

# L<sup>A</sup>T<sub>E</sub>X for Word Processor Users

## version 1.0.2

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### Abstract

Text processing with L<sup>A</sup>T<sub>E</sub>X offers several advantages over word processing. However, it is often hard for beginners to figure out how to perform common tasks and obtain certain features. This manual attempts to ease the transition by drawing comparisons between word processing and L<sup>A</sup>T<sub>E</sub>X typesetting. The main word processor features are listed, along with their equivalent L<sup>A</sup>T<sub>E</sub>X commands. Lots of examples are provided.

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## 1 Introduction

First of all, let me state that this is *not* a L<sup>A</sup>T<sub>E</sub>X primer! If you're reading this, I assume that you have at least a smattering of L<sup>A</sup>T<sub>E</sub>X and its basic commands. In this document, I'll explain why L<sup>A</sup>T<sub>E</sub>X is a viable alternative to word processors. One may even think that L<sup>A</sup>T<sub>E</sub>X is *better* than any word processor... and this is definitely true, especially if you write complex documents with lots of maths.

Nevertheless, word processors are the “killer app” in modern office automation. They're perceived to be easier than L<sup>A</sup>T<sub>E</sub>X as they have a friendly WYSIWYG interface, and the average secretary will learn to use them in a relatively short time. The problem is, these beasts keep

growing slow, bloated<sup>1</sup>, buggy, expensive, virus ridden, and incompatible with each other.

L<sup>A</sup>T<sub>E</sub>X might be a good alternative. It actually is, but if you try to write casual, unstructured documents, L<sup>A</sup>T<sub>E</sub>X will rightly stand in the way. You could resort to plain T<sub>E</sub>X, but you would lose many facilities that L<sup>A</sup>T<sub>E</sub>X provides.

To sum up, sometimes you may want to use word processor-like features—but using L<sup>A</sup>T<sub>E</sub>X. It would be nice to know how to obtain some effects with L<sup>A</sup>T<sub>E</sub>X when you know how to get them with your once-favourite :- ) word processor.

That’s why I wrote this quick reference. As I said, it assumes that you already have a basic understanding of L<sup>A</sup>T<sub>E</sub>X; if not, I suggest that you go to <http://www.ctan.org/starter.html> and download “The (Not So) Short Introduction to L<sup>A</sup>T<sub>E</sub>X2 $\epsilon$ ” (and possibly “A Gentle Introduction to T<sub>E</sub>X”).

In the following sections, we shall go through the menus and menu items of an imaginary word processor, finding out the corresponding L<sup>A</sup>T<sub>E</sub>X way of doing the same work. If you’re a L<sup>A</sup>T<sub>E</sub>X purist and this approach makes you sick. . . don’t hurt yourself, please stop here.

## 1.1 Preliminaries

Many word processor features are implemented by the editor; others by standard L<sup>A</sup>T<sub>E</sub>X commands; others still are obtained using *packages*. These are sets of macros that extend L<sup>A</sup>T<sub>E</sub>X providing new commands and environments. There are lots of packages around: the only problem is knowing where they are, what they do, and how to install them. More about packages in Section 1.1.2.

Packages and other T<sub>E</sub>X-related material are available at many sites that constitute the CTAN, the Comprehensive TeX Archive Network. I already mentioned <http://www.ctan.org>; there you will find a comprehensive list of mirrors. Get L<sup>A</sup>T<sub>E</sub>X for your platform from [CTAN:/systems](http://www.ctan.org/systems). Another obvious question is this: L<sup>A</sup>T<sub>E</sub>X will typeset the text for me, but what should I use to write it? The answer is: a good *editor*—a L<sup>A</sup>T<sub>E</sub>X-aware one, if possible. There exist editors dedicated to writing L<sup>A</sup>T<sub>E</sub>X source, and some are WYSIWYG or nearly so.

Although any editor capable of saving plain text will do (even Windows’ notepad), most T<sub>E</sub>Xnicians will recommend that you use one of the following:

- GNU Emacs (<http://www.gnu.org/software/emacs/emacs.html>) or Xemacs (<http://www.xemacs.org>);
- vi or one of its clones, Vim (<http://www.vim.org>) being the most popular;
- my personal choice: Jed (<http://space.mit.edu/~davis/jed/>), a light Emacs clone with WordStar/Borland keybindings too;
- LyX (<http://www.lyx.org>), a nearly-WYSIWYG text processor, less advanced as an editor but undoubtedly easier for beginners;
- GNU T<sub>E</sub>XMACS (<http://www.texmacs.org>), an impressive (if a bit slow) WYSIWYG L<sup>A</sup>T<sub>E</sub>X word processor (for UNIX only);

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<sup>1</sup>once upon a time, I wrote my thesis on a 128k, Z80-based home computer. The word processor WordStar and my thesis fit on a single CP/M-bootable 720K floppy, with lots of room to spare!

- WinEdt (<http://www.winedt.com>), probably the most popular L<sup>A</sup>T<sub>E</sub>X shell for Windows. Unlike all of the free software above, it's shareware;
- a comprehensive list of L<sup>A</sup>T<sub>E</sub>X shells for Windows can be found at <http://home.arcor.de/itsfd/texwin.htm>. I suggest that you have a look at TeXnicCenter and WinShell;
- finally, information about L<sup>A</sup>T<sub>E</sub>X on the Mac can be found at <http://www.esm.psu.edu/mac-tex/>.

These editors sport syntax highlighting and many other helpful features that help write L<sup>A</sup>T<sub>E</sub>X source code.

### 1.1.1 Editor-Supported Features

It should be clear by now that L<sup>A</sup>T<sub>E</sub>X is just a formatter: things like cut and paste, search and replace etc. are delegated to the editor. Table 1 summarises the main commands of popular editors for geeks: GNU `emacs` and `vim` with their native key bindings, and `jed` configured for Borland IDE key bindings.

### 1.1.2 Adding Packages

The following applies to `teTeX`, which ships with most GNU/Linux distributions. Directions for MiK<sub>T</sub>E<sub>X</sub> below.

1. get the package (typically as a gzip-compressed tar archive) from your favourite CTAN mirror;
2. find out the location of L<sup>A</sup>T<sub>E</sub>X packages; most likely, `$TEXMF/tex/latex`;
3. unpack the package under that directory;
4. If no `.sty` file exists, run the command `latex newstyle.ins` or `latex newstyle.dtx` to create it;
5. run the command `texhash` so that `teTeX` recognises the new package.

The exact location of `$TEXMF` depends on the system; in most GNU/Linux distributions, it's `/usr/share/texmf`.

To add a package to MiK<sub>T</sub>E<sub>X</sub>, create the directory `\latex\newpackage` under `C:\localtexmf\textex` and put the relevant files in there. Proceed as above, then run MiK<sub>T</sub>E<sub>X</sub> Options and click on the "Refresh now" button. Alternatively, issue the command `initexmf -u`. That's it!

## 1.2 The Golden Rules

Before we start, please keep this in mind:

1. get used to *structuring* your documents: think in terms of parts, chapters, sections, and so on. This holds even if you aren't writing a scientific paper.

Action	Emacs	Vim	Jed
command mode	n/a	ESC	n/a
insert mode	n/a	i a o O	n/a
line editor mode	n/a	:	n/a
open file	Ctrl-X Ctrl-F	:e	Ctrl-KE
insert file	Ctrl-Xi	:r	Ctrl-KR
save file	Ctrl-X Ctrl-S	:w	Ctrl-KD
save as	Ctrl-X Ctrl-W name	:w name	Ctrl-KS
close file	Ctrl-XK	:q	Ctrl-KQ
change buffer	Ctrl-XB	bN	Ctrl-KN
undo	Ctrl-XU	u	Ctrl-U
redo	Ctrl-^	Ctrl-R	Ctrl-G Ctrl-U
exit	Ctrl-X Ctrl-C	:qa!	Ctrl-KX
word left	Alt-B	b	Ctrl-A
word right	Alt-F	w	Ctrl-F
start of line	Ctrl-A	0	Ctrl-QS
end of line	Ctrl-E	\$	Ctrl-QD
page up	Alt-V	Ctrl-U	Ctrl-R
page down	Ctrl-V	Ctrl-D	Ctrl-C
start of buffer	Alt-<	1G	Ctrl-QR
end of buffer	Alt->	G	Ctrl-QC
line n.	Alt-G n.	n.G	Ctrl-QI
character left	Ctrl-H	X	BS
character right	Ctrl-D	x	Alt-G
word left	Alt-DEL	db	Alt-BS
word right	Alt-D	dw	Ctrl-T
line	Ctrl-A Ctrl-K	dd	Ctrl-Y
search	Ctrl-S text	/text	Ctrl-QS
replace	Alt-%	:s/old/new/g	Ctrl-QA
start selection	Ctrl-SPACE	v	Ctrl-KB
cut	Ctrl-W	D	Ctrl-KY
copy	Alt-W	Y	Ctrl-KH
paste	Ctrl-Y	P	Ctrl-KC

Table 1: Useful key bindings for Emacs, Vim, and Jed in IDE mode.

2. L<sup>A</sup>T<sub>E</sub>X explicitly discourages the user from messing about with formatting parameters. Don't worry too much about the *looks* of what you're writing, concentrate on the *contents*.

Convince yourself, apply the rules, and your printed material will magically look professional! Again, let me recommend that you study a real L<sup>A</sup>T<sub>E</sub>X primer.

These rules apply to most documents. However, if the stuff you are going to write is intrinsically unstructured (circulars, notices, etc.), then you asked for that: go ahead and read the rest of this guide.



## 2 The File Menu

Obviously, some entries of this menu have nothing to do with L<sup>A</sup>T<sub>E</sub>X: File/Open, File/Save, File/Close depend on the editor.

### 2.1 File/New

This is the L<sup>A</sup>T<sub>E</sub>X equivalent of a blank page:

```
\documentclass{article}
\begin{document}
% This is a comment. Write your stuff here.
\end{document}
```

As documents written in L<sup>A</sup>T<sub>E</sub>X are inherently structured, this is a more realistic example:

```
\documentclass[a4paper,12pt]{article}
\begin{document}
\title{My Document}
\author{John Smith}
\date{London, \today}
\maketitle
\begin{abstract}
This is a very short article.
\end{abstract}
\tableofcontents
\listoftables
\listoffigures
\section{First Section}
\label{sec:start}
This is the text of the section. See \cite{Gonzato} for details.
\section{End}
\label{sec:end}
This is the end of the document. Please go to Section
\ref{sec:start} to read it again.
\begin{thebibliography}{99}
\bibitem{Gonzato} Gonzato G. \textit{\LaTeX} for Word Processor
```

```
Users}. CTAN, 2001.
\end{thebibliography}
\end{document}
```

More document templates are shown in Appendix A.

## 2.2 File/Save As...

The following tools are handy if you want to convert L<sup>A</sup>T<sub>E</sub>X to other formats:

- latex2html: <http://saftsack.fs.uni-bayreuth.de/~latex2ht/>,  
CTAN://tex/support/latex2html
- latex2rtf: CTAN://tex/support/latex2rtf

## 2.3 File/Save As Template

Saving a L<sup>A</sup>T<sub>E</sub>X “template” would mean, as I see it, create a new L<sup>A</sup>T<sub>E</sub>X package. This is complex matter that goes beyond the scopes of this guide.

## 2.4 File/Import

These tools convert from other formats to L<sup>A</sup>T<sub>E</sub>X:

- rtf2latex: CTAN://tex/support/rtf2latex
- html2latex: CTAN://tex/support/html2latex
- wvware converts from MS Word to several formats including L<sup>A</sup>T<sub>E</sub>X; available at <http://www.wvware.com>

Other \*2latex converters are available at the same address.

## 2.5 File/Page Setup

The normal method for setting paper size, orientation, and margins, is to use parameters in `\documentclass`. Paper size can be `a4paper`, `a5paper`, `b5paper`, `letterpaper`, `legalpaper`, `executivepaper`; orientation is portrait by default, or optionally `landscape`. For example,

```
\documentclass[a5paper,landscape,12pt]{article}
```

Document-wide margins are set with these commands:

```
\setlength{\leftmargin}{2cm}
\setlength{\rightmargin}{2cm}
\setlength{\oddsidemargin}{2cm}
\setlength{\evensidemargin}{2cm}
\setlength{\topmargin}{-1cm}
\setlength{\textwidth}{18cm}
\setlength{\textheight}{25cm}
```

The geometry package allows for complete control of parameters such as paper size, margins width, and so on. geometry has far too many options to list them all, and you're invited to read its documentation. A fairly complete example of its usage is shown below. In this example, some parameters are not compatible with each other, and are there for purpose of argument only.

```
\geometry{paperwidth=25cm}
\geometry{paperheight=35cm}
% or: \geometry{papersize={25cm,35cm}}
\geometry{width=20cm} % total width
\geometry{height=30cm} % total height
% or: \geometry{total={20cm,30cm}}
\geometry{textwidth=18cm} % width - marginpar
\geometry{textheight=25cm} % height - header - footer
% or: \geometry{body={18cm,25cm}}
\geometry{left=3cm} % left margin
\geometry{right=1.5cm} % right margin
% or: \geometry{hmargin={3cm,2cm}}
\geometry{top=2cm} % top margin
\geometry{bottom=3cm} % bottom margin
% or: \geometry{vmargin={2cm,3cm}}
\geometry{marginparwidth=2cm}
\geometry{head=1cm} % header space
```

Options can also be set thus:

```
\usepackage[left=3cm, right=2cm]{geometry}
```

### 2.5.1 Page Setup/Headers and Footers

The fancyhdr package provides the new command `\pagestyle{fancy}`. This will create a header reporting the current section (chapter in book.cls) and subsection, and a footer with the page number: pretty fancy indeed. Headers and footers can obviously be customised. They are made of three parts: a left-aligned part, a centre-aligned part, and a right-aligned part. To set those, use the commands like in this example:

```
\lhead{} % empty
\chead{Hello, world!}
\rhead{Page \thepage} % page number
\lfoot{}
\cfoot{\textbf{Hello!}}
\rfoot{}
```

## 2.6 File/Printer Setup

This is highly OS-dependent, and definitely outside of the scopes of L<sup>A</sup>T<sub>E</sub>X. Assuming that you're using a UNIX-like system, these tips may come in handy:

- `lpr -P printername` prints to the specified printer;

- `lpr -# 10` prints 10 copies;
- `lpr -r` removes the file after printing it

Other tips will come soon.

## 2.7 File/Print Preview

When the  $\LaTeX$  input file is ready, you have several options:

- convert it to `.dvi` (`latex file.tex`) and previewing it with `xdvi`, `yap` or other;
- convert the `.dvi` to POSTSCRIPT with `dvips`, then use some variant of `Ghostview`;
- producing an Acrobat `.pdf` file with `dvipdf` or directly with `pdflatex`.

In my opinion, producing a `.pdf` file is the best option, as it makes for widest portability. Moreover, the `hyperref` package used together with `pdflatex` makes the resulting `.pdf` file browseable; see Section 4.15. However, using `pdflatex` you might experience problems with some packages. More details in Section 4.12.

Warning

## 2.8 File/Print

Simply use `lpr file.ps` from the command line or via your previewer's menu. If you create Acrobat `.pdf` files, your file will gain more visibility, especially from the point of view of Windows and Mac users.

## 2.9 File/Versions

Again, this is nothing  $\LaTeX$  is aware of. Under UNIX and Win32, you use external tools like RCS (Revision Control System) or CVS (Concurrent Version Control System), possibly integrated with the editor. For a quick introduction to CVS and RCS, please visit <http://www.linuxdoc.org/HOWTO/CVS-RCS-HOWTO.html>.

[TODO: mention version.]

## 3 The Edit Menu

This menu has more to do with the editor than  $\LaTeX$  features. To begin with, refer to Table 1 that shows the key bindings for the entries Edit/Cut, Edit/Copy, Edit/Paste, Edit/Find, and Edit/Replace of some common editors.

The *selection* of text is not only performed for subsequent cut and paste, but also for applying styles to the selected text. The equivalent action in  $\LaTeX$  is to enclose the text either in braces, or in an environment. For example, to apply the bold attribute to a portion of text you will use one of the following:

```
this is \textbf{bold text;}\
this is also
{\bfseries bold text;}\
\begin{bfseries}
this is bold text, too!
\end{bfseries}
```

<pre>this is <b>bold text</b>; this is also <b>bold text</b>; <b>this is bold text, too!</b></pre>
--

### 3.1 Edit/Autotext

We call *autotext* the feature that makes you type, say, “PS” to have the word “PostScript” automatically expanded. This is an editor feature, but there’s a rough L<sup>A</sup>T<sub>E</sub>X equivalent:

```
\def\PS    {\textsc{PostScript}}
```

which will insert the equivalent of `\textsc{PostScript}` whenever you type `\PS`. Beware, case is important.

## 4 The Insert Menu

### 4.1 Insert/Breaks

- a non-breakable space is set with `~`
- to force a line break, use `\linebreak` or `\newline`; see below for details
- to start a new paragraph, use a blank line, or `\\`, or `\par`
- finally, for a page break use `\newpage` or `\clearpage`

`\linebreak` stretches the line to the margins, `\newline` does not:

```
I am stretched!\linebreak
But I am not.\newline
Ok, now you get it.
```

<pre>I           am           stretched! But I am not. Ok, now you get it.</pre>
--

Finally, `\clearpage` differs from `\newpage` in that it prints all pending floats (figures and tables). Floats will be explained in Section [4.12](#).

### 4.2 Insert/Enumerated List

Bulleted and enumerated lists correspond to the `itemize` and `enumerate` environments. To customize the bullet in a list environment, you can specify it as an argument to `\item`:

```
\begin{itemize}
  \item[*] with an asterisk;
  \item[-] with a dash.
\end{itemize}
```

<pre>* with an asterisk; - with a dash.</pre>
---

Another way is to redefine the style of the counters that refer to the digits in the first- to fourth-level lists<sup>2</sup>. There are several styles: `\arabic` for “normal” numbers, `\roman` for lower-case roman numerals (e.g. viii is 8), `\Roman` for upper-case roman numerals, `\alph` and `\Alph` for lower- and upper-case letters, and `\fnsymbol` that I’ll not explain for now:

```
\begin{itemize}
\renewcommand{\labelitemi}{*}
\renewcommand{\labelitemii}{-}
\item first level, item 1
\item first level, item 2
\begin{itemize}
\item second level, item 1
\item second level, item 2
\end{itemize}
\item first level, item 3
\end{itemize}
```

```
* first level, item 1
* first level, item 2
  - second level, item 1
  - second level, item 2
* first level, item 3
```

To use, say, roman numbers and uppercase letters in enumerated lists, do this:

```
\begin{enumerate}
\renewcommand{\labelenumi}
{\Alph{enumi}}
\renewcommand{\labelenumii}
{\roman{enumii}}
\item first level, item 1
\item first level, item 2
\begin{enumerate}
\item second level, item 1
\item second level, item 2
\end{enumerate}
\item first level, item 3
\end{enumerate}
```

```
A first level, item 1
B first level, item 2
  i second level, item 1
  ii second level, item 2
C first level, item 3
```

[TODO: mention the enumerate package.]

### 4.3 Insert/Special Character

First of all, let’s remind that some characters have a special meaning in  $\text{\LaTeX}$  and must be entered either by preceding them with `\`, or using them in math mode, or even writing special commands: see Table 2.

If you want really weird characters, the `pifont` package provides you with the command `\ding` (like `\ding{100}` that produces  $\text{\ding{100}}$ ), and `\dingfill`, `\dingline`, and `\dinglist`. These are equivalent to the `\fill`, `\line`, and `\list` commands and environment, but use the Dingbat code given as parameter:

```
\begin{dinglist}{43}
\item one
\item two
\item three
\end{dinglist}
```

```
☞ one
☞ two
☞ three
```

<sup>2</sup>These are `\labelitemi`, `\labelitemii`, `\labelitemiii` and `\labelitemiv`.

Character	Character Sequence
\$	\\$ or \textdollar
&	\&
%	\%
-	\_ or \textunderscore
{	\{ or \textbraceleft
}	\} or \textbraceright
<	\$<\$ or \textless
>	\$>\$ or \textgreater
\	\textbackslash
	\textbar
•	\textbullet
‡	\textdaggerdbl
†	\textdagger
¶	\textparagraph
§	\textsection
©	\textcopyright
^	\textasciicircum
~	\textasciitilde
~	~\sim\$
®	\textregistered
™	\texttrademark
ª	\textordfeminine
º	\textordmasculine

Table 2: How to obtain some special characters.

❄	<code>\Snowflake</code>
✉	<code>\Letter</code>
⚡	<code>\Lightning</code>
📞	<code>\Mobilefone</code>
☕	<code>\Coffeecup</code>
⚽	<code>\Football</code>
✂	<code>\Cutright</code>
FAX	<code>\FAX</code>
📠	<code>\Faxmachine</code>
♥	<code>\Heart</code>
😊	<code>\Smiley</code>
🚲	<code>\Bicycle</code>
‡	<code>\Womanside</code>
†	<code>\Womanfront</code>
♊	<code>\Capricorn</code>
🦇	<code>\Bat</code>
👩	<code>\Womanface</code>

Table 3: Some marvosym characters.

Another nice variant is this:

```
\begin{dingautolist}{172}
\item one
\item two
\item three
\end{dingautolist}
```

- |         |
|---------|
| ① one   |
| ② two   |
| ③ three |

#### 4.3.1 The € Sign

The `marvosym` package provides several fine characters, among which the Euro sign €. You obtain it with `\EUR`.

Other mouth-watering characters are shown in Table 3. Look at `marvosym`'s documentation for a complete list of characters; my favourite is ☯ (`\Yinyang`).

[TODO: add the Dingbat table.]

## 4.4 Insert/Formula

L<sup>A</sup>T<sub>E</sub>X is particularly strong at doing math. To insert math symbols in the main text, you must enclose them in `$`:

```
I like math:  $x^n + x^n \neq z^n \forall n \neq 2$ 
is my favourite theorem.
```

I like math: $x^n + x^n \neq z^n \forall n \neq 2$ is my favourite theorem.
---

The environments `displaymath` and `equation` typeset formulae aside from the text. The latter adds an equation number for later reference:

```
Fermat's Last Theorem is
defined as:
\begin{equation}
x^n + x^n \neq z^n
\forall n \neq 2
\label{eq:fermat}
\end{equation}
Can you prove
Eq.~\ref{eq:fermat}?
```

Fermat's Last Theorem is defined as:

$$x^n + x^n \neq z^n \forall n \neq 2 \quad (1)$$

Can you prove Eq. 1?

## 4.5 Insert/Footnote

The command `\footnote[n]{footnote text}` is all you need; the optional parameter `[n]` modifies the footnote number. To use a symbol instead of a number, redefine the counter associated with `\footnote`:

```
\renewcommand{\thefootnote}{foot}
This footnote\footnote
{I mean this one.}
says it all.
```

This footnote<sup>foot</sup> says it all.

---

<sup>foot</sup>I mean this one.

For example, you can get footnote numbers in roman numerals, or replaced by nice symbols:

```
\renewcommand{\thefootnote}
{\Roman{footnote}}
This\footnote{the first.}
is the first footnote,
and this\footnote{the second.}
is the second.
\renewcommand{\thefootnote}
{\fnsymbol{footnote}}
The end.\footnote[8]{At last!}
```

This<sup>I</sup> is the first footnote, and this<sup>II</sup> is the second. The end.<sup>††</sup>

---

<sup>I</sup>the first.  
<sup>II</sup>the second.  
<sup>††</sup>At last!

Note the `\fnsymbol{footnote}` thing. It uses 9 symbols associated with the values 1...9 of the footnote counter: \* † ‡ § ¶ || \*\* †† ‡‡.

To make several references to the same footnote, don't write its number explicitly. Rather, do this:

```
This\footnote{the first.}
\newcounter{myfootnote}
\setcounter{myfootnote}
{\value{footnote}}
and that\footnote{the second.}
are footnotes: please read note
\footnotemark
[\value{\myfootnote}] again.
```

This<sup>1</sup> and this<sup>2</sup> are footnotes: please read note<sup>1</sup> again.

---

<sup>1</sup>the first.  
<sup>2</sup>the second.

## 4.6 Insert/Indices

Generating and inserting a table of contents, list of tables, and list of figures is a trivial task in  $\LaTeX$ . All you have to do is insert these lines before the first `\section` or `\chapter` of your document:

```
\tableofcontents
\listoffigures
\listoftables
```

## 4.7 Insert/Vertical and Horizontal Space

This entry doesn't actually exist in any word processor I know. This is in fact a limitation that  $\LaTeX$  fills in a very elegant way.

*Space filling* is used to center text horizontally, vertically, or both; this is a difficult task to perform with any word processor, and requires a lot of trial and error. Use a combination of `\null` or `~` to set fixed marks, followed by `\vfill` and `\hfill` like in this example:

```
one \hfill two\\
\vfill
~ \hfill three \hfill ~\\
\vfill
four \hfill five
\null
```

one	two
three	
four	five

Normally,  $\LaTeX$  won't let you insert blank spaces at your will. However, if you do want to make your document look messy, use `~` to make a non-breakable space.

Also, use the command `\hspace` like in this example:

```
This is a \hspace{2cm}
2-cm-wide hole.
```

This is a	2-cm-wide hole.
-----------	-----------------

## 4.8 Insert/Tabs

The `tabbing` environment provides a rough equivalent to the action of the TAB key. See this example:

```
% let's set the tab positions
~ \hskip 1cm \= ~ \hskip 2cm \=
~ \hskip 3cm \= \kill % discard text
Zero \> One \> Two \> Three \\
Zero \> One \> \> Three \+ \\ % go right
Zero \> Two \> Three \- \\ % go left
Zero \> One \> Two \\
\pushtabs % save tab positions
new tab 1{\ldots} \= new tab 2 \\
new \> tab \\
\poptabs % restore tab positions
Zero \> One \> Two \> Three \\
```

Zero	One	Two	Three
Zero	One		Three
	Zero	Two	Three
Zero	One	Two	
new tab 1...		new tab 2	
new		tab	
Zero	One	Two	Three

See also the `tabular` and `table` environments.

## 4.9 Insert/Cross Reference

The commands `\label`, `\ref`, and `\pageref` are all you need to insert labels in the text and do cross referencing. Labels usually have the `prefix:suffix` form, where `prefix` is one of the

following: `cha` for chapters, `eq` for equations, `fig` for figures, `sec` for (sub)sections, and `tab` for tables.

References to a page (section, table, figure, etc) number are done using `\label` and `\ref` as in this example:

```
\paragraph{Example.}
\label{par:example}
This paragraph appears
in Section~\ref{par:example}
on page \pageref{par:example}.
```

**Example.** This paragraph appears in Section 4.9 on page 15.

Of course, you may use your own prefixes. For example, take this enumerated list:

```
\begin{enumerate}
\item{first step: skip to
\ref{item:end} \label{item:start}}
\item{another step (unreferenced)}
\item{end: go back to
\ref{item:start} \label{item:end}}
\end{enumerate}
```

1. first step: skip to 3
2. another step (unreferenced)
3. end: go back to 1

## 4.10 Insert/Margin Notes

Very simple: use `\marginpar{text}`.

## 4.11 Insert/Frame

Let's imagine you want to typeset a poster: you'll need a way to put text and figures on fixed position on the page. Use the `textpos` package, as shown in the example listed in Figure 7 (see Appendix A).

## 4.12 Insert/Figure

(The reference guide for graphic inclusion in  $\text{\LaTeX}$  is "Using Imported Graphics in  $\text{\LaTeX}2\epsilon$ ", a.k.a. `epslatex.ps`.)

A "figure" can be not only a picture, but also a portion of text, a table, etc. that you enclose in a `figure` environment. This is an example:

```
\begin{figure}[htbp]
% [htbp] specifies the
% preferred placement: here, top,
% bottom, or separate page.
\begin{center}
\texttt{=8-)}
\end{center}
\caption{A smiley representing
the author of this guide.}
\label{fig:mysmiley}
\end{figure}
```

=8-)

Figure 1: A smiley representing the author of this guide.

Please note that figures are not guaranteed to appear exactly where you write the code! In fact, the main difference with word processors is that figures don't have a fixed placement; they “float” to the optimal position that L<sup>A</sup>T<sub>E</sub>X finds for them. So, the text shouldn't refer to a figure like “the figure below” or “the figure above”; rather, use “see Figure~\ref{fig:label}”.

*Note*

Owing to this property, figures and tables are called *floats*. If you do need to position a float exactly, use the here package that provides an optional placement argument H.

Given a picture in Encapsulated POSTSCRIPT (.eps) format, you insert it in a L<sup>A</sup>T<sub>E</sub>X source file using the graphicx package and commands like those shown in Figure 2.

```
\begin{figure}
\begin{center}
\fbbox{\includegraphics
[width=0.5\textwidth, angle=-90]
{gnuplot.ps}}
\caption{A Gnuplot graph.}
\label{fig:gnuplot}
\end{center}
\end{figure}
```

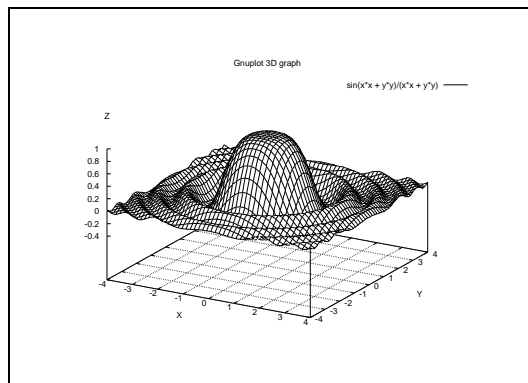


Figure 2: A Gnuplot graph.

Graphic inclusion only works with .eps. There are several packages that convert common graphic formats like .jpg, .gif, .png etc. to .eps: one of the finest is ImageMagik (<http://www.imagemagik.org>), freely available for many platforms. Besides, there's a utility that wraps .jpg files producing very compact .eps files: it's called jpeg2ps (<http://www.pdflib.com/jpeg2ps/index.html>).

If you use PDFL<sup>A</sup>T<sub>E</sub>X, you must convert your pictures to .pdf with the command `epstopdf` and modify the source accordingly! If you wish to make both .pdf and .ps from the same source file, include these commands:

*Warning*

```
% define the variable \ifpdf
\newif\ifpdf
\ifx\pdfoutput\undefined
  \pdffalse
\else
  \pdfoutput=1
  \pdftrue
\fi
...
% include the right options
\ifpdf
  \usepackage[pdftex]{graphicx}
  \pdfcompresslevel=9
\else
  \usepackage{graphicx}
\fi
```

```

...
% include the right graphic file
\ifpdf
  \includegraphics{file.pdf}
\else
  \includegraphics{file.eps}
\fi

```

[TODO: mention wrapfig]

If you have more than 18 figures without text between them, you’ll get the “Too many unprocessed floats” L<sup>A</sup>T<sub>E</sub>X error. The quickest solution to this problem<sup>3</sup> is to put `\clearpage` after three–four figures.

Warning

### 4.13 Insert/Shapes

There is a `picture` environment within which you use commands like `\circle`, `\oval` and so on. In my opinion, drawing pictures without a graphical environment is just too hard, and `picture` has several limitations too. It’s much better to use the `epic` and `eepic` packages (include them in that order), together with the drawing program Xfig (<http://www.xfig.org>). It’s only available for UNIX.

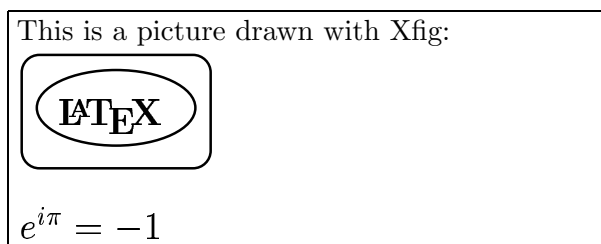
Xfig looks ugly, but is very powerful. One of its greatest advantages is that it exports drawings in several formats, among which `eepic` macros; these, in turn, make very compact POSTSCRIPT files. Another bonus is that text objects will be rendered by L<sup>A</sup>T<sub>E</sub>X if their “special flag” field is set, letting you enter ordinary L<sup>A</sup>T<sub>E</sub>X formulae and symbols in drawings.

So, let’s suppose you made a drawing called `small.fig`. Select File/Export... and choose “LaTeX picture + `eepic` macros” from the Language menu. You’ll obtain another file, `small.eepic`. To include the drawing in a document:

```

This is a picture
drawn with Xfig:\
\input{small.eepic}

```



Unfortunately, `eepic` doesn’t work with `pdflatex`. As an alternative, you should export the drawing as “Combined PS/LaTeX (both parts)”. You’ll get two files, `small.pstex` and `small.pstex.t`. Rename the latter to `small.tex` and edit it to insert these lines at the top:

```

\documentclass{article}
\usepackage{graphicx}
\pagestyle{empty}
\begin{document}

```

and this line at the bottom:

<sup>3</sup>not necessarily the best solution, though.

```
\end{document}
```

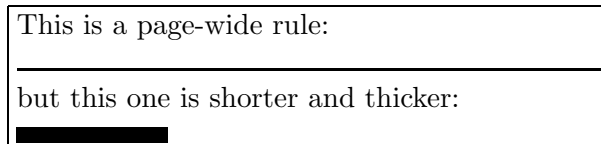
Compile it as usual, convert the .ps to .eps and include it as explained in 4.12.

[TODO: mention pstrick and give some examples.]

#### 4.14 Insert/Line

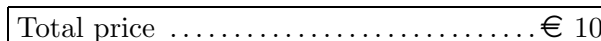
Draw lines of any length and thickness with `\rule`:

```
This is a page-wide
rule:\\
\rule{\linewidth}{1pt}
but this one is shorter
and thicker:\\
\rule{2cm}{2mm}
```



Another interesting “line” is that made of dots (`\dotfill`), often used to relate things. This is how it’s done:

```
Total price \dotfill \EUR~10
```



#### 4.15 Insert/Hyperlink

The `url` package lets you write URLs and have them hyphenated correctly. Used together with the package `hyperref` and `dvipdf` or `pdflatex`, `url` lets you make browseable .pdf documents! For example, this document uses this declaration:

```
\usepackage[colorlinks,urlcolor=blue]{hyperref}
```

#### 4.16 Insert/Comment

This is done inserting `%` before each line, or by using the package `comment` that provides the environment of the same name.

## 5 The Format Menu

In general, the main format properties of a document are set with parameters in `\documentclass`: default font size (10, 11, or 12pt), paper (`a4paper`, `a5paper`, `b5paper`, `letterpaper`, `legalpaper`, `executivepaper`), and orientation (`portrait`, `landscape`). For example,

```
\documentclass[a5paper,landscape,12pt]{article}
```

Alternative font sizes can be specified as explained in Section 5.2.1.

## 5.1 Format/Line Spacing

The T<sub>E</sub>X command `\baselinestretch{amount}` alters the default spacing between lines. For example,

```
\baselinestretch 7 mm
```

Alternatively, use the package `doubleSPACE` or `setspace` (they are equivalent) that provides the environments `singlespace`, `onehalfspace`, and `doubleSPACE`.

## 5.2 Format/Character

Standard character properties are listed in Table 4, font sizes in Table 5.

Text attribute	Environment form	Example
<code>\textnormal</code>	<code>textnormal</code>	main document font
<code>\textrm</code>	<code>rmfamily</code>	roman
<code>\textit</code>	<code>itshape</code>	<i>italics</i>
<code>\emph</code>	n/a	<b>emphasis</b>
<code>\textmd</code>	<code>mdseries</code>	medium weight (default)
<code>\textbf</code>	<code>bfseries</code>	<b>boldface</b>
<code>\textup</code>	<code>upshape</code>	upright (default)
<code>\textsl</code>	<code>slshape</code>	<i>slanted</i>
<code>\textsf</code>	<code>sffamily</code>	sans serif
<code>\textsc</code>	<code>scshape</code>	SMALL CAPS
<code>\texttt</code>	<code>ttfamily</code>	typewriter
<code>\underline</code>	<code>underline</code>	<u>underline</u>
<code>\textsuperscript</code>	n/a	this is <sup>superscript</sup>
<code>\mathrm</code>	n/a	$x^n + x^n \neq z^n \forall n \neq 2$
<code>\mathbf</code>	n/a	<b><math>x^n + x^n \neq z^n \forall n \neq 2</math></b>
<code>\mathsf</code>	n/a	$x^n + x^n \neq z^n \forall n \neq 2$
<code>\mathtt</code>	n/a	$x^n + x^n \neq z^n \forall n \neq 2$
<code>\mathit</code>	n/a	<i><math>x^n + x^n \neq z^n \forall n \neq 2</math></i>
<code>\mathnormal</code>	n/a	$x^n + x^n \neq z^n \forall n \neq 2$
<code>\mathcal</code>	n/a	$\S \setminus + \S \setminus \neq \ddagger \setminus \forall \setminus \neq \in$

Table 4: Font attributes.

Please note the difference between italics and emphasised text. *For example, this portion of text is typeset in italics, and these words are emphasised in upright.* As you can see, `\emph` is a *logical* command rather than a strictly typographic one.

Also, please note that underscript is normally used in math mode only. The trick to use it in normal text is this:

```
this is
$_{\mbox{\footnotesize{subscript}}}$
```

this is subscript

Font size	Example
<code>tiny</code>	sample text
<code>scriptsize</code>	sample text
<code>footnotesize</code>	sample text
<code>small</code>	sample text
<code>normalsize</code>	sample text
<code>large</code>	sample text
<code>Large</code>	sample text
<code>LARGE</code>	sample text
<code>huge</code>	sample text
<code>Huge</code>	sample text

Table 5: Font sizes

### 5.2.1 Format/Character Size

If the standard font sizes aren't enough for you, the package `extsizes` may be handy. It provides “extended” versions of the standard document classes, with support for sizes 8—12, 14, 17, and 20 pt.

For example, let's suppose you want to typeset an article using a 17 pt font. You'll use this document preamble:

```
\documentclass[17pt]{extarticle}
```

Another way to get big fonts is to use the package `type1cm`, which provides commands like the following:

```
\fontsize{72pt}{72pt}\selectfont
No Smoking
```

Parameters are font size and baseline. Yet another approach is this:

```
\resizebox{!}{1cm}{1-cm tall}
```

1-cm tall

### 5.2.2 Format/Character Font

$\LaTeX$  uses its own fonts, automatically generated when needed by the Metafont subsystem. This ensures portability and yields very good results. However, many of us are accustomed to other fonts: Times, Helvetica, Sans Serif. . .

Fortunately,  $\LaTeX$  can use POSTSCRIPT fonts. Try using one of the following packages: `avant`, `avangar`, `bookman`, `chancery`, `charter`, `courier`, `helvet`, `helvetic`, `ncntrsbk`, `newcent`, `palatcm`, `palatino`, `pifont`, `times`, `utopia`, `zapfchan`. Insert `\usepackage{times}` and enjoy the result, but beware:  $\LaTeX$  handling of maths wasn't designed for POSTSCRIPT fonts!

Family	Name
cmr	Computer Modern Roman
cmss	Computer Modern Sans Serif
cmtt	Computer Modern Typewriter
pag	Avantgarde
pbk	Bookman
phv	Helvetica
pnc	New Century Schoolbook
ppl	Palatino
ptm	Times
pcr	Courier

Table 6: Common font families.

The packages above set the font for the whole document. To use a POSTSCRIPT font for a region of text only, specify the font family like in the example below. Common font families are listed in Table 6. Beware, some font shapes may be unavailable on some systems!

Warning

```
This is Computer Modern Roman,
{\fontfamily{phv}\selectfont
this is Helvetica!}
```

```
This is Computer Modern Roman, this is Hel-
vetica!
```

Yet another possibility is replacing a standard L<sup>A</sup>T<sub>E</sub>X font with a POSTSCRIPT one: for example, you may want to use Avantgarde whenever Computer Modern Sans Serif would appear. These commands can be renewed as in the example below:

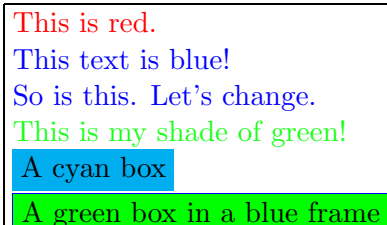
- `\rmdefault` (roman)
- `\sfdefault` (sans serif)
- `\ttdefault` (typewriter)
- `\bfdefault` (boldface)
- `\mddefault` (medium)
- `\itdefault` (italics)
- `\sldefault` (slanted)
- `\scdefault` (small caps)
- `\updefault` (upright)

```
% Avantgarde replaces sans serif
\renewcommand{\sfdefault}{pag}
```

### 5.2.3 Format/Character Colour

You can colour words using the package `color` and appropriate commands. Predefined colours are black, white, red, green, blue, cyan, magenta, and yellow; you can also define your own.

```
\textcolor{red}{This is red.}\n
\color{blue}
This text is blue!\n
So is this. Let's change.\n
\definecolor{mygreen}
{rgb}{0.1,1,0.1}
\color{mygreen}
This is my shade of green!\n
\color{black}
\colorbox{cyan}{A cyan box}\n
\fcolorbox{blue}{green}
{A green box in a blue frame}
```



Moreover, the command `\pagecolor` lets you specify... guess what?

## 5.3 Format/Paragraph

Let's remind what a paragraph is according to  $\text{\LaTeX}$ : a portion of text that either ends with `\n`, or is followed by a blank line.

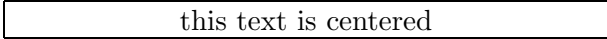
*environments* are  $\text{\LaTeX}$ 's way of specifying properties like text alignment or font selection for a given portion of text. It's like selecting text with the mouse, then choosing the property you wish from a menu or clicking on a button. Another way is to enclose the text in brackets.

Environments have this general form:

```
\begin{environment}
...text goes here...
\end{environment}
```

For example, if you want to center a paragraph you'll use the `center` environment:

```
\begin{center}
this text is centered
\end{center}
```



Standard environments are listed in Table 7. In the following sections, I'll show you what to use and when.

### 5.3.1 Format/Paragraph Horizontal Alignment

By default, the text is justified. To get left-aligned, right-aligned or centered text, use the `flushleft`, `flushright` and `center` environments. The commands `\raggedleft`, `\raggedright`, and `\centering` are equivalent to their correspondent environments, but they do not start a new paragraph.

<b>Environment</b>	<b>Purpose</b>
<code>array</code>	Math arrays
<code>center</code>	Centered lines
<code>description</code>	Labelled lists
<code>enumerate</code>	Numbered lists
<code>eqnarray</code>	Sequence of aligned equations
<code>equation</code>	Displayed equation
<code>figure</code>	Floating figures
<code>flushleft</code>	Flushed left lines
<code>flushright</code>	Flushed right lines
<code>itemize</code>	Bulleted lists
<code>letter</code>	Letters
<code>list</code>	Generic list environment
<code>minipage</code>	Miniature page
<code>picture</code>	Picture with text, arrows, lines and circles
<code>quotation</code>	Indented environment with paragraph indentation
<code>quote</code>	Indented environment with no paragraph indentation
<code>tabbing</code>	Align text arbitrarily
<code>table</code>	Floating tables
<code>tabular</code>	Align text in columns
<code>thebibliography</code>	Bibliography or reference list
<code>theorem</code>	Theorems, lemmas, etc
<code>titlepage</code>	For hand crafted title pages
<code>verbatim</code>	Simulating typed input
<code>verse</code>	For poetry and other things

Table 7: Standard L<sup>A</sup>T<sub>E</sub>X environments.



```
As you can see, this paragraph
has normal margins.
\begin{margins}{0.5cm}{1cm}
  But please note that this
  paragraph has custom margins.
\end{margins}
```

As you can see, this paragraph has normal margins.

But please note that this paragraph has custom margins.

### 5.3.4 Format/Paragraph Indentation

To set the amount of indentation of the first line of a paragraph, use the command `\parindent`. In the following example, we set a 1-cm indentation:

```
\setlength{\parindent}{1cm}
```

The commands `\indent` and `\noindent` allow/disallow indentation on the following paragraph. Finally, the distance between paragraphs is set by `\parskip`:

```
\setlength{\parskip}{3pt}
```

## 5.4 Format/Paragraph Border and Shade

To get framed (bordered) paragraphs or words, you have the choice of using the `framed` package or the `\parbox` command. The package `calc` is required in the latter case.

This is the simplest method, using `framed`:

```
\setlength{\FrameRule}{2pt}
\setlength{\FrameSep}{5pt}
\begin{framed}
  this is a framed paragraph!
\end{framed}
\definecolor{shadecolor}{rgb}
{0.9,0.8,1}
\begin{shaded}
  this is a shaded paragraph,
  do you like it?
\end{shaded}
```

this is a framed paragraph!

this is a shaded paragraph, do you like it?

Equivalently, use the `boxedminipage` package and the equally named environment. For those who want to know more: the commands

```
\framebox{
  \begin{minipage}[c]{\linewidth}
    text to be framed
  \end{minipage}
}
```


are functionally equivalent to the `boxedminipage` environment.

This example uses `\parbox`:

```

\noindent
\fbbox{
  \parbox{\linewidth
    -2 \fbboxsep -2 \fbboxrule}
    {again, a framed paragraph!}
}

```



`\linewidth` sets the width of the minipage equal to that of the remaining text. Obviously, you can specify the width as you like.

Finally, to frame something adapting the frame to the width of the text:

```

this is a
\framebox[\width]{framed}
word

```



Modifying the parameter, you can adjust the frame width:

```

this is another
\framebox[2\width][r]{framed}
word

```



Note that the second optional parameter specifies the alignment (to the right in this example).


## 5.5 Format/Colour

Now that you have a bordered paragraph, you'll want to set its colour too. Do this:

```

\colorbox{yellow}{
  \begin{minipage}
    {0.8\linewidth}
    I am a minipage, my colour
    is yellow!
  \end{minipage}
}

```



More about colours in Section [5.2.3](#).

## 5.6 Format/Columns

The commands `\twocolumn` and `\onecolumn` start a new page and set the number of columns; they can also be used as parameters in `\documentclass`. If this is not enough for you, the package `multicols` provides an environment of the same name. I could have set this section in two columns with these commands:

```

\columnseprule=1pt
\begin{multicols}{2}[\subsection{\entry{Format}{Columns}}]
The commands \cmd{twocolumn} ...
\end{multicols}

```

The space between columns is controlled by the parameter `\columnsep`, and the thickness of the rule between columns by `\columnseprule`. The text given as optional parameter in brackets is excluded from the environment.

## 6 The Table Menu

Quite a complex subject... This is the general format of a table:

```
\begin{table}[htbp] % placement: here, top, bottom, separate page
% \begin{small}      % sets the table font
\begin{center}      % optional
% 4-column table; alignment is left, centered, right, fixed width
\begin{tabular}{|l|c|r|p{4cm}|}
\hline
\textbf{Left} & \textbf{Centre} & \textbf{Right} & \textbf{4 cm} \\
\hline
row 1, col 1 & row 1, col 2 & row 1, col 3 & row 1, col 4 \\
\cline{1-2}
row 2, col 1 & row 2, col 2 & row 2, col 3 & row 2, col 4 \\
\cline{1-2}
\multicolumn{2}{|c|}{spanning two columns} & row 3, col 3 &
row 3, col 4 \\
\cline{1-3}
row 4, col 1 & row 4, col 2 & row 4, col 3 & ~ \hfill right \\
% force a space with "\ "
row 5, col 1 & row 5, col 2 & row 5, col 3 & left \hfill ~ \\
row 5, col 1 & row 5, col 2 & row 5, col 3 &
~ \hfill centre \hfill ~ \\
\hline
\end{tabular}
\caption{A sample table.}
% labels are used for cross references;
% for example, "see Table~\ref{tab:sampletab}"
\label{tab:sampletab}
\end{center}
% \end{small}
\end{table}
```

Table 8 shows the results. Let's remind that tables are floats, as explained in Section 4.12.

Left	Centre	Right	4 cm
row 1, col 1	row 1, col 2	row 1, col 3	row 1, col 4
row 2, col 1	row 2, col 2	row 2, col 3	row 2, col 4
spanning two columns		row 3, col 3	row 3, col 4
row 4, col 1	row 4, col 2	row 4, col 3	right
row 5, col 1	row 5, col 2	row 5, col 3	left
row 5, col 1	row 5, col 2	row 5, col 3	centre

Table 8: A sample table.

Sometimes, a table is too wide and won't fit on the page. In that case, the `rotating` package provides the new environment `sidewaystable`. Moreover, the `longtable` package provides support for tables that span more than one page.

[TODO: provide a few examples.]

To enable colours in tables, you use the `colortbl` package:

```
Colour by row:\\vskip 2mm
\begin{tabular}{|l|c|r|}
\hline
\rowcolor{cyan}
one & two & three\\
\rowcolor{green}
one & two & three\\
\rowcolor{yellow}
one & two & three\\
\hline
\end{tabular}
```

Colour by row:

one	two	three
one	two	three
one	two	three

```
Colour by column:\\vskip 2mm
\begin{tabular}
{|>{\columncolor{cyan}}l|
>{\color{red}
\columncolor{green}}c|
>{\columncolor{yellow}}r|}
\hline
one & two & three\\
one & two & three\\
one & two & three\\
\hline
\end{tabular}
```

Colour by column:

one	two	three
one	two	three
one	two	three

### 6.0.1 Aligning Numbers

A special case of a tabular environment is when we want to align numbers with respect to the decimal positions. You use the `dcolumn` package, which adds the `D` column specifier. `D` has three arguments: the separator to use in the  $\LaTeX$  source and in output (usually the same, `'.'`), and the number of digits to the right of the decimal place indicator. Optionally, the third argument can specify the number of digits to the left and to the right of the decimal place indicator, separated by a dot. Lastly, if the third argument is `-1`, the material of the column is centered around the separator.

All material in the table is typeset in math mode. To insert headings, you'll have to put the text in an `\mbox`.

```
\begin{tabular}{|D{.}{,}{4.2}|%
D{.}{,}{5}|D{.}{,}{-1}|}
\hline
\mbox{One} & \mbox{Two} &
\mbox{Three} \\
10.33 & 10.33 & 10.33 \\
1000 & 1000 & 1000 \\
5.1 & 5.1 & 5.1 \\
3.14 & 3.14159 & 3.14159 \\
\hline
\end{tabular}
```

One	Two	Three
10,33	10.33	10.33
1000	1000	1000
5,1	5.1	5.1
3,14	3.14159	3.14159

[TODO: mention `\newcolumntype`, `\multicolumn{1}{c}{stuff}`, the `floatflt` package.]

## 7 The Tools Menu

### 7.1 Tools/Mail Merges

This useful and time-saving tool is implemented in L<sup>A</sup>T<sub>E</sub>X by the `textmerg` package. Let's consider a simple document, in which the name, surname, and title of people we're writing to may vary. The remaining text does not change.

We'll define three *fields*, which are the variable part of the text: `\Name`, `\Surname`, and `\Title`. Their values will be gathered from an external file, `data.dat`.

```
\documentclass{article}
\usepackage{textmerg}
\begin{document}
% let's declare the variable fields:
% \Void is for empty lines
\Fields{\Name\Surname\Title-\Void}
\Merge{data.dat}{%
Dear \Title{} \Surname,\\
may I call you \Name?\\
Yours,\\
\hspace{3cm}Guido\clearpage}
\end{document}
```

The fourth field, `\Void`, isn't really necessary and it's there for purpose of argument. It's preceded by a minus sign, which indicates that it can be empty in the data file. Simply put, we want to separate the records using empty lines.

The file `data.dat` reads:

```
Guido
Gonzato
Dr.

Francesco
Mulargia
Prof.

Carol
John-Paul II
Pope
```

That's it: the resulting output will contain the merged text, one page for each recipient.

### 7.2 Tools/Labels

If making mail merges was easy, making labels is even trivial. Let's suppose you want to make 20 equal labels on a 3×8 peel-off label sheet. The package to use, predictably, is called `labels`. In this example, we'll make 10 plain labels and 10 boxed labels:

```

\documentclass[a4paper,12pt]{article}
\usepackage{labels}
\LabelCols=3      % n. of columns of labels
\LabelRows=8      % n. of rows of labels
\LeftBorder=8mm   % borders of each label
\RightBorder=8mm
\TopBorder=5mm
\BottomBorder=5mm
\LabelGridtrue    % show the grid
\numberoflabels=10 % number of labels of each type to print
% the text of the label is specified by
% the \addresslabel[]{} macro:
\begin{document}
  \addresslabel[\large] % optional arguments
  {\textbf{Guido Gonzato}, Ph.D.\\
  \textsl{Linux system manager}}
  % now on to the boxed labels
  \boxedaddresslabel[\fboxsep=4mm\fboxrule=1mm]
  {\textbf{Guido Gonzato}, Ph.D.\\
  \textsl{Linux system manager}}
\end{document}

```

To make labels containing different addresses, you may use either an external file or insert the addresses in the main file:

```

\documentclass[a4paper,12pt]{article}
\usepackage{labels}
\LabelCols=3
\LabelRows=8
\LeftBorder=3mm
\RightBorder=3mm
\TopBorder=8mm
\BottomBorder=8mm
\LabelGridtrue
\begin{document}
% use either this environment:
\begin{labels}
  1${st}$ name
  1${st}$ address
  1${st}$ city, state, zipcode

  2${nd}$ name
  2${nd}$ address
  2${nd}$ city, state, zipcode

  3${rd}$ name
  3${rd}$ address
  3${rd}$ city, state, zipcode
\end{labels}
% or an external file containing exactly the same text:
% \labelfile{addresses.dat}
\end{document}

```

It is left to you to combine `textmerg` and labels!

### 7.3 Tools/Default Language

L<sup>A</sup>T<sub>E</sub>X default language is English, but other languages are supported. By language support I mean the translation of terms like “Chapter” or “Index”, correct hyphenation, and the possibility of inserting characters like ‘ç’ or ‘é’ directly via your keyboard. (The normal way being typing `\c c` and `\’e`.)

If you are not a native English speaker, you’ll want to use the package `babel` like in the following example:

```
\usepackage[italian]{babel}
```

In addition, to type accented letters and in general non-standard ASCII characters<sup>4</sup> you may want to use the package `isolatin1`. However, this is not a recommended practice, because it reduces the legibility and portability of your file: you had better stick to the T<sub>E</sub>X way.

If you just can’t stand typing all those three- or four-letter clusters, then you could configure your editor to type those for you. For example, I set up my editor of choice (`jed`) to have it type `\’e` whenever I type ‘é’. This is what I included in my `.jedrc`:

```
define latex_mode_hook ()
{
  set_abbrev_mode (1);
  if ( () = abbrev_table_p ("LaTeX") )
    use_abbrev_table ("LaTeX");
  local_setkey (" \\'a", "à");
  local_setkey (" \\'e", "é");
  local_setkey (" \\'e", "è");
  local_setkey (" \\'i", "ì");
  local_setkey (" \\'o", "ò");
  local_setkey (" \\'u", "ù");
}
```

Please consult your editor’s documentation.

### 7.4 Tools/Hyphenation

Although L<sup>A</sup>T<sub>E</sub>X does a good job at hyphenating words, sometimes manual intervention may yield better results. Manual hyphenations are specified inserting `\-` where we want the word to be broken. A better way is to declare hyphenation rules:

```
\hyphenation{ge-o-phy-sics, ge-o-lo-gy, earth}
```

The above declaration instructs L<sup>A</sup>T<sub>E</sub>X not to hyphen the word “earth”. Another way to prevent a word to be hyphenated is to enclose it in `\mbox`:

```
Do not hyphen \mbox{internationalisation}.
```

<sup>4</sup>in computer jargon, “standard ASCII characters” are those characters whose code is included between 32 (space) and 126 (tilde).

## 7.5 Tools/Spell Check

Spell checking the text is not something  $\LaTeX$  is aware of; it is another tool's work. Under UNIX, you can use `ispell` this way:

```
shell> ispell -t mydocument.tex
```

The `-t` switch instructs `ispell` to ignore  $\TeX$  and  $\LaTeX$  commands. If your language is different than English, specify the appropriate dictionary with the `-d` switch:

```
shell> ispell -d italiano -t mydocument.tex
```

## 8 The Help Menu

There are many ways of getting help with  $\LaTeX$ , both online and offline. The best place to start is the CTAN site, <http://www.ctan.org/tex-archive/info/>.

- `info latex` (UNIX systems) gives a concise but very complete on-line summary of commands and concepts;
- <http://www.giss.nasa.gov/latex/> is a comprehensive on-line reference. Lots of useful links!
- <http://www.ctan.org/tex-archive/info/LatexHelpBook/> is a very fine help system for  $\LaTeX$ , fully integrated with Windows.
- don't forget the `news:comp.text.latex` newsgroup.

Many GNU/Linux distributions ship with `teTeX`, one of the most complete  $\TeX$ / $\LaTeX$  systems. A lot of documentation is provided, and is usually found in `TEXMF/doc`. Point your browser there, and be happy.

## 9 The End

This document is copyright © Guido Gonzato, 2001–2002, and released under the GNU General Public Licence. I really hope you'll find this guide useful. For any suggestions or comments, please feel free to contact me.

## A Document Templates

A template for the class `article` was presented in Section 2.1. More examples are shown in the following figures.

```
\documentclass[twoside,11pt]{book}
\begin{document}
\frontmatter
\begin{titlepage}
\title{The Book of Mine}
\end{titlepage}
\author{John B. Smith}
\maketitle
\tableofcontents
\mainmatter
\part{The Beginning}
\chapter{Introduction}
\section{Let's Start}
The book starts here.
\part{The End}
\backmatter
Thank you for reading this book.
\end{document}
```

Figure 3: Book template.

```
\documentclass[twoside,12pt]{report}
% tables and figures at the end:
\usepackage{endfloat}
\begin{document}
\frontmatter
\title{Final Report}
\author{John B. Smith}
\date{London, \today}
\maketitle
\begin{abstract}
This is the final report.
\end{abstract}
\tableofcontents
\listoftables
\listoffigures
\mainmatter
\part{Start}
\section{Introduction}
The report starts here.
\end{document}
```

Figure 4: Report template.

```
\documentclass[12pt]{letter}
\begin{document}
\address{My address}
\signature{Guido}
\begin{letter}{John's address}
\opening{Dear John,}
Thank you for being my friend.
\closing{Hope to see you soon,}
\ps{P.S. Say hello to granny!}
\encl{My son's photographs!}
\end{letter}
\end{document}
```

Figure 5: Letter template.

```
\documentclass[a4paper]{article}
\usepackage{type1cm}
\usepackage{times}
\usepackage{color}
\usepackage{rotating}
\pagestyle{empty}
\begin{document}
\begin{sidewaysfigure}
  \fontsize{2.5cm}{2.5cm}\selectfont
  \centerline{\textcolor{blue}{\textbf{Please:}}}}
  \vskip 1cm
  \fontsize{4cm}{3cm}\selectfont
  \centerline{\textcolor{red}{DO NOT}}
  \centerline{\textcolor{red}{SMOKE}}
  \centerline{\textcolor{red}{HERE!}}
  \vskip 1cm
  \fontsize{2cm}{2cm}\selectfont
  \centerline{\textcolor{magenta}{If you do,}}
  \centerline{\textcolor{magenta}{you'll be \emph{deboned!}}}}
\end{sidewaysfigure}
\end{document}
```

Figure 6: How to write a notice.

```
\documentclass{article}
\usepackage[absolute,showboxes]{textpos}
\usepackage{color}
\usepackage{framed}
\usepackage{graphicx}
\setlength{\TPHorizModule}{10mm} % standard unit of length
\setlength{\TPVertModule}{\TPHorizModule}
\setlength{\TPboxrulesize}{1pt} % box line width
% start everything near the top-left corner
\textblockorigin{0mm}{0mm}

\begin{document}
\setlength{\parindent}{0pt}
\definecolor{shadecolor}{rgb}{0.9,1,1}
\begin{textblock}{5}(0,0)
% this block is 5 modules wide; height is
% automatically determined
\begin{center}
\begin{minipage}[c]{0.8 \linewidth}
\begin{shaded}
This block is placed with its top left corner at the 'origin'
on the page, which has been set to (0mm,0mm). The internal
margin and she shading are provided by the \texttt{minipage}
and \texttt{shaded} environments.
\end{shaded}
\end{minipage}
\end{center}
\end{textblock}
\begin{textblock}{6}(10,1)
\includegraphics[width=6cm,angle=-90]{gnuplot.ps}
This picture is at (10,1). Note that rotating it
by -90 makes it overflow the margin.
\end{textblock}
\begin{textblock}{5}[0.5,0.5](2.5,8)
This block is at position (2.5,8), but because the optional
argument [0.5,0.5] has been given, it is the centre of the block
which is located at that point, rather than the top-left corner.
\end{textblock}
\begin{textblock}{3,4}(6,4)
The dimensions of this block are 3 $\times$ 4 cm.
Its origin is position (6,7) on the page. Note that the text
overflows the margin in some cases; you'll want to
use the \texttt{minipage} environment to prevent that.
\end{textblock}
\end{document}
```

Figure 7: How to write a poster.