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Speedy LATEX on the Mac

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Abstract As first a physics professor and now a math and physics high school teacher, my teaching materials are always evolving and I am always looking for ways to make this easier for myself and to avoid reinventing the wheel (often my own wheel). Over the last three years, LATEX has been a key part of that process. Here are the Mac-specific tools I use to make the typesetting as fast as possible so I can spend my time on content rather than on formatting.

1 Introduction

I've used a few different versions of LATEX on the Mac over the years, and gone through a couple of try-every-free-text-editor offerings hunting for one that I liked. Some of my choices may not suit your tastes or needs and the scripts I refer to may well not be exactly what you need. However, I hope that both choices and scripts create a few more tools for LATEX users: especially new users.

2 LATEX

There are several LATEX distributions for the Mac. All will give you a functional LATEX. My preference is for the TEX Live distribution because it has tools for updating it quite easily. While LATEX is very stable over time, new features get added in packages and sometimes something new turns out to be useful to me, so I appreciate being able to easily grab the update when I find out it matters to me. I also like TEX Live because it doesn't install editors or other "front-ends".

3 Text Editor

I've moved away from the front-ends (text editors with some extra bells and whistles specifically for LaTeX) for two reasons: I became frustrated with the details of how parenthesis matching worked (checking that for every open paren there is a closing paren); I started wanting to extend the capabilities of the front-ends and found that inconvenient. For the last couple of years I have used TextWrangler. It's free. It's easy to learn. It works very easily with AppleScript (including easy assignment of keyboard shortcuts to AppleScripts and opening of the AppleScript editor from within TextWrangler), which has lead me to tricks I never dreamed of when I started down this road.

4 Scripts

These are the scripts I use for LaTeX. Some of these scripts are fairly long. They are long because they are for typing lots of text into my file with one shortcut. The way they are written in AppleScript includes formatting to make my LaTeX file easier for me to read (the reason for so many occurrences of `&tab*` in the script) and so that when I hit the wrong shortcut, command-z takes the whole mess out in one step. I've also generally worked to put the cursor in the place I usually want to start typing after I insert that particular chunk. If you prowl through these scripts, you'll find slight differences in the way I do similar things. Some have to do with whether I want to take text already in my file and modify it or whether I want only to insert new things. The insertion point commands differ most. I'm not sure I entirely understand these commands and have used what worked in various situations. Insertion at the end of a line is much easier than insertion in the middle of a line.

The divisions below do not exactly reflect the folder structure where I store the scripts. Changing where a script is in the folder structure forces a redo of the keyboard shortcut but has no other consequences. These scripts live in /Users/myusername/Library/Application Support/TextWrangler/Scripts. TextWrangler creates this folder *automagically* during installation. These scripts can be copied into that folder by the usual Mac method of drag-and-drop.

4.1 Compiling

- **Myxelatex**: this is what I use most
- **Mylatex**: for when I want to use just ordinary LaTeX
- **Lilypond-xelatex**: for combining music and math

4.2 General LaTeX

basic text formatting: bold, italic, roman: All of these take any highlighted text and apply the formatting to that text. If nothing is highlighted, the empty environment is inserted with the cursor inside the environment waiting for the text to be formatted.

graphics and tables

figure-notes: figure environment with centered graphics (scaling possible)

graphics: just a graphic (scaling possible)

figure-solns: figure environment with centered graphics (scalable), caption, and label for reference from elsewhere in the document

table: the bare bones of a LaTeX table

lists : All except item will take one or more lines of highlighted text and insert `\item` at the beginning of the line (including a space). If no text is highlighted, the insertion is ready for typing with the first item in the list.

- **enumerate**: create a numbered/lettered list by inserting its `\begin{enumerate}` and `\end{enumerate}` statements and one `\item` statement
- **item**: insert `\item` with a space (because I routinely mistype this word)
- **itemize**: the same as enumerate but bulleted rather than numbered or lettered
- **inpara-enum**: requires `\usepackage{paralist}` in the preamble to not be commented out; inserts environment that permits horizontal lists (for instance multiple choice answers if they are short)

specific environments (some beyond basic LaTeX)

- **center**: insert centered stuff; will put highlighted material inside the environment
- **quote**: for block-quoting from someone else's work; a way to create indented margins quickly for small amounts of material
- **mailto**: insert commands to turn an email address into a clickable link with the email address human-readable in the pdf output
- **block**: for Beamer slides; block of text or graphic with a title
- **frame**: for Beamer; start and end for slides in the presentation
- **lilypond-snippet**: the proper pieces to put around musical notation so that they are handed to Lilypond and then put into the document as pretty notes (requires XeTeX if I remember right)

4.3 Math

math environments

- **align**: the align environment for multiple lines of math
- **math-display**: for single lines of math set on their own line and numbered
- **math-inline**: for math within a paragraph

autosizing parentheses etc. : all require the following commands in the preamble

```
%create shortcut for the autoscaled (), [], <>, and ||
%- don't autocolor because it breaks ^ placement
\renewcommand{\(}{\left(}
\renewcommand{\)}{\right)}

\renewcommand{\[}{\left[}
\renewcommand{\]}{\right]}

\newcommand{\<}{\left\langle}
\renewcommand{\>}{\right\rangle}
```

```
\renewcommand{\|}{\left|}
%end (), [], <>, || automation
```

- **brackets**: matching pair of [and]; if used with text highlighted, the enclosed text will be within the brackets
- **parens**: same for ()

other bits I use a lot

- **units**: requires
  ```
  \usepackage[per-mode=fraction,sticky-per=true,
    load-configurations=abbreviations,
    separate-uncertainty=true]{siunitx}
  ```
  in the preamble; inserts `\si{\}`
- **number-units**: also requires siunitx; inserts `\SI{}{\}` for number followed by units
- **v-units**: also requires siunitx; inserts SI speed units
- **a-units**: also requires siunitx; inserts SI acceleration units
- **fraction**: inserts `\frac{}{}` with the cursor in the first set of curly braces
- **half**: inserts the LaTeX for $\frac{1}{2}$
- **partial**: inserts the LaTeX for the partial derivative $\frac{\partial}{\partial}$ with the cursor in the numerator

4.4 Teaching

- **exampleList**: creates the slide-and-notes framework for a clickable list of examples in the notes
- **example**: creates all the structure for individual examples for material to appear in lecture and material that appears only in notes posted online
- **ProbPartSolAns**: requires `\input testpoints` at the beginning of the file and the file testpoints.tex where LaTeX can find it; requires `\usepackage{comments}`; all the pieces of a problem: the statement; space for student work; space for

solutions; space for the answer with all the pieces turned on or off by `\includecomment{name}` or `\excludecomment{name}` commands in the preamble

- **PartSolAns**: insert another part into an existing problem; same requirements as ProbPartSolAns
- **rightAnswer**: highlight the right answer on a multiple choice test and quickly reformat it for creation of an answer key
- **version**: the environment for sections that can be commented in or out of the document; version needs to be replaced by specific names (problem, space, solutions, etc.)