Changing the font size in \TeX

Thomas Thurnherr

Abstract

Changing the font size in \TeX can be done on two levels, affecting either the whole document or elements within it. Using a different font size on a global level will affect all normal-sized text as well as the sizes of headings, footnotes, etc. By changing the font size locally, however, a single word, a few lines of text, a large table, or a heading throughout the document may be modified. Fortunately, there is no need for the writer to juggle with numbers when doing so. \TeX provides a set of macros for changing the font size locally, taking into consideration the document’s global font size.

1 Changing the font size on the document-wide level

The standard classes \texttt{article}, \texttt{report} and \texttt{book} support three different font sizes: 10pt, 11pt, 12pt. By default, the font size is set to 10pt and can be modified by passing any of the previously-mentioned value as a class option. As an example, suppose you want to change the font size for normal text to 12pt throughout the document. For the class \texttt{report}, this is how you would do that:

\begin{verbatim}
\documentclass[12pt]{report}
\end{verbatim}

In most cases, the available font sizes for the standard classes are sufficient and you do not have to bother about loading special packages that provide more options.

1.1 Extended font sizes for basic classes

Should you ever require a different font size, however, the \texttt{extsizes} package comes in handy. Along with the standard font sizes mentioned above, it provides the following additional options: 8pt, 9pt, 14pt, 17pt, and 20pt. As these font sizes require a reimplementation of the document classes, names are slightly different from the standard classes \texttt{article} and \texttt{report}:

\begin{verbatim}
\documentclass[9pt]{extarticle}
\documentclass[14pt]{extreport}
\end{verbatim}

1.2 KOMA-script and memoir classes

The KOMA-script document classes work very much the same in terms of font size as the standard classes. The only difference is the default font size which is 11pt for all classes except \texttt{scrlettr}. The latter has a default size of 12pt.

The memoir class, however, is more flexible when it comes to font sizes. It provides additional sizes ranging from 9pt all the way to 60pt. These options are available: 9pt, 10pt, 11pt, 12pt, 14pt, 17pt, 20pt, 25pt, 30pt, 36pt, 48pt, and 60pt. The following example illustrates their usage:

\begin{verbatim}
\documentclass[60pt,extrafontsizes]{memoir}
\end{verbatim}

The example illustrates a common problem with fonts larger than 25pt and the standard \TeX font Computer Modern (in \texttt{T1} encoding). They cannot exceed 25pt since larger sizes are not defined and therefore not available. The memoir class solves this problem with the \texttt{extrafontsizes} option. It changes the standard font to the scalable Latin Modern in \texttt{T1} encoding. This is equivalent to the following two lines of code in the document preamble:

\begin{verbatim}
\usepackage{lm} \usepackage[T1]{fontenc}
\end{verbatim}

1.3 Other classes

The AMS document classes have a few more font sizes than the basic classes, though not as many as \texttt{extsizes}. It’s always good to check the class documentation to see what’s supported—not all classes are the same.

2 Changing the font size locally

A common scenario is that the author of a document needs to change the font size for a word or paragraph, decrease the font size of a large table to make it fit on a page or increase the size of a heading throughout the document. \TeX implements a set of macros which allow changing font size from \texttt{huge} to \texttt{tiny}, literally. That way, the author does not have to worry about numbers. The macros, including the exact font size in points, are summarized in table 1.

<table>
<thead>
<tr>
<th>Font Size</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>\texttt{huge}</td>
<td>Font size is increased by 14pt</td>
</tr>
<tr>
<td>\texttt{small}</td>
<td>Font size is decreased by 4pt</td>
</tr>
</tbody>
</table>

A good rule of thumb is not to use too many different sizes and not to make things too small or too big.

\TeX provides two different ways to use these font size modifier macros: inline or as an environment using \begin\ldots\end:

\begin{verbatim}
{\Large This is some large text.\par}
\begin{footnotesize}
This is some footnote-sized text.
\end{footnotesize}
\end{verbatim}

The \texttt{par} command at the end of the inline example adjusts \texttt{baselineskip}, the minimum space between the bottom of two successive lines.

2.1 More sizes: \texttt{\Huge} and \texttt{\ssmall}

The \texttt{moresize} package adds two additional options to the list of macros above, \texttt{\Huge} and \texttt{\ssmall}. The first provides a font size bigger than the largest
available by default, whereas the latter fills the gap between \scriptsize and \tiny.

Since \HUGE changes the font size to a number bigger than 25pt and, as mentioned above, the standard font is not scalable, \TeX displays a warning saying the font size is not available and that it was replaced by the next smaller (\Huge). Again, one needs to use another font type, such as the Times Roman equivalent available in the PSNFSS package (see example below). This way, you can benefit from that “HUGE” font size provided by the moresize package. Here is an example:
\documentclass[11pt]{report}
\usepackage{mathptmx}
\usepackage[11pt]{moresize}
\begin{document}
\Huge Foo
\end{document}

\textbf{HUGE text} Can you see a “ssmall” text?

\section*{2.2 Not enough?}

There is an alternative, completely flexible approach. The anyfontsize package scales the closest bigger or smaller font size available to any size.

The usage is very similar to the inline example shown before. The package implements the \fontsize command which takes two arguments, the new font size and the size of the \baselineskip.

\fontsize{\langle size \rangle}{\langle baselineskip \rangle}

It is recommended to use a \baselineskip of roughly 1.2 x font size in order to get a reasonable space between two successive lines. Of course the best value depends on the document and font design.

The following example shows font sizes 50pt and 5pt and compares them with \Huge and \tiny. The difference between 5pt and \tiny (6pt for the 11pt class option) is barely visible.

\documentclass[11pt]{report}
\usepackage{mathptmx}
\usepackage{anyfontsize}
\begin{document}
\Huge Foo
\selectfont bar!
\end{document}

\textbf{FOO bar!} Foo bar!

Again, this only works with a scalable, non-standard font.

\section*{2.3 Memoir classes}

As with font size class options, the memoir class also provides additional font modifier macros at the extreme ends of the scale, \miniscule and \HUGE. These macros use font sizes of 4pt, 20pt respectively, for the 9pt class option and 20pt, 132pt respectively, for the 60pt class option. Usage is exactly the same as for the standard \TeX classes.

\textbullet\ Thomas Thurnherr
texblog (at) gmail dot com
http://texblog.org