LaTeX tips & tricks v14.9.12

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Abstract

This document provides some tips and tricks for your LaTeX documents. If you have any questions you **must** use Google. I will not teach you how to use or create LaTeX documents, this is a tips & tricks document not a how to use or create LaTeX documents document. This document's .tex is also provided. I am not responsible for any network failure or computer damage that might occur while consulting this document.

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1 Figures

You can refer figures by using `\ref{}`. For example, "in Figure ??" is written as `in Figure~\ref{fig:IMGsmall}`. The use of `~` between `Figure` and `\ref{fig:IMGsmall}` prevents those two words to "split" on a line break. Thus, without `~` you will have Figure ??.

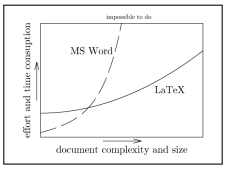


Figure 1: A very small image and this text will appear on figure's caption, not in List of Figures.

```
\begin{figure}[H]
\centering
\fbox{ %<--- creates a square line around the figure
    \includegraphics[width=.15\textwidth]{IMG}
}
\caption[A very small image and this text will appear in list of
   figures.]{A very small image and this text will appear on figure's
   caption, not in List of Figures.}
\label{fig:IMGsmall}
\end{figure}
```

Sometimes you need to add a reference where you took that figure from. Figure ??'s source code has an example how it can be done.

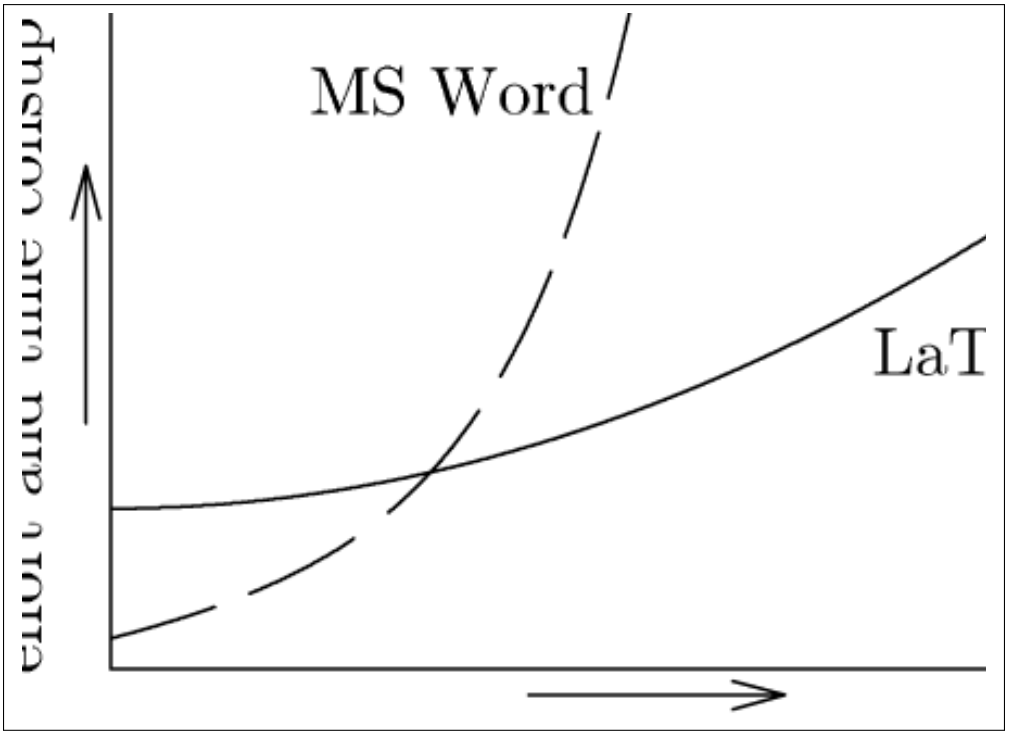


Figure 2: A trimmed image resized to 80% of \textwidht [1].

```
\begin{figure}[H]
\centering
\fbox{ %<--- creates a square line around the figure
    \includegraphics[clip=true,trim=12 25 75 60,width=.8\textwidth]{IMG
       }
}
\caption[A trimmed image resized to 80\% of {\textbackslash}textwidht
   and this is useful because the little one doesn't appear here.]{A
   trimmed image resized to 80\% of {\textbackslash}textwidht~\
   footnotemark.}
\label{fig:IMGtrimmed}
\end{figure}

\footnotetext{Image available: \url{http://www.pinteric.com/miktex.html
   }}
```

You can also use `.pdf` and `.eps` for figures. For `.eps` is necessary to use the package `epstopdf` and the `.eps` files are automatically converted to eps with the name: `EPSFILENAME-eps-converted-to.pdf`

[1] Image available: `http://www.pinteric.com/miktex.html`

Figure 3: A trimmed page of a pdf file resized to half of \textwidht with a 123 degree angle.

```
\begin{figure}[H]
\centering
    \includegraphics[page=2,width=.5\textwidth,angle=123,clip=true]{
       images/tipsetricks}
\caption{A trimmed page of a pdf file resized to half of {\
   textbackslash}textwidht with a 123 degree angle.}
\label{fig:pdf}
\end{figure}
```

2 Tables

Creating a table is the most annoying thing to do in LaTeX. Without specifying width for last column we end up with:

Day	Min Temp	Max Temp	Summary
Monday	11C	22C	A clear day with lots of sunshine. However, the strong breeze
Tuesday	9C	19C	Cloudy with rain, across many northern regions. Clear spells
Wednesday	10C	21C	Rain will still linger for the morning. Conditions will improve

With width specified:

Day	Min Temp	Max Temp	Summary
Monday	11C	22C	A clear day with lots of sunshine. However, the strong breeze will bring down the temperatures.
Tuesday	9C	19C	Cloudy with rain, across many northern regions. Clear spells across most of Scotland and Northern Ireland, but rain reaching the far northwest.
Wednesday	10C	21C	Rain will still linger for the morning. Conditions will improve by early afternoon and continue throughout the evening.

```
    \begin{tabular}{| l | l | l | l |}
    \hline
    Day & Min Temp & Max Temp & Summary \\ \hline
    Monday & 11C & 22C & A clear day with lots of sunshine.
    However, the strong breeze will bring down the temperatures. \\ \
       hline
    Tuesday & 9C & 19C & Cloudy with rain, across many northern
       regions. Clear spells
    across most of Scotland and Northern Ireland,
    but rain reaching the far northwest. \\ \hline
    Wednesday & 10C & 21C & Rain will still linger for the morning.
    Conditions will improve by early afternoon and continue
    throughout the evening. \\
    \hline
    \end{tabular}
\end{center}

With width specified:

\begin{center}
    \begin{tabular}{ | l | l | l | p{5cm} |}
    \hline
    Day & Min Temp & Max Temp & Summary \\ \hline
    Monday & 11C & 22C & A clear day with lots of sunshine.
    However, the strong breeze will bring down the temperatures. \\ \
       hline
```

```
    Tuesday & 9C & 19C & Cloudy with rain, across many northern
       regions. Clear spells
    across most of Scotland and Northern Ireland,
    but rain reaching the far northwest. \\ \hline
    Wednesday & 10C & 21C & Rain will still linger for the morning.
    Conditions will improve by early afternoon and continue
    throughout the evening. \\
    \hline
    \end{tabular}
\end{center}

\lstinputlisting[firstline=129, lastline=163]{tipsetricks.tex}
```

For more info see: `http://en.wikibooks.org/wiki/LaTeX/Tables`

However, if you use `p{5cm}` or `p{2cm}` you might end up with a table like the one represented in Table **??**.

Functionalities/Restrictions	**This is one of the columns**	**This is column two with a big word such as *Supercalifragilisticexpialidocious***	***Supercalifragilistice***
LaTeX is good for you	Yes	No	No

Table 1: Reasons to use LaTeX.

```
\begin{table}[tbh!]
  \begin{center}
    \begin{tabular}{|c|p{2cm}|p{5cm}|c|}
        \hline \textbf{Functionalities/Restrictions} & \textbf{This is
           one of the columns} & \textbf{This is column two with a big
           word such as {\superword}} & \textbf{{\superword}} \\
        \hline \textbf{\LaTeX} & \mr{Yes} & \mr{No} & \mr{No} \\
        \textbf{is good for you}  & & & \\
        \hline
    \end{tabular}
 \end{center}
\caption{Reasons to use \LaTeX.}
\label{table:badtable}
\end{table}
```

This is ugly and you end up with a broken table. For that reason you can use `\resizebox{h-length}{v-length}{text}` inside table environment and end up with Table **??**.

```
\begin{table}[tbh!]
  \begin{center}
    \resizebox{\textwidth}{!}{
        \begin{tabular}{|c|p{2cm}|p{5cm}|c|}
            \hline \textbf{Functionalities/Restrictions} & \textbf{This
                is one of the columns} & \textbf{This is column two
               with a big word such as
```

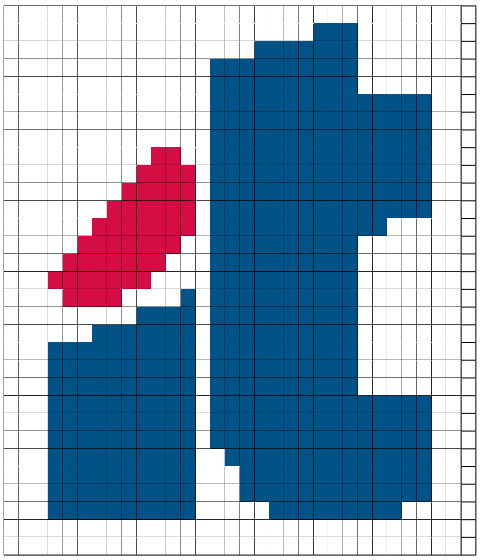
Functionalities/Restrictions	This is one of the columns	This is column two with a big word such as Supercalifragilisticexpialidocious	Supercalifragilisticexpialidocious
LaTeX is good for you	Yes	No	No

Table 2: Reasons to use LaTeX.

```
                Supercalifragilisticexpialidocious} & \textbf{
                Supercalifragilisticexpialidocious} \\
            \hline \textbf{\LaTeX} & \mr{Yes} & \multirow{2}{*}{No} & \
                mr{No} \\
            \textbf{is good for you}  & & & \\
            \hline
        \end{tabular}
    } %<---- resizebox ends here!
 \end{center}
\caption{Reasons to use \LaTeX.}
\label{table:resizedtable}
\end{table}
```

As you might see, there is the command `\mr{}` embracing Yes and No. This command is defined at the beginning of the file, right before `\begin{document}`, as `\newcommand\mr[1]{\multirow{2}{*}{#1}}`. The only reason for using `\mr{}` is to have a more elegant table while reading the .tex file. Multirow allows for a piece of text to be putted in the middle of N lines `\multirow{N}{*}{Text you want}`.

Is also possible to have colors inside each cell.



The source code is too big so only one of the lines is here:

```
\cellcolor{white} &     \cellcolor{white} &     \cellcolor{white} &
      \cellcolor{ITBlue} &    \cellcolor{ITBlue} &    \cellcolor{
   ITBlue} &    \cellcolor{ITBlue} &    \cellcolor{ITBlue} &    \
```

```
    cellcolor{ITBlue} &    \cellcolor{ITBlue} &    \cellcolor{ITBlue} &
       \cellcolor{ITBlue} &    \cellcolor{ITBlue} &    \cellcolor{white}
     &     \cellcolor{ITBlue} &    \cellcolor{ITBlue} &    \cellcolor{
    ITBlue} &    \cellcolor{ITBlue} &    \cellcolor{ITBlue} &    \
    cellcolor{ITBlue} &    \cellcolor{ITBlue} &    \cellcolor{ITBlue} &
       \cellcolor{ITBlue} &    \cellcolor{ITBlue} &    \cellcolor{white}
     &     \cellcolor{white} &     \cellcolor{white} &     \cellcolor{
    white} &     \cellcolor{white} &     \cellcolor{white} &     \
    cellcolor{white} &     \\  \hline
```

For more info see: `http://en.wikibooks.org/wiki/LaTeX/Tables`

3 Equations

For equations you can use `\begin{equation}` to write mathematical equations.

$$a = b \tag{1}$$

$$a^2 = ab \tag{2}$$

$$a^2 - b^2 = ab - b^2 \tag{3}$$

$$(a - b)(a + b) = b(a - b) \tag{4}$$

$$a + b = b \tag{5}$$

$$b + b = b \tag{6}$$

$$2b = b \tag{7}$$

$$2 = 1 \tag{8}$$

```
\begin{equation}
    a^2=ab
\end{equation}
\begin{equation}
    a^2-b^2=ab-b^2
\end{equation}
\begin{equation}
    (a-b)(a+b)=b(a-b)
\end{equation}
\begin{equation}
    a+b=b
\end{equation}
\begin{equation}
    b+b=b
\end{equation}
\begin{equation}
    2b=b
\end{equation}
\begin{equation}
    2=1
\end{equation}

\lstinputlisting[firstline=258, lastline=281]{tipsetricks.tex}
```

Or if you want you can write the equation inline $1 + 2 + 3 + 4 + ... = -\frac{1}{12}$ using `$` between numbers or equations. For example, `$1+2+3+4+...=-\frac{1}{12}$`

4 Bonus

4.0.1 TeX editors

There are a lot of TeX editors. For personal usage I recommend TeXstudio since it has a pdf viewer and a synonyms dictionary (Thesaurus).

If you are writing a collaborative work, use ShareLaTeX.

4.0.2 Symbols

If you do not remember a symbol's name, use Detexify. Draw that symbol on the square and a list of possible symbols appear on the right side.

4.0.3 Easy tables

I often use a spreadsheet editor to create my tables but there are online services offering many ways to create them such as Tables Generator or Table Editor.

4.0.4 Long/Complex words

If you are tired of writing the same (complex) word, add it before `\begin{document}` and then use it over the document. For example, the word *Supercalifragilisticexpialidocious* is `\newcommand{\superword}{\textit{Supercalifragilisticexpialidocious}}`. Over the .tex document it was only used `{\superword}`. Use it between parentheses or else the following space disappear. For example, *Supercalifragilisticexpialidocious*without parentheses and *Supercalifragilisticexpialidocious* with parentheses (See the missing space before the word "without").

4.0.5 Comments

If you want to comment a large amount of lines use `\iffalse` at the beginning and end it with `\fi`. For example:

```
If you want to comment a large amount of lines use \verb|\iffalse| at
   the beginning and end it with \verb|\fi|. For example:
\iffalse
This piece of text will not be compiled.
Neither:
\include{anotherfile}
So I can play with this to compile only the chapters I want.
\fi
```

4.0.6 References

You can refer to a specific section by presenting a page, name or section number. For example I can refer the section **??** called **??** on page **??**. Everything is controlled by LaTeX so you only need to worry in creating a `\label{key}`, on the position you need to refer.

The same principle can be applied on figures. Figure **??** with caption **??** is on page **??**.

```
You can refer to a specific section by presenting a page, name or
   section number. For example I can refer the section~\ref{sec:
   equations} called~\nameref{sec:equations} on page~\pageref{sec:
   equations}. Everything is controlled by {\LaTeX} so you only need to
    worry in creating a \verb|\label{key}|, on the position you need to
    refer.

The same principle can be applied on figures. Figure~\ref{fig:IMGsmall}
    with caption~\nameref{fig:IMGsmall} is on page~\pageref{fig:
   IMGsmall}.
```

For a better organization use the prefix *fig:* for figures, *sec:* for sections, etc. See more info here: `http://en.wikibooks.org/wiki/LaTeX/Labels_and_Cross-referencing`

4.0.7 More...

You should read the source code since I might missed some other tips.