LaTeX *with* Tears

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Robert L. McDonald

Kellogg School, Northwestern University

What is LaTeX ?

- Document markup language
  - LaTeX is a wrapper around TeX, which is more obviously a programming language
  - CTAN is a tremendous resource for help and extensions
  - Let LaTeX handle formatting and fonts!!!
- Permits separation of content and design
- Different document classes for different purposes: article, letter, book.
- Works with BibTeX

Why (or why not) LaTeX?

- Advantages
  - Text files $\Longrightarrow$ document corruption not an issue
  - Pure focus on document creation, designed for math
  - Good document design by default
  - Truly cross-platform
- Disadvantages
  - *Big* startup costs
  - Publishers may or may not want the format
  - LaTeX is not appropriate for true desktop publishing
  - Need to compile document to view it
  - Some tasks (e.g. table design) can be tedious
  - Document appearance can be hard to modify

Creating a Document

- Create ASCII file with appropriate markups
- Compilation is multi-step process
  - Compile the file using latex.exe (often multiple passes to resolve cross-references).
    - MikTeX's texify.exe provides single pass compilation
  - This creates a .dvi file for which a dvi viewer (e.g. MikTeX's yap.exe) is necessary
  - Can print directly from dvi viewer or by converting the file to postscript with dvips.
  - SWP does all this "under the hood"
- Pdflatex and ps2pdf (from Ghostscript) can be used to create a pdf file. Multiple routes to pdf can be confusing.

LaTeX Options under Windows

	Advantages	Disadvantages
Scientific Workplace	Simple	Costly
	Great equation editor	Opaque
	Handles Windows formats	Slow
		Clumsy
		Mediocre support (e.g. €)
PCTeX	Fonts	Costly
	Utilities	Need to know LaTeX
		A bit opaque
MikTeX	Free	Need to know LaTeX
	Utilities	Must piece things together

A Complete LaTeX Installation

- MikTeX
- Ghostscript and Ghostview
- A text editor which understands LaTeX
  - Emacs (free)
  - Xemacs (free)
  - WinEdt (commercial)
- Plan on using the Windows command shell
- Make sure that MikTeX, Ghostview, and Ghostscript directories are in the path.

MikTeX hints

- Set up a “localtexmf” directory.
  - This is where you keep style files you’ve added, apart from the main distribution
- Be sure to run “initexmf -u” after installing new style files
- Make sure to install Ghostview and Ghostscript
- Wmf graphics are *not* adequately supported in MikTeX.

Scientific Workplace Hints

- In Tools|User Setup|Edit|Enter, set “Action” to “ignore”. This prevents excess space from appearing in the typeset document.
- In the View menu, make sure “invisibles” is checked. This enables you to see skips which SWP has inserted. (SWP inserts “\bigskip” commands, which add space to the typeset document.)

MikTeX and Scientific Workplace

- You can edit the same document in both (simultaneously!)
- MikTeX
  - must have access to tcilatex.tex
  - cannot handle .wmf graphics
- SWP must be able to find MikTeX style files
  - You can edit \swp35\TCITeX\TrueTeX\truetex.ini to include MikTeX paths
- SWP detects file changes automatically (as do many editors)

Examples

- test1.tex illustrates a simple tex document created from scratch in a text editor
- test2.tex illustrates the same document created from scratch in SWP
- Graphtest.tex illustrates different graphics file formats

Creating a .pdf file

- Create the dvi file by running “latex fn”
- Create a .ps file by running “dvips -Pcmz -tletter fn”
  - The “-Ppdf” option controls fonts. For Prosper class, use “-Pcmz”
  - The “-tletter” option controls paper size
- Create a .pdf file by running “ps2pdf fn.ps fn.pdf”
- Here is a Windows batch file:

```
rem this file is for standard letter–size documents, not slides
texify %1.tex
dvips –tletter –Ppdf %1
call ps2pdf %1.ps %1.pdf
call acro %1
```