The Block Transition Tournament

by Tony Berard
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Introduction

There's only one place in the world where you can see The Block Transition Tournament in action, and that place is www.fightchess.com. This tournament design is really an incredible advance of the state of the art of conducting tournaments.And, I am not just saying that because I invented it. I am saying it because it is true. The main thing it does is that it allows for an incredible diversity of how to conduct a tournament. And, it allows the players to play at their rating levels, which is very important. Another thing it can do is allow the top two performers to duke it out in the final round or final three rounds of a tournament, which can never happen in any tournament style today.

Also, if a player is cheating, he will get a falsely high performance rating. If a player gets out of specs too high when he wins trophies and tournaments, he can be flagged. After a certain number of these, we can declare that this player is sandbagging. So, my rating system and to a lesser degree The Block Transition Tournament can find sandbagging players.

So, let's get down to explaining how this thing works. That will be our concern in the first part of this book. Then, in the second part of the book, we will show exactly how you can make money on our site using this new tournament design.

The Great Innovator: J.S. Bach

J.S. Bach wrote the Well Tempered Clavier in 1722. This work was so revolutionary that it forced instrument makers to produce their instruments

with the well tempered tuning system. It was impossible to play through all 24 of Bach's pieces in this work on any instrument, except one tuned with equal temperament. He had one major piece and one minor piece for all twelve semitones of the chromatic scale. This was taking things to their logical extreme.

But, his pieces were extraordinary. I mean we are talking about Bach here—one of the giants of music of all time. We listen to Bach a lot on public radio and in concert halls because of the quality of his music. I don't think people really understand Bach's Well Tempered Clavier and what it really represented. A lesser composer certainly couldn't have pulled it off. But, Bach did, and with it he ushered in a new age of music composition. I didn't know the year, so I looked it up on the internet. I found a website dedicated to this work of Bach. It is at
http://www.bachwelltemperedclavier.org/

I might add that I have a quote from Felix Mendelssohn (another great composer whose famous "Wedding March" in C major, written in 1842, is played at many weddings when the bride enters) who says, "Play Bach for he is our master in all!" We have Mendelssohn to thank for the public's current interest in Bach because Bach had slid into obscurity, and Mendelssohn made it a lifelong endeavor to restore all of Bach's works to public appreciation.

So, why am I talking about Bach in my book about The Block Transition Tournament? The answer to this is that The Block Transition Tournament will be for chess (and other competitive modalities such as scrabble or backgammon etc.) what Bach's Well Tempered Clavier was for music. The comparison is not to be taken too far, though. Chess and the other forms of one on one competition don't even use the twelve semitone musical scale and all that. But, Bach did usher in a paradigm shift. And, The Block Transition Tournament will do a similar thing once it takes hold.

The comparison I am drawing between myself and Bach is that he took his craft to its logical extreme and brought about a fundamental change in his profession. Similarly, with the Block Transition Tournament, it will bring about a fundamental change in how chess and backgammon and the rest of the competitive board gaming world conducts the business of running their tournaments. In 200 years, I predict that the only kind of tournaments you will find will be Block Transition ones, and people who research chess history will find that they used to run tournaments called Swiss style tournaments, round robin style tournaments, and knock out style tournaments. The change in vocabulary and perception will be just as fundamental for these types of competition as for what Bach did in music.

With that being said, let's get started to learn what the Block Transition Tournament is all about!! The first thing, though, is that I will present the situation that actually inspired this new kind of tournament.

The Reason Why I Developed The Block Transition Tournament

When I was developing the PRA and Tournament App (see my paper for this at PRAandTournamentApp.pdf and on Amazon at The Performance Rating Algorithm and Tournament App: A Faster Algorithm than the Elo Rating System (PRA Theory and Use), I came across a problem while I was processing some tournaments (both historical tournaments and current ones). This problem relates to the G-score of the star player in a tournament. The G-score is a measure of how well a star player did against the elite. It is basically a measure of the speed at which the star player garners points while accounting for the resistance encountered and the stamina required. The ideal situation is when a star player wins out. I was looking at the G-scores of a list of performances in which the star player had routed the opposition.

I saw quite a disparity in the G-scores of the players even though each had won out. The problem I saw was that in some of these tournaments, the

star player had to play against some weak competition. Unfortunate pairings are inevitable in these other types of tournaments, which is all that the world had at the time these events took place. And, I didn't know how or even if it was possible to enable a star player to avoid the weakest players in a tournament. If it was possible, this would boost the G-score of a star player who still won out even if presented a tougher challenge due to stronger pairings made possible with a better tournament design.

I need to say a few things about the G-score here. The first is that it's a measurement in my rating system that I developed, and I had used it quite a bit. I came to see that I could rely on its findings because it condenses three main variables: the length of a tournament (i.e. it measures the stamina of the player), the skill of the opposing players (i.e. it measures the resistance the player encountered during the tournament), and the player's speed of racking up the score..

There was quite a range for the G-scores I had accumulated for these star players, and there were also a number of gaps between the rankings. This is because there is quite a bit of variation in how the historical tournaments and matches were set up. The number of players in a tournament varied, which caused the number of games required to be played to change. For example, in Vienna 1898, the world champion Lasker was invited to play, but he declined due to the sheer number of players that were going to be present. He didn't want to participate in such a long event that would have taken months. But, the number two and number three spots in my overall list belong to Tarrasch and Pillsbury, respectively, due to their G-scores achieved there. They both went to this Vienna 1898 tournament, and they both garnered points at a fast enough pace under the resistance level encountered with a stamina level that exceeded the performance that Fischer had against Larsen in 1971.

Now, Fischer's match against Larsen was only six games, so his stamina coefficient was considerably smaller than either Tarrasch's or Pillsbury's stamina coefficient. However, Fischer's resistance coefficient was higher because he faced Larsen only for each of his games. Yet, the players that

Tarrasch and Pillsbury faced were all elite level players, and they scored well enough against that field to offset the higher resistance that Fischer encountered against Larsen. Although, it must be recognized that Tarrasch and Pillsbury did not rack up the points as fast as Fischer did.

So, the point here is that the G-score formula (also called the Greatness Formula) accounts for the speed at which the player earns points against the resistance encountered while holding up under the stamina required to make it through to the end of the event. All three parts are measured as an integral unit. Based on this, a star player would like to earn as high of a G-score as possible. To that end, he or she would like to face the best players in longer events. It is up to the organizers to bring the players together that are the best, and it is up to the star player to rise to the occasion to perform as well as possible to maximize his or her G-score.

Until now, we have only had limited selections of tournament designs to choose from to decide how to run our events. We have Swiss tournaments, which are designed to provide short tournaments in the presence of a large quantity of participants. We have round robin tournaments where everyone plays everyone, but this is only good for a rather smallish number of participants as Lasker's decline of participation showed in 1898 for a large tournament. If we have a small number of players, we can do a Double Round Robin tournament, which does make an appearance from time to time. Some decades ago the Candidates Tournament was an eight player double round robin event that took 14 rounds to complete.

We even have an example from chess history where they cycled through the players six times (St. Petersburg 1895, won by Lasker). The subject of this paper is to introduce a new kind of tournament that gives organizers great latitude in controlling both the length of the event and the resistance encountered for the star player. So, now it is possible for a star player to achieve higher G-scores because events will allow him to miss having to play the lowest rated players in the event, thus raising the resistance coefficient. The organizers have the flexibility to run the tournament for as many games they would like, within the confines of the module size they

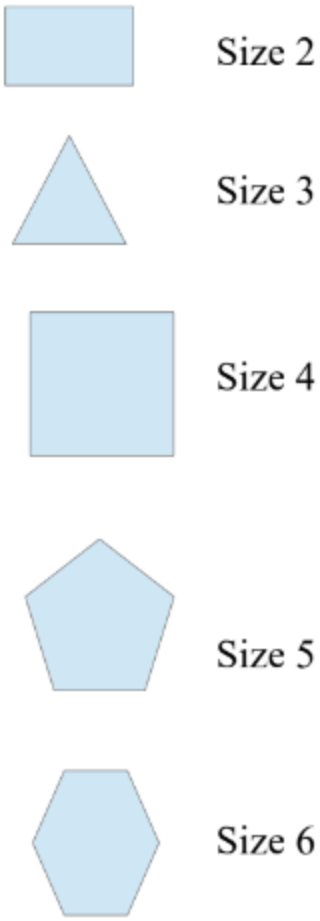
pick. Thus, they could run it for, say, 12 or 15 or 18 rounds with something like 16 players in the event. With a round robin or a double round robin they are forced to choose between 15 or 30 rounds. Thus, this great control of the event is a major advance in how we can conduct tournaments for the players of our great games.

We will next discuss the concept of the block, and this borrows heavily from the field treatment concept from the Design of Experiments area in mathematics, but it does stand on its own terms as well. A current site discussing blocking techniques in field experiments is the following: Designing Research and Demonstration Tests for Farmers' Fields | UGA Cooperative Extension

The Concept of the Block

The very first concept needed for this type of tournament is called a Block. Blocks can be any size from 2 onwards. Initially, we will implement our app with just blocks of sizes 2 and/or 4 only. Later, we will add in more functionality to our app to capture more versatility in what we will be able to do. However, even with blocks of just the two and four sizes, it will still allow us to replace all current forms of tournaments currently in use in the world today. So, let's continue our discussion on the blocks. I use simple geometrical shapes to show the blocks. Here are a few of the smaller sizes.

There are larger sizes since any size is possible. But, for practical considerations, these few should be plenty. I imagine we will implement sizes 3, 5, and 6 within a year from when we launch the site. Sizes 7, 8, 9, and 10 will likely be done within two years from launch. I can't imagine going beyond this.



Anyway, so what we do is to take the roster of players in the tournament, and put them into the blocks. A block of size 2 holds two people. So, don't put three people into a 2-block etc. Some strategy is required to do this. It depends on how many people you have in the tournament that will decide a convenient block grouping. Let us say we have 16 players in the tournament. That breaks up nicely into four 4-blocks. But, we cannot just put the people into the blocks in any kind of way, either. So, I have to explain a few things first.

The Principle of Homogeneity

Our first concept when filling the blocks is called the principle of homogeneity. This principle declares that we make our blocks as much as possible alike. In the early days of statistics, agriculture was in serious need of handling the data they had. My understanding of it is that data

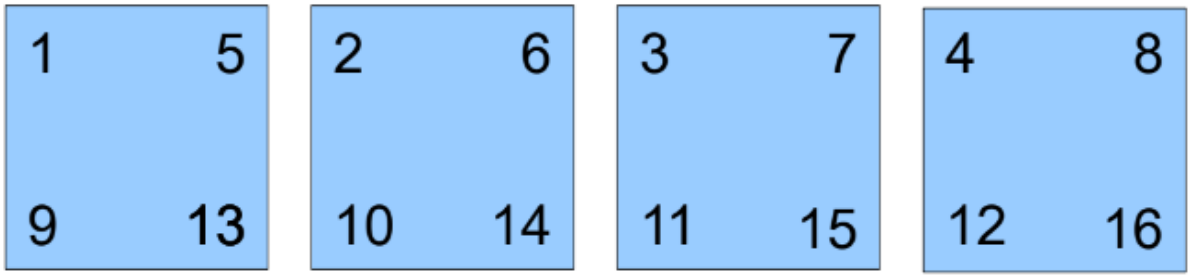
had been kept for generations on plots of land. What went on there, and how much and what kind of treatments etc. Ronald Fisher was the seminal scientist that figured out how to deal with this kind of thing. Here is a little bit about Fisher.

From wikipedia:
In 1919, Fisher started work at Rothamsted Experimental Station in Harpenden, Hertfordshire, England. Here he started a major study of the extensive collections of data recorded over many years. This resulted in a series of reports under the general title Studies in Crop Variation. This began a period of great productivity. Over the next seven years, he pioneered the principles of the design of experiments and elaborated his studies of analysis of variance.

He furthered his studies of the statistics of small samples. Perhaps even more important, he began his systematic approach of the analysis of real data as the springboard for the development of new statistical methods. He developed computational algorithms for analyzing data from his balanced experimental designs. In 1925, this work resulted in the publication of his first book, Statistical Methods for Research Workers.[11] This book went through many editions and translations in later years, and it became the standard reference work for scientists in many disciplines. In 1935, this book was followed by The Design of Experiments, which was also widely used.

So, we seek a balanced design of our tournaments. A tournament can be thought of as an experiment. If we make this connection, then we get to borrow a rich history from the field of statistics, and Ronald Fisher's work becomes very important to us. The connection I would like you to make is to see that each block in our tournament is like a field plot in one of Ronald Fisher's field experiments. Thus, each block needs to be as much like the others as is possible. We could assign the players randomly to them. But, sometimes, this will yield some blocks as decidedly different from some others. Thus, we will number them in a block to block fashion in ranked order of players. I will call this type of seeding (a term apparently from the

field experiments and their treatments!!) the *even distribution seeding*. Getting back to our 16 players, we do an initial seeding into the blocks as follows:



The Initial Seeding of 16 players into Four 4-Blocks

The block with players 1, 5, 9, and 13 is the Primary Block. The rest of the blocks are Secondary Blocks. They are ranked by the ranking of the Primary Player in them. Thus, the leftmost block is Block-1 because the primary player in it has rank 1. The rightmost block, then, is Block-4 because the primary player in that block has a rank of 4.

The Path of Least Resistance for the Primary Player

The games are played in the order that gives the Path of Least Resistance to the Primary Player in a block. Thus, for Block-1, the Path of Least Resistance for the Primary Player would be obtained if he or she were to play the games in the order of the easiest opponent to the most difficult. This would mean that the games would run in the order of opponents as 13, 9, and 5. The rest of the details for a 4-Block are forced. We get the following for Block-1. Note: It is customary in chess to place the player of the White pieces first. Thus, 1 – 13 means that player 1 is White and player 13 is Black. If we see 13 – 1, this means that player 13 is White and player 1 is Black.

Round 1: 1 – 13 and 5 – 9
Round 2: 1 – 9 and 5 – 13
Round 3: 1 – 5 and 9 – 13

During the course of the tournament, we will have occasion to ensure that we get a balance in distribution of the colors. We do not want one player to have played White three more times than another player. For example, in the above listing, Player 1 got White 3 out of 3 times (because player 1 is listed before the opponent). We should never see that in a real tournament.

We want this balance in how many times each player gets White versus getting the Black pieces. This is because chess and many other games are unfairly biased in their outcomes. In chess, White has an opening advantage that Black must work hard to overcome. I have read that at the master level, it can take anywhere between 12 and 20 moves to fully equalize the position. This assumes that Black has not made small inaccuracies that worsen the situation over the board.

Usually, it is the first player to move in alternating style turns board games that enjoys the advantage of the opening. There might be some game somewhere, though, where it is a disadvantage to move first. To account for this possibility, we shall declare that we will count the number of times a player has opened with the side having this natural advantage. We can denote this quantity after a player's name following a dot. Thus, Morphy.6 would mean that Morphy has played six games thus far in the tournament as the player with an advantage. Suppose Morphy.6 has to play Steinitz.5 in the tournament. Well, Steinitz has not yet played six games as Morphy has with the natural advantage. So, it shall be Steinitz.5 vs. Morphy.6 in this game. After the game, Steinitz will then be recognized as Steinitz.6 as he has now played 6 games with the natural advantage. Morphy, of course, is still Morphy.6 because his last game against Steinitz was not with the natural advantage. Next, suppose that Morphy.6 has to play Lasker.6 next. Well, both players have had six opportunities with the natural advantage. The only fair way to decide which player receives the natural advantage in

this game is to use a true 50-50 coin. This kind of coin does not exist in the real world. However, there is a trick we can use to make any coin a true 50-50 coin.

The True 50-50 Coin and How to Acheive it with an Ordinary Coin

Here is how to do this, and I might add that software can be programmed with this trick built in so that when this situation comes up the software automatically employs this device to seed the players into the next phase along with their color assignment. A biased coin will come up one side more frequently than the other. This is what makes it biased. Let us say it is biased toward Heads at 90% (with 10% of the time coming up tails, obviously). If we begin to toss this coin, we might get H, H, H, H, H, H, T, H, H, H, H, H, H, H, H, H, H, H, H, H, H, H, H, H, T, etc. To make this coin fair (or any coin fair), take the tosses in pairs. If we get two heads (H and H) or two tails (T and T), we throw that pair out. If we get TH or HT, we keep it. TH we can call a tail since tail came first, and HT we can call head since head came first. The outcomes of the TH's and HT's are true 50-50. This doesn't mean that after ten kept pairs we will see five TH's and five HT's. No, that is not what a fair coin is.

Rather, what we will see is if we keep tossing this biased coin as pairs of tosses, we will see the numbers of occurrences of TH's and HT's even out to 50% each of the kept tosses the more and more we do this. This is in line with the law of large numbers that guarantees this will happen if we do this a large number of times.

With small blocks, the path of least resistance for the primary player forces the rest of the games to run as they do. With larger blocks, we might possibly get more options. So, we should declare that as much as is possible, the higher ranking players should get paths of lesser resistance than lower ranking players in the block. Running the situation concurrently in all blocks makes it conform to the principle of homogeneity.

The primary player's job is to "Hold the Block." Thus, at the conclusion of the three rounds to process a 4-Block, player 1 would like to do at least as well as player 2 did in his or her block. This goes on for all the blocks. However, it is clear that not everyone will perform exactly as they are supposed to (or expected to or predicted to to use statistics vernacular). Some players might do better than expected. It could even be that a secondary player in a block outperforms the primary player in the block. So, we need to account for these performances that are above or below expectations, which brings us to our next topic.

How to Perform the Transition for the Next Phase

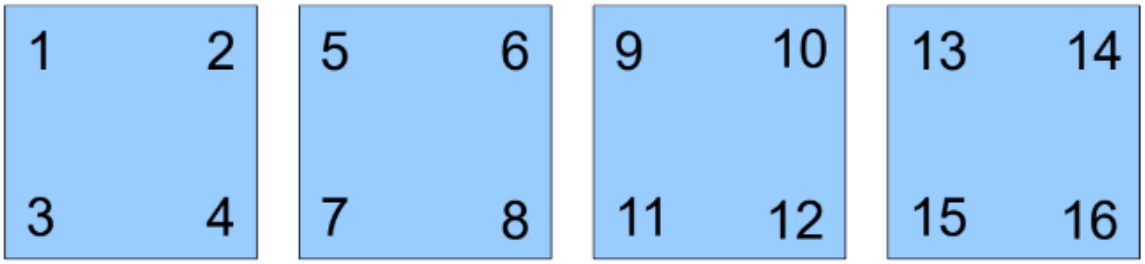
The next topic is the "Transition" part of The Block Transition Tournament. What we want to do is to rerank the players, according to how well they have done thus far in the tournament. There are four criteria for ranking a phase set with points as the highest level followed by P-Zero scores, G-scores, and then seniority from the last seeding (for the first reseeding, we use the initial ratings, and after that we use the rankings from the last reranking). We use the P-Zero scores from the Tournament App part of Tony Berard's rating system because this is the most accurate and unbiased method of measuring performance during a tournament. My goal in this paper is not to present any new math (Whew!!). Rather, any math will be done in the background, and the focus of this paper is to interpret the results. We want to make correct decisions based on the results of the math processes involved. I will show what to look for and how to make those correct decisions.

Breaking the Principle of Homogeneity

There will be rare times when people forfeit games or leave a tournament. People do get sick and have lives that run into emergencies where they must leave a tournament. In situations like this, we have to break something really nice like the homogeneity principle. A 4-block degenerates

to a 3-block when a player leaves the tournament. Now that it's a 3-block, one of the players won't have an opponent in the game to be played, so we must issue a half-point bye to that player. It counts as a draw in the standings, but the P-Zero score will not contain the results of an unplayed game. So, the player's points change, but the P-Zero score does not. These are some of the responses to a sudden vacancy in the tournament. But, these will be rare, of course.

The final phase of *most* of the tournaments will not follow any of the protocols established for the earlier phases, such as following the principle of homogeneity. Instead, in the tournaments that do use a power concentration phase, we place the players in a strict top down fashion. I call this phase the "Power Concentration" phase of the tournament because the power is concentrated in the primary block. This is the phase where the star players are now put together to compete against each other directly. The number one player (if he held the position throughout) now gets to have the opportunity to defeat his (or her) rivals. This will be the most exciting part of the tournament. Here is how the four 4-Blocks will look in the Power Concentration Phase.



Seeding the Final Phase with the Power Concentration Distribution

Note that some tournaments may elect not to use a final power concentration phase. But, for those that do, they get this nice direct head to head battle of the top players. Are the other games unimportant in the other blocks? Of course they are important. Even the bottom two players want to fight because who wants to be recorded as being in last place? Even if the player in last place has no points, he or she still would love to take something away from a player doing better. So, yes, even the games in the

lower blocks are important. Most of the scrutiny, though obviously, will be on the games in the top block.

The Swapping Places Rule for the Power Concentration Phase

We still process this phase using the path of least resistance for the primary player in each block. This gives the primary player the best opportunity to hold the block. But, wait!! How can the players not hold the block anymore? There are no more transitions because this is the last phase of the tournament. Right? Well, we don't do a transition anymore, that is true. However, we have a rule for the power concentration phase. If a player in a lower block achieves a greater P-Zero score than a player in a higher block after a round in this phase, then for the next round, we swap those players.

So, if player 4 gets a higher P-Zero score than player 3, we do nothing. But, if player 5 gets a higher P-Zero score than player 4, we promote player 5 to become player 4 (and player 4 is demoted to player 5). Because the blocks will continue to process in the path of least resistance, player 1 would have already played player 4 in the first round of the power concentration phase of the tournament. So, the new player 4 (the promotion of player 5) will not get to play player 1. But, the remaining games of player 4 in this block will be able to be played by the promoted player as long as the promoted player does not get swapped again.

It is entirely possible that for this 3 round phase that players 4 and 5 swap places at the conclusion of the first round. Then, if they have P-Zero scores that allow switching places again, they would swap positions again for the final round of the block. This swapping rule will make for some interesting commentary about the tournament. "You got demoted to the second block in the power concentration phase, but you managed to get back to the primary block for the third round of the power concentration phase. What was going through your mind when you got demoted and subsequently promoted?" will be a common kind of question we can ask players after the

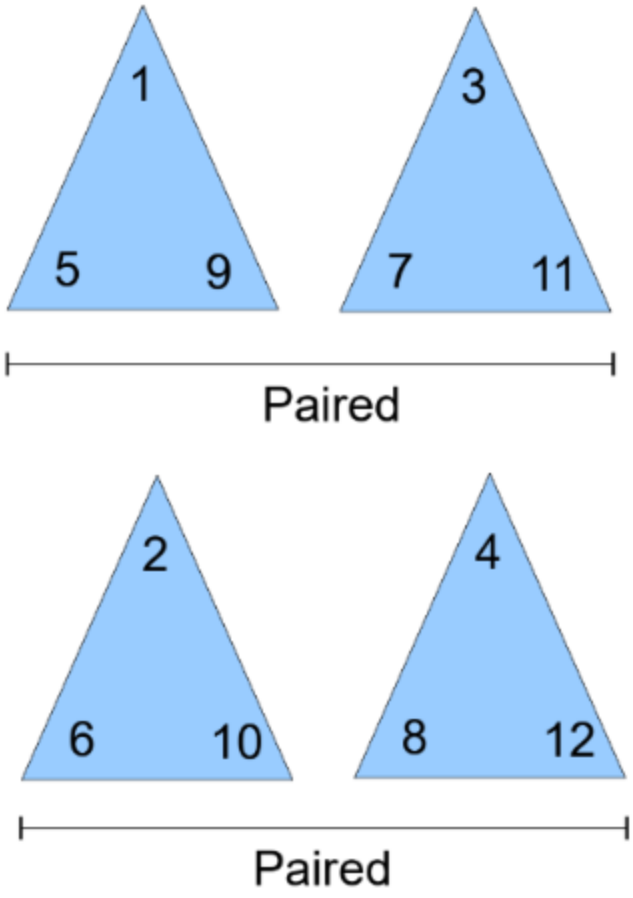
tournament. A surprise one, though, might be the following: You were in fifth place the whole time until the power concentration phase, but you won the first game and moved to the primary block and then won the final two games there, winning the tournament. How did you keep your cool during that?

Odd Sized Blocks Require Pairing and Cross Block Games

Suppose we have 12 players, and we want to use 3-Blocks. Here is our initial seeding of the 12 players into four 3-Blocks with counter clockwise orientation.

Observe that blocks 1 and 3 are paired together. Also, blocks 2 and 4 are paired together. We pair the 3-blocks in a corresponding top/bottom split so as to conform to the principle of homogeneity. Now, we can diagram how a phase will progress for these 3-Blocks. Following the path of least resistance for the primary player, player 1 would play player 9 first and then player 5. What does player 5 do when player 1 is playing player 9? Player 5 plays a cross block game with player 6. We call players in corresponding positions in paired blocks "cross block paired players." So, players 1 and 2 are cross block paired players. Also, players 9 and 10 are cross block paired players. Running a phase with this seeding (which is an even distribution method of seeding), then is as follows (without accounting for the color placement):

Round 1: 1 vs. 9, 2 vs. 10, 3 vs. 11, 4 vs. 12, 5 vs. 7, and 6 vs. 8
Round 2: 1 vs. 5, 2 vs. 6, 3 vs. 7, 4 vs. 8, 9 vs. 11, and 10 vs. 12
Round 3: 1 vs. 3, 2 vs. 4, 5 vs. 9, 6 vs.10, 7 vs. 11, and 8 vs. 12



The Law of Homogeneity and Completeness for Odd Sized Blocks

If you are going to use odd sized blocks, then make sure they are paired. This is the completeness part of the law. The homogeneity part of the law requires that the pairing occurs in a corresponding fashion with a top tier block and a bottom tier block. Thus, for example, for 3-blocks, let's say you want to use some even number of them, say ten, for making good on the completeness part of the law. Now, the top tier blocks would then be blocks 1 through 5, and the bottom tier blocks would be blocks 6 through 10. The top block in each tier gets paired, according to the principle of homogeneity. Thus, blocks 1 and 6 are paired. We continue pairing in a corresponding fashion down to pairing the bottom block in each tier: 2 with 7, 3 with 8, 4

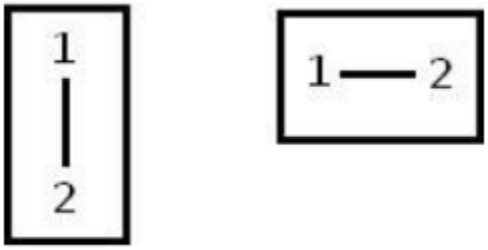
with 9, and 5 with 10. Any cross block games are only done with blocks that are paired according to this law. Furthermore, a cross-block game will only occur with corresponding players. Thus, a primary player in a block will only have a cross-block game with a primary player in another block, for example. To say it using the terms given previously, a cross-block game will only occur with players who are cross-block paired players.

The Templates for Processing a Phase for the Smallest Polygons (Sizes 2 to 6)

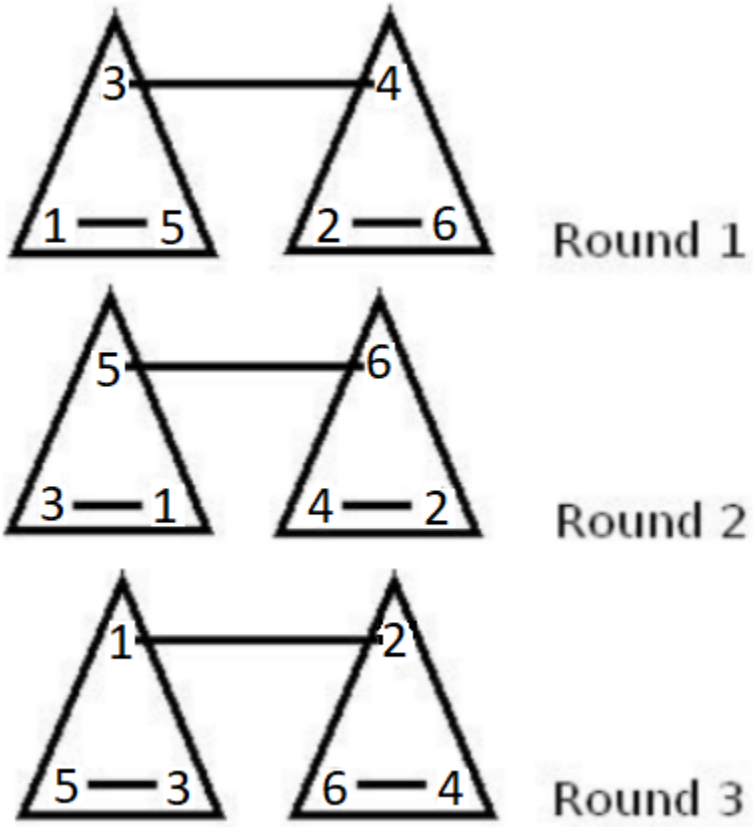
As the title of this section suggests, there are larger polygons possible. Yes, a polygon's size, in terms of the number of corner points it has, has no upper bound. But, obviously, just because a 200 sided polygon is possible for a 200 player event, we still want to break it up into much smaller blocks or modules. A 200-gon would make it a Round Robin event (actually, it would be a special round robin in that the primary player gets the path of least resistance, which is not a feature in normal round robins today), so all the players would wind up playing 199 games each. So, blocks of size 4 would be ideal for this. So, we will start with 2-gons or 2-Blocks. Note that n-gon is a math term, but we will use the term n-block for our purposes. Thus, while it is not incorrect to say a 2-gon, we preferentially use the term 2-block.

They (2-blocks) can be pictured vertically or horizontally as in the following diagram. There is only one connecting line possible between the two players, so there is only one round possible for a phase in a 2-Block. If 2-Blocks are being used with higher level polygons, the two players involved in the 2-Blocks must play each other repeatedly. So, they must alternate colors for each successive game. Note: They may be tied in the number of times they have the natural advantage to start their time in the 2-Block. So, the Fair Coin Method will decide their color assignment for their first encounter only. After that, they shall strictly alternate colors for each successive game played while in the 2-Block. Also note that one player might have had fewer times with the natural advantage, so that

player gets the natural advantage until he catches up, and then the fair coin will be used after that.



The next is a 3-Block. However, because only 3 players are in a 3-Block, it is best to run these as pairs of blocks as shown earlier, according to the law of homogeneity and completeness. They may or may not be consecutive blocks in the overall scheme of a phase in a tournament. But, either way, their cross-block games should be noted via a horizontal or vertical connecting line or connecting bar (or simply connector).

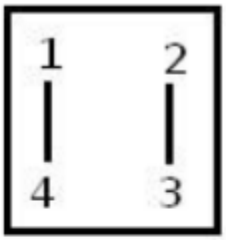


The situation is already much more complex than for the simple 2-block. There are three rounds to complete a phase for a 3-block. For convenience in the depiction of the graphing of the rounds, the cross-block game is shown in the upper position. A similar arrangement is possible for two 3-blocks depicted vertically (one of the triangles can be inverted). The players here are placed clockwise around the 3-blocks. (Note: There is no real difference with clockwise versus counterclockwise orientation, so be consistent with the orientation used throughout the tournament.) By following the principles of the path of least resistance for the primary player, and the even distribution method, along with the law of homogeneity and completeness, we actually are forced to run the three rounds out in this fashion.

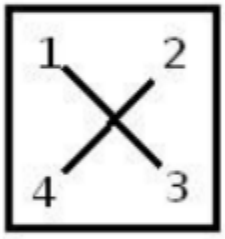
Observe in round 1 that player 1 plays player 5, and player 2 plays player 6. That leaves player 3 in the primary block (or the main block) and player 4 in the secondary block. So, players 3 and 4 play a game, and this game is called a “cross-block” game. Note also that we are still following the path of least resistance for player 1. He needs to play player 3 next round, not player 2 as this would be a more challenging game for him. Observe, though, that we still run the numbers around the triangle in a clockwise fashion since we did so earlier. Finally, to complete the phase for this pair of 3-blocks, we put players 1 and 2 in the top positions of their triangles to make the rendering of the diagram easier. Thus, in the third round, we see a cross-block game between the primary players.

If a 3-block is a lone 3-block (i.e. it doesn't have a paired block), then no cross-block games will occur. We shall declare that the player in each round without a game will be given a half-point bye. This sort of thing might happen with a degenerate block, which is one with a player (or perhaps more than one player missing). Thus, a 4-block becomes a 3-block if one of the players leaves the tournament. Now, if you have two such players leave the tournament, then you might get two 4-blocks becoming two 3-blocks, which is fixable in terms of no one needing a half-point bye. You also might get a single 4-block degenerating into a 2-block, which also does not require any half-point byes.

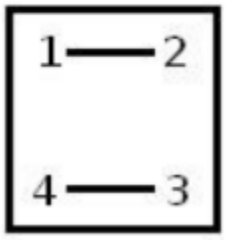
We move next to the 4-block. This has three rounds, and following the path of least resistance for the primary player leaves the rest of the games forced. So, this is easy to depict. We should note that in round 2, the connector lines are crossed. All connector lines are straight. So, the only interpretation is that player 1 plays player 3 and player 2 plays player 4.



Round 1



Round 2



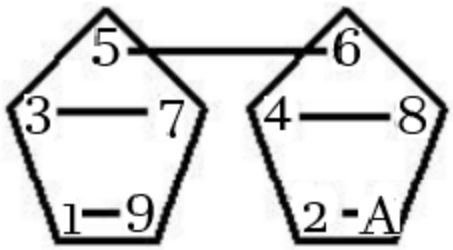
Round 3

The most commonly used block will probably be the 4-block. In the World Cup, we could use 32 of these to hold the 128 players. A very good tournament will be had by running two phases with all 128 players. Then, rerank the players, and cut the lower half of the players. Now, reseed these players into the blocks. Thus, the third phase will have just 16 blocks. Then, rerank the players, and cut the lower half of the players. Now, reseed these players into the blocks. Thus, the fourth phase will have just 8 blocks. Then, rerank the players, and cut the lower half of the players. Now, reseed

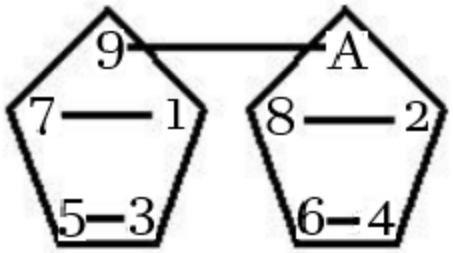
these players into the blocks. Thus, the fifth phase will have just 4 blocks. Then, rerank the players, and cut the lower half of the players. Now, reseed these players into the blocks. Thus, the sixth phase will have just 2 blocks. Then, rerank the players, and cut the lower half of the players. Now, reseed these players into the only block left. Thus, the seventh and final phase will have just one block. With these last four players, playing this last block is the end of the tournament. The final rankings are accomplished with the player with the most to the least points. In the case of ties, these are broken with performance ratings (the P-Zero scores), and then by G-scores. The name for this type of BTT would be a Block Transition Tournament with Attrition. I rushed through this, but I will lay it out more fully in a bit.

We progress to the 5-blocks. It appears that there is only one solution for this size, so here it is below on the next page. It has been placed into the order such that the primary player experiences the path of least resistance, but no one else gets this benefit.

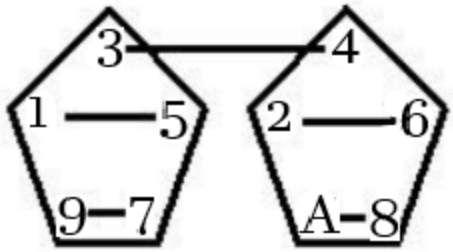
As an editorial note, there is a bit of an issue with the micro placement of the objects in this graph, but it is close enough to see the intent. The crossed connector bars in the 4-blocks above are also not perfectly placed. When we have an app that renders these diagrams, it will of course be perfect and automatic. Another issue is the use of the letter A to represent 10. A is a number in the hexadecimal system. A is a single digit for 10, so I used it to make the diagram prettier. In large tournaments with many players, we would be forced to use more digits in diagrams like this.



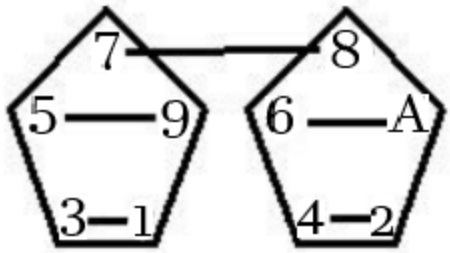
Round 1



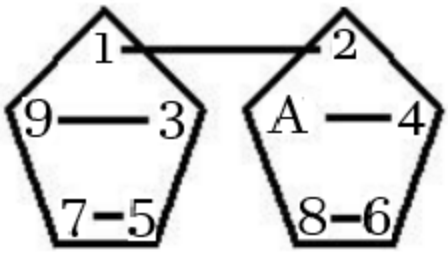
Round 2



Round 3



Round 4



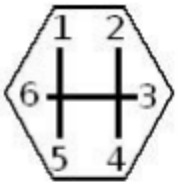
Round 5

We move now to the hexagons–the 6-Blocks. I have found a template that preserves the path of least resistance for the primary player. I will stop in this paper with 6-Blocks. These are sufficient to cover any tournament,

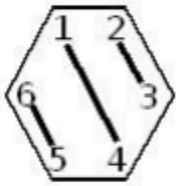
really. The decision to use 7-Blocks, 8-Blocks, or higher is probably going to happen, so we should make it possible to go to size twenty or so.



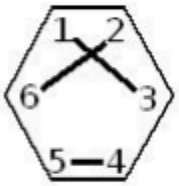
Round 1



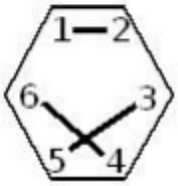
Round 2



Round 3



Round 4



Round 5

I guess I should conjecture that at least one template exists for any size n, with n being an integer. I will make a joke that I have a proof of this, but the margin of this page is too narrow to contain it. If you get the joke, then you obviously know some math history. So, I will assume that any template size is possible, but I will only use sizes 2 through 6 for the blocks as shown in this paper. At some point, we will have the capability to do larger sized blocks than this (perhaps up to size 20 as noted a moment ago). Note, if you try to find larger sizes, be aware that odd sizes should occur in pairs like they do here, and even sizes are loners like they are here. Also, mixing sizes requires that the number of rounds be equal. So, since 2-Blocks have only one round, they can mix with any other sizes. But, 3-Blocks have 3 rounds, as do 4-Blocks; so these sizes should not be mixed with any other sizes other than the aforementioned 2-Blocks. Similarly, blocks of size 5 and 6 can be mixed, but with no other sizes than the 2-Blocks.

Based on this, we should declare another conjecture: An odd n-Block can be mixed with its even "partner" the (n + 1)-Block and the 2-Block, but no others.

If you do mix sizes other than what is dictated here, you must cycle through the blocks until you reach the LCM (Least Common Multiple) so that they are realigned and exhausted. Then, you can reseed and set up for the next phase. Failure to go to the LCM of games will result in unplayed games in one or both blocks and is bad form. I won't say that you CANNOT do it, but that it is untidy and leaves a bit to be desired in terms of the form. It is kind of like music composition.

Composers put together musical pieces in certain forms. These forms are known to work well. We might have a fast piece followed by a slow piece followed by a fast piece. This kind of contrast is pleasing for the listener. So too it is with the form selected for a Block Transition Tournament. Don't end the song in the middle somewhere because the form is not completed, and it causes stress for the participants and observers.

So, this is pretty much it, except for migrating blocks discussed in the next section. You select the block sizes for your tournament based on the number of players and the length of tournament you want to conduct. Seed the players into the blocks at first according to rating by the even distribution method. Process that phase of games. Then, reseed the players into the next blocks using a four layer sort by points, P-Zero scores, G-scores, and seniority from the previous phase. When the even distribution phases are done, a final seeding into the blocks is done with the Power Concentration seeding (although, sometimes, an organizer might not opt for a power concentration phase for certain reasons). During the power concentration phase, if a player can jump into a higher block by virtue of a better P-Zero score, then swap those two affected players. If a player only moves up within a block, though, do nothing. It is only when they can jump blocks that we do this. Such a swap is a dramatic moment in the tournament because it is during the last part of the tournament. The player who got bumped down a block can perhaps fight back with the

remaining games to get reinstated into the former higher block. But, if we use the smallest blocks, there is just one chance to swap and one chance to get reinstated because the third game of the power concentration phase with blocks of sizes 2, 3, and 4 ends the tournament. Larger blocks do offer the scope for a little bit more lengthy campaigns to swap and reinstate.

Having a Tournament with Different Sized Blocks

When we have different size blocks in our tournament, we fill the blocks in order by size. So, if we have blocks of size 2, 3, and 4 (a not uncommon choice, really), we put the first pass of players in all of the blocks. This is because every block needs to have a primary player in it. The principle of homogeneity declares that the blocks must look as much alike as is possible, but alike with respect to what? The answer is with respect to the primary player–specifically, it is to the resistance that the primary player faces that we strive to make as alike as is possible. Thus, it is of utmost importance that each block has a primary player in it.

On the second pass, we put players in the 4-Blocks and 3-Blocks in the order of their block position, skipping the 2-blocks. On the third pass, we put players into the 4-blocks and 2-blocks, skipping the 3-blocks. Finally, on the fourth pass, we put the players into the 4-blocks and 3-blocks blocks, which will exhaust the list of participants.

It takes three rounds to process a 4-Block. It takes three rounds to process a 3-Block. So, this is why blocks of size 3 and 4 go well together. But, it works best if we have pairs of 3-Blocks to be able to have cross-block games with the odd man out in the 3-Blocks each round paired up with their cross block partners.

Magnus Carlsen Wants a Knockout Tournament to Determine the Champ

When I first wrote this section some years ago, Magnus Carlsen was the champ. Technically, he is no longer the champ since he decided not to defend his title anymore. As I currently write this, Nepo and Liren are battling for the title. Now, why did Carlsen not defend his title? Is it because he didn't get his way with a knockout style tournament? It is certainly a possibility, but I am more inclined to think that he didn't want to prepare for a world championship match anymore because it really is a large investment, and his heart just might not have been in it anymore. But, his idea is still his idea, and I would like to address it now.

A knockout style tournament to find the champion is a really bad way to do this. My initial attempt to explain why this is a bad idea was to show a couple of knockout tournaments from chess history to show how they did in my rating system. But now, I will just state that these tournaments all failed my Ratings Goodness of Fit Test–badly. This test (which is part of my rating system) measures how well the players did in the tournament compared with what we expected them to do based on their ratings going into the tournament.

Thus, we are comparing their actual performance with their expected performance. This is what the RGOF Test (the Ratings Goodness of Fit Test) measures. So, by these knockout style tournaments failing this test, what is it saying? It is saying that the knockout style tournament does not allow players to play at their rating levels. This is a big deal, really. We see the problems on the women's side, too, as a result of this. I haven't followed the women's side in a while, but they used to do a knockout style tournament in one cycle followed by a match in the next cycle. In many of these women's tournaments, we have strong players getting knocked out in the early rounds, and they cannot stick around due to the faulty tournament format to show that they are strong players deserving of their ratings. We see players who are not the most highly rated making it to the end to win it.

The public knows that such a player did not deserve the title of champion (and Hou Yifan demonstrated this convincingly when she thrashed the champion in match play on the alternating times when they ran it as a match). Hou Yifan boycotted the knockout tournament times and played during the cycles when it was match times and would win.

For the record, I will state that knockout style tournaments should not be used when player ratings are on the line. Other types of tournaments, Swiss and Round Robin, do allow for a rating system to measure player ratings accurately. Thus, it is nice that most historical tournaments are not of the knockout style.

How the Block Transition Tournament with Attrition Can Fix This Problem

We could run the World Cup in the following way to fix this dreadful state of affairs of this knockout style tournament. We can use 32 4-Blocks for the 128 players. We can seed the blocks all the way throughout the tournament with the even distribution method. Initially, rank the players from 1 to 128 by rating. For the first phase, we would get the following seeding:

Block 1: 1, 33, 65, 97
Block 2: 2, 34, 66, 98
...
Block 31: 31, 63, 95, 127
Block 32: 32, 64, 96, 128

Process these 4-Blocks as described in this paper with the template for a 4-block. Run the Tournament App (the rating system of Tony Berard called the Performance Rating Algorithm) on this phase to get the points, P-Zero scores, and G-scores for the players. It is possible that we could still have ties after only three games, so a fourth tie-break may be necessary—the seniority from the first phase. So, now we will have a new ranking of the

players from 1 to 128 based on the results from the first phase. With these new seedings we run phase 2 as follows:

Block 1: 1, 33, 65, 97
Block 2: 2, 34, 66, 98
...
Block 31: 31, 63, 95, 127
Block 32: 32, 64, 96, 128

We now have a total of six games played for all of the players. For the third phase, we again rank the players by points, P-zero score, and G-score. At this point, seniority from the phase 2 seedings probably won't be necessary, but just in case, we can still use it if needed. We then cut the bottom performing 64 players from the roster leaving us with 64 players. Six games should be sufficient to allow the highly rated players to recover from an unfortunate early loss. So, the remaining 64 players should be highly rated players almost exclusively. So, we move to phase 3 with these 64 players. We seed them into 16 4-Blocks now because that is all that are needed to hold them.

Block 1: 1, 17, 33, 49
Block 2: 2, 18, 34, 50
...
Block 15: 15, 31, 47, 63
Block 16: 16, 32, 48, 64

With the three games from this phase, we again rank by points, P-Zero score, and G-score. It becomes less and less likely that we will need the previous phase's seniority as we move along in the tournament. But, it is there if we need it. We cut the bottom half again, which will leave us with 32 players. We seed them into 8 4-Blocks. This will become Phase 4.

Block 1: 1, 9, 17, 25
Block 2: 2, 10, 18, 26
...

Block 7: 7, 15, 23, 31
Block 8: 8, 16, 24, 32

We run the three games from this phase and rerank using points, P-Zero score, and G-score. We cut the bottom half again leaving us with 16 players. We now do Phase 5.

Block 1: 1, 5, 9, 13
Block 2: 2, 6, 10, 14
Block 3: 3, 7, 11, 15
Block 4: 4, 8, 12, 16

The next phase (Phase 6) will have 8 players in just 2 blocks.

Block 1: 1, 3, 5, 7
Block 2: 2, 4, 6, 8

We will be left with just 4 players for the 7th and final phase of the tournament. So, we get just one block.

Block 1: 1, 2, 3, 4

From the 3 games in this phase, we are done with the tournament. We rank these four finalists by points, P-Zero score, and G-score. If this happens to be the world championship, then the final ranking after this phase produces the results of the tournament. Of course, the winner is the player with the ranking of 1. Alternatively, we might want the top two players to play a match for the title.

If we do this tournament, we can run a RGOF Test on it. I am sure this would pass the test. Of course, it hasn't been done, but because the higher rated players have the opportunity to redeem themselves after an early loss, they can recover and get performance ratings much closer to their initial ratings. We also would be able to tell when there is a large discrepancy that we can calibrate that player's rating to what it is supposed

to be. So, we get the knockout style (sort of) that Carlsen wants with this type of tournament, but it is fair in that the players will be able to perform to their rating levels. This is the best possible solution that Carlsen could get that also respects the ratings of the players. I had some more thinking on solving Carlsen's desire to have no advantages given to the champion. I will share this at the end of this paper.

The Use of the Migrating Block

We come now to the use of the migrating block (or group of blocks). It is quite common to have 14 players in a modern tournament. With the BTT, we can run a 14 player tournament in quite a few different ways! Here are a few of the ways we can do this.

Two 7-Blocks
Seven 2-Blocks
Two 6-Blocks and a 2-Block (migrating)
Two 5-Blocks and a pair of contiguous 2-Blocks (migrating)
Three 4-Blocks and a Migrating 2-Block
Four 3-Blocks and a Migrating 2-Block
**One 6-Block and two 4-Blocks (needs 15 games to complete a rotation)

We will discuss the Three 4-Blocks and a Migrating 2-Block version because this one will probably become the most popular. We rank the players from 1 to 14 by initial rating, and then seed them in the following way with the even distribution method.

Block 1: 1, 5, 9. 12
Block 2: 2, 6, 10, 13
Block 3: 3, 7, 11, 14
Block 4: 4, 8

So, Block 4 is the 2-Block. Because a 2-Block is mixed with 4-Blocks, we must cycle through three times of the 2-Block. We use the fair coin to

decide who gets White initially, but after that the players in the 2-Block will strictly alternate the colors. So, we will get three games played in this first phase. Then, we rank the players anew by points, P-Zero score, G-score, and seniority from the previous phase. Then, phase two will play as follows:

Block 1: 1, 5, 9, 12
Block 2: 2, 6, 10, 13
Block 3: 3, 7
Block 4: 4, 8, 11, 14

Observe that the 2-Block has moved up one notch to become Block 3. So, we play the three games for this phase. We rerank and reseed into phase 3 as follows:

Block 1: 1, 5, 9. 12
Block 2: 2, 6
Block 3: 3, 7, 10, 13
Block 4: 4, 8, 11, 14

Now, the 2-Block has migrated into the second position. This creates drama and excitement for the spectators. Technically, the 2-Block is providing greater resistance to the primary player than what the other primary players are experiencing. But, because it moves up and causes this extra tension to all of the primary players, it doesn't violate the principle of homogeneity. We rerank and reseed following the even distribution because the star player has not yet had his moment of extra tension.

Block 1: 1, 5
Block 2: 2, 6, 9, 12
Block 3: 3, 7, 10, 13
Block 4: 4, 8, 11, 14

Now, we do one more phase using the power concentration method of seeding. We of course get the new rankings first.

Block 1: 1, 2
Block 2: 3, 4, 5, 6
Block 3: 7, 8, 9, 10
Block 4: 11, 12, 13, 14

We also use the Block Jumping Rule (or Player Swapping Rule) for the Power Concentration Phase which states that if a player in a lower block achieves a higher P-Zero score after a round in the phase without the phase being completed yet, then those players swap rankings for the next round and all subsequent rounds as long as the P-Zero scores dictate it during the phase. Thus, player three could overtake player 2 and get to play player 1 for a game or two in this last phase.

That would be a dramatic moment in the tournament for sure. It would be equally dramatic if they swapped again for the final game of the phase. This is possible with this swapping rule or jumping rule in place.

A Swiss Tournament Can be Run as a BTT

Suppose we have 200 players. We can run this with 50 4-Blocks. We can run it for three or four phases to get 9 or 12 games for each of the players. After each phase, we rerank and reseed by points, P-Zero scores, and G-scores, and if needed by previous phase seniority. All but the last phase should be seeded by the Even Distribution method, and the last phase should be seeded by the Power Concentration method.

How the BTT with Attrition Can Solve Carlsen's No Advantage Desire

I have given a great deal of thought to Magnus Carlsen's position on the world championship. I have concluded that he doesn't really want a knock out tournament per se. The reason I say this is because part of his statement included his sentiments regarding the advantages held by the

champion. So, really what he wants is a system that allows a competition wherein the champ competes just like everyone else. And, if the champ winds up not winning the title again, then so be it. He stated his desire for a knock out tournament because he doesn't know of any other kind of tournament. To this end, I submit that the Block Transition Tournament can provide a key stepping stone in the selection of the new champion. Here is what I have come up with after internalizing Carlsen's requests and meeting them up with my own requirement of being true to the ratings. This was my first go around at this. I have a much more ambitious proposal shortly. I propose a two-step tournament process to find the new champion. The first tournament is a Block Transition Tournament, and the second one is a Double Round Robin Tournament. The first tournament will have 128 players in it. The FIDE Top 100 players are automatically invited to this Candidate Selection Tournament as we can call it. FIDE can select the other 28 players by looking at performances and G-scores of other players to round out the roster. If any of the FIDE Top 100 decline or the selected 28 decline, we invite one by one the next highest rated player in the list for players declining in the Top 100, and FIDE can select other players to get to the 28 selected, which completes the roster. Perhaps, we should have a few back-ups for the Top 100 and 28 selected in case the original filled roster of 128 has any cancellations. The Candidate Selection Tournament's goal is to find the top 8 players. Here is how to do this best in my opinion. Rank the players 1 to 128 by rating. This is their initial seniority as well to serve as the fourth tie-break criterion in phase 2. For phase 1, we seed these players into 32 4-Blocks using the method of even distribution. Process the blocks by playing the games in the manner depicted in my rough draft paper on the Block Transition Tournament.

For phase 2, we rerank in order of points, P-Zero score, G-score, and seniority from phase 1. We do not make any cuts for phase 2, so we still have all 128 players. We seed these players into 32 4-Blocks using the method of even distribution. We process the blocks again by playing the games.

For phase 3, we rerank in order of points, P-Zero score, G-score, and seniority from phase 2. We cut the bottom 64 players. We ran two phases without cuts to enable players to perform at their ratings. Cutting after only two games as can happen in modern day knock out tournaments does not allow for this to happen. Six games each, though, is enough games. We should see the tournament pass the Ratings Goodness of Fit Test. We seed these players into 16 4-Blocks using the method of even distribution. We process the 16 blocks for phase 3 as normal.

For phase 4, we rerank in order of points, P-Zero score, G-score, and seniority from phase 3. The seniority tie-break feature probably won't be needed anymore. But, just in case, we still have it, of course. We now cut the bottom 32 players. Thus, we run phase 4 with 32 players. We seed these players into 8 4-Blocks using the method of even distribution and process the blocks as normal.

For phase 5, we rerank in order of points, P-Zero score, G-score, and seniority from phase 4. We cut the bottom 16 players. We seed the remaining players into 4 4-Blocks using the method of even distribution and process these blocks as normal.

For phase 6, we rerank in order of points, P-Zero score, G-score, and seniority from phase 5. No cuts are made because we want these 16 players to sort themselves out. We seed these players into 4 4-Blocks using the method of even distribution and process these blocks as normal.
For phase 7, we rerank in order of points, P-Zero score, G-score, and seniority from phase 6. We cut the bottom four players leaving 12. We seed these players into 3 4-Blocks with the Power Concentration method. The Block Swapping Rule is in effect for this phase. When the phase is complete, we rank the players 1 to 12, and we declare the top 8 our Candidates for the World Championship Tournament.

The World Championship Tournament is an 8 player double round robin tournament. With these two tournaments, Magus Carlsen gets his request of a knock out style tournament (in spirit) with no advantages to the

champion. I would get what I need, which is players performing to their rating levels. I am sure there are other ways in which the Block Transition Tournament can meet the needs of this dilemma meeting Carlsen's and my requirements.

After much internal deliberation, I have an extremely ambitious set of Block Transition Tournaments to use to find the new world champion!! I will share that next.

How the BTT Can Find a True World Champion

As there are six continents on our planet with major populations, FIDE has enough reach to be able to do this. The champion that comes out of this can be called truly a World Champion! The seven continents (with populations) in alphabetical order are the following:

1. Africa
2. Asia
3. Australia (Oceania)
4. Europe
5. Central America and the Antilles
6. North America
7. South America

Note that there are many island nations that are part of these continents. They belong to the continent they are geographically assigned to. I found a wiki on the continents at https://en.wikipedia.org/wiki/Continent, which states that there are quite a few ways to slice up the world. Another is https://simple.wikipedia.org/wiki/List_of_countries_by_continents. I am inclined to think it might be advisable to do something along the lines of populations. Some of these regions have much larger populations than others. I am continuing to think about how best to do this, but here are my thoughts as they stand now.

The first stage is the 7 Continental Candidates Tournaments. Each continent will host one of these tournaments—probably once every two years. Each one is a 64 player Block Transition Tournament with Attrition as follows. We will use 16 4-Blocks seeded with the even distribution. This is Phase I.

We invite the top 50 rated players to the event, and FIDE has 14 spots to fill by special invitation using whatever criteria they would like. Some countries may be under-represented, so one or two players may be selected from countries like that. There might be a few prodigies out there who could benefit from such an event. If some of the invited players decline, then keep taking from the highest rated players list until we get to 50, and keep on inviting by special invitation players who have impressed in some kind of way until we get to 14 special invitees. These 64 players (this is going on in each of the six or seven continents) make up Phase I.

Phase II: Reseed by Points, Performance Rating (P-Zero score), G-score, and seniority from Phase I (in this order of tie-breaking criteria). All 64 players play in Phase II.

Phase III: Rerank by Points, P-Zero score, G-score, and Phase II seniority. Cut the bottom 32 players. Seed the remaining 32 players into 8 4-Blocks with the even distribution method.

Phase IV: Rerank by Points, P-Zero score, G-score, and Phase III seniority. Cut the bottom 16 players. Seed the remaining 16 players into 4 4-Blocks with the even distribution method.

Phase V: This is the final phase of the tournament. Rerank by Points, P-Zero score, G-score, and Phase IV seniority. Cut the bottom 8 players. Seed the remaining 8 players into 2 4-Blocks with the power concentration method. The swapping rule will be in effect. Normally, a BTT with Attrition will not have a power concentration phase, but this tournament can be a legitimate exception.

We rank these 8 players after the games have played in Phase V. The top 4 players move on to the Challengers Tournament. Since there are seven Continental Candidates Tournaments with 4 Candidates coming from each one, there will be 28 Candidates in the Challengers' Tournament. In addition, FIDE can invite by a special invitation 4 additional players with some restrictions:

1) A player who participated in his or her Continental Candidates Tournaments and failed to make the final 4 will not be eligible for a special invitation.
2) The 4 players who are specially invited to the Challengers Tournament should each have a rating that exceeds that of the lowest participating Candidate if possible. If that is not possible, then this restriction is waived, obviously. We should note that it is possible that all 4 Candidates from every continent may not make it to the Challengers Tournament. So, in each of the Continental Candidates Tournaments, we need to have the 5th and 6th place players serve as the first and second alternates should the need arise. For the Challengers Tournament, we seek to get the top two players to play a match in the conventional sense for the title. It is entirely possible that the current champion does not make it through to being one of the two Challengers, which is what Magnus Carlsen wants—no advantages in being the champion. Here is how the Challengers Tournament will run.

Phase I: Seed the 32 players by rating with the even distribution into 8 4-Blocks. Process the blocks normally.

Phase II: Rank and seed these 32 players by points, P-Zero score, G-score, and seniority from Phase I using the even distribution into 8 4-Blocks. Process the blocks normally.

Phase III: Rank the 32 players by points, P-Zero score, G-score, and seniority from Phase II. Eliminate the bottom 16 players. Seed the remaining 16 players into 4 4-Blocks. Process the blocks normally.

Phase IV: Rank the 16 players by points, P-Zero score, G-score, and seniority from Phase III. Eliminate the bottom 4 players. Seed the remaining 12 players into 3 4-Blocks with the even distribution method. Process the blocks normally.

Phase V: Rank the 12 players by points, P-Zero score, G-score, and seniority from Phase IV. Eliminate the bottom 4 players. Seed the remaining 8 players into 2 4-Blocks. Process the blocks normally.

Phase VI: Rank the 8 players by points, P-Zero score, G-score, and seniority from Phase V. Eliminate the bottom 4 players. Seed the remaining 4 players into a single 4-Block. Process this block normally. Rank the final 4 players by points, P-zero score, G-score, and seniority from Phase V. The top two players are the Challengers for the World Championship Match!! The 3rd place finisher will be designated as the First Alternate should one of the top two not be able to play in the title match.

These 8 tournaments and the championship match will produce an uncontested World Champion since all of the continents were involved equally. By having 14 open spots for invitation not based strictly on rating in each of the Continental Candidates Tournaments, there is more than enough room to have players from under-represented countries. The Block Transition Tournament with Attrition makes it possible for there to be no advantages to the previous champion and still be true to the ratings of the players involved.

Also, the 4 special invitations to the Challengers Tournament is a way to allow top players who were unable to attend the Continental Candidates Tournaments to be able to vie for the title with their needed participation in the Challengers' Tournament. We don't want to be able to say, "Yeah, but so and so wasn't there because of a scheduling conflict or some such reason, and he or she would have been one of the two Challengers and probably would have won the title in the Championship Match." Thus, this format should silence any and all critics.

How to Use the Information in this Book to Conduct Your Own Tournaments on this Site

Step 1: Select the type of Block Transition Tournament you would like to run.

A) A normal BTT with 4-blocks only with some even distribution phases followed by a single power concentration phase.
B) A normal BTT with a single size only, such as all 3-blocks with even
C) A BTT with Attrition
D) A BTT without Attrition but also with no power concentration phase.
E) A BTT with a migrating block (Initially, we will just have a migrating 2-block.)
F) A BTT with mixed blocks that are naturally paired.
G) A BTT with mixed blocks that are not naturally paired and using the LCM.

Step 2: For the type of tournament you selected, answer the questions pertaining to it that the software provides.

Don't worry about implementing the fair coin concept because that's done automatically by the software as the tournament progresses. Also, don't worry about the tie-breaking scheme as that is also all done by the software. The diagrams for each phase will be generated by the software, and when the final phase is a power concentration phase, the diagrams will adjust after each round.

The main idea is that you'll try to make a profit from conducting a tournament. You have control over several things related to the tournament: the initial prize fund, the entry fee, the spectating fee, the game featured in the tournament (initially Fighting Chess only, but we will expand on this quickly), and all the details about the actual tournament as described in

this book. What you don't have control over are how willing people are to join your tournament or to spectate it. We will list it on our tournament tab and advertise it in other ways to people who have participated in tournaments before, but there is no guarantee that you WILL make a profit. We want you to, of course, which is why we are providing nice materials like this book to help you out.

Some things you can do is solicit funds from sponsors who want to help you. If you have friends who want to contribute to the venture as partners, that will increase the prize fund as well. These sorts of things will increase your initial prize fund. You might want to guarantee certain prize levels. This attracts better players to join your tournament. You can have a somewhat lower spectating fee to try to gain more viewers of your tournament, which yields a greater overall revenue generation for your tournament. You can also do things like promoting it on your social media platforms to help spread the word. You might consider purchasing a facebook ad to gain reach for your tournament.

We do charge a small 5% hosting fee to host your tournament or anyone else's tournament. So, this gives you a formula, so to speak, on how to calculate your profit. Profit = entry fee total + spectating total - prize fund total - our hosting fee of 5% of the entry fees and spectating fees collected. Note: We only charge 5% of the revenue generated on the site itself, not on any prize fund you put up, which means only the entry fees and spectating fees collected on the site. Also note: Your prizes can be funded by only you or enhanced by the entry fees and spectating fees; however, the more you take from the entry fees and spectating fees to enhance the prizes, the less profit you will get.

In order to conduct a tournament, the sole criterion that we have is that you have our first title bee for reaching 1300 in rating. It's strongly recommended that you read this book also so that you will know a lot about The Block Transition Tournament.

About the Author

Tony Berard is a mathematician with a bachelor's degree in mathematics. He graduated Summa Cum Laude from Lawrence Technological University. He wrote part of the book Points, Lines, and Conic Sections (available on Amazon) as his senior project. He began inventing board games in the late 1980’s. He has since invented many wonderful board games and card games, and many will eventually be featured on the site along with Fighting Chess. He used to play and compose music for the piano.