```
                        **************************
                             Playing Matches
                        **************************

 Match #    Opponent    AB_Improved   AB_Custom   AB_Custom_2  AB_Custom_3
                         Won | Lost   Won | Lost   Won | Lost   Won | Lost
    1        Random      10  |   0     9  |   1     8  |   2     8  |   2
    2        MM_Open      7  |   3     8  |   2     6  |   4     6  |   4
    3       MM_Center     9  |   1     9  |   1     9  |   1     8  |   2
    4     MM_Improved     6  |   4     6  |   4     7  |   3     7  |   3
    5        AB_Open      5  |   5     4  |   6     3  |   7     6  |   4
    6       AB_Center     5  |   5     6  |   4     5  |   5     6  |   4
    7     AB_Improved     4  |   6     3  |   7     4  |   6     7  |   3
--------------------------------------------------------------------------
           Win Rate:      65.7%        64.3%        60.0%        68.6%
```

AB_Custom:
The custom_score function evaluates the remaining empty spaces on the game board. The smaller this value is, the worse the chance to win gets.

AB_Custom_2:
When a player is near a boarder or in one of the corners, the possibilities to move get smaller, hence his chances to win.
This heuristic 'punishes' the player if his current position is in on of the corners.

AB_Custom_3:
If one player has more possible moves than the other his chances to win are better.
This heuristic calculates the difference between the available moves of the players. In order to make it more "aggressive" the moves of the opponent are multiplied by two.

Conclusion:
The heuristic calculating the difference between the available moves (custom_3) works best, because if the player has more available moves than his opponent, the chances to win are better.
As we can see in the table above, the heuristic punishing the player if he has a corner position (custom_2) works the second best, because the current position on the game board is very important.
The heuristic only calculating the remaining space on the empty board (custom_1) is not that useful, because it is a two player step by step game.
The chances that combining "custom_2" and "custom_3" will lead to a better heuristic are big.
Other possible heuristics could be calculating the distance between the players, punish if the player is near a boarder or reward if the player is in the centre of the game board.
Considering the 3 custom heuristics I would recommend AB_Custom_3 because it has the best winning rate, is straight forward and not to complicated to calculate (time cost is good).