LaTeX Workshop

FAFA

SFB1252 - Prominence in Language

November 15, 2022

In this workshop

1. Project structure (how to work cleanly)
2. Basic structural commands
3. Basic in-text commands
4. Inserting an image
5. Drawing a table
6. Cross-referencing
7. Bibliography
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13. R and LaTeX
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First session
November 15, 2022

Word of caution

- There are mixed feelings about LaTeX in the SFB. If you decide to write your dissertation in LaTeX , please check it with your supervisor beforehand.

- Errors in LaTeX can be nerve-racking (specially at the beginning). Be prepared for it and ask others. Also, when using local LaTeX editors (e.g., TeXmaker, TeXstudio), restart your system first, then try other solutions.

Other than that, LaTeX is fun.

Project structure (how to work cleanly)

A LaTeX project

Here is the basic structure of a LaTeX project:

```
\documentclass{article}

%%PREAMBLE%%
%Preamble acts as the documents setup section.

\begin{document}
    Here is where the main content of your
    article/dissertation/report is going.
\end{document}
```

Good reading: `https://www.overleaf.com/learn/latex/Learn_LaTeX_in_30_minutes`

Project structure

In large projects, such as books, keeping parts of your document in several .tex files makes the task of correcting errors and making further changes easier.

- A possible project structure for writing an article
  - `main.tex`
  - `preamble.tex`
  - `biblio.bib`
  - Folder `sec`: contains your section tex documents
  - Folder `fig`: contain the figures
  - Folder `tab`: contain the tables

We use functions such as `input{}` or `include{}` to bring our sections, figures, tables, etc in the main body.

Useful reading:

`https://www.overleaf.com/project/636e1779711a0ec36711a69a`

Basic structural commands

Overall structure of the document

```
%{} for class of document (article, book, beamer, etc)
%[] for options like font size, paper type (a4paper,letter)
\documentclass[option1,option2]{article}
\documentclass[12pt,a4paper]{article}

% Set margins
\usepackage[top=2cm,bottom=2cm,left=3cm,right=3cm]{geometry}

% Set line spacing
\usepackage{setspace}
\singlespacing
%\onehalfspacing %\doublespacing %\setstretch{1.25}
```

- To go to a new paragraph, leave an empty line in the code.

Segmenting a document

```
\chapter[short title]{title}
\section[short title]{title}
\subsection[short title]{title}
\subsubsection[short title]{title}
\paragraph[short title]{title}
\subparagraph[short title]{title}

%Add * to the command if you want the segment unnumbered
\chapter*{Chapter One}
```

Basic in-text commands

Font style and size

```
%Font style
\textbf{bold face} %shortcut ctrl+B
\textit{italic} %shortcut ctrl+I
\texttt{typesetting}
\textsc{smallcaps}
\emph{emphasizing} %default mode makes the text italics

%Font size
{\Huge The text in these curly braces gets bigger} and we get back to the normal size

%Other size options
\huge \LARGE \Large \large \normalsize (default)
\small \footnotesize \scriptsize \tiny
```

Make lists

```
\begin{itemize} %unordered list
    \item First item
    \item Second item
\end{itemize}

\begin{enumerate} %ordered list
    \item First item
    \item Second item
\end{enumerate}

\begin{description} % description list
    \item[Desc one] First one
    \item[Desc two] Second one
\end{description}
```

- First item
- Second item

1. First item
2. Second item

Desc one First one

Desc two Second one

Inserting an image

Inserting an image

\usepackage{graphicx} → for color and image stuff.

```
\begin{figure}[h]
    \centering
    \includegraphics[width=0.5\textwidth]{Plot}
    \caption{Here is a picture.}
    \label{fig:img1}
\end{figure}
```

\usepackage{float} if the position of the image is not working properly.

Positional specifications of the image

You can add various positional specifications to the figure command (e.g., [*h*]).

1. **h** → *approximately* at the same point it occurs in the source text
2. **H** → precicely the location in the source text
3. **t** → top of the page
4. **b** → bottom of the page
5. **p** → separate *page* for the image
6. **!** → override internal parameters LaTeX uses for determining "good" float positions

Second session
December 6, 2022

Drawing a table

Drawing a table

- Drawing tables in LaTeX is nasty!

```
\begin{table}[h!]
    \centering
    \begin{tabular}{|c c c|} % 3 columns
        \hline %drawing a horizontal line
        Col1 & Col2 & Col3 \\ %col names
        \hline
        cell1 & cell2 & cell3 \\
        cell4 & cell5 & cell6 \\
        cell7 & cell8 & cell9 \\
        \hline
    \end{tabular}
\end{table}
```

Col1	Col2	Col3
cell1	cell2	cell3
cell4	cell5	cell6
cell7	cell8	cell9

Useful resources

1. A comprehensive guideline: `https://www.overleaf.com/learn/latex/Tables`
2. A useful website for drawing tables and converting them to LaTeX code: `https://www.tablesgenerator.com/`
3. For R users: package **xtable**
4. Useful command for resizing tables (around tabular environment):
   \resizebox{0.5\textwidth} {!}{}

Cross-referencing

Cross-referencing

- General mechanism: give something a label (command label) and refer to it (command ref).
- Things we can refer to: chapters, sections, subsections, images, tables, etc.

```
\begin{figure}[h]
    \includegraphics[width=0.5\textwidth]{Plot}
    \caption{Here is a picture.}
    \label{fig:img1}
\end{figure}

See figure \ref{fig:img1} on page \pageref{fig:img1}.
```

- A good package for referencing: hyperref

Bibliography

BibTeX

- Bibliography entries are stored in a bibliography file with the extension .bib.

```
@article{Xarticle,
    author = "",
    title = "",
    journal = "",
    ?_volume = "",
    ?_number = "",
    ?_pages = "",
    year = "XXXX",
    ?_month = "",
}
```

BibTex

1. You do not have to write the bib entries yourself. You can copy and paste it from e.g., Google Scholar, Amazon, sciencedirect (elsevier), software with bibtex import (Jabref, Zotero).
2. Different items in a bibentry are separated from each other with a comma
3. Double-quotation marks and curly braces are equally valid as outer delimiters for an entire field
   - year = {2022}
   - year = "2022"
4. Names can be entered in two different formats
   - author = "Fafa Same and Mandy Lorenzen"
   - author = "Same, Fafa and Lorenzen, Mandy"
5. Curly braces retain the capitalization. Enclose words in curly braces when capitalization is needed, e.g., acronyms $\rightarrow$ {*NASA*}

Bibliography & citation in LaTeX: natbib package

```
\usepackage[round,semicolon,authoryear]{natbib} %natbib
      package with different options
\bibliographystyle{plainnat} %other styles: plainnat,
     abbrvnat, unsrtnat, rusnat

\citet{bib} %also \cite{bib}
\citep{bib}
\citeauthor{bib}
\citeyear{bib}
\citep[p. 260]{bib}

%printing bibliography
 \bibliography{mybiblio} %mybiblio is the name of my
      mybiblio.bib file
```

Ariel (2001)
(Ariel, 2001)
Ariel
2001
(Ariel, 2001, p. 260)

Other useful stuff

Other useful stuff

1. Defining a new command is useful for simplifying your work, reducing repetitive tasks or performing some complex formatting.

```
\newcommand{\mahsa}{\textsc{Mahsa Amini}\xspace}

\newcommand{\city}[1]{\textit{#1}}

\newcommand{\mahsa}[1]{\textcolor{#1}{\textsc{Mahsa Amini}}\xspace}
```

2. Spacing with \vspace{1cm} and \hspace{1cm}

Useful commands for editing text

- Package xcolor for writing in a different color
- Package soul for highlighting the text
- Package todonotes for commenting

```
%Writing in a different color
\usepackage[dvipsnames]{xcolor}
\textcolor{blue}{Here is my text}
{\color{RedViolet} Here is my text}
%Highlighting a text
\usepackage{soul}
\hl{I highlight this text.}
%Commenting
\usepackage{todonotes}
\newcommand{\fafacomment}[1]{\todo[inline, color = green!40!white]{\textbf{Fafa
    comment} #1}}
```

Third session
December 13, 2022

Examples and glossing

Writing examples

\usepackage{gb4e} → for writing examples

```
%Examples
\begin{exe}
    \ex This is the first example.
    \ex This is the second example.
\end{exe}
```

(1) This is the first example.

(2) This is the second example.

gb4e sometime has a tricky behavior. If you get compiling error, do one of the followings:

1. Move the package up in your preamble (it might have some conflic with other packages).
2. add the command \noautomath right after it (it does not like underscores).

Writing nested examples

The \xlist environment is used to create embedded examples.

```
\begin{exe}
    \ex\label{ex:ex}
    \begin{xlist}
        \ex[*] {First sub—exa}
        \ex\label{ex:sub} Second sub—exa
        \ex
        \begin{xlist}
            \ex\label{ex:subsub} First sub—sub exa
            \ex Second sub—sub exa
        \end{xlist}
    \end{xlist}
\end{exe}
```

(3) a. * First sub-exa

b. Second sub-exa

c. i. First sub-sub exa

ii. Second sub-sub exa

As you see in example 3 and example 3b and example 3c-i

Few more words on writing examples

1. With the command \exr{ } instead of ex, you can repeat the numbering of earlier examples.
2. You can use the \hfill command to add comments to your example (e.g., language of the example).

```
\begin{exe}
    \exr{ex:subsub}[]{First sub—sub exa} \hfill [English]
\end{exe}
```

(3c-i) First sub-sub exa

[English]

Glossing

Package gb4e for glossing with two commands:

1. \gll: for the sentence-gloss pair
2. \glt: for the translation

```
\begin{exe}
    \ex \gll Ich habe ihn gesehen .\\
    I have him seen .\\
    \glt 'I have seen him.'
\end{exe}
```

(4) Ich habe ihn gesehen .
I have him seen .
'I have seen him .'

Use curly braces to group elements that are being glossed as a unit.

Few more words on glossing

- Check Leipzig Glossing Rules:
  `https://www.eva.mpg.de/lingua/resources/glossing-rules.php`
- If you do *heavy* glossing, the LaTeX package leipzig can help.

```
\begin{exe}
    \ex
    \gll My s Marko poexa–l–i avtobus–om v Peredelkino \\
    {\Fpl} {\Com} Marko go–\Pst–{\Pl} bus–{\Ins} {\All} Peredelkino \\
    \glt ‘Marko and I went to Perdelkino by bus.’
\end{exe}
```

(5) My s Marko poexa-l-i avtobus-om v Peredelkino
1PL COM Marko go-PST-PL bus-INS ALL Peredelkino
‘Marko and I went to Perdelkino by bus.’

IPA symbols

IPA symbols

```
\usepackage[tone, extra, safe]{tipa}
\usepackage{tipx}
```

A very good cheatsheet: `https://ptmartins.info/tex/tipacheatsheet.pdf`

Some IPA examples

```
%textipa environment
\textipa{f@"nEtIks}

%Accents and Diacritics
\r{a}
\textsubumlaut{a}

%superscripts
\textipa{t\super{h} k\super{w}
a\super{bc} a\super{b\super{c}}}

%typing suprasegmentals and tones
\tone{55}ma
\tone{35}ma
```

fə'nɛtɪks

å

a̤

t^h k^w

a^{bc} a^{b^c}

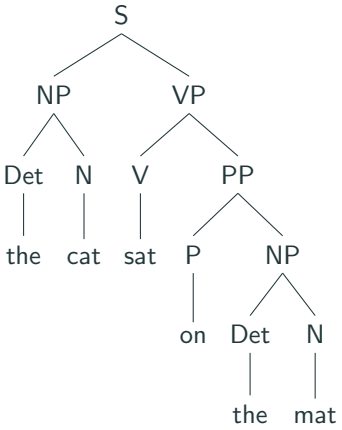
˥ma

˧˥ma

Syntactic trees

Constituenct tree

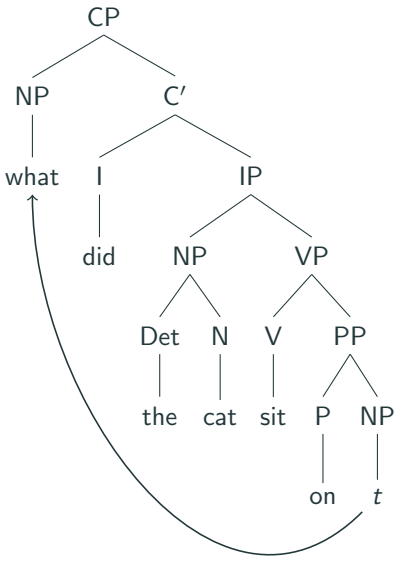
Recommended packages: qtree and tikz-qtree




```
%qtree:

\Tree
[.S [.NP [.Det the ] [.N cat ] ]
[.VP [.V sat ]
[.PP [.P on ]
[.NP [.Det the ] [.N mat ] ] ] ] ]
```

Constituency tree with traces

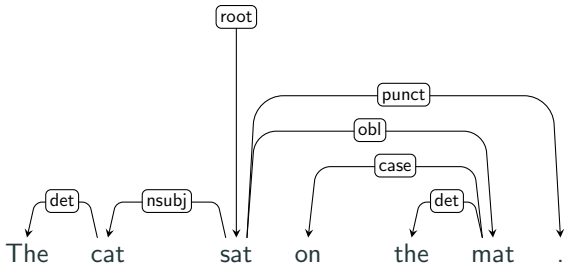



```
%tikz—qtree:

\begin{tikzpicture}
\Tree [.CP [.NP \node(wh){what}; ]
[.C$'$ [.I did ]
[.IP
[.NP [.Det the ] [.N cat ] ]
[.VP
[.V sit ]
[.PP [.P on ] [.NP \node(t){$t$}; ] ] ] ]
    ] ] ] ]
\draw[semithick,->] (t)..controls +(
    south west:4) and +(south:3)..(wh
    );
\end{tikzpicture}
```

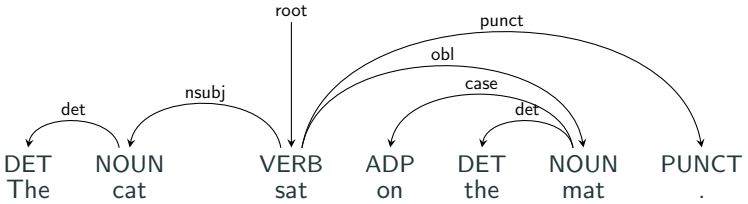
Dependency tree

Package used: tikz-dependency




```
\begin{dependency}
\begin{deptext}[column sep=0.4cm]
The \& cat \&[0.7cm] sat \& on \&[.4
    cm] the \& mat \& .\\
\end{deptext}
\depedge{2}{1}{det}
\depedge{3}{2}{nsubj}
\depedge{3}{6}{obl}
\depedge{6}{4}{case}
\depedge{6}{5}{det}
\depedge{3}{7}{punct}
\deproot{3}{root}
\end{dependency}
```

Dependency tree




```
\begin{dependency}[arc edge, arc angle=80, text only label,label style={above}]
\begin{deptext}[column sep=0.4cm]
DET \& NOUN \&[0.7cm] VERB \& ADP \& DET \& NOUN \& PUNCT \\
The \& cat \&[0.7cm] sat \& on \& the \& mat \& . \\
\end{deptext}
\depedge{2}{1}{det}
...
\end{dependency}
```

Formulas

Formulas

- Math format needed for writing formulas
- Comprehensive list of symbols at
  `http://www.ankehimmelreich.de/downloads/skript_latex.pdf`, p. 31
- Recommended packages: amsmath, amssymb, stmaryrd, latexsym

```
\usepackage{amsmath}
\usepackage{amssymb}
\usepackage{stmaryrd}
\usepackage{latexsym}
```

Semantics examples

$go_{inc} = \lambda P \lambda y \lambda e[P\text{-}go(e)$ & $THEME(e) = y]$,
where $\exists$ $e[P\text{-}go(e)] = 1$ iff $\exists$ $e_0[go(e_0)$ & $\exists$ $x[P(x)$ & $TRACE(e_0)(1)$ is at $x]]$

```
go$_{inc}$ = $\lambda$P$\lambda$y$\lambda$e[P−go(e) \& THEME(e) = y], \\
where $\exists$ e[P−go(e)] = 1 iff $\exists$ e\textsubscript{0}[go(e\textsubscript{0}) \& $\
    exists$ x[P(x) \& TRACE(e\textsubscript{0})(1) is at x]]
```

Fourth session
January 16, 2023

LangSci Template

The template can be found at:

- https://langsci-press.org/templatesAndTools
- https://www.overleaf.com/latex/templates/langsci-skeleton-for-monographs-2022-01-3/hnfkkqwrpbbp

The LangSci guideline can be found at:

- http://langsci-press.org/public/downloads/LangSci_Guidelines.pdf

Check Promotionsordnung for the title page template:

- Page 27, https://artes.phil-fak.uni-koeln.de/sites/artesGS/Promotionsbuero/AM_53_2015_Promotion0_PhilF.pdf

Changing color of the links

Package hyperref

```
\hypersetup{
    hidelinks = true,
    colorlinks=true,
    linkcolor=blue,
    filecolor=blue,
    citecolor= blue,
    urlcolor=blue
}
```

Set a counter

```
%Defining with which chapter number to start. This is useful when you want to send
    single chapters to people.
\setcounter{chapter}{0}

%setting the Table of Contents (TOC) depth. Zero {0} shows only the name of the
    chapters
\setcounter{tocdepth}{4}
```

including images and tables in TOC

```
\tableofcontents
\listoffigures
\listoftables
```

If a section has no number (having *), you can add it to TOC as follows:

```
\section*{Goal of the dissertation}
\addcontentsline{toc}{section}{Goal of the dissertation}
```

Short names for images and tables in TOC

Short caption in square brackets in the caption function.

```
\caption[short caption.]{I am a very very very long caption that you do not want to
    show me in your table of contents.}\label{tab:shortCaption}
```

Own commands

```
\newcommand{\grec}{\textsc{grec}\xspace}

\definecolor{bluish}{HTML}{34495e}

\newcommand{\studF}{\hyperref[sec:modelcomparison]{F}\xspace}
```

Fifth session
January 31, 2023
(Max & Fafa)

R and LaTeX

Package xtable, function \xtable{}

As quoted by Max:

> *"You can take any collection of numbers (calculated by yourself or extracted from a model object), put them in a table and make a latex table out of them with xtable. All you need to know is how to access the numbers and how to put them in a table (the latter being quite straightforward). The rest is basically just formatting the table to make it look as desired."*

xtable Syntax

xtable function can take various parameters such as *caption*, *label*, *align*.

```
#In R
xtable(df,
        caption="my table",
        align = "lccccccc", #aligning the columns (colnumber+1)
        label= "tab:table1",
        digit = 2) # for rounding digits
```

xtable and print Functions

If you encircle the *xtable* function in *print* function, you can pass a lot of other parameters to it (`https://www.rdocumentation.org/packages/xtable/versions/1.8-4/topics/print.xtable`)

```
print(xtable(df,
             caption="my table",
             align = "lccccccc",
             label= "tab:table1",
             digit = 2),
      include.rownames = FALSE,
      file = "PATH",
      table.placement = "b", #default is ht
      caption.placement = "top",
      rotate.colnames = FALSE,
      scalebox = ".50")
#file= paste(DissPath,"tab1.tex", sep='')
```

File location: absolute vs. relative path

A relative path describes the location of a file relative to the current (working) directory (getwd() gives you the current directory). An absolute path describes the location from the root directory.

My suggestion:

- Define your path to your table folder (where you save your tables) and image/graph folder at the beginning of your R script.

Bibliography Manager

Zotero

- Easy to use
- Very good plugins and browser extensions
- Different options for entering bibliography information
- Good integration with LaTeX

Good plugins/extensions

- **Zotero Connection:** good for pulling bibliographical information from a website (`https://www.zotero.org/download/connectors`)
- **Better BibTex:** good for integration with LaTeX (`https://retorque.re/zotero-better-bibtex/installation/`)

Suggestion for note-taking: obsidian

Questions?

References i

Mira Ariel. Accessibility theory: An overview. In Ted Sanders, Joost Schilperoord, and Wilbert Spooren, editors, *Text Representation: Linguistic and psycholinguistic aspects*, volume 8, page 29. John Benjamins Publishing Company, 2001. doi: 10.1075/hcp.8.04ari.