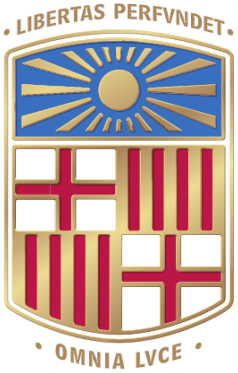

UNIVERSITAT DE BARCELONA

Práctica 2: Juegos con oponentes

Johnny Astudillo | Jordi López

Inteligencia artificial

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Minimax Algorithm

1. When moving first, whites always tend to win. The reason is they always start by checking the King with the Rook. After that, the Black King has to move and the whites capure Black's Rook, leaving an advantage situation for the Whites.
2. Sometimes with depth 3 the algorithm doesn't reach the solution, but from depth 4 on, the algorithm always finds winning state for the Whites (the first ones to move)

Alpha-Beta Prunnig Algorithm

3. The best ones are still the Whites. That's because the Prunning Algorithm is not different from the Minmax in making decisions. The difference between them is the time they take in making every decision. While the minmax algorithm has to evaluate every possible move, pruning excludes some of them and has a much better performance in terms of speed.
4. With depth 1 and 2 the algorithm doesn't find the solution. With depth 3, the algorithm mostly always finds the right solution and with depths 4 and 5 always finds it.

Expectminimax Algorithm

5. Whites still win most of the times because they play the first ones. If blacks plays first, they win always.

6. The situation is even if the Rook and the King are not in the same row. In our example, with both in the same row, whoever moves first gets the chance to check the enemy King and capture the Rook, ending in an advantage situation. Our situation was not even for both of the players.