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*The First Logmatic SAT Solver*

SAT is an important but NP-complete problem. Most SAT solvers are based on Davis-Putnam-Logemann-Loveland (DPLL) algorithm which is a blind branch and backtrack technique that explores the search space exhaustively until a solution is found, resulting in an excessive time complexity. Some enhancement was made possible by equipping the DPLL algorithm with pruning techniques such as backjumping, conflict-driven lemma learning, and restarts. However, the major drawback of having blind control over the search area remains. In contrast, the Logmatic approach combines techniques from logic and math, enabling one of scanning the search tree and detecting efficiently the branches that possibly contain solutions. Thus it suffices to consider only these branches rather than the entire search tree, reducing considerably the amount of calculation time. Comparing the Logmatic solver with Riss (one of the best SAT solvers), significant improvements were reported for all the tested instances of SAT problem.