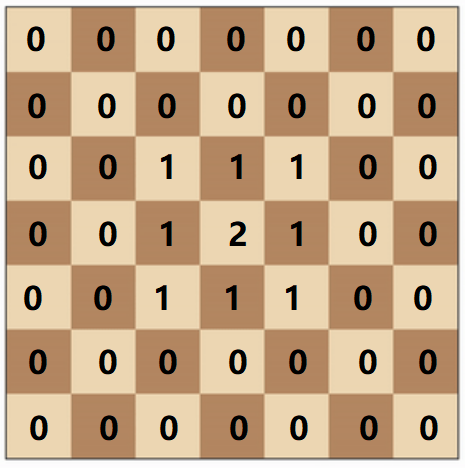
Heuristic Analysis

My own heuristic functions are based on “AB\_Improved function” and I consider the place where the player is. The logic is simple: the more closed to the center of board, the more extra score the player get.

The board scores are show in the below figure.



If the player is in the middle area, the player will get extra position score.

The details of custom heuristic functions:

* “custom\_score function”: return “extra position score + open\_move”
* “custom\_score2 function”: return “extra position score + open\_move - opp\_moves”
* “custom\_score3 function”: return “extra position score + open\_move – 2 \*opp\_moves”

open\_move is the player number of moves left.

opp\_moves is the opponent number of moves left.

I set 40 matches for every match, and the results are below:

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Playing Matches

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Match # Opponent AB\_Improved AB\_Custom AB\_Custom\_2 AB\_Custom\_3

Won | Lost Won | Lost Won | Lost Won | Lost

1 Random 38 | 2 37 | 3 38 | 2 38 | 2

2 MM\_Open 30 | 10 33 | 7 33 | 7 33 | 7

3 MM\_Center 32 | 8 36 | 4 37 | 3 37 | 3

4 MM\_Improved 23 | 17 20 | 20 26 | 14 28 | 12

5 AB\_Open 23 | 17 19 | 21 20 | 20 24 | 16

6 AB\_Center 24 | 16 22 | 18 26 | 14 22 | 18

7 AB\_Improved 21 | 19 19 | 21 17 | 23 21 | 19

--------------------------------------------------------------------------

Win Rate: 68.2% 66.4% 70.4% 72.5%

In fact, the results of my own heuristic functions are as good as “AB\_Improved”.

In the end, I recommend “AB\_Custom\_3” (“custom\_score3”function) as my final player, the reason are:

1. Due to the extra position score, the player is encourage to occupy the central area of the board in the beginning.
2. Because the AB\_Custom\_3 give the more weights to opp\_moves, our player is more willing to chase the opponent and block the opponent‘s way.
3. The experimental results show the “AB\_Custom\_3”win in all rounds, and get highest score – 72.5%