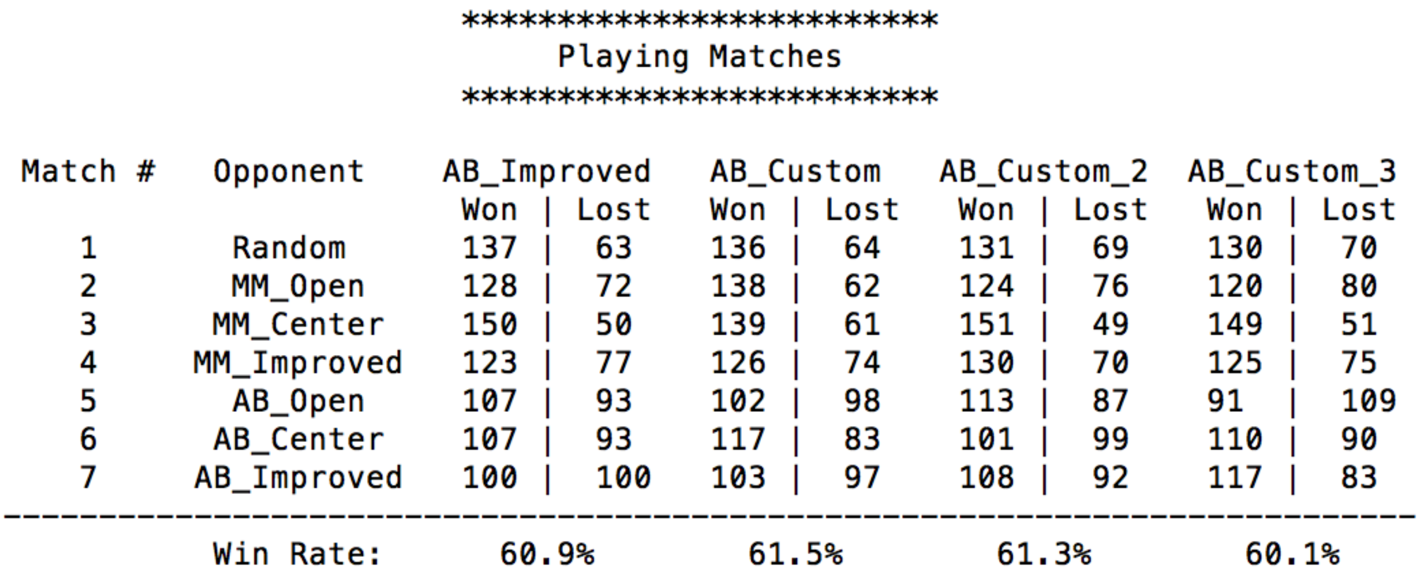
Overall perfomance



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

 Match #   Opponent    AB_Improved   AB_Custom   AB_Custom_2  AB_Custom_3
                        Won | Lost   Won | Lost   Won | Lost   Won | Lost
    1       Random      137 |  63    136 |  64    131 |  69    130 |  70
    2       MM_Open     128 |  72    138 |  62    124 |  76    120 |  80
    3      MM_Center    150 |  50    139 |  61    151 |  49    149 |  51
    4     MM_Improved   123 |  77    126 |  74    130 |  70    125 |  75
    5       AB_Open     107 |  93    102 |  98    113 |  87    91  |  109
    6      AB_Center    107 |  93    117 |  83    101 |  99    110 |  90
    7     AB_Improved   100 |  100   103 |  97    108 |  92    117 |  83
--------------------------------------------------------------------------
           Win Rate:      60.9%        61.5%        61.3%        60.1%
```

As we can see from above, the three score functions' result is just above the `AB_improved` winning rate, which is the benchmark of the test. I set game number between each set players to be `200`, for minizing the variation on winning rate.

Custom 1

the score function I used in `custom 1` is

```
player_moves - opponent_moves + 0.1 * player_distance_to_center
```

This function combines both `AB_improved` and `AB_open`. We put less weight on the distance since the perfomance of `AB_improved` is better than `AB_open`, also the scale of the distance is from 0~5, and we don't want it to be the dominating part.

It turns out is slightly better than `AB_improved`, but not far ahead.

Custom 2

The score function in `custom 2` is

```
players_moves - 2 * opponent_moves
```

This function is similar to `AB_improved`, but we put more weight on minimizing the opponent's available moves. Its perfomance is slight worse than `custom 1` and better than `AB_improved`.

Custom 3

The score funtion I used in `custom 3` is

```
min(player_moves - opponent_moves, player_distance_to_center)
```

This function is another comination of `AB_improved` and `AB_open`. It turns out is slightly worse than `AB improved`.