Letter to the Editor: On Reviews and Papers on New Methods

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Briefings in Bioinformatics is a high-impact journal, much appreciated by a wide audience ranging from (computational) biologists to statisticians and computer scientists. Its focus on reviews and tutorials has certainly much contributed to its popularity in a broad field characterized by a confusing profusion of new methods published in an increasing number of journals. The scope of the journal encompasses diverse biological topics as stated on the journal Web site and the state-of-the-art methods from statistics, mathematics and computer sciences necessary to address them. In this increasingly complex field reviews and tutorials are of extreme importance for scientists to stay in the loop also outside their specific area of expertise and for researchers and students starting to work on a new topic.

As a high-impact journal with a broad audience, Briefings in Bioinformatics is attractive to authors. In my view, a problem is that some of them try—and sometimes manage— to have their work published in the journal even when it is an article introducing a new method rather than a review. More or less discreet tricks may be necessary to make the paper appear to be a review, for instance, avoiding words like ‘new’ and ‘novel’ (which are otherwise widely used), including an unusually long literature overview in a preliminary section, and presenting the illustration section as a ‘comparison study’, to cite only a few examples. We claim that an article suggesting a new method is however never a proper review and should not be published in a journal specialized in such. For authors, it is advantageous to have their new method published in a journal devoted to reviews because readers may feel that the promotion of the method is the result of an exhaustive comparison or consensus, and that the method is part of foundational knowledge everyone should have as part of their toolkit. This misunderstanding may in practice boost the popularity of the new method. But we claim that this is unfair to readers and detrimental to scientific progress. Unfortunately, such misunderstandings are likely, since briefing papers target semi-experts who may not be able to recognize whether a method is new.

This debate raises the question of what makes a good review. Among other qualities, a good review should ideally be reasonably neutral, i.e. not strongly reflect the personal—subjective—preferences of the authors. This is not completely achievable, since authors are humans with their own experiences, but neutrality should be considered an ultimate goal. An important aspect of neutrality is that within the defined area, the weight of each reviewed bioinformatics approach should depend on aspects such as, for example, its performance as assessed in literature (or in a comparison study presented as part of the review), theoretical soundness, generalizability, frequency of use in the literature, historical considerations, availability of user-friendly implementations and so on, but not on the interests or publication records of the authors, see for instance Rule 9 of the ‘Ten Simple Rules for Writing a Literature Review’ [1]. A review which is not neutral may in some cases give readers a distorted picture of the state of the art, for instance, by giving them the impression that one of the approaches is ‘standard’ or more widely used than others, without this being the case. The criteria for including/excluding approaches in/from the review and determining their respective weights ideally should be transparent.

Of course, the goal of an ideal neutral review is not attainable in practice. Authors will always have favorite methods based on subjective criteria, they will always be better able to describe methods they are familiar with than those they have never investigated in their own research (which is especially important for tutorial articles) and the choice of the specific topic of the review might itself be the result of a subjective decision. All these aspects will affect the weight of the approaches and the overall message propagated by their review, and possibly favor methods previously developed by the review’s authors. This is unavoidable, and by the way a reason why it may be interesting to read several reviews from different authors on the same or similar topics and why reviews written by teams are particularly valuable. An attainable minimum requirement

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Received: 11 November 2014, Received (in revised form): 1 December 2014

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Briefings in Bioinformatics, 2015, 365–366

doi: 10.1093/bib/bbu051

Advance Access Publication Date: 10 March 2015

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for reviews, however, is that they should not suggest a new method, even—or especially—if the novel character of the considered method is masked by crude tricks. A paper suggesting a new method should include an overview of existing methods, but it cannot be considered a review because its goal—convincing readers of the usefulness of the new method—is inherently different from the goal of a review. Such a paper cannot be neutral in the sense described above. Further, authors of such papers can in all likelihood not devote as much time and attention to the overview of existing methods as required of a good review because they are focusing on the development of the new method [2]. Note, however, that integrative reviews might in some cases provide new insights and lead to novel hypotheses and priorities for further research/development. This is not in contradiction with our argument that a paper cannot both promote a new method and provide a neutral review.

I personally believe that Briefings in Bioinformatics should remain faithful to its original aim of publishing only reviews or related. Although there are many journals requiring innovation as one of the main criteria for publication, there are not many explicitly welcoming reviews: in this regard Briefings in Bioinformatics remains distinct, and retains greater value. Finally, as stated, papers which appear to be reviews but actually promote a new method may mislead the readers. That is why I think that, if the editorial board decides to take the opposite strategy and to officially allow papers on new methods, these papers should be explicitly labeled as such and not disguised as reviews.

**Key Points**

- The strength and originality of Briefings in Bioinformatics is that it is devoted to reviews. Good reviews are extremely important in scientific research.
- A good review should be reasonably 'neutral'.
- Such neutrality cannot be achieved within a paper introducing a new method.
- Papers on new methods published in journals devoted to reviews are misleading for readers and give them a distorted picture of the state of the art.

**Acknowledgments**

The author thanks Rory Wilson and the reviewers for helpful comments.

**References**