The SAT Solver KW – 2010 version

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Introduction

KW is a logic reasoning machinery. It includes a satisfiability solver (which is also called KW) described in [1], [2]. It also includes an SMT solver, native support for more elaborate constraints than clauses, a bounded model checker etc. The aim when creating it has been to build a flexible framework that can easily be extended in several directions. Therefore, the architecture is extremely modular and it is easy to create new logic reasoning components.

The SAT solver KW is based upon a number of strategies together with a strategy selection mechanism that time-slices different strategies to simplify and solve the problem instances. KW supports solving incremental SAT problems, circuit-based SAT problems and proof generation.

KW is written in C++, Scheme and Python. The version of KW entering the SAT competition 2010 was submitted as a 64 bit binary.

Changes versus the SAT competition 2009 version

Although KW the machinery has been actively developed during 2009, KW the SAT solver is more or less the same solver participating in the SAT competition 2009. Except for some maintenance changes, there are only two things different from the 2009 version.

- A fix in the elimination strategy where KW sometimes eliminated too many variables.
- Somewhat improved memory usage.

References

[1] Johan Alfredsson – The SAT Solver KW, in *The SAT race 2008: Solver descriptions, 2008*

[2] Johan Alfredsson – The SAT Solver KW – 2009 version, in *SAT 2009 competitive events booklet, 2009*