MathSAT5 (Nonlinear)
at the SMT Competition 2019

Ahmed Irfan[1], Alessandro Cimatti[2],
Alberto Griggio[2], Roberto Sebastiani[3]

[1] Stanford University, USA
[2] Fondazione Bruno Kessler, Italy
[3] University of Trento, Italy

– SMT Competition 2019, Lisbon, Portugal –

MathSAT5 (Nonlinear)

MathSAT5, a DPLL(T) solver

- supports most SMT-LIB theories + functionalities (e.g unsat cores, interpolation, ALLSMT)
- supports nonlinear arithmetic on reals & integers + transcendental functions (sin(), exp())
  - based on incremental linearization: abstraction/refinement to SMT(QF_UFLA)
    - multiplication, sin() and exp() modeled by uninterpreted functions
    - incrementally axiomatized on demand by linear constraints

Participation and Configurations

- Categories:
  - Single query track: QF_ANIA, QF_AUFNIA, QF_NIA, QF_NIRA, QF_NRA, QF_UFNIA, QF_UFNRA.
  - Incremental track: QF_ANIA, QF_AUFBVNIA, QF_NIA, QF_UFNIA.
  - Unsat Core track: QF_ANIA, QF_AUFNIA, QF_NIA, QF_NIRA, QF_NRA, QF_UFNIA, QF_UFNRA.
- Submitted versions:
  - MathSAT default: public release version 5.5.4 +minor fixes, ≈ as described in our SAT'18 paper
  - MathSAT-na-ext: MathSAT default
    - + use of lazier strategy for the instantiation of linearization lemmas;
    - + try to minimize the Boolean assignment that are given to theory solvers;
    - + use bi-implication tangent lemmas;
    - + linearization lemmas learnt only temporarily

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