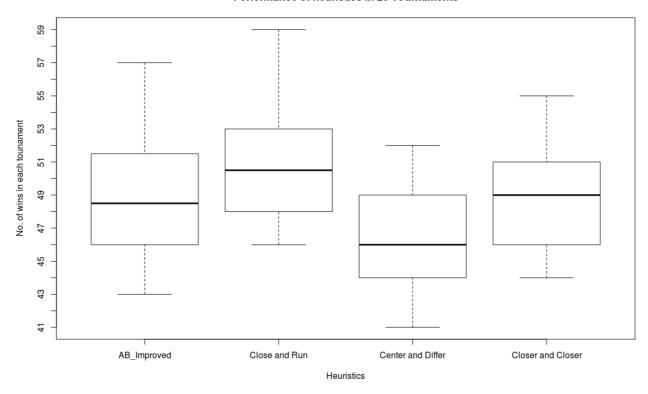
## Heuristic Analysis – Isolation Board Game

**Heusristic I (Close and Run):** This heuristic uses the first 30 steps of the game to get away from the opponent (as far as possible). This behavior is used to eventually close all the spaces in the opposite direction of the opponent. In the final steps of the game the improved score is used to corner and block off the opponent. I recommend this heuristic because it consistently stays ahead of the other three heuristics with a median of 50 wins per tournament and consistently outperforming the improved heuristic in win rate as shown in Fig I. Also the variance of wins per tournament is less in this heuristic compared to improved score heuristic. The best tournament results are shown below(See Appendix-II for all 20 tournament results).

Match #	Opponent	AB_Imp	roved	AB_Cu	ıstom	AB_Cus	stom_2	AB_Cus	tom_3
		Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random	10	0	10	Θ	10	0	10	0
2	MM_Open	8	2	10	Θ	10	0	8	2
3	MM_Center	10	0	10	Θ	8	2	9	1
4	MM_Improved	6	4	8	2	9	1	10 j	0
5	AB_Open	5	5	9	1	3	7	6 j	4
6	AB_Center	7	3	7	3	6	4	7 j	3
7	AB_Improved	5	5	5 j	5	5	5	4 j	6
	Win Rate:	72.	. 9%	84.	3%	72.	. 9%	77.	1%

Performance of heuristics in 20 Tournaments



**Fig I**. Performance of the heuristics in 20 straight tournaments.

**Heuristic II (Center and Differ):** The idea of this heuristic is to fill up the center squares in the first half of the game and rotate in the space left after the center portion is filled. However this is the least performing heuristic with a median of 46 wins per tournament. This is probably due to the high bias towards the center which gives the opponent a very good chance to block the player in a corner. The best tournament results are shown below.

Match #	Opponent	AB_Imp	roved	AB_Cı	ıstom	AB_Cus	tom_2	AB_Cu	stom_3
		Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random	9	1	7	3	7	3	10	Θ
2	MM_Open	8	2	8	2	9 j	1	8	2
3	MM_Center	9	1	9	1	9 j	1	10	0
4	MM_Improved	8	2	10	0	9 j	1	6	4
5	AB_Open	5	5	3	7	7 j	3	6	4
6	AB_Center	8	2	3	7	4 j	6	6	4
7	$AB_{\underline{I}}mproved$	5 j	5	6	4	7	3	4	6
	Win Rate:	74.	3%	65.	. 7%	74.	3%	71	. 4%

**Heuristic III (Closer and Closer):** This heuristic uses a sum of normalized distances. The first distance is the player-player distance and the second is the player-center distance. The idea is to stay away from the center and be in the opposite end of the player effectively creating partitions in the board. The IQR of the wins per tournament is identical to the improved heuristic (See Appendix - I for the complete statistics).

Match #	Opponent	AB_Imp		AB_Cu		_	tom_2	AB_Cus	_ ·
		Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random	8	2	9	1	10	0	9	1
2	MM_Open	7	3	9	1	6	4	10	0
3	MM Center	10	0	8	2	7	3	9	1
4	MM Improved	7	3	9	1	7	3	9	j 1
5	AB Open	5	5	4	6	6	4	6	j 4
6	AB_Center	6	4	6	4	5	5	8	j 2
7	AB_Improved	5	5	4	6	4	6	4	j 6
	Win Rate:	68.	. 6%	70.	 . 0%	64.		78	. 6%

## Appendix – I

Note: Wins per tournament statistics

er.and.Close
. :44
Qu.:46
ian :49
n :49
Qu.:51
. :55

## Appendix – II

Note: AB\_Custom – Heuristic I, AB\_Custom\_2 – Heuristic II, AB\_Custom\_3 – Heuristic III 1)

Match #	Opponent	AB_Imp Won I	roved Lost	AB_Cu Won I	ıstom Lost	AB_Cus Won I	stom_2 Lost	AB_Cus Won I	tom_3 Lost
1	Random	9	1	10	0	10	0	9	1
2	MM Open	9 j	1	7	3	5	5	9 j	1
3	MM_Center	9 j	1	9 j	1	9	1	9 j	1
4	MM_Improved	9 j	1	8	2	8	2	8 j	2
5	AB_Open	5 j	5	5	5	5	5	4	6
6	AB_Center	6	4	6	4	5	5	8	2
7	AB_Improved	4	6	6	4	2	8	4	6
	Win Rate:	72.	9%	 72.	.9%	62.	 . 9%	72.	9%

2)									
Match #	Opponent	AB_Imp	oroved	AB_C	ustom	AB_Cus	stom_2	AB_Cus	stom_3
		Won	Lost	Won	Lost	Won		Won	Lost
1	Random	9	1	9	1	10	0	8	2
2	MM_Open	9	1	8	2	6	4	9	1
3	MM_Center	10	0	10	0	7	] 3	9	1
4 5	MM_Improved	8   5	2   5	9 5	1   5	8 6	2 1 4	6 5	4   5
6	AB_Open AB Center	4	6	9	3	5	4	4	6
7	AB_Improved	6	4	5	i 5	7	3	4	6
	Win Rate:			 70					
3)	win kate:	72.	. 9%	/0	. 6%	70	. 0%	64.	. 3%
Match #	Opponent	AB_Imp	oroved	AB_C	ustom	AB_Cus	stom_2	AB_Cus	stom_3
		Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random	10	0	10	0	10	0	10	0
2	MM_Open	8	2	10	0	9	1	7	3
3	MM_Center	8	2	10	J 0	10	0	9	1
4 5	MM_Improved AB Open	8   6	2   4	10 2	0   8	7 5	] 3   5	9 4	1   6
6	AB_Open AB Center	3	<del>4</del>   7	4	1 6 1 6	3	1 3 1 7	6	4
7	AB_Improved	5	5	7	3	4	6	6	4
		68.		 75	 . 7%	68.	 6%	72	9%
4)	Will Race.	00.	. 070	, ,	. 7 70	00.	. 070	, ,	. 570
Match #	<b>Opponent</b>	AB_Imp	roved	AB Cı	ustom	AB Cus	stom_2	AB Cus	stom 3
	• •	Won i		Won		Won		Won	
1	Random	9	1	8	2	8	2	9	1
2	MM_Open	9	1	9	1	9	1	8	2
3	MM_Center	10	0	9	1	7	3	10	0
4	MM_Improved	8	2	8	2	9	1	8	2
5	AB_Open	6	4	5	5	6	4	4	6
6	_AB_Center	6	4	5	5	4	6	5	5
7	AB_Improved	5	5	5	5	3	7	3	7
	Win Rate:	75.	. 7%	70	. 0%	65	. 7%	67	. 1%
5)					_				
Match #	Opponent	AB_Imp			ustom			AB_Cus	
1	Dandom		Lost		Lost		Lost	Won	
1 2	Random MM_Open	9 7	1   3	10 7	0   3	9 8	1   2	7 9	3   1
3	MM_Center	9	1	9	, 3   1	10	2	10	0
4	MM_Improved	9	1	9	1	5	5	9	1
5	AB_Open	6	4	4	i 6	2	8	6	4
6	AB Center	9	i	7	3	5	5	5	5
7	AB_Improved	7	3	6	4	3	7	3	5 7
6)	Win Rate:	80.	. 0%	/4	. 3%	60	. 0%	/0	. 0%
6) Match #	Opponent	AR Tmr	roved	AR C	ıctom	AR Cus	:+om 2	AB Cus	+om 2
natell #	Opponent	AB_Imp Won	Lost	Won	ustom   Lost	Won	stom_2   Lost	Won	Lost
1	Random	9	1	9	1	10	1031	10	0
2	MM_Open	8	2	9	1 1	8	2	5	5
3	MM_Center	10	0	9	1	9	1	8	2
4	MM_Improved	9	ĺ	6	4	9	1	9	1
5	AB_Open	7	3	3	7	4	6	4	6
6	AB_Center	3	7	8	j 2	5	5	7	3
7	AB_Improved	5	5	5	j 5	4	6	4	6
	Win Rate:	72.	. 9%	70	. 0%	70	. 0%	67	1%

7)									
Match #	<b>Opponent</b>	AB_Imp		AB_C	ustom		stom_2	AB_Cus	
_		Won		Won		Won		Won	Lost
1	Random	9	1	10	0	10	0	9	1
2 3	MM_Open	8 7	2 3	8 10	2   0	8 9	2   1	7 10	3 0
4	<pre>MM_Center MM_Improved</pre>	5	5	8	8	10	l 1 I 0	10	0
5	AB_Open	7	3	5	5	3	1 7 1 7	3	7
6	AB Center	4	6	8	2	4	6	5	5
7	$AB_{\overline{I}}mproved$	6	4	7	3	4	6	5	5
•	Win Rate:	65	. 7%	80	. 0%	68	. 6%	70	0%
8) Match #	Opponent	AB Imp	roved	AR C	ustom	AR Cus	stom 2	AB Cus	:+om 3
naten #	орропенс	Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random	10	0	10	0	9	1	10	0
2	MM_Open	6	4	7	3	5	5	6	4
3	MM_Center	10	0	7	3	10	0	8	2
4	$\texttt{MM}$ _Improved	8	2	10	0	5	5	9	1
5	AB_Open	2	8	5	5	6	4	4	6
6 7	AB_Center	4	6	6	4	5 5	5 I 5	6	4
/	AB_Improved	6	4	3	7 	5	5 	3	7
	Win Rate:	65.	. 7%	68	. 6%	64	. 3%	65.	. 7%
9)									
Match #	Opponent	AB_Imp			ustom		stom_2	AB_Cus	_
1	Random	Won 9		Won 7	•	Won 7	•	Won 10	Lost 0
1 2	MM_Open	8	1   2	8	] 3   2	9	3   1	8	2
3	MM Center	9	1	9	1	9	1	10	0
4	MM_Improved	8	2	10	0	9	1	6	4
5	AB_Open	5	5	3	7	7	3	6	4
6	AB $\overline{Center}$	8	2	3	7	4	6	6	4
7	AB_Improved	5	5	6	4	7	3	4	6
	Win Rate:	74.	. 3%	65	 . 7%	74.	 . 3%	71.	. 4%
10)	_		_				_		
Match #	Opponent	AB_Imp			ustom		stom_2	AB_Cus	
1	Random		Lost		Lost		Lost	Won	Lost
1 2	MM Open	9 7	1   3	9 8	1 2	10 6	0   4	10 9	0   1
3	MM_Center		1	8	2	8	2	10	0
4	MM_Improved	9	1	7	3	8	2	10	0
5	AB_Open	9 9 5	5	6	4	5	5	6	4
6	AB $\overline{C}enter$	6	4	6	4	8	2	5	5
7	$AB\_\overline{I}$ mproved	2	8	3	7	5	5	4	6
	 Win Rate:	67	. 1%	 67	 . 1%	71	 . 4%	77.	1%
11)						, -			
Match #	<b>Opponent</b>	AB_Imp	oroved	AB_C	ustom	AB_Cus	stom_2	AB_Cus	stom_3
		Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random	10	0	10	0	10	0	10	0
2	MM_Open	8	2	10	0	10	J 0	8	2
3	MM_Center	10	0	10	0	8	2	9	1
4	MM_Improved	6	4	8	2	9	1 1 7	10	0
5 6	AB_Open AB Center	5 7	5 3	9 7	1   3	3 6	<i> </i>   4	6 7	4
7	AB_Improved	5	5	5	5	5	4	4	6
	Win Rate:	72	. 9%	84	. 3%	72	. 9%	77.	1%

12)									
Match #	Opponent	AB_Imp	oroved		ustom	AB_Cus		AB_Cus	stom_3
		Won		Won		Won		Won	
1 2	Random MM_Open	10 8	0   2	10 7	0   3	10 7	0   3	10 7	0   3
3	MM Center	10	0	7	] 3	8	3	7	3
4	MM Improved	9	1	8	2	7	3	6	4
5	AB_Open	5	5	5	5	5	5	5	5 2
6	AB_Center	5	5	5	5	8	2	8	
7	AB_Improved	5	5	5	5	5	5	3	7
	Win Rate:	74	. 3%	67.	. 1%	71	. 4%	65	. 7%
13) Match #	Opponent	AB Imp	roved	AR CI	ustom	AB Cus	stom 2	AB Cus	tom 3
naten #	орропенс	Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random	8	2	9	1	10	0	10	0
2	MM_Open	8	2	9	1	6	4	8	2
3	_MM_Center	8	2	9	1	8	2	9	1
4	MM_Improved	7 4	3	9 6	1   4	7 3	3 7	6 6	4
5 6	AB_Open AB Center	6	6	7	l <del>4</del> l 3	6	<i> </i>   4	5	4   5
7	AB_Improved	5	5	4	6	4	6	4	6
	Win Rate:	65.	 7%	 75	 . 7%	62	 9%	68	. 6%
14)	will Race.	05.	. 7 70	, ,	. 7 70	02.	. 576	00.	. 070
Match #	Opponent	AB_Imp	oroved	AB_C	ustom	AB_Cus		AB_Cus	
		Won	Lost	Won		Won		Won	
1 2	Random	10	0	10	0	8 7	2   3	10	0
3	MM_Open MM Center	7 8	3	8 8	2 1 2	9	3	10 7	0   3
4	MM Improved	8	2	9	1	8	2	9	1
5	AB Open	5	5	3	7	6	4	5	5
6	AB_Center	7	3	5	5	5	5	6	4
7	AB_Improved	4	6	4	6	3	7	6	4
	Win Rate:	70	. 0%	67.	. 1%	65.	. 7%	75.	. 7%
15)									
Match #	Opponent	AB_Imp			ustom	AB_Cus		AB_Cus	_
4	Dandan	Won	_	_ :	Lost	Won	_	Won	
1 2	Random MM_Open	8 7	3	9	1   1	10 6	0   4	9 10	1   0
3	MM_Center	10	0	8	2	7	3	9	1
4	MM_Improved	7	3	9	1	7	3	9	$\bar{1}$
5	AB_Open	5	5	4	6	6	4	6	4
<u>6</u>	AB_Center	6	4	6	4	5	5	8	2
7	AB_Improved	5	5 	4	6	4	6	4	6
	Win Rate:	68.	. 6%	70	. 0%	64	. 3%	78	. 6%
16)									
Match #	Opponent	AB_Imp Won	oroved   Lost	AB_Cu Won	ustom   Lost	AB_Cus Won	stom_2   Lost	AB_Cus Won	stom_3   Lost
1	Random	9	1	9	1	9	1	10	0
2	MM_Open	6	4	10	0	6	4	6	4
3	MM_Center	9	1	10	0	9	1	9	1
4	MM_Improved	7	3	6	4	6	4	7	3
5 6	AB_Open	5 9	5 1	6 8	4   2	8 6	2 1 4	4	3   6   3
7	AB_Center AB_Improved	3	1 7	3	7	2	4   8	7 2	3
	Win Rate:	68	. 6%	74	. 3%	65	. 7%	64	. 3%

17) Match #	Opponent	AB_Imp	oroved	AB_C	ustom	AB_Cus	stom_2	AB_Cus	stom_3
		Won	Lost	Won	Lost	Won	Lost	Won	Lost
1	Random	9	1	10	0	10	0	8	2
2	MM_Open	8	2	8	2	7	3	6	4
3	MM_Center	8	2	9	1	8	2	9	1
4	${\sf MM\_Improved}$	6	4	8	2	6	4	6	4
5	AB_Open	4	6	6	4	4	6	5	5
6	AB_Center	5	5	9	1	4	6	6	4
7	AB_Improved	3	7	5	5	2	8	5	5
	Win Rate:	61.	. 4%	 78	 . 6%	58	 . 6%	64	. 3%
18)									
Match #	<b>Opponent</b>	AB_Imp	roved	AB Cı	ustom	AB Cus	stom 2	AB Cus	stom 3
	• •	Won i	Lost	Won		Won		Won	Lost
1	Random	10	0	8	2	9	i 1	10	0
2	MM Open	10	0	8	2	5	j 5	10	i 0
3	MM $\overline{C}enter$	9	1	10	i 0	9	i 1	10	0
4	MM $\overline{I}$ mproved	9	1	9	i 1	7	3	7	3
5	AB Öpen	6	4	3	i 7	4	i 6	4	6
6	AB $\overline{C}enter$	8	2	7	3	4	i 6	7	3
7	$AB_{oldsymbol{\overline{I}}mproved}$	5	5	5	j 5	3	j 7	3	7
	Win Rate:	81.		71	 . 4%	58	 . 6%	72	. 9%
19)	Will Rude.	<b>-</b>	,•	, -	. 170		. 070	, _	. 570
	0	AD Tmr		AD C		40.6		AD C	
Match #	upponent	AD THE	orovea	AB CI	JSTOM	AB Cus	STOM 2	AB CUS	stom 3
Match #	Opponent		oroved Lost	_	ustom I Lost		stom_2   Lost		stom_3   Lost
		Won :	Lost	Won	Lost   Lost   0	AB_Cus Won 7	stom_2   Lost   3	Won	stom_3   Lost   0
1	Random	Won 9	Lost	Won 10	Lost   0	Won 7	Lost   3	Won 10	Lost
1 2	Random MM_Open	Won   9   7	Lost   1   3	Won 10 10	Lost   0   0	Won 7 9	Lost   3   1	Won 10 9	Lost   0   1
1 2 3	Random MM_Open MM_Center	Won   9   7   9	Lost   1   3   1	Won 10 10 9	Lost   0   0   1	Won 7 9 9	Lost   3   1	Won 10 9 9	Lost   0   1   1
1 2 3 4	Random MM_Open MM_Center MM_Improved	Won   9	Lost   1   3   1	Won 10 10 9 7	Lost   0   0   1	Won 7 9 9 5	Lost   3   1   1	Won 10 9 9	Lost   0   1   1
1 2 3 4 5	Random MM_Open MM_Center MM_Improved AB_Open	Won   9   7   9   8   4	Lost 1 3 1 1 2 6	Won 10 10 9 7 4	Lost   0   0   1   3	Won 7 9 9 5 4	Lost   3   1   1   5   6	Won 10 9 9 8 4	Lost   0   1   1   2   6
1 2 3 4	Random MM_Open MM_Center MM_Improved	Won   9	Lost   1   3   1	Won 10 10 9 7	Lost   0   0   1	Won 7 9 9 5	Lost   3   1   1	Won 10 9 9	Lost   0   1   1
1 2 3 4 5	Random MM_Open MM_Center MM_Improved AB_Open AB_Center AB_Improved	Won 9 7 7 9 8 4 2 6	Lost 1 3 1 2 6 8 4	Won 10 10 9 7 4 5 3	Lost   0   0   1   3   6   5	Won 7 9 9 5 4 6	Lost   3   1   1   5   6   4	Won 10 9 9 8 4 6 4	Lost 0 1 1 2 6 4 6
1 2 3 4 5	Random MM_Open MM_Center MM_Improved AB_Open AB_Center	Won 9 7 9 8 4 2	Lost 1 3 1 2 6 8 4	Won 10 10 9 7 4 5 3	Lost   0   0   1   3   6	Won 7 9 9 5 4 6	Lost   3   1   1   5   6	Won 10 9 9 8 4 6 4	Lost   0   1   1   2   6
1 2 3 4 5 6 7	Random MM_Open MM_Center MM_Improved AB_Open AB_Center AB_Improved	Won 9 7 7 9 8 4 2 6	Lost 1 3 1 2 6 8 4	Won 10 10 9 7 4 5 3	Lost   0   0   1   3   6   5	Won 7 9 9 5 4 6	Lost   3   1   1   5   6   4	Won 10 9 9 8 4 6 4	Lost 0 1 1 2 6 4 6
1 2 3 4 5	Random MM_Open MM_Center MM_Improved AB_Open AB_Center AB_Improved Win Rate:	Won 9 7 9 8 4 2 6	Lost 1 3 1 2 6 8 4	Won 10 10 9 7 4 5 3	Lost   0   0   1   3   6   5   7	Won 7 9 9 5 4 6 4	Lost 3 1 1 5 6 4 6 6 7 8	Won 10 9 9 8 4 6 4	Lost 0 1 1 1 2 2 1 6 1 4 1 6
1 2 3 4 5 6 7	Random MM_Open MM_Center MM_Improved AB_Open AB_Center AB_Improved	Won 9 7 9 8 4 2 6	Lost 1 3 1 2 6 8 4 3%	Won 10 10 9 7 4 5 3 68	Lost   0   0   1   3   6   5   7	Won 7 9 9 5 4 6 4 62	Lost 3 1 1 5 6 4 6 6 .9%	Won 10 9 9 8 4 6 4	Lost 0 1 1 1 2 6 4 4 6 6
1 2 3 4 5 6 7 	Random MM_Open MM_Center MM_Improved AB_Open AB_Center AB_Improved Win Rate:	Won 9 7 9 8 4 2 6 6 4 AB_Imp	Lost 1 3 1 2 6 8 4 .3%  proved Lost	Won 10 10 9 7 4 5 3 68 AB_Cu Won	Lost   0   0   1   3   6   5   7 	Won 7 9 9 5 4 6 4 62  AB_Cus	Lost   3   1   1   5   6   4   6   6	Won 10 9 8 4 6 4 71  AB_Cus	Lost 0 1 1 1 2 6 4 6 4 6 .4% stom_3 Lost
1 2 3 4 5 6 7	Random MM_Open MM_Center MM_Improved AB_Open AB_Center AB_Improved Win Rate: Opponent Random	Won 9 7 9 8 4 2 6	Lost 1 3 1 2 6 8 4 3%	Won 10 10 9 7 4 5 3 68	Lost   0   0   1   3   6   5   7	Won 7 9 9 5 4 6 4 62	Lost 3 1 1 5 6 4 6 6 .9%	Won 10 9 9 8 4 6 4	Lost 0 1 1 1 2 6 4 4 6 6
1 2 3 4 5 6 7 	Random MM_Open MM_Center MM_Improved AB_Open AB_Center AB_Improved Win Rate: Opponent Random MM_Open	Won   9   7   9   8   4   2   6   64   Mon   10   10	Lost   1   3   1   2   6   8   4   .3%	Won 10 10 9 7 4 5 3 68 AB_Cu Won 10	Lost   0   0   1   3   6   5   7 	Won 7 9 5 4 6 4 62  AB_Cus Won 10 7	Lost   3   1   1   5   6   4   6 	Won 10 9 8 4 6 4 71  AB_Cus Won 10	Lost   0   1   1   2   6   4   6   .4%
1 2 3 4 5 6 7 	Random MM_Open MM_Center MM_Improved AB_Open AB_Center AB_Improved Win Rate:  Opponent  Random MM_Open MM_Center	Won   9   7   9   8   4   2   6     64   Mon   10   9   7	Lost 1 3 1 2 6 8 4 .3%  proved Lost 0 1 3	Won 10 10 9 7 4 5 3 	Lost   0   0   1   3   6   5   7 	Won 7 9 5 4 6 4 62  AB_Cu: Won 10 7 8	Lost   3   1   1   5   6   4   6  .9%	Won 10 9 8 4 6 4 71  AB_Cus Won 10 7	Lost   0   1   1   2   6   4   6   .4%
1 2 3 4 5 6 7 	Random MM_Open MM_Center MM_Improved AB_Open AB_Center AB_Improved Win Rate:  Opponent  Random MM_Open MM_Center MM_Improved	Won 9 7 9 8 4 2 6	Lost   1   3   1   2   6   8   4   .3%	Won 10 10 9 7 4 5 3 	Lost   0   0   1   3   6   5   7  .6%	Won 7 9 5 4 6 4 62  AB_Cus Won 10 7	Lost   3   1   1   5   6   4   6   .9%	Won 10 9 8 4 6 4 71  AB_Cus Won 10 7	Lost 0 1 1 1 2 6 4 64% stom_3 Lost 0 1 3 1 3
1 2 3 4 5 6 7 	Random MM_Open MM_Center MM_Improved AB_Open AB_Center AB_Improved Win Rate:  Opponent  Random MM_Open MM_Center MM_Improved AB_Open	Won   9   7   8   4   2   6   64   Won   10   9   7   8	Lost 1 3 1 2 6 8 4 3%  proved Lost 0 1 3 2	Won 10 10 9 7 4 5 3 68 AB_CI Won 10 9 9	Lost   0   0   1   3   6   5   7   .6%	Won 7 9 5 4 6 4 62  AB_Cu: Won 10 7 8 8	Lost   3   1   1   5   6   4   6 	Won 10 9 8 4 6 4 71  AB_Cus Won 10 7 6	Lost 0 1 1 1 2 6 4 6 .4% stom_3 Lost 0 3 1 3 1 7
1 2 3 4 5 6 7 	Random MM_Open MM_Center MM_Improved AB_Open AB_Center AB_Improved Win Rate:  Opponent  Random MM_Open MM_Center MM_Improved	Won 9 7 8 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Lost 1 3 1 2 6 8 4 .3%  proved Lost 0 1 3 2 5	Won 10 10 9 7 4 5 3 68 Won 10 9	Lost   0   0   1   3   6   5   7  .6%	Won 7 9 5 4 6 4 62  AB_Cu: Won 10 7 8 8 6	Lost   3   1   1   5   6   4   6   .9%   Lost   0   3   2   2   4	Won 10 9 8 4 6 4 71  AB_Cus Won 10 7 6 3	Lost 0 1 1 1 2 6 4 64% stom_3 Lost 0 1 3 1 4