

1. Heuristics used:

I tried out 1 risky and 2 conservative agent behaviours.

For the risky behaviour the evaluation function was defined as: $\text{myMoves} - 2 * \text{opponentMoves}$, which means the evaluation function leads to preferring branches where the opponent has less moves available, that the agent is chasing the opponent. I selected 2 as the multiplier for the opponentMoves because it is the maximum number of movements in the same direction that the player can do based on the allowable movement.

For the conservative behaviour I used the exact opposite function to the risky behaviour: $2 * \text{myMoves} - \text{opponentMoves}$. For that case the function leads to preferring branches where the player has more moves available, that is the agent is moving away from the opponent.

Another conservative behaviour was based on the ratio of moves available for the player compared to the moves available for the opponent, $\text{myMoves} / \text{opponentMoves}$. If the player has a larger number of available moves compared to the opponent the evaluation function will result in a large number, the idea is to increase the likelihood of winning by choosing branches where the isolation chances are greater.

All 3 heuristics have a winning rate between 70% – 80% however a conservative approach is preferred. The behaviour chosen is the one where the player moves away from the opponent as this behaviour tries to prevent being cornered by the opponent.