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## Viewpoints

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### The *using* that dangles: to correct or not to correct?

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There is an obvious policy in scientific language editing to avoid corrections that provide no gain in clarity. If loosely attached modifiers, missing articles, or other deficiencies in grammar and style do not make the author's meaning totally impenetrable, they are usually disregarded. Although this might sound like a sensible and time-saving strategy, the unfortunate other side to it is that slowly but surely, the scientific literature is getting devoid of its literary element. This is a pernicious process, because it leads authors (and their translators) to think that what they are producing is not literature but merely accounts of the methods used and the results achieved that, if "clear enough", are good enough. This attitude is all too common in Russia and presumably in other parts of the world as well. Is it not why the quality of international scholarly prose is going steadily downward?

One small example is the present participle *using*, which commonly appears in a "dangling" position in scientific articles but, as a rule, is left uncorrected if no ambiguity ensues. Consider this typical Method sentence: "Residual activity was measured *using* the standard assay". This sentence can be improved to read: "Residual activity was measured *by using* the standard assay" or, preferably, just "... *by* the standard assay". The reason is evident: because *using* is logically attached to the doer of the action (ie who measured the activity) and that doer is not named in the sentence, the participle becomes misrelated, or "dangling". But judging from the research literature, many editors would find this sentence correct as written. What is more, authors' attempts to get around dangling *usings* by insertion of *by* ("... measured *by using* ..."), as recommended by some editors,<sup>1,2</sup> are sometimes negated by those editors who believe that there is no problem. The *bys* get crossed out and the danglers get restored in article page proofs, much to the authors' bewilderment. I once had to defend my point in a response to a journal's language corrector who had stated that the example I had cited to illustrate the dangling participle problem ("The samples were analysed using gas chromatography") actually contained no danglers. He or she was clearly guided by sources different from mine.

Indeed, language experts disagree about whether *using* in passive constructions like "was measured using" needs to be corrected. Some of them think it need not be, because it is already well established in the scientific community.<sup>3</sup> As experience suggests, this "descriptive" view is shared by the majority of authors and editors, especially as a dangling *using* seldom leads to miscommunication. We can easily guess who did the assay for residual activity in the example above. Even with a sentence such as "Peroxidases catalyze the oxidation of various organic compounds using hydrogen peroxide as the ultimate electron acceptor", the target audience will know that it is peroxidases, not the oxidized compounds, that use hydrogen peroxide.

"Prescriptivists", on the other hand, advise correction of the dangling *using*, arguing that it is "dull" and overused,<sup>4</sup> can be "distracting",<sup>5</sup> can introduce "unnecessary complication" into a sentence,<sup>6</sup> and can make it harder for the readers to understand the writer's message.<sup>7</sup> And I think that they have a point.

The dangling *using* is a grammatical defect that, surprisingly, has come to be recognised as a convention of scientific writing. It probably can save readers a second of time as they move to the information about what was used (the methods etc), but that is all there is to justify its near-omnipresent use. Yet, although it can often be fixed at a stroke, editors allow it to dangle and some even insist it should dangle. This seemingly tiny language matter raises broader questions: how much freedom should authors and editors enjoy in tailoring the language to their needs? How much respect do they have for the genre of scientific writing? Ultimately, is scientific literature indeed literature?

We no longer live in a time when a scientific report could also boast literary excellence. But would it not be a good thing if such excellence were sought today – if only out of esteem for the language once spoken by Isaac Newton, Charles Darwin, Michael Faraday, and many other geniuses who made invaluable contributions to science? And if language editors' role went beyond simply clearing up manifest ambiguities, would we not be blessed with real scientific literature instead of what we have now?

Literary writing and scientific writing are "two big differences", as they say in the Ukrainian city of Odessa (ie very different). But I often think that the similarities between the two are no less prominent. For one, both genres of writing require close attention to grammar, usage, and style. Would a dangling *using* be permissible in a novel or poem? If not, why should we tolerate it in a scientific paper?

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