



Scientific Psychology

Science Versus Easy Accessibility?

By R. Duncan Luce and Ragnar Steingrímsson

Suppose that a pair of closely related manuscripts is submitted to an experimentally-oriented journal *JE-II* in field *F*. The papers report a series of tests of a theory formulated in mathematical terms that appeared in a theoretically-oriented journal *JT*, also in field *F*. Suppose that the response of the action editor is:

"There is no doubt that your manuscripts achieve a very high level of mathematical and technical sophistication, and all of the reviewers acknowledged their rigor and thoroughness. ... Predictably, a major issue for most of the reviewers was the accessibility of the manuscripts to the readership of this journal. I agree with the consensus that few readers would survive the condensed presentations of the theoretical background at the beginnings of the papers. ... I cannot accept these manuscripts for publication in [*JE-II*]. Indeed, I am not even sure whether ... the manuscripts are fixable even with a major revision."

Is it even conceivable that such a letter would be written if *F* were physics? We doubt it: Experimental physicists are expected to understand mathematical theories, even if they themselves do not do theory, and to understand how experiments relate to such theories.

How about if *F* were scientific psychology? That is another matter entirely. The above quote came from the action editor of *JE-II*, which is one of the more prominent journals devoted to experiments in sensory psychology. Evidently, that editor did not think that his readers should be challenged too much, although the theory had appeared in the *Psychological Review*, which was *JT*, in 2002 and 2004.

Is this an isolated matter? Not at all. The first author has encountered it several times in a long career. Moreover, this rejection followed on an earlier submission and ultimate rejection by *JE-I*, another prominent, experimental journal devoted to sensory psychology, for the same types of reasons (discussed below). Burned once, we had asked the editor of *JE-II* in advance of submission if formalism would doom the papers. We were assured not — yet that was, in fact, the major reason for rejection.

Originally, the material in the two manuscripts was contained in one much longer manuscript. In rejecting that manuscript, the *JE-I* editor wrote, among other things, the following:

The reviewer and I feel that this work addresses interesting and important problems in psychophysics, and that many of the experiments make a useful contribution to the literature ... I strongly urge you to divide this work up into several smaller papers. ... One or more of these smaller ... papers might be appropriate for [*JE-I*]. ... [T]he technical level of the current manuscript ... assumes too much expertise on the part of the [*JE-I*] reader and does not go far enough to help the [*JE-I*] reader understand the formalism that underlies the manuscript.

In a word, simultaneously make the papers more "bite sized" and increase their accessibility. Evidently, the editor believes that most *JE-I* readers have short attention spans and cannot understand tests of formally stated theories.

Following this review, we split the original paper into three and submitted two of them to *JE-I*. Both were rejected without review. Apart from noting that some substantive issues had not been addressed to the editor's satisfaction, he wrote:

[The papers] have caused quite a stir around here. ... These papers are still long, and more importantly, they are still quite dense and extremely formal. ... In this respect the papers have not been altered much in their content and style relative to the original. The result is that they still mismatch the more experimental and less mathematical bent of [*JE-I*]'s readership in the same way as did the original. ... It appears to me that the formal component is intrinsic to your approach, and at this point, I don't think you should put more effort into trying to force your work into a style that is not natural to it. That is why I'm returning the papers without review.

The net result: After several years of delay these experimental papers are now in press in the theoretically-oriented *Journal of Mathematical Psychology*, instead of being in an experimentally-oriented journal.

One cannot but wonder if something isn't amiss with a "scientific" field that feels it must coddle the ignorance of its readers about powerful theoretical techniques. Put another way: Should the readers' purported lack of formal skills and short attention spans trump systematic evaluation of a carefully formulated theory?

What kind of a science is one that makes the implicit assumption that its subject matter can be completely illuminated using a simple formalism and, in those cases where it cannot be, apparently would rather forego progress than to abandon the comfort of that assumption?

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