SMT Nonlinear Real Arithmetic and Computer Algebra: a Dialogue of the Deaf?

James Davenport
University of Bath

At a deep level, the problems which SMT's Nonlinear Real Arithmetic (NRA) and Computer Algebra's Cylindrical Algebraic Decomposition (CAD) wish to solve are the same: nevertheless the approaches are completely different, and are described in different languages. We give an NRA/CAD dictionary, explain the CAD process as it is traditionally presented (and some variants), then ask how NRA and CAD might have a more fruitful dialogue.