

I came up with different metrics on how to evaluate a position. There were:

- A) Mobility: #own moves - #opponent moves
- B) Centrality of moves available
- C) Common moves with opponent
- D) Emptiness of board * Proximity to the center
- E) - Emptiness of board * common moves
- F) - Distance to the center
- G) - Player is in a corner

I tried different combinations of these metrics to find promising heuristics. Here are the win rate each combination yielded. AB_Improved's result is in parenthesis to give a baseline for each test as the starting positions are randomized. In the end, the effectiveness of the heuristic should be considered as the improvement with respect to pure AB_Improved, especially as AB_Improved would be the application of metric A alone. Note that E, F and G are subtracted from the value of a position.

ABCDE → 72.9% (AB_I 54.3%): +18.6%

ABDE → 67.1% (AB_I 55.7%): +11.4%

ABCD → 70% (AB_I 57.1%): +12.9%

ACD → 58.6% (AB_I 62.9%): -4.3%

AB → ~70% (AB_I 50%): +20%

ABCDEF → ~61% (AB_I 64%): -3%

ABCDEG → ~75.7% (AB_I 60%): +15.7%

I would need a lot more data to reach conclusions on what is a good strategy for the isolation game, and also to reach conclusions on which of my metrics are really good. But, from the tests I did, it looks like good components for an efficient heuristic can be: to stay far from corners, to maximize mobility, to look forward to moves that bring you towards the center.

Here a comparison of three of my most promising heuristics: ABCDEG, ABCDE, AB

Match #	Opponent	AB_Improved	AB_Custom	AB_Custom_2	AB_Custom_3
		Won Lost	Won Lost	Won Lost	Won Lost
1	Random	8 2	10 0	10 0	10 0
2	MM_Open	4 6	6 4	5 5	6 4
3	MM_Center	8 2	10 0	8 2	9 1
4	MM_Improved	6 4	8 2	6 4	7 3
5	AB_Open	6 4	7 3	5 5	5 5
6	AB_Center	4 6	5 5	5 5	4 6
7	AB_Improved	6 4	7 3	6 4	5 5
Win Rate:		60.0%	75.7%	72.9%	65.7%