

Topic: Adding a Fifth section

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I. Purpose

At the Annual meeting of club held on January 15th, 2013, a suggestion was made that a fifth section be added to the monthly tournament so that the section breaks would be 200 points apart instead of the current 300 points. The reasons offered for this suggestion were:

- To make the games more “competitive” by not having to play people rated much higher
- To provide more options to for players by letting them choose to play up for more of a challenge or play in their natural section to play more closely rated players

II. Limitations of analysis

- To provide the most current data to increase relevancy, only trend data from the year 2012 which just ended at the time of this document will be used.
- Changing the U2000 section break is not being considered. The impact of changing that break point would merit its own full analysis as the setting of the break at that point was not trivial and there is no indication for any need to re-address it in the context of this topic’s discussion.

III. About the current sections

- 2003-10 – Changed from three sections to four Sections as the standard
 - Section Breaks vary from month to month to provide options for players
 - 61 - events with this configuration of sections
 - 84 - players average Attendance till next change in sections
- 2008-12 – Bottom section no longer varies - stays at U1400
 - Done to stabilize the number of players in the bottom two sections.
 - 7 - events with this configuration of sections
 - 85 - players average Attendance till next change in sections:
- 2009-07 – Section breaks no longer change
 - Breaks remain to today at: Open, U2000, U1700 and U1400 sections
 - 40 - events with this configuration of sections
 - 86 - players average Attendance through 2012-11

IV. 2012 Opponent analysis

The data below is summarized from all the pairings for the year 2012. It shows that average rating difference that occurred for the players.

Average Rating Difference	For Players that Played within section	For the Players who Played Up	Avg. # players played up
Open	221	257	6
U2000	126	213	5
U1700	164	223	11
U1400	346		

Example: The Open section

- In 2012, if a player played in the open section and didn't play up (rating was 2000 or higher), the average rating of their opponent was within 221 rating points of their own rating.
- If a player did "play up" into the Open section, the average rating of their opponent was within 257 rating points.
- Note that because a player is playing up, they necessarily will have a greater probability of facing a much higher opponent because players at the top of the section may more than 300 points away as there is no upper bound on the section.

V. Winning and Losing chances

The table below presents chances of winning/losing for opponents at various rating differences as determined by the USCF rating system.

Rating Difference	Higher	Lower
0	50 %	50 %
50	57 %	43 %
100	64 %	36 %
150	70 %	30 %
200	76 %	24 %
250	81 %	19 %
300	85 %	15 %
350	88 %	12 %
400	91 %	09 %

If the section break was reduced from 300 points to 200 points then the difference in expectations would be:

- 9% more difficult for the higher rated player to win - 85% drops to 76%
- 9% more likely the lower rated player will win – 15% goes up to 24%
- Using our average opponent data these numbers are actually smaller

VI. Player distribution among sections

A. Mapping out the sections

In the table below:

- Data is for the year 2012
- Rating and Players – shows how many players had a rating in that range. E.g. a 1754 player is in the range shown as 1700.
- The coloring, assuming nobody were allowed to play up:
 - Blue - Players who are required to play in the Open Section
 - Salmon – Players required to play in the U2000 section
 - Green – Players required to play U1700
 - Purple – Players required to play in the U1400
 - Orange – Players who would now play in a new section
 - Brown – Players who would now play in a new section
 - Yellow – Shows the range of players impacted by creating new sections

Rating Range	Players	Current			Even Breaks			Odd Breaks		
		300 points			200 points			200 points		
		Section	Players	Pct.	Section	Players	Pct.	Section	Players	Pct.
2500	1	Open	33	16%	Open	33	16%	Open	33	16%
2400	3									
2300	2									
2200	7									
2100	7									
2000	13									
1900	10	U2000	56	28%	U2000	34	17%	U2000	56	28%
1800	24									
1700	22				U1800	33	16%			
1600	11	U1700	43	21%				U1700	22	11%
1500	11				U1600	32	16%			
1400	21							U1500	30	15%
1300	9	U1400	70	35%	U1400	70	35%			
1200	11							U1300	61	30%
1100	3									
1000	7									
0900	6									
0800	12									
0700	7									
0600	3									
0500	3									
0400	2									
0300	2									
0200	3									
0000	2									
Total	202									

B. Played up Data

The table below shows the average number of players in each section for the year and the average number of players played up into that section.

Section	Players	Played Up
Open	18	6
U2000	21	5
U1700	27	11
U1400	18	

C. Additional Data

- Historically new sections were added every time our average attendance exceeded 20 more players for about six months. This was applied when we went from 20 to 40 players, then again at 40 to 60 players and then again from 60 to 80 players.
- 84 players - The average attendance for 2005 through 2012
 - 79 to 89 – the range of low to high averages during this period
 - The average attendance before 2005 is about 20 players less and excluded as being too out of date for calculating the modern day trend and stability.
- 16 – the number of players needed to allow for a single perfect score in a 4 round event
 - With less than this number odd pairings in the last two rounds will probably occur frequently. E.g. Someone in a tie for 1st going into the last round might get a significantly higher or lower rated player with less points in their match than the other person they are tied with. It is also possible to reach “impossible” pairings and severe pairings will occur and also the possibility that someone will have to play someone a second time.

D. Analyzing the alternative section breaks

- The range of ratings primarily impacted by adding a fifth section is shown in Yellow in the chart above.
 - Players in the Open section will not be impacted
- For the Even section breaks proposal
 - U1400 – Players see no change
 - The 99 players impacted will now be divided into thirds (32, 33, & 34 players)
 - Previously the U2000 section had approximately 56 % of those players
 - 56% of the 21 average players results in 12 players for the section
 - This would leave the other 78 players to be in the U1800 and U1600. If evenly split then both will have a healthy 39 players. It could well be that players may wish to play up in both sections or just one. It is not possible to project well if one or more sections will be sparsely populated.
 - The U2000 section would have additional size reduction inducement. 1700s would have the ability to not play in that section and thus there is some downsize pressure. There is no significant upside pressure because only those who want to avoid the small pool of lower rated players introduced, if any, into the U1800 section would likely be minimal.
- For the Odd section breaks proposal
 - The U2000 section would likely be minimally affected as nobody is being forced to play up and there is little inducement to play up if they are not playing up now.
 - The new U1500 section is taking players from the U1700 and from the former U1400.
 - 9 – The number of 1300 players now forced to play up. They will be the bottom half of the new 200 point U1500 section.

- 1400 players will now be the top half of their own section 200 point section instead of being the bottom 1/3rd of the U1700 section
- 30 – The number of lower rated players the U1700 section may not see due to the creation of the U1500 section
- 30 plus 11 – The number of players that might make up the pool of players for the U1500 section due to the eleven who play up now into the 1700. There may be more that play up from the new U1300 because now for someone who was under 1400 before to play up they can count on not playing anyone above 1500 whereas before they may not have played up because of having to play 1500 and 1600s in the U1700 section.
- Given these inducements it may be reasonable to think that the number of players in the U1300 section will be less than those in the previous U1400 and that the U1500 section would likely be better attended than the U1700 as there are fewer inducements for U1500 to play up than the U1300 to play up. Thus the U1700 section is likely to be the smallest section.

VII. Prize fund considerations

Determination of the prize fund for any event is a complex calculation requiring consideration of the entire club budget. A simple proposal that can be implemented without too much pain or revisiting of the entire budget would be the following:

- Take the existing U1400 prize fund and apply it to the new U1500 or U1600 section that is being “inserted” into the list of sections.
- Allocate additional funds of \$20, \$10, \$5 for the bottom section which would be U1300 in both alternatives analyzed.
- The prize arrangement fits the prize allocation model currently in place for reducing the prizes proportionally as you go down a section.
- This is an increase of \$35 per month which is slightly more than the average entry fee for a club member per month.

VIII. Authors analysis

A. Analysis

- Reducing the section breaks to 200 points would make those sections 9% more “competitive” based on the Rating system win/loss probability table.
- Based on the current averages of about 20 players per section and that this number is a good number to maintain, the current attendance average of 84 does not support adding a fifth section. Our best average year in the examined window of time was 89 players which is only half way to the 20 players we generally consider necessary.
- We see no reason to believe that 200 point sections instead of 300 point sections would lead to increased attendance by either former club players or area players. The club already attracts a very high percentage of players who are in easy commute to the club as well as a non-trivial number of players for whom travel is not trivial. Even if this subjective opinion is incorrect, the primary purpose of the proposal is to increase the enjoyment of the people playing at the club now. There are many other things that could be considered if our goal is to increase attendance.
- While some months fall short of our ideal 20 players per section, adding a fifth section will result in one or more sections regularly being too small based on the 2012 data.

B. Conclusions

- Adding a fifth section is not supported by the numbers
- A nine percent increase in competitive ness does not seem to be a significant and easily felt improvement for players.
- One of the features our club has that smaller clubs do not have is that because we have such good attendance and each section is robust, wildly odd pairings and strange pairings are rare for us. Small clubs have the problem that they do not have enough players at each level to fill their sections so every other round can often lead to reasonably close then far apart ratings.

C. Recommendations

- We recommend that we do not add a fifth section unless our average attendance reaches the 100 player level.
- All other considerations at this time carry a much lesser weight than the criteria of 100 player’s average.