
 Playing Matches

Match #	Opponent	AB_Improved		AB_Custom		AB_Custom_2		AB_Custom_3	
		Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random	9	1	8	2	9	1	9	1
2	MM_Open	7	3	7	3	3	7	7	3
3	MM_Center	8	2	7	3	5	5	9	1
4	MM_Improved	7	3	7	3	4	6	7	3
5	AB_Open	5	5	6	4	3	7	3	7
6	AB_Center	5	5	7	3	5	5	2	8
7	AB_Improved	5	5	5	5	5	5	5	5
Win Rate:		65.7%		67.1%		48.6%		60.0%	

This is the final iteration with all the three heuristics in the order I wanted to showcase.

1. AB_Custom is based on chess theory where Knights are pieces that are meant for the center. Since the number of moves a knight can make is halved when on the walls (down to 4 from 8) and quartered when in the corner (down to 2), I decided to weigh these as poorer moves. Furthermore, any board state that results in opponent moves leading them into the corners or walls is a good thing, as it means fewer moves for them. This heuristic is compounded by adding on a second layer of measurement where moves towards the center are seen as even better the closer one gets to the end game, since being trapped in a corner is an even bigger concern than it otherwise would be.

This in my opinion is the best heuristic out of the four (including AB_Improved), as it accounts for everything relevant to a game of Isolation: the board state, the player's moves (and more importantly, the outcome of the move), as well as the opponent's choice of move. The tournament data where it statistically consistently beats the other heuristics leads me to believe that I am right.

2. AB_Custom_2 is an aggressive tactic, where the player will try and move onto tiles that result in future moves that overlap with the opponents, with the idea that they will aggressively chase down the other player and box them in. Unfortunately this is nowhere near as effective a strategy as I would like to believe since it does not account for anything else, including things like board status, remaining moves, as well as potential opponent counters that may prove to be its downfall.
3. AB_Custom_3 is a play on the improved space heuristic. It measures the number of player moves versus the enemy moves but at the same time it accounts for the degree of mobility each one of those subsequent moves provides i.e. how many moves each of those moves offer in the next turn. This is a more focused approach to the game as it directly tackles the victory condition of trying to leave the opponent without moves to make. This sort of lookahead heuristic also allows the player to see potential traps and endgames that may get overlooked in a normal improved space heuristic.