Scientific Communication CITS7200

Computer Science & Software Engineering

Lecture 7

Revising a paper

All your writing should be revised before submission. The aim of revision is to correct spelling, grammar, and typographical errors; to remove ambiguities; to ensure correct use of pointers to references, theorems, equations, and figures, etc; and to make your writing clearer, more concise, and more forceful.

After you have finished the first draft, put it away for a few days, or give it to a friend to read. A fresh reading will pick up many small errors.

Analyse your draft in multiple ways, and at multiple levels:

- Read it aloud — is it rhythmic?

- Read it at high speed — does it flow well?

- Is the overall shape correct? Are paragraphs too long, or too short? What about sentence length? Do your sentence lengths vary? Choose a random, largish, paragraph and count the number of words in each sentence. Do you get a plot that looks something like a normal curve with a mean of about 18 words/sentence?

- Read your paper at the page level. Does any page look too densely covered in ink, or too sparse? Do your equations, theorems, and algorithms stand out? Does your code have a good shape with matching indentations? Do your tables, graphs, and images look cluttered or do

they stand out? In particular, are your figures large enough to be read without straining the reader's eyes? Are there any overhanging lines?

Good writers inevitably work through a number of drafts. The more drafts you work through, the better a writer you are, not the reverse. It is virtually impossible to produce a perfect first draft — that is, something that would not benefit from revision. Some writers use the spiral writing method: first write section 1, then revise section 1 and write section 2, then revise sections 1 and 2 and write section 3, . . . But it is not always best to start with the introduction. Sometimes it is easier to write up your experimental results first, then describe the theory, then do a literature review, before you write an introduction and a conclusion. Sometimes you might write the conclusion first of all!

Always revise your writing on paper, not electronically (although spelling checkers should not be neglected). Print out your draft paper with wide margins and double spacing. In LaTeX, double spacing is produced by the command

`\renewcommand{\baselinestretch}{2}`

placed before the `\begin{document}` command. Revise in coloured ink, and if it is a small mark, for example an added comma, place an asterisk in the margin to make sure you spot it later.

It is worth keeping the following points in mind when you are revising:

- Eliminate words, phrases, and sentences that add nothing to the meaning or the argument. Every word must serve a purpose.

- Replace long words by equivalent short words. For example, can you replace "interrogate" by "ask", or "requirement" by "need"? However, do not be afraid to use a long word if it is exactly the right word for the context.

- Ask whether sentences and paragraphs are in the right order. Do your definitions come *before* the item is first used? In particular, make sure that any abbreviations or acronyms are regularised (that is, defined) at the first use, and that such abbreviations are used consistently thereafter. Remember that the opening sentence of a paragraph sets the idea for that paragraph. The emphasis of the idea comes at the end of the paragraph.

- Ask whether your words are in the right order. One commonly misplaced word is "only". Consider the following examples:

- Only I hit him in the eye yesterday.
- I only hit him in the eye yesterday.
- I hit only him in the eye yesterday.
- I hit him only in the eye yesterday.
- I hit him in only the eye yesterday.
- I hit him in the only eye yesterday.
- I hit him in the eye only yesterday.
- I hit him in the eye yesterday only.

Each sentence carries a different force. If you write "We only calculate the first two items on this list.", you probably mean "We calculate only the first two items on this list."

Another commonly misplaced word is "also". Consider the following examples:

- Peter also writes programs.
- Peter writes programs also.

In the first example, it is either the agent (Peter) or the verb (writes) that is being modified by *also* (for example *Mary writes programs; Peter also writes programs* or *Peter runs programs; Peter also writes programs.* In the second example it is the recipient of the activity that is being modified (for example, *Peter writes programs; he writes science fiction also*).

The rule is as follows: place *also* before the verb when *also* modifies either the agent or the activity, and place *also* after the verb when *also* modifies the recipient of the activity.

Reordering words can strengthen a sentence and remove ambiguities.

- Remove unnecessary repetition, especially between the abstract and the introduction.

- Check that all your claims are fully supported by the facts you present.

- Check that your mathematics is correct.

- Check that you have made good use of citations, giving credit where credit is due, but not scattering your pages with reference pointers.

- Check that your equations, theorems, algorithms, tables, figures and references are properly numbered. Are your cross-references correct? Is every citation matched with a reference, and vice versa?

Arguments supporting clear writing often state that you should

- eliminate dangling participles,

- avoid split infinitives, and

- try not to end sentences with prepositions.

The idea is that these practices can cause confusion. However, breaking the first rule just creates an additional congnitive load on the reader. The second and third rules can be broken freely; often the result simply sounds better, is more forceful, or is clearer.

Here are some more examples of dangling participles that are clearly wrong.

> Driving through Taranaki, Mt Egmont dominates the landscape.
> Crossing the room, her foot bled all over the carpet.
> Driving home in yesterday's storm, a tree fell on the back of the car.

Splitting an infinitive involves putting a word between the "to" and the verb, as in "to boldly go". Most experts now agree that this a perfectly acceptable phrase. However, there is less acceptance when the number of words increases, as in "We are seeking a plan to gradually, systematically, and economically relieve the burden."

Common usage dictates that some sentences just sound much better ending with a preposition, for example "Perth is a good place to live in." The avoidance of an ending with a preposition can lead to ridiculous verbal gymnastics, as in the famous statement often attributed to Winston Churchill: "This is the sort of English up with which I will not put." However it is worthwhile doing the linguistic gymnastics for sentences that end with more than one preposition, since such constructions can be difficult to understand. Here is a famous sentence that ends with five prepositions:

> What did you want to bring that book I didn't want to be read to out of up for?