The style files

Establish a self-similar structure

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Previous articles mainly addressed issues of words and sentences: prefer the present tense; clarify 'this'; write actively; be explicit; and so on. Now let us move on to consider how to combine sentences into a document. I propose that structures from the paragraph to the whole document are similar.

Make the paragraph the unit of composition

Strunk beautifully describes the nature of a paragraph.

> Ordinarily, however, a subject requires subdivision into topics, each of which should be made the subject of a paragraph. The object of treating each topic in a paragraph by itself is, of course, to aid the reader. The beginning of each paragraph is a signal to him that a new step in the development of the subject has been reached. Strunk [5, Section 9]

But how do we decide what is a 'topic'? What do we form into one paragraph? We are stymied until we understand what a 'topic' means to us. I suggest you consider a 'topic' to be something about which you can write a summary statement; perhaps a result that some algebra can establish, or perhaps something that might be labelled a mini-theorem or mini-lemma. Then such a summary statement serves as either the first or ending sentence of the paragraph. As Strunk recommends in the following quote, surround the argument of the body of a paragraph by summary statements or consequences.

> 1. the topic sentence comes at or near the beginning;
> 2. the succeeding sentences explain or establish or develop the statement made in the topic sentence; and
> 3. the final sentence either emphasizes the thought of the topic sentence or states some important consequence. Strunk [5, Section 10]

Example. The following paragraph, extracted from a module teaching writing, starts with a summary statement (italicised here) on the vital importance of technical communication, and ends with a statement (also italicised here) on the consequence that we grade their work explicitly on communication. The middle of the paragraph explains more details.

> *Developing technical communication is essential preparation for the workplace and advanced study.* In this module we help you to structure, prepare and deliver small documents of technical material. Study this module in parallel with the first few modules in preparation for your first assignment. In your assignments you will demonstrate your skills in technical writing for specific tasks. *Your assignment reports will not only be graded on mathematical content, but also on the style and manner of the technical and English expression.*

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Self-similarity helps guide readers

Recognise shades of the well-known 'rule of three' in the above quote from Strunk [5, Section 10]: (1) tell them what you will tell them; (2) tell them; (3) tell them what you have told them. I prefer Strunk's expression. But pause just a moment: the 'rule of three' refers to the whole document, whereas Strunk refers to just one paragraph. The large-scale 'rule of three' and the paragraph scale recommended by Strunk are essentially the same. I recommend that you apply the same principle at *all* levels in a document.

> The principle that the start and end of a paper are more important generally applies at the smaller scale. In a long paragraph it is often worth explaining (in advance) what you're doing and why you're doing it. The hierarchy of purposes extends down to paragraphs; after each paragraph, ask yourself if you've achieved your immediate purpose. This principle applies even to sentences; if, for example, you are recapitulating, beginning the sentence with a phrase like "In short..." will prepare the reader. Garrett [1]

Garrett identifies that readers find the start and end of each component to be the most important. Readers typically pay most attention to the Introduction and Conclusion: reiterate important information there, together with a 'map' of the article. The start and finish of a section or subsection are the most important: reiterate and 'map' the section or subsection. The start and finish of a paragraph are similarly for summary and mapping. Surely documents must be self-similar with appropriate summary explanation at all levels.

References

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[5] Strunk, W., Jr (1918). *The Elements of Style*. W.P. Humphrey. http://www.bartleby.com/141 (accessed 19 October 2007).

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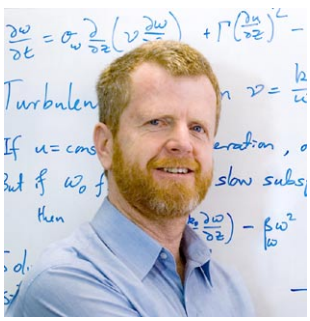

Tony Roberts is the world leader in using and further developing a branch of modern dynamical systems theory, in conjunction with new computer algebra algorithms, to derive mathematical models of complex systems. After a couple of decades of writing poorly, both Higham's sensible book on writing and Roberts' role as electronic editor for the Australian Mathematical Society impelled him to not only incorporate writing skills into both undergraduate and postgraduate programs, but to encourage colleagues to use simple rules to improve their own writing.