



## The ‘ $2n - 1$ rule’

The ‘ $2n - 1$  rule’ is an old (and innocent) joke, often told by hard working honest mathematicians, about building a fence between good and bad mathematics. According to this rule,  $n$ -th rate mathematicians feel comfortable only when surrounded by  $(2n - 1)$ -st rate mathematicians, as the latter do not pose a threat to the former. This rule has a fixed point only when  $n = 1$ , suggesting that first-rate mathematicians interact only with other first-rate mathematicians. An alternative version replaces  $(2n - 1)$ -st rate mathematicians by  $k$ -th rate mathematicians for  $k \geq 2n - 1$ . Clearly the  $2n - 1$  rule is a sociological rather than a mathematical rule, and is prone to exceptions.

One exception is that the advisor/supervisor of a first-rate mathematician need not be a first-rate mathematician — he or she may be an average mathematician, blessed by an exceptionally good student. Another exception, even more convincing, can be found in the history of mathematics. Many mathematicians can find big names such as Gauss or Newton among their academic predecessors (with help from the Mathematics Genealogy Project), and in particular, this shows that a first-rate mathematician can end up having an academic descendant who is not a first-rate mathematician himself/herself. And of course the  $2n - 1$  rule would then make it likely that at some value of  $n$  (much) greater than 1, some bad mathematics is bound to happen. A third exception comes in the form of co-authorship. If the  $2n - 1$  rule held without exceptions, then a lot of multi-author papers would be written by first-rate mathematicians only.

We are now seeing a revival of belief in the  $2n - 1$  rule, in the world of mathematical publishing. Most papers in  $n$ -th rate journals are cited in  $(2n - 1)$ -th rate journals. This is supported by the aggressive growth of new mathematical journals, many of them published by predatory publishers, and feeding on the APC ‘Open Access’ publishing policy. It seems there are now too many mathematical journals, and too much mathematics is being published these days.

If taken *cum grano salis* (that is, with a grain of salt), the  $2n - 1$  rule is an amusing observation about quality in mathematics. Most mathematicians silently agree who are the first-rate mathematicians, and which journals are indeed first-rate journals. A problem can arise in isolated environments, however, when a few individuals declare themselves as first-rate mathematicians, and then by following the  $2n - 1$  rule, abuse their power. This is the main reason for not trusting blindly the  $2n - 1$  rule.

In our journal we do not believe in this kind of ranking. There is good mathematics and bad mathematics, and there are good journals and bad journals. And we are very happy that *Ars Mathematica Contemporanea* is a good journal, publishing good mathematics.

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