

Section name references in L^AT_EX*

Sebastian Rahtz (deceased)

Heiko Oberdiek (inactive)

The L^AT_EX Project

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

2022-05-16

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 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)

Contents

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

*This file has version number v2.49, last revised 2022-05-16.

4	Implementation	4
4.1	\label stuff	4
4.2	Changes of section macros	6
4.2.1	Class beamer	9
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 varioref	14
4.7	Support for package listings	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 L^AT_EX 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 gettitlestring 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`

- `\LT@c@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 varioreref 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 `gettitlestring` 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 `gettitlestring` how to change the method. It also provides a hook to remove additional unwanted macros, not supported by the package. Example:

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

4 Implementation

```
1 <*package>
2 \RequirePackage{refcount}[2006/02/12]
3 \RequirePackage{gettitlestring}[2009/12/18]
4 \RequirePackage{ltxcmds}[2009/12/12]
```

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).

```
\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\@nil{#1}

7 \def\NR@sanitize@labelname{%
8     \@onelvel@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@showkeystrue
21     }%
22     \endgroup
23 }{}

\label@hook
24 \providecommand*\label@hook{}%
25 \ltx@GlobalAppendToMacro{\label@hook}{%
26   \NR@sanitize@labelname
27 }

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

\ltx@label
63 \let\ltx@label\label

```

Needed for the *subeqnarray* package.

```

\slabel
64 \Qifundefined{slabel}{}{%
65   \def\slabel#1{%
66     \Qbsphack
67     \if@filesw
68       \begingroup
69         \def\label@name{\#1}%
70         \label@hook
71         \let\thepage\relax
72         \def\protect{\noexpand\noexpand\noexpand}%
73         \edef\@tempa{%
74           \write\auxout{%
75             \string\newlabel{\#1}{%
76               {\thesubequation}%
77               {\thepage}%
78               {\@currentlabelname}%
79               {\@currentHref}{}{}%}
80             }%
81           }%
82           }%
83         \expandafter\endgroup
84         \@tempa
85         \if@nobreak\ifvmode\nobreak\fi\fi
86       \fi
87       \Qesphack
88     }%
89 }

```

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

```

\@writetocindents@
90 \def\@writetocindents@{%
91   \begingroup
92   \Qfor\@tempa:=-1,0,1,2,3\do{%
93     \immediate\write\auxout{%
94       \string\newlabel[tocindent]{\@tempa}{%
95         \csname r@tocindent\@tempa\endcsname{}{}{}{}%}
96       }%
97     }%
98   }%
99   \endgroup
100 }

```

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@gettite
101 \def\NR@gettite#1{%
102   \GetTitleString{\#1}%
103   \let\@currentlabelname\GetTitleStringResult

```

```
104 }
```

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

```
\NR@sect
105 \let\NR@sect\@sect
106 \newcounter{section@level}

\@sect
107 \@ifundefined{NR@nopatch@sectioning}
108 { \def\@sect#1#2#3#4#5#6[#7]#8{%
109   \setcounter{section@level}{#2}%
110   \NR@getttitle{#7}%
111   \NR@sect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}]{\Sectionformat{#8}{#2}}%
112 }{}{}}
```

and now the unnumbered ones

```
\NR@ssect
113 \let\NR@ssect\@ssect

\@ssect
114 \@ifundefined{NR@nopatch@sectioning}
115 { \def\@ssect#1#2#3#4#5{%
116   \NR@getttitle{#5}%
117   \NR@ssect{#1}{#2}{#3}{#4}{\Sectionformat{#5}{#1}}%
118 }{}{}}
```

Support for class memoir.

```
119 \@ifundefined{NR@nopatch@sectioning}
120 { \ltx@ifundefined{ifheadnameref}{%
121 }{%
122   \ltx@ifundefined{M@sect}{%
123     \let\NRorg@M@sect\@sect
124     \def\@sect#1#2#3#4#5#6[#7]#[#8]{%
125       \ifheadnameref
126         \NR@getttitle{#8}%
127       \else
128         \NR@getttitle{#7}%
129       \fi
130       \NRorg@M@sect{#1}{#2}{#3}{#4}{#5}{#6}[{#7}][{#8}]%
131     }%
132   }%
133 }{}{}}
```

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

```
135 \let\NR@part\@part
136 \let\NR@spart\@spart
137 \let\NR@chapter\@chapter
138 \let\NR@schapter\@schapter
```

```

139 \@ifundefined{NR@nopatch@sectioning}%
140 {%
141   \long\def\@part[#1]{%
142     \NR@getttitle{#1}%
143     \NR@part[{#1}]{#2}%
144   }%
145   \long\def\@spart#1{%
146     \NR@getttitle{#1}%
147     \NR@spart{#1}%
148   }%
149   \def\@chapter[#1]{%
150     \NR@getttitle{#1}%
151     \NR@chapter[{#1}]{#2}%
152   }%
153   \@ifclassloaded{memoir}{%
154     \ltx@ifUndefined{ifheadnameref}{%
155       }{%
156         \def\@chapter[#1]{%
157           \ltx@ifUndefined{ch@pt@c}{%
158             \NR@getttitle{#1}%
159           }{%
160             \ifx\ch@pt@c\ltx@empty
161               \NR@getttitle{#2}%
162             \else
163               \def\NR@temp{#1}%
164               \ifx\NR@temp\ltx@empty
165                 \expandafter\NR@getttitle\expandafter{\ch@pt@c}%
166               \else
167                 \ifheadnameref
168                   \NR@getttitle{#1}%
169                 \else
170                   \expandafter\NR@getttitle\expandafter{\ch@pt@c}%
171                 \fi
172               \fi
173             \fi
174           }%
175           \NR@chapter[{#1}]{#2}%
176         }%
177       }%
178     }{%
179       \def\@schapter#1{%
180         \NR@getttitle{#1}%
181         \NR@schapter{#1}%
182       }{%

```

Captions

```

183 \AtBeginDocument{%
184   \@ifpackageloaded{hyperref}{}
185   {%
186     \@ifundefined{NR@nopatch@caption}
187     {\let\NR@caption\@caption
188      \long\def\@caption#1[#2]{%
189        \NR@getttitle{#2}%
190        \NR@caption{#1}[{#2}]%
```

```

191      } } %
192      { } %
193  } %

194  \@ifpackageloaded{longtable}{%
195    \@ifundefined{NR@nopatch@longtable}%
196    {%
197      \let\NRorg@LT@c@option\LT@c@option
198      \def\LT@c@option#1[#2]#3{%
199        \NRorg@LT@c@option{#1}[{#2}]{#3}%
200        \def\@tempa{#2}%
201        \ifx\@tempa\@empty
202        \else
203          \NR@getttitle{#2}%
204        \fi
205      } %
206    }{ } %
207  }{ } %

```

Environment ‘description’.

```

208  \ltx@ifUndefined{descriptionlabel}{%
209  }{%
210    \@ifundefined{NR@nopatch@longtable}%
211      {\let\NRorg@descriptionlabel\descriptionlabel
212      \def\descriptionlabel#1{%
213        \NR@getttitle{#1}%
214        \NRorg@descriptionlabel{#1}%
215      } %
216    }{ } %
217  } %
218 }

```

Compatibility for package titlesec.

```

219 \AtBeginDocument{%
220  \@ifpackageloaded{titlesec}{%
221    \let\NRorg@ttl@sect@i\ttl@sect@i
222    \@ifundefined{NR@nopatch@titlesec}%
223    {%
224      \def\ttl@sect@i#1#2[#3]#4{%
225        \NR@getttitle{#4}%
226        \NRorg@ttl@sect@i{#1}{#2}[{#3}]{#4}%
227      } %
228    }{ } %
229  }{ } %
230 }

```

4.2.1 Class beamer

```

231 \@ifclassloaded{beamer}{%
232   \@ifundefined{NR@nopatch@beamer}%
233   {%
234     \def\NR@PatchBeamer#1{%
235       \expandafter\let\csname NRorg@beamer@\#1\expandafter\endcsname
236       \csname beamer@\#1\endcsname
237     \begingroup

```

```

238     \edef\x{\endgroup
239     \long\def\expandafter\noexpand\csname beamer@#1\endcsname
240         [####1]{% hash-ok
241             \noexpand\NR@getttitle{####1}%
242             \expandafter\noexpand\csname NRorg@beamer@#1\endcsname
243             [{####1}]%
244         }%
245     }%
246     \x
247 }%
248 \NR@PatchBeamer{section}%
249 \NR@PatchBeamer{subsection}%
250 \NR@PatchBeamer{subsubsection}%

```

Theorem names.

```

251     \addtobeamertemplate{theorem begin}{%
252         \expandafter\NR@getttitle\expandafter{\inserttheoremmaddition}%
253     }{}%
254     \@ifdefinable{\NRorg@beamer@descriptionitem}{%
255         \let\NRorg@beamer@descriptionitem\beamer@descriptionitem
256         \renewcommand{\beamer@descriptionitem}[1]{%
257             \NR@getttitle{#1}%
258             \NRorg@beamer@descriptionitem{#1}%
259         }%
260     }%
261 }{}%
262 }{}%

```

4.2.2 Theorems

```

263 \ltx@ifundefined{@opargbegintheorem}{}{%
264     \let\NRorg@opargbegintheorem\@opargbegintheorem
265     \def\@opargbegintheorem#1#2#3{%
266         \NR@getttitle{#3}%
267         \NRorg@opargbegintheorem{#1}{#2}{#3}%
268     }%
269 }
270 \AtBeginDocument{%
271     \ifpackageloaded{amsthm}{%
272         \let\NRorg@begintheorem\@begintheorem
273         \begingroup
274             \edef\x{macro:\string#1\string#2[\string#3]}%
275             \onelevel@sanitize\x
276             \def\y#1->#2\@nil{#1}%
277             \edef\z{\expandafter\y\meaning\@begintheorem->\@nil}%
278             \onelevel@sanitize\z
279         \expandafter\endgroup
280         \ifx\x\z
281             \def\@begintheorem#1#2[#3]{%
282                 \NR@getttitle{#3}%
283                 \NRorg@begintheorem{#1}{#2}{#3}%
284             }%
285         \fi
286     }{}%
287 }

```

4.3 Referencing stuff

We default the label and hypertext reference to be empty.

```
288 \providecommand*{\@currentlabelname}{}  
289 \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  
290 \long\def\@firstoffive#1#2#3#4#5{#1}  
  
\@secondoffive  
291 \long\def\@secondoffive#1#2#3#4#5{#2}  
  
\@thirdoffive  
292 \long\def\@thirdoffive#1#2#3#4#5{#3}  
  
\@fourthoffive  
293 \long\def\@fourthoffive#1#2#3#4#5{#4}  
  
\@fifthoffive  
294 \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 `\emptyset`.

```
\@safe@activestruue  
295 \providecommand*{\@safe@activestruue}{%}  
  
\@safe@activesfalse  
296 \providecommand*{\@safe@activesfalse}{%}  
  
\NR@ref@showkeys  
297 \newcommand{\NR@ref@showkeys}[1]{%  
  
\NR@setref  
298 \def\NR@setref#1{  
299   \begingroup  
300     \@safe@activestruue  
301     \expandafter  
302   \endgroup  
303   \expandafter\NR@@setref\csname r@#1\endcsname  
304 }  
  
\NR@@setref  
305 \def\NR@@setref#1{  
306   \ifx\@undefined#1%  
307     \let#1\relax  
308   \fi  
309   \@setref#1%  
310 }
```

```

\T@ref
311 \def\T@ref#1{%
312   \NR@ref@showkeys{#1}%
313   \NR@setref{#1}\@firstoffive{#1}%
314 }%

\@refstar
315 \def\@refstar#1{%
316   \NR@ref@showkeys{#1}%
317   \NR@setref{#1}\@firstoffive{#1}%
318 }%

\T@pageref
319 \def\T@pageref#1{%
320   \NR@ref@showkeys{#1}%
321   \NR@setref{#1}\@secondoffive{#1}%
322 }%

\@pagerefstar
323 \def\@pagerefstar#1{%
324   \NR@ref@showkeys{#1}%
325   \NR@setref{#1}\@secondoffive{#1}%
326 }%

\T@Ref
327 \def\T@Ref#1{%
328   \NR@ref@showkeys{#1}%
329   \NR@setref{#1}\NR@MakeUppercaseFirstOfFive{#1}%
330 }%
331 \def\NR@MakeUppercaseFirstOfFive#1#2#3#4#5{%
332   \MakeUppercase#1%
333 }%

\@Refstar
334 \def\@Refstar#1{%
335   \NR@ref@showkeys{#1}%
336   \NR@setref{#1}\NR@MakeUppercaseFirstOfFive{#1}%
337 }%

338 \ifNR@showkeys
339   \ifx\SK@ref\@empty
340   \else
341   \renewcommand\NR@ref@showkeys[1]{%
342     \@safe@activestrue
343     \SK@\SK@ref{#1}%
344     \@safe@activesfalse}
345   \fi
346 \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.

347 \AddToHook{begindocument}{%

```

```

\ref
348 \DeclareDocumentCommand\ref{s}
349   {\IfBooleanTF{#1}{\@refstar}{\T@ref}}%

\pageref
350 \DeclareDocumentCommand\pageref{s}
351   {\IfBooleanTF{#1}{\@pagerefstar}{\T@pageref}}%

\Ref
352 \DeclareDocumentCommand\Ref{s}
353   {\IfBooleanTF{#1}{\@Refstar}{\T@Ref}}%

354 }
355 \DeclareHookRule{begindocument}{showkeys}{before}{nameref}

```

4.4 Usage and frontend

Access the (third) name part with \nameref;

```

\T@nameref
356 \def\T@nameref#1{%
357   \NR@ref@showkeys{#1}%
358   \begingroup
359     \let\label\gobble
360     \NR@setref{#1}\@thirdoffive{#1}%
361   \endgroup
362 }%

\@namerefstar
363 \def\@namerefstar#1{%
364   \NR@ref@showkeys{#1}%
365   \begingroup
366     \let\label\gobble
367     \NR@setref{#1}\@thirdoffive{#1}%
368   \endgroup
369 }%

\nameref
370 \@ifundefined{nameref}
371   {
372     \NewDocumentCommand\nameref{s}
373       {\IfBooleanTF{#1}{\@namerefstar}{\T@nameref}}%
374   }
375   {
376     \PackageWarning{nameref}{Redefining \string\nameref}
377     \RenewDocumentCommand\nameref{s}
378       {\IfBooleanTF{#1}{\@namerefstar}{\T@nameref}}%
379   }

\nameref
An extended form which gives title and page number. Not really useful, quotes
are english, and no starred version. variorref can do that better. Remove??
380 \def\nameref#1{\`{nameref}{#1}' on page~\pageref{#1}'

\Sectionformat The default for \Sectionformat
381 \providetcommand\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.

```
382 \@ifundefined{@kernel@pageref@exp}
383   {\@ifpackageloaded{ifthen}{%
384     \let\NROrg@ifthenelse\ifthenelse
385     \def\ifthenelse{%
386       \let\begingroup\NR@TE@begingroup
387       \NROrg@ifthenelse
388     }%
389     \let\NROrg@begingroup\begingroup
390     \def\NR@TE@begingroup{%
391       \let\begingroup\NROrg@begingroup
392       \begingroup
393       \def\ref##1{\getrefbykeydefault{##1}{}{??}}%
394       \def\pageref##1{\getrefbykeydefault{##1}{page}{0}}%
395     }%
396   }{}{}}
```

4.6 Compatibility with variorref

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

```
397 \AtBeginDocument{%
398   \ifx\csname @vpageref\endcsname\relax
399   \else
```

This requires a variorref newer than 2019-09-12

```
400   \let\NR@vpageref\@@vpageref
401   \def\@@vpageref#1[#2]#3{%
402     \begingroup
403     \csname @safe@activestrue\endcsname
404     \edef\x{#3}%
405     \@onelvel@sanitize\x
406     \toks@{%
407       \NR@vpageref{#1}[{#2}]%
408     }%
409     \edef\x{\endgroup
410       \the\toks@\{x\}%
411     }%
412     \x
413   }%
414   \DeclareRobustCommand\vnameref[1]{%
415     \unskip~\nameref{#1} %
416     \@vpageref[\unskip]{#1}%
417   }%
418 \fi
419 }
```

4.7 Support for package `listings`

```

420 \AtBeginDocument{%
421   \@ifpackageloaded{listings}{%
422     \@ifundefined{NR@nopatch@listings}%
423     {%
424       \let\NROrg@lst@MakeCaption\lst@MakeCaption
425       \def\lst@MakeCaption{%
426         \ifx\lst@label\empty
427         \else
428           \let\@currentlabelname\lst@@caption
429         \fi
430       \NROrg@lst@MakeCaption
431     }%
432   }{%
433   }{%
434 }%
435 }%
```

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	<code>\@ifpackageloaded</code>	<code>\@sect</code>
<code>\@{}</code>	<code>6</code>	<code>.. 16, 184, 194,</code>
<code>\@vpageref ..</code>	<code>400, 401</code>	<code>220, 271, 383, 421</code>
<code>\@Refstar ..</code>	<code>334, 353</code>	<code>\@ifundefined</code>
<code>\auxout ..</code>	<code>33, 51, 74, 93</code>	<code>18, 64, 107, 114,</code>
<code>\begin{theorem}</code>	<code>272, 277, 281</code>	<code>119, 139, 186,</code>
<code>\bsphack ..</code>	<code>29, 46, 66</code>	<code>195, 210, 222,</code>
<code>\caption ..</code>	<code>187, 188</code>	<code>232, 370, 382, 422</code>
<code>\chapter ..</code>	<code>137, 149, 156</code>	<code>\@namerefstar</code>
<code>\currentHref ..</code>	<code>... 38, 56, 79, 289</code>	<code>.... 363, 373, 378</code>
<code>\currentlabel ..</code>	<code>35, 53</code>	<code>\@nil</code>
<code>\currentlabelname ..</code>	<code>8, 9, 10, 37,</code>	<code>5, 11, 276, 277</code>
	<code>55, 78, 103, 288, 428</code>	<code>\@onelevel@sanitize</code>
<code>\empty ..</code>	<code>201, 339, 426</code>	<code>8, 275, 278, 405</code>
<code>\esphack ..</code>	<code>42, 60, 87</code>	<code>\@opargbegintheorem</code>
<code>\fifthoffive ..</code>	<code>294</code>	<code>264, 265</code>
<code>\firstoffive ..</code>	<code>290, 313, 317</code>	<code>\@pagerefstar</code>
<code>\for</code>	<code>92</code>	<code>323, 351</code>
<code>\fourthoffive ..</code>	<code>293</code>	<code>\@part</code>
<code>\gobble ..</code>	<code>359, 366</code>	<code>135, 141</code>
<code>\ifclassloaded</code>	<code>153, 231</code>	<code>\@refstar</code>
<code>\ifdefinable ..</code>	<code>254</code>	<code>315, 349</code>
		<code>\@safe@activesfalse</code>
		<code>296, 344</code>
		<code>\@safe@activestrue</code>
		<code>295, 300, 342</code>
		<code>\@chapter</code>
		<code>138, 179</code>
		<code>\@secondoffive</code>
		<code>291, 321, 325</code>
		<code>\@sect</code>
		<code>105, 107</code>
		<code>\@setref</code>
		<code>309</code>
		<code>\@spart</code>
		<code>136, 145</code>
		<code>\ch@pt@c .. 160, 165, 170</code>

\csname	95,	G	\MakeUppercase	332
235,	236,	239,	\meaning	277
242,	303,	398,	D	403
			\getrefbykeydefault	393, 394
			\GetTitleString	102
			\GetTitleStringResult	103
		I	\global	20
			\if@files w	67
			\if@nobreak	85
			\IfBooleanTF	349, 351, 353, 373, 378
		L	\ifheadnameref	126, 167
			\ifNR@showkeys	14, 44, 338
			\ifthenelse	384, 385
			\ifvmode	85
		M	\ifx	160, 164, 201, 280, 306, 339, 398, 426
			\immediate	93
			\insertttheoremaddition	252
		N	\label	28, 63, 359, 366
			\label@hook	24, 32, 50, 70
			\label@name	31, 49, 69
		O	\let	63, 71, 103, 105, 113, 124, 135, 136, 137, 138, 187, 197, 211, 221, 235, 255, 264, 272, 307, 359, 366, 384, 386, 389, 391, 400, 424, 428
			\long	141, 145, 188, 239, 290, 291, 292, 293, 294
		P	\lst@caption	428
			\lst@label	426
			\lst@MakeCaption	424, 425
		R	\LT@c@ption	197, 198
			\ltx@empty	5, 11, 160, 164
			\ltx@GlobalAppendToMacro	25
		S	\ltx@ifUndefined	120, 122, 154, 157, 208, 263
			\ltx@label	63
		T	\M@sect	124, 125
		U	\N@ameref	380
		V	\nameref	370, 380, 415
		W	\newcommand	297
		X	\newcounter	106
		Y	\NewDocumentCommand	372
		Z	\newif	14
			\newlabel	34, 52, 75, 94
			\nobreak	85
			\noexpand	72, 239, 241, 242
			\NR@caption	187, 190
			\NR@setref	303, 305
			\NR@vpageref	400, 407
			\NR@chapter	137, 151, 175
			\NR@gettite	101, 110, 116, 127, 129, 142, 146, 150, 158, 161, 165, 168, 170, 180, 189, 203, 213, 225, 241, 252, 257, 266, 282
			\NR@MakeUppercaseFirstOfFive	329, 331, 336
			\NR@part	135, 143
			\NR@PatchBeamer	234, 248, 249, 250
			\NR@ref@showkeys	297, 312, 316, 320, 324, 328, 335, 341, 357, 364
			\NR@sanitize@labelname	7, 26
			\NR@schapter	138, 181
			\NR@sect	105, 111
			\NR@setref	298, 313, 317, 321, 325, 329, 336, 360, 367
			\NR@showkeysfalse	15
			\NR@showkeystrue	20
			\NR@spart	136, 147
			\NR@ssect	113, 117
			\NR@strip@period	5, 10
			\NR@TE@begingroup	386, 390
			\NR@temp	163, 164
			\NRorg@beamer@descriptionitem	254, 255, 258
			\NROrg@begingroup	389, 391

\NRorg@begintheorem	R	\T@ref 311, 349
..... 272, 283	\Ref 352	\the 410
\NRorg@descriptionlabel	\ref 348, 393	\thepage . . . 36, 54, 71, 77
..... 211, 214	\relax . . . 6, 71, 307, 398	\thesubequation . . . 76
\NROrg@ifthenelse .	\renewcommand . . . 256, 341	\toks@ 406, 410
..... 384, 387	\RenewDocumentCommand 377	\ttl@sect@i 221, 224
\NROrg@lst@MakeCaption	\RequirePackage 2, 3, 4	U
..... 424, 430	\unskip 415, 416	
\NRorg@LT@c@ption .	S	V
..... 197, 199	\Sectionformat 111, 117, 381	\vnameref 414
\NRorg@M@sect .	\setcounter 109	W
\NRorg@opargbegintheorem	\SK@ 47, 343	\write 74, 93
..... 264, 267	\SK@label 47	X
\NRorg@ttl@sect@i .	\SK@ref 343	x 238, 246, 274,
..... 221, 226	\SK@ref 339	275, 280, 404,
P	\slabel 64	405, 409, 410, 412
\PackageWarning 376	\string 34,	Y
\pageref 350, 380, 394	52, 75, 94, 274, 376	\y 276, 277
\protect 72	\strip@period 6	Z
\protected@write 33, 51	T	\z 277, 278, 280
\providecommand 24, 288,	\T@nameref 356, 373, 378	
289, 295, 296, 381	\T@pageref 319, 351	
	\T@Ref 327, 353	