The **showkeys** package[*]

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1 Introduction

sec:intro

`showkeys.sty` modifies the `\label`, `\ref`, `\pageref`, `\cite`, and `\bibitem` commands so that the 'internal' key is printed. The package tries hard to position these labels so that the formatting of the rest of the document is unchanged. `\label` and `\bibitem` cause the key to appear in a box either in the margin, or in a TeX box of zero width, which may possibly over-print other text. The `\ref`, `\pageref` and `\cite` commands print their arguments in small type, raised just above the line, like this: sec:intro . This package works with the fleqn option, the packages in the AMS-LaTeX collection, and the varioref, natbib and harvard packages.

2 Package Options

options

Some people have commented that the printing of the `\ref` and `\cite` keys is less useful than the printing of the `\label` keys and so **showkeys** now supports two options that can be given in the `\usepackage` command:

notref to stop the redefinition of `\ref` and `\pageref`, and related commands from the varioref package.

notcite to stop the redefinition of `\cite` and related commands from the harvard and natbib packages.

So if the package is loaded with `\usepackage[notref]{showkeys}` then `\ref` will have its standard definition, but `\label` will print its key argument (usually in the margin).

If you find the printed keys distracting, but don't want to use the above options to stop them altogether you may use:

color Print the keys in a distinguishing colour. The default value is a light grey.

The colours may be changed by redefining the following two colours after the package is loaded. `refkey` (also used for `\cite`) and `labelkey` (also used for `\bibitem`). The defaults are:

```
\definecolor{refkey}{gray}{.75}
\definecolor{labelkey}{gray}{.75}
```

If this option is used the **color** package will be loaded.
The package accepts two further options.

final to supress the action of this package, for 'final' versions.

draft the normal behaviour of this package.

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[*]This file has version number v3.13, last revised 2006/01/09.

Clearly there is not much point in entering the `final` option directly in the `\usepackage` command, as just not loading this package would have the same effect, and execute more quickly, however the `final` option may be useful as it may be used once in the `documentclass` command to affect any number of packages that may be loaded. The `draft` option does not do anything, but is there to honour an informal convention that packages have these options in pairs.

You can also control the appearance of the typeset label with the command `\showkeyslabelformat`, which takes one argument. The default is

```
\providecommand*\showkeyslabelformat[1]{%
  \fbox{\normalfont\small\ttfamily#1}}
```

The command is called inside a group so you can put in local modifications of `\fboxsep`, for instance, without them leaking to the rest of the document.

3   More Examples

examples

The only other similar package that I could find in the macro index, [3], was showlabels.sty, [1]. After the first draft of this package was written, I found [2] on my local installation! I think the current package is more robust than [2], but I thought that `showkeys` was rather a good name, so I have stolen it for this file.

e^1

1. This has `\label` immediately after `\item`.

e^2

2. This has the `\label` at the end.

A minipage :- $\Big\{$ Within environments like this `minipage`, we cannot use `\marginpar`[1], so the appearance is slightly different. Here is that `enumerate` environment again:

  m&e^1

   1. This has `\label` immediately after `\item`.

  m&e^2

   2. This has the `\label` at the end.

Displayed math (without `equation` counter).

$$0 = 0$$ disp

Some text refering to the maths on page 2, and the item 1.

If `showkeys` thinks that the current environment is going to produce an "equation number", then it does not show the label where the `\label` command occurs, but tries to put it in the margin, as shown with equation 1. The package 'knows' about the standard `equation` and `eqnarray` environments, and also all the numbered alignment environments offered by the AMSLaTeX package, `amsmath`.

$$1 = 1 \tag{1}$$

eq:xx

$$\begin{aligned} 2 &= 2 \tag{2}\\ 3 &= 3 \\ 4 &= 4 \tag{3} \end{aligned}$$

eqnar:a

eqnar:b

---

[1]Actually `\marginpar` is not used at all in this package now.

Within a `figure` environment, the `\label` must not come before the `\caption` command. If you place `\label` inside the argument of `\caption` the label will be shown like this:

Figure 1: Within the caption argument. `cap:a`

If you place `\label` immediately after the `\caption` command it will be shown like this:

Figure 2: Immediately after the caption argument.   `cap:b`

If you place the `\label` command at some random point after the `\caption` command, it may be shown like:

Figure 3: In vertical mode not immediately after a box.

`cap:c`

References

`GN:sl` [1] Gil Neiger, *showlabels.sty*, Undated package, similar to this one, but shows labels inline, affecting the formating of the document.

`anon:sk` [2] Annonymous, *showkeys.sty*, Package, dated 14 May 1988. Very similar to this one, also uses `\marginpar` in outer vertical mode.

`DMJ:mi` [3] David M. Jones, *TeX Macro Index*, A catalogue of TeX macros, including LaTeX packages, available from all good TeX archives.

4   The Macros

1 ⟨*package⟩

First we handle the options. Normally all related comands are defined to show their 'keys'. But since v3.03 one can specify:

notref to stop the redefinition of `\ref` (and `\pageref`, and related commands from varioref package),

notcite to stop the redefinition of `\cite` and related commands from the harvard and natbib packages.

```
2 \DeclareOption{notref}{\let\SK@ref\@empty}
3 \DeclareOption{notcite}{\let\SK@cite\@empty}
```

\SK@refcolor   Colour commands. Normally no-op.

\SK@labelcolor
```
4 \let\SK@refcolor\relax
5 \let\SK@labelcolor\relax
```

color option loads the color package and defines the colours. Delayed to the end of the package as package loading not allowed in this option section.

```
6 \DeclareOption{color}{\AtEndOfPackage{%
7   \RequirePackage{color}%
8   \definecolor{refkey}{gray}{.75}%
9   \definecolor{labelkey}{gray}{.75}%
10  \def\SK@refcolor{\color{refkey}}%
11  \def\SK@labelcolor{\color{labelkey}}}}
```

Allow `final` to be specified in the document class options to supress the loading of this package.

```
12 \DeclareOption{final}{\endinput}
13 \DeclareOption{draft}{}

14 \ProcessOptions
```

\SK@label   The saved original definitions

\SK@bibitem
\SK@lbibitem
```
15 \let\SK@label\label
16 \let\SK@bibitem\@bibitem
17 \let\SK@lbibitem\@lbibitem
```

\label The new definition, print the argument, and then do the old definition.

```
18 \def\label#1{%
19   \@bsphack
20   \SK@\SK@@label{#1}%
21   \begingroup
22     \SK@label{#1}%
23   \endgroup
24   \@esphack}
```

\@bibitem For \bibitem, position the showkeys code as for a standard list with \item and
\@lbibitem \label.

```
25 \def\@bibitem#1{%
26   \SK@bibitem{#1}\SK@\SK@@label{#1}\ignorespaces}
```

```
27 \def\@lbibitem[#1]#2{%
28   \SK@lbibitem[#1]{#2}\SK@\SK@@label{#2}\ignorespaces}
```

\SK@ Grab hold of #2 via \meaning so characters like & and ^ do not cause problems
later, and pass the result on to the command #1.

```
29 \def\SK@#1#2{%
30   \protected@edef\@tempa{#2}%
31   \expandafter#1\meaning\@tempa\SK@}
```

\showkeyslabelformat

```
32 \providecommand*\showkeyslabelformat[1]{%
33   \fbox{\normalfont\small\ttfamily#1}}
```

\SK@@label Strip off the initial segment of the \meaning output, and then put the rest either
in a \marginpar or in a box of size 0pt, hopefully not disturbing the surrounding
text.

```
34 \def\SK@@label#1>#2\SK@{%
```

Need to work globally as in some cases like alignments, and fleqn, the counter
will be printed in a different group to the \label command.

```
35   \gdef\SK@lab{\smash{\SK@labelcolor\showkeyslabelformat{#2}}}%
36   \ifvmode
37     \if@inlabel
```

If the \label is straight after \item (\bibitem is handled by this case as well)
then the item label has not been added to the page yet. It is hanging around in
the box \@labels waiting for the paragraph to start. So just need to attatch the
label to this box.

```
38       \global\setbox\@labels\hbox{%
39         \llap{\SK@lab\SK@lab@relax
40           \kern\@totalleftmargin\kern\marginparsep}%
41         \box\@labels}%
42     \else
```

If we insert a box into the main vertical list, do not want to change \prevdepth
as that would afect vertical spacing in the document. (The box itself should not
cause any difference in break points as there is a node there anyway coming from
the \write to the aux file.

```
43       \dimen@\prevdepth
44       \nointerlineskip
```

The inner vertical mode cases are mainly designed to do the right thing with float
captions, but seem to work OK in other cases as well.

```
45       \ifinner
46         \skip@\lastskip\unskip
```

In inner vertical mode, attach the label to the right of the immediately preceding box, if it is a box before the current point. Otherwise just put it in a box of zero dimensions, with no interline skip. (This may slightly move the surrounding text (but perhaps not now that \prevdepth is restored.)

```
47        \advance\skip@\lastskip\unskip
48        \setbox\z@\lastbox

49        \ifvoid\z@
50          \llap{\SK@lab\SK@lab@relax\kern\marginparsep}%
51        \else
52          \hbox{\box\z@\kern\marginparsep\SK@labx}%
53        \fi
54        \vskip\skip@
55      \else
```

In outer vertical mode, previously used a \vadjust at the start of the next paragraph (and before that used \marginpar). These methods sometimes cause extra space, eg if paragraph starts with a math display, so now just insert the box directly, taking care not to change \prevdepth.

```
56        \llap{\SK@lab\SK@lab@relax\kern\marginparsep}%
57      \fi
```

Restore \prevdepth.

```
58        \prevdepth\dimen@

59      \fi
60    \else
```

If we are in an numbered equation-style environment, do nothing as the code to print the number will also print the label, otherwise just stick the label at the current point, in a box of zero dimensions.

```
61    \csname SK@\@currenvir\endcsname
62    \ifSK@equation\else
63      \ifmmode
64        \SK@labx
65      \else
```

Inner horizontal mode. Not much we can do, just stick it here.

```
66        \ifinner
67          \rlap\SK@lab
68        \else
```

In outer horizontal mode use \vadjust to get to the margin.

```
69          \vadjust{\llap{\SK@lab\kern\marginparsep}}%
70        \fi
71        \SK@lab@relax
72      \fi
73    \fi
74  \fi}
```

\tagform@   Firstly we grab \@eqnnum.
\@eqnnum
\maketag@@@ `75 \AtBeginDocument{%`
            `76  \let\SK@eqnnum\@eqnnum`

Then check for amsmath where we grab the internal commands \tagform@ and \maketag@@@. Redefine them and redefine \@eqnnum as well.

```
77    \@ifpackageloaded{amsmath}{%
78      \let\SK@tagform@\tagform@
79      \let\SK@maketag@@@\maketag@@@
80      \iftagsleft@
81        \def\tagform@#1{%
82          \ifx\df@label\@empty
83            \SK@lab@relax
84          \else
```

```
85          \expandafter\SK@@label\meaning\df@label\SK@
86        \fi
87        \llap{\SK@lab\kern\marginparsep}%
88        \SK@lab@relax\SK@tagform@{#1}}%
89      \def\maketag@@@#1{%
90        \ifx\df@label\@empty
91          \SK@lab@relax
92        \else
93          \expandafter\SK@@label\meaning\df@label\SK@
94        \fi
95        \llap{\SK@lab\kern\marginparsep}\SK@lab@relax
96        \SK@maketag@@@{#1}%
97      }%
98      \def\@eqnnum{%
99        \llap{\SK@lab\kern\displaywidth\kern\marginparsep}%
100       \SK@lab@relax\SK@eqnnum}%
101    \else
```

Almost the same for tags on the right, except we use `\rlap` and typeset it after
the tag.

```
102      \def\tagform@#1{%
103        \ifx\df@label\@empty
104          \SK@lab@relax
105        \else
106          \expandafter\SK@@label\meaning\df@label\SK@
107        \fi
108        \SK@tagform@{#1}%
109        \rlap{\kern\marginparsep\SK@lab}\SK@lab@relax}%
110      \def\maketag@@@#1{%
111        \ifx\df@label\@empty
112          \SK@lab@relax
113        \else
114          \expandafter\SK@@label\meaning\df@label\SK@
115        \fi
116        \SK@maketag@@@{#1}%
117        \rlap{\kern\marginparsep\SK@lab}\SK@lab@relax
118      }%
119      \def\@eqnnum{\SK@eqnnum\rlap{\kern\marginparsep\SK@lab}%
120        \SK@lab@relax}%
121    \fi
122  }%
```

If `amsmath` wasn't loaded we check explicitly if the `leqno` option was used in
`\documentclass` and redefine accordingly.

```
123  {%
124    \@ifundefined{ver@leqno.clo}{%
125      \def\@eqnnum{\SK@eqnnum\rlap{\kern\marginparsep\SK@lab}%
126        \SK@lab@relax}%
127    }{%
128      \def\@eqnnum{%
129        \llap{\SK@lab\kern\displaywidth\kern\marginparsep}%
130        \SK@lab@relax\SK@eqnnum}%
131    }%
132  }%
133 }
```

\SK@labx   Print the label, and then globally reset the print command to `\relax`.

```
134 \def\SK@labx{\rlap\SK@lab\global\let\SK@lab\relax}
```

\SK@lab@relax   Clear the label.

```
135 \def\SK@lab@relax{\global\let\SK@lab\relax}\SK@lab@relax
```

<dl>
<dt>\SK@equation</dt>
<dt>\SK@eqnarray</dt>
</dl>

The following environments print an equation number, so \label should not print its argument at the point where it appears. Note this will fail to show the label if you are in an eqnarray environment, and use \label together with \nonumber This might just about make sense if you are going to use \pageref, but that is too bad. . .

```
136 \newif\ifSK@equation
137 \let\SK@equation\SK@equationtrue
138 \let\SK@eqnarray\SK@equationtrue
```

\eqnarray When the AMS packages are loaded showkeys assumes environments work 'The AMS way' However eqnarray (unlike equation) is not redefined, so here we need to remove some of the AMS hacks.

```
139 \toks@\expandafter{\eqnarray}
140 \edef\eqnarray{\let\noexpand\tagform@\noexpand\SK@tagform@\the\toks@}
```

\SK@align The AMS environments

\SK@alignat
\SK@xalignat
\SK@xxalignat
\SK@gather
\SK@multline
\SK@flalign

```
141 \let\SK@align\SK@equationtrue
142 \let\SK@alignat\SK@equationtrue
143 \let\SK@xalignat\SK@equationtrue
144 \let\SK@xxalignat\SK@equationtrue
145 \let\SK@gather\SK@equationtrue
146 \let\SK@multline\SK@equationtrue
147 \let\SK@flalign\SK@equationtrue
```

\SK@align* Starred versions of the AMS environments.

\SK@alignat*
\SK@flalign*
\SK@gather*
\SK@multline*
\SK@equation*

```
148 \expandafter\let\csname SK@align*\endcsname\SK@equationtrue
149 \expandafter\let\csname SK@alignat*\endcsname\SK@equationtrue
150 \expandafter\let\csname SK@flalign*\endcsname\SK@equationtrue
151 \expandafter\let\csname SK@gather*\endcsname\SK@equationtrue
152 \expandafter\let\csname SK@multline*\endcsname\SK@equationtrue
153 \expandafter\let\csname SK@equation*\endcsname\SK@equationtrue
```

\SK@def This macro redefines a command #1. The new definition can make use of the old definition as \SK@*old name*. If #1 is really a \protect'ed command with the real definition in a '*space*' command then the 'space' version is used as the old definition. Need to test this for each command as some package may have changed the status of a command to being 'protected'. The new definition is made as if with \DeclareRobustCommand, but with \def syntax for the argument specification.

```
154 \def\SK@def#1{%
155   \edef\@tempa{\expandafter\@gobble\string#1}%
156   \@ifundefined{\@tempa\space}%
157     {\expandafter\let\csname SK@\@tempa\endcsname#1}%
158     {\expandafter\let\csname SK@\@tempa\expandafter\endcsname
159                     \csname\@tempa\space\endcsname}%
160   \expandafter\def\expandafter#1\expandafter{%
161       \expandafter\protect\csname\@tempa\space\endcsname}%
162   \expandafter\def\csname\@tempa\space\endcsname}
```

The next section redefines \ref and \pageref (unless the notref option was given).

```
163 \ifx\SK@ref\@empty
```

Even if notref option is used, need to fudge the varioref commands as they use \label internally.

```
164 \AtBeginDocument{%
165   \@ifpackageloaded{varioref}{%
166     \SK@def\@@vpageref#1[#2]#3{{%
167       \let\label\SK@label
168       \SK@@@vpageref#1[#2]{#3}}}%
169   \def\vr@f#1{%
170       \leavevmode\unskip\vref@space
```

```
171        \ref{#1}%
172        {\let\label\SK@label
173        \vpageref[\unskip]{#1}}}%
174    }{}}
175 \else
```

Save the redefinition to `\begin{document}` so that this package can work with packages that redefine `\cite`. Tested with harvard and natbib packages. Also add code at this point to support varioref.

```
176 \AtBeginDocument{%
177    \SK@def\ref#1{\SK@\SK@@ref{#1}\SK@ref{#1}}%
178    \SK@def\pageref#1{\SK@\SK@@ref{#1}\SK@pageref{#1}}%
```

varioref support.

```
179    \@ifpackageloaded{varioref}{%
180      \SK@def\@@vpageref#1[#2]#3{{%
181        \let\label\SK@label\let\ref\SK@ref\let\pageref\SK@pageref
182        \leavevmode\unskip\SK@\SK@@ref{#3}\SK@@@vpageref#1[#2]{#3}}}%
183      \def\vr@f#1{%
184        \leavevmode\unskip\vref@space
185        \ref{#1}%
186        \let\label\SK@label\let\ref\SK@ref\let\pageref\SK@pageref
187        \vpageref[\unskip]{#1}}%
188    }{}}
```

```
189 \fi
```

Now redefine `\cite` unless `notcite` option given.

```
190 \ifx\SK@cite\@empty
```

```
191 \AtBeginDocument{%
192   \ifx\HAR@checkdef\@undefined\else
193      \expandafter\let\expandafter
194        \SK@HAR@bi\csname\string\harvarditem\endcsname
195      \expandafter\def\csname\string\harvarditem\endcsname[#1]#2#3#4{%
196        \SK@HAR@bi[#1]{#2}{#3}{#4}\SK@\SK@@label{#4}}%
197   \fi}
198 \else
```

```
199 \AtBeginDocument{%
200   \ifx\HAR@checkdef\@undefined
```

Standard (non-harvard) support, including extra cite commands from natbib and cite.

If cite or overcite is being used, redefine `\citen` rather than `\cite` so as not to spoil the space and punctuation calculations done by those packages.

```
201     \ifx\citen\@undefined
202       \SK@def\cite#1#{\SK@citea{#1}}%
203     \else
204       \SK@def\citen#1{\SK@\SK@@ref{#1}\SK@citen{#1}}%
205     \fi
206     \SK@def\citeauthor#1{\SK@\SK@@ref{#1}\SK@citeauthor{#1}}%
207     \SK@def\citefullauthor#1{\SK@\SK@@ref{#1}\SK@citefullauthor{#1}}%
208     \SK@def\citeyear#1{\SK@\SK@@ref{#1}\SK@citeyear{#1}}%
209   \else
```

In the harvard style do *not* redefine individual cite commands. Just redefine one internal command that is used in all the citation forms.

```
210     \SK@def\HAR@checkdef#1#2{%
211       \expandafter\SK@\expandafter\SK@@ref\expandafter{#1}%
212       \SK@HAR@checkdef{#1}{#2}}%
213     \expandafter\let\expandafter
214       \SK@HAR@bi\csname\string\harvarditem\endcsname
```

```
215        \expandafter\def\csname\string\harvarditem\endcsname[#1]#2#3#4{%
216          \SK@HAR@bi[#1]{#2}{#3}{#4}\SK@\SK@@label{#4}}%
217    \fi}

218 \def\SK@citea#1#2{%
219   \SK@\SK@@ref{#2}\SK@cite#1{#2}}

220 \fi
```

\SK@@ref This is much simpler than the printing of the label, as we know that we can be in horizontal mode.

```
221 \def\SK@@ref#1>#2\SK@{%
222   \leavevmode\vbox to\z@{%
223     \vss
224     \SK@refcolor
225     \rlap{\vrule\raise .75em%
226       \hbox{\underbar{\normalfont\footnotesize\ttfamily#2}}}}}}
```

227 ⟨/package⟩