

Please download the workshop files from:

savethevowels.org/latex

L^AT_EX for Linguists

Will Styler - Nov. 17th, 2012

What are we covering?

- What is LaTeX?
- Why is learning LaTeX worth your time?
 - How is it any different from using Word or LibreOffice?
- What are its weaknesses?
- What do LaTeX documents look like?
- What's the process of writing a new document?

What the heck is a LaTeX?



LATEX

LaTeX is a variation on the TeX typesetting engine,
written by Donald Knuth.

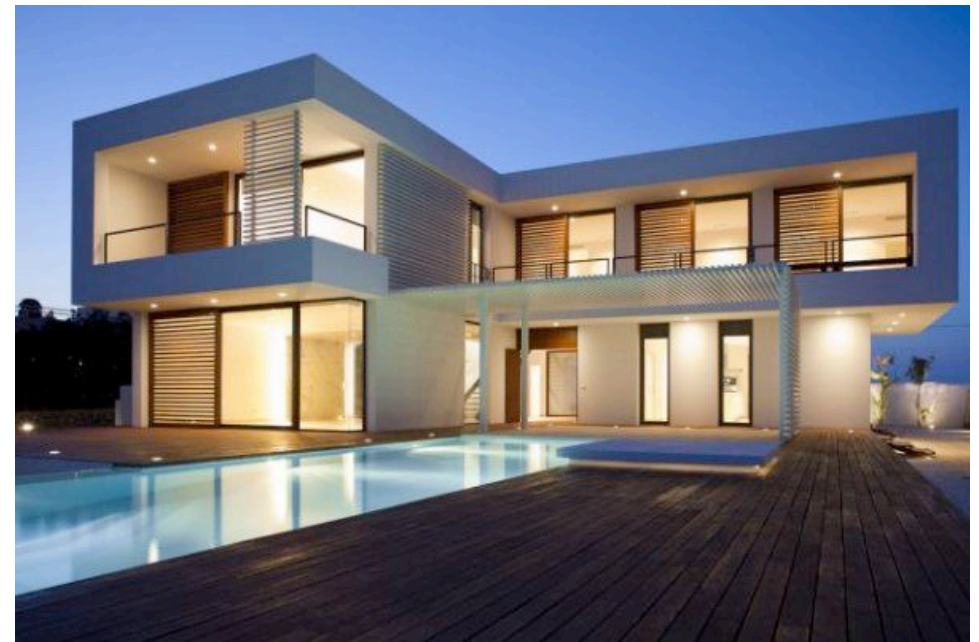
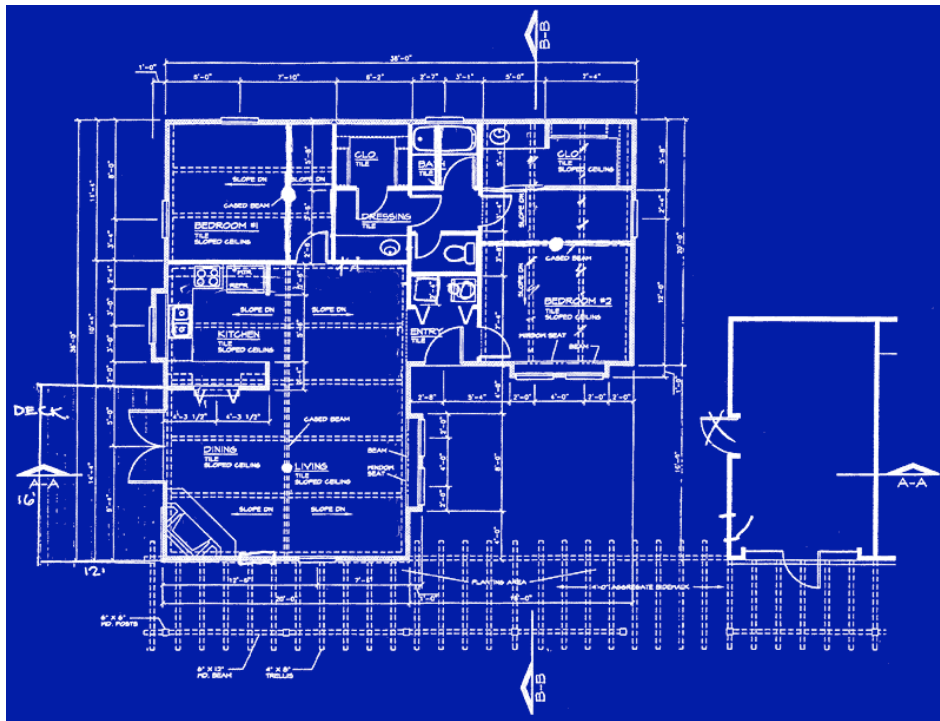
*[Knuth] has stated that the "absolutely final change (to be made after my death)"
will be to change the version number to π , at which point all remaining bugs will
become features.*

LaTeX is designed to be more user-friendly than TeX,
while retaining all of the power

I'm teaching you all to use “XeLaTeX”

Same idea, but supports Unicode fonts (for IPA,
etc)

It's a program that takes an ugly, semanticky, boring document and turns it into something pretty and "real".




```
\begin{center}
\huge{LING 3100 - Language Sound Structures}
\end{center}
\begin{center}
Syllabus - Fall 2012
\end{center}
```

```
% Including an * at the end of \subsection creates a non-numbered section,
which I use extensively so that I get the formatting without awkward
numbering.
```

```
\subsection*{Instructor - Will Styler}
\begin{itemize}
```

```
\item \textbf{IPA:} [wɪl 'stajlə]
```

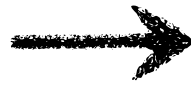
```
\item \textbf{Office:} HLMS 287B (CU Phonetics Lab)
```

```
\item \textbf{Directions:} Enter 287 (marked "Rebecca Scarborough"), then take
an immediate left.
```

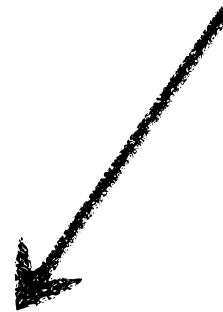
```
\item \textbf{Office Hours:} 12:30-2pm Mondays (before class), 2:00-3:30pm
Tuesdays, or by appointment
```

```
\item \textbf{Email:} \url{william.styler@colorado.edu} (Please put "3100" in
the subject line)
```

```
\end{itemize}
\vspace{0.1in}
```



LATEX



LING 3100 - Language Sound Structures

Syllabus - Fall 2012

Instructor - Will Styler

- **IPA:** [wɪl 'stajlə]
- **Office:** HLMS 287B (CU Phonetics Lab)
- **Directions:** Enter 287 (marked "Rebecca Scarborough"), then take an immediate left.
- **Office Hours:** 12:30-2pm Mondays (before class), 2:00-3:30pm Tuesdays, or by appointment
- **Email:** william.styler@colorado.edu (Please put "3100" in the subject line)

You're the architect, LaTeX is the construction crew.

With most other editors, the construction crew is already building the house *while you're trying to design it.*

Why should I bother with LaTeX?



Format rot

Grading

The grading scale used for this course is the University standard scale, where A is 93% or more, A- is 92.99 to 90%, B+ is 89.99 to 87%, and so forth. Up-to-date grade information will be provided automatically by Desire2Learn. Your final grade is calculated as below:

$$\text{Your Grade} = (20 * \text{Average \% score of homeworks}) + (10 * \text{Average \% score of labs}) + (10 * \text{Exam 1 \% Score}) + (10 * \text{Exam 2 \% Score}) + (20 * \text{Final Exam \% score}) + (20 * \text{Term paper \% score}) + (10 * \text{Class participation \% score})$$

Homework Assignments

There are nine (9) homework assignments which will be assigned this semester. We will try to distribute them via the website at least one week before they are due, and you will have a homework assignment due in lecture nearly every Wednesday.

Lab Assignments

You'll also have lab assignments every week. They'll be given out during the lab/recitation session on Friday, and although we encourage you to finish them in lab, they'll be technically due the following Monday to give you extra time to go over them if you need it. If you know you're going to miss a lab session, it is your responsibility to get the assignment from the website and complete it on your own and turn it in the following Monday.

Assignment Policies

- **All assignments are meant to be completed individually.** Although you're welcome to form study groups to discuss questions and help each other out with Labs or Homeworks, you should be the only person working on your copy of your assignment, and every answer should reflect your own learning and work.
- **We will automatically drop your lowest homework assignment grade and your lowest lab assignment grade during the semester.** You will still be responsible for knowing the material covered in any dropped homeworks or labs.

Because documents have patterns

What a pagebreak looks like in Word



What a pagebreak looks like in LaTeX

nasal resonances are added to the acoustical realization of the vowel, and listeners are able to perceive the sound (in phonemic cases, at least), and understand (consciously or unconsciously) that the VP port is open, adjusting their perceptions accordingly.

`\pagebreak`

Because both the mouth and nose are sources of airflow in nasalized vowels, nasality must be treated in a different way when discussing nasal vowels versus nasal stops. In stops, nasality is nearly binary: either from the mouth alone, in the case of an oral stop, or from the nose alone, in the case of a nasal stop.

Because trying to find and delete a page break in MS Word is *awful*

bri:d kjut 'æptəz

Because you're OCD

It looks like you're trying to get some work done. Would you like me to bug you instead?

- Annoy me till my eyes bleed
- Go away please, but come back right in the middle of my PowerPoint presentation this afternoon.



Because you're smarter than a computer

**Because your time is worth more than your
computer's time**

Studies leveraging modern technologies like MRI (`\cite{Demolin:2003aa}`) or pneumotachography (`\cite{Cohn:1990aa,Basset:2001aa}`), and using modern understanding and modeling of airflow and sound patterns in cavities (`\cite{Chen:1997vr}`), have allowed great advances in our understanding of the anatomical production and the physical acoustics of nasality.

Linguists and acousticians interested more in the production of nasal sounds and the acoustical consequences thereof (for any of the reasons described above), are, of course interested in this phenomenon, both from an articulatory and an acoustical standpoint. Studies leveraging modern technologies like MRI ([13]) or pneumotachography ([8, 1]), and using modern understanding and modeling of airflow and sound patterns in cavities ([7]), have allowed great advances in our understanding of the anatomical production and the physical acoustics of nasality.

References

- [1] Patricia Basset, Angélique Amélot, Jacqueline Vaissiüre, and Bernard Roubeau. Nasal airflow in french spontaneous speech. *Journal of the International Phonetic Association*, 31(1):87–99, 2001.
- [2] Patrice Speeter Beddor. A coarticulatory path to sound change. *Language*, 85(4):785–821, 2009.
- [3] Patrice Speeter Beddor and RA Krakow. Perception of coarticulatory nasalization by speakers of English and Thai: Evidence for partial compensation. *The Journal of the Acoustical Society of America*, 106:2868, 1999.
- [4] Paul Boersma and David Weenink. Praat: doing phonetics by computer [computer program], 2012.
- [5] Christopher Carignan, Ryan Shosted, Chilin Shih, and Panying Rong. Compensatory articulation in american english nasalized vowels. *Journal of Phonetics*, 39(4):668 – 682, 2011.
- [6] Marilyn Y. Chen. Acoustic Parameters of Nasalized Vowels in Hearing-Impaired and Normal-Hearing Speakers. *The Journal of the Acoustical Society of America*, 98(5):2443–2453, 1995.
- [7] Marilyn Y. Chen. Acoustic correlates of english and french nasalized vowels. *The Journal of the Acoustical Society of America*, 102(4):2350–2370, 1997.
- [8] Abigail C. Cohn. Phonetic and phonological rules of nasalization. *UCLA Working Papers in Linguistics*, (76), May 1990.

`\bibliography{/Users/stylerw/Documents/bibliography/main}`
`\bibliographystyle{plain}`

References

- [1] Patricia Basset, Angélique Amélot, Jacqueline Vaissiüre, and Bernard Roubeau, *Nasal airflow in french spontaneous speech*, *Journal of the International Phonetic Association* **31** (2001), no. 1, 87–99.
- [2] Patrice Speeter Beddor, *A coarticulatory path to sound change*, *Language* **85** (2009), no. 4, 785–821.
- [3] Patrice Speeter Beddor and RA Krakow, *Perception of coarticulatory nasalization by speakers of English and Thai: Evidence for partial compensation*, *The Journal of the Acoustical Society of America* **106** (1999), 2868.
- [4] Paul Boersma and David Weenink, *Praat: doing phonetics by computer [computer program]*, 2012.
- [5] Christopher Carignan, Ryan Shosted, Chilin Shih, and Panying Rong, *Compensatory articulation in american english nasalized vowels*, *Journal of Phonetics* **39** (2011), no. 4, 668 – 682.
- [6] Marilyn Y. Chen, *Acoustic Parameters of Nasalized Vowels in Hearing-Impaired and Normal-Hearing Speakers*, *The Journal of the Acoustical Society of America* **98** (1995), no. 5, 2443–2453 (English).
- [7] _____, *Acoustic correlates of english and french nasalized vowels*, *The Journal of the Acoustical Society of America* **102** (1997), no. 4, 2350–2370.

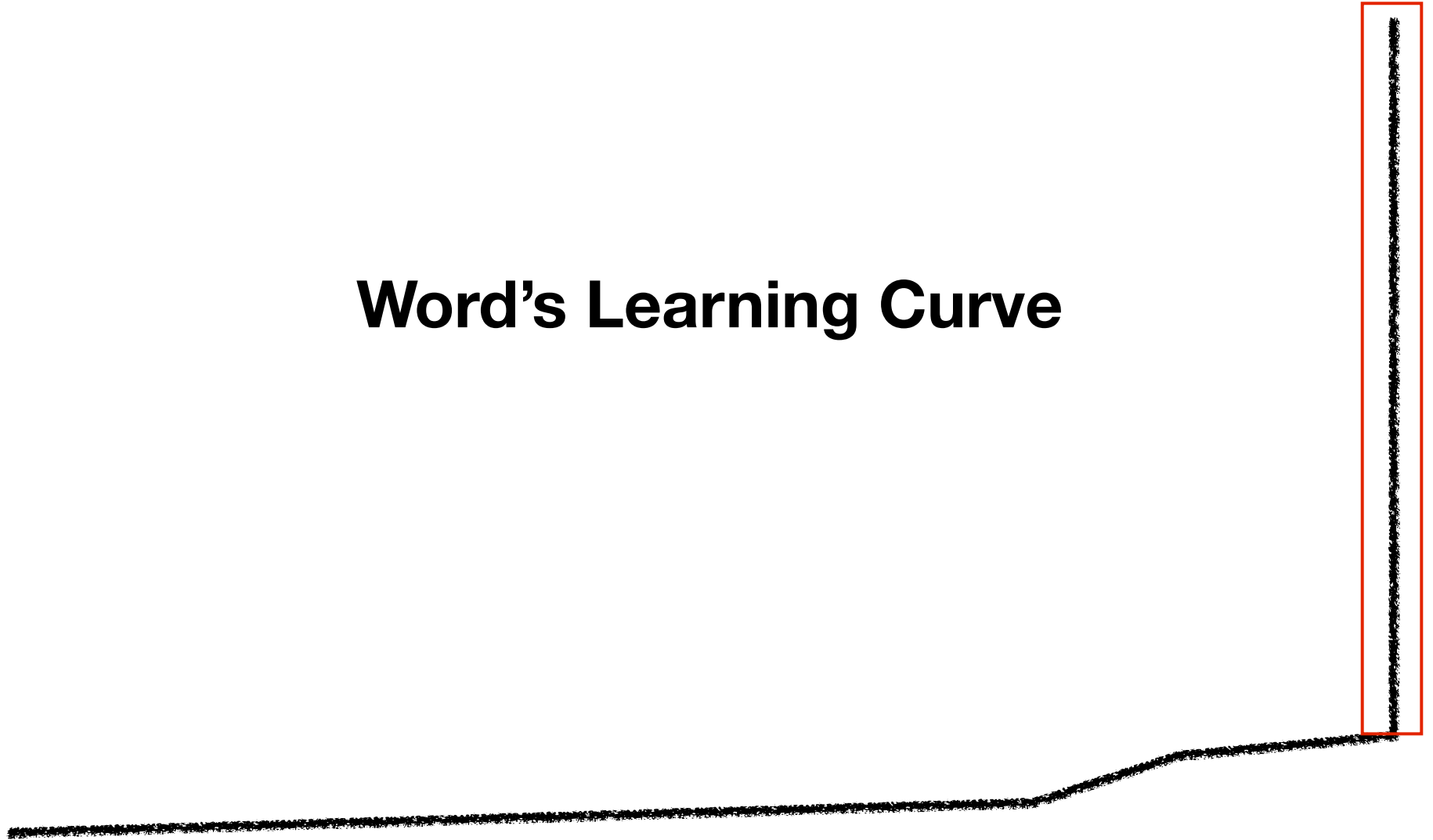
`\bibliography{/Users/stylerw/Documents/bibliography/main}`
`\bibliographystyle{amsplain}`

Contents

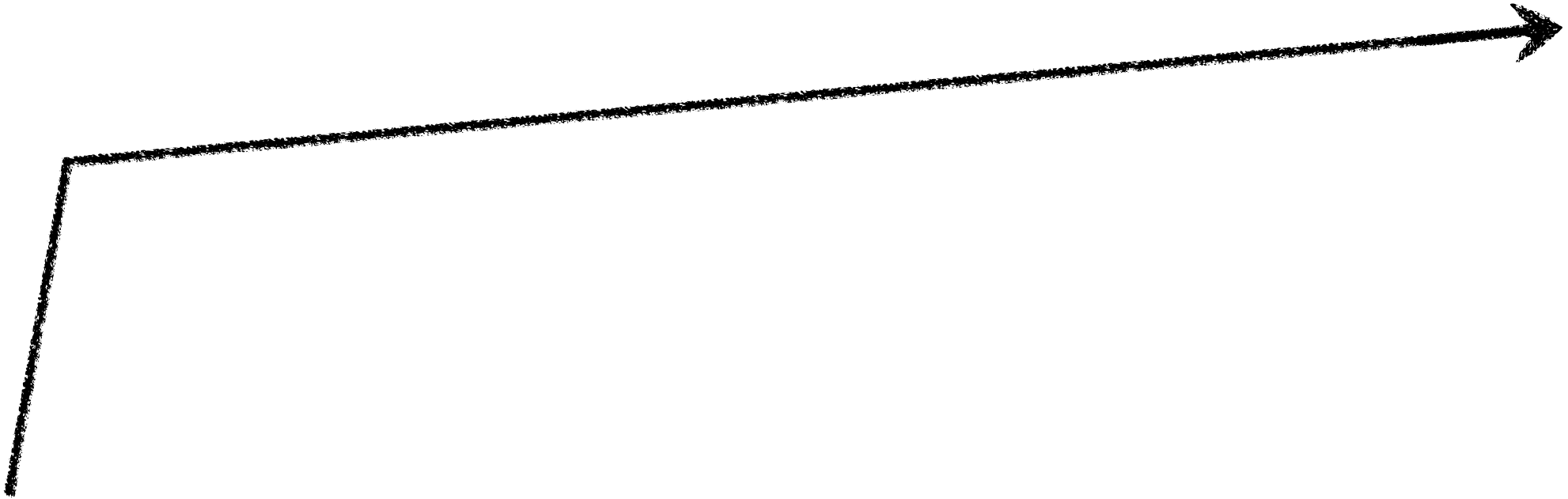
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LaTeX has a learning curve

Word's Learning Curve



LaTeX Learning Curve



With Word, you hit a point where you want more control and skill than it offers

With LaTeX, there's literally always more to learn

Anything
is
possible....

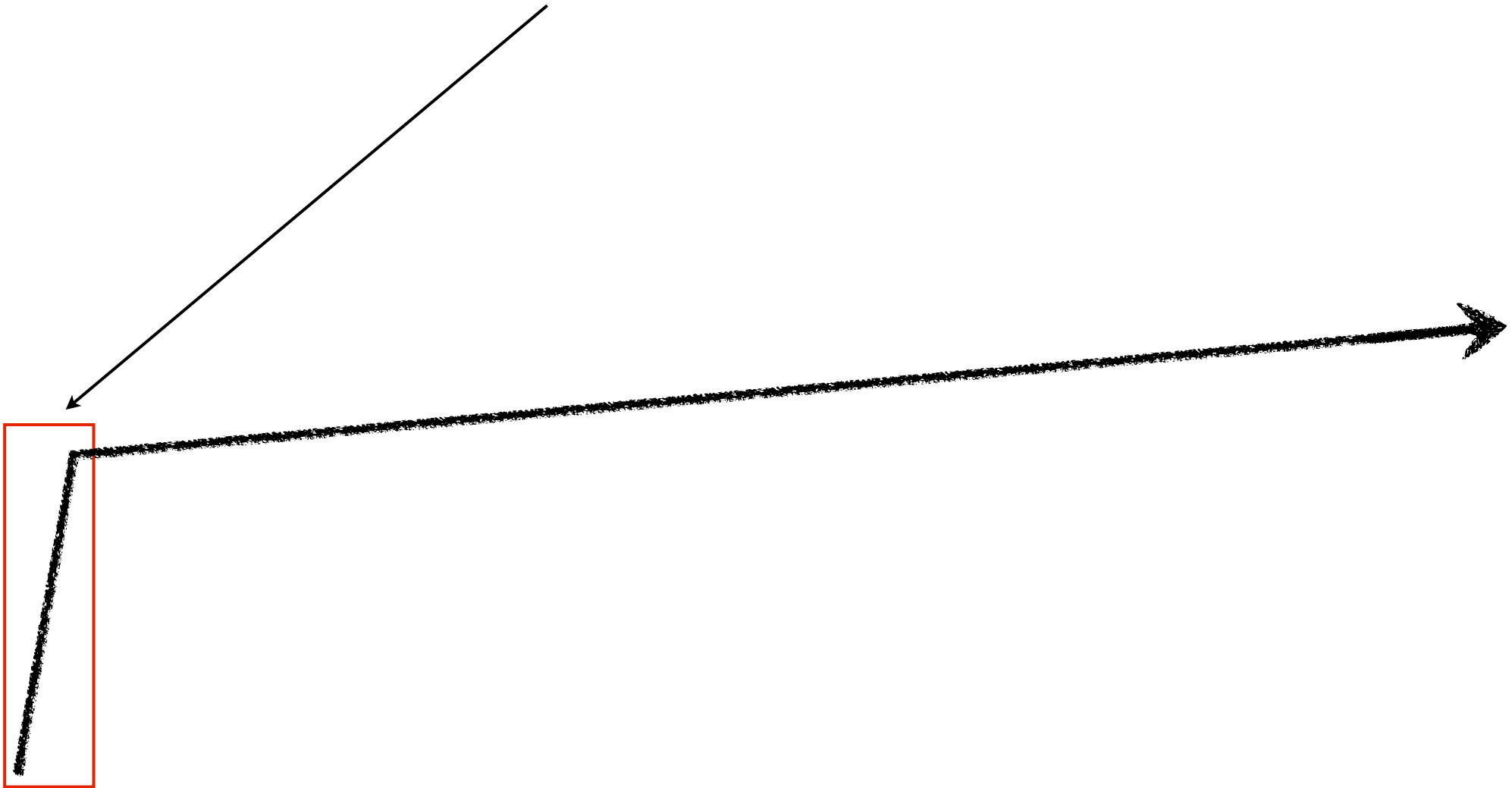


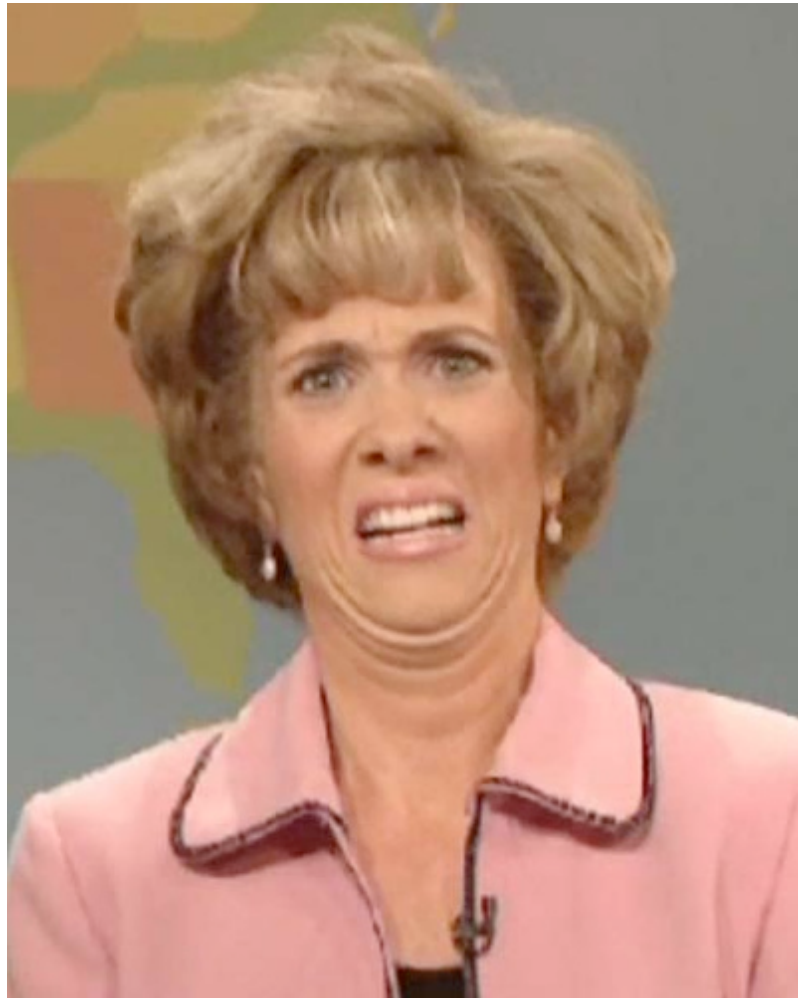
with

LATEX

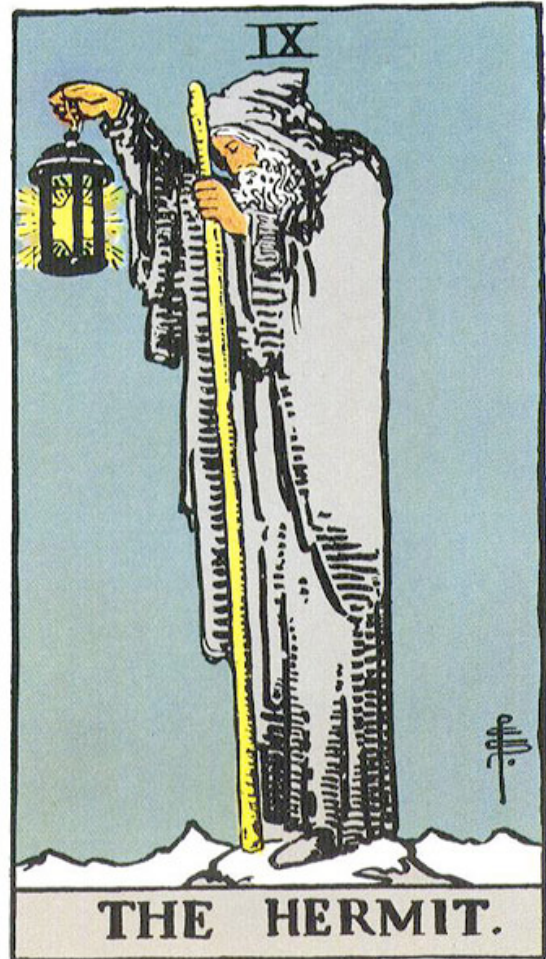
... so what's the catch?

That bit, right there





“You didn’t use Word?!”



Sharing and Collaboration is harder
(unless they too use LaTeX, then it's easy!)



The output is read-only

(which forces an extra step when creating homework)

“Track Changes” goes away

(but you can use tools like “latexdiff” to help)

**Starting a document is a bit more of a
production**

What *is* a “LaTeX document”?

A LaTeX document is just a plain-text file which specifies everything that LaTeX needs to know to build the pretty version.

Two Parts to a LaTeX document:

- 1) The part you steal from other documents
- 2) The part you write

Steal this part

```
\documentclass[11pt]{article}
\usepackage[margin=1in]{geometry}
\geometry{letterpaper}
\usepackage{fontspec,xltxtra,xunicode}
\defaultfontfeatures{Mapping=tex-text}
\setromanfont[Mapping=tex-text]{Times New Roman}
\usepackage[parfill]{parskip}
\usepackage{epstopdf}
```

```
\begin{document}
```

Everything else goes here

```
\end{document}
```

Write this part

The Front Matter specifies...

- Document type (“article”, “exam”, “letter”)
- Document size
- Font style/size
- What “packages” to use
 - Packages provide additional functionality
 - linguex (once installed) allows you to use numbered linguistic examples
 - tipa allows you to use IPA without unicode, but it’s a bad system
- Anything else that’s true for the entire document

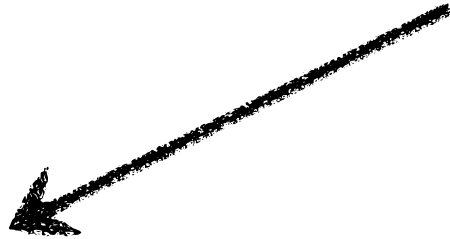
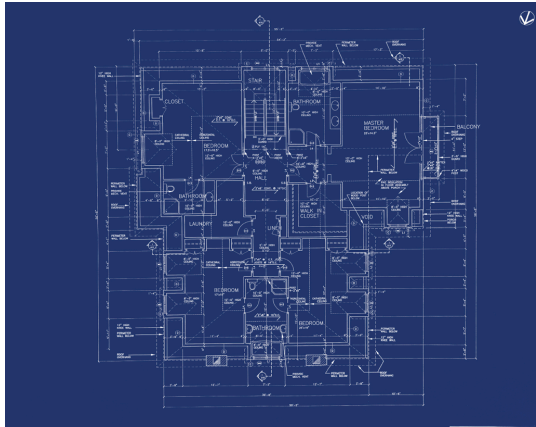
The rest of the document has...

- Everything that you want to go onto the page
- Words just go in naturally, but formatting has its own language.
- Format using Sections, Subsections, and Subsubsections

That's it.

Once you've stolen the top matter from someplace else, you just start writing, marking things according to the formatting you need.

So how do I actually use it?



```

\documentclass[11pt]{article}
\usepackage[margin=1in]{geometry}
\geometry{letterpaper}
\usepackage{fontspec,xltxtra,xunicode}
\defaultfontfeatures{Mapping=tex-text}
\setromanfont[Mapping=tex-text]{Times New Roman}
\usepackage[parfill]{parskip}
\usepackage{epstopdf}

\begin{document}

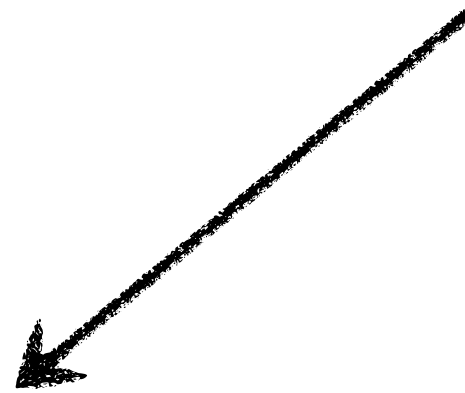
[Your whole essay]

\end{document}

```



LATEX



Nasality in language: two different approaches

Will Styler

November 7, 2012

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PDF

**LaTeX does not try to build your house while
you're designing it.**

To see what your document will look like, you must
“Build” or “Typeset” your document.

The file (source) is just a blueprint, the PDF LaTeX
gives you is the real source of joy.

```
\documentclass[11pt]{article}
\usepackage[margin=1in]{geometry}
\geometry{letterpaper}
\usepackage{fontspec,xltxtra,xunicode}
\defaultfontfeatures{Mapping=tex-text}
\setromanfont[Mapping=tex-text]{Times New Roman}
\usepackage[parfill]{parskip}
\usepackage{epstopdf}
```

```
\begin{document}
```

Everything else goes here

```
\end{document}
```

Everything else goes here

Remember: Blueprints don't look like houses

LaTeX commands are verby

\ means “This next part is a command”

```
\verb{predication}
```

Formatting is done by tagging words or sections

```
\textbf{This part is bold}, \textit{this part is italic}.
```

This part is bold, *this part is italic*.

LaTeX speech acts

```
\begin{enumerate}  
\item List item 1  
\item List item 2  
\item List item 3  
\end{enumerate}
```

```
\begin{itemize}  
\item List item 1  
\item List item 2  
\item List item 3  
\end{itemize}
```

1. List item 1
 2. List item 2
 3. List item 3
- List item 1
 - List item 2
 - List item 3

Size is relative

Normal Text

```
\begin{Large}  
This makes text bigger.  
\end{Large}
```

```
\begin{Huge}  
Bigger Still  
\end{Huge}
```

Normal Text

This makes text bigger.

Bigger Still

Comments - Any line starting with % will be ignored

Hello!

This is a document.

% Note that if you want something on a new line, there needs to be a blank line in the document source between it and the thing before it.

New line for this sentence.

No newline here.

Hello!

This is a document.

New line for this sentence. No newline here.



Pitfalls!

If your blueprints don't make sense, LaTeX will go on strike



TexMaker

```
82 \begin{Lurge}
83 This will break
84 \end{Lurge}
85
86 \end{document}
```

File	Type	Line	Message
> samplesimple.tex	Error	line 82	! LaTeX Error: Environment Lurge undefined. See the LaTeX manual or LaTeX Companion for explanation. Type H <return> for immediate help.... \begin{Lu
samplesimple.tex	Error	line 84	! LaTeX Error: \begin{document} ended by \end{Lurge}. See the LaTeX manual or LaTeX Companion for explanation. Type H <return> for immediate help....

Most clients will offer a “log viewer” to tell you what’s wrong.

```
./samplesimple.tex:82: LaTeX Error: Environment Lurge undefined.

See the LaTeX manual or LaTeX Companion for explanation.
Type H <return> for immediate help.
...

l.82 \begin{Lurge}
?

```

TeXShop

**You need to save the document before you
can build**

(and the saved directory will have all sorts of other
files pop up)

Some characters need to be “escaped”

_ needs to be _
\$ needs to be \\$
% needs to be \%
needs to be \
& needs to be \
(and more!)

Failure to do this will prevent the construction crew from working

Tables are a pain at first

```
\subsubsection*{Default Values for EVENT}
\begin{center}
  \begin{tabular}{| l | r |}
  \hline
  EVENT.type & (N/A) \\ \hline
  EVENT.DocTimeRel & Must be specified \\ \hline
  EVENT.polarity & POS \\ \hline
  EVENT.degree & (N/A) \\ \hline
  EVENT.contextualaspect & (N/A) \\ \hline
  EVENT.contextualmodality & ACTUAL \\ \hline
  EVENT.permanence & UNDETERMINED \\ \hline
\end{tabular}
\end{center}
```

Default Values for EVENT

EVENT.type	(N/A)
EVENT.DocTimeRel	Must be specified
EVENT.polarity	POS
EVENT.degree	(N/A)
EVENT.contextualaspect	(N/A)
EVENT.contextualmodality	ACTUAL
EVENT.permanence	UNDETERMINED

Many returns don't make for large spaces

Note that more returns don't mean more space.

See?

Note that more returns don't mean more space.

See?

To add space, use `\vspace{}` and `\hspace{}`

Now, a bit of breathing room...

```
\vspace{0.5in}
```

And some horizontal `\hspace{1in}`
room

Now, a bit of breathing room...

And some horizontal room

A note on bibliographies

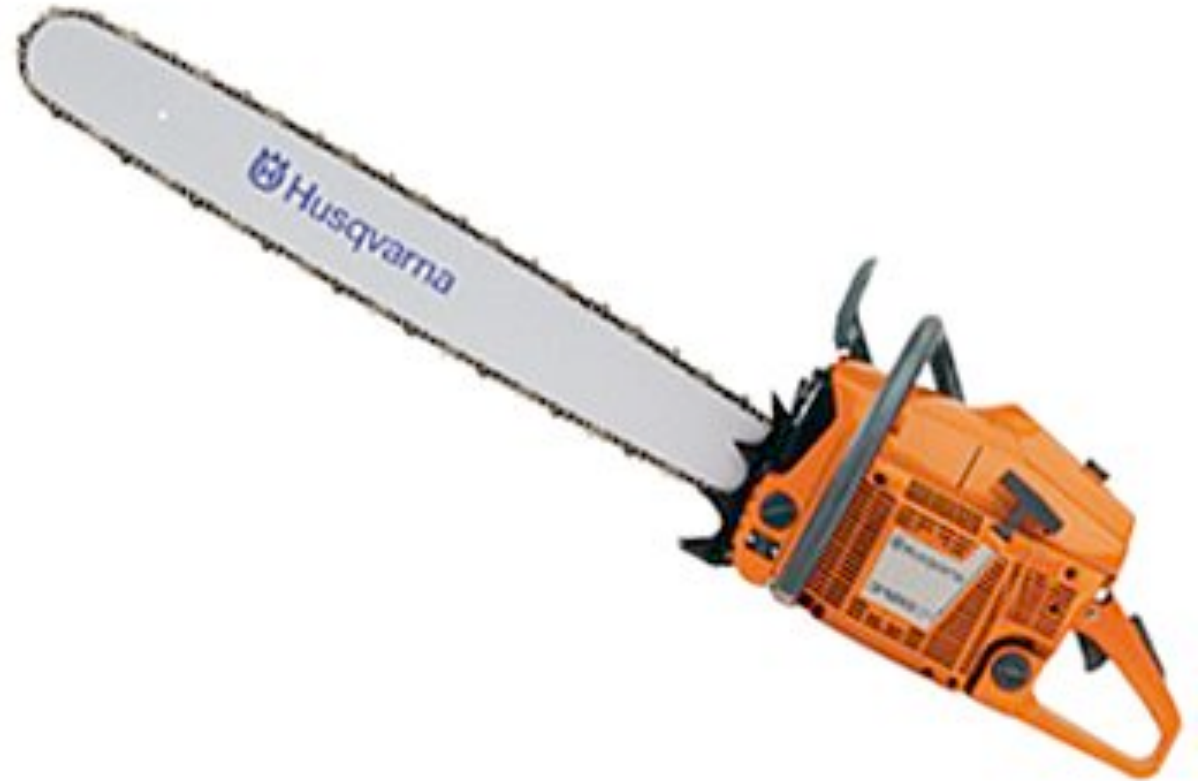
BiBTeX is another thing, and you'll need to use a reference manager that supports it.

For Mac, use BibDesk. It's awesome.

Windows folks, I'm sure you've got choices too.

To do that, you'll compile the Bibliography, then the document

Use the best tool for the job!



How do you proceed from here?

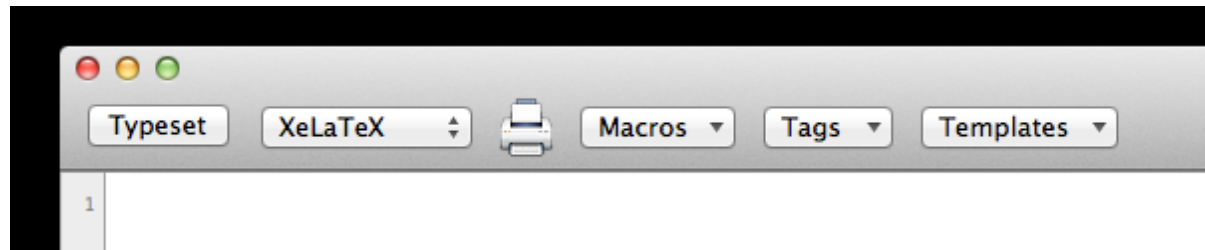
1) Set up your LaTeX distribution

LaTeX is a bunch of command-line programs, which is then controlled by a front-end program like TeXShop or Texmaker

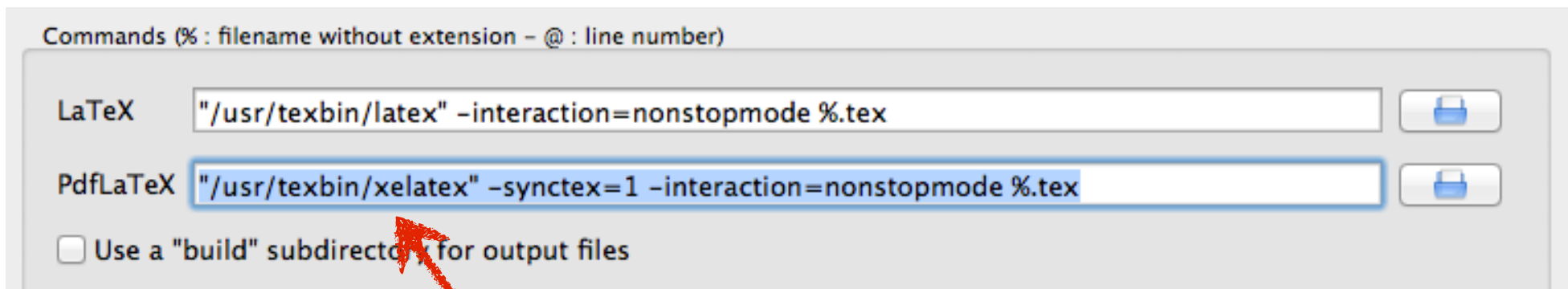
2) Configure your program to use XeLaTeX

Remember, XeLaTeX is a newer version that allows unicode (IPA, non-English) font usage

TeXShop (on Mac)



TeXMaker (in "Preferences")



3) Open a document

Try some of the included sample documents

4) Modify said document

The included documents are all meant to be good samples

5) Build the document

TeXmaker - Tools -> “Quick Build”

TeXShop - “Typeset”



6) Distribute/Print the PDF

This will get you through the first week.

After that, it's up to you to experiment.

Type. Build. Fail. Google. Repeat. **Victory.**

Thanks!