



# LETTERS TO THE EDITOR

## A Tale of Duality

The phenomenon of harsh reviewing has often been denounced in the mathematical community. In a letter, the mathematician and computer scientist Moshe Vardi [3], then editor-in-chief of the *Communications of the ACM*, coined the term *hypercriticality* to call our collective attention to the issue of harsh reviewing. Vardi offers two explanations for this harshness, witnessed many times as editor-in-chief but also supported by data according to him. The first explanation relates to the intrinsic rigor of the scientific endeavor and in his own mathematical field to the intrinsic rigor of computer systems. The mathematician William Thurston would certainly agree. He wrote “Mathematics as we practice it is much more formally complete and precise than other sciences, but it is much less formally complete and precise for its content than computer programs” [2]. Nonetheless, with or without computers, mathematics is well known for its standards of rigor and for its demanding journal reviewers who have to judge not only the formal correctness but also the novelty of mathematical results. Vardi’s second explanation mentions rejection as a default mode, alluding to acceptance rates that incentivize reviewers to “pounce on every weakness, finding justification for a decision that, in some sense, has already been made” [3].

I will not dispute the phenomenon of harsh reviewing, I shall simply address the other side of the coin and what is at stake. As the saying goes, the road to hell is paved with good intentions. If unfair, or worse malevolent, criticism should be banished, we should keep in mind that hypercriticality is part of the scientific ethos, at least if the prefix *hyper* is understood with respect to more mundane matters. In the age of *publish or perish* we need gatekeepers to avoid journals and grant funding schemes to be flooded with questionable writings. Given that reviewers are put under pressure and loaded with many reviewing tasks, the “three positives for every negative” rule of thumb is unrealistic.

Most importantly, there is a duality at work here that the hackneyed “do unto others as you would have them do to you” or its problematic modern avatar “write a review as if you are writing it to yourself” [3] is missing. Denouncing hypercriticality takes implicitly the authors’ side. What about the readers’ side? Avoiding hypercriticality could become a refuge for hypocriticality. Instead, reviewing

should be an exercise in hyperempathy with potential readers. Complacency with authors would be a disservice to readers, since the less work for an author, the more work for their readers. Following Paul Halmos [1], as a reviewer you should make this maxim yours: Many things that ease the life of an author are as many pebbles for readers to stumble over. Reviewing is a precarious balance, since the interests of the author and of the readers are almost always divergent, at least when these interests are superficially understood. If the reviewer has to choose, they should side with readers, the silent majority.

A final plea. Reviewers, please write reviews as if you were an authentic, self-motivated, and innocent reader. Every review should be an exercise in hyperempathy with readers, who are, after all, on the receiving end in case of publication. Don’t be afraid that your hyperempathy with readers comes across as an hypercriticality against authors. What comes across as hypercriticality from the author’s perspective can simply originate from an hyperempathy siding with the best interests of future readers. Actually, a lack of empathy with readers often drapes itself in the sheep’s clothing of hypocriticality. Be critical, but be fair. Be fair, but be critical. Authors, please do not forget that writing should be an act of hyperempathy in the first place and that your reviewers are your first readers.

—Anthony Bordg  
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## References

- [1] Paul R. Halmos, *How to write mathematics*, Enseign. Math. 16 (1970), no. 2, 123–152.
- [2] William P. Thurston, *On proof and progress in mathematics*, New Directions in the Philosophy of Mathematics (revised ed.), Princeton University Press, 1998, pp. 337–355.
- [3] Moshe Y. Vardi, *Hypercriticality*, Commun. ACM 53 (July 2010), no. 7, 5.

\*We invite readers to submit letters to the editor at [notices-letters@ams.org](mailto:notices-letters@ams.org).

Letter to the Editor

Dear Editor,

I am disappointed in the quality of some of the research survey articles in the *Notices*. Is there a policy about the intended audience? The *Notices* is the primary journal of the AMS for disseminating mathematics news to its entire membership, yet many of these survey articles are incomprehensible to me after a few sentences.

A random example: the first mathematical sentence of the introduction to a recent article is “A flow  $\phi_t: M \rightarrow M$  generated by a (smooth) vector field  $X$  on a closed manifold  $M$  is said to be an *Anosov flow* if there is a continuous  $D\phi_t$ -invariant splitting of the tangent bundle  $TM = E^s \oplus \mathbb{R}X \oplus E^u$  satisfying that there is  $t_0 > 0$  so that for every  $v^\sigma \in E^\sigma$  ( $\sigma = s, u$ ) a unit vector we have that  $\|D\phi_{t_0}v^\sigma\| < 1 < \|D\phi_{t_0}v^u\|$ .” After reading this sentence, I have no idea what is an Anosov flow or why anyone should care about them. Many readers of the *Notices* will not even know the definition of a flow on a manifold.

I think that the *Notices* should be more accessible. The gist of a survey paper should be understandable by someone who has passed a graduate school qualifying exam, as that is the highest level for which it is reasonable to suppose that most readers have in common. A paper could have a more advanced final section or appendix, but all the main points should come before this. Completely rigorous definitions and statements of results may not be possible, but they can still be explained at an appropriate level.

How to insure that this criterion is met? Here is one scheme. There could be a committee consisting of a representative cross-section of AMS members, including say a graduate student, a senior researcher, a teacher at a non-research-oriented college, a nonacademic mathematician, and a retired professor. The committee members can discuss how much of a submitted article they have understood and proceed from there.

The more advanced survey articles in the *Notices* certainly serve a valuable purpose, but the articles should appear elsewhere, perhaps in the *Bulletin* or a new journal of mathematical exposition.

Sincerely,  
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