

Vic Wang

Udacity - AIND - Game Playing Agent

16 July 2017

## Heuristic Analysis

*****										
Playing Matches										
*****										
Match #	Opponent	AB_Improved		AB_Custom		AB_Custom_2		AB_Custom_3		
		Won	Lost	Won	Lost	Won	Lost	Won	Lost	
1	Random	8	2	6	4	9	1	9	1	
2	MM_Open	4	6	6	4	3	7	3	7	
3	MM_Center	5	5	6	4	5	5	8	2	
4	MM_Improved	4	6	2	8	5	5	1	9	
5	AB_Open	5	5	7	3	6	4	6	4	
6	AB_Center	7	3	7	3	6	4	6	4	
7	AB_Improved	5	5	8	2	3	7	3	7	
-----										
Win Rate:		54.3%		60.0%		52.9%		51.4%		

**Conclusion:**

When consider occupying the opposite's legal possibilities, might gain higher win rates.

**AB\_Custom:**

```
score = float(self_moves_count)

if self_current_location in opp_legal_moves:
    score += 5.0

return score
```

Consider the confrontation. If to occupy opponent's next move, get higher score.

**AB\_Custom\_2:**

```
score = float(self_moves_count - opp_moves_count)

if self_moves_count > opp_moves_count:
    score += 3.0

if player == game.inactive_player:
    if self_current_location in opp_legal_moves:
        score += 5.0

return score
```

Total 3 conditions.

**AB\_Custom\_3:**

```
score = float(self_moves_count - opp_moves_count)

return score
```

Only consider the difference of the counts of legal moves.