SMT Techniques and Solvers in Automated Termination Analysis

Carsten Fuhs

Birkbeck, University of London

Termination is the property of a program that regardless of the input, execution of the program will always come to a halt eventually. Although this property is undecidable, since the early 2000s fully automated techniques and tools for termination analysis have flourished in several communities: term rewriting, imperative programs, functional programs, logic programs, . . .

A common theme behind most of these tools is the use of constraint-based techniques to advance the proof of (non-)termination. Recently, in particular SAT and SMT solvers are used as back-ends to automate these techniques. In my talk, I will give an overview of automated termination analysis from an SMT solving perspective.