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Elimination Formats

More formatting alternatives for running your own tournament.

Last month, I tried to convince you to try a round-robin format for your next tournament. Round-robin is the fairest way to determine the best among a group. For best results, especially if the players are divided into preliminary flights, the relative strengths of the players should be known so that the top players can be seeded into different groups. It has the advantages of more play for most entrants and a chance to recover from a single loss, but it requires more tables and time than are often available.

When time and tables are short, an elimination tournament of some kind is better. The standard in the U.S. has been double-elimination tournaments, but there are several alternatives. This column will go over single-elimination formats of various types.

The basic idea is simple: win and you play again, lose and you go home. Figure 1 shows an eight-player chart that illustrates several important points. The first is that as you move from where the players start on the left side to the right, the number of players left is reduced by half in each round, in the progression 8-4-2-1. The math whizzes will recognize these as the powers of the number 2, which have become much more popular with the rise of computers and their binary number system. If you need more room, the next added round to the left would have 16 spots, then 32, 64, 128, and so on.

If you have a number of players that isn't a power of two, you add enough "byes" to exactly fill the chart. If you happen to play Mr. Bye in the first round, you can be pretty sure of a win — he rarely makes it to the second round.

In the example tournament, 1 beats 8 in the first round, and continues winning through the finals, where 1 beats 2.

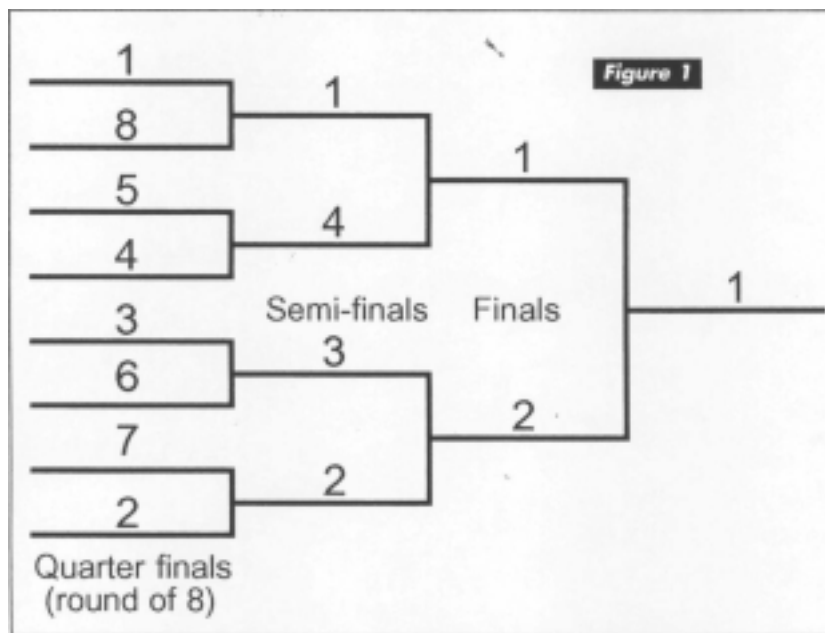
The numbers in the diagram have a very

special pattern that is important for both seeding players and placing byes. The numbers are placed starting from the 1 on the right side. Moving to the left, the 1 runs up the top of the chart. In the "finals" round, the number 2 is added next to the 1

see them in the finals again. If we didn't seed them, and they were paired by chance in the first round, there would be a good chance that the best player would be quickly gone from the tournament.

Of course, you don't always know how strong the players are, and then a random draw for spots must suffice. There are also middle-strength players who will argue for random draw even if the strengths are more or less known, because they would rather have the possibility of all the champions in one part of the chart and themselves in some other part. Random draws often produce very unbalanced charts.

This numbering scheme also can be used to place byes. When placing byes, the idea is to spread them as evenly as possible through the chart. I remember a \$100,000



and it runs down to the left. In the semi-finals, a 4 is added next to the one and it also runs to the left. In the quarterfinals, or round of 8, an 8 is added next to the one, and if we had more rounds, they too would run down to the left. The rule is that in each round, the number next to the 1 is the number of players in that round.

One spot is left in the semifinals is next to the 2, and the obvious choice is 3, since 4 had already been placed next to the 1. This hints at the other rule for this numbering scheme: in every round, the numbers in each match add up to the same total. Thus $1+4=5$ and $2+3=5$. Check to see that in the quarterfinals, all the matches add up to 9. This total number is always one more than the number of players in the round.

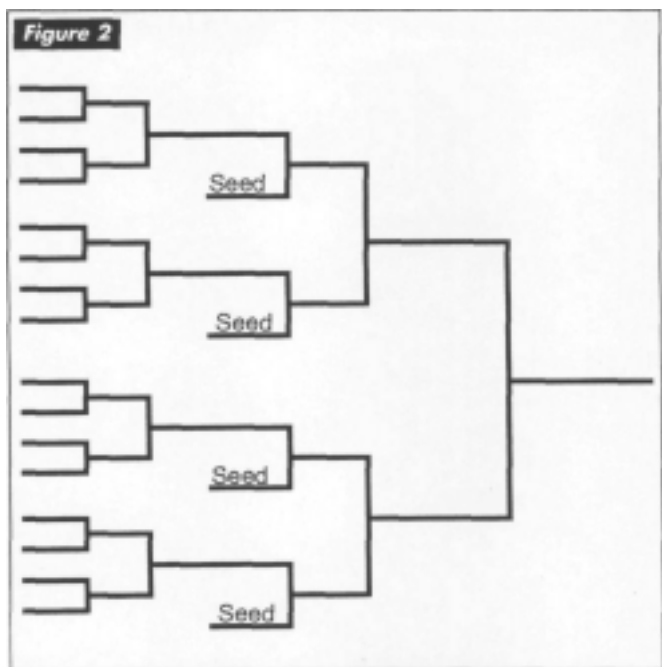
How does seeding work? The purpose of seeding is to prevent the best players from playing each other in the early rounds. Suppose we have the defending champion and the defending runner-up in the tournament. If we place them in the number 1 and 2 spots on the chart, we have a chance to

pool tournament in the 1980s in which the byes were drawn for position just like the players, and they happened to clump together on the bottom of the chart. In that tournament, Mr. Bye played his brother, and one of them did get through to the second round. His opponent, who had played their cousin, Mr. Bye, in the first round, was very happy to see him there.

Suppose we have a tournament and six players show up. We need to fill the eight-player chart, so two byes have to be added. Just place them in the highest spots (7 and 8) in Figure 1, and have the players draw cards numbered 1 through 6 for their spots. The numbering scheme guarantees that byes will be spread out.

Homework exercise: extend the chart one round to the left for 16 players, and place five byes.

Sometimes you have to both place byes and seeded players. For this, you have to decide whether the seeded players should get a free ride in the first round. If so, just use the chart as is — the high numbers



where the byes go are guaranteed to be next to the 1, 2, 3, etc. If you decide that the seeded players should not get byes — after all, they already have seeded spots — put the byes in the spots starting from half the

number of spots plus one, and running up. Those are joined by four seeded players to bring the player count up to eight.

Is this a fair format? Of course not. Is it a good format? Maybe. If you want to provide both an opportunity for weaker players

to participate in a top-flight event and guarantee that all the top players will be in the later rounds, this format is a good choice. You can think of it as two separate tournaments: a qualification event between 16 players with four advancing, and the main event with eight players, including four seeds.

In some single-elimination tournaments, a much stronger form of seeding is used. The seeded players don't even show up for the first several rounds; they join the tournament already in progress. This is illustrated in **Figure 2**. The tournament begins with 16 weaker players who play two rounds of elimination to produce four players for the quarterfi-

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