

Exercise Sheet 2 - Search

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February 6, 2024

1. Outline 3 limitations of the minimax algorithm.
2. How can you use the minimax algorithm while dealing with games with large state spaces? Suggest some approaches.
3. The game of *nim* is defined as follows. A number of piles of objects exist at the start of the game. Two players take turns removing items from any pile. On a given move a player can only chose one pile from which to take items. Whichever plays goes last, loses.
 - (a) For the simple case of two piles with 5 and 4 items respectively, draw the game tree
 - (b) If the players play optimally who wins?
4. Consider a two-player game like *nim*, or *connect4*. How could we extend the minimax approach to deal with a three-player game.