

Chapter 4

Quality control at zbMATH

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zbMATH is a reviewing and abstracting service, which, according to its own definition, sets out to cover all mathematical publications presenting a “genuinely new point of view.”

Whereas before 2010 almost all periodicals could be assumed to satisfy this criterion, the situation changed with the advent of Open Access platforms, a number of which were dubbed “potential, possible or probable predatory publishers” by J. Beall in his now defunct list. Indeed, in some of the journals falling into this category, papers “proving” the Riemann Hypothesis or Fermat’s Last Theorem in a couple of lines can be found; sadly, they were indexed in Zentralblatt because it tried to be as complete as possible at the time. However, on closer inspection these papers revealed a deeper problem of those journals: improper or missing peer review. Since peer reviewing is an indispensable prerequisite for getting indexed in zbMATH, this was a clear indication to discontinue indexing such periodicals.

But another problem became evident. Every week we receive enquiries from editors of newly founded journals asking us to index their papers. Most of them do not publish nonsense like 3-line proofs (or refutations) of the Riemann Hypothesis, but still most of the papers are at the level of exercises, where the authors reproduce a known proof under a formally less restrictive hypothesis. We do not consider such ε -perturbations of known facts as really new, and after tightening our indexing policy some years ago, leading to the requirement of a “genuinely new point of view,” we decided not to index journals in this quality segment. In the last two years there were more than 100 enquiries concerning indexation, but only 25 were granted, mostly for the reason explained above. (The other class of nonindexable journals are those that carry no, or hardly any mathematics.)

When this policy is implemented properly, readers of zbMATH can reasonably expect that only papers from serious journals are indexed. (Here, serious is meant in a wide sense; there are loads of reasonable journals that certainly do not match *Acta Mathematica*.) Alas, erring is human, and hence a small percentage of published papers contain errors or gaps, sometimes small and sometimes big. The mistakes are often found by the authors themselves, but sometimes by our reviewers, which might or might not lead to a correction or, when the worst comes to the worst, to a retraction. Criticism by reviewers is generally welcome if it is based on facts rather than prejudice and formulated in polite terms. That authors might still not accept the critique is

another matter; a case in point is the alleged solution of one of the Millennium Problems that was proved incorrect in the zbMATH review of the corresponding paper.

Reviewers who find mistakes are sometimes reluctant to point them out in public and seek refuge in asking to publish the abstract instead or not to index the paper altogether. However, we think this does a disservice to the community at large, and we try to convince such reviewers to state the problematic parts matter-of-factly, to the advantage of all readers. Incidentally, publishing the abstract of a paper instead of a review is not an indication of lacking quality, but one of lacking reviewers.

Duplication of papers is another matter of concern. We distinguish between two types of duplications. The first one, considered legitimate, is when an author presents his own paper in a seminar-type volume before the “official” journal version is published. As opposed to this there are those (self-) duplications where authors publish the same paper twice in different journals, naturally without citing the other version. Worse than this are duplications when author A republishes a paper of author B. Though such a behaviour is widely known as plagiarism, we stick to the facts and say that the papers are identical; it is then practically always clear who has copied whom. Again, our reviewers help detect such cases that went unnoticed by antiplagiarism software.

Finally, we also monitor the quality of the reviews themselves. Each review is edited by at least one editor to make sure that the number of typos and language slips remains below a critical barrier. But more importantly, we aim at publishing reviews that convey information which cannot be trivially gleaned from the abstract of the paper. Every week some (however few) reviewers try to make us believe that a submitted text identical to the abstract, just with “we show” replaced by “the authors show” (and sometimes even without this amendment), is an acceptable review that should justifiably carry the signature of the person who submitted it; it is not, and we gently indicate to those reviewers that our review request forms explicitly ask for extensive quotes to be labelled as such.

In conclusion, quality control is a multi-faceted endeavour, from the choice of journals suitable for indexing to the editing of reviews of individual papers.