Introduction - Quiz

PAH (Planning and Games)

Michal Štolba
michal.stolba@agents.fel.cvut.cz

What algorithms for uninformed state space search do you know?

What algorithms for uninformed state space search do you know?

- Dijkstra
- BFS
- DFS
- Iterative Deepening DFS
- …

What algorithms for local state space search do you know?

What algorithms for local state space search do you know?

- Hill Climbing (HC)
- Enforced Hill Climbing (EHC)
- Simulated Annealing
- Genetic Algorithms
- Tabu/Beam/... Search
- ...

What algorithms for informed state space search do you know?

- A*
- Weighted, ID, … A*
- Greedy Best First Search (GBFS)
- ...

What is an optimal/perfect heuristic h^* ?

What is an optimal/perfect heuristic h^* ?

- Maps each state to the length of a shortest path to any goal state.

What is an *admissible* heuristic *h* ?

What is an *admissible* heuristic *h* ?

- For each state s: $h(s) \leq h^*(s)$
- *What is it important for?*

What is a *safe* heuristic *h* ?

What is a *safe* heuristic *h* ?

- If for a state s $h(s) = \infty$ *then also* $h^*(s) = \infty$
- *What does it mean?*

What is a *goal-aware* heuristic *h* ?

What is a *goal-aware* heuristic *h* ?

- If for a state s *h*(s) = 0 then also h(s) = 0*
- *What does it mean?*

And a *consistent (monotonic)* heuristic *h ?*

And a *consistent (monotonic)* heuristic *h* ?

- If $h(s) \leq h(s') + c$, where s' is a successor of s via an operator of cost c.
- *What does it mean?*
- *What is it good for?*

Which of the following statements hold ?

- *goal-aware & safe → admissible*
- *goal-aware & consistent → admissible*
- *safe & consistent → admissible*

Which of the following statements hold ?

- *goal-aware & safe → admissible*
- *goal-aware & consistent → admissible*
- *safe & consistent → admissible*