTextCommand{\CYRI}{PU}{\84\030}% I
10206 \DeclareTextCommand{\CYRISHRT}{PU}{\84\031}% short I
10207 \DeclareTextCompositeCommand{\U}{PU}{\CYRI}{\84\031}%
10208 \DeclareTextCommand{\CYRK}{PU}{\84\032}% KA
10209 \DeclareTextCommand{\CYRL}{PU}{\84\033}% EL
10210 \DeclareTextCommand{\CYRM}{PU}{\84\034}% EM
10211 \DeclareTextCommand{\CYRN}{PU}{\84\035}% EN
10212 \DeclareTextCommand{\CYRO}{PU}{\84\036}% O
10213 \DeclareTextCommand{\CYRP}{PU}{\84\037}% PE
10214 \DeclareTextCommand{\CYRR}{PU}{\84\040}% ER
10215 \DeclareTextCommand{\CYRS}{PU}{\84\041}% ES
10216 \DeclareTextCommand{\CYRT}{PU}{\84\042}% TE
10217 \DeclareTextCommand{\CYRU}{PU}{\84\043}% U
10218 \DeclareTextCommand{\CYRF}{PU}{\84\044}% EF
10219 \DeclareTextCommand{\CYRH}{PU}{\84\045}% HA

```

10220 \DeclareTextCommand{\CYRC}{PU}{\84\046}% TSE  
10221 \DeclareTextCommand{\CYRCH}{PU}{\84\047}% CHE  
10222 \DeclareTextCommand{\CYRSH}{PU}{\84\050}% SHA  
10223 \DeclareTextCommand{\CYRSHCH}{PU}{\84\051}% SHCHA  
10224 \DeclareTextCommand{\CYRHRDSN}{PU}{\84\052}% HARD SIGN  
10225 \DeclareTextCommand{\CYRERY}{PU}{\84\053}% YERU  
10226 \DeclareTextCommand{\CYRSFTSN}{PU}{\84\054}% SOFT SIGN  
10227 \DeclareTextCommand{\CYREREV}{PU}{\84\055}% E  
10228 \DeclareTextCommand{\CYRYU}{PU}{\84\056}% YU  
10229 \DeclareTextCommand{\CYRYA}{PU}{\84\057}% YA  
10230 \DeclareTextCommand{\cyra}{PU}{\84\060}% a  
10231 \DeclareTextCommand{\cyrb}{PU}{\84\061}% be  
10232 \DeclareTextCommand{\cyrv}{PU}{\84\062}% ve  
10233 \DeclareTextCommand{\cyrg}{PU}{\84\063}% ghe  
10234 \DeclareTextCommand{\cyrd}{PU}{\84\064}% de  
10235 \DeclareTextCommand{\cyre}{PU}{\84\065}% ie  
10236 \DeclareTextCommand{\cyrzh}{PU}{\84\066}% zhe  
10237 \DeclareTextCommand{\cyrz}{PU}{\84\067}% ze  
10238 \DeclareTextCommand{\cyri}{PU}{\84\070}% i  
10239 \DeclareTextCommand{\cyrishrt}{PU}{\84\071}% short i  
10240 \DeclareTextCompositeCommand{\U}{PU}{\cyri}{\84\071}%  
10241 \DeclareTextCommand{\cyrk}{PU}{\84\072}% ka  
10242 \DeclareTextCommand{\cyr1}{PU}{\84\073}% el  
10243 \DeclareTextCommand{\cyrn}{PU}{\84\074}% em  
10244 \DeclareTextCommand{\cyrn}{PU}{\84\075}% en  
10245 \DeclareTextCommand{\cyro}{PU}{\84\076}% o  
10246 \DeclareTextCommand{\cyrp}{PU}{\84\077}% pe  
10247 \DeclareTextCommand{\cyrr}{PU}{\84\100}% er  
10248 \DeclareTextCommand{\cyrs}{PU}{\84\101}% es  
10249 \DeclareTextCommand{\cyrt}{PU}{\84\102}% te  
10250 \DeclareTextCommand{\cyru}{PU}{\84\103}% u  
10251 \DeclareTextCommand{\cyrf}{PU}{\84\104}% ef  
10252 \DeclareTextCommand{\cyrh}{PU}{\84\105}% ha  
10253 \DeclareTextCommand{\cyrc}{PU}{\84\106}% tse  
10254 \DeclareTextCommand{\cyrch}{PU}{\84\107}% che  
10255 \DeclareTextCommand{\cyrsh}{PU}{\84\110}% sha  
10256 \DeclareTextCommand{\cyrshch}{PU}{\84\111}% shcha  
10257 \DeclareTextCommand{\cyrhrdsn}{PU}{\84\112}% hard sign  
10258 \DeclareTextCommand{\cyrery}{PU}{\84\113}% yeru  
10259 \DeclareTextCommand{\cyrsftsn}{PU}{\84\114}% soft sign  
10260 \DeclareTextCommand{\cyrerev}{PU}{\84\115}% e  
10261 \DeclareTextCommand{\cyryu}{PU}{\84\116}% yu  
10262 \DeclareTextCommand{\cyrya}{PU}{\84\117}% ya  
10263 \DeclareTextCommand{\cyryo}{PU}{\84\121}% io  
10264 \DeclareTextCompositeCommand{"}{PU}{\cyre}{\84\121}%  
10265 \DeclareTextCommand{\cyrdje}{PU}{\84\122}% dje  
10266 \DeclareTextCompositeCommand{'}{PU}{\cyrg}{\84\123}% gje  
10267 \DeclareTextCommand{\cyrie}{PU}{\84\124}% ukrainian ie  
10268 \DeclareTextCommand{\cyrdze}{PU}{\84\125}% dze  
10269 \DeclareTextCommand{\cyrii}{PU}{\84\126}% byelorussian-ukrainian i  
10270 \DeclareTextCommand{\cyryi}{PU}{\84\127}% yi  
10271 \DeclareTextCommand{\cyrje}{PU}{\84\130}% je  
10272 \DeclareTextCommand{\cyr1je}{PU}{\84\131}% lje  
10273 \DeclareTextCommand{\cyrnje}{PU}{\84\132}% nje  
10274 \DeclareTextCommand{\cyrtshe}{PU}{\84\133}% tshe  
10275 \DeclareTextCompositeCommand{'}{PU}{\cyrk}{\84\134}% kje  
10276 \DeclareTextCommand{\cyrushrt}{PU}{\84\136}% short u

10277 \DeclareTextCommand{\cyrdzhe}{PU}{\84\137}% dzhe  
10278 \DeclareTextCommand{\CYROMEGA}{PU}{\84\140}% OMEGA  
10279 \DeclareTextCommand{\cyromega}{PU}{\84\141}% omega  
10280 \DeclareTextCommand{\CYRYAT}{PU}{\84\142}% YAT  
10281 \DeclareTextCommand{\cyryat}{PU}{\84\143}% yat  
10282 \DeclareTextCommand{\CYRIOTE}{PU}{\84\144}% iotified E  
10283 \DeclareTextCommand{\cyriote}{PU}{\84\145}% iotified e  
10284 \DeclareTextCommand{\CYRLYUS}{PU}{\84\146}% little YUS  
10285 \DeclareTextCommand{\cyrlus}{PU}{\84\147}% little yus  
10286 \DeclareTextCommand{\CYRIOTLYUS}{PU}{\84\150}% iotified little YUS  
10287 \DeclareTextCommand{\cyriotlyus}{PU}{\84\151}% iotified little yus  
10288 \DeclareTextCommand{\CYRBYUS}{PU}{\84\152}% big YUS  
10289 \DeclareTextCommand{\cyrbyus}{PU}{\84\153}% big yus  
10290 \DeclareTextCommand{\CYRIOTBYUS}{PU}{\84\154}% iotified big YUS  
10291 \DeclareTextCommand{\cyriotbyus}{PU}{\84\155}% iotified big yus  
10292 \DeclareTextCommand{\CYRKSI}{PU}{\84\156}% KSI  
10293 \DeclareTextCommand{\cyrksi}{PU}{\84\157}% ksi  
10294 \DeclareTextCommand{\CYRPSI}{PU}{\84\160}% PSI  
10295 \DeclareTextCommand{\cyrpsi}{PU}{\84\161}% psi  
10296 \DeclareTextCommand{\CYRFITA}{PU}{\84\162}% FITA  
10297 \DeclareTextCommand{\cyrfita}{PU}{\84\163}% fita  
10298 \DeclareTextCommand{\CYRIZH}{PU}{\84\164}% IZHITSA  
10299 \DeclareTextCommand{\cyrizh}{PU}{\84\165}% izhitsa  
10300 \DeclareTextCompositeCommand{\C}{PU}{\84\166}% IZHITSA double grave  
10301 \DeclareTextCompositeCommand{\C}{PU}{\84\167}% izhitsa double grave  
10302 \DeclareTextCommand{\CYRUK}{PU}{\84\170}% UK  
10303 \DeclareTextCommand{\cyruk}{PU}{\84\171}% uk  
10304 \DeclareTextCommand{\CYROMEGARND}{PU}{\84\172}% round OMEGA  
10305 \DeclareTextCommand{\cyromegarnd}{PU}{\84\173}% round omega  
10306 \DeclareTextCommand{\CYROMEGATITLO}{PU}{\84\174}% OMEGA titlo  
10307 \DeclareTextCommand{\cyromegatitlo}{PU}{\84\175}% omega titlo  
10308 \DeclareTextCommand{\CYROT}{PU}{\84\176}% OT  
10309 \DeclareTextCommand{\cyrot}{PU}{\84\177}% ot  
10310 \DeclareTextCommand{\CYRKOPPA}{PU}{\84\200}% KOPPA  
10311 \DeclareTextCommand{\cyrkoppa}{PU}{\84\201}% koppa  
10312 \DeclareTextCommand{\cyrthousands}{PU}{\84\202}% thousands sign  
10313 %\DeclareTextCommand{\COMBINING TITLO}{PU}{\84\203}% COMBINING TITLO  
10314 %\DeclareTextCommand{\COMBINING PALATALIZATION}{PU}{\84\204}% COMBINING PALATALIZATION  
10315 %\DeclareTextCommand{\COMBINING DASIA PNEUMATA}{PU}{\84\205}% COMBINING DASIA PNEUMATA  
10316 %\DeclareTextCommand{\COMBINING PSILI PNEUMATA}{PU}{\84\206}% COMBINING PSILI PNEUMATA  
10317 \DeclareTextCommand{\CYRGUP}{PU}{\84\220}% GHE upturn  
10318 \DeclareTextCommand{\cyrgup}{PU}{\84\221}% ghe upturn  
10319 \DeclareTextCommand{\CYRGHCRS}{PU}{\84\222}% GHE stroke  
10320 \DeclareTextCommand{\cyrghcrs}{PU}{\84\223}% ghe stroke  
10321 \DeclareTextCommand{\CYRGHK}{PU}{\84\224}% GHE middle hook  
10322 \DeclareTextCommand{\cyrghk}{PU}{\84\225}% ghe middle hook  
10323 \DeclareTextCommand{\CYRZHDSC}{PU}{\84\226}% ZHE descender  
10324 \DeclareTextCommand{\cyrzhdsc}{PU}{\84\227}% zhe descender  
10325 \DeclareTextCommand{\CYRZDSC}{PU}{\84\230}% ZE descender  
10326 \DeclareTextCommand{\cyrzdsc}{PU}{\84\231}% ze descender  
10327 \DeclareTextCommand{\CYRKDSC}{PU}{\84\232}% KA descender  
10328 \DeclareTextCommand{\cyrkdsc}{PU}{\84\233}% ka descender  
10329 \DeclareTextCommand{\CYRKVCRS}{PU}{\84\234}% KA vertical stroke  
10330 \DeclareTextCommand{\cyrkvcrs}{PU}{\84\235}% ka vertical stroke  
10331 \DeclareTextCommand{\CYRKHCRS}{PU}{\84\236}% KA stroke  
10332 \DeclareTextCommand{\cyrkhcrs}{PU}{\84\237}% ka stroke  
10333 \DeclareTextCommand{\CYRKBEAK}{PU}{\84\240}% bashkir KA

10334 \DeclareTextCommand{\cyrkbeak}{PU}{\84\241}% bashkir ka  
10335 \DeclareTextCommand{\CYRNDSC}{PU}{\84\242}% EN descender  
10336 \DeclareTextCommand{\cyrndsc}{PU}{\84\243}% en descender  
10337 \DeclareTextCommand{\CYRNG}{PU}{\84\244}% ligature EN GHE  
10338 \DeclareTextCommand{\cyrng}{PU}{\84\245}% ligature en ghe  
10339 \DeclareTextCommand{\CYRPHK}{PU}{\84\246}% PE middle hook  
10340 \DeclareTextCommand{\cyrphk}{PU}{\84\247}% pe middle hook  
10341 \DeclareTextCommand{\CYRABHHA}{PU}{\84\250}% abkhasian HA  
10342 \DeclareTextCommand{\cyrabhha}{PU}{\84\251}% abkhasian ha  
10343 \DeclareTextCommand{\CYRSDSC}{PU}{\84\252}% ES descender  
10344 \DeclareTextCommand{\cyrsdsc}{PU}{\84\253}% es descender  
10345 \DeclareTextCommand{\CYRTDSC}{PU}{\84\254}% TE descender  
10346 \DeclareTextCommand{\cyrtdsc}{PU}{\84\255}% te descender  
10347 \DeclareTextCommand{\CYRY}{PU}{\84\256}% straight U  
10348 \DeclareTextCommand{\cyr}{PU}{\84\257}% straight u  
10349 \DeclareTextCommand{\CYRYHCRS}{PU}{\84\260}% straight U stroke  
10350 \DeclareTextCommand{\cyrhcrs}{PU}{\84\261}% straight u stroke  
10351 \DeclareTextCommand{\CYRHDSC}{PU}{\84\262}% HA descender  
10352 \DeclareTextCommand{\cyrhdsc}{PU}{\84\263}% ha descender  
10353 \DeclareTextCommand{\CYRTETSE}{PU}{\84\264}% ligature TE TSE  
10354 \DeclareTextCommand{\cyrtetse}{PU}{\84\265}% ligature te tse  
10355 \DeclareTextCommand{\CYRCHRDSC}{PU}{\84\266}% CHE descender  
10356 \DeclareTextCommand{\cyrchrdsc}{PU}{\84\267}% che descender  
10357 \DeclareTextCommand{\CYRCHVCRS}{PU}{\84\270}% CHE vertical stroke  
10358 \DeclareTextCommand{\cyrchvcrs}{PU}{\84\271}% che vertical stroke  
10359 \DeclareTextCommand{\CYRSHHA}{PU}{\84\272}% SHHA  
10360 \DeclareTextCommand{\cyrshha}{PU}{\84\273}% shha  
10361 \DeclareTextCommand{\CYRABHCH}{PU}{\84\274}% abkhasian CHE  
10362 \DeclareTextCommand{\cyrabhch}{PU}{\84\275}% abkhasian che  
10363 \DeclareTextCommand{\CYRABHCHDSC}{PU}{\84\276}% abkhasian CHE descender  
10364 \DeclareTextCommand{\cyrabhchdsc}{PU}{\84\277}% abkhasian che descender  
10365 \DeclareTextCommand{\CYRpalochka}{PU}{\84\300}% palochka  
10366 \DeclareTextCompositeCommand{\U}{PU}{\CYRZH}{\84\301}% ZHE breve  
10367 \DeclareTextCompositeCommand{\U}{PU}{\cyrzh}{\84\302}% zhe breve  
10368 \DeclareTextCommand{\CYRKHK}{PU}{\84\303}% KA hook  
10369 \DeclareTextCommand{\cyrkhk}{PU}{\84\304}% ka hook  
10370 \DeclareTextCommand{\CYRNHK}{PU}{\84\307}% EN hook  
10371 \DeclareTextCommand{\cyrnhk}{PU}{\84\310}% en hook  
10372 \DeclareTextCommand{\CYRCHLDSC}{PU}{\84\313}% khakassian CHE  
10373 \DeclareTextCommand{\cyrchldsc}{PU}{\84\314}% khakassian che  
10374 \DeclareTextCompositeCommand{\U}{PU}{\CYRA}{\84\320}% A breve  
10375 \DeclareTextCompositeCommand{\U}{PU}{\cyra}{\84\321}% a breve  
10376 \DeclareTextCompositeCommand{\"}{PU}{\CYRA}{\84\322}% A diaeresis  
10377 \DeclareTextCompositeCommand{\"}{PU}{\cyra}{\84\323}% a diaeresis  
10378 \DeclareTextCommand{\CYRAE}{PU}{\84\324}% ligature A IE  
10379 \DeclareTextCommand{\cyr{ae}}{PU}{\84\325}% ligature a ie  
10380 \DeclareTextCompositeCommand{\U}{PU}{\CYRE}{\84\326}% IE breve  
10381 \DeclareTextCompositeCommand{\U}{PU}{\cyre}{\84\327}% ie breve  
10382 \DeclareTextCommand{\CYRSCHWA}{PU}{\84\330}% SCHWA  
10383 \DeclareTextCommand{\cyr{schwa}}{PU}{\84\331}% schwa  
10384 \DeclareTextCompositeCommand{\"}{PU}{\CYRSCHWA}{\84\332}% SCHWA diaeresis  
10385 \DeclareTextCompositeCommand{\"}{PU}{\cyr{schwa}}{\84\333}% schwa diaeresis  
10386 \DeclareTextCompositeCommand{\"}{PU}{\CYRZH}{\84\334}% ZHE diaeresis  
10387 \DeclareTextCompositeCommand{\"}{PU}{\cyrzh}{\84\335}% zhe diaeresis  
10388 \DeclareTextCompositeCommand{\"}{PU}{\CYRZ}{\84\336}% ZE diaeresis  
10389 \DeclareTextCompositeCommand{\"}{PU}{\cyrz}{\84\337}% ze diaeresis  
10390 \DeclareTextCommand{\CYRABHDZE}{PU}{\84\340}% abkhasian DZE

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10391 \DeclareTextCommand{\cyrabhdze}{PU}{\84\341}% abkhasian dze
10392 \DeclareTextCompositeCommand{\=}{PU}{\CYRI}{\84\342}% I macron
10393 \DeclareTextCompositeCommand{\=}{PU}{\cyri}{\84\343}% i macron
10394 \DeclareTextCompositeCommand{\"}{PU}{\CYRI}{\84\344}% I diaeresis
10395 \DeclareTextCompositeCommand{\"}{PU}{\cyri}{\84\345}% i diaeresis
10396 \DeclareTextCompositeCommand{\"}{PU}{\CYRO}{\84\346}% O diaeresis
10397 \DeclareTextCompositeCommand{\"}{PU}{\cyro}{\84\347}% o diaeresis
10398 \DeclareTextCommand{\CYROTLD}{PU}{\84\350}% barred O
10399 \DeclareTextCommand{\cyrotld}{PU}{\84\351}% barred o
10400 \DeclareTextCompositeCommand{\"}{PU}{\CYROTLD}{\84\352}% barred O diaeresis
10401 \DeclareTextCompositeCommand{\"}{PU}{\cyrotld}{\84\353}% barred o diaeresis
10402 \DeclareTextCompositeCommand{\=}{PU}{\CYRU}{\84\356}% U macron
10403 \DeclareTextCompositeCommand{\=}{PU}{\cyru}{\84\357}% u macron
10404 \DeclareTextCompositeCommand{\"}{PU}{\CYRU}{\84\360}% U diaeresis
10405 \DeclareTextCompositeCommand{\"}{PU}{\cyru}{\84\361}% u diaeresis
10406 \DeclareTextCompositeCommand{\H}{PU}{\CYRU}{\84\362}% U double acute
10407 \DeclareTextCompositeCommand{\H}{PU}{\cyru}{\84\363}% u double acute
10408 \DeclareTextCompositeCommand{\"}{PU}{\CYRCH}{\84\364}% CHE diaeresis
10409 \DeclareTextCompositeCommand{\"}{PU}{\cyrch}{\84\365}% che diaeresis
10410 \DeclareTextCompositeCommand{\"}{PU}{\CYRERY}{\84\370}% YERU diaeresis
10411 \DeclareTextCompositeCommand{\"}{PU}{\cyrery}{\84\371}% yeru diaeresis

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#### 49.2.7 Symbols

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10412 \DeclareTextCommand{\textendash}{PU}{\9040\023} % endash
10413 \DeclareTextCommand{\textemdash}{PU}{\9040\024} % emdash
10414 \DeclareTextCommand{\textquotelleft}{PU}{\9040\030} % quoteleft
10415 \DeclareTextCommand{\textquoteright}{PU}{\9040\031} % quoteright
10416 \DeclareTextCommand{\quotesinglbase}{PU}{\9040\032} % quotesinglbase
10417 \DeclareTextCommand{\textquotedblleft}{PU}{\9040\034} % quotedblleft
10418 \DeclareTextCommand{\textquotedblright}{PU}{\9040\035} % quotedblright
10419 \DeclareTextCommand{\quotedblbase}{PU}{\9040\036} % quotedblbase
10420 \DeclareTextCommand{\textdagger}{PU}{\9040\040} % dagger
10421 \DeclareTextCommand{\textdaggerdbl}{PU}{\9040\041} % daggerdbl
10422 \DeclareTextCommand{\textbullet}{PU}{\9040\042} % bullet
10423 \DeclareTextCommand{\textellipsis}{PU}{\9040\046} % ellipsis
10424 \DeclareTextCommand{\textperthousand}{PU}{\9040\060} % perthousand
10425 \DeclareTextCommand{\textpertenthousand}{PU}{\9040\061} % pertenthousand
10426 \DeclareTextCommand{\guilsinglleft}{PU}{\9040\071} % guilsinglleft
10427 \DeclareTextCommand{\guilsinglright}{PU}{\9040\072} % guilsinglright
10428 \DeclareTextCommand{\textfractionmark}{PU}{\9040\104} % fraction slash
10429 \DeclareTextCommand{\texteuro}{PU}{\9040\254} % Euro
10430 \DeclareTextCommand{\textcelsius}{PU}{\9041\003}
10431 \DeclareTextCommand{\textnumero}{PU}{\9041\026}
10432 \DeclareTextCommand{\texttrademark}{PU}{\9041\042} % trademark
10433 %\DeclareTextCommand{\cyrlangle}{PU}{\9043\051}
10434 %\DeclareTextCommand{\cyrangle}{PU}{\9043\052}
10435 </puenc>

```

### 49.3 PU encoding, additions for VnTeX

This file is provided by Han The Thanh.

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10436 <*puvnenc>
10437 \DeclareTextCommand{\abreve}{PU}{\81\003}
10438 \DeclareTextCommand{\acircumflex}{PU}{\80\342}
10439 \DeclareTextCommand{\dj}{PU}{\81\021}
10440 \DeclareTextCommand{\ecircumflex}{PU}{\80\352}

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10441 \DeclareTextCommand{\ocircumflex}{PU}{\80\364}
10442 \DeclareTextCommand{\ohorn}{PU}{\81\241}
10443 \DeclareTextCommand{\uhorn}{PU}{\81\260}
10444 \DeclareTextCommand{\ABREVE}{PU}{\81\002}
10445 \DeclareTextCommand{\ACIRCUMFLEX}{PU}{\80\302}
10446 \DeclareTextCommand{\DJ}{PU}{\81\020}
10447 \DeclareTextCommand{\ECIRCUMFLEX}{PU}{\80\312}
10448 \DeclareTextCommand{\OCIRCUMFLEX}{PU}{\80\324}
10449 \DeclareTextCommand{\OHORN}{PU}{\81\240}
10450 \DeclareTextCommand{\UHORN}{PU}{\81\257}

10451 \DeclareTextCompositeCommand{\'}{PU}{a}{\80\341}
10452 \DeclareTextCompositeCommand{\d}{PU}{a}{\9036\241}
10453 \DeclareTextCompositeCommand{\'}{PU}{a}{\80\340}
10454 \DeclareTextCompositeCommand{\h}{PU}{a}{\9036\243}
10455 \DeclareTextCompositeCommand{\~}{PU}{a}{\80\343}
10456 \DeclareTextCompositeCommand{\'}{PU}{\abreve}{\9036\257}
10457 \DeclareTextCompositeCommand{\d}{PU}{\abreve}{\9036\267}
10458 \DeclareTextCompositeCommand{\'}{PU}{\abreve}{\9036\261}
10459 \DeclareTextCompositeCommand{\h}{PU}{\abreve}{\9036\263}
10460 \DeclareTextCompositeCommand{\~}{PU}{\abreve}{\9036\265}
10461 \DeclareTextCompositeCommand{\'}{PU}{\acircumflex}{\9036\245}
10462 \DeclareTextCompositeCommand{\d}{PU}{\acircumflex}{\9036\255}
10463 \DeclareTextCompositeCommand{\'}{PU}{\acircumflex}{\9036\247}
10464 \DeclareTextCompositeCommand{\h}{PU}{\acircumflex}{\9036\251}
10465 \DeclareTextCompositeCommand{\~}{PU}{\acircumflex}{\9036\253}
10466 \DeclareTextCompositeCommand{\'}{PU}{e}{\80\351}
10467 \DeclareTextCompositeCommand{\d}{PU}{e}{\9036\271}
10468 \DeclareTextCompositeCommand{\'}{PU}{e}{\80\350}
10469 \DeclareTextCompositeCommand{\h}{PU}{e}{\9036\273}
10470 \DeclareTextCompositeCommand{\~}{PU}{e}{\9036\275}
10471 \DeclareTextCompositeCommand{\'}{PU}{\ecircumflex}{\9036\277}
10472 \DeclareTextCompositeCommand{\d}{PU}{\ecircumflex}{\9036\307}
10473 \DeclareTextCompositeCommand{\'}{PU}{\ecircumflex}{\9036\301}
10474 \DeclareTextCompositeCommand{\h}{PU}{\ecircumflex}{\9036\303}
10475 \DeclareTextCompositeCommand{\~}{PU}{\ecircumflex}{\9036\305}
10476 \DeclareTextCompositeCommand{\'}{PU}{i}{\80\355}
10477 \DeclareTextCompositeCommand{\d}{PU}{i}{\9036\313}
10478 \DeclareTextCompositeCommand{\'}{PU}{i}{\80\354}
10479 \DeclareTextCompositeCommand{\h}{PU}{i}{\9036\311}
10480 \DeclareTextCompositeCommand{\~}{PU}{i}{\81\051}
10481 \DeclareTextCompositeCommand{\'}{PU}{o}{\80\363}
10482 \DeclareTextCompositeCommand{\d}{PU}{o}{\9036\315}
10483 \DeclareTextCompositeCommand{\'}{PU}{o}{\80\362}
10484 \DeclareTextCompositeCommand{\h}{PU}{o}{\9036\317}
10485 \DeclareTextCompositeCommand{\~}{PU}{o}{\80\365}
10486 \DeclareTextCompositeCommand{\'}{PU}{\ocircumflex}{\9036\321}
10487 \DeclareTextCompositeCommand{\d}{PU}{\ocircumflex}{\9036\331}
10488 \DeclareTextCompositeCommand{\'}{PU}{\ocircumflex}{\9036\323}
10489 \DeclareTextCompositeCommand{\h}{PU}{\ocircumflex}{\9036\325}
10490 \DeclareTextCompositeCommand{\~}{PU}{\ocircumflex}{\9036\327}
10491 \DeclareTextCompositeCommand{\'}{PU}{\ohorn}{\9036\333}
10492 \DeclareTextCompositeCommand{\d}{PU}{\ohorn}{\9036\343}
10493 \DeclareTextCompositeCommand{\'}{PU}{\ohorn}{\9036\335}
10494 \DeclareTextCompositeCommand{\h}{PU}{\ohorn}{\9036\337}
10495 \DeclareTextCompositeCommand{\~}{PU}{\ohorn}{\9036\341}
10496 \DeclareTextCompositeCommand{\'}{PU}{u}{\80\372}
10497 \DeclareTextCompositeCommand{\d}{PU}{u}{\9036\345}

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10498 \DeclareTextCompositeCommand{\'}{PU}{u}{\80\371}  
10499 \DeclareTextCompositeCommand{\h}{PU}{u}{\9036\347}  
10500 \DeclareTextCompositeCommand{\~}{PU}{u}{\81\151}  
10501 \DeclareTextCompositeCommand{\'}{PU}{\uhorn}{\9036\351}  
10502 \DeclareTextCompositeCommand{\d}{PU}{\uhorn}{\9036\361}  
10503 \DeclareTextCompositeCommand{\'}{PU}{\uhorn}{\9036\353}  
10504 \DeclareTextCompositeCommand{\h}{PU}{\uhorn}{\9036\355}  
10505 \DeclareTextCompositeCommand{\~}{PU}{\uhorn}{\9036\357}  
10506 \DeclareTextCompositeCommand{\'}{PU}{y}{\80\375}  
10507 \DeclareTextCompositeCommand{\d}{PU}{y}{\9036\365}  
10508 \DeclareTextCompositeCommand{\'}{PU}{y}{\9036\363}  
10509 \DeclareTextCompositeCommand{\h}{PU}{y}{\9036\367}  
10510 \DeclareTextCompositeCommand{\~}{PU}{y}{\9036\371}  
10511 \DeclareTextCompositeCommand{\'}{PU}{A}{\80\301}  
10512 \DeclareTextCompositeCommand{\d}{PU}{A}{\9036\240}  
10513 \DeclareTextCompositeCommand{\'}{PU}{A}{\80\300}  
10514 \DeclareTextCompositeCommand{\h}{PU}{A}{\9036\242}  
10515 \DeclareTextCompositeCommand{\~}{PU}{A}{\80\303}  
10516 \DeclareTextCompositeCommand{\'}{PU}{\ABREVE}{\9036\256}  
10517 \DeclareTextCompositeCommand{\d}{PU}{\ABREVE}{\9036\266}  
10518 \DeclareTextCompositeCommand{\'}{PU}{\ABREVE}{\9036\260}  
10519 \DeclareTextCompositeCommand{\h}{PU}{\ABREVE}{\9036\262}  
10520 \DeclareTextCompositeCommand{\~}{PU}{\ABREVE}{\9036\264}  
10521 \DeclareTextCompositeCommand{\'}{PU}{\ACIRCUMFLEX}{\9036\244}  
10522 \DeclareTextCompositeCommand{\d}{PU}{\ACIRCUMFLEX}{\9036\254}  
10523 \DeclareTextCompositeCommand{\'}{PU}{\ACIRCUMFLEX}{\9036\246}  
10524 \DeclareTextCompositeCommand{\h}{PU}{\ACIRCUMFLEX}{\9036\250}  
10525 \DeclareTextCompositeCommand{\~}{PU}{\ACIRCUMFLEX}{\9036\252}  
10526 \DeclareTextCompositeCommand{\'}{PU}{E}{\80\311}  
10527 \DeclareTextCompositeCommand{\d}{PU}{E}{\9036\270}  
10528 \DeclareTextCompositeCommand{\'}{PU}{E}{\80\310}  
10529 \DeclareTextCompositeCommand{\h}{PU}{E}{\9036\272}  
10530 \DeclareTextCompositeCommand{\~}{PU}{E}{\9036\274}  
10531 \DeclareTextCompositeCommand{\'}{PU}{\ECIRCUMFLEX}{\9036\276}  
10532 \DeclareTextCompositeCommand{\d}{PU}{\ECIRCUMFLEX}{\9036\306}  
10533 \DeclareTextCompositeCommand{\'}{PU}{\ECIRCUMFLEX}{\9036\300}  
10534 \DeclareTextCompositeCommand{\h}{PU}{\ECIRCUMFLEX}{\9036\302}  
10535 \DeclareTextCompositeCommand{\~}{PU}{\ECIRCUMFLEX}{\9036\304}  
10536 \DeclareTextCompositeCommand{\'}{PU}{I}{\80\315}  
10537 \DeclareTextCompositeCommand{\d}{PU}{I}{\9036\312}  
10538 \DeclareTextCompositeCommand{\'}{PU}{I}{\80\314}  
10539 \DeclareTextCompositeCommand{\h}{PU}{I}{\9036\310}  
10540 \DeclareTextCompositeCommand{\~}{PU}{I}{\81\050}  
10541 \DeclareTextCompositeCommand{\'}{PU}{O}{\80\323}  
10542 \DeclareTextCompositeCommand{\d}{PU}{O}{\9036\314}  
10543 \DeclareTextCompositeCommand{\'}{PU}{O}{\80\322}  
10544 \DeclareTextCompositeCommand{\h}{PU}{O}{\9036\316}  
10545 \DeclareTextCompositeCommand{\~}{PU}{O}{\80\325}  
10546 \DeclareTextCompositeCommand{\'}{PU}{\OCIRCUMFLEX}{\9036\320}  
10547 \DeclareTextCompositeCommand{\d}{PU}{\OCIRCUMFLEX}{\9036\330}  
10548 \DeclareTextCompositeCommand{\'}{PU}{\OCIRCUMFLEX}{\9036\322}  
10549 \DeclareTextCompositeCommand{\h}{PU}{\OCIRCUMFLEX}{\9036\324}  
10550 \DeclareTextCompositeCommand{\~}{PU}{\OCIRCUMFLEX}{\9036\326}  
10551 \DeclareTextCompositeCommand{\'}{PU}{\OHORN}{\9036\332}  
10552 \DeclareTextCompositeCommand{\d}{PU}{\OHORN}{\9036\342}  
10553 \DeclareTextCompositeCommand{\'}{PU}{\OHORN}{\9036\334}  
10554 \DeclareTextCompositeCommand{\h}{PU}{\OHORN}{\9036\336}



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10555 \DeclareTextCompositeCommand{\~}{PU}{\OHORN}{\9036\340}
10556 \DeclareTextCompositeCommand{\'}{PU}{U}{\80\332}
10557 \DeclareTextCompositeCommand{\d}{PU}{U}{\9036\344}
10558 \DeclareTextCompositeCommand{\'}{PU}{U}{\80\331}
10559 \DeclareTextCompositeCommand{\h}{PU}{U}{\9036\346}
10560 \DeclareTextCompositeCommand{\~}{PU}{U}{\81\150}
10561 \DeclareTextCompositeCommand{\'}{PU}{\UHORN}{\9036\350}
10562 \DeclareTextCompositeCommand{\d}{PU}{\UHORN}{\9036\360}
10563 \DeclareTextCompositeCommand{\'}{PU}{\UHORN}{\9036\352}
10564 \DeclareTextCompositeCommand{\h}{PU}{\UHORN}{\9036\354}
10565 \DeclareTextCompositeCommand{\~}{PU}{\UHORN}{\9036\356}
10566 \DeclareTextCompositeCommand{\'}{PU}{Y}{\80\335}
10567 \DeclareTextCompositeCommand{\d}{PU}{Y}{\9036\364}
10568 \DeclareTextCompositeCommand{\'}{PU}{Y}{\9036\362}
10569 \DeclareTextCompositeCommand{\h}{PU}{Y}{\9036\366}
10570 \DeclareTextCompositeCommand{\~}{PU}{Y}{\9036\370}
10571 </puvnenc>

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## 49.4 PU encoding, additions for Arabi

This file is provided and maintained by Youssef Jabri.

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10572 <*puarenc>

10573 \DeclareTextCommand{\hamza}{PU}{\86\041}% 0621;afii57409;ARABIC LETTER HAMZA
10574 \DeclareTextCommand{\alefmadda}{PU}{\86\042}% 0622;afii57410;ARABIC LETTER ALEF WITH MADDA A
10575 \DeclareTextCommand{\alefhamza}{PU}{\86\043}% 0623;afii57411;ARABIC LETTER ALEF WITH HAMZA A
10576 \DeclareTextCommand{\wawhamza}{PU}{\86\044}% 0624;afii57412;ARABIC LETTER WAW WITH HAMZA AE
10577 \DeclareTextCommand{\aleflowerhamza}{PU}{\86\045}% 0625;afii57413;ARABIC LETTER ALEF WITH HA
10578 \DeclareTextCommand{\yahamza}{PU}{\86\046}% 0626;afii57414;ARABIC LETTER YEH WITH HAMZA ABOVE
10579 \DeclareTextCommand{\alef}{PU}{\86\047}% 0627;afii57415;ARABIC LETTER ALEF
10580 \DeclareTextCommand{\baa}{PU}{\86\050}% 0628;afii57416;ARABIC LETTER BEH
10581 \DeclareTextCommand{\T}{PU}{\86\051}% 0629;afii57417;ARABIC LETTER TEH MARBUTA
10582 \DeclareTextCommand{\taa}{PU}{\86\052}% 062A;afii57418;ARABIC LETTER TEH
10583 \DeclareTextCommand{\thaa}{PU}{\86\053}% 062B;afii57419;ARABIC LETTER THEH
10584 \DeclareTextCommand{\jeem}{PU}{\86\054}% 062C;afii57420;ARABIC LETTER JEEM
10585 \DeclareTextCommand{\Haa}{PU}{\86\055}% 062D;afii57421;ARABIC LETTER HAH
10586 \DeclareTextCommand{\kha}{PU}{\86\056}% 062E;afii57422;ARABIC LETTER KHAH
10587 \DeclareTextCommand{\dal}{PU}{\86\057}% 062F;afii57423;ARABIC LETTER DAL
10588 \DeclareTextCommand{\dhal}{PU}{\86\060}% 0630;afii57424;ARABIC LETTER THAL
10589 \DeclareTextCommand{\ra}{PU}{\86\061}% 0631;afii57425;ARABIC LETTER REH
10590 \DeclareTextCommand{\zay}{PU}{\86\062}% 0632;afii57426;ARABIC LETTER ZAIN
10591 \DeclareTextCommand{\seen}{PU}{\86\063}% 0633;afii57427;ARABIC LETTER SEEN
10592 \DeclareTextCommand{\sheen}{PU}{\86\064}% 0634;afii57428;ARABIC LETTER SHEEN
10593 \DeclareTextCommand{\sad}{PU}{\86\065}% 0635;afii57429;ARABIC LETTER SAD
10594 \DeclareTextCommand{\dad}{PU}{\86\066}% 0636;afii57430;ARABIC LETTER DAD
10595 \DeclareTextCommand{\Ta}{PU}{\86\067}% 0637;afii57431;ARABIC LETTER TAH
10596 \DeclareTextCommand{\za}{PU}{\86\070}% 0638;afii57432;ARABIC LETTER ZAH
10597 \DeclareTextCommand{\ayn}{PU}{\86\071}% 0639;afii57433;ARABIC LETTER AIN
10598 \DeclareTextCommand{\ghayn}{PU}{\86\072}% 063A;afii57434;ARABIC LETTER GHAIN
10599 \DeclareTextCommand{\tatweel}{PU}{\86\100}% 0640;afii57440;ARABIC TATWEEL
10600 \DeclareTextCommand{\fa}{PU}{\86\101}% 0641;afii57441;ARABIC LETTER FEH
10601 \DeclareTextCommand{\qaf}{PU}{\86\102}% 0642;afii57442;ARABIC LETTER QAF
10602 \DeclareTextCommand{\kaf}{PU}{\86\103}% 0643;afii57443;ARABIC LETTER KAF
10603 \DeclareTextCommand{\lam}{PU}{\86\104}% 0644;afii57444;ARABIC LETTER LAM
10604 \DeclareTextCommand{\meem}{PU}{\86\105}% 0645;afii57445;ARABIC LETTER MEEM
10605 \DeclareTextCommand{\nun}{PU}{\86\106}% 0646;afii57446;ARABIC LETTER NOON
10606 \DeclareTextCommand{\ha}{PU}{\86\107}% 0647;afii57470;ARABIC LETTER HEH

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10607 \DeclareTextCommand{\waw}{PU}{\86\110}% 0648;afii57448;ARABIC LETTER WAW
10608 \DeclareTextCommand{\alefmaqsura}{PU}{\86\111}% 0649;afii57449;ARABIC LETTER ALEF MAKSURA
10609 \DeclareTextCommand{\ya}{PU}{\86\112}% 064A;afii57450;ARABIC LETTER YEH

10610 \DeclareTextCommand{\nasb}{PU}{\86\113}% 064B;afii57451;ARABIC FATHATAN
10611 \DeclareTextCommand{\raff}{PU}{\86\114}% 064C;afii57452;ARABIC DAMMATAN
10612 \DeclareTextCommand{\jarr}{PU}{\86\115}% 064D;afii57453;ARABIC KASRATAN
10613 \DeclareTextCommand{\fatha}{PU}{\86\116}% 064E;afii57454;ARABIC FATHA
10614 \DeclareTextCommand{\damma}{PU}{\86\117}% 064F;afii57455;ARABIC DAMMA
10615 \DeclareTextCommand{\kasra}{PU}{\86\120}% 0650;afii57456;ARABIC KASRA
10616 \DeclareTextCommand{\shadda}{PU}{\86\121}% 0651;afii57457;ARABIC SHADDA
10617 \DeclareTextCommand{\sukun}{PU}{\86\122}% 0652;afii57458;ARABIC SUKUN

Farsi

10618 \DeclareTextCommand{\peh}{PU}{\86\176}% 067E;afii57506;ARABIC LETTER PEH
10619 \DeclareTextCommand{\tcheh}{PU}{\86\206}% 0686;afii57507;ARABIC LETTER TCHEH
10620 \DeclareTextCommand{\jeh}{PU}{\86\230}% 0698;afii57508;ARABIC LETTER JEH
10621 \DeclareTextCommand{\farsikaf}{PU}{\86\251}% 06A9???;afii????;FARSI LETTER KAF
10622 \DeclareTextCommand{\gaf}{PU}{\86\257}% 06AF;afii57509;ARABIC LETTER GAF
10623 \DeclareTextCommand{\farsiya}{PU}{\86\314}% 06CC;afii????;FARSI LETTER YEH

10624 \DeclareTextCommand{\ZWNJ}{PU}{\9040\014}% 200C;ZWNJ%
10625 \DeclareTextCommand{\noboundary}{PU}{\86\325}% 200D;ZWJ

10626 </puarenc>

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10628 \typeout{}
10629 \begin{document}
10630 \end{document}
10631 </check>

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