

Generic search algorithm

Wednesday, August 31, 2016 9:02 AM

$$kops \leftarrow \{ \dots \}$$
Generic Search Algorithm

$$closed \leftarrow nil \quad \leftarrow \text{every state visited in the past}$$

$$open \leftarrow \{ \text{initial-state} \} \quad \leftarrow \text{all the states that I know but not visited}$$

$$*current \leftarrow \text{initial-state} \quad \text{"visit"}$$

$$\text{WHILE (NOT isgoal(current) AND open} \neq \text{NIL) DO:}$$

$$closed \leftarrow closed + \{ \text{current} \} \quad \text{visit}$$

$$open \leftarrow open - \{ \text{current} \} \cup \text{successors}(\text{current, ops}) - closed$$

$$current \leftarrow \text{first}(open)$$

$$\text{END WHILE}$$

$$\text{IF isgoal(current) THEN report success!}$$

$$\text{ELSE report failure}$$

breadth-first \leftarrow push to back
 Depth-first \leftarrow push to front
 A* \leftarrow priority queue

$$ops \leftarrow \{ \dots \}$$
Generic Search Algorithm

$$closed \leftarrow nil$$

$$open \leftarrow \{ \text{initial-state} \} \quad \text{states we've visited - successors generated}$$

$$current \leftarrow \text{initial-state} \quad \text{states we know, haven't visited, haven't generated successors}$$

$$\text{WHILE (NOT isgoal(current) AND open} \neq \text{NIL) DO:}$$

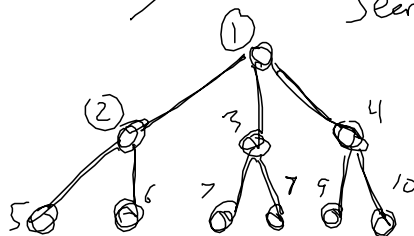
$\text{closed} \leftarrow \text{closed} + \{\text{current}\}$ visit
 $\text{open} \leftarrow \text{open} - \{\text{current}\} \oplus (\text{successors}(\text{current}, \text{ops}) - \text{closed})$ no dupes.
 $\text{current} \leftarrow \text{first}(\text{open})$

END WHILE

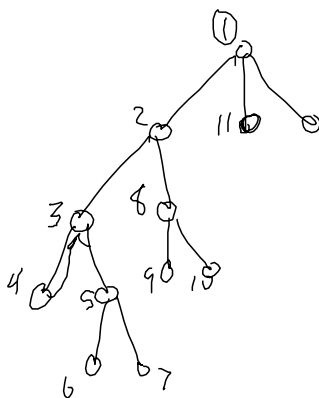
IF isgoal(current) THEN report success! walk back up tree, collect actions & return action list

ELSE report failure

Append to the end of open
open list \rightarrow queue \rightarrow Breadth First Search



Append to the front of open
open list \rightarrow stack \rightarrow Depth First Search



Insert sort
open list \rightarrow priority queue \rightarrow Informed Search

- Best-First
- A*