Quiz 8

CSCE 580

March 30, 2017

Consider the state-space search problem in the figure below (Source: S. Edelkamp and S. Schroedl. *Heuristic Search: Theory and Applications*. Morgan-Kaufmann, 2012.), where heuristic estimates (the *h* function) are shown in parenthesis for each node, the start node is *a*, and the goal node is *g*.



Does Heuristic Depth-First Search use *h*?

**Answer**: yes.

Run Heuristic Depth-First Search with multiple-path pruning by hand by filling out the table below. Break ties in the order up, left, right, and then down.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Step | Selection | OPEN | CLOSED |  |
| 1 | {} | [a] | {} |  |
| 2 | *a* |  |  |  |
| 3 |  |  |  | Since the goal node *g* is generated, DFS stops |

**Answer**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Step | Selection | OPEN | CLOSED |  |
| 1 | {} | [a] | {} |  |
| 2 | *a* | [*d,c,b*] | {*a*} |  |
| 3 | *d* | [*g, c,b*] | {*a,d*} | Since the goal node *g* is generated, DFS stops |