

## Heuristic Analysis

| *****<br>Playing Matches<br>***** |             |             |      |           |      |             |      |             |      |
|-----------------------------------|-------------|-------------|------|-----------|------|-------------|------|-------------|------|
| Match #                           | Opponent    | AB_Improved |      | AB_Custom |      | AB_Custom_2 |      | AB_Custom_3 |      |
|                                   |             | Won         | Lost | Won       | Lost | Won         | Lost | Won         | Lost |
| 1                                 | Random      | 10          | 0    | 10        | 0    | 8           | 2    | 8           | 2    |
| 2                                 | MM_Open     | 10          | 0    | 10        | 0    | 10          | 0    | 10          | 0    |
| 3                                 | MM_Center   | 10          | 0    | 10        | 0    | 10          | 0    | 10          | 0    |
| 4                                 | MM_Improved | 10          | 0    | 10        | 0    | 10          | 0    | 10          | 0    |
| 5                                 | AB_Open     | 4           | 6    | 5         | 5    | 6           | 4    | 5           | 5    |
| 6                                 | AB_Center   | 6           | 4    | 6         | 4    | 9           | 1    | 7           | 3    |
| 7                                 | AB_Improved | 6           | 4    | 7         | 3    | 3           | 7    | 5           | 5    |
| Win Rate:                         |             | 80.0%       |      | 82.9%     |      | 80.0%       |      | 78.6%       |      |

The first heuristic custom score is a weighted improved score, which return the number of player's moves subtract twice the number of player's moves.

The second heuristic custom score calculates the distance between player's location and center location, and add the numbers of player's move

The third heuristic custom score calculates the distance between player's location and center location, and then add the weighted improved score which the first heuristic function uses.

The result shows that the first heuristic function, which uses the weighted improved score has the highest winning rate.