

Exam 11/01/2013

Given two admissible heuristic functions h_1 and h_2 for a problem, neither one dominating the other one :

- 1 How a new heuristic function h_3 can be constructed from h_1 and h_2 that is still admissible and dominates both of them?
- 2 Why h_3 is to be preferred over h_1 and h_2 ?

Dominance: a heuristic function $h_1(n)$ dominate another $h_2(n)$ if

$$\forall n : h_1(n) \geq h_2(n)$$

this lead to the property:

the number of nodes expanded by A^* with a dominant h is always less

$$1 \quad h_3(n) = \max \{ h_1(n), h_2(n) \} \quad \forall n \in N$$

- 2 h_3 is preferable over h_1 and h_2 because dominating heuristics are more discriminating, hence they guide the search towards the goal state faster