Informed Search

More Search Algorithms

Algorithm	Fringe	Complete?	Optimal?
A* search	Priority queue, sorted by estimated cost so far and heuristic	Yes, if positive edge costs	Tree search: admissible heuristic Graph search: consistent heuristic
Iterative deepening	Stack, like DFS	Yes, like BFS	No, like BFS

Heuristic Definitions

- **Admissible:** For any node X,
  $0 \leq h(X) \leq cost(X)$
- **Consistent:** For a node A and its descendant B,
  $h(A) - h(B) \leq cost(A, B)$, or
  $h(A) \leq cost(A, B) + h(B)$
- **Dominance:**
  h_1 is dominant over h_2 if $h_1(X) \geq h_2(X)$ for every node X