AI Guided Design of Sokoban Puzzles based on Automated Planning

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Abstract. Designing interesting and challenging levels for a puzzle game is a very difficult and time consuming task. It is often possible to develop random puzzle generators that can produce solvable levels. However, in order to obtain appealing levels, usually a human designer needs to be involved. In this paper we propose a new generic method for assisting human designers to create solvable levels for a puzzle game by using Automated Planning. We will demonstrate our method on the well-known Japanese puzzle game Sokoban.

Keywords: First keyword · Second keyword · Another keyword.

1 Introduction

2 Preliminaries

TODO definition of sokoban
TODO definition of automated planning

3 Related Work

TODO other sokoban level generators

4 Puzzle Generation as Planning

4.1 Sokoban Solving as Planning

4.2 Level Creation as Planning

4.3 Dealing with Trivial Levels

The planner tries to find short plans, it will try to place boxes next to goals
solution: minimal number of pushes

Dealing with Cyclic Pushes

5 Experimental Evaluation

how does it scale?
what is the largest level we can create?

6 Conclusion

6.1 Future Work