

OR-Tools SAT Solver

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Abstract

This document is a small description of the or-tools SAT solver submitted to the SAT-Race 2015.

OR-Tools

The or-tools package is the open source version of the combinatorial optimization library developed at Google by the operations research team. It includes a lot more than a SAT solver. The code and main documentation can be respectively found at:

- <https://github.com/google/or-tools>
- <https://developers.google.com/optimization/>

SAT solver

The SAT solver included in or-tools uses most of the techniques present in a state of the art solver. It was largely inspired by minisat, glucose and other entries in the previous SAT competitions like SWDiA5BY. However, the code was written from scratch using Google standards and code style. We also uses slightly different data structures. For instance, the binary clauses are treated in a completely separate way, or the clause activities are not stored within the clause main data.

The solver is actually more than a basic SAT solver as it natively supports 0-1 linear constraints and its main usage is through our 0-1 integer programming solver BOP. Quite a bit of effort went into supporting this efficiently. The code is well documented, so most of the solver details can be found there.

Acknowledgement

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