CS446: Machine Learning, Fall 2017

Lecture 1 : Some Basic Scribing Tips

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Introduction

This template serves the purpose of introducing some of the most basic rules for scribing, as well as providing examples to what you might pay attention to while scribing. Below are some of the rules I follow and some of the rules I found in **?**.

General writing

- You must have at least **4** pages (excluding references), though high-quality notes will most likely require **6-8** pages.
- Organize your writing logically, and write concisely. Every sentence in a paragraph should offer information. Usually the first sentence leads a paragraph; the following sentences expand the idea, or explain the intuitions behind a complicated equation; the last sentence connects the current paragraph to the next one.
- Good scribe notes should be detailed and cover everything discussed in class. The notes should not simply be bullet points, formulas, and proofs without context. Rather, the notes should be a smooth-flowing, connective text that conveys a narrative.
- Pay careful attention to grammar errors and typos. Poorly polished notes usually have a higher chance of getting rejected.
- Include "that" when it helps the reader to parse the sentence.
  - Bad: Assume A is an $n \times n$ matrix.
  - Good: Assume that A is an $n \times n$ matrix.
- Do not use "which" when "that" sounds better.
- Do not use hyphen for the words beginning with "non". For example, write "nonlinear" and "nonstationary".

Mathematical writing

Symbols

- Symbols in different formulas must be separated by words.
  - Bad: Consider S_q, $q < p$.
  - Good: Consider S_q, where $q < p$.
- Don't start a sentence with a symbol.
  - Bad: $x^n - a$ has n distinct zeros.
  - Good: The polynomial $x^n - 1$ has n distinct zeros.
- Don't use symbols to represent logic, use words.
  - Bad: $\exists n$ such that as $p \to \infty$, $f(n, p) \to 0$.
  - Good: There exists n such that as $f(n, p) \to 0$ as $p \to \infty$.
- Use displayed math when handling big equations. Don't put big equations in a paragraph.
  - Bad: Consider $\sum_{i=1}^{n} \frac{i^2}{2}$ where $n > 100$.
  - Good: We now consider the following quantity

    $$\sum_{i=1}^{n} \frac{i^2}{2},$$

    where $n > 100$.
- Use $\mathbb{P}$ for probability, and $\mathbb{E}$ for expectations. Use $\mathbb{R}$ for the set of real numbers, and similarly for rational and integers.
- Use capitalized letters for random variables, and lower case letters for their realizations.
- Use bold capital letters for random variables, for example $\boldsymbol{X}$. Use bold letters for vectors, for example $\boldsymbol{x}$. We have pre-defined some macros for you in `scribepkg.sty`; you can use these if you would like.

Placement

- Punctuate displayed math equations if the sentence pauses, or ends.
  - Bad: Since $n > 100$,

    $$\frac{n}{n+1} > \frac{100}{101}$$

  - Good: Since $n > 100$,

$$\frac{n}{n+1} > \frac{100}{101}.$$

- Only number an equation if it it is referred to later.
- Match the bracket size to the size of the contents within it.
  - Bad: We thus have

$$\mathbb{P}(\frac{1}{n}\sum_{i=1}^{n} X_i > t) < \exp(-nt^2).$$

  - Good: We thus have

$$\mathbb{P}\left(\frac{1}{n}\sum_{i=1}^{n} X_i > t\right) < \exp(-nt^2).$$

Citations

- If you used results from other articles, please cite it. Give the exact location in the article if necessary, such as the page number in a book.
- Check the BibTeX entry if you downloaded it from Google. In many cases, the entry is not correct.
- Put all citations into `citations.bib` and they will appear on the last page of your notes. We have provided an example citation, but please follow the correct format for adding more.

Figures

You should insert figures as needed using the basic method below. You can then reference these figures using the figure's label using LaTeX's `ref` command. For example, see Figure 1.

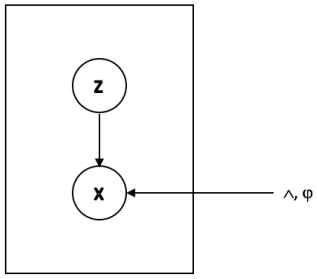

Figure 1: Example figure: A graphical model