

## Analysis of Heuristic evaluation of Isolation Game state

The three heuristic functions proposed are variations of the “improved\_score” evaluation function discussed in the lecture, where weights were attached to the open move counts as follows:

### Heuristic 1 - Custom\_Score

The first evaluation function proposed computes a weighted difference between the open moves available to the IsolationPlayer and its opponent, where the bigger the Euclidean distance between the positions of the two players the higher the heuristics and the more favourable the move.

### Heuristic 2 - Custom\_Score\_2

The second evaluation function computes a weighted difference between the open moves available to the IsolationPlayer and its opponent, where the farther the opponent is from the center of the board the more preferable the move.

### Heuristic 3 - Custom\_Score\_3

The third and last evaluation function tested was a weighted difference between open moves available to the player and its opponent, where the closest the IsolationPlayer is to the center of the board the better the move.

As shown by the snapshot below, the best results obtained are the ones applying the Custom\_Score\_2, thus the one that tries to push the opponent far from the center of the board.

*****										
Playing Matches										
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Match #	Opponent	AB_Improved		AB_Custom		AB_Custom_2		AB_Custom_3		
		Won	Lost	Won	Lost	Won	Lost	Won	Lost	
1	Random	4	6	6	4	7	3	7	3	
2	MM_Open	0	10	3	7	3	7	4	6	
3	MM_Center	2	8	6	4	6	4	3	7	
4	MM_Improved	2	8	2	8	2	8	4	6	
5	AB_Open	6	4	5	5	7	3	5	5	
6	AB_Center	6	4	5	5	7	3	6	4	
7	AB_Improved	5	5	6	4	7	3	5	5	
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Win Rate:		35.7%		47.1%		55.7%		48.6%		