Introduction to typesetting with LaTeX

Tips and Tools for Writing a Bachelor/Master Thesis

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Outline

- Motivation
- Editors and Tools
- Some Simple Examples
- DIY: Installation and Get Started

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- Properly?

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- And of course, math symbols does not look so nice.

Two Examples of bad Thesis Formatting!

One Example of Good Thesis Formatting!

TEX and LATEX: Two famous computer scientists

- Donald Knuth
  - Invented TEX
  - The art of computer programming
  - Turing Award winner 1974
- Leslie Lamport
  - Invented LATEX which is a macro layer above TEX
  - Also famous for inventing the Paxos consensus protocol
  - Turing Award winner 2013

Editors

- All real editors have support for LaTeX
  - **TextMate (mac), Emacs, Kile (linux)**, vim, Notepad++ (win)
- Typical features:
  - Syntax highlighting, autocompletion, compile and view document
- Specialized editors (some come bundled with tex distro):
  - TeXShop (mac), Texmaker, TeXstudio (Ryen recommends)

Editors II

- WYSIWYG editors: LyX
- Web-based collaborative editors (backed by `git`):
  - https://www.sharelatex.com
  - https://www.overleaf.com
- For a full list see:
  https://en.wikipedia.org/wiki/Comparison_of_TeX_editors

Collaboration Tools

- git and https://github.com
- Dropbox shared folder
- Templates: https://github.com/uis-no/

Useful command line tools to know

- ~~latex~~
- pdflatex
- bibtex
- (If you use an editor you probably don't need these.)

Bibliography Tools

- **BibDesk (mac)**, Mendeley, Papers
- Managing your references is important; start early
- Easy to download `.bib` entries from online databases
    - IEEE xplore
    - ACM DL
    - `http://dblp.uni-trier.de`
- For a full list see: `https://en.wikipedia.org/wiki/Comparison_of_reference_management_software`

Online Resources

We will use this:

- `http://www.latex-tutorial.com`

This is a useful resource it you have questions:

- `http://tex.stackexchange.com`

The Elements of Style:

- `https://www.goodreads.com/ebooks/download/33514?doc=4283`

Do's and Don'ts!

- Avoid footnotes (almost) at all cost.
- Avoid different spacing between paragraphs.
- Avoid citations to too many web pages.
- Use the same font style and size for body text.
- Don't overdo **bold** and *italic*; only when introducing concept/idea.
- Math should look like: $y = ax + b$
- Regular text in math mode:

$$t'_{i,j} = \begin{cases} t_i - PreTime & \text{if } P_{i-1,c} = 0 \wedge P_{i,c} \neq 0 \wedge C_j \in A \\ t_i - PostTime & \text{if } P_{i-1,c} \neq 0 \wedge P_{i,c} = 0 \wedge C_j \in A \\ t_i & \text{otherwise} \end{cases} \quad (1)$$

- Use justified text; it looks better!
- In general, be consistent!

DIY: Installation and Getting Started

LaTeX distributions:

- TeX Live: `https://www.tug.org/texlive/`
- MacTeX: `https://www.tug.org/mactex/`
- MikTeX: `http://miktex.org/`