Encoding the Crowded Chessboard Puzzle in SAT, SMT, CLP and B

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Abstract.

Constraint solving technology for formal models has made considerable progress in the last years, and has lead to many applications such as animation of high-level specifications, test case generation, or symbolic model checking. In this article we evaluate the idea to use formal models themselves to express constraint satisfaction problems and to embed formal models as executable artefacts at runtime. In particular, we study an old mathematical puzzle, the crowded chessboard and investigate various high-level and low-level encodings and solutions, covering SAT, SMT and CLP-based solutions.