

Applied Effective Quantifier Elimination

Effective quantifier elimination procedures for first-order theories provide a powerful tool for generically solving a wide range of problems based on logical specifications. In contrast to general first-order provers, quantifier elimination procedures are based on a fixed set of admissible logical symbols with an implicitly fixed semantics. This admits to make use of subalgorithms from symbolic computation. The talk gives an overview of several theories that admit quantifier elimination and for which there are implementations available in our open-source software Redlog. The focus is on real quantifier elimination and its applications and on recent research on quantifier elimination for the integers. We are also going to briefly consider the linear theory of the rationals with p -adic valuations.