

Part 1: Heuristic Analysis

The following describes the used heuristics and its outcome.

custom_score3

This score uses only the number of moves putting a high values (x to the 4) minus the opponent moves with a lower weight (x to the 1.5)

custom_score2

A simple score again putting a high weight on opponents moves and less on the players moves.. Counting players moves to the 1.5 minus opponent moves to the 4. Basically the opposite of the above

custom_score

Quite a simple heuristic considering only the distance to the centre of the player against the distance of the opponent to the centre.

Summarising

The result of the tournament evaluation is as follows

Match #	Opponent	AB_Improved		AB_Custom		AB_Custom_2		AB_Custom_3	
		Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random	9	1	9	1	10	0	10	0
2	MM_Open	7	3	6	4	9	1	9	1
3	MM_Center	9	1	10	0	10	0	7	3
4	MM_Improved	6	4	5	5	7	3	6	4
5	AB_Open	6	4	5	5	5	5	5	5
6	AB_Center	7	3	5	5	3	7	7	3
7	AB_Improved	4	6	4	6	4	6	5	5
Win Rate:		68.6%		62.9%		68.6%		70.0%	

The first heuristic is performing much worse than the baseline, so the distance to the centre does not add value to the heuristic. With the second we're able to perform equally good as the baseline so it is not so interesting. With the last heuristic there is finally something performing better than the baseline even if it is not a lot. The complexity of this heuristic is really low as we're just using the number of legal moves. With this we're able to explore big parts of the search tree.