Indian TeX Users Group

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On-line Tutorial on LATEX

The Tutorial Team

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14 Footnotes, Marginpars, and Endnotes

LaTeX has facilities to typeset "inserted" text, such as footnotes, marginal notes, figures and tables. This chapter looks more closely at different kinds of notes.

14.1 Footnotes

Footnotes are generated with the command

\footnote{*footnote_text*}

which comes immediately after the word requiring an explanation in a footnote. The next {*footnote_text*} appears as a footnote in a smaller typeface at the bottom of the page. The first line of the footnote is indented and is given the same footnote marker as that inserted in the main text. The first footnote on a page is separated from the rest of the page text by means of a short horizontal line.

The standard footnote marker is a small, raised number[1], which is sequentially numbered.

Footnotes produced with the \footnote command inside a `minipage` environment use the `mpfootnote` counter and are typeset at the bottom of the parbox produced by the `minipage`.[2]

However, if you use the \footnotemark command in a `minipage` it will produce a footnote mark in the same style and sequence as the main text footnotes—i.e., stepping the `mpfootnote` counter and using the \thefootnote command for the representation. This behavior allows you to produce a footnote inside your `minipage` that is typeset in sequence with the main text footnotes at the bottom of the page: you place a \footnotemark inside the `minipage` and the corresponding \footnotetext after it. See below:

Footnotes in a minipage are numbered using lowercase letters.[a]
This text references a footnote at the bottom of the page.[3]

---
[a] Inside minipage

```
\begin{minipage}{5cm}
Footnotes in a minipage are
numbered using lowercase
letters.\footnote{Inside
minipage} \par This text
references a footnote at
the bottom of the
page.\footnotemark \end{minipage}
\footnotetext{At bottom of page}
```

The footnote numbering is incremented throughout the whole document for the article class, where it is reset to 1 for each new chapter in the report and book classes.

---

[1] See how the footnote is produced: " ... raised number \footnote{See how the footnote is produced: ... }.

[2] With nested minipages, the footnote comes after the next \end{minipage} command, which could be at the wrong place.

[3] At bottom of page

14.1.1 Footnotes in Tabular Material

Footnotes appearing inside tabular material are not typeset by standard LATEX. Only `tabularx` and `longtable` environments will treat footnotes correctly. But footnotes used in these tables won't come just following the tables, but appear at the bottom of the page just like the footnotes used in the text. But in `longtable` you can place the footnotes as table notes by placing the longtable in a minipage. See below:

Table 14.1: PostScript type 1 fonts

Courier^a	cour,courb,courbi,couri
Nimbus^b	unmr, unmrs
URW Antiqua^b	uaqrrc
URW Grotesk^b	ugqp
Utopia^c	putb, putbi, putr, putri

^{a} Donated by IBM.
^{b} Donated by URW GmbH.
^{c} Donated by Adobe.

```
\begin{minipage}{.47\textwidth}
\renewcommand{\thefootnote}{\thempfootnote}
\begin{longtable}{ll}
\caption{PostScript type 1 fonts}\\
Courier\footnote{Donated by IBM.} &
cour,courb,courbi,couri \\
Nimbus\footnote{Donated by URW GmbH.} &
unmr, unmrs \\
URW Antiqua\footnotemark[\value{mpfootnote}]
& uaqrrc\\
URW Grotesk\footnotemark[\value{mpfootnote}]
& ugqp\\
Utopia\footnote{Donated by Adobe.} & putb,
putbi, putr, putri
\end{longtable}
\end{minipage}
```

You can also put your `tabular` or `array` environment inside a `minipage` environment, since in that case footnotes are typeset just following that environment. Note the redefinition of `\thefootnote` that allows us to make use of the `\footnotemark` command inside the `minipage` environment. Without this redefinition `\footnotemark` would have generated a footnote mark in the style of the footnotes for the main page.

```
\begin{minipage}{.5\linewidth}
\renewcommand{\thefootnote}%
{\thempfootnote}
\begin{tabular}{ll}
\multicolumn{2}{c}{\bfseries%
PostScript type 1 fonts} \\
Courier\footnote{Donated by IBM.}
& cour,courb,courbi,couri \\
Charter\footnote{Donated by
Bitstream.} & bchb,bchbi,bchr,bchri \\
Nimbus\footnote{Donated by
URW GmbH.} & unmr, unmrs \\
URW Antiqua\footnotemark%
[\value{mpfootnote}] & uaqrrc\\
URW Grotesk\footnotemark%
[\value{mpfootnote}] & ugqp\\
Utopia\footnote{Donated by Adobe.}
& putb, putbi, putr, putri
\end{tabular}
\end{minipage}
```

PostScript type 1 fonts

Courier^a	cour, courb, courbi, couri
Charter^b	bchb, bchbi, bchr, bchri
Nimbus^c	unmr, unmrs
URW Antiqua^c	uaqrrc
URW Grotesk^c	ugqp
Utopia^d	putb, putbi, putr, putri

^{a} Donated by IBM.
^{b} Donated by Bitstream.
^{c} Donated by URW GmbH.
^{d} Donated by Adobe.

Of course this approach does not automatically limit the width of the footnotes to the width of the table, so a little iteration with the `minipage` width argument might be necessary.

Another way to typeset table notes is with the package `threeparttable` by Donald Arseneau. This package has the advantage that it indicates unambiguously that you are

dealing with notes inside tables and, moreover, it gives you full control of the actual reference marks and offers the possibility of having a caption for your tabular material. In this sense, the `threeparttable` environment is similar to the nonfloating `table` environment.

```
\begin{threeparttable}
\caption{\textbf{PostScript type 1 fonts}}
\begin{tabular}{ll}
Courier\tnote{a} &
cour, courb, courbi, couri\\
Charter\tnote{b} &
bchb, bchbi, bchr, bchri \\
Nimbus\tnote{c} & unmr, unmrs \\
URW Antiqua\tnote{c} & uaqrrc\\
URW Grotesk\tnote{c} & ugqp\\
Utopia\tnote{d} &
putb, putbi, putr, putri
\end{tabular}
\begin{tablenotes}
\item[a] Donated by IBM.
\item[b] Donated by Bitstream.
\item[c] Donated by URW GmbH.
\item[d] Donated by Adobe.
\end{tablenotes}
\end{threeparttable}
```

Table 14.2: **PostScript type 1 fonts**

Courier[a]	cour, courb, courbi, couri
Charter[b]	bchb, bchbi, bchr, bchri
Nimbus[c]	unmr, unmrs
URW Antiqua[c]	uaqrrc
URW Grotesk[c]	ugqp
Utopia[d]	putb, putbi, putr, putri

[a] Donated by IBM.
[b] Donated by Bitstream.
[c] Donated by URW GmbH.
[d] Donated by Adobe.

14.1.2   Customizing footnotes

If the user wishes the footnote numbering to be reset to 1 for reach \section command with the article class, this may be achieved with putting

    \setcounter{footnote} {0}

before every sections or using the following command at preamble[4]

    \@addtoreset{footnote} {section}

The internal footnote counter has the name `footnote`. Each call to \footnote increments this counter by one and prints the new value in Arabic numbering as the footnote marker. A different style of marker can be implemented with the command

    \renewcommand{\thefootnote}{*number_style*{footnote}}

where *number_style* is one of the counter print commands. \arabic, \roman, \Roman, \alph, or \Alph. However, for the counter `footnote`, there is an additional counter print command available, \fnsymbol, which prints the counter values 1–9 as one of nine symbols:

$$\star \quad \dagger \quad \ddagger \quad \S \quad \P \quad \| \quad \star\star \quad \dagger\dagger \quad \ddagger\ddagger$$

It is up to the user to see that the footnote counter is reset to zero sometime before the tenth \footnote call is made. If the user wants to add values above nine, then he has to edit the definition of \fnsymbol. See an example, here which allows up to 12 footnotes without resetting the counter

---

[4] This command will only work within \makeatletter and \makeatother

```
\makeatletter
\def\@fnsymbol#1{\ensuremath{\ifcase#1\or *\or \dagger\or \ddagger\or
   \mathsection\or \mathparagraph\or \|\or **\or \dagger\dagger
   \or \ddagger\ddagger\or \mathsection\mathsection
   \or \mathparagraph\mathparagraph \or \|\|\else\@ctrerr\fi}}
\renewcommand{\thefootnote}{\fnsymbol{footnote}}
\makeatother
```

An optional argument may be added to the \footnote command

<div style="border:1px solid">\footnote[num]{footnote_text}</div>

where *num* is a positive integer that is used instead of the value of the footnote counter for the marker. In this case, the footnote counter is not incremented. For example[**],

```
\renewcommand{\thefootnote}{\fnsymbol{footnote}}
For example\footnote[7]{The 7th symbol .... marker.},
\renewcommand{\thefootnote}{\arabic{footnote}}
```

where the last line is necessary to restore the footnote marker style to its standard form. Otherwise, all future footnotes would be marked with symbols and not with numbers.

14.1.3   Footnote style parameters

The appearance of the standard footnote can be changed by customizing the parameters shown below:

\footnotesize   The font size used inside footnotes

\footnotesep   The height of a strut placed at the beginning of every footnote. If it is greater than the \baselineskip used for \footnotesize, then additional vertical space will be inserted above each footnote.

\skip\footins   A low-level TeX command that defines the space between the main text and the start of the footnotes. You can change its value with the \setlength or \addtolength commands by putting \skip\footins into the first argument, e.g.,

```
\addtolength{\skip\footins}{3mm}
```

\footnoterule   A macro to draw the rule separating footnotes from the main text. It is executed right after the vertical space of \skip\footins. It should take zero vertical space, i.e., it should use a negative skip to compensate for any positive space it occupies, for example:

```
\renewcommand{\footnoterule}{\vspace*{-3pt}%
  \rule{.4\columnwidth}{0.4pt}\vspace*{2.6pt}
```

You can also construct a fancier "rule" e.g., one consisting of a series of dots:

```
\renewcommand{\footnoterule}{\vspace*{-3pt}%
  \qquad\dotfill\qquad\vspace*{2.6pt}}
```

[**] The 7th symbol appears as the footnote marker.

14.2 Marginal notes

> `\marginpar[`*left-text*`]{`*right-text*`}`

The `\marginpar` command generates a marginal note. This command typesets the text given as an argument in the margin, the first line at the same height as the line in the main text where the `\marginpar` command occurs. The marginal note appearing here was generated with

<div style="text-align: right">This is a marginal note</div>

```
... command occurs\marginpar{This\\ is\\ a\\ marginal\\ note}.
The ...
```

When only the mandatory argument `right-text` is specified, then the text goes to the right margin for one-sided printing; to the outside margin for two-sided printing; and to the nearest margin for two-column formatting. When you specify an optional argument, then it is used for the left margin, while the second (mandatory) argument is used for the right.

There are few important things to understand when using marginal notes. Firstly, `\marginpar` command does not start a paragraph, that is, if it is used before the first word of a paragraph, the vertical alignment may not match the beginning of the paragraph. Secondly, if the margin is narrow, and the words are long (as in German), you may have to precede the first word by a `\hspace{0pt}` command to allow hyphenation of the first word. These two potential problems can be eased by defining a command `\marginlabel{`*text*`}`, which starts with an empty box `\mbox{}`, typesets a marginal note ragged left, and adds a `\hspace{0pt}` in front of the argument.

```
\newcommand{\marginlabel}[1]
    {\mbox{}\marginpar{\raggedleft\hspace{0pt}#1}}
```

By default, in one-sided printing the marginal notes go on the outside margin. These defaults can be changed by the following declarations:

`\reversemarginpar` marginal notes go into the opposite margin with respect to the default one

`\normalmarginpar` marginal notes go into the default margin

14.2.1 Uses of marginal notes

`\marginpar{}` can be used to draw attention to certain text passages by marking them with a vertical bar in the margin. The example marking this paragraph was made by including

```
\marginpar{\rule[-10.5mm]{1mm}{10mm}}
```

in the first line.

By defining a macro `\query` as shown below

```
\def\query#1#2{\underline{#1}\marginpar{#2}}
```

we can produce queries. For example L<u>A</u>TEX. This query is produced with the following command.

<div style="text-align: right">Hey! Look</div>

```
For example \query{\LaTeX}{Hey!\\ Look}{}. This ...
```

14.2.2   Style parameters for marginal notes

The following style parameters may be changed to redefine how marginal notes appear:

\marginparwidth   determines the width of the margin box

\marginparsep   sets the separation between the margin box and the edge of the main text

\marginparpush   is the smallest vertical distance between two marginal notes

These parameters are all lengths and are assigned new values as usual with the \setlength command

14.3   Endnotes

Scholarly works usually group notes at the end of each chapter or at the end of the documents. These are called endnotes. Endnotes are not supported in standard LaTeX, but they can be created in several ways.

The package endnotes (by John Lavagnino) typesets endnotes in a way similar to footnotes. It uses an extra external file, with extension .ent, to hold the text of the endnotes. This file can be deleted after the run since a new version is generated each time.

With this package you can output your footnotes as endnotes by simply giving the command:

```
\renewcommand{\footnote}{\endnote}
```

The user interface for endnotes is very similar to the one for footnotes after substituting the word "foot" for "end". The following example shows the principle of the use of endnotes, where you save text in memory with the \endnote command, and then typeset all accumulated text material at a point in the document controlled by the user.

This is simple text.[1] This is simple text.[2] This is simple text.[3]

Notes

[1] The first endnote.
[2] The second endnote.
[3] The third endnote.

This is some more simple text

```
This is simple text.\endnote{The first
endnote.} This is simple text.\endnote{The
second endnote.} This is simple
text.\endnote{The third endnote.}

\theendnotes\bigskip
This is some more simple text
```