

# General Game Playing

Prof. Michael Thielscher and Stephan Schiffel

International Masters Programme in Computational Logic — winter term 2008/09

15.12.2008

---

## Exercise 5.1

Implement the following game independent heuristics:

- **Mobility:** A state is the better the more options your player has and the less options your opponents have. The rationale is, that you are controlling the game if your opponents don't have a choice. When implementing this make sure that the heuristic value doesn't oscillate wildly in alternating moves games.
- **Novelty:** A state is the better the more it differs from its parent or ancestors. Especially in puzzles the goal state typically differs a lot from the initial state.
- **Inverse Mobility:** A state is the better the less options your player has and the more options your opponents have. The rationale is, that it is easier to decide if you don't have too many options (it decreases the size of the game tree).

For each of the heuristics find a game where your player plays better (i.e., solves the game faster or wins more often) with the heuristics than without. And conversely try to find a game where the heuristics does not help or even hurts. Try to explain the behavior.

## Exercise 5.2

Use a combination of the above heuristics and/or some additional ones in your player such that it works as good as possible in many games.