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A proof builder for Max-SAT.  (English)  [Zbl 07495593]

Summary: Complete Max-SAT solvers are able to return the optimal value of an input instance but they do not provide any certificate of its validity. In this paper, we introduce for the first time a Max-SAT proof builder, called MS-Builder, which generates Max-SAT proofs under the particular form of a sequence of Max-SAT equivalence-preserving transformations. To generate a Max-SAT proof, MS-Builder iteratively calls a SAT oracle to get a SAT refutation which is handled and adapted into a sound refutation for Max-SAT. We also propose an extendable tool, called MS-Checker, able to verify the validity of any proof using Max-SAT inference rules.

For the entire collection see [Zbl 1482.68030].

MSC:

68Q25 Analysis of algorithms and problem complexity
68R07 Computational aspects of satisfiability
68T20 Problem solving in the context of artificial intelligence (heuristics, search strategies, etc.)

Keywords:
max-SAT; proof; max-SAT resolution

Software:
PicoSAT; MaxHS; BooleForce; RC2; Open-WBO

Full Text: DOI HAL

References:
