

SEMANTIC ABUSE

General Game Playing
TU Dresden
Winter term 2009/2010

OUTLINE

- Technical aspects
- Search techniques
- Heuristics

TECHNICAL ASPECTS

- Based on Java BasicPlayer
- Using PrologProver/ECLiPSe
- Division into MainStrategy, OnePlayerSearch, TwoPlayerStrategy, MultiPlayerStrategy
- Division into alternating/simultaneous moves

SEARCH TECHNIQUES

- Heuristic driven Depth-First-Search in OnePlayerSearch
- Iterative Deepening everywhere else
- TwoPlayerStrategy uses standard minimax with alpha-beta-pruning for alternating moves, SimplexSolver for simultaneous
- MultiPlayerStrategy uses max-score-pruning for turn-taking games, average scoring for simultaneous moves

HEURISTICS

- Main technique: Monte-Carlo-Tree-Search, used in all games
- A simplified goal-distance with step-counter recognition in OnePlayerSearch (right now only capable of using quite simple positive and negative goal rules) used for reordering the moves for the depth-first-search and to evaluate intermediate nodes
- A simple method remembering “good” states and comparing the current state to it in MultiPlayerStrategy