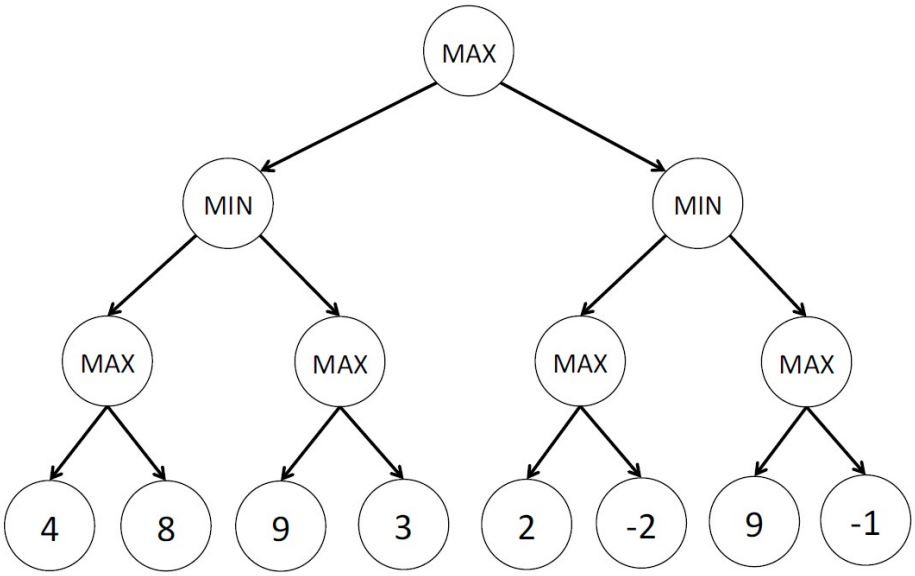
Cs310 - Tutorial - Week 5

Consider the following Game Tree:



This is a game tree for a very simple 2-player board game.

a) Apply the minimax algorithm to this game tree. The values estimated by the board evaluator are indicated inside the leaf nodes. Write the estimated values of the intermediate nodes next to their circles, and indicate the correct move for MAX by circling one of the root's outgoing arcs.

b) What is alpha-beta pruning? What value does it have in the context of game tree search?

c) Apply minimax with alpha beta pruning to the game tree, showing the values of alpha and beta at each node in the tree.

d) Would you consider this artificial intelligence? What are its potential applications?

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e) Given the following search space below, perform Greedy Best First Search starting from node S to find a path from the node to a goal state, ie., a state whose label starts with G.

(f) Repeat the same search with A* Search

If the agenda has any ties between nodes, i.e. unsure of which selection, then priority should be given to higher in the alphabet. So J has a higher priority than G, and G is higher than B. The numbers on the nodes represent heuristic values.