
Playing Matches										

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

Win Rate:		64.3%			48.6%			64.3%		
								67.1%		

AB_Custom function is a “naive” heuristic which outputs a number of player’s legal moves. It performs especially badly with AI opponents implementing alphabeta search (less than 50% win rate). Overall score is unsatisfactory: 48.6% win rate.

AB_Custom_2 function is a heuristic that also takes into account a number of opponent’s legal moves. In essence, the player’s score is decreased by amount of opponent’s possible moves during given board state. It performs better than AB_Custom function however a probability of overall tie (5 - 5 in 3 out of 7 tournaments) is decreasing win rate down to 64.3%.

AB_Custom_3 function is an “aggressive” heuristic. Basically it doubles the value of penalty for every move available to opponent. It ties overall once (with MM_Improved) and wins tournament with any other AI resulting in victory 67.1% of times.

AB_Custom_3 is evaluation function of my choosing due to its high win rate (best score), ease of implementation (bigger penalty for larger amount of other player’s moves seems more humane than taking into consideration only own moves like in **AB_Custom**) and for speed (it’s a simple subtraction that is very memory efficient).