

The letltxmacro package

Heiko Oberdiek
<oberdiek@uni-freiburg.de>

2008/06/12 v1.1

Abstract

T_EX's `\let` assignment does not work for L^AT_EX macros with optional arguments or for macros that are defined as robust macros by `\DeclareRobustCommand`. This package defines `\LetLtxMacro` that also takes care of the involved internal macros.

Contents

1	Documentation	1
1.1	Supported macro definition commands	2
2	Implementation	2
2.1	Show cases	2
2.1.1	letltxmacro-showcases.tex	2
2.1.2	Result	3
2.2	Package	4
2.2.1	Catcodes and identification	4
2.2.2	Main macros	4
3	Test	6
3.1	Catcode checks for loading	6
3.2	Package tests	7
4	Installation	9
4.1	Download	9
4.2	Bundle installation	9
4.3	Package installation	10
4.4	Refresh file name databases	10
4.5	Some details for the interested	10
5	History	11
	[2008/06/09 v1.0]	11
	[2008/06/12 v1.1]	11
6	Index	11

1 Documentation

If someone wants to redefine a macro with using the old meaning, then one method is T_EX's command `\let`:

```
\newcommand{\Macro}{\typeout{Test Macro}}
\let\SavedMacro=\Macro
\renewcommand{\Macro}{%
  \typeout{Begin}%
```

```

\SavedMacro
\typeout{End}%
}

```

However, this method fails, if `\Macro` is defined by `\DeclareRobustCommand` and/or has an optional argument. In both cases \LaTeX defines an additional internal macro that is forgotten in the simple `\let` assignment of the example above.

`\LetLtxMacro {<new macro>} {<old macro>}`

Macro `\LetLtxMacro` behaves similar to \TeX 's `\let` assignment, but it takes care of macros that are defined by `\DeclareRobustCommand` and/or have optional arguments. Example:

```

\DeclareRobustCommand{\Macro}[1][default]{...}
\LetLtxMacro{\SavedMacro}{\Macro}

```

Then macro `\SavedMacro` only uses internal macro names that are derived from `\SavedMacro`'s macro name. Macro `\Macro` can now be redefined without affecting `\SavedMacro`.

1.1 Supported macro definition commands

<code>\newcommand</code> , <code>\renewcommand</code>	latex/base
<code>\newenvironment</code> , <code>\renewenvironment</code>	latex/base
<code>\DeclareRobustCommand</code>	latex/base
<code>\newrobustcmd</code> , <code>\renewrobustcmd</code>	etoolbox

2 Implementation

2.1 Show cases

2.1.1 letltxmacro-showcases.tex

```

1 (*showcases)
2 \NeedsTeXFormat{LaTeX2e}
3 \makeatletter

```

`\Line` The result is displayed by macro `\Line`. The percent symbol at line start allows easy grepping and inserting into the DTX file.

```

4 \newcommand*{\Line}[1]{%
5   \typeout{\@percentchar#1}%
6 }

7 \newcommand*{\ShowCmdName}[1]{%
8   \@ifundefined{#1}{}{%
9     \Line{%
10       \space\space(\expandafter\string\csname#1\endcsname) = %
11       (\expandafter\meaning\csname#1\endcsname)%
12     }%
13   }%
14 }

15 \newcommand*{\ShowCmds}[1]{%
16   \ShowCmdName{#1}%
17   \ShowCmdName{#1 }%
18   \ShowCmdName{\#1}%
19   \ShowCmdName{\#1 }%
20 }
21 \let\\\@backslashchar

```

\ShowDef

```

22 \newcommand*{\ShowDef}[2]{%
23   \begingroup
24     \Line{}%
25     \newcommand*{\DefString}{#2}%
26     \@onelevel@sanitize\DefString
27     \Line{\DefString}%
28     #2%
29     \ShowCmds{#1}%
30   \endgroup
31 }

32 \typeout{}
33 \Line{* LaTeX definitions:}
34 \ShowDef{cmd}{%
35   \newcommand{\cmd}[2][default]{}%
36 }
37 \ShowDef{cmd}{%
38   \DeclareRobustCommand{\cmd}{}%
39 }
40 \ShowDef{cmd}{%
41   \DeclareRobustCommand{\cmd}[2][default]{}%
42 }
43 \typeout{}
44 \RequirePackage{etoolbox}\relax
45 \Line{}
46 \Line{* etoolbox's robust definitions:}
47 \ShowDef{cmd}{%
48   \newrobustcmd{\cmd}{}%
49 }
50 \ShowDef{cmd}{%
51   \newrobustcmd{\cmd}[2][default]{}%
52 }
53 \typeout{}
54 \@@@end
55 \showcases

```

2.1.2 Result

* LaTeX definitions:

```

\newcommand {\cmd }[2][default]{
  (\cmd) = (macro:->\@protected@testopt \cmd \cmd {default})
  (\cmd) = (\long macro:[#1]#2->)

\DeclareRobustCommand {\cmd }{}
  (\cmd) = (macro:->\protect \cmd_ )
  (\cmd_) = (\long macro:->)

\DeclareRobustCommand {\cmd }[2][default]{
  (\cmd) = (macro:->\protect \cmd_ )
  (\cmd_) = (macro:->\@protected@testopt \cmd_ \cmd_ {default})
  (\cmd_) = (\long macro:[#1]#2->)

```

* etoolbox's robust definitions:

```

\newrobustcmd {\cmd }{}
  (\cmd) = (\protected\long macro:->)

\newrobustcmd {\cmd }[2][default]{
  (\cmd) = (\protected macro:->\@testopt \cmd {default})
  (\cmd) = (\protected\long macro:[#1]#2->)

```

2.2 Package

```
56 (*package)
```

2.2.1 Catcodes and identification

```
57 \begingroup
58   \catcode123 1 % {
59   \catcode125 2 % }
60   \def\x{\endgroup
61     \expandafter\edef\csname llm@AtEnd\endcsname{%
62       \catcode35 \the\catcode35\relax
63       \catcode64 \the\catcode64\relax
64       \catcode123 \the\catcode123\relax
65       \catcode125 \the\catcode125\relax
66     }%
67   }%
68   \x
69   \catcode35 6 % #
70   \catcode64 11 % @
71   \catcode123 1 % {
72   \catcode125 2 % }
73   \def\TMP@EnsureCode#1#2{%
74     \edef\llm@AtEnd{%
75       \llm@AtEnd
76       \catcode#1 \the\catcode#1\relax
77     }%
78     \catcode#1 #2\relax
79   }
80   \TMP@EnsureCode{40}{12}% (
81   \TMP@EnsureCode{41}{12}% )
82   \TMP@EnsureCode{42}{12}% *
83   \TMP@EnsureCode{45}{12}% -
84   \TMP@EnsureCode{46}{12}% .
85   \TMP@EnsureCode{47}{12}% /
86   \TMP@EnsureCode{58}{12}% :
87   \TMP@EnsureCode{61}{12}% =
88   \TMP@EnsureCode{62}{12}% >
89   \edef\llm@AtEnd{%
90     \llm@AtEnd
91     \escapechar\the\escapechar\relax
92   }
93   \escapechar=92 % '\
94
95   Package identification.
96   \NeedsTeXFormat{LaTeX2e}
97   \ProvidesPackage{letltxmacro}%
98   [2008/06/12 v1.1 Let assignment for LaTeX macros (HO)]
```

2.2.2 Main macros

\LetLtxMacro

```
97 \newcommand*{\LetLtxMacro}[2]{%
98   \edef\reserved@a{%
99     \noexpand\protect
100     \expandafter\noexpand
101     \csname\expandafter\@gobble\string#2 \endcsname
102   }%
103   \ifx\reserved@a#2\relax
104     \edef#1{%
105       \noexpand\protect
106       \expandafter\noexpand
107       \csname\expandafter\@gobble\string#1 \endcsname
108     }%
109     \expandafter\let
```

```

110 \csname\expandafter\@gobble\string#1 \expandafter\endcsname
111 \csname\expandafter\@gobble\string#2 \endcsname
112 \expandafter\llm@LetLtxMacro
113 \csname\expandafter\@gobble\string#1 \expandafter\endcsname
114 \csname\expandafter\@gobble\string#2 \endcsname
115 \else
116 \llm@LetLtxMacro{#1}{#2}%
117 \fi
118 }

```

\llm@LetLtxMacro

```

119 \def\llm@LetLtxMacro#1#2{%
120 \expandafter\llm@CheckParams\meaning#2:->\@nil{%
121 \begingroup
122 \ifx\llm@protected\@empty
123 \edef\x{%
124 \noexpand\@protected@testopt
125 \noexpand#2%
126 \expandafter\noexpand\csname\string#2\endcsname
127 }%
128 \expandafter\expandafter\expandafter\def
129 \expandafter\expandafter\expandafter\y
130 \expandafter\expandafter\expandafter{%
131 \expandafter\llm@CarThree#2{-}{-}\llm@nil
132 }%
133 \else
134 \edef\x{%
135 \noexpand\@testopt
136 \expandafter\noexpand\csname\string#2\endcsname
137 }%
138 \expandafter\expandafter\expandafter\def
139 \expandafter\expandafter\expandafter\y
140 \expandafter\expandafter\expandafter{%
141 \expandafter\llm@CarTwo#2{-}{-}\llm@nil
142 }%
143 \fi
144 \expandafter\endgroup\ifx\x\y
145 \begingroup
146 \def\@protected@testopt##1##2##3{%
147 \toks@={##3}%
148 \xdef\llm@GlobalTemp{%
149 \noexpand\@protected@testopt
150 \noexpand#1%
151 \expandafter\noexpand\csname\string#1\endcsname
152 {\the\toks@}%
153 }%
154 }%
155 \def\@testopt##1##2{%
156 \toks@={##2}%
157 \protected\xdef\llm@GlobalTemp{%
158 \noexpand\@testopt
159 \expandafter\noexpand\csname\string#1\endcsname
160 {\the\toks@}%
161 }%
162 }%
163 #2%
164 \endgroup
165 \let#1=\llm@GlobalTemp
166 \expandafter\let\csname\string#1\expandafter\endcsname
167 \csname\string#2\endcsname
168 \else
169 \let#1=#2\relax
170 \fi

```

```

171 }{%
172   \let#1=#2\relax
173 }%
174 }

\llm@CheckParams

175 \def\llm@CheckParams#1:->#2\@nil{%
176   \begingroup
177   \def\x{#1}%
178   \ifx\x\llm@macro
179     \endgroup
180     \def\llm@protected{}%
181     \expandafter\@firstoftwo
182   \else
183     \ifx\x\llm@protectedmacro
184       \endgroup
185       \def\llm@protected{\protected}%
186       \expandafter\expandafter\expandafter\@firstoftwo
187     \else
188       \endgroup
189       \expandafter\expandafter\expandafter\@secondoftwo
190     \fi
191   \fi
192 }

\llm@macro

193 \def\llm@macro{macro}
194 \@onelevel@sanitize\llm@macro

\llm@protectedmacro

195 \def\llm@protectedmacro{\protected macro}
196 \@onelevel@sanitize\llm@protectedmacro

\llm@CarThree

197 \def\llm@CarThree#1#2#3#4\llm@nil{#1#2#3}%

\llm@CarTwo

198 \def\llm@CarTwo#1#2#3\llm@nil{#1#2}%

199 \llm@AtEnd
200 </package>

```

3 Test

3.1 Catcode checks for loading

```

201 <*test1>
202 \NeedsTeXFormat{LaTeX2e}
203 \documentclass{minimal}
204 \makeatletter
205 \def\RestoreCatcodes{}
206 \count@=0 %
207 \loop
208   \edef\RestoreCatcodes{%
209     \RestoreCatcodes
210     \catcode\the\count@=\the\catcode\count@\relax
211   }%
212   \ifnum\count@<255 %
213     \advance\count@\@ne
214   \repeat

```

```

215
216 \def\RangeCatcodeInvalid#1#2{%
217   \count@=#1\relax
218   \loop
219     \catcode\count@=15 %
220     \ifnum\count@<#2\relax
221       \advance\count@\@ne
222     \repeat
223 }
224 \def\Test{%
225   \RangeCatcodeInvalid{0}{47}%
226   \RangeCatcodeInvalid{58}{64}%
227   \RangeCatcodeInvalid{91}{96}%
228   \RangeCatcodeInvalid{123}{127}%
229   \catcode'\@=12 %
230   \catcode'\=0 %
231   \catcode'\{=1 %
232   \catcode'\}=2 %
233   \catcode'\#=6 %
234   \catcode'\[=12 %
235   \catcode'\]=12 %
236   \catcode'\%=14 %
237   \catcode'\ =10 %
238   \catcode13=5 %
239   \RequirePackage{letltxmacro}[2008/06/12]\relax
240   \RestoreCatcodes
241 }
242 \Test
243 \csname @@end\endcsname
244 \end
245 </test1>

```

3.2 Package tests

```

246 <*test2>
247 \NeedsTeXFormat{LaTeX2e}
248 \nofiles
249 \documentclass{minimal}
250
251 \usepackage{letltxmacro}[2008/06/12]
252
253 \usepackage{qstest}
254 \IncludeTests{*}
255 \LogTests{log}{*}{*}
256
257 \makeatletter
258
259 \def\TestDef#1{%
260   \begingroup
261     \@makeother\%
262     \@makeother\%
263     \expandafter\@TestDef\csname #1\endcsname
264 }
265 \def\@TestDef#1#2{%
266   \edef\a{\expandafter\strip@prefix\meaning#1}%
267   \edef\b{\detokenize{#2}}%
268   \ifx\a\b
269     \else
270       \typeout{1 [\a]}%
271       \typeout{2 [\b]}%
272     \fi
273   \endgroup
274   \Expect*{\expandafter\strip@prefix\meaning#1}*{\detokenize{#2}}%

```

```

275 }
276 \def\TestEquals#1#2{%
277   \Expect*{%
278     \expandafter\ifx\csname#1\expandafter\endcsname
279       \csname#2\endcsname
280     equals%
281     \else
282       wrong%
283     \fi
284   }{equals}%
285 }
286 \def\SaveA{%
287   \let\SavedA\TestA
288   \expandafter\let\csname\string\SavedA\expandafter\endcsname
289     \csname\string\TestA\endcsname
290   \expandafter\let\csname SavedA \expandafter\endcsname
291     \csname TestA \endcsname
292 }
293 \def\CheckA{%
294   \TestEquals{SavedA}{TestA}%
295   \TestEquals{\string\SavedA}{\string\TestA}%
296   \TestEquals{SavedA }{TestA }%
297 }
298
299 \begin{qstest}{robust}{robust}
300   \DeclareRobustCommand*{\TestA}{Test}%
301   \SaveA
302   \TestDef{TestA}{\protect \TestA }%
303   \CheckA
304   \DeclareRobustCommand{\TestA}{Test}%
305   \SaveA
306   \TestDef{TestA}{\protect \TestA }%
307   \LetLtxMacro\TestB\TestA
308   \TestDef{TestB}{\protect \TestB }%
309   \TestEquals{TestB }{TestA }%
310   \CheckA
311 \end{qstest}
312
313 \begin{qstest}{default}{default}
314   \newcommand{\TestA}[1][\relax default \empty]{TestA #1}%
315   \SaveA
316   \TestDef
317   {\TestA}{\@protected@testopt \TestA \TestA {\relax default \empty }}%
318   \LetLtxMacro\TestB\TestA
319   \TestDef
320   {\TestB}{\@protected@testopt \TestB \TestB {\relax default \empty }}%
321   \CheckA
322 \end{qstest}
323
324 \begin{qstest}{robustdefault}{robustdefault}
325   \DeclareRobustCommand{\TestA}[1][\default]{TestA}%
326   \SaveA
327   \LetLtxMacro\TestB\TestA
328   \TestDef{TestB}{\protect \TestB }%
329   \TestDef{TestB }{\@protected@testopt \TestB \TestB {\default }}%
330   \CheckA
331 \end{qstest}
332
333 \begin{qstest}{plain}{plain}
334   \LetLtxMacro\NewRelax\relax
335   \Expect*{\meaning\relax}*{\string\relax}%
336   \Expect*{\meaning\NewRelax}*{\string\relax}%

```



```

337 \LetLtxMacro\NewHbox\hbox
338 \Expect*{\meaning\hbox}*{\string\hbox}%
339 \Expect*{\meaning\NewHbox}*{\string\hbox}%
340 \LetLtxMacro\NewEmpty\empty
341 \Expect*{\meaning\empty}{macro:->}%
342 \Expect*{\meaning\NewEmpty}{macro:->}%
343 \end{qstest}

344 \usepackage{etoolbox}
345
346 \begin{qstest}{newrobustcmd}{newrobustcmd}
347 \newrobustcmd{\TestA}[1][\default]{TestA}%
348 \SaveA
349 \LetLtxMacro\TestB\TestA
350 \TestDef{TestB}{@testopt \TestB {\default }}%
351 \protected\edef\TestC{%
352 \noexpand@testopt
353 \expandafter\noexpand\csname\string\TestB\endcsname
354 {\noexpand\default}%
355 }%
356 \TestEquals{TestB}{TestC}%
357 \CheckA
358 \end{qstest}

359 \csname @@end\endcsname
360 </test2>

```

4 Installation

4.1 Download

Package. This package is available on CTAN¹:

[CTAN:macros/latex/contrib/oberdiek/letltxmacro.dtx](#) The source file.

[CTAN:macros/latex/contrib/oberdiek/letltxmacro.pdf](#) Documentation.

Bundle. All the packages of the bundle ‘oberdiek’ are also available in a TDS compliant ZIP archive. There the packages are already unpacked and the documentation files are generated. The files and directories obey the TDS standard.

[CTAN:install/macros/latex/contrib/oberdiek.tds.zip](#)

TDS refers to the standard “A Directory Structure for T_EX Files” ([CTAN:tds/tds.pdf](#)). Directories with `texmf` in their name are usually organized this way.

4.2 Bundle installation

Unpacking. Unpack the `oberdiek.tds.zip` in the TDS tree (also known as `texmf` tree) of your choice. Example (linux):

```
unzip oberdiek.tds.zip -d ~/texmf
```

Script installation. Check the directory `TDS:scripts/oberdiek/` for scripts that need further installation steps. Package `attachfile2` comes with the Perl script `pdfatfi.pl` that should be installed in such a way that it can be called as `pdfatfi`. Example (linux):

```
chmod +x scripts/oberdiek/pdfatfi.pl
cp scripts/oberdiek/pdfatfi.pl /usr/local/bin/
```

¹<http://ftp.ctan.org/tex-archive/>

4.3 Package installation

Unpacking. The `.dtx` file is a self-extracting `docstrip` archive. The files are extracted by running the `.dtx` through plain- \TeX :

```
tex letltxmacro.dtx
```

TDS. Now the different files must be moved into the different directories in your installation TDS tree (also known as `texmf` tree):

```
letltxmacro.sty      → tex/latex/oberdiek/letltxmacro.sty
letltxmacro.pdf      → doc/latex/oberdiek/letltxmacro.pdf
letltxmacro-showcases.tex → doc/latex/oberdiek/letltxmacro-showcases.tex
test/letltxmacro-test1.tex → doc/latex/oberdiek/test/letltxmacro-test1.tex
test/letltxmacro-test2.tex → doc/latex/oberdiek/test/letltxmacro-test2.tex
letltxmacro.dtx      → source/latex/oberdiek/letltxmacro.dtx
```

If you have a `docstrip.cfg` that configures and enables `docstrip`'s TDS installing feature, then some files can already be in the right place, see the documentation of `docstrip`.

4.4 Refresh file name databases

If your \TeX distribution (`te \TeX` , `mik \TeX` , ...) relies on file name databases, you must refresh these. For example, `te \TeX` users run `texhash` or `mktextlsr`.

4.5 Some details for the interested

Attached source. The PDF documentation on CTAN also includes the `.dtx` source file. It can be extracted by AcrobatReader 6 or higher. Another option is `pdftk`, e.g. unpack the file into the current directory:

```
pdftk letltxmacro.pdf unpack_files output .
```

Unpacking with \LaTeX . The `.dtx` chooses its action depending on the format:

plain- \TeX : Run `docstrip` and extract the files.

\LaTeX : Generate the documentation.

If you insist on using \LaTeX for `docstrip` (really, `docstrip` does not need \LaTeX), then inform the autodetect routine about your intention:

```
latex \let\install=y\input{letltxmacro.dtx}
```

Do not forget to quote the argument according to the demands of your shell.

Generating the documentation. You can use both the `.dtx` or the `.drv` to generate the documentation. The process can be configured by the configuration file `ltxdoc.cfg`. For instance, put this line into this file, if you want to have A4 as paper format:

```
\PassOptionsToClass{a4paper}{article}
```

An example follows how to generate the documentation with `pdf \LaTeX` :

```
pdflatex letltxmacro.dtx
makeindex -s gind.ist letltxmacro.idx
pdflatex letltxmacro.dtx
makeindex -s gind.ist letltxmacro.idx
pdflatex letltxmacro.dtx
```

5 History

[2008/06/09 v1.0]

- First version.

[2008/06/12 v1.1]

- Support for etoolbox's `\newrobustcmd` added.

6 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>\#</code>	233
<code>\%</code>	236
<code>\@</code>	229
<code>\@@end</code>	54
<code>\@TestDef</code>	263, 265
<code>\@backslashchar</code>	21
<code>\@empty</code>	122
<code>\@firstoftwo</code>	181, 186
<code>\@gobble</code> ..	101, 107, 110, 111, 113, 114
<code>\@ifundefined</code>	8
<code>\@makeother</code>	261, 262
<code>\@ne</code>	213, 221
<code>\@nil</code>	120, 175
<code>\@onelevel@sanitize</code>	26, 194, 196
<code>\@percentchar</code>	5
<code>\@protected@testopt</code>	124, 146, 149, 317, 320, 329
<code>\@secondoftwo</code>	189
<code>\@testopt</code>	135, 155, 158, 350, 352
<code>\[</code>	234
<code>\]</code>	18, 19, 21, 93, 230, 261, 317, 320, 329, 350
<code>\{</code>	231
<code>\}</code>	232
<code>\]</code>	235
<code>_</code>	237, 262
A	
<code>\a</code>	266, 268, 270
<code>\advance</code>	213, 221
B	
<code>\b</code>	267, 268, 271
<code>\begin</code>	299, 313, 324, 333, 346
C	
<code>\catcode</code>	58, 59, 62, 63, 64, 65, 69, 70, 71, 72, 76, 78, 210, 219, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238
<code>\CheckA</code> ...	293, 303, 310, 321, 330, 357
<code>\cmd</code>	35, 38, 41, 48, 51
<code>\count@</code>	206, 210, 212, 213, 217, 219, 220, 221
<code>\csname</code> ..	10, 11, 61, 101, 107, 110, 111, 113, 114, 126, 136, 151, 159, 166, 167, 243, 263, 278, 279, 288, 289, 290, 291, 353, 359
D	
<code>\DeclareRobustCommand</code>	38, 41, 300, 304, 325
<code>\default</code>	325, 329, 347, 350, 354
<code>\DefString</code>	25, 26, 27
<code>\detokenize</code>	267, 274
<code>\documentclass</code>	203, 249
E	
<code>\empty</code>	314, 317, 320, 340, 341
<code>\end</code>	244, 311, 322, 331, 343, 358
<code>\endcsname</code> ..	10, 11, 61, 101, 107, 110, 111, 113, 114, 126, 136, 151, 159, 166, 167, 243, 263, 278, 279, 288, 289, 290, 291, 353, 359
<code>\escapechar</code>	91, 93
<code>\Expect</code>	274, 277, 335, 336, 338, 339, 341, 342
H	
<code>\hbox</code>	337, 338, 339
I	
<code>\ifnum</code>	212, 220
<code>\ifx</code> ..	103, 122, 144, 178, 183, 268, 278
<code>\IncludeTests</code>	254
L	
<code>\LetLtxMacro</code>	2, 97, 307, 318, 327, 334, 337, 340, 349
<code>\Line</code>	4, 9, 24, 27, 33, 45, 46
<code>\llm@AtEnd</code>	74, 75, 89, 90, 199
<code>\llm@CarThree</code>	131, 197
<code>\llm@CarTwo</code>	141, 198
<code>\llm@CheckParams</code>	120, 175
<code>\llm@GlobalTemp</code>	148, 157, 165
<code>\llm@LetLtxMacro</code>	112, 116, 119
<code>\llm@macro</code>	178, 193
<code>\llm@nil</code>	131, 141, 197, 198

<code>\llm@protected</code>	122, 180, 185	<code>\SavedA</code>	287, 288, 295
<code>\llm@protectedmacro</code>	183, 195	<code>\ShowCmdName</code>	7, 16, 17, 18, 19
<code>\LogTests</code>	255	<code>\ShowCmds</code>	15, 29
<code>\loop</code>	207, 218	<code>\ShowDef</code>	22, 34, 37, 40, 47, 50
M		<code>\space</code>	10
<code>\makeatletter</code>	3, 204, 257	<code>\strip@prefix</code>	266, 274
<code>\meaning</code>	11, 120, 266, 274, 335, 336, 338, 339, 341, 342	T	
N		<code>\Test</code>	224, 242
<code>\NeedsTeXFormat</code>	2, 94, 202, 247	<code>\TestA</code>	287, 289, 295, 300, 302, 304, 306, 307, 314, 317, 318, 325, 327, 347, 349
<code>\newcommand</code> 4, 7, 15, 22, 25, 35, 97, 314		<code>\TestB</code>	307, 308, 318, 320, 327, 328, 329, 349, 353
<code>\NewEmpty</code>	340, 342	<code>\TestC</code>	351
<code>\NewHbox</code>	337, 339	<code>\TestDef</code>	259, 302, 306, 308, 316, 319, 328, 329, 350
<code>\NewRelax</code>	334, 336	<code>\TestEquals</code> 276, 294, 295, 296, 309, 356	
<code>\newrobustcmd</code>	48, 51, 347	<code>\the</code> 62, 63, 64, 65, 76, 91, 152, 160, 210	
<code>\nofiles</code>	248	<code>\TMP@EnsureCode</code>	73, 80, 81, 82, 83, 84, 85, 86, 87, 88
P		<code>\toks@</code>	147, 152, 156, 160
<code>\protect</code>	99, 105, 302, 306, 308, 328	<code>\typeout</code>	5, 32, 43, 53, 270, 271
<code>\protected</code>	157, 185, 195, 351	U	
<code>\ProvidesPackage</code>	95	<code>\usepackage</code>	251, 253, 344
R		X	
<code>\RangeCatcodeInvalid</code>		<code>\x</code>	60, 68, 123, 134, 144, 177, 178, 183
	216, 225, 226, 227, 228	Y	
<code>\repeat</code>	214, 222	<code>\y</code>	129, 139, 144
<code>\RequirePackage</code>	44, 239		
<code>\reserved@a</code>	98, 103		
<code>\RestoreCatcodes</code>	205, 208, 209, 240		
S			
<code>\SaveA</code>	286, 301, 305, 315, 326, 348		