

Section name references in L^AT_EX*

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2006/08/15

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_EX 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^AT_EX”

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*This file has version number v2.26, last revised 2006/08/15.

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 \LaTeX 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 varioref 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     \let\label\@gobble
18     \def\ref{\protect\ref}%
19     \edef\@currentlabstr{%
20       \expandafter\strip@prefix\meaning\@currentlabelname
21     }%
22     \protected@write\@auxout{}{%
23       \string\newlabel{#1}{%
```

```

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

```

Needed for the *subeqnarray* package.

```

56 \@ifundefined{slabel}{ }{%
57   \def\slabel#1{%
58     \@bsphack
59     \if@files
60       {%
61         \let\label\@gobble
62         \def\ref{\protect\ref}%
63         \edef\@currentlabstr{%
64           \expandafter\strip@prefix\meaning\@currentlabelname
65         }%
66         \let\thepage\relax
67         \def\protect{\noexpand\noexpand\noexpand}%
68         \edef\@tempa{%
69           \write\@auxout{%
70             \string\newlabel{#1}{%
71               {\thesubequation}%
72               {\thepage}%
73               {\expandafter\strip@period
74                 \@currentlabstr\relax.\relax\@@@}%
75               {\@currentHref}{}%
76             }%
77           }%
78         }%

```

```

79      \expandafter
80      }%
81      \@tempa
82      \if@nobreak\ifvmode\nobreak\fi\fi
83      \fi
84      \@esphack
85      }%
86 }

```

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

```

87 \def\@writetocindent@{%
88   \begingroup
89   \@for\@tempa:=-1,0,1,2,3\do{%
90     \immediate\write\@auxout{%
91       \string\newlabel{tocindent\@tempa}{%
92         \csname r@tocindent\@tempa\endcsname}{-}{-}{-}%
93     }%
94   }%
95 }%
96 \endgroup}

```

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. This is done by the label-writing routine.

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

```

97 \let\NR@ssect\@ssect
98 \newcounter{section@level}
99 \def\@sect#1#2#3#4#5#6[#7]#8{%
100   \setcounter{section@level}{#2}%
101   \def\@currentlabelname{#7}%
102   \NR@ssect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}]{\Sectionformat{#8}{#2}}%
103 }

```

and now the unnumbered ones

```

104 \let\NR@ssect\@ssect
105 \def\@ssect#1#2#3#4#5{%
106   \def\@currentlabelname{#5}%
107   \NR@ssect{#1}{#2}{#3}{#4}{\Sectionformat{#5}{#1}}%
108 }

```

Parts and chapters are treated differently. sigh.

```

109 \let\NR@part\@part
110 \def\@part[#1]#2{%
111   \def\@currentlabelname{#1}%
112   \NR@part[{#1}]{#2}%
113 }
114 \let\NR@chapter\@chapter
115 \def\@chapter[#1]#2{%
116   \def\@currentlabelname{#1}%
117   \NR@chapter[{#1}]{#2}%
118 }
119 \let\NR@schapter\@schapter
120 \def\@schapter#1{%
121   \def\@currentlabelname{#1}%

```

```

122 \NR@schapter{#1}%
123 }

Captions

124 \let\NR@@caption\@caption
125 \long\def\@caption#1[#2]{%
126   \def\@currentlabelname{#2}%
127   \NR@@caption{#1}[{#2}]%
128 }

Compatibility for package titlesec.
129 \AtBeginDocument{%
130   \@ifpackageloaded{titlesec}{%
131     \let\NRorg@ttl@sect@i\ttl@sect@i
132     \def\ttl@sect@i#1#2[#3]#4{%
133       \def\@currentlabelname{#4}%
134       \NRorg@ttl@sect@i{#1}{#2}[{#3}]{#4}%
135     }%
136   }{}%
137 }

```

3.3 Referencing stuff

We default the label and hypertext reference to be empty.

```

138 \def\@currentlabelname{}
139 \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:

```

140 \long\def\@firstoffive#1#2#3#4#5{#1}
141 \long\def\@secondoffive#1#2#3#4#5{#2}
142 \long\def\@thirdoffive#1#2#3#4#5{#3}
143 \long\def\@fourthoffive#1#2#3#4#5{#4}
144 \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`.

```

145 \providecommand*\@safe@activestrue{}%
146 \providecommand*\@safe@activesfalse{}%
147 \def\NR@setref#1{%
148   \begingroup
149     \@safe@activestrue
150     \expandafter
151   \endgroup
152   \expandafter\NR@@setref\csname r@#1\endcsname
153 }
154 \def\NR@@setref#1{%
155   \ifx\@undefined#1%
156     \let#1\relax
157   \fi
158   \@setref#1%
159 }
160 \def\T@ref#1{%
161   \NR@setref{#1}\@firstoffive{#1}%
162 }%
163 \def\T@pageref#1{%

```

```

164 \NR@setref{#1}\@secondoffive{#1}%
165 }%
166 \ifNR@showkeys
167 \ifx\SK@ref\@empty
168 \else
169 \def\T@ref#1{%
170 \@safe@activetrue
171 \SK@\SK@@ref{#1}%
172 \@safe@activesfalse
173 \NR@setref{#1}\@firstoffive{#1}%
174 }%
175 \def\T@pageref#1{%
176 \@safe@activetrue
177 \SK@\SK@@ref{#1}%
178 \@safe@activesfalse
179 \NR@setref{#1}\@secondoffive{#1}%
180 }%
181 \fi
182 \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`.

```

183 \@ifpackageloaded{hyperref}{%
184 }{%
185 \DeclareRobustCommand{\ref}{\T@ref}%
186 \DeclareRobustCommand{\pageref}{\T@pageref}%
187 }

```

3.4 Usage and frontend

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

```

188 \def\T@nameref#1{%
189 \NR@setref{#1}\@thirdoffive{#1}%
190 }%
191 \ifNR@showkeys
192 \ifx\SK@ref\@empty
193 \else
194 \def\T@nameref#1{%
195 \@safe@activetrue
196 \SK@\SK@@ref{#1}%
197 \@safe@activesfalse
198 \NR@setref{#1}\@thirdoffive{#1}%
199 }%
200 \fi
201 \fi
202 \def\nameref{\protect\T@nameref}

```

An extended form which gives title and page number.

```

203 \def\NameRef#1{'\nameref{#1}' on page~\pageref{#1}}

```

The default for `\Sectionformat`

```

204 \providecommand\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`:

```
205 \ifpackageloaded{ifthen}{%
206   \let\NROrg@ifthenelse\ifthenelse
207   \def\ifthenelse{%
208     \let\begingroup\NR@TE@begingroup
209     \NROrg@ifthenelse
210   }%
211   \let\NROrg@begingroup\begingroup
212   \def\NR@TE@begingroup{%
213     \let\begingroup\NROrg@begingroup
214     \begingroup
215     \def\ref##1{\getrefbykeydefault{##1}{}{??}}%
216     \def\pageref##1{\getrefbykeydefault{##1}{page}{0}}%
217   }%
218 }
```

3.6 Compatibility with varioref

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

```
219 \ifx\csname @vpageref\endcsname\relax
220 \else
221   \def\@vpageref#1[#2]#3{%
222     \leavevmode\unskip
223     \global\advance\c@vrcnt\@ne
224     \ifundefined{r@the\c@vrcnt @vr}%
225       {\@namedef{r@the\c@vrcnt @vr}{??}{??}{??}{??}}}%
226     \edef\@tempa{%
227       \expandafter\expandafter\expandafter
228       \@secondoffive\csname r@the\c@vrcnt @vr\endcsname
229     }%
230     \ifundefined{r@the\c@vrcnt @xvr}%
231       {\@namedef{r@the\c@vrcnt @xvr}{??}{??}{??}{??}}}%
232     \edef\@tempb{%
233       \expandafter\expandafter\expandafter
234       \@secondoffive\csname r@the\c@vrcnt @xvr\endcsname
235     }%
236     {%
237       \let\@currentlabel\@empty
238       \expandafter\label\expandafter{\the\c@vrcnt @xvr}%
239     }%
240     \ifx\@tempa\@tempb
241     \else
242       \vref@err{%
243         \noexpand\vref at page boundary
244         \@tempb-\@tempa\space (may loop)%
245       }%
246     \fi
247     \ifundefined{r@#3}{\@namedef{r@#3}{??}{??}{??}{??}}}%
248     \edef\@tempb{%
249       \expandafter\expandafter\expandafter
```

```

250     \@secondoffive\csname r@#3\endcsname
251   }%
252   \space
253   \ifx\@tempa\@tempb
254     #1%
255   \else
256     #2%
257     \is@pos@number\@tempb{%
258       \is@pos@number\@tempa{%
259         \@tempcnta\@tempa
260         \advance\@tempcnta\@ne
261       }{%
262         \@tempcnta\maxdimen
263       }%
264     \ifnum \@tempb =\@tempcnta
265       \ifodd\@tempcnta
266         \if@twoside
267           \reftextfaceafter
268         \else
269           \reftextafter
270         \fi
271       \else
272         \reftextafter
273       \fi
274     \else
275       \advance\@tempcnta-2
276       \ifnum \@tempb =\@tempcnta
277         \ifodd\@tempcnta
278           \reftextbefore
279         \else
280           \if@twoside
281             \reftextfacebefore
282           \else
283             \reftextbefore
284           \fi
285         \fi
286       \else
287         \reftextfaraway{#3}%
288       \fi
289     \fi
290   }{%
291     \reftextfaraway{#3}%
292   }%
293   \fi
294   {%
295     \let\@currentlabel\@empty
296     \expandafter\label\expandafter{\the\c@vrcnt \@vr}%
297   }%
298 }%
299 \DeclareRobustCommand\vnameref[1]{%
300   \unskip~\nameref{#1}%
301   \@vpageref[\unskip]{#1}%
302 }
303 \fi
304 \end{package}

```


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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