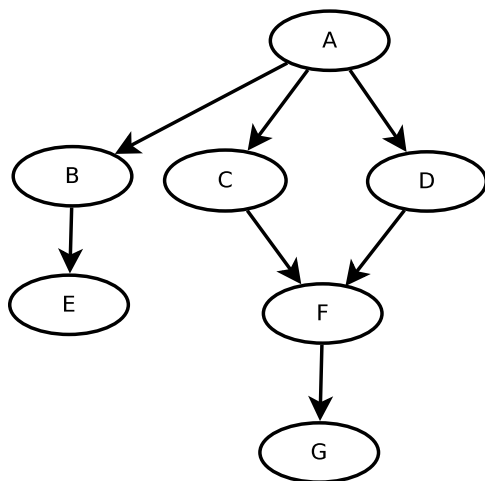


CS444 Search Exercise

The questions below refer to the following state transition graph:



For each question assume that A is the start state, E is the goal state, and each action has a cost of 1.

1. Is DFS-based TREE-SEARCH complete for this problem. (Is it guaranteed to find a path to the goal?)
2. In what order are states added to the frontier during a DFS-based TREE-SEARCH of this graph? (Assume that when a node is expanded, its children are added to the frontier in alphabetical order.)
3. In what order are states added to the frontier during a BFS-based TREE-SEARCH of this graph? (Don't forget that tree search checks states to see if they are goals when they are REMOVED from the frontier. The search does not stop when a goal state is added to the frontier.)
4. It turns out that both searches considered above find the optimal solution to this problem. Modify the graph to create a new problem that causes DFS to find a non-optimal solution. Will BFS find the optimal solution for this new problem?
5. In what order are states added to the frontier during an Iterative-Deepening search of this graph, assuming that G is the goal state?