

Heuristics analysis

Results

Match #	Opponent	AB_Improved		AB_Custom		AB_Custom_2		AB_Custom_3	
		Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random	8	2	7	3	10	0	8	2
2	MM_Open	4	6	3	7	5	5	3	7
3	MM_Center	3	7	4	6	6	4	5	5
4	MM_Improved	5	5	4	6	5	5	1	9
5	AB_Open	3	7	7	3	4	6	2	8
6	AB_Center	5	5	4	6	6	4	4	6
7	AB_Improved	8	2	4	6	5	5	4	6
Win Rate:		51.4%		47.1%		58.6%		38.6%	

AB_Custom Heuristic

This heuristic uses the distance to the opponent, where a higher distance is considered as better.

AB_Custom_2 Heuristic

The difference between the number of own legal moves and the number of opponent legal moves makes the base of this heuristic. When this difference is lower than zero, the distance to the center of the board is applied making moves that were already bad moves worse as the higher distance will imply lower score.

AB_Custom_3 Heuristic

For this heuristic was used the distance to the center of the board with the influence of the distance to the opponent. This benefits higher distances to the center and lower distances to the opponent.

Comparison

Looking at the results it is possible to verify that neither the heuristics achieved a perfect score. As it is possible to visualize from the results mentioned above, the better heuristic was the *QB_Custom_2*. It has a higher overall score and was the most consistent when playing against all the Opponents. The recommendation of which heuristic to use goes to the *QB_Custom_2* as well, will choose paths where the legal number of moves is higher than the opponent. If in case, no more paths where the number of legal moves is higher than the number of legal moves from the opponent then the heuristic will benefit the positions more near the center of the board. Choosing positions more at the center the board does normally has higher probability in having more positions available for the next move.