

Planing report

Lars Niclas Jonsson - nicjo134

today

1 Author

Lars Niclas Jonsson

2 Temporary title

Implementation and testing of an fpt algorithm for computing the h+ heuristic

3 Problem definition

3.1 Problem

Bäckström [1] describe an ftp-algorithm which compute h^+ , i.e. the optimized heuristic function for relaxed planning.

In this thesis, we will implement and run Christens algorithm in the planner “Fast Downward”[3] and test how “good” the algorithm performs compared to another heuristic’s algorithm.

How “good” the performance is depends on its running time compared to the other heuristic functions running time and how many nodes it visits. The most important factor is the running time but since the performance depends on how optimally the algorithm has been implemented and because of the fact that the h^+ heuristic is considered to be a very good heuristic, the actual search time could take less time.

3.2 Expected result

I expect to have two running times for each instance, one for my implementation and one fordfölkdfsjkldsfjkldfsklndsf

4 Approach

Bäckström algorithm will be implemented in the planning system Fast Downward(FD). A heuristic function that is in FD by default will be used to compare the running speed.

The input to the planner is a planning instance written in PDDL. Instances that has been used in the planning competition IPC will be used as input in this thesis.

5 Literature

[1] is the background for this thesis.. [2] describe an algorithm which can find a tree-decompositions in linear time. This is needed for implementing the main algorithm. Helmers paper [3] will be used to learn about the planning system Fast Downward.

References

- [1] C Bäckström. Parameterising the Complexity of Planning by the Number of Paths in the Domain-transition Graphs. *Proc. 21st European Conf. Artif. Intell.(ECAI-14)*, ..., 2014.
- [2] HL Bodlaender. A linear time algorithm for finding tree-decompositions of small treewidth. *Proceedings of the twenty-fifth annual ACM symposium ...*, 1993.
- [3] M Helmert. The Fast Downward Planning System. *J. Artif. Intell. Res.(JAIR)*, 2006.