Playing around with LaTeX

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Abstract

This is a bit of a cheatsheet as well as a starting template for some of my LaTeX documents. This is not a comprehensive guide to anything in LaTeX, but will provide external references to further documentation wherever possible. See the source of this document (available here) to truly understand this.

Chapter 1

The Setup

1.1 The headers

In this document, the memoir class is used at 12pt default, with the option to work with much higher font sizes. The chapter style, bianchi, is described in the documentation for the memoir class.

The pagestyle is empty as I don't want any page numbers. The aliaspagestyle is sort of a hack so that even chapter-opening pages don't have page numbers.

You might notice that there is a difference in the side margins between pages. This is because of the "twoside" option mentioned above. This makes LaTeX setup the pages for two-side printing by flipping the margins on even and odd pages.

```
\documentclass[a4paper,extrafontsizes,12pt,twoside,openany]{memoir}
\chapterstyle{bianchi}
\aliaspagestyle{chapter}{empty}
\pagestyle{empty}
```

1.2 Paragraph styling

The default typesetting of paragraphs in LaTeX is by indentation at the beginning of a paragraph. This has been changed to no indent and then a bigger gap between the paragraphs, by modifying the \parskip and \parindent lengths.

```
\setlength\parindent{0in}
\setlength\parskip{1ex}
```

1.3 XeTeX packages

Since XeTeX is being used, these three packages are normally included to be able to make the use of Unicode and some additional functionality easier. The options passed to xcolor to be able to use of names instead of color codes are also needed by the hyperref package used below.

```
\usepackage{xunicode}
\usepackage{xltxtra}
\usepackage[dvipsnames,usenames]{xcolor}
```

1.4 Font setup

I'm using the wonderful fontspec package with it's brilliant documentation. Also, using the hyperref package to provide all the links you see in this document.

The main font being used is Linux Libertine. I'll explain what the Mapping option is for in section 2.2.

```
\usepackage{fontspec}
\setromanfont[Mapping=tex-text]{Linux Libertine O}
\usepackage[colorlinks=true,urlcolor=blue,linkcolor=blue]{hyperref}
```

1.5 Title page

The title page is very plain, and it is typeset using:

```
\begin{minipage}{\textwidth}
\title{Playing around with \LaTeX} \date{} \author{Aravind SV
<aravind.sv@gmail.com>}
\maketitle
\begin{abstract}
This is a bit of a cheatsheet as well as a starting template for
some of my \LaTeX\ documents. This is not a comprehensive guide to
anything in \LaTeX, but will provide external references to further
documentation wherever possible. See the source of this document (available
\href{http://github.com/arvindsv/LaTeX.Stuff/blob/master/cheatsheet.tex}{here})
to truly understand this.
\end{abstract}
\thispagestyle{empty}
\end{minipage}
```

Chapter 2

More about fonts

2.1 Ligatures

fontspec understands OpenType ligatures. Look at the difference between:

Often office offer fjord.
Often office offer fjord.

This was typeset using:

```
{\newcommand{\ligs}{O\red{ft}en o\red{ffi}ce o\red{ff}er \red{fj}ord.}
{\Huge {\addfontfeature{Ligatures=NoCommon} \ligs}} \\
{\Huge {\addfontfeature{Ligatures=Rare} \ligs}}}
```

2.2 Mapping

As you can see below, with the tex-text mapping all the usual quotation marks and the em-dashes are automatically used.

No tex-text mapping	No---No" '' ```
With tex-text mapping	No—No” ” “

This was typeset using:

```
\begin{tabular}{l || l}
No tex-text mapping & {\addfontfeature{Mapping=} No---No" '' ``} \\
With tex-text mapping & {\addfontfeature{Mapping=tex-text} No---No" '' ``}
\end{tabular}
```

2.3 More font features exposed

Qu has a ligature	Quiet Qantas
Slashed zero. New style	Ø123456789
Old style numbers	0123456789
Fractions	⅓ vs 1/3
Superiors	1234567890 Libertine
More ligatures	„ſt“ „ct“

This was typeset using:

```
\newcommand{\aff}{\addfontfeature}
\begin{tabular}{l || l}
Qu has a ligature & {\Huge \red{Qu}iet \red{Q}antas} \\
Slashed zero. New style & {\Huge {\aff{Numbers=SlashedZero} 0123456789}} \\
Old style numbers & {\Huge {\aff{Numbers=OldStyle} 0123456789}} \\
Fractions & {\Huge {\aff{Fractions=On} 1/3} vs 1/3} \\
Superiors & {\Huge {\aff{VerticalPosition=Superior}1234567890 Libertine}} \\
More ligatures & {\Huge {\aff{Ligatures=Historical}„\red{st}" „\red{ct}"}}
\end{tabular}
```

2.4 Drop caps

As you can see, using the lettrine package, the first letter of this paragraph has been enlarged to “drop” down three lines. Drop caps are often seen at the beginning of novels, where the top of the first letter of the first word lines up with the top of the first sentence and drops down to the four or fifth sentence.

This was typeset using:

```
\renewcommand{\LettrineFontHook}{\color{red!50!white}}
\lettrine[lines=3,loversize=0.2,findent=-2ex,nindent=1ex,slope=1.5ex]{A}{s}  you
can see, using the
\href{http://tug.ctan.org/cgi-bin/ctanPackageInformation.py?id=lettrine}{lettrine}
package, the first letter of this paragraph has been enlarged to ``drop'' down
three lines. Drop caps are often seen at the beginning of novels, where the top
of the first letter of the first word lines up with the top of the first sentence
and drops down to the four or fifth sentence.
```

2.5 Font transparency

fontspec supports font transparency, but it needs some support from the font, apparently. So, enter the brilliant PGF/TikZ package, with a very comprehensive manual.

This was typeset using:

```
\begin{tikzpicture}
   \node[scale=3,opacity=0.6]{\red{\HUGE W}};
   \node[scale=3,opacity=0.7,xshift=3ex]{\blue{\HUGE S}};
   \node[scale=3,opacity=0.6,xshift=5ex]{\color{yellow}{\HUGE P}};
   \node[scale=3,opacity=0.4,xshift=7.5ex]{\green{\HUGE R}};
\end{tikzpicture}
```

Chapter 3

Miscallaneous

3.1 stackrel - One above another

You can put one element above another by using stackrel as mentioned here:

Do this:

```
H$_2$CO$_3$ $\stackrel{heat}{\longrightarrow}$ H$_2$O + CO$_2$
```

It looks like this: $H_2CO_3 \xrightarrow{heat} H_2O + CO_2$