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Readability

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I had lunch with Chris and he was relaxed for the first time in months. He had finally sent his revised PhD off to his UK publisher. They had been very enthusiastic about the dissertation version - a rare thing in academic publishing: he only needed to shorten it a little and polish the style. The revision, squeezed between his teaching, travel and research, had taken him nearly a year, but now it was ready and he was expecting a contract by return mail. He had shortened the manuscript, and put the result through a grammar and style-checking program. He had varied his terminology, shortened his sentences, and translated sentences into the 'active' voice. The result had a high readability score and a desirable grade level (8.1). He'd even started to correspond with a North American publisher about a co-publishing deal.

He staggered into my office a few weeks later, clutching the publisher's rejection letter. The manuscript, they declared, 'no longer contained anything of value' and had become incoherent and unreadable. It was the most direct refusal of a book manuscript I have ever seen. What, he wondered, had gone wrong? How could something that scored so well on all these readability measures be 'unreadable'?

Like most writers, he was unaware of what was really in the style-checker's 'black box'. Style-checking software can identify certain features that clear writing often has, but it assumes that writing is clear *because* of these features. This *post hoc, ergo propter hoc* argument is untrue. Thus, such programs cannot find fault with the sentence:

The rat the cat the dog chased caught died.

For them, the sentence is short, active, grammatically correct, has a Flesch Reading Ease score of 100 (the best possible score), and a Flesch-Kincaid Grade Level of 0. All of this is meant to imply that the sentence can be understood by anyone who is literate. We all know this is not true. At the same time, style-checkers commonly mark most of a typical scientific paper as 'needing correction', including about 85 per cent of the 'materials and methods' section (which will be passive) and any sentences that contain complex ideas. This is because a typical complex sentence such as:

When no local regulations apply, legal difficulties arising from the transport of animals internationally within the EU are regulated by international conventions

would have a Flesch Reading Ease score of 0 (the worst possible score), and a Flesch-Kincaid Grade Level of 12 (readers would need to have completed 12 years of formal education). Because this sentence also happens to be passive, the software may put a wavy green line under it. Rewriting it to satisfy the software would change both the focus and the meaning. In short, 'style checking' software can recognise passive sentences, but not whether you need them. It can calculate a 'readability' score, as a function of the average number of words per sentence and the average number of 'big' words ('animal', with three syllables, is a 'big' word!), but it cannot tell you whether your work suits your audience. It appears to be authoritative, but its 'help' can be dangerously unhelpful. It bears no relation to the real rules of coherence and cohesion in research-based writing. As Chris followed the program's advice, his ideas were gradually disassociated from each other until his underlying argument disappeared. I reconstructed Chris's book using the *real* rules of coherence and cohesion.

Out of curiosity, I then ran my version through the style-checking program. It had a Flesch-Kincaid Grade Level of 17 (too many big words!), and yet it was accepted by the original publisher, co-published in England and North America, and did rather well.

This is not meant to depress you. Although the rules of coherence and cohesion are not available on your style checker, they can be learnt. The editors of *Veterinary Science Tomorrow* have asked me to use this column to share them: how research writing is structured, how it holds together, and how it can be improved. I will begin in the next issue, and I hope to hear (and incorporate) your reactions along the way.