

Elements of style

We regularly get queries about the minutiae of *Nature Physics* format, but what we really care about is that the papers are clear and accessibly written.

“It is intended, first, to place before the general public the grand results of scientific work and scientific discovery; and to urge the claims of science to a more general recognition in education and in daily life...”. So reads the opening of *Nature’s* mission statement, published originally in 1869 and still a maxim for the modern journal. It is a tradition also embraced by *Nature’s* sister titles, *Nature Physics* among them.

And so we consider it a priority that the material we publish is clear and accessible — which is why all of the papers accepted for publication are copy-edited, and why, during the process of peer review and manuscript revision, editors also recommend appropriate stylistic changes to the text. So many papers deserve to be better written than they are. The prosaic details of format for *Nature Physics* (text length, number of figures, and so on) are spelled out in our Guide to Authors, at www.nature.com/nphys/authors, but it is well worth considering, on a more creative level, how best to compose a research paper. If the research is worth writing up, it’s worth writing up well.

Before you even begin, ask yourself the question, “Why should anyone care to read past the title of my paper?” A succinct, informative but also tempting title is essential, and is the first of the key features in a manuscript to come under editorial scrutiny. Next comes the most important paragraph of the whole paper: the first one. Even if it is a work of expository genius, few among a broad audience are likely to read beyond it. So it is vital that this paragraph tells the central story of the paper, and makes clear why this story deserves to be told. Don’t launch into technical details, or merely list what you did. Set the scene, explain the background — that will give the non-specialist reader a context in which to understand the significance of the work, but fellow specialists will also appreciate your

telling them what you consider to be the relevant questions in the field.

‘Story’ is the concept that should underlie the structure of the entire paper. The clearer and simpler, the more engrossing it is. On that basis, think about relegating technical details — essential to the science but not the narrative — to a Methods section or to Supplementary Information (the latter published online). Similarly, figures should be designed to enhance the telling of the story, and each accompanied by a caption that is as short as possible; to an expert reader, the information conveyed in a figure should be clear without needing to consult the main text.

So many papers deserve to be better written than they are.

Explain, don’t hype. The object is not to find fine words or turns of phrase that will convince the reader to care if normally they wouldn’t; nor is it to push the boundaries of what is clearly supported by the evidence presented. If claims matter, they will be scrutinized, and if they’re not robustly supported by the results, no amount of hyperbole will convince anyone — editor, referee or reader — otherwise.

Avoid clichés like the plague. Unless you are an archaeologist, it is unlikely that you’ve found the Holy Grail. Similarly, avoid hollow generalities. It may be that your work will open up new avenues of exploration in your field — but surely that is the point of most novel research? Instead, you might want to offer specific problems that could be addressed or new capabilities that might be enabled by your work.

Adjectives are best used sparingly and only when justified. Avoid using the word ‘very’ — it doesn’t add information, only syllables. Similarly, it is better to be specific

about the scales reached than to invoke vague superlative prefixes, such as ‘ultra’: with the duration of laser pulses increasingly measured in attoseconds, it’s less and less meaningful to describe hundreds of femtoseconds as ‘ultrashort’. Neither does the use of ‘quantum’, ‘nano’ or ‘bio’ score points: perhaps the paper does discuss phenomena that involve quantized energy levels, happen at the nanoscale or are seen in molecules that are also found in living organisms, but unless these aspects are at the heart of the reported research such prefixes should not be emphasized.

Finally, a word about concluding paragraphs. It is commonly advised that a paper should begin by stating what will be said, continue by saying what is to be said, and then conclude by summarizing what has been said. This is bad advice that recommends lazy composition. Conclusions are not mandatory, and those that merely summarize the preceding results and discussion are unnecessary (and, for publication in *Nature Physics*, will be edited out). Rather, the concluding paragraphs should offer something new to the reader. The point is well put by computer scientist Jonathan Shewchuk (<http://www.cs.cmu.edu/~jrs/sins.html>):

“Here’s a simple test: if somebody reads your conclusions before reading the rest of your paper, will they fully understand them? If the answer is ‘yes’, there’s probably something wrong. A good conclusion says things that become significant after the paper has been read. A good conclusion gives perspective to sights that haven’t yet been seen at the introduction. A conclusion is about the implications of what the reader has learned.”

And so to conclude... good writing not only serves your audience but improves the chances of the research being noticed and read, and of it stimulating further progress. And neither will it hurt your citations.