

Section name references in L^AT_EX*

Sebastian Rahtz (deceased)
Heiko Oberdiek (inactive)
The L^AT_EX Project
<https://github.com/latex3/hyperref/issues>

2023-05-16

Documentation overview for hyperref

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

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

[ChangeLog](#) This file records the version history.

[Bookmark talk, slides](#) Slides for the talk “PDF information and navigation elements with hyperref, 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.

[backref.dtx](#) “Back referencing from bibliographical citations”

📖 [nameref.dtx](#) “Section name references in L^AT_EX” (this file)

Contents

1	Introduction	2
2	Background and advice for package and class authors	2
3	History	3

*This file has version number v2.51, last revised 2023-05-16.

4	Implementation	4
4.1	<code>\label</code> stuff	4
4.2	Changes of section macros	7
4.2.1	Class beamer	10
4.2.2	Theorems	10
4.3	Referencing stuff	11
4.4	Usage and frontend	13
4.5	Package ifthen support	14
4.6	Compatibility with <code>varioref</code>	14
4.7	Support for package <code>listings</code>	15
5	Index	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 Background and advice for package and class authors

The package redefines the `\label` command to write additionally `\@currentlabelname` to the `.aux` file. This can then be referenced with `\nameref`. Package authors who want to support `nameref` should define this command (locally) in a suitable way. The content should be so that it can be safely written to the `.aux` file. `nameref` itself uses the package `getttitlestring` but this is not required.

`nameref` patches a number of commands (mostly sectioning commands) and environments so that they store `\@currentlabelname`. A class or a package that want to provide native support instead can suppress this patches by defining commands described below. The commands must be defined before the patch is made, in most cases before `nameref` is loaded, sometimes only before begin document.

sectioning commands Redefined are

- `\@sect`: beside adding a command that stores the title of a sectioning command (if present the optional argument is used) `nameref` also stores the level number in a counter `section@level` (reason is unknown, only two packages, `e-french` and `pdfscreen` seem to use it), and surrounds the text with `\Sectionformat` (only used by `acmart`, `memoir`, `pdfscreen`, `pdfslide`), a command which takes two argument: the first the text, the second the level.
- `\@ssect`: command to store the title added, `\Sectionformat` is added.
- `\M@sect` (`memoir` class): command to store the title added
- `\@part`, `\@spart`, `\@chapter`, `\@schapter`: command to store the title added
- `\ttl@sect@i` (from the `titlesec` package): command to store the title added

All the patches excepted the last are disabled if the command `\NR@nopatch@sectioning` is defined (the actual definition is irrelevant, only existence is tested). The `titlesec` patch is disabled if `\NR@nopatch@titlesec` is defined. This currently only suppress the actual patches, the counter, `\Sectionformat` and also the internal copies `\NR@sect` etc are still defined.

captions The following commands are patched

- `\@caption`: command to store the title added. This is done at begin document, but only if `hyperref` is not detected. With `hyperref` the patch is done there (and must be disabled in `hyperref`).
This patch can be disabled by defining `\NR@nopatch@caption`
- `\LTcc@ption` (from the `longtable` package): command to store the title added.
This patch can be disabled by defining `\NR@nopatch@longtable`
- `\lst@MakeCaption` (from the `listings` package)
This patch can be disabled by defining `\NR@nopatch@listings`

lists The following command is patched

- `\descriptionlabel`: command to store the label text added. To reference this text the `\label` must be put *inside* the label. This is not compatible with the `enumitem` package as internal formatting commands are written to the `.aux` file too.
This patch can be disabled by defining `\NR@nopatch@lists`

theorems • `\@opargbegintheorem`: command to store the title added.
This patch can be disabled by defining `\NR@nopatch@theorem`

- `\@begintheorem` (if `amsthm` is loaded and if the command has a tested meaning): command to store the title added.
This patch can be disabled by defining `\NR@nopatch@amsthm`

beamer In the `beamer` class the following commands are patched: `\beamer@section`, `\beamer@subsection`, `\beamer@subsubsection`, `\beamer@descriptionitem` and the template `theorem begin`. If `\NR@nopatch@beamer` is defined nothing is done.

3 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`.

The versions before 2009/11/27 v2.32 did not expand the title strings (of `\section`, `\caption`, ...). Then the behaviour switched to expanding, because this allows to remove unwanted macros (`\label`, ...). Despite this method is used in package `titleref` and class `memoir`, the first feedbacks let me conclude that this is not robust enough. Therefore I wrote package `getttitlestring` that uses the non-expanding method as default. It also allows me to use this package in package `zref-titleref`. See the package documentation of package `getttitlestring` how to change the method. It also provides a hook to remove additional unwanted macros, not supported by the package. Example:

```
\usepackage{getttitlestring}
\GetTitleStringDisableCommands{%
  \let\mylabel\@gobble
  \renewcommand\myindex[2]{}%
}
```

4 Implementation

```
1 (*package)
2 \RequirePackage{refcount}[2006/02/12]
3 \RequirePackage{getttitlestring}[2009/12/18]
4 \RequirePackage{ltxcmds}[2009/12/12]
```

In formats older than 2023-06-01 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).

`\NR@strip@period`

```
5 \def\NR@strip@period#1.\ltx@empty#2\@nil{#1}
```

`\strip@period` Macro `\strip@period` was removed in `nameref` 2012/07/28 v2.41 and reinserted in 2012/07/31 v2.42 for compatibility reasons with package `subfig`.

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

7 \def\NR@sanitize@labelname{%
8   \@onelevel@sanitize\@currentlabelname
9   \edef\@currentlabelname{%
10     \expandafter\NR@strip@period\@currentlabelname
11     \ltx@empty.\ltx@empty\@nil
12   }%
13 }
```

4.1 `\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.

`\ifNR@showkeys`

```
14 \newif\ifNR@showkeys
15 \NR@showkeysfalse
16 \@ifpackageloaded{showkeys}{%
17   \begingroup
```

```

18   \ifundefined{SK@@label}{%
19   }{%
20     \global\NR@showkeysttrue
21   }%
22 \endgroup
23 }{}

```

`\label@hook` Starting with LaTeX 2023-06-01 it is not longer needed to redefine `\label` as the kernel provides a hook and stores `\@currentlabelname`. We still support `\label@hook` for now as it is used below in `\slabel` and also in `hyperref`.

```

24 \providecommand*{\label@hook}{}
25 \ltx@GlobalAppendToMacro{\label@hook}{%
26   \NR@sanitize@labelname
27 }
28 \ifl@t@r\fmtversion{2023-06-01}
29 {
30   \AddToHookWithArguments{label}{\def\label@name{#1}\label@hook}
31 }
32 {
33

```

`\label`

```

34   \def\label#1{%
35     \bsphack
36     \begingroup
37       \def\label@name{#1}%
38       \label@hook
39       \protected@write\@auxout{}{%
40         \string\newlabel{#1}{%
41           {\@currentlabel}%
42           {\thepage}%
43           {\@currentlabelname}%
44           {\@currentHref}{}}%
45       }%
46     }%
47   \endgroup
48   \esphack
49 }%
50 \ifNR@showkeys
51   \def\label#1{%
52     \bsphack
53     \SK@\SK@@label{#1}%
54     \begingroup
55       \def\label@name{#1}%
56       \label@hook
57       \protected@write\@auxout{}{%
58         \string\newlabel{#1}{%
59           {\@currentlabel}%
60           {\thepage}%
61           {\@currentlabelname}%
62           {\@currentHref}{}}%
63       }%
64     }%
65   \endgroup

```

```

66      \@esphack
67      }%
68      \fi
69  }

```

`\ltx@label` Starting with LaTeX 2023-06-01 it is not longer needed to update the `amsmath` command `\ltx@label` as `nameref` no longer changes `\label`

```

70 \ifl@t@r\fmtversion{2023-06-01}
71 {}{\let\ltx@label\label}

```

Needed for the *subeqnarray* package.

```

\slabel
72 \@ifundefined{slabel}{}{%
73   \def\slabel#1{%
74     \@bsphack
75     \if@filesw
76       \begingroup
77         \def\label@name{#1}%
78         \label@hook
79         \let\thepage\relax
80         \def\protect{\noexpand\noexpand\noexpand}%
81         \edef\@tempa{%
82           \write\@auxout{%
83             \string\newlabel{#1}{%
84               {\thesubequation}%
85               {\thepage}%
86               {\@currentlabelname}%
87               {\@currentHref}{}}%
88           }%
89         }%
90       }%
91     \expandafter\endgroup
92     \@tempa
93     \if@nobreak\ifvmode\nobreak\fi\fi
94   \fi
95   \@esphack
96 }%
97 }

```

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

```

\@writetocindents@
98 \def\@writetocindents@{%
99   \begingroup
100   \@for\@tempa:=-1,0,1,2,3\do{%
101     \immediate\write\@auxout{%
102       \string\newlabel{tocindent\@tempa}{%
103         \csname r@tocindent\@tempa\endcsname}{-}{-}{-}%
104     }%
105   }%
106 }%
107 \endgroup
108 }

```

4.2 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.

`\NR@getttitle`

```
109 \def\NR@getttitle#1{%
110   \GetTitleString{#1}%
111   \let\@currentlabelname\GetTitleStringResult
112 }
```

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

`\NR@sect`

```
113 \let\NR@sect\@sect
114 \newcounter{section@level}
```

`\@sect`

```
115 \@ifundefined{NR@nopatch@sectioning}{
116   {\def\@sect#1#2#3#4#5#6[#7]#8{%
117     \setcounter{section@level}{#2}%
118     \NR@getttitle{#7}%
119     \NR@sect{#1}{#2}{#3}{#4}{#5}{#6}[#7]{\Sectionformat{#8}{#2}}%
120   }}{}
```

and now the unnumbered ones

`\NR@ssect`

```
121 \let\NR@ssect\@ssect
```

`\@ssect`

```
122 \@ifundefined{NR@nopatch@sectioning}{
123   {\def\@ssect#1#2#3#4#5{%
124     \NR@getttitle{#5}%
125     \NR@ssect{#1}{#2}{#3}{#4}{\Sectionformat{#5}{#1}}%
126   }}{}
```

Support for class memoir.

```
127 \@ifundefined{NR@nopatch@sectioning}{
128   {\ltx@ifundefined{ifheadnameref}{%
129     }{%
130       \ltx@ifundefined{M@sect}{%
131         }{%
132           \let\NRorgM@sect\M@sect
133           \def\M@sect#1#2#3#4#5#6[#7][#8]{%
134             \ifheadnameref
135               \NR@getttitle{#8}%
136             \else
137               \NR@getttitle{#7}%
138             \fi
```

```

139      \NRorg@M@ssect{#1}{#2}{#3}{#4}{#5}{#6} [{#7}] [{#8}]%
140      }%
141      }%
142      }{}

```

Parts and chapters are treated differently. sigh. \@part and \@spart are \long because of class memoir.

```

143 \let\NR@part\@part
144 \let\NR@spart\@spart
145 \let\NR@chapter\@chapter
146 \let\NR@schapter\@schapter
147 \@ifundefined{NR@nopatch@sectioning}
148 {%
149   \long\def\@part[#1]#2{%
150     \NR@getttitle{#1}%
151     \NR@part[{#1}]{#2}%
152   }
153   \long\def\@spart#1{%
154     \NR@getttitle{#1}%
155     \NR@spart{#1}%
156   }
157   \def\@chapter[#1]#2{%
158     \NR@getttitle{#1}%
159     \NR@chapter[{#1}]{#2}%
160   }
161   \@ifclassloaded{memoir}{%
162     \ltx@ifundefined{ifheadnameref}{%
163       {%
164         \def\@chapter[#1]#2{%
165           \ltx@ifundefined{ch@pt@c}{%
166             \NR@getttitle{#1}%
167           }{%
168             \ifx\ch@pt@c\ltx@empty
169               \NR@getttitle{#2}%
170             \else
171               \def\NR@temp{#1}%
172               \ifx\NR@temp\ltx@empty
173                 \expandafter\NR@getttitle\expandafter{\ch@pt@c}%
174               \else
175                 \ifheadnameref
176                   \NR@getttitle{#1}%
177                 \else
178                   \expandafter\NR@getttitle\expandafter{\ch@pt@c}%
179                 \fi
180               \fi
181             \fi
182           }%
183           \NR@chapter[{#1}]{#2}%
184         }%
185       }%
186     }{}
187     \def\@schapter#1{%
188       \NR@getttitle{#1}%
189       \NR@schapter{#1}%

```



```

190 }}{}

Captions

191 \AtBeginDocument{%
192   \ifpackageloaded{hyperref}{}
193   {%
194     \ifundefined{NR@nopatch@caption}
195     {\let\NR@@caption\@caption
196      \long\def\@caption#1[#2]{%
197        \NR@getttitle{#2}%
198        \NR@@caption{#1}[{#2}]}%
199      }%
200     {}%
201   }%

202   \ifpackageloaded{longtable}{}
203   \ifundefined{NR@nopatch@longtable}
204   {%
205     \let\NRorg@LT@c@ption\LT@c@ption
206     \def\LT@c@ption#1[#2]#3{%
207       \NRorg@LT@c@ption{#1}[{#2}]{#3}%
208       \def\@tempa{#2}%
209       \ifx\@tempa\@empty
210       \else
211         \NR@getttitle{#2}%
212         \fi
213       }%
214     }{}%
215   }{}%

Environment ‘description’.

216 \ltx@ifundefined{descriptionlabel}{}
217 {}%
218 \ifundefined{NR@nopatch@lists}
219 {\let\NRorg@descriptionlabel\descriptionlabel
220  \def\descriptionlabel#1{%
221    \NR@getttitle{#1}%
222    \NRorg@descriptionlabel{#1}%
223  }%
224 }{}%
225 }%
226 }

Compatibility for package titlesec.

227 \AtBeginDocument{%
228   \ifpackageloaded{titlesec}{}
229   \let\NRorg@ttl@sect@i\ttl@sect@i
230   \ifundefined{NR@nopatch@titlesec}
231   {%
232     \def\ttl@sect@i#1#2[#3]#4{%
233       \NR@getttitle{#4}%
234       \NRorg@ttl@sect@i{#1}{#2}[{#3}]{#4}%
235     }%
236   }{}%
237 }{}%
238 }

```

4.2.1 Class beamer

```

239 \@ifclassloaded{beamer}{%
240   \@ifclasslater{beamer}{2022-05-17}
241   {}%do nothing
242   {%
243     \@ifundefined{NR@nopatch@beamer}
244     {%
245       \def\NR@PatchBeamer#1{%
246         \expandafter\let\csname NRorg@beamer@#1\expandafter\endcsname
247           \csname beamer@#1\endcsname
248         \begingroup
249         \edef\x{\endgroup
250           \long\def\expandafter\noexpand\csname beamer@#1\endcsname
251             [####1]{% hash-ok
252               \noexpand\NR@getttitle{####1}%
253               \expandafter\noexpand\csname NRorg@beamer@#1\endcsname
254               [{####1]}%
255             }%
256           }%
257         \x
258       }%
259       \AddToHook{class/beamer/after}{%
260         \NR@PatchBeamer{section}%
261         \NR@PatchBeamer{subsection}%
262         \NR@PatchBeamer{subsubsection}%

```

Theorem names.

```

263   \addtobeamertemplate{theorem begin}{%
264     \expandafter\NR@getttitle\expandafter{\inserttheoremaddition}%
265   }{}%
266   \@ifdefinable{\NRorg@beamer@descriptionitem}{%
267     \let\NRorg@beamer@descriptionitem\beamer@descriptionitem
268     \renewcommand{\beamer@descriptionitem}[1]{%
269       \NR@getttitle{#1}%
270       \NRorg@beamer@descriptionitem{#1}%
271     }%
272   }%
273   }%Hook
274   }{}%ifundefined
275   }%class later
276   }{}

```

4.2.2 Theorems

```

277 \ltx@ifundefined{@opargbegintheorem}{}{%
278   \let\NRorg@opargbegintheorem\@opargbegintheorem
279   \def\@opargbegintheorem#1#2#3{%
280     \NR@getttitle{#3}%
281     \NRorg@opargbegintheorem{#1}{#2}{#3}%
282   }%
283 }
284 \AtBeginDocument{%
285   \@ifpackageloaded{amsthm}{%
286     \let\NRorg@begintheorem\@begintheorem
287     \begingroup

```

```

288 \edef\x{macro:\string#1\string#2[\string#3]}%
289 \@onelevel@sanitize\x
290 \def\y#1->#2\@nil{#1}%
291 \edef\z{\expandafter\y\meaning\@begintheorem->\@nil}%
292 \@onelevel@sanitize\z
293 \expandafter\endgroup
294 \ifx\x\z
295 \def\@begintheorem#1#2[#3]{%
296 \NR@getttitle{#3}%
297 \NRorg@begintheorem{#1}{#2}[{#3}]%
298 }%
299 \fi
300 }{}%
301 }

```

4.3 Referencing stuff

We default the label and hypertext reference to be empty.

```

302 \providecommand*{\@currentlabelname}{}
303 \providecommand*{\@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:

```

\@firstoffive
304 \long\def\@firstoffive#1#2#3#4#5{#1}

\@secondoffive
305 \long\def\@secondoffive#1#2#3#4#5{#2}

\@thirdoffive
306 \long\def\@thirdoffive#1#2#3#4#5{#3}

\@fourthoffive
307 \long\def\@fourthoffive#1#2#3#4#5{#4}

\@fifthoffive
308 \long\def\@fifthoffive#1#2#3#4#5{#5}

```

We have to redefine `\ref`, `\Ref` and `\pageref` to know about extra reference elements. Make them robust, and compatible with Babel. We also define starred versions so that it doesn't depend on `hyperref` if they are defined or not. We use the same internal names as `hyperref`. 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`.

```

\@safe@activestrue
309 \providecommand*\@safe@activestrue{}%

\@safe@activesfalse
310 \providecommand*\@safe@activesfalse{}%

\NR@ref@showkeys
311 \newcommand\NR@ref@showkeys[1]{}%

```

```

\NR@setref
312 \def\NR@setref#1{%
313   \begingroup
314     \@safe@activestruer
315     \expandafter
316   \endgroup
317   \expandafter\NR@@setref\csname r@#1\endcsname
318 }

\NR@@setref
319 \def\NR@@setref#1{%
320   \ifx\@undefined#1%
321     \let#1\relax
322   \fi
323   \@setref#1%
324 }

\T@ref
325 \def\T@ref#1{%
326   \NR@ref@showkeys{#1}%
327   \NR@setref{#1}\@firstoffive{#1}%
328 }%

\@refstar
329 \def\@refstar#1{%
330   \NR@ref@showkeys{#1}%
331   \NR@setref{#1}\@firstoffive{#1}%
332 }%

\T@pageref
333 \def\T@pageref#1{%
334   \NR@ref@showkeys{#1}%
335   \NR@setref{#1}\@secondoffive{#1}%
336 }%

\@pagerefstar
337 \def\@pagerefstar#1{%
338   \NR@ref@showkeys{#1}%
339   \NR@setref{#1}\@secondoffive{#1}%
340 }%

\T@Ref
341 \def\T@Ref#1{%
342   \NR@ref@showkeys{#1}%
343   \NR@setref{#1}\NR@MakeUppercaseFirstOfFive{#1}%
344   }%
345 \def\NR@MakeUppercaseFirstOfFive#1#2#3#4#5{%
346   \MakeUppercase#1%
347   }%

\@Refstar
348 \def\@Refstar#1{%
349   \NR@ref@showkeys{#1}%
350   \NR@setref{#1}\NR@MakeUppercaseFirstOfFive{#1}%
351   }%

```

```

352 \ifNR@showkeys
353   \ifx\SK@ref\@empty
354   \else
355   \renewcommand\NR@ref@showkeys[1]{%
356     \@safe@activestru
357     \SK@\SK@@ref{#1}%
358     \@safe@activesfalse}
359   \fi
360 \fi

```

Package `hyperref` uses the same definitions of `\ref`, `\Ref` and `\pageref` but has to redefine the non-starred command to add the hyperlink support. `\DeclareRobustCommand` is used by `hyperref`. Package `nameref` can be loaded before, after `hyperref` or after `hyperref`'s definitions in `\AtBeginDocument`. We have to postpone the definition to `\AtBeginDocument` to avoid that `showkeys` overwrites them again.

```

361 \AddToHook{begindocument}{%

```

```

\ref

```

```

362 \DeclareDocumentCommand\ref{s}
363   {\IfBooleanTF{#1}{\@refstar}{\T@ref}}%

```

```

\pageref

```

```

364 \DeclareDocumentCommand\pageref{s}
365   {\IfBooleanTF{#1}{\@pagerefstar}{\T@pageref}}%

```

```

\Ref

```

```

366 \DeclareDocumentCommand\Ref{s}
367   {\IfBooleanTF{#1}{\@Refstar}{\T@Ref}}%

```

```

368 }

```

```

369 \DeclareHookRule{begindocument}{showkeys}{before}{nameref}

```

4.4 Usage and frontend

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

```

\T@nameref

```

```

370 \def\T@nameref#1{%
371   \NR@ref@showkeys{#1}%
372   \begingroup
373     \let\label\@gobble
374     \NR@setref{#1}\@thirdoffive{#1}%
375   \endgroup
376 }%

```

```

\@namerefstar

```

```

377 \def\@namerefstar#1{%
378   \NR@ref@showkeys{#1}%
379   \begingroup
380     \let\label\@gobble
381     \NR@setref{#1}\@thirdoffive{#1}%
382   \endgroup
383 }%

```

`\nameref`

```
384 \ifundefined{nameref}
385 {
386   \NewDocumentCommand\nameref{s}
387     {\IfBooleanTF{#1}{\@namerefstar}{\T@nameref}}
388 }
389 {
390   \PackageWarning{nameref}{Redefining \string\nameref}
391   \RenewDocumentCommand\nameref{s}
392     {\IfBooleanTF{#1}{\@namerefstar}{\T@nameref}}
393 }
```

`\Nameref` An extended form which gives title and page number. Not really useful, quotes are english, and no starred version. `varioref` can do that better. Remove??

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

`\Sectionformat` The default for `\Sectionformat`

```
395 \providecommand\Sectionformat[2]{#1}
```

4.5 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`: Changed/disabled 2022-04-13: `ifthen` takes care itself to change `\pageref` to an expandable version.

```
396 \ifundefined{@kernel@pageref@exp}
397 {\@ifpackageloaded{ifthen}{%
398   \let\NROrg@ifthenelse@ifthenelse
399   \def@ifthenelse{%
400     \let\begingroup\NR@TE@begingroup
401     \NROrg@ifthenelse
402   }%
403   \let\NROrg@begingroup\begingroup
404   \def\NR@TE@begingroup{%
405     \let\begingroup\NROrg@begingroup
406     \begingroup
407     \def\ref##1{\getrefbykeydefault{##1}{}{??}}%
408     \def\pageref##1{\getrefbykeydefault{##1}{page}{0}}%
409   }%
410 }{}}{}
```

4.6 Compatibility with `varioref`

[This section was derived by Corey Minyard minyard@acm.org from the `varioref` package] Changed in 2019-09-12 by Frank Mittelbach to adapt to changes in `varioref`

```
411 \AtBeginDocument{%
412   \ifx\csname @vppageref\endcsname\relax
413   \else
```

This requires a varioref newer than 2019-09-12

```

414 \let\NR@@vpageref\@vpageref
415 \def\@vpageref#1[#2]#3{%
416   \begingroup
417     \csname @safe@activestrue\endcsname
418     \edef\x{#3}%
419     \@onelevel@sanitize\x
420     \toks@{%
421       \NR@@vpageref{#1}[{#2}]%
422     }%
423     \edef\x{\endgroup
424       \the\toks@{\x}%
425     }%
426   \x
427 }%
428 \DeclareRobustCommand\vnameref[1]{%
429   \unskip~\nameref{#1} %
430   \@vpageref[\unskip]{#1}%
431 }%
432 \fi
433 }

```

4.7 Support for package listings

```

434 \AtBeginDocument{%
435   \ifpackageloaded{listings}{%
436     \ifundefined{NR@nopatch@listings}
437     {%
438       \let\NROrg@lst@MakeCaption\lst@MakeCaption
439       \def\lst@MakeCaption{%
440         \ifx\lst@label\@empty
441         \else
442           \let\@currentlabelname\lst@@caption
443         \fi
444         \NROrg@lst@MakeCaption
445       }%
446     }{}%
447   }{}%
448 }
449 \</package>

```

5 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.

Symbols	\@begintheorem	\@currentHref
\@@@ 6 286, 291, 295	. . . 44, 62, 87, 303
\@vpageref . . 414, 415	\@bsphack . . . 35, 52, 74	\@currentlabel . . 41, 59
\@Refstar 348, 367	\@caption 195, 196	\@currentlabelname
\@auxout . 39, 57, 82, 101	\@chapter . 145, 157, 164	. . . 8, 9, 10, 43,

61, 86, 111, 302, 442	\AddToHookWithArguments	\endcsname	103,
\@empty	30	246, 247, 250,	
\@esphack	191,	253, 317, 412, 417	
\@fifthoffive	227, 284, 411, 434	\endgroup	
\@firstoffive		22, 47, 65, 91,	
304, 327, 331	B	107, 249, 293,	
\@for	\beamer@descriptionitem	316, 375, 382, 423	
\@fourthoffive	267, 268	\expandafter	10, 91,
\@gobble	17,	173, 178, 246,	
\@ifclasslater	36, 54, 76, 99,	250, 253, 264,	
\@ifclassloaded	248, 287, 313,	291, 293, 315, 317	
\@ifclassloaded	372, 379, 400,		
\@ifdefinable	403, 405, 406, 416	F	
\@ifl@t@r		\fi	68, 93, 94, 138,
\@ifpackageloaded		179, 180, 181,	
16, 192, 202,	C	212, 299, 322,	
228, 285, 397, 435	\ch@pt@c	359, 360, 432, 443	
\@ifundefined	168, 173, 178	\fmtversion	28, 70
18, 72, 115, 122,	\csname		
127, 147, 194,	103,	G	
203, 218, 230,	246, 247, 250,	\getrefbykeydefault	
243, 384, 396, 436	253, 317, 412, 417	407, 408	
\@namerefstar	D	\getTitleString	110
377, 387, 392	\DeclareDocumentCommand	\getTitleStringResult	
\@nil	362, 364, 366	111	
\@onelevel@sanitiz	\DeclareHookRule	\global	20
8, 289, 292, 419	369		
\@opargbegintheorem	\DeclareRobustCommand		
278, 279	428	I	
\@pagerefstar	\def	\if@filesw	75
337, 365	5, 6, 7, 30,	\if@nobreak	93
\@part	34, 37, 51, 55,	\IfBooleanTF	363,
143, 149	73, 77, 80, 98,	365, 367, 387, 392	
\@refstar	109, 116, 123,	\ifheadnameref	134, 175
329, 363	133, 149, 153,	\ifNR@showkeys	
\@safe@activesfalse	157, 164, 171,	14, 50, 352	
310, 358	187, 196, 206,	\ifthenelse	398, 399
\@safe@activetrue	208, 220, 232,	\ifvmode	93
309, 314, 356	245, 250, 279,	\ifx	168, 172, 209, 294,
\@schapter	290, 295, 304,	320, 353, 412, 440	
146, 187	305, 306, 307,	\immediate	101
\@secondoffive	308, 312, 319,	\inserttheoremaddition	264
305, 335, 339	325, 329, 333,		
\@sect	337, 341, 345,	L	
113, 115	348, 370, 377,	\label	34, 71, 373, 380
\@setref	394, 399, 404,	\label@hook	24, 38, 56, 78
323	407, 408, 415, 439	\label@name	30, 37, 55, 77
\@spart		\let	71, 79, 111,
144, 153	\descriptionlabel	113, 121, 132,	
\@ssect	219, 220	143, 144, 145,	
121, 122	\do	146, 195, 205,	
\@tempa	100	219, 229, 246,	
81, 92, 100,	E	267, 278, 286,	
102, 103, 208, 209	\edef	321, 373, 380,	
\@thirdoffive	9, 81, 249,		
306, 374, 381	288, 291, 418, 423		
\@undefined	136,		
320	170, 174, 177,		
\@vpageref	210, 354, 413, 441		
430			
\@writetocindents@			
98			
A			
\addtobeamertemplate			
263			
\AddToHook			
259, 361			

398, 400, 403, 405, 414, 438, 442	\long 149, 153, 196, 250, 304, 305, 306, 307, 308	\NR@ref@showkeys . . . 311, 326, 330, 334, 338, 342, 349, 355, 371, 378	\ref 362, 407 \relax . . . 6, 79, 321, 412 \renewcommand . 268, 355 \RenewDocumentCommand 391 \RequirePackage . 2, 3, 4
\lst@@caption 442	\NR@sanitize@labelname 7, 26	S	\Sectionformat 119, 125, 395
\lst@label 440	\NR@schapter . 146, 189	\setcounter 117	\SK@ 53, 357
\lst@MakeCaption 438, 439	\NR@ssect 113, 119	\SK@@label 53	\SK@ref 357
\LT@c@ption . . 205, 206	\NR@setref 312, 327, 331, 335, 339, 343, 350, 374, 381	\SK@ref 353	\slabel 72
\ltx@empty 5, 11, 168, 172	\NR@showkeysfalse . . 15	\string 40, 58, 83, 102, 288, 390	\strip@period 6
\ltx@GlobalAppendToMacro 25	\NR@showkeystrue . . . 20	T	\T@nameref 370, 387, 392
\ltx@ifUndefined 128, 130, 162, 165, 216, 277	\NR@spart 144, 155	\T@pageref . . . 333, 365	\T@Ref 341, 367
\ltx@label 70	\NR@ssect 121, 125	\T@ref 325, 363	\the 424
M	\NR@strip@period . 5, 10	\thepage . . 42, 60, 79, 85	\thesubequation 84
\M@ssect 132, 133	\NR@TE@begingroup 400, 404	\toks@ 420, 424	\ttl@ssect@i . . 229, 232
\MakeUppercase 346	\NR@temp 171, 172	U	\unskip 429, 430
\meaning 291	\NRorg@beamer@descriptionitem 266, 267, 270	V	\vnameref 428
N	\NROrg@begingroup 403, 405	W	\write 82, 101
\Nameref 394	\NRorg@begintheorem 286, 297	X	\x 249, 257, 288, 289, 294, 418, 419, 423, 424, 426
\nameref . . 384, 394, 429	\NRorg@descriptionlabel 219, 222	Y	\y 290, 291
\newcommand 311	\NROrg@ifthenelse 398, 401	Z	\z 291, 292, 294
\newcounter 114	\NROrg@l@st@MakeCaption 438, 444		
\NewDocumentCommand 386	\NRorg@LT@c@ption 205, 207		
\newif 14	\NRorg@M@ssect . 132, 139		
\newlabel 40, 58, 83, 102	\NRorg@opargbegintheorem 278, 281		
\nobreak 93	\NRorg@ttl@ssect@i 229, 234		
\noexpand 80, 250, 252, 253	P		
\NR@@caption . 195, 198	\PackageWarning . . . 390		
\NR@@setref . . 317, 319	\pageref . . 364, 394, 408		
\NR@@vpageref . 414, 421	\protect 80		
\NR@chapter 145, 159, 183	\protected@write 39, 57		
\NR@getttitle . . 109, 118, 124, 135, 137, 150, 154, 158, 166, 169, 173, 176, 178, 188, 197, 211, 221, 233, 252, 264, 269, 280, 296	\providecommand 24, 302, 303, 309, 310, 395		
\NR@MakeUppercaseFirstOfFive 343, 345, 350	R		
\NR@part 143, 151	\Ref 366		
\NR@PatchBeamer 245, 260, 261, 262			