
 Playing Matches

Match #	Opponent	AB_Improved		AB_Custom		AB_Custom_2		AB_Custom_3	
		Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random	0	10	0	10	0	10	0	10
2	MM_Open	0	10	0	10	0	10	0	10
3	MM_Center	0	10	0	10	0	10	0	10
4	MM_Improved	0	10	0	10	0	10	0	10
5	AB_Open	6	4	10	0	9	1	9	1
6	AB_Center	7	3	5	5	7	3	8	2
7	AB_Improved	7	3	8	2	7	3	9	1

Win Rate:		28.6%		32.9%		32.9%		37.1%	

The three heuristic functions that I used are as follows:

- 1) AB_Custom: $\#legal_moves_player - 2 * \#legal_moves_opponent$
- 2) AB_Custom 2: $\#legal_moves_player - 3 * \#legal_moves_opponent$
- 3) AB_Custom 3: $2 * \#legal_moves_player - 5 * (\#legal_moves_opponent^2)$

The best performing agent among the above 3 is the agent AB Custom 3. The reasons are as follows:

- 1) By weighting the # of legal moves of the opponent more, the win rate increases.
- 2) Adding a power to the # of legal moves of the opponent seems to have given a better win rate. It seems like trying to make the opponent have lesser moves as compared to keeping the number of the players' possible moves high seems like a better option.
- 3) A linear heuristic alone does not seem to boost the win rate much. A weighted non-linear heuristic managed to improve the win rate by 5%. More polynomial combinations could be tried to see if it improves the win rate in the future.