

Guidance on Projects

Wednesday, 8 February 2012

- Introduction
- Structuring a thesis
- Referencing
- Style and presentation
- Timing
- Questions

Introduction

Plan for this session:

- to offer general advice and suggestions, with time for questions, discussion, disagreement, as we go along and at the end;
- to remind you about what was said in Michaelmas Term.

Assumption 1: You are well on the way.

Assumption 2: You have set yourself up to use some dialect of $\text{T}_{\text{E}}\text{X}$ such as $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ (or $\text{P}^{\text{L}}\text{a}^{\text{I}}\text{nT}_{\text{E}}\text{X}$ or $\text{A}^{\text{M}}\text{S}\text{T}_{\text{E}}\text{X}$).

Reminders: structuring a thesis

- **Write with a reader in mind**
 - yourself before you embarked on your research
 - a friend at a similar stage of development
 - The examiner of your thesis could be an expert, but, equally, could be someone with more experience and background than yours but with less expert knowledge of your particular topic.
- **Give your work a beginning, a middle, an end.**
- **Give it a good send-off: title-page, preface (perhaps), contents page.**

Reminders: referencing, I

- List references with full bibliographical detail; the list is placed at the end of the thesis

[See next screen]

- Refer to the references at the relevant points in your text:
 - to help make your work self-contained;
 - to give credit where credit is due;
 - to avoid plagiarism.

Avoid plagiarism like the plague

Reminders: referencing, II—your reference list

- Put items cited in alphabetical order of authors
- Give each item an identifier, e.g. number them serially
- For books give author(s), title, edition (where appropriate), publisher, place of publication, and year of publication
- For articles give author(s), title, journal, volume number, year, and page-range
- References in the text should quote the identifier and indicate where to find the relevant bit of information—e.g. by Theorem number or Section or page number (especially important in the case of books and long articles).

Reminders: referencing, III—your reference list

Formatting references (European standard):

- Authors' names in roman or small caps;
- Article name in roman type;
- Book titles and journal titles in italics;
- Publication information in roman type.

See next slide for examples

Referencing, IV: examples

[1] Fredrick Arnold and Benjamin Steinberg, ‘Synchronizing groups and automata’, *Theoretical Comp. Sci.*, 359 (2006), 101–110.

[2] Peter J. Cameron, *Parallelisms of complete designs*, CUP, Cambridge 1976.

[3] Jean-Éric Pin, ‘Černý’s Conjecture’, web page at www.liafa.jussieu.fr/~jep/Problemes/Cerny.html

NB: Give authors’ names in the form they themselves use.

Reminders: Style and presentation, I

- Write grammatically.
Those who read your work should find it more of a pleasure than a chore.
- Make sure that you have defined all the notation that you use.
- Writing mathematics involves using English - remember to punctuate your sentences, even those with mathematical formulae.
- Ensure that any figure has a caption and is of a size for all parts to be clearly visible.

Reminders: Style and presentation, II

- Never use symbols (\forall , \exists , \Rightarrow , etc.) as shorthand in text.
- Avoid abbreviations generally (mathematical language is already very concentrated).

Do not use wlog, tfae, s.t., oBdA, ...

- Abbreviations such as i.e. or e.g. are (just) acceptable; but never put them adjacent to formulae or symbols.
- Use a spell checker!

Reminders: Style and presentation, III

Use the correct symbol: for example

`\langle`, `\rangle` to get angular brackets \langle, \rangle

Not $<, >$.

These are the wrong symbols and they give poor spacing:
compare $\langle u, v \rangle > 0$ with $< u, v >> 0$.

Notation such as **Aut**, **Sym**, **Hom**, ... is printed in roman type in formulae (like **log**, **sin**, **cos**, **min**, **max**, **lim**, ...).

Style and presentation, IV

Avoid use of 'apostrophe s' to make possessive forms of variables.

NEVER use 'apostrophe s' to make plural forms of variables. It is ungrammatical.

It doesn't work typographically:

x_i 's looks too similar to the formula x_i 's.

Style and presentation, V

Never attach a footnote marker to a symbol or a formula.
Avoid attaching footnote markers to names or display material such as titles or headers.

In fact, avoid footnotes where possible (at least in mathematical essays and dissertations).

Avoid including formulae in titles or headers

Style and presentation, VI

Use display (with \displaystyle or $\$$. . . $$$ for example) for complicated formulae or to avoid bad line breaks

Don't let formulae coalesce accidentally (for example, don't start a sentence with a symbol or formula when the preceding sentence ends with a symbol or formula).

Indeed it is best to avoid beginning a sentence with a mathematical expression under any circumstances. Rephrase sentences where necessary to avoid starting with a symbol or formula, or to avoid bad line breaks.

Reminder: timing

- Aim to get a first draft finished by Week 6. Proofread it carefully before giving it to your supervisor for comment.
- Give a presentation on it (to your supervisor and A N Other) in Week 6 or Week 7.
- you **MUST** submit your final draft by 12 noon on Friday of Week 9—remember that most Oxford printers suffer overload in Week 9.

Further Information

- See the projects web-page

<http://www.maths.ox.ac.uk/current-students/undergraduates/projects>

- Email questions to me at

`hambly@maths.ox.ac.uk`

Questions

How rigid is the length restriction?

How much can go into appendices? And do they count in the word-limit?

What form should the presentation take?