

# Playing around with L<sup>A</sup>T<sub>E</sub>X

Aravind SV <aravind.sv@gmail.com>

## Abstract

This is a bit of a cheatsheet as well as a starting template for some of my L<sup>A</sup>T<sub>E</sub>X documents. This is not a comprehensive guide to anything in L<sup>A</sup>T<sub>E</sub>X, 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 L<sup>A</sup>T<sub>E</sub>X 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 L<sup>A</sup>T<sub>E</sub>X 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 X<sub>Y</sub>TeX packages

Since X<sub>Y</sub>TeX 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{xltextra}
\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}{0\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

Slashed zero. New style

Old style numbers

Fractions

Superiors

More ligatures

Quiet Qantas  
ø123456789  
0123456789  
1/3 vs 1/3  
1234567890 L ibertine  
„st“ „ct“

This was typeset using:

```
\newcommand{\aff}{\addfontfeature}
\begin{tabular}{l || l}
Qu has a ligature & {\Huge \red{Q}u\red{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

---

# Miscellaneous

---

### 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:  $\text{H}_2\text{CO}_3 \xrightarrow{\text{heat}} \text{H}_2\text{O} + \text{CO}_2$