Making a handout in LaTeX

Objectives

By the end of this seminar you should know:

- the advantages of LaTeX over WYSIWYG tools for scientific documents
- various options for developing LaTeX documents
    - locally
    - on Overleaf
- how to work around various LaTeX gotchas

What this is not

- A soup-to-nuts tutorial on LaTeX:
  - I'll stipulate some things
  - I'll let you learn about others yourself
- A tutorial on giving talks, or scientific communication in general:
  - That's its own thing.
- An objective look at the issues and tradeoffs:
  - I will say "IMO" a bunch of times today.

How I learned LaTeX

I started writing semantics homework in LaTeX.

Then I wrote my bachelor's "honors" thesis in LaTeX.

Then I wrote phonology and syntax homework in LaTeX too.

Then I (co)wrote a paper in LaTeX.

Then I wrote a dissertation in LaTeX.

Then I wrote a book in LaTeX.

Basically, I learned it by writing in it, starting first with low-stakes documents.

LaTeX vs. Google Docs/Word

As a linguistics graduate student, you only have two choices:

- become an unusually careful and sophisticated user of Docs/Word, or
- learn a bit of LaTeX.

Or as my colleague Michael Becker puts it:

Sophisticated users can coax Word into producing academic documents that are downright acceptable.

What is LaTeX like?

You are likely familiar with the WYSIWYG document preparation systems like Word or Google Docs.

In LaTeX, you write in a markup language (TeX), with lots of backslashes and curly braces, and a rendering tool turns what you write into a nice-looking PDF, assuming you don't have any syntax errors.

LaTeX takes care of most of the basics for you; it is "opinionated", but usually in a good way.

Will LaTeX save me time?

I don't know. It's probably about time-neutral for me.

But it probably will make your documents look better.

And **IMO** it also can make it easier to coauthor documents.

And it can make it easier to prepare documents for the many venues in linguistics that provide LaTeX templates (*ACL, NELS, WCCFL, LI, NLLT...you get the idea).

When things go bad

If a single line has a syntax error, LaTeX will not make the PDF.

Isolate that line, comment it out with %, and then try to figure it out.

Certain symbols ($, %, ^, &, _, etc.) are "reserved symbols", and many errors are caused by trying to use them as literals.

Why PDF

PDFs are, for better or worse, the universal document exchange format.

As a sidebar:

- **Please** don't send me a `.docx` file if you just want me to read it.
- And if you want to collaboratively edit it, put it on Google Docs instead.

Why handouts

I chose to focus on handouts because they're a bit of a general case.

Most of what I say will transfer to homework assignments, term papers, manuscripts, theses, articles, monographs...you get the idea.

Handouts vs. slides

I generally prefer handouts for linguistic audiences, but there are various things that influence my decisions:

- Affordances in the talk itself:
  - **IMO** slides are *terrible* for talks that are heavy with linguistic examples and/or equations.
  - But they're often for talks dominated by tables and figures.
- Time: you absolutely can make slides faster than you can make a handout
  - That's why I didn't write a handout here...
- "Downstream" goals:
  - IMO slides are fine for a one-off talk.
  - But you can easily "fork" the handout to write the paper.
- The veneer of professionalism

Software matters

TeX distributions

- [MiKTeX](#), [proTeXt](#), or [TeX Live](#) for Windows
- [TeX Live](#) for Linux (and WSL)
- [MacTeX](#) for MacOS

These come with TeX, many packages, and in some cases, specialized editing tools for TeX files.

(**IMO** I don't see the point of a specialized text editor just for TeX.)

Because font files are large, these are big downloads, and big installs: 1 GB or more.

Introducing Overleaf

[Overleaf](#) is an online TeX development environment. It allows one to edit and render TeX documents **without installing anything**.

It allows multiple people to edit a document at the same time, using access controls (i.e., "view", "comment", "edit") similar to those used by Google Docs.

It also has Git integration (though it's not well-set up for multi-author documents): you can `git clone` an Overleaf document.

Phone: +1 212-817-8506.

E-mail: \texttt{kgorman@gc.cuny.edu}.

Thanks to Timothy O'Donnell and Charles Yang for discussion of
the issues here.
}
}
\date{}

\begin{document}
\maketitle

Introduction TBD.

\begin{enumerate}

\item
To start very generally, ineffability is an observation about
grammars and their yields,
namely the absence of a well-formed grammatical output for some
semantically-interpretable linguistic structure
which is normally built and realized by the same grammar.
As such our identification of a phenomenon as ineffability requires
a reasonably detailed grammatical analysis allowing the linguist to
identify equivalence classes among constructions.

Impressions of Overleaf

I like that Overleaf mostly handles bibliography compilation for me.

Overleaf uses a "freemium" model, in that they try to upsell you certain bells and whistles, none of which I have ever needed. Occasionally there are promotions or discounts, and there was a multi-month "COVID free tier".

Overleaf is is good enough for 99% of my use cases, and when I want to write during a 11-hour train to Montréal, with unreliable internet, I just use the built-in Git integration to work offline temporarily.

IMO there's no need to install a local TeX distribution anymore, and I wouldn't recommend it to beginners.

LaTeX engines

Each of these "distributions" contains multiple LaTeX "engines" (i.e., renderers). Only two are widely used: [pdfTeX](#) ("reliable", "stodgy") and [XeTeX](#) ("multilingual").

I would not recommend pdfTeX for linguists, because its support for UTF-8 is poor. (I'll come back to that in a second.)

Certain publication venues will try to get you to use pdfTeX.

IMO you should ask for a dispensation, and then use XeTeX if they grant it.

A brief history of LaTeX and friends

1978: Computer scientist Don Knuth invents the TeX typesetting library to typeset the second edition of his *Art of Computer Programming*.

1982: Graduate student Frank Liang invents the modern "hy-phen-a-tion" algorithm.

1984-1986: Computer scientist Leslie Lamport releases LaTeX, a library built atop of TeX that makes it slightly easier to use.

1989: TeX is "frozen".

1994: LaTeX2e, the modern version, is released.

2004: XeTeX is released.

2014: Overleaf is launched.

https://www.overleaf.com/read/qqncxqfbrqkq

Setup

Nota bene

At the end of the this seminar I'll link you to the slides and I'll give you a link to the sample document we "developed" throughout, so don't feel like you have to write down everything you see.

Our handout

- Will have sections and subsections
- Will have paragraphs and bullet-point lists
- Will have footnotes (though not too many, **please**)
- Will have tables and figures
- Will have linguistic examples
- Will have equations
- Will have a bibliography

Handout design and layout

- We will use the [Libertinus Serif](#) font family.
- The handout will be on (US standard) 8.5" x 11" paper, with 1" margins.
  - If you want to print it double-sided, or even 2-pages-to-a page in landscape, the printer can take care of that for you.

Getting started on Overleaf

1. Go to overleaf.com and create an account. (You may want to use your `.edu` email address, in case there's an academic discount.)
2. There is no step 2.

Creating a new Overleaf project

1. Log into Overleaf.
2. Click on "New Project" (green button in upper left-hand corner).
3. Select "Blank Project" from the drop-down menu.
4. Enter the name of your project (pick something brief and informative), then click on "Create" (green button).

You will then be dropped into a minimal LaTeX document. The screen is as follows:

- Left column: file browser (right now, just `main.tex`)
- Middle column: the text editor
- Right column: rendering of the document

Enabling XeTeX support

By default, Overleaf uses the pdfLaTeX compiler; we now proceed to switch it to the the XeLaTeX compiler.

1. Click on "Menu" (upper left-hand corner)
2. Scroll down to "Settings", and under "Compiler", select "XeLaTeX" from the drop-down menu.

The "blank" document

```
\documentclass{article}
\usepackage[utf8]{inputenc}

\title{ProfDev}
\author{Kyle Gorman}
\date{November 2021}

\begin{document}

\maketitle

\section{Introduction}

\end{document}
```

The preamble

```
\documentclass{article}
\usepackage[utf8]{inputenc}

\title{ProfDev}
\author{Kyle Gorman}
\date{November 2021}

\begin{document}

\maketitle

\section{Introduction}

\end{document}
```

The body

```
\documentclass{article}
\usepackage[utf8]{inputenc}

\title{ProfDev}
\author{Kyle Gorman}
\date{November 2021}

\begin{document}

\maketitle

\section{Introduction}

\end{document}
```

The preamble

Fixing the preamble (1/)

```
\documentclass[12pt]{article}
\usepackage[utf8]{inputenc}

\title{On handout development}
\author{Kyle Gorman \\ The Graduate Center, City University of New York}
\date{November 2021}

...
```

Fixing the preamble (2/)

```
\documentclass[12pt]{article}
\usepackage[hmargin=1in,top=1in,bottom=1in]{geometry}  % Sets margins.
\usepackage{amsmath}          % Math symbols.
\usepackage{booktabs}         % Helps with table formatting.
\usepackage{dirtytalk}        % Quotations.
\usepackage{gb4e}\noautomath  % Glossed examples.
\usepackage{graphicx}         % External figures.
\usepackage{hyperref}         % Figure references.
\usepackage{microtype}        % Enables better justification.
\usepackage{natbib}           % Helps with in-text citations.
\usepackage{tikz-qtree}       % Syntactic trees.
\usepackage{url}              % The \url command.

\title{On handout development}
\author{Kyle Gorman \\ The Graduate Center, City University of New York}
\date{}

...
```

Encoding and fonts

UTF-8 support

In XeTeX, you can just type in UTF-8 and it'll **just work** if the font you're using has support for the characters you're typing.

The resulting characters really do look better than the various "diacritic forms"; e.g., in XeTeX, `étude` will render more attractively than `\'etude`.

The same is true for IPA characters; **just type them**—possibly using an online IPA keyboard like [this one](#)—rather than using [`tipa`](#).

Libertinus Serif

For linguistics handouts and manuscripts, I usually use Libertinus Serif, a free and open-source font family that includes everything I need.

The Quick Brown Fox Jumps Over The Lazy Dog	Libertinus Serif
The Quick Brown Fox Jumps Over The Lazy Dog	Libertinus Serif Display
The Quick Brown Fox Jumps Over The Lazy Dog	Libertinus Serif Italic
The Quick Brown Fox Jumps Over The Lazy Dog	Libertinus Serif Semibold
The Quick Brown Fox Jumps Over The Lazy Dog	Libertinus Serif Semibold Italic
The Quick Brown Fox Jumps Over The Lazy Dog	Libertinus Serif Bold
The Quick Brown Fox Jumps Over The Lazy Dog	Libertinus Serif Bold Italic
The Quick Brown Fox Jumps Over The Lazy Dog	Libertinus Sans
The Quick Brown Fox Jumps Over The Lazy Dog	Libertinus Sans Italic
The Quick Brown Fox Jumps Over The Lazy Dog	Libertinus Sans Bold
The Quick Brown Fox Jumps Over The Lazy Dog	Libertinus Mono
A B C D E F G H I J K L M O P Q R S T U V W X Y Z	Libertinus Serif Initials
Ctrl + Alt + F1 ↵	Libertinus Keyboard

$$(x + \alpha)^n = \sum_{k=0}^{n} \binom{n}{k} x^k \alpha^{n-k}$$

$$|x| = \begin{cases} -x, & x < 0 \\ x, & x \geq 0 \end{cases}$$

$$\nabla \cdot \nabla \psi = \frac{\partial^2 \psi}{\partial x^2} + \frac{\partial^2 \psi}{\partial y^2} + \frac{\partial^2 \psi}{\partial z^2}$$

$$= \frac{1}{r^2 \sin \theta} \left[\sin \theta \frac{\partial}{\partial r} \left(r^2 \frac{\partial \psi}{\partial r} \right) + \frac{\partial}{\partial \theta} \left(\sin \theta \frac{\partial \psi}{\partial \theta} \right) + \frac{1}{\sin \theta} \frac{\partial^2 \psi}{\partial \varphi^2} \right]$$

Linguistics font support

Virtually every linguist needs:

- The IPA
- Alphabetic small caps
- "European" extensions to ASCII: enye (*año*), diaeresis (*coöperation*, *über*), acute (*résumé*), grave (à), macron (*māl*), circumflex (*être*), haček (*očudit*), ogonek (*Pająk*), eth (*fracoð*), thorn (*þæt*), eszet (*Straße*), cedilla (*açai*), dotted g (*ealneġ*), and so on, for Latin-based writing systems

These will "just work" with XeTeX + Libertinus, for instance.

Using Libertinus in Overleaf (1/)

1. Download Libertinus from [Font Squirrel](#).
2. Unzip `libertinus.zip` and extract the `.otf` files it contains.
3. On Overleaf, click on the up-arrow button in the top left corner and upload the four `.otf` files:
   a. Libertinus Serif Regular: `LibertinusSerif-Regular.otf`
   b. Libertinus Serif Bold: `LibertinusSerif-Bold.otf`
   c. Libertinus Serif Italic: `LibertinusSerif-Italic.otf`
   d. Libertinus Serif Bold Italic: `LibertinusSerif-BoldItalic.otf`
4. Click back on `main.tex` to return to the normal edit view.

…

Using Libertinus in Overleaf (2/)

...

5.   Add the following to your preamble:

```
\usepackage{amsmath}    % Math symbols.
\usepackage{mathspec}   % Font support.
\usepackage{booktabs}   % Helps with table formatting.
```

...

Using Libertinus in Overleaf (3/)

…

6. Add the following to your preamble:

```
\setmainfont[BoldFont=LibertinusSerif-Bold.otf,%
             ItalicFont=LibertinusSerif-Italic.otf,%
             BoldItalicFont=LibertinusSerif-BoldItalic.otf,%
             Ligatures=TeX]%
             {LibertinusSerif-Regular.otf}
\setmathfont(Digits,Greek,Latin)%
             [BoldFont=LibertinusSerif-Bold.otf,%
              ItalicFont=LibertinusSerif-Italic.otf,%
              BoldItalicFont=LibertinusSerif-BoldItalic.otf]%
             {LibertinusSerif-Regular.otf}
```

"Other" characters

"Other" here means characters not drawn from Latin, Greek, or Cyrillic, which are generally not present in Libertinus (etc.).

One good choice for covering "other" characters is to use Google's free Noto fonts, which claim to support for 1,000 languages and 150 writing systems.

Armenian (Eastern)	arm_e	Համադրություն	h a m a d ə r u tʰ j u n
Bulgarian	bul	обоснованият	o̝ b o̝ s n o v a n i j ə̯t̪
Dutch	dut	konijn	k oː n ɛ i̯n̪
French	fre	joindre	ʒ w ɛ̃ d ʁ̥
Georgian	geo	მოუქნელად	m ɔ u kʰ n ɛ l a d
Serbo-Croatian (Latin)	hbs_latn	opadati	o p ǎː d a t i
Hungarian	hun	lobog	l o b o g
Japanese (Hiragana)	jpn_hira	ぜんたいしゅぎ	d͡z ẽ n t a̯ i ɕ i̯ᵝ gʲ i
Korean	kor	쇠가마우지	sʰ w e̞ g a m a̠ u d͡z i
Vietnamese (Hanoi)	vie_hanoi	ngừng bắn	ŋ i ŋ ˧˩ ʔ ɓ a n ˧˥

Table 1: The ten languages in the medium-resource subtask with language codes and example training data pairs.

Adyghe	ady	кӏэшӏыхьан	t͡ʃ a ʃ ə ħ aː n
Greek	gre	λέγεται	l e j e t e
Icelandic	ice	maður	m aː ð ʏ r
Italian	ita	marito	m a r i t o
Khmer	khm	ប្រាស់	p r ɑ h aː
Latvian	lav	mīksts	m îː k s t s
Maltese (Latin)	mlt_latn	minna	m ɪ n n a
Romanian	rum	ierburi	j e r b u rʲ
Slovenian	slv	oprostite	ɔ p r ɔ s t íː t ɛ
Welsh (Southwest)	wel_sw	gorff	g ɔ r f

Table 2: The ten languages in the low-resource subtask with language codes and example training data pairs.

How to do it

1. Download relevant font (here Noto Serif Khmer), unzip it, and upload into your Overleaf project (click the up-arrow button in the top left corner).
2. In the preamble, add:

    `\newfontfamily{\khmer}{NotoSerifKhmer.ttf}`

3. In the body, wrap any Khmer text like so:

    `{\khmer ប្រទេស}`

Writing the handout

Footnotes

To add a footnote, use `\footnote{footnote text}` in the body.

```
    This is some text with a footnote.%
    \footnote{
        This is the footnote.
    }
```

NB: I use `%` (the comment marker) so that I can put the footnote on the next line without there being a space between text and footnote. But this isn't strictly required.

URLs

To add a URL to your paper, simply enclose it in the `\url` tag.

```
\url{https://github.com/CUNY-CL/wikipron}
```

Numbered lists (1/)

To create a numbered list, add:

`\begin{enumerate}`

to the top and

`\end{enumerate}`

at the bottom. Then, put `\item` in front of each element of the list.

Numbered lists (2/)

```
In this paper, we contribute

\begin{enumerate}
\item the largest-ever corpus of XYZs,
\item a neural network model which predicts whether a given
XYZ is an ABC.
\end{enumerate}
```

Bulleted lists

Bulleted lists are quite similar, but they use the `itemize` environment instead of the `enumerate` environment.

```
To do this we

\begin{itemize}
\item propose a novel annotation task,
\item perform quality assurance on the data collected,
\item propose a new neural network architecture.
\end{itemize}
```

((sub)?(sub)?)sections

You can create sections, subsections, and subsubsections with

```
\section{Top level}

\subsection{Second level}

\subsubsection{Third level}
```

Bold, italic, and typewriter tet

To place text in bold, italic, or typewriter font, wrap it with:

```
\textbf{This is bold text}, \emph{this is italic text}, and
\texttt{this is typewriter text}.
```

1   Introduction

This is some text with a footnote.[1] In this paper, we contribute

1. the largest-ever corpus of XYZs,

2. a neural network model which predicts whether a given XYZ is an ABC.

To do this we

- propose a novel annotation task,

- perform quality assurance on the data collected,

- propose a new neural network architecture.

This is bold text, *this is italic text*, and `this is typewriter text`.

Math mode (1/)

To add mathematical formatting to your document, surround the mathematical expression with $ on either side.

```
For instance, $A^* = \{\epsilon\} \cup A \cup AA \cup AAA
\cup \ldots$, which in turn denotes the infinite language
$\{\epsilon, \texttt{a}, \texttt{b}, \texttt{aa},
\texttt{ab}, \texttt{bb}, \texttt{ba}, \texttt{aaa},
\texttt{aab}, \ldots\}$.
```

Math mode (2/)

LaTeX math is more or less its own language, and has to be studied as such.

It is modeled loosely on conventions that mathematicians (apparently) used in the typewriter era.

> Wikipedia uses the same syntax as LaTeX, so you can go to a mathematics article, and click on the "Edit" button in the top left to see how a certain equation is typeset. That's how I learned...

Equations

To place a mathematical equation on its own line, use the `equation` or `equation*` environments.

```
\begin{equation*}
R^{+} = \bigcup_{i = 1}^{\infty} R^i .
\end{equation*}
```

Note that this implies math mode and you cannot use `$` here.

2   Time for some math

For instance, $A^* = \{\varepsilon\} \cup A \cup AA \cup AAA \cup \ldots$, which in turn denotes the infinite language $\{\varepsilon, \text{a}, \text{b}, \text{aa}, \text{ab}, \text{bb}, \text{ba}, \text{aaa}, \text{aab}, \ldots\}$. Thus,

$$R^+ = \bigcup_{i=1}^{\infty} R^i.$$

Tables

To create a table, use the `tabular` environment.

```
\begin{tabular}{l c rrrrr}
\toprule
&& Baseline & CLUZH-4 & CLUZH-5 & CLUZH-6 & CLUZH-7  \\
\cmidrule{3-7}
\texttt{arm\_e} && 7.0 & 7.1 & 6.6 & 6.6 & \textbf{6.4} \\
…
\midrule
Macro-average && \textbf{10.6} & 11.4 & 10.9 & 11.1 & 10.8 \\
\bottomrule
\end{tabular}
```

When in doubt, try making it a table.

Images

To include an image file in a LaTeX document, upload the image file to Overleaf, then use `\includegraphics` from the `graphicx` package.

```
\includegraphics[width=.5\textwidth]{gumbo.jpg}
```

"Floats"

While LaTeX will permit us to put a table or image just about anywhere, we usually want to allow them to "float" (i.e., to the top or bottom of a page).

"Floats" can be paired with captions also.

Table floats

To insert a table float, use the `table` environment.

```
\begin{table}
\centering
\begin{tabular}{l c rrrrr}
\toprule
&& Baseline & CLUZH-4 & CLUZH-5 & CLUZH-6 & CLUZH-7  \\
\cmidrule{3-7}
…
\midrule
Macro-average && \textbf{10.6} & 11.4 & 10.9 & 11.1 & 10.8 \\
\bottomrule
\end{tabular}
\caption{Results for the medium-resource subtask.}
\label{tab:medium-results}
\end{table}
```

Figure floats

To insert a figure float, use the `figure` environment.

```
\begin{figure}
\centering
\includegraphics[width=.5\textwidth]{gumbo.jpg}
\caption{Gumbo, a domestic shorthair \emph{f.~catus}.}
\label{fig:gumbo}
\end{figure}
```

In-text float references

If you insert a `\label` tag in the float definition after the caption, you can refer to them in the text using `\autoref`.

```
Results are shown in \autoref{tab:medium-results} and
visualized in \autoref{fig:gumbo}.
```

3 Tables and figures

Results are shown in Table 1 and visualized in Figure 1.

	Baseline	CLUZH-4	CLUZH-5	CLUZH-6	CLUZH-7
arm_e	7.0	7.1	6.6	6.6	**6.4**
bul	**18.3**	20.1	19.2	18.8	19.7
dut	**14.7**	15.0	14.9	15.6	**14.7**
fre	8.5	**7.5**	**7.5**	**7.5**	7.6
geo	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
hbs_latn	**32.1**	38.4	35.6	37.0	35.3
hun	1.8	1.5	1.2	**1.0**	**1.0**
jpn_hira	5.2	5.9	5.3	5.5	**5.0**
kor	16.3	**16.2**	16.9	17.2	16.3
vie_hanoi	2.5	2.3	**2.0**	2.1	**2.0**
Macro-average	**10.6**	11.4	10.9	11.1	10.8

Table 1: Results for the medium-resource subtask.

Figure 1: Gumbo, a domestic shorthair *f. catus*.

Linguistic examples

One can discern quite a few different types of linguistic examples:

- in-text examples: usually given in italics, with transcriptions in square or angled brackets and glosses in single quotes
- simple sentential examples (i.e., possibly with * and ?)
- morph-by-morph glosses
- morphophonological tables
- tree structures
- …

In-text examples

```
The Polish word \emph{psa} /pEs-a/ `dog'.
The Khmer word is {\khmer បំផ្លាញ} `to destroy'.
```

Sentential examples

For a sequence of simple sentential examples, use the `exe` environment from the `gb4e` package.

```
\begin{exe}
\ex *John$_i$ said that Bill likes himself$_i$.
\ex ?John$_i$ liked Bill's photographs of himself$_i$.
\end{exe}
```

Morph-by-morph glosses

For morph-by-morph glosses, use `\gll` and `\trans`.

```
\ex
\gll omdat ze vorig jaar deze wet hebben heringevoerd \\
because they last  year this law have reimported \\
\trans `because they have reinstated this law last year'
```

Morphophonological tables

For morphophonological tables, just use the `tabular` environment.

```
\ex
\begin{tabular}{ll c ll}
hort-\textbf{or} & `I exhort' && hort-ā-\textbf{ris} & `you (sg.) exhort' \\
hort-ā-\textbf{tur} & `s/he exhorts' && hort-ā-\textbf{minī} & `you (pl.) exhort' \\
hort-ā-\textbf{mur} & `we exhort' && hort-a-\textbf{ntur} & `they exhort'
\end{tabular}
```

Tree structures

For syntactic trees, use `\Tree` from the `tikz-qtree` package.

```
\ex
\Tree [.TP T [.AspP Asp [.\emph{v}P \emph{v} $\sqrt{\textsc{Root}}$ ] ] ]
```

4 Linguistic examples

The Polish word is *psa* /pEs-a/ 'dog'. The Khmer word is បំផ្លាញ 'to destroy'.

(1) *John$_i$ said that Bill likes himself$_i$.

(2) ?John$_i$ liked Bill's photographs of himself$_i$.

(3) omdat   ze   vorig jaar deze wet hebben heringevoerd
    because they last   year this law have   reimported
    'because they have reinstated this law last year'

(4)
hort-**or**	'I exhort'	hort-ā-**ris**	'you (sg.) exhort'
hort-ā-**tur**	's/he exhorts'	hort-ā-**minī**	'you (pl.) exhort'
hort-ā-**mur**	'we exhort'	hort-a-**ntur**	'they exhort'

(5)

```
        TP
       /  \
      T    AspP
          /   \
        Asp    vP
              /  \
             v   √Root
```

Citation management

With some effort, LaTeX can automate the process of generating a references section for you.

To do this, you encode your bibliographic data in a BibTeX file (`.bib`), then `\cite` the relevant work in the body of your document.

Any work that is cited in body will be added to the generated references section, as are any work that you `\nocite`.

The `natbib` package allows us to do traditional author-date citations.

NatBib citation styles

`\citet`: According to Chomsky (1965)...

`\citep`: As previously argued (Chomsky 1965)...

`\citealt`: For more information, see Chomsky 1965.

Example BibTeX entries (1/)

```
@book{Aspects,
    title = {Aspects of the Theory of Syntax},
    publisher = {MIT Press},
    author = {Chomsky, Noam},
    year = {1965}}
```

Citation key: `Aspects`

Example BibTeX entries (2/)

```
@article{EmbickMarantz2008,
    title = {Architecture and blocking},
    volume = {39},
    number = {1},
    journal = {Linguistic Inquiry},
    author = {Embick, David and Marantz, Alec},
    year = {2008},
    pages = {1-53}}
```

Citation key: `EmbickMarantz2008`

Example BibTeX entries (3/)

```
@incollection{GormanYang2019,
    title = {When nobody wins},
    booktitle = {Competition in Inflection and Word
                    Formation},
    publisher = {Springer},
    author = {Gorman, Kyle and Yang, Charles},
    editor = {Dressler, Wolfgang U. and Rainer, Franz and
                Gardani, Francesco and Luschützky, Hans
                Christian},
    year = {2019},
    pages = {169-193}}
```

Other common BibTeX entry types

`@inproceedings`: conference papers

`@techreport`: technical reports

`@mastersthesis`: master's thesis

`@phdthesis`: doctoral dissertations

`@unpublished`: manuscripts, etc.

Author-date citations

Following \citet[ch.~1]{Aspects}, we problematize the idea
of morphological blocking \citep{EmbickMarantz2008}. For
more information, see \citealt{GormanYang2019}.

Creating your bibliography file

1. In Overleaf, click on the "New File" (blank page) icon in the top left corner.
2. When prompted, name it `main.bib`.
3. Select `main.bib` in the file browser.
4. Copy BibTeX entries into this file.

Referencing your bibliography file.

Place the following at the end of the document.

```
\bibliographystyle{apalike}
\bibliography{main}
\end{document}
```

This will enable the `apalike` bibliography style. There are many others (particularly the popular `linquiry2`), but you may need to upload them into Overleaf first.

Third-party bibliographic tools

[Zotero](#) is a free web-based tool for citation management, and its desktop version can generate BibTeX entries for you.

So can Google Scholar, many journal websites, the ACL Anthology, etc., but you should take this computer-generated bibliographic data *cum grānō salis*.

5   Now for some in-text citations

Following Chomsky (1965, ch. 1), we problematize the idea of morphological blocking (Embick and Marantz, 2008). For more information, see Gorman and Yang 2019.

References

Chomsky, N. (1965). *Aspects of the Theory of Syntax*. MIT Press.

Embick, D. and Marantz, A. (2008). Architecture and blocking. *Linguistic Inquiry*, 39(1):1–53.

Gorman, K. and Yang, C. (2019). When nobody wins. In Dressler, W. U., Rainer, F., Gardani, F., and Luschützky, H. C., editors, *Competition in Inflection and Word Formation*, pages 169–193. Springer.

Last words...

The Markdown alternative

[Markdown](#) is an easy-to-use plain text markup system that can map to HTML.

(It's the format I use for my `README.md` homework instructions on GitHub.)

Tools such as [Pandoc](#), can also use Markdown to generate TeX and then, PDFs.

IMO the TeX that Pandoc (etc.) generates is simply not very good TeX, so once again, I don't see the point.

LaTeX for other stuff

LaTeX can also be used for many other types of documents:

- *curriculum vitae*
- slides (via [Beamer](#))
- posters

IMO the slides and posters created by Beamer (etc.) are *far too busy* (not to mention very "dated") and you'll have to fight the system to get a minimalist template (which should be your default for these sorts of things).

The future of LaTeX

TeX is one of the oldest pieces of software still widely used (the only thing older I can think of is `vi`).

It is a *survivor*, and its move to the cloud (i.e., Overleaf etc.) will likely extend its life a at least a few more years.

But, I suspect we'll see a serious competitor in the next decade, and I can't wait.

Overleaf text editors

You can tweak a bunch of things with the Overleaf's text editor, including:

- background colors (I use "solarized dark", which was *such* an #aesthetic in the 2010s)
- text editor mode (I use "vi", which is definitely not for everybody)
- whether or not to run spell check
- etc.

To access these settings, click on "Menu" in the top left.

Do

- "comment out" text you may want to restore some day with `%`
- read the references section and correct errors (there will be many!)
- use "draft mode" to allow you to identify "overfull hboxes" while writing:

  ```
  \documentclass[draft]{article}
  ```

- match the fonts in your figures to the font in the body
- **automatically** back up important work (on Overleaf, GitHub, OneDrive, etc.)
- watch your quotation characters (i.e., `` `` `` vs. ") or just use dirtytalk.
- place code and "variable names" in typewriter text

Don't

- put your footnotes before punctuation:
  - They look like this.[1] Not like this[1].
  - the one exception is in *Nature*, *PNAS*, and *Science*, which reserve footnotes for in-text citations.
- use floats without referring to them in the body text
- screw around with font sizes:
  - if the text doesn't fit with the document-wide default, try something else first
- resize your tables and figures aggressively:
  - with **rare** exceptions, text in a table or figure should be the same size as body text
- use vertical lines in your tables, and don't use more than a few horizontal lines
- use third-party BibTeX entries without manual inspection and corrections
- nest parentheses:
  - rewrite instead

Further reading

- The [TeX corner of StackOverflow](#): very good advice
- [Overleaf's documentation](#): a bit briefer than I'd like, but a good place to start
- [CTAN](#)'s package-specific documentation
- There are several LaTeX books, but I haven't read them yet

More tutorial?

If you found this intriguing but feel like you need more guided practice, maybe an experienced student can step up to lead a "practicum" on LaTeX in the future.

And if someone was to step up for this, we could look into figuring out how to pay them for their time...

http://www.wellformedness.com/courses/latex