CMSC 601: Writing 3

Adapted from slides by Prof. Marie desJardins

Outline

• LaTeX resources and formats
• Publishing in Word, Google Docs, HTML, ebook formats
• Punctuation (chapter 4)
• Mathematics (chapter 5)
• Graphs and figures (chapter 6)

Sources

• Leslie Lamport, *LaTeX: A Document Preparation System (2/e)*, Addison-Wesley, 1994

Aside

• Why are we talking so much about the mechanics of formatting documents?
• We are craftsmen and craftswomen
• Our main products are software (or maybe hardware) and papers
• What about ideas? -- made manifest in papers
• You need to become competent in mastering the tools of your craft
• While ideas > writing > layout, all are important
LaTeX Websites

- The Simplified LaTeX beginner’s guide and tutorial http://www.ctan.org/tex-archive/info/simplified-latex/
- The LaTeX Wikibook http://en.wikibooks.org/wiki/LaTeX
- LaTeX Project home page: http://www.latex-project.org/
- The UK TeX FAQ: http://www.tex.ac.uk/cgi-bin/texfaq2html/
- CTAN: the Comprehensive TeX Archive Network: http://www.ctan.org/
- Peter Flynn’s Beginner’s LaTeX: http://158.110.32.35/LATEX/beginlatex.pdf

Conference/Journal Formats

Most of the more established journals and conferences provide latex style/class and bibliography files for authors to use, e.g.

- JAIR format (jair.sty, theapa.bst)
- Journal of Web Semantics (Elsevier)
- AAAI format (aaai.sty, aaai.bst)
- SIGGRAPH format (acmsiggraph.sty, acmsiggraph.bst)
- ISWC format (Springer’s LNCS style)

Using Microsoft Word

- Confession: I’ve been using Word for ~15 years and I still feel like a novice
- RTFM? TL;DR
- I have read Lamport’s book and lots of other LaTeX documentation
- Why is that? I don’t know
- Maybe: Word is designed for the typical computer user; LaTeX is designed for scientists and publishers

IMHO on Word

- We’re stuck with it. Lean to use it effectively
- It’s really great in many, many ways
  – Track changes, comments, collaboration
  – WYSIWYG has its advantages
- It’s wonderful for some types of documents
  – letter, flyer, brochure, extended abstract, etc.
- It’s often the lowest common denominator for a collaboration group
Word Advice

• Learn how to create, use and modify a Word Template
  – E.g., don’t add blank lines between paragraphs or headings but built it into the template
  – This ensures consistency in your document and helps the layout algorithm do the right thing
• Learn to add a table of contents
• Learn to add cross-references
• Invest in a reference management package like EndNote

Word Advice: Figures

• Keeping figures where you want them is always tricky, even in LaTeX
• Here’s what I’ve learned for Word
  – Always add a text box
  – Put the figure in the text box
  – Add a caption after the figure
  – Adjust the properties of the text box, figure and caption as appropriate
  – It’s often best to fix the text box to be at the top or bottom of the page and to not move with the text

What about Google Docs?

• This is still developing
• Must be online
• Not appropriate for traditional papers
  – poor control over layout, templates, pagination, typesetting, etc.
• Great for collaboration, especially simultaneous, parallel editing
What about HTML?

• The W3C publishes its documents (e.g., recommendations, working group notes) in HTML
• They also do all slides in HTML
  – See slidy for slides in hrm1 and xhtml
• Also not good for traditional papers
  – poor control over layout, templates, pagination, typesetting, etc.
• Great for Web publishing and avoids proprietary formats (word, pdf, ps)

Serial Commas

• Commas on both sides of a parenthetical remark
  – 😞 The equation, which was formatted badly, was confusing.
  – 😊 The equation that was formatted badly was confusing.
  – 😞 The equation which was formatted badly, was confusing.
  – 😞 The equation, that was formatted badly, was confusing.
• Use final commas in lists
  – 😞 Commas, colons and semicolons must be used properly.
  – 😊 Commas, colons, and semicolons must be used properly.
• But the serial comma is a bit controversial
  – This is ambiguous: To my mother, Ayn Rand, and God
  – Standard in Chicago Manual of Style, not in AP style manual
  – Just be consistent

Punctuation

Commases: Example

• 😞 “Sentences should usually be short but commas and other marks give text variety” (Zobel p. 60).
• 😞 “Sentences should usually be short, but commas and other marks give text variety” (Zobel p. 60).
• 😞 😊 “Sentences should usually be short, but commas and other marks add variety to text” (Zobel p. 60).
Commas, Colons, and Semicolons

• Colons connect related statements and introduce lists
  — ☺ I know one use of a colon, it joins related statements.
  — ☼ I know one use of a colon; it joins related statements.
  — ♣ A colon is usually used for two things, to connect related statements and introducing lists.
  — ☯ A colon is usually used for two things: to connect related statements and to introduce lists.

Commas vs. Semicolons: Example

• ☺ “Reading of mathematics is difficult at the best of times, unpleasant work if the mathematics is badly presented, and pointless if the mathematics does not make sense.”
  — ☼ “Reading of mathematics is difficult at the best of times: unpleasant work if the mathematics is badly presented, and pointless if the mathematics does not make sense.”
  — ♣ “Reading of mathematics is difficult at the best of times; it is unpleasant work if the mathematics is badly presented; and it is pointless if the mathematics does not make sense.”

Hyphenation

• Hyphenate word combinations that serve as adjectives, especially when needed to avoid ambiguity
  — ☺ Squad helps dog bite victim. *(Does the dog really need any help?)*
  — ☼ Squad helps dog-bite victim. *(That was nice of them.)*
• Don’t hyphenate word combinations that include adverbs
  — ☼ ...there are well-established conventions...” *(Zobel p. 69)*
  — ☹ ...there are well established conventions...” *(Zobel p. 69)*
• Don’t hyphenate word combinations serving as nouns
  — ☼ High-speed memory is needed for real-time performance.
  — ♣ The memory runs at high-speed.

that vs which

• Use that for restrictive relative clauses
  — ☺ “A computer that was in the lobby was stolen”
  — ☼ The relative clause identifies which computer
• Use which for non-restrictive relative clauses
  — ☼ “A computer, which was in the lobby, was stolen”
  — ☺ The relative clause provides additional information about the computer
• Both can be used together
  — ☦ “A computer that was in the lobby, which we purchased last month, was stolen”
Remark: That vs. Which

- ☹ “Mathematics...is the only symbolism invented by the human mind which steadfastly resists the constant attempts of the mind to shift and smudge the meaning...” (quoted by Zobel, p. 69)
- ☹ “Mathematics is the only symbolism invented by the human mind; it steadfastly resists...”
- ☹ “Mathematics...is the only symbolism invented by the human mind that steadfastly resists the constant attempts of the mind to shift and smudge the meaning...” (quoted by Zobel, p. 69)

Don’t Use Exclamation Points!

- ☹ Especially not two of them!!
- ☹ Or even more!!!!

Pluralization

- ☺ Machine learning became popular in the 1990’s.
- ☺ Machine learning became popular in the 1990s.

Capitalization

- Be consistent
  - ☺ Either Use All Caps in Your Headings
  - ☺ Or use initial caps
  - ☹ But please Don’t mix initial caps and All Caps
- Names of techniques are rarely capitalized
  - ☹ We introduce the Texture Mapping rendering method.
  - ☹ We introduce the texture mapping rendering method.
  - ☺ We introduce the texture mapping method of rendering.
Punctuation and Quotation Marks

- I disagree with Zobel
  - He “place[s] a punctuation mark inside the quotation mark only when it was used in the original text”.
  - He “place[s] a punctuation mark inside the quotation mark only when it was used in the original text.”

Mathematics

Theorems

- Number all theorems
- Theorems should stand alone (i.e., not be part of the surround text)
  - Indent or otherwise mark them clearly
- Give a summary of the theorem and proof approach before launching into lemmas and detailed proof
- Omit unimportant details
  - Leave out arithmetic manipulations

Equations

- Center or indent equations to stand out from the text
- Avoid long sequences of mathematical formulae in the text
- Number equations only if they are needed for later reference
  - Some people suggest numbering all equations for reviewing purposes
- Treat displayed equations as part of the sentence in which they are embedded
- Explain your math
  - Avoid unnecessary notation and acronyms
**Notation**

- Be consistent, standard, and simple!
  - Notation often requires several revisions before you get it right
- Explicitly introduce your notation
  - Don’t just start using it
- Try to avoid recursive subscripts or combined subscripts and superscripts
- Avoid “obscure” Greek letters
- Don’t reuse symbols for different meanings

**Numbers**

- Spell out numbers less than 10 (or 20?)
  - ...except when used mathematically
  - ...except for percentages
- Make sure the semantics of percentages and units are clear and unambiguous
  - There was a 5% increase in performance.
  - Performance increased by 5%, from 65 to 68 correct answers.
  - The performance accuracy increased by 5%, from 65% to 70%.

**Graphs and Figures**

**Figures and Graphs**

- Figures are great, but should convey meaning
  - System architecture diagrams often add no information
- Figures make a paper more interesting to read, engaging both sides of the brain
- Graphs are generally better than tables
  - Be selective in which data to include
- Use clear legends, axis labels, and line types
  - Colored lines, different types of dashes, and different tick marks on lines generally won’t reproduce well in B&W
  - Different line thicknesses are generally good, if there are only two or three types
  - Inspect the graphs in their actual size and context
- I recommend captions of one or several sentences
Algorithms

- Use commented pseudocode
  - I find Zobel's pseudocode too close to real code
  - I find his “prosecode” far too wordy
- Don’t include unnecessary detail
- Using a comment column is sometimes helpful
  - use “tabular” environment in LaTeX
- Use math mode, not \verbatim
- Try using the \texttt{algorithm2e} package in LaTeX!

Generating Figures and Graphs

- Figures:
  - \texttt{xfig}
  - \texttt{dia}
  - \texttt{latex}
  - PowerPoint
  - Word plus screenshot
- Graphs:
  - Matlab
  - Gnuplot
  - Excel

LaTeX Figures

- \usepackage{graphicx}
- \begin{figure}
  \centering
  \includegraphics{figfile}
  \caption{Put Caption Here}
  \label{fig:key}
\end{figure}
- Graphics formats: (at least) JPG, PNG, PDF...
  -(If you’re using pdflatex. With latex and dvips, only embedded PostScript (eps) figures are supported. This can be confusing...)