

COSC 370 Exam Review #2  
Spring 2011

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- 1.) Without relying on pseudocode (or any other code snippets), describe the minimax approach to adversarial search.
- 2.) In pseudocode, describe alpha-beta pruning.
- 3.) What alterations would need to be made to the minimax approach if we introduce an element of chance (coin flip, die roll, etc.)?
- 4.) Why would we need a cutoff test for alpha-beta pruning or minimax?
- 5.) Give an example of a deterministic, perfect information game. Give an example of an imperfect information, deterministic game.
- 6.) In the classic Wumpus World, the agent moves north, feels a breeze, moves south, moves east and smells something. What do I know about space (2, 2) assuming that the agent started in (1,1) (bottom left corner)?
- 7.) Give an instance in the classic Wumpus World problem where the agent would have to take a chance of dying in order to move.
- 8.) In the classic Wumpus World, our agent starts in (1,1) not perceive anything, and moves north and smells something. Consider all possible models for the snapshot of Wumpus World that includes (1,1), (1,2), (1,3), (2, 1) and (2,2). Circle the models that would be valid for the Wumpus World KB.
- 9.) Describe forward chaining and backward chaining noting why we would typically use BC over FC.
- 10.) Convert the following sentence into CNF:  
$$((a \vee \neg b) \wedge (\neg c \vee d)) \Rightarrow (e \wedge \neg f)$$
- 11.) Define a vocabulary for the following sentences and convert those sentences into first-order logic using that vocabulary.
  - a. Some students took French in Spring 2010.
  - b. Every student who takes French passes it.
  - c. Only one student took Greek in Fall 2010.
  - d. The best score in Greek is always higher than the best score in French.
  - e. Alan, who took French, but not Greek, is awesome.