

The Joys of \LaTeX

A ≤ 60 minute lecture, with examples, introducing the world's standard typesetting language.

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<http://www-rohan.sdsu.edu/~vadim/latex-2009.pdf>

<http://www-rohan.sdsu.edu/~vadim/latex-2009.tex>



Benefits

- Professional-looking output

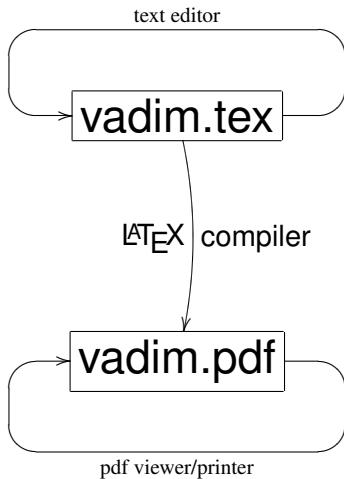
Ligatures: of fluffing (MS Word) of fluffing (L^AT_EX)

Kerning: Table (MS Word) Table (L^AT_EX)

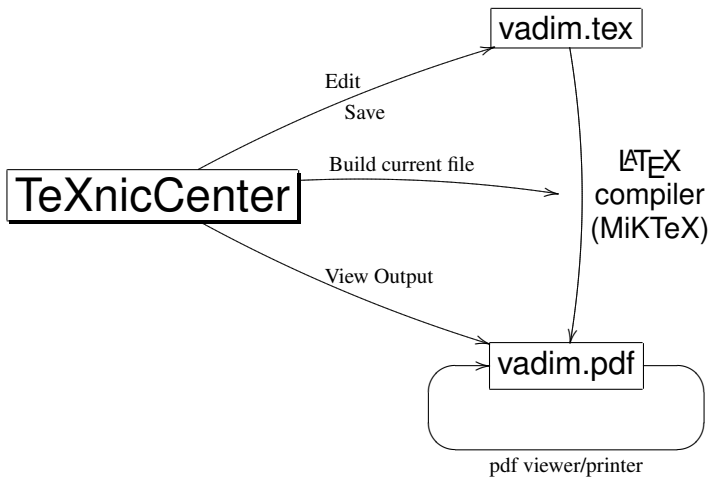
- math formulas, footnotes, references, tables of contents, indices, bibliographies, etc.
- Device and platform independent
- Text-based
- Encourages good organization
- Free



Simplified Usage



Less Simplified Usage



Windows Installation

1. Go to `www.miktex.org`, get the *complete* net installer.
(note: v2.7 lacks 98/ME support; get v2.6 if needed)
2. Run the installer *twice*: once to download, once to install.
3. Go to `www.texniccenter.org`, get the TexNicCenter installer.
4. Run the installer.



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TeXnicCenter

The screenshot shows the TeXnicCenter interface for a file named "Latex 30mins.tex". The menu bar includes File, Edit, Search, View, Insert, Math, Format, Project, Build, Tools, Window, and Help. The toolbar contains various icons, with a green circle highlighting the "LaTeX => PDF" button and a green arrow pointing to it. The main text area contains LaTeX source code:

```
254
255\begin{frame}{Other Resources}
256\begin{itemize}
257\item[]\underline{The Not So Short Introduction to \LaTeX $2_\epsilon$},
258Oetiker et al,\
259\texttt{http://tobi.oetiker.ch/lshort/lshort.pdf}
260\item[]
261\item[] Online tutorial: \texttt{http://www.tug.org/tutorials/tugindia/}
262\item[]
263\item[] MiKTeX: \texttt{http://www.miktex.org}
264\item[]
265\item[] TeXnic Center: \texttt{http://www.toolscenter.org/}
266\end{itemize}
```

Below the source code, a status bar shows several open files: "Latex 30mins.tex", "latex.tex", "latex-example6a.tex", and "latex-example6b.tex". At the bottom, a console window displays the following error message:

```
I found no \bibstyle command---while reading file D:\Inactive\Talks\Latex 30mins.aux
(There were 3 error messages)
Couldn't find input index file D:\Inactive\Talks\Latex 30mins nor D:\Inactive\Talks\Latex
Usage: C:\Program Files\MiKTeX 2.5\miktex\bin\makeindex.exe [-ilqrcgLT] [-s sty] [-o ind]

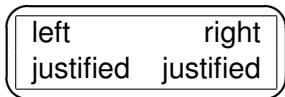
LaTeX-Result: 1 Error(s), 0 Warning(s), 11 Bad Box(es), 12 Page(s)
```

The status bar at the bottom of the console window shows "Ln 257, Col 5" and "UNIX" mode. The bottom-most status bar indicates "Press F1 to get help" and "OV R READ JUF NUM RF".



Example 2

```
\usepackage{fancybox}
\begin{document}
\Ovalbox{
  \begin{tabular}{|lr|}
  \hline left & right \\
  justified & justified \\
  \hline \end{tabular}
}
\end{document}
not compiled
```



Example 3

Important equations can get a number and their own line:

```
\begin{equation} 3^{2^x} \geq \mu \end{equation}
 $x_1 > x_2 > \cdots, x_i \in \mathbb{R},$ 
 $\sqrt{\sqrt[3]{x}}, \dots$ 
```

Important equations can get their a number and own line:

$$3^{2^x} \geq \mu \tag{1}$$

$$x_1 > x_2 > \cdots, x_i \in \mathbb{R}, \sqrt{\sqrt[3]{x}}, \dots$$



Example 4

```
\newtheorem{vthm}{Theorem}
\begin{vthm}good theorem\label{good}\end{vthm}
\begin{proof}blah, blah\end{proof}    (amsthm)
\begin{vthm}great theorem\label{great}\end{vthm}
We now generalize Theorem \ref{good}
and Theorem \ref{great}.
```

Theorem 1. *good theorem*

Proof.

blah, blah



Theorem 2. *great theorem*

We now generalize Theorem 1 and Theorem 2.



Example 5

```

 $\sum_{i=1}^7 3i$  \hspace{1in}
 $\underset{i=1}{\overset{7}{\sum}} 3i$  \hspace{1in}
 $\underset{x \rightarrow \infty}{\lim} x^2$  \\
\vspace{3.6mm}

```

$$\sum_{i=1}^7 3i$$

$$\sum_{i=1}^7 3i$$

$$\lim_{x \rightarrow \infty} x^2$$

Use ‘ and ’; avoid the sweet temptation of "

Other units: in, cm, pt, weird ones like bp(=1.00375pt),
 \textwidth , \pagewidth



Basics

- Always load:
`amsmath, amsthm, amssymb, amsfonts`
- Often useful: `fullpage`
- All packages at: <http://www.ctan.org>



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Beamer

- Packages `latex-beamer`, `pgf`, `xcolor` must be installed.
- Pick a theme, e.g. `Singapore`
- Most \LaTeX commands unchanged, some new ones (e.g. `\pause`)
Find other people's code and steal it.
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