## Font size

Taking advantage of the fact that TEX commands are case sensitive, if you had three font sizes in a book you could name them:

```
% eight point font for footnotes and index
\font\pala="Palatino Linotype:mapping=tex-text" at 8pt

% ten point font for body text
\font\Pala="Palatino Linotype:mapping=tex-text" at 10pt

% twelve point font for headings
\font\PALA="Palatino Linotype:mapping=tex-text" at 12pt
```

If you need more sizes you could borrow LaTeX's font size naming system:

tiny scriptsize footnotesize small normalsize large Large LARGE huge Huge

Or make use of the traditional names for sizes of type:

Minikin (3pt) Brilliant (4pt) Diamond (4½pt) Pearl (5pt) Agate (or Ruby) (5½pt) Nonpareil (6pt) Emerald (6½pt) Minion (7pt) Brevier (8pt) Bourgeois (9pt) Long-primer (10pt) Small-pica (11pt) Pica (12pt) English (14pt) Two-line brevier (16pt) Great-primer (18pt) Paragon (20pt)
Two-line small pica (or double pica) (22pt)
Two-line pica (24pt)
Two-line english (28pt)
Two-line great-primer (36pt)
Two-line double pica (44pt)
French canon (48pt)
Five-line pica (60pt)
Six-line pica (72pt)

## Optical Sizes

In the era of metal type, each point size of a font differed slightly from every other. Fonts designed for smaller sizes, e.g. footnotes* (around eight point) would tend to be wider and heavier and more widely

* In this footnote, the text has been set in EB Garamond's 8pt variant, chosen automatically by the `size` OpenType tag. This footnote is actually set in 9.4pt type. The threshold between the 12pt and the 8pt fonts seems to be 9.45pt.

set than fonts designed for display use (eighteen points and above). With the advent of phototypesetting and later on digital outline fonts it became technically simple (and cheaper) to make different point sizes by enlarging and shrinking the font from one size of the original metal font, usually the 12pt. This is ok if the font is to be used for book sizes (around 10pt), but at display sizes the font will look too heavy, and at small sizes the font will look too thin.

EB Garamond has two optical sizes: 8pt, for footnotes, and 12pt, for body text. Many Adobe fonts have a larger range of optical sizes. The Latin Modern fonts, which are OpenType derivatives of TEX's Computer Modern fonts also have a wide range of optical sizes. They are used in the list of names of sizes of type on the previous page.

## Leading

`\baselineskip` sets the leading. The `plain.tex` default is 12pt.

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This paragraph is set 12/14, i.e. 12pt type on 14pt leading (the default in this document).

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This paragraph is set 14/17.

This paragraph is set using a macro:
`\def\hugepar#1{{\huge\baselineskip24pt#1\par}}`

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This paragraph is set 20/24.

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Back to the default.

* * *

Some slightly more complicated macros to take care of font size and leading. If you use `\it` when `\twelvepoint` is in force you get 12pt italic, if you use `\it` when `\tenpoint` is in force you get 10pt italic.

```
\font\twerm="EB Garamond 12 Regular:mapping=tex-text" at 12pt
\font\tweit="EB Garamond 12 Regular/I:mapping=tex-text" at 12pt
\font\twesc="EB Garamond 12 Regular:+smcp,mapping=tex-text" at 12pt

\font\tenrm="EB Garamond 12 Regular:mapping=tex-text" at 10pt
\font\tenit="EB Garamond 12 Regular/I:mapping=tex-text" at 10pt
\font\tensc="EB Garamond 12 Regular:+smcp,mapping=tex-text" at 10pt

\def\twelvepoint{\def\rm{\twerm}\def\it{\tweit}\def\sc{\twesc}%
\normalbaselineskip=15pt%
\setbox\strutbox=\hbox{\vrule height10.625pt depth4.375pt width0pt}%
\normalbaselines\rm}

\def\tenpoint{\def\rm{\tenrm}\def\it{\tenit}\def\sc{\tensc}%
\normalbaselineskip=12pt%
\setbox\strutbox=\hbox{\vrule height8.5pt depth3.5pt width0pt}%
\normalbaselines\rm}
```

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These macros are adapted from the `\twelve` macro given on page 127 of 'The Advanced TEXbook' by David Salomon compared with the `\tenpoint` and `\ninepoint` macros in `manmac.tex`.

* * *

Since the default font size and leading of this document is 12/14 as opposed to the `plain.tex` setting of 10/12, this font size/leading could be obtained by setting `\normalbaselineskip=14pt`, and calling this at the start of the document by typing `\normalbaselines\large` instead of `\large` at Line 136. The `plain.tex` `\normalbaselines` macro sets `\baselineskip`, `\lineskip` and `\lineskiplimit`:

```
\def\normalbaselines{\lineskip\normallineskip
\baselineskip\normalbaselineskip \lineskiplimit\normallineskiplimit}
```

there is not much point in changing `\normallineskip` and `\normallineskiplimit` from the default values.

You should also change the value of `\strut` by altering `\strutbox`. `\struts` are empty boxes that are equivalent to the `height` and `depth`* of a normal line. They are used in tables to maintain the correct interlinear spacing and also in the footnote macro, which puts a `\strut` at the beginning and end of every footnote to maintain the correct spacing between footnotes.† The default Plain setting is `\setbox\strutbox=\hbox{\vrule height8.5pt depth3.5pt width0pt}` A setting for a 14pt `\baselineskip` would be: `\setbox\strutbox=\hbox{\vrule height9.917pt depth4.083pt width0pt}`

* the space below the baseline, to allow for descending letters.

† If you want to see where the `\struts` are in tables and footnotes, change `width0pt` to `width1pt` inside of `\strutbox`.

I used the ratios between `height` and `\baselineskip` and `depth` and `\baselineskip` in the 12pt Plain `\strutbox` to calculate `height` and `depth` for the 14pt `\strutbox`:
$\frac{8.5}{12} \times 14 = 9.91666$, $\frac{3.5}{12} \times 14 = 4.08333$.

Other things to change would be `\topskip` and `\makeheadline` and `\makefootline`.

`plain.tex` uses `\topskip` to set the distance from the top of the page to the first baseline. The default setting is 10pt. (The first line of the page does not have leading above it, so `\topskip` is equivalent to the size of the font.) Since this document uses 12pt type instead of 10pt type we could change it to `\topskip=12pt`.*

Adjusting `\makefootline` for a 14pt `\baselineskip` is easy:

```
\def\makefootline{\baselineskip28pt\lineskiplimit0pt\line{\the\footline}}
```

Adjusting `\makeheadline` is a bit more complicated. On page 464 of *A Plain TEX Primer*, Malcolm Clark gives a formula to find *v*, the `\vskip` in `\makeheadline`:

$$v = 2 \times b - t + h$$

where *b* is the `\baselineskip`, *t* is the `\topskip`, and *h* is the `height` of the `\strut`. In this example $b = 14$pt, $t = 12$pt and $h = 9.917$pt: $v = 2 \times 14 - 12 + 9.917 = 25.917$. So `\makeheadline` for our 14pt `\baselineskip` would be:

```
\def\makeheadline{\vbox to 0pt{\vskip-25.917pt
\line{\vbox to9.917pt{}\the\headline}\vss}\nointerlineskip}
```

The settings given above for `\makeheadline` and `\makefootline` can be used if you want to maintain the Plain page layout of having a lineskip between the header and the text block and a lineskip between the text block and the footer. You could disregard that and use whatever numbers produce a visually appealing page layout.

See the file '210x140a.tex' on the Page Layout page, in which `\vsize`, `\normalbaselineskip`, `\strutbox`, `\topskip`, `\makeheadline` and `\makefootline` have been adjusted for a 12/16 setting.

Another thing to alter for a 14pt `\baselineskip` would be the size of `\bigskip`, `\medskip`, `\smallskip`. (`\bigskip` = a lineskip, give or take, `\medskip` = half a lineskip, give or take, `\smallskip` = a quarter of a lineskip, give or take.) They are defined like this in `plain.tex`:

```
\def\smallskip{\vskip\smallskipamount}
\def\medskip{\vskip\medskipamount}
\def\bigskip{\vskip\bigskipamount}
```

You can overwrite the `plain.tex` defaults:

```
\smallskipamount=3pt plus 1pt minus 1pt
\medskipamount=6pt plus 2pt minus 2pt
\bigskipamount=12pt plus 4pt minus 4pt
```

by putting new settings near the beginning of your document:

```
\smallskipamount=3.5pt plus 1.166pt minus 1.166pt
\medskipamount=7pt plus 2.333pt minus 2.333pt
\bigskipamount=14pt plus 4.666pt minus 4.666pt
```

* In Chapter 26.2 of *TEX by Topic* Victor Eijkhout says that a 10pt `\topskip` can be used for font sizes up to 13pt, so adjusting `\topskip` in this document is probably not necessary. The practical effect of changing `\topskip` to 12pt is that it pushes down the whole text block by 2pts.