

1146-05-142

**Yukun Yao\*** (yao@math.rutgers.edu), 110 Frelinghuysen Rd, Piscataway, NJ 08854, and **Doron Zeilberger** (doronzeil@gmail.com). *Untying the Gordian Knot via Experimental Mathematics*.

In this *methodological* article on experimental-yet-rigorous enumerative combinatorics, we use two instructive *case studies*, to show that often, just like Alexander the Great before us, the simple, “cheating” solution to a hard problem is the best. So before you spend days (and possibly years) trying to answer a mathematical question by analyzing and trying to ‘understand’ its structure, let your computer generate enough data, and then let it guess the answer. Often its guess can be proved by a quick ‘hand-waving’ (yet fully rigorous) ‘meta-argument’. (Received January 17, 2019)