Analysis

```
                    Playing Matches
            *************************
Match #    Opponent   AB_Custom    AB_Custom_2   AB_Custom_3   AB_Custom_4   AB_Custom_5
                      Won | Lost   Won | Lost    Won | Lost    Won | Lost    Won | Lost
   1        Random    188 |  12    185 |  15     188 |  12     187 |  13     185 |  15
   2        MM_Open   157 |  43    141 |  59     149 |  51     133 |  67     143 |  57
   3        MM_Center 168 |  32    174 |  26     177 |  23     168 |  32     170 |  30
   4      MM_Improved 142 |  58    131 |  69     128 |  72     131 |  69     120 |  80
   5        AB_Open   103 |  97    103 |  97      85 | 115      96 | 104      94 | 106
   6       AB_Center   99 | 101    111 |  89     103 |  97      99 | 101      95 | 105
   7      AB_Improved   83 | 117     92 | 108      88 | 112      87 | 113      76 | 124
-------------------------------------------------------------------------------------
         Win Rate:      67.1%        66.9%         65.6%         64.4%         63.1%
```

O = number of opponent available moves , P = number of main player available moves

Score functions:

AB_Custom : 2*P - O

AB_Custom_2 : P - O

AB_Custom_3 : P - 2*O

AB_Custom_4 : P

AB_Custom_5 : -O

From different runs, it seem like the first 3 score functions are nearly in the same range of win percentage, trying different sample produce slightly different results, therefore no score function would give an upper hand, I believe investing time in search techniques and optimization will improve the win percentage, but for now, 2*P – O seem to be a good choice.