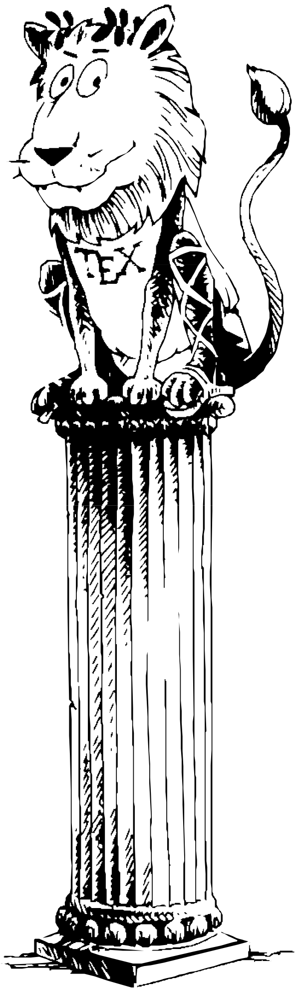
The Very Short Introduction to LaTeX



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$\longrightarrow$ The Basic Concepts

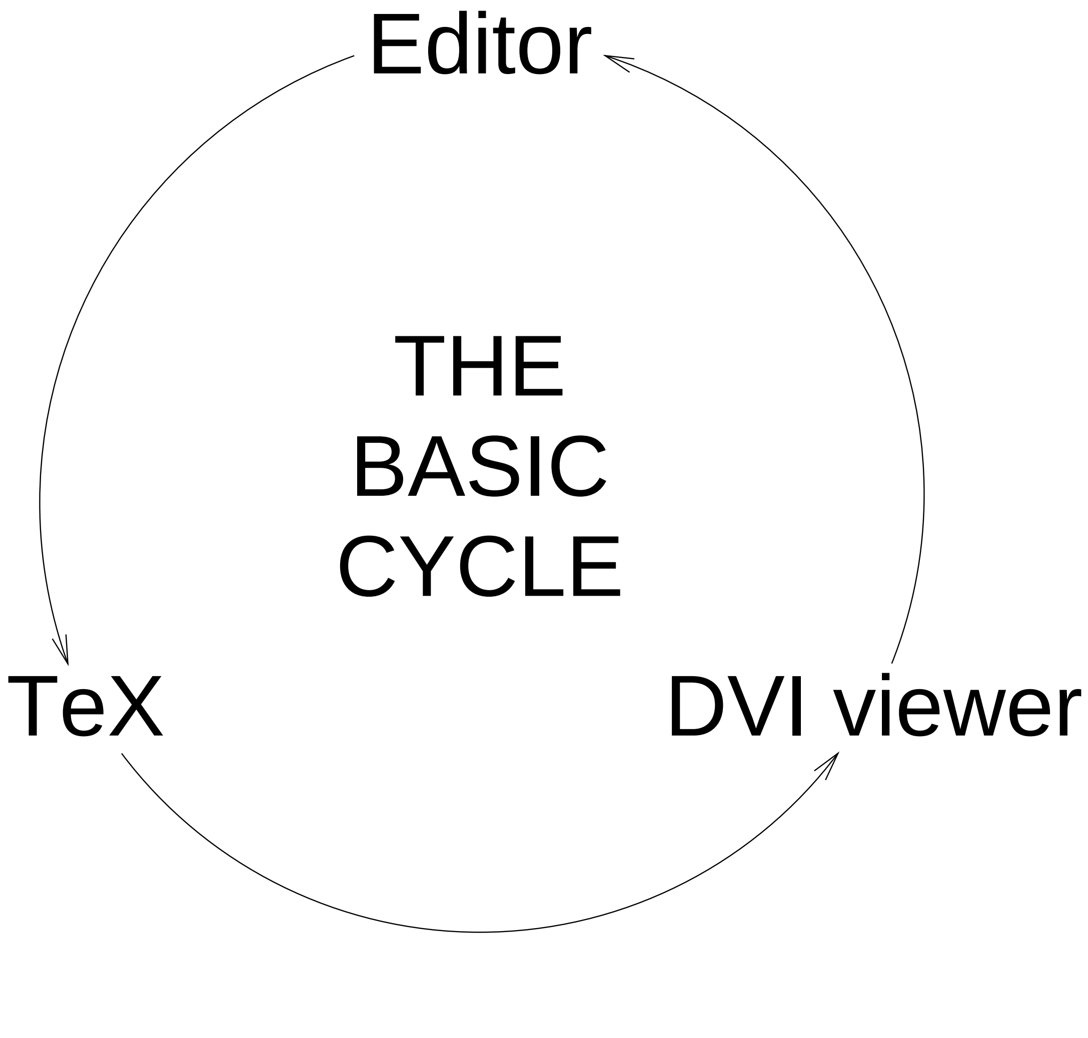
- Not a WYSIWYG DTP, but a programming language
- User cares about WHAT not HOW
- Transparent system
- User extendable

$\longrightarrow$ Advantages

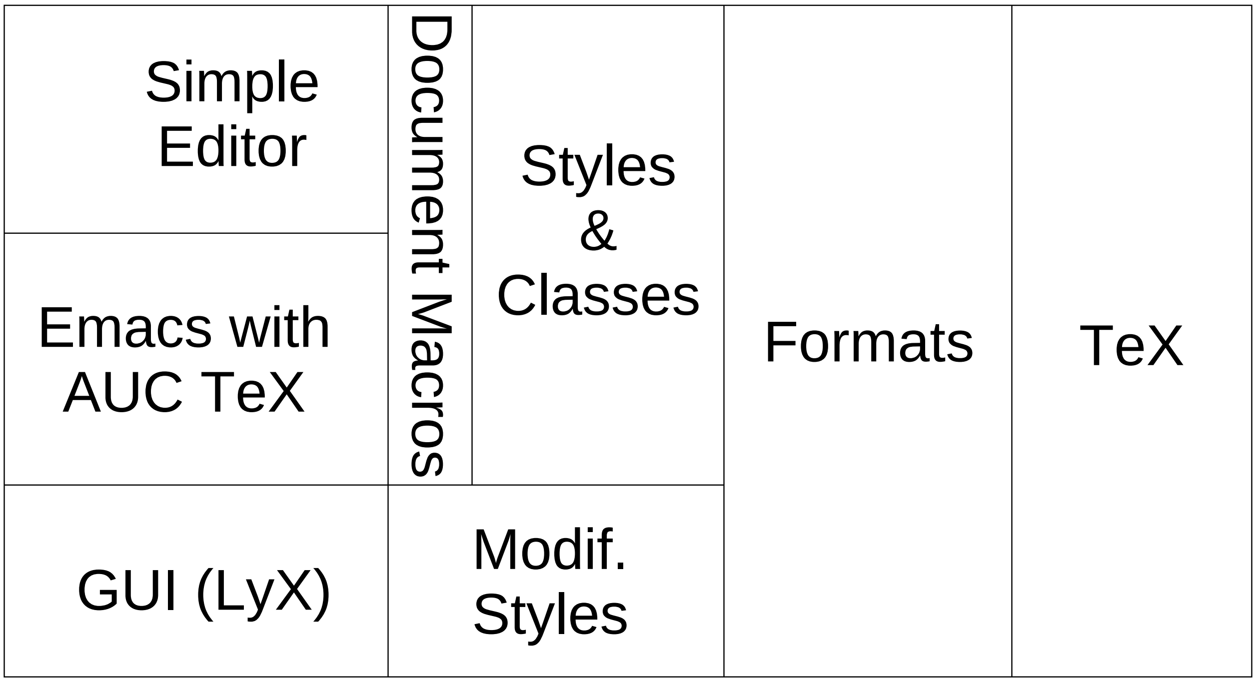
- Excellent typographic quality
- Math support
- Invariance
- Hardware/software independence
- Output device independence
- GPL licence
- Ideal as SGML/XML systems backend
- Multiple language support
- PDF, PS and HTML outputs
- Expert-friendly academic design

$\longrightarrow$ Disadvantages

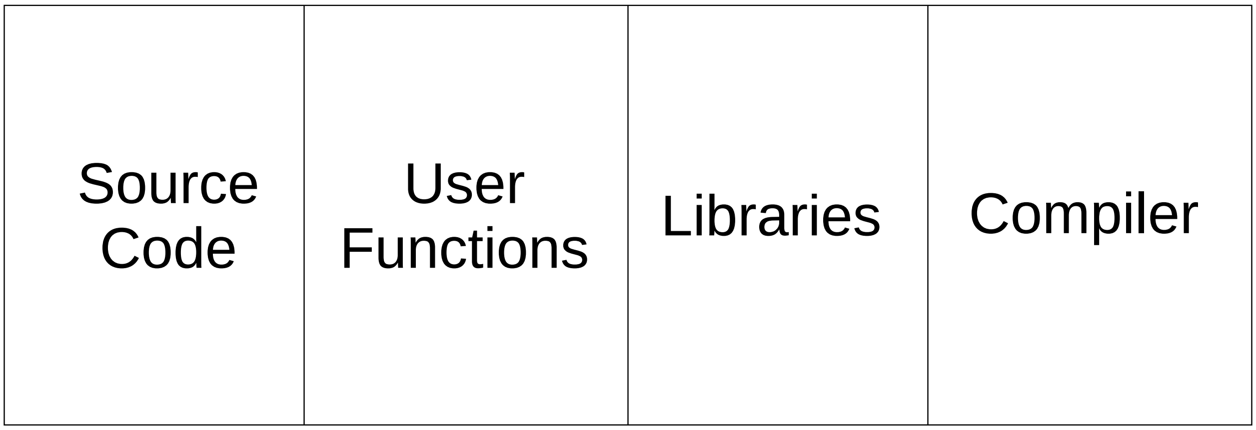
- Expert-friendly academic design
- Strange tasks are difficult
- Difficult non-EPS graphics usage
- Source files uncompatible with other systems.


Editor
THE
BASIC
CYCLE
TeX
DVI viewer

TeX - Structure of Layers



C-like Programming Language



$\longrightarrow$ Different TEXes

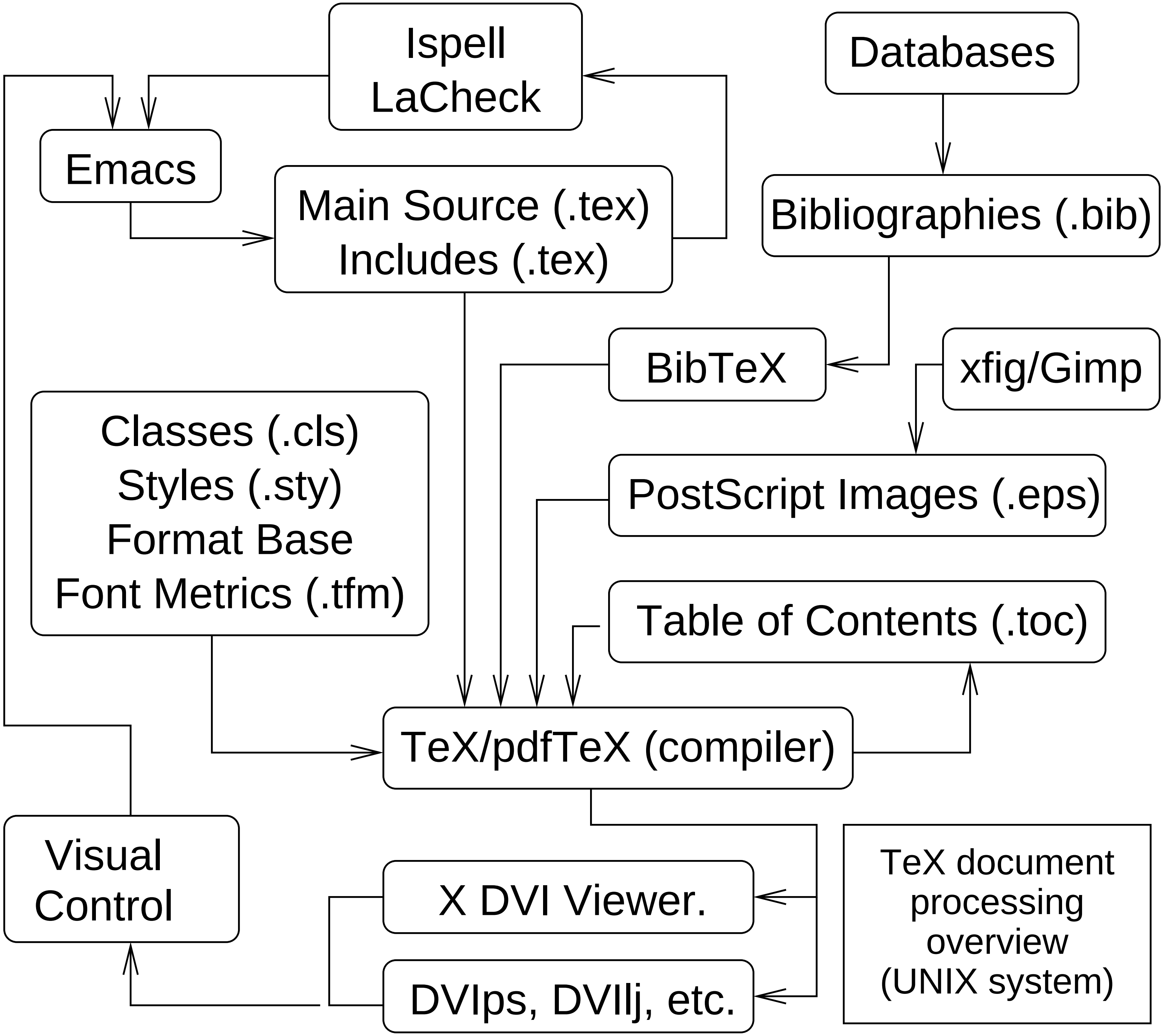
plainTEX — Knuth's simplest format

LATEX — Leslie Lamport's format (user-friendly), ver. in use: 2.09, 2ε

$\mathcal{AMS}$TEX — American Mathematical Society format (math enhanced plainTEX)

$\mathcal{AMS}$LATEX — LATEX/ $\mathcal{AMS}$TEX hybrid

pdfTEX — Han The Than's TEX engine (not format) for PDF output


Ispell
LaCheck
Databases
Emacs
Main Source (.tex)
Includes (.tex)
Bibliographies (.bib)
BibTeX
xfig/Gimp
Classes (.cls)
Styles (.sty)
Format Base
Font Metrics (.tfm)
PostScript Images (.eps)
Table of Contents (.toc)
TeX/pdfTeX (compiler)
Visual
Control
X DVI Viewer.
DVIps, DVIlj, etc.
TeX document
processing
overview
(UNIX system)

$\longrightarrow$ “First Document”

```
\documentclass{article}

\begin{document}
It is rare to see giraffes walking near the South Pole.
\end{document}
```

$\longrightarrow$ Compiler output

```
[w@ct speech]$ latex first
This is TeX, Version 3.14159 (Web2C 7.3)
(first.tex
LaTeX2e <1998/12/01> patch level 1
(/usr/share/texmf/tex/latex/base/article.cls
Document Class: article 1999/01/07 v1.4a Standard \
 LaTeX document class
(/usr/share/texmf/tex/latex/base/size10.clo)) (first.aux)\
 [1] (first.aux) )
Output written on first.dvi (1 page, 276 bytes).
Transcript written on first.log.
[w@ct speech]$
```

$\longrightarrow$ The Result

It is rare to see giraffes walking near the South Pole.

→ A more sophisticated example

```
\documentclass[a4paper,12pt]{article}
\usepackage{graphics}
\begin{document}
\title{Another example}
\author{Beavis and Butthead}
\maketitle
\tableofcontents

\section{Giraffe Afraid of EPS Platypus?}
\label{sec:pict}
\textit{Manual} \texttt{font} \textbf{selection} is
also possible.
\begin{center}
  \resizebox{!}{4cm}{\includegraphics{platypus.eps}}
\end{center}

\section{Some Math}

In section \ref{sec:pict} on page
\pageref{sec:pict} we didn't mention that

\begin{equation}
  \label{eq:lorentz}
  x' = \frac{x - v t}{\sqrt{1-\beta^{2}}}
\end{equation}

\end{document}
```

→ Further reading

- Donald E. Knuth: *The TeXbook*. Adisson-Wesley, 1984.
- Tobias Oetiker: *The Not So Short Introduction to LaTeX*. On-line: ftp://ctan.tug.org/tex-archive/info/lshort/english/lshort.pdf.
- Patrick W. Daly: *Graphics and Colour with LaTeX*. On-line: http://www.mpae.gwdg.de/~daly/latex/grf.htm (25. September, 1999)
- See http://www.tug.org for others