Experimental Linguistics
LaTeX Tutorial

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April 2020

1 Introduction

1.1 What is LaTeX?

- A typesetting program
- Using it, we can make professional-looking documents (articles, thesis, etc.), slides, posters, etc.

1.2 Why LaTeX?

- The output it creates is .pdf, which is not user-dependent.
- It is not needlessly/overly helpful.
- It is one of the most widely accepted submission format for conference proceedings, journal papers, etc., not only in the field of linguistics, but also in other fields (math, philosophy, engineering, etc.)
- In the long run, it will keep you sane during the editing/formatting process, because:
  - Less decisions needed on your part
  - But if you want to fine-tune certain things, you can also have more control (formatting via commands!)

1.3 What do we need to get it up and running?

- Using online LaTeX editor: Overleaf, ShareLaTeX, etc.
  - No download or system configuration necessary
  - Great when you are getting started
- Compiling from your computer, using a LaTeX editor:
  - Mac: TeXShop

  - Windows/PC: TeXMaker
  - Recommended for both: Visual Studio Code[1], Sublime Text[2]

  You need to first have downloaded LaTeX distributions such as MikTeX (Windows) or MacTeX (Mac)

- The input (source) file is .tex, the output file is .pdf.

2 The basics: Creating a document

Preamble: calling in packages; configuring general formatting specifications;

```
\documentclass{article}

\usepackage[utf8]{inputenc}
\usepackage{tipa}
\usepackage{linguex}

\title{Experimental Linguistics \\ \LaTeX\ Tutorial}
\author{Sunwoo Jeong}
\date{September 2019}
```

Main text: the actual document; commands are used to change formatting in specific places

```
\begin{document}

\maketitle

\section{Introduction}
Hello World!

\end{document}
```

Here are some commonly used font related commands:

```
\textit{Ferdinand de Saussure} \\
\textbf{Ferdinand de Saussure} \\
\textsc{Ferdinand de Saussure} \\
\small{Ferdinand de Saussure} \\
\large{Ferdinand de Saussure} \\
\Large{Ferdinand de Saussure}
```

[1] Combine it with `https://github.com/James-Yu/LaTeX-Workshop/wiki`

[2] A brief tutorial on how to set up your computer if you want to use Sublime Text as your LaTeX editor: `https://jj09.net/latex-with-sublimetext-and-skim/`

When compiled, they would look as follows:

Ferdinand de Saussure

Ferdinand de Saussure

Ferdinand de Saussure

Ferdinand de Saussure

Ferdinand de Saussure

Ferdinand de Saussure

The basic units are sections, subsections, subsubsections, and paragraphs.

3 Glossing linguistic examples

You can use the `\ex.` command.

```
\ex. Dies ist nicht die erste Glosse.\\
This is not the first gloss.
```

LaTeX would render this as follows:

(1) Dies ist nicht die erste Glosse.
This is not the first gloss.

For glossing, the package `linguex` is helpful. Specify `\usepackage{linguex}` at the preamble. (If compiling offline from your PC/laptop, first download the package.) To typeset Korean, also call in `\usepackage{kotex}` at the preamble.

```
\exg. 안녕하세요. 저는 문별입니다. \\
Hello-\textsc{hon}. I-\textsc{nom} Moonbyul-be-\textsc{dec}. \\
‘Hello. I am Moonbyul.’

\exg. Annyeong-haseyo. jeo-nun Moonbyul-ipni-da. \\
Hello-\textsc{hon}. I-\textsc{nom} Moonbyul-be-\textsc{dec}. \\
‘Hello. I am Sunwoo.’
```

The package allows you to give a word-for-word gloss/translation.

(2) 안녕하세요. 저는 문별입니다.
Hello-HON. I-NOM Moonbyul-be-DEC.
‘Hello. I am Moonbyul.’

(3) Annyeong-haseyo. jeo-nun Moonbyul-ipni-da.
Hello-HON. I-NOM Moonbyul-be-DEC.
‘Hello. I am Moonbyul.’

4 Typesetting phonetic symbols

LaTeX can typeset IPA symbols beautifully, like so: [mæɹəθən].
Specify `\usepackage{tipa}` at the preamble. A summary of the commands for the IPA symbols can be found at:

`https://jon.dehdari.org/tutorials/tipachart_mod.pdf`

Here is an example:

```
Mina wants to ask Siri to play Ne-Yo's 2006 hit song,
\textit{So Sick} [\textipa{soU sIk}].
She forgets that the language setting is in English,
and says: 시리야! 소식 [\textipa{s\super ho Cik\textcorner}]
좀 틀어줘! What do you think happened?
```

The key command to use is `\textipa{}` as shown above.

> Mina wants to ask Siri to play Ne-Yo's 2006 hit song, *So Sick* [soʊsɪk]. She forgets that the language setting is in English, and says: 시리야! 소식 [s^{h}oɕik˺] 좀 틀어줘! What do you think happened?

If you want to draw OT tableaux, consider also: `\usepackage{ot-tableau}` which helps you draw elegant tableaux, like so:

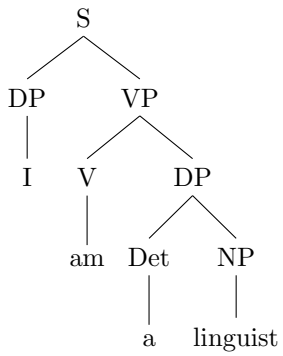
```
\begin{tableau}{c:c|c}
\inp{\ips{stap}} \const{*Complex}
\const{Anchor-IO} \const{Contiguity-IO}
\cand{stap} \vio{*!} \vio{} \vio{}
\cand[\Optimal]{sap} \vio{} \vio{} \vio{*}
\cand{tap} \vio{} \vio{*!} \vio{}
\end{tableau}
```

/stap/	*Complex	Anchor-IO	Contiguity-IO
a. stap	∗!		
☞ b. sap			∗
c. tap		∗!	

5 Syntactic trees

Using LaTeX, you can draw and customize syntactic trees.
Specify `\usepackage{tikz-qtree}` at the preamble and provide the tree structure in brackets.

```
\Tree
[.S [.DP I ]
    [.VP [.V am ]
        [.DP [.Det a ]
            [.NP linguist ]
        ]
    ]
]
```

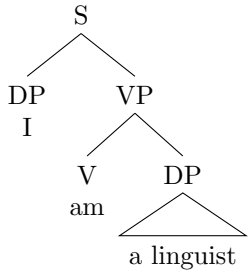


The documentation for the package can be found here:

```
http://ftp.ktug.org/tex-archive/graphics/pgf/contrib/tikz-qtree/
tikz-qtree-manual.pdf
```

You can consult it to customize the tree in the way you like. For instance, here's a tree with a roof and without the vertical lines in the terminal nodes!

```
\begin{tikzpicture}
\tikzset{every tree
node/.style={align=center,
anchor=north}}
\Tree [.S [.DP I ]
    [.VP [.V am ]
        [.DP \edge[roof];
        {a linguist}
        ] ] ]
\end{tikzpicture}
```



6 Logic and semantic symbols

Most symbols require a math environment, specified by `$$` or inside `\[\]` brackets (depends also on which symbol/math package you called in at the preamble). Here's a comprehensive list of symbols and their corresponding LaTeX commands:

```
http://tug.ctan.org/info/symbols/comprehensive/symbols-a4.
pdf
```

For symbols that you use a lot, you can also create shortcut commands at the preamble, like so:

```
\usepackage{stmaryrd}
\newcommand{\sem}[1]
{\ensuremath{\llbracket#1\rrbracket}}
```

For instance, the following two commands would result in the same formula.

```
% Using the shortcut command
\sem{every} = $\lambda P \lambda Q.
P \subseteq Q$
\% Without the shortcut
$\llbracket every \rrbracket = \lambda P \lambda Q.
P \subseteq Q$
```

As follows:

$[\![every]\!] = \lambda P \lambda Q.P \subseteq Q$
$[\![every]\!] = \lambda P \lambda Q.P \subseteq Q$

Exercise Create a command that italicizes and underlines its argument. (Name it itund or something short and easy.)

7 Citations and references

A bibliography management system that one can use with LaTeX (and more generally, supplemented by associated softwares) is BibTeX. Let's create our first .bib file and add some entries. Then you can call in your bibliography as follows:

```
\bibliographystyle{chicago}
\bibliography{tutorial-bibliography.bib}
```

You can easily change the bibliography style without having to edit each entry. In-text citations are done as follows:

```
Here are some random papers: \cite{johnson2006}
and \cite{strand1996} and \cite{eckert2013}.
```

> Here are some random papers: Johnson (2006) and Strand and Johnson (1996) and Eckert (2013).

8 Managing bibliography

I recommend using BibDesk or other bibliography systems that allow exportation to .bib.

References

Eckert, P. (2013). Ethics in linguistic research. In R. J. Podesva and D. Sharma (Eds.), *Research Methods in Linguistics*, pp. 11–26. Cambridge University Press.

Johnson, K. (2006). Resonance in an exemplar-based lexicon: The emergence of social identity and phonology. *Journal of phonetics 34*(4), 485–499.

Strand, E. A. and K. Johnson (1996). Gradient and visual speaker normalization in the perception of fricatives. In *KONVENS*, pp. 14–26.