

Section name references in L^AT_EX*

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2009/12/02

Documentation overview for hyperref

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

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

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

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

Options This file provides a short option summary.

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

Bookmark talk, paper The paper version of the talk.

Source code documentation:

hyperref.dtx This is the source code documentation for hyperref.

backref.dtx “Back referencing from bibliographical citations”

 **nameref.dtx** “Section name references in L^AT_EX” (this file)

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*This file has version number v2.33, last revised 2009/12/02.

1 Introduction

Cross-referencing to include the *name* of the section, rather than just the number or page. This works by redefining some of the inside L^AT_EX macros, so it is vulnerable to future changes.

2 History

Sebastian Rahtz, for Lou Burnard, March 15th 1994;
 SPQR CERN July 1994;
 Last mod. Sept. 3th MG;
 Sept. 19th SPQR;
 April 11th 1995 SPQR (added section formatting hook);
 April 14th 1995 SPQR (compatibility with hyperref);
 June 22 1995 SPQR (removed typeout from Sectionformat);
 September 22 1997 added variorref hacks by Corey Minyard;
 September 28th changes by David Carlisle.
 More recent changes are recorded in ChangeLog.

3 Implementation

```
1 <*package>
2 \RequirePackage{refcount}[2006/02/12]
```

We redefine `\label` so that it also writes the name of the current section to the `.aux` file; if the name ends in a dot, we zap it. To allow for the `hyperref` package, also write fourth and fifth fields (empty by default; used for cross-ref name, and file).

```
3 \def\strip@period#1.\relax#2\@@@{#1}
```

3.1 \label stuff

Here is tested, whether package `showkeys` is loaded. But if option `final` is used, the macros of `showkeys` are not defined, so we have to check an additional test.

```
4 \newif\ifNR@showkeys
5 \NR@showkeysfalse
6 \ifpackageloaded{showkeys}{%
7   \begingroup
8     \ifundefined{SK@label}{%
9       }{%
10      \global\NR@showkeystrue
11    }%
12  \endgroup
13 }{%
14 \def\label#1{%
15   \@bsphack
16   \begingroup
17     \onelevel@sanitize\currentlabelname
18     \edef\currentlabelname{%
19       \expandafter\strip@period\currentlabelname\relax.\relax\@%
20     }%
}
```

```

21   \protected@write\@auxout{}{%
22     \string\newlabel{\#1}{%
23       {\@currentlabel}%
24       {\thepage}%
25       {\@currentlabelname}%
26       {\@currentHref}{}}%
27     }%
28   }%
29   \endgroup
30   \@esphack
31 }%
32 \ifNR@showkeys
33   \def\label#1{%
34     \@bsphack
35     \SK@\SK@\label{\#1}%
36     \begingroup
37       \onelevel@sanitize\@currentlabelname
38       \edef\@currentlabelname{%
39         \expandafter\strip@period\@currentlabelname\relax.\relax\@@@%
40       }%
41     \protected@write\@auxout{}{%
42       \string\newlabel{\#1}{%
43         {\@currentlabel}%
44         {\thepage}%
45         {\@currentlabelname}%
46         {\@currentHref}{}}%
47       }%
48     }%
49   \endgroup
50   \@esphack
51 }%
52 \fi
53 \let\ltx@\label\label

```

Needed for the *subeqnarray* package.

```

54 \Qifundefined{$label}{%
55   \def$label#1{%
56     \@bsphack
57     \if@filesw
58       {%
59         \onelevel@sanitize\@currentlabelname
60         \def\@currentlabelname{%
61           \expandafter\strip@period\@currentlabelname\relax.\relax\@@@%
62         }%
63         \let\thepage\relax
64         \def\protect{\noexpand\noexpand\noexpand}%
65         \edef\@tempa{%
66           \write\@auxout{%
67             \string\newlabel{\#1}{%
68               {\thesubequation}%
69               {\thepage}%
70               {\@currentlabelname}%
71               {\@currentHref}{}}%
72             }%
73           }%
74         }%
75         \expandafter

```

```

76      }%
77      \atempa
78      \if@nobreak\ifvmode\nobreak\fi\fi
79      \fi
80      \esphack
81  }%
82 }

```

Overload an AMS L^AT_EX command, which uses `\newlabel`. Sigh!

```

83 \def\@writetocindents{%
84   \begingroup
85   \for\atempa:=-1,0,1,2,3\do{%
86     \immediate\write\auxout{%
87       \string\newlabel{tocindent\atempa}{%
88         \csname r@tocindent\atempa\endcsname{}{}{}{}}%
89     }%
90   }%
91 }%
92 \endgroup
93 }

```

3.2 Changes of section macros

Add to the underlying section heading macros so that they note the section name for use by label.

If a section heading or the like has a `\label` in it, we need to extract it, or subsequent processing breaks.

```

94 \def\NR@getttitle#1{%
95   \def\@currentlabelname{#1}%
96   \begingroup
97   \let\label\gobble
98   \let\index\gobble
99   \let\glossary\gobble
100  \let\markboth\gobbletwo
101  \let\cmkboth\gobbletwo
102  \let\markright\gobble
103  \let\protect\unexpandable@protect
104  \let\phantomsection\empty
105  \def\addcontentsline{\expandafter\gobble\gobbletwo}%
106  \edef\x{\endgroup
107    \noexpand\def\noexpand\@currentlabelname{%
108      \@currentlabelname
109    }%
110  }%
111  \x
112 }

```

First the numbered sections. While we are about it, put in a useful section formatting macro.

```

113 \let\NR@sect\@sect
114 \newcounter{section@level}
115 \def\@sect#1#2#3#4#5#6[#7]#8{%
116   \setcounter{section@level}{#2}%
117   \NR@getttitle{#7}%
118   \NR@sect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}]{\Sectionformat{#8}{#2}}%
119 }

```

and now the unnumbered ones

```
120 \let\NR@ssect\@ssect
121 \def\@ssect#1#2#3#4#5{%
122   \NR@gettitle{#5}%
123   \NR@ssect{#1}{#2}{#3}{#4}{\Sectionformat{#5}{#1}}%
124 }
```

Parts and chapters are treated differently. sigh.

```
125 \let\NR@part\@part
126 \def\@part[#1]{%
127   \NR@gettitle{#1}%
128   \NR@part[{#1}]{#2}%
129 }
130 \let\NR@chapter\@chapter
131 \def\@chapter[#1]{%
132   \NR@gettitle{#1}%
133   \NR@chapter[{#1}]{#2}%
134 }
135 \let\NR@schapter\@schapter
136 \def\@schapter#1{%
137   \NR@gettitle{#1}%
138   \NR@schapter{#1}%
139 }
```

Captions

```
140 \let\NR@@caption\@caption
141 \long\def\@caption#1[#2]{%
142   \NR@gettitle{#2}%
143   \NR@@caption{#1}[{#2}]%
144 }

145 \AtBeginDocument{%
146   \@ifpackageloaded{longtable}{%
147     \let\NRorg@LT@c@option\LT@c@option
148     \def\LT@c@option#1[#2]{%
149       \NRorg@LT@c@option{#1}[{#2}]{#3}%
150       \def\@tempa{#2}%
151       \ifx\@tempa\@empty
152         \else
153           \NR@gettitle{#2}%
154         \fi
155       }%
156   }{}%
157 }
```

Compatibility for package titlesec.

```
158 \AtBeginDocument{%
159   \@ifpackageloaded{titlesec}{%
160     \let\NRorg@ttl@sect@i\ttl@sect@i
161     \def\ttl@sect@i#1#2[#3]{%
162       \NR@gettitle{#4}%
163       \NRorg@ttl@sect@i{#1}{#2}[{#3}]{#4}%
164     }%
165   }{}%
166 }
```

3.2.1 Class beamer

```

167 \Q@ifclassloaded{beamer}{%
168   \def\NR@PatchBeamer#1{%
169     \expandafter\let\csname NRorg@beamer@\#1\expandafter\endcsname
170     \csname beamer@\#1\endcsname
171     \begingroup
172       \edef\x{\endgroup
173         \long\def\expandafter\noexpand\csname beamer@\#1\endcsname
174           [####1]{% hash-ok
175             \noexpand\NR@getttitle{####1}%
176             \expandafter\noexpand\csname NRorg@beamer@\#1\endcsname
177               [{####1}]%
178           }%
179         }%
180       \x
181     }%
182   \NR@PatchBeamer{section}%
183   \NR@PatchBeamer{subsection}%
184   \NR@PatchBeamer{subsubsection}%
185 }{}}

```

3.3 Referencing stuff

We default the label and hypertext reference to be empty.

```

186 \def\@currentlabelname{}
187 \def\@currentHref{}

```

Since the second part of the preserved reference now has five parts (number, page, name, hypertext reference and file), we need extra utility macros:

```

188 \long\def\@firstoffive#1#2#3#4#5{#1}
189 \long\def\@secondoffive#1#2#3#4#5{#2}
190 \long\def\@thirdoffive#1#2#3#4#5{#3}
191 \long\def\@fourthoffive#1#2#3#4#5{#4}
192 \long\def\@fifthoffive#1#2#3#4#5{#5}

```

We have to redefine `\ref` and `\pageref` to know about extra reference elements. Make them robust, and compatible with Babel. The Babel switch is mimicked if not already defined. Some support for package `showkeys` is implemented. If option `notref` of that package is set, `\SK@ref` has the meaning of `\empty`.

```

193 \providetcommand*\@safe@activestrue{}%
194 \providetcommand*\@safe@activesfalse{}%
195 \def\NR@setref#1{%
196   \begingroup
197     \@safe@activestrue
198     \expandafter
199   \endgroup
200   \expandafter\NR@@setref\csname r@\#1\endcsname
201 }
202 \def\NR@@setref#1{%
203   \ifx\@undefined#1%
204     \let#1\relax
205   \fi
206   \@setref#1%
207 }
208 \def\T@ref#1{%
209   \NR@setref{#1}\@firstoffive{#1}%
210 }%
211 \def\T@pageref#1{%
212   \NR@setref{#1}\@secondoffive{#1}%

```

```

213 }%
214 \ifNR@showkeys
215   \ifx\SK@ref\@empty
216   \else
217     \def\T@ref#1{%
218       \@safe@activestru
219       \SK@\SK@@ref{#1}%
220       \@safe@activesfa
221       \NR@setref{#1}\@firstoffive{#1}%
222     }%
223   \def\T@pageref#1{%
224     \@safe@activestru
225     \SK@\SK@@ref{#1}%
226     \@safe@activesfa
227     \NR@setref{#1}\@secondoffive{#1}%
228   }%
229 \fi
230 \fi

```

Package `hyperref` uses its own definitions of `\ref` and `\pageref` because it extends the syntax by the star form. `\DeclareRobustCommand` is used by `hyperref`. Package `nameref` can be loaded before, after `hyperref` or after `hyperref`'s definitions in `\AtBeginDocument`.

```

231 \@ifpackageloaded{hyperref}{%
232 }{%
233   \DeclareRobustCommand{\ref}{\T@ref}%
234   \DeclareRobustCommand{\pageref}{\T@pageref}%
235 }

```

3.4 Usage and frontend

Access the (third) name part with `\nameref`;

```

236 \def\T@nameref#1{%
237   \begingroup
238   \let\label\gobble
239   \NR@setref{#1}\@thirdoffive{#1}%
240   \endgroup
241 }%
242 \ifNR@showkeys
243   \ifx\SK@ref\@empty
244   \else
245     \def\T@nameref#1{%
246       \@safe@activestru
247       \SK@\SK@@ref{#1}%
248       \@safe@activesfa
249       \begingroup
250       \let\label\gobble
251       \NR@setref{#1}\@thirdoffive{#1}%
252       \endgroup
253     }%
254   \fi
255 \fi
256 \def\nameref{\protect\T@nameref}

```

An extended form which gives title and page number.

```
257 \def\Nameref#1{'\nameref{#1}' on page~\pageref{#1}}
```

The default for `\Sectionformat`

```
258 \providetcommand\Sectionformat[2]{#1}
```

3.5 Package ifthen support

Package ifthen's `\isodd` does not work with `\pageref` because of the extra link and the star form. Therefore we need an expandable variant.

Unfortunately there is no hook in `\ifthenelse` in order to provide expandable versions without link of `\ref` and `\pageref`. As possible target I could only find `\begingroup`:

```
259 \@ifpackageloaded{ifthen}{%
260   \let\NROrg@ifthenelse\ifthenelse
261   \def\ifthenelse{%
262     \let\begingroup\NR@TE@begingroup
263     \NROrg@ifthenelse
264   }%
265   \let\NROrg@begingroup\begingroup
266   \def\NR@TE@begingroup{%
267     \let\begingroup\NROrg@begingroup
268     \begingroup
269     \def\ref##1{\getrefbykeydefault{##1}{}{??}}%
270     \def\pageref##1{\getrefbykeydefault{##1}{page}{0}}%
271   }%
272 }{}
```

3.6 Compatibility with variorref

[This section was derived by Corey Minyard `minyard@acm.org` from the variorref package]

```
273 \AtBeginDocument{%
274   \ifx\csname @vpageref\endcsname\relax
275   \else
276     \def\@@vpageref#1[#2]#3{%
277       \begingroup
278         \csname @safe@activestrue\endcsname
279         \edef\x{#3}%
280         \@onellevel@sanitize\x
281         \toks@{%
282           \NR@vpageref{#1}[{#2}]%
283         }%
284         \edef\x{\endgroup
285           \the\toks@{\x}%
286         }%
287       \x
288     }%
289     \def\NR@vpageref#1[#2]#3{%
290       \leavevmode\unskip
291       \global\advance\c@vrcnt\@ne
292       \@ifundefined{r@\the\c@vrcnt @vr}%
293         {\@namedef{r@\the\c@vrcnt @vr}{{??}{??}{}}{}}{%
294         \edef\@tempa{%
295           \expandafter\expandafter\expandafter
296           \c@secondoffive\csname r@\the\c@vrcnt @vr\endcsname
297         }%
298         \@ifundefined{r@\the\c@vrcnt @xvr}%
299           {\@namedef{r@\the\c@vrcnt @xvr}{{??}{??}{}}{}}{%
300             \edef\@tempb{%
```

```

301      \expandafter\expandafter\expandafter
302      \@secondoffive\csname r@\the\c@vrcnt @xvr\endcsname
303 }%
304 {%
305     \let\@currentlabel\empty
306     \expandafter\label\expandafter{\the\c@vrcnt @xvr}%
307 }%
308 \ifx\@tempa\@tempb
309 \else
310     \vref@err{%
311         \noexpand\vref at page boundary %
312         \@tempb-\@tempa\space (may loop)%
313     }%
314 \fi
315 \@ifundefined{r@#3}{\@namedef{r@#3}{{?}{?}{?}{?}{?}}}{%
316 \edef\thepagerefnum{%
317     \expandafter\expandafter\expandafter
318     \@secondoffive\csname r@#3\endcsname
319 }%
320 \ifx\vref@space\@undefined
321     \space
322 \else
323     \vref@space
324 \fi
325 \ifx\@tempa\thepagerefnum
326     #1%
327 \else
328     #2%
329 \is@pos@number\thepagerefnum{%
330     \is@pos@number\@tempa{%
331         \@tempcnta\@tempa
332         \advance\@tempcnta\@ne
333     }{%
334         \@tempcnta\maxdimen
335     }%
336     \ifnum \thepagerefnum =\@tempcnta
337         \ifodd\@tempcnta
338             \if@twoside
339                 \reftextfaceafter
340             \else
341                 \reftextafter
342             \fi
343         \else
344             \reftextafter
345             \fi
346     \else
347         \advance\@tempcnta-2 %
348         \ifnum \thepagerefnum =\@tempcnta
349             \ifodd\@tempcnta
350                 \reftextbefore
351             \else
352                 \if@twoside
353                     \reftextfacebefore
354                 \else
355                     \reftextbefore
356                 \fi
357             \fi

```

```

358         \else
359             \ref{textfaraway}{#3}%
360         \fi
361     \fi
362 }{%
363     \ref{textfaraway}{#3}%
364 }%
365 \fi
366 {%
367     \let\@currentlabel\@empty
368     \expandafter\label\expandafter{\the\c@vrcnt @vr}%
369 }%
370 }%
371 \DeclareRobustCommand\vnameref[1]{%
372     \unskip\name{#1}%
373     \vpageref[\unskip]{#1}%
374 }%
375 \fi
376 }

377 \@ifundefined{@Refstar}{%
378     \def\T@Ref#1{%
379         \NR@setref{#1}\NR@MakeUppercaseFirstOfFive{#1}%
380     }%
381     \def\NR@MakeUppercaseFirstOfFive#1#2#3#4#5{%
382         \MakeUppercase#1%
383     }%
384 }{%
385 \AtBeginDocument{%
386     \@ifpackageloaded{variorref}{%
387         \@ifundefined{@Refstar}{%
388             \DeclareRobustCommand*\Ref[1]{%
389                 \T@Ref{#1}%
390             }%
391         }{%
392     }{%
393 }%
394 }%

```

3.7 Support for listings

```

394 \AtBeginDocument{%
395     \@ifpackageloaded{listings}{%
396         \let\NROrg@lst@MakeCaption\lst@MakeCaption
397         \def\lst@MakeCaption{%
398             \ifx\lst@label\@empty
399             \else
400                 \let\@currentlabelname\lst@@caption
401             \fi
402             \NROrg@lst@MakeCaption
403         }%
404     }{%
405 }%
406 
```

4 Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

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