

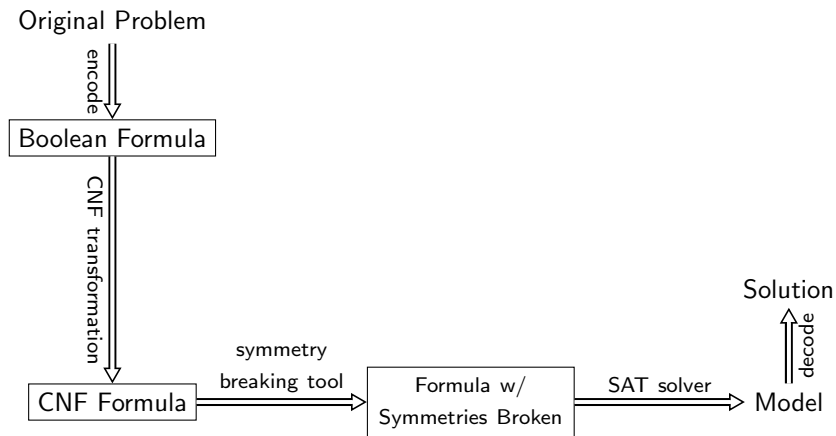
A Formally Verified Symmetry Breaking Tool for SAT

David E. Narváez
den9562@rit.edu

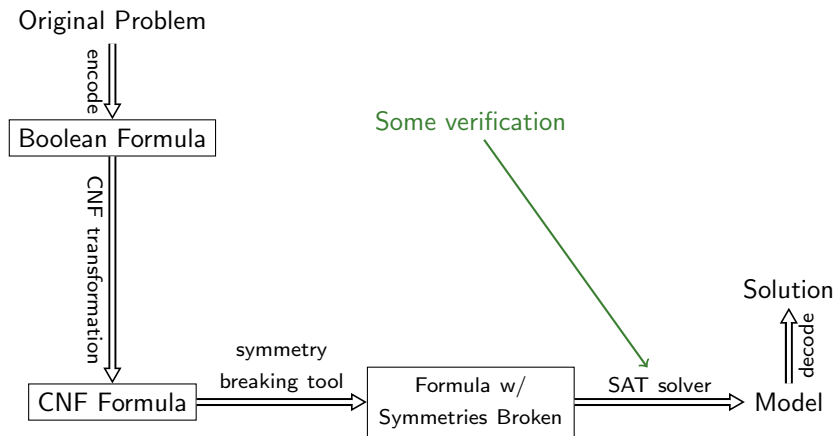
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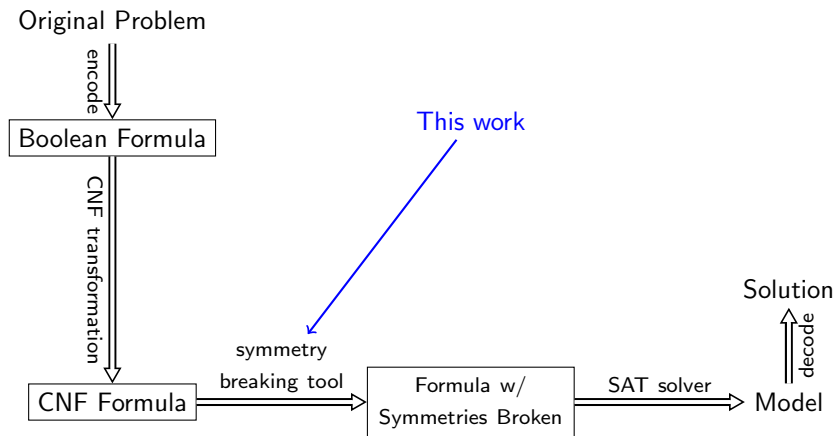
Typical SAT Encoding Workflow



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Goal of the Program

Obtain a verified executable for symmetry breaking of CNF SAT formulas based on an idea by Crawford.

Motivation

- Practically relevant.
 - Formalized version of popular symmetry breaking tools like Shatter and BreakID.
- Unlike other tools that do mere Boolean formula manipulations, this also involves graphs.
- Beyond SAT (also used in ASP).

Formalization in PVS

An initial attempt to formalize Crawford's symmetry breaking is available at https://cs.rit.edu/~den9562/symmetry_breaking/