



## Set up a 'self-retraction' system for honest errors

Notices should make obvious whether a withdrawal of research is the result of misconduct or a genuine mistake, says Daniele Fanelli.

Self-correction in science has never been so popular and yet so unrewarded. New technologies and a culture of sharing, transparency and public criticism offer an unprecedented opportunity to purge the scientific record of false claims. But retracting those published claims remains a rare and painful process. There are powerful incentives not to do so, for all involved, from universities and scientists to publishers. Retractions still unwittingly punish all who take part. To get the most from self-correction, we must turn blame into praise.

Retractions are a recent tool. The first retraction note recorded in databases was written in 1966 by the authors of a paper on nuclear RNA synthesis. It was an excellent start, but up until ten years ago, retractions were extremely rare, and less than one-fifth of journals had a retraction policy. Today, that proportion has tripled, and retractions are nearing 600 per year.

However, retractions reliably ascribed to honest error account for less than 20% of the total, and are often a source of dispute among authors and a legal headache for journal editors. The recalcitrance of scientists asked to retract work is not surprising. Even when they are honest and proactive, they have much to lose: a paper, their time and perhaps their reputation.

Much reluctance to retract errors would be avoided if we could easily distinguish between 'good' and 'bad' retractions. In our research on misconduct, my colleagues and I informally use terms such as 'honest retraction'. However, these carry a judgement inappropriate for formal notices. Using a more neutral term such as 'withdrawal' could solve that, but it is probably too late to impose a new word on the scientific system.

A more realistic solution is to mimic the way in which bibliometrics researchers use the term self-citation. Superficially, citations all look the same, and are classified as such in databases. However, citations that authors direct at their own work are a self-evident subcategory, which is easily and objectively marked out in any analysis. We can do the same with retractions.

Simply, we should define a self-retraction as any retraction notice that is signed by all co-authors. This is a natural category, which academics, administrators, policymakers and journalists could use unambiguously. Already, retractions resulting from honest error are typically signed by all authors (and most journals require this to avoid legal disputes). Conversely, authors responsible for misconduct add their names to retraction notes only rarely.

To remove ambiguities, journal policies should allow authors to sign only retractions that the researchers have solicited spontaneously, because of a documentable flaw. In all other cases, retraction notes should not be signed — at least not by

the authors recognized as responsible for misconduct.

As long as retraction notes includes in the title a list of all the original authors, as they often already do, their status will be self-evident. If an adjudication of misconduct is disputed in court, as is increasingly the case, then journals could keep the retraction on hold and issue an ordinary expression of concern until the matter is settled.

Self-retractions should be considered legitimate publications that scientists would treat as evidence of integrity. Self-retractions from prestigious journals would be valued more highly, because they imply that a higher sacrifice was paid for the common good. Scientists who committed misconduct would be unable to benefit. Their co-authors — culpable for unwittingly overlooking a fraud — could display their retractions if they wished, but would be unable to claim them as true self-retractions.

Some may argue that such a policy would prompt dishonest researchers to pre-emptively request a retraction, and thereby earn undue praise while sneakily avoiding a future allegation. This is unlikely to be a real problem. Self-retractions would need to be justified by the authors, who would have to provide evidence of the honesty of the mistake. Even if authors fabricated such evidence to conceal a fraud, they could never get away with self-retracting multiple misdeeds. Signing one or two self-retractions may be a badge of honour, but producing many would raise obvious suspicions and mark an author's work as unreliable. Researchers who repeatedly published and self-retracted would be the object not of praise, but of ridicule.

Thus, in the worst-case scenario, it would be only authors who have falsified one or two papers who might benefit from dishonestly self-retracting. Should that be considered a problem? Scientists who remove their flawed work from the literature are sparing the community wasted research and the costs of misconduct investigations. It is in everybody's interest to encourage them to do so, irrespective of their motivations.

Punishment is a means to an end. If praise and reward yield better results, we should enforce them and wish for nothing more. Our common mission is to keep the literature truthful and reliable, and to accomplish that we should be pragmatic, not moralistic. It would not be unholy to grant a year of 'scientific jubilee', during which journal editors allowed authors to self-retract papers, no questions asked. The literature would be purged, repentant scientists would be rewarded, and those who had sinned, blessed with a second chance, would avoid future temptation. ■

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Daniele Fanelli is senior research scientist at the Meta-Research Innovation Centre at Stanford University, California.  
e-mail: [email@danielefanelli.com](mailto:email@danielefanelli.com)