

Heuristic Analysis

Three custom score functions are considered in this analysis. In the so-called improved scoring shown as IS11 here, the opponent's number of available moves, shown as m_o here, is subtracted from the player's available moves, shown as m_p . Two of score functions considered here are slightly modified version of improved score, and the third one is purely geometrical, which only depends on the location of the player. In the following paragraph we show the number of

custom_score

This custom score is like improved score (IS11) except that the negative term or m_o is multiplied by a factor of 2. We show it with IS12 to simply represent multiply factor of 1 and 2 for m_p and m_o .

$$score = m_p - 2 m_o$$

custom_score_2

Similar to improved scores IS11 and IS12, but player score factor is 2. is like improved score except that the negative term or m_o is multiplied by a factor of 2.

$$score = 2 m_p - m_o$$

custom_score_3

One other approach for scoring used here in custom_score_3 method is to normalize the score defined in IS11 by the sum of the available move. In some way this is similar to IS12.

$$score = (m_p - m_o)/(m_p + m_o)$$

Results

The tournament table of results shows all these three score methods have better performance than simple improved score. The difference between the three methods is rather small and it could simply be due to randomness in the games and the tournament!

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

Win Rate:		65.7%		71.4%		72.9%		72.9%	