Restricted choice
-- fact or fiction?

by Eric Sutherland

Over recent months, we became involved in a correspondence between two of our readers regarding the Principle of Restricted Choice. Briefly, we can state the "con" argument as "the cards have no memory"; in other words, if the a priori odds favour playing for a 2-2 split, then the fact that East has dropped one of the missing honours doesn't change anything. The mathematics of all this can get pretty complex, so we appealed to the Faculty of Mathematics at the University of Waterloo for some help. After further correspondence, we received the following submission from Eric Sutherland, a UW undergraduate as well as a member of the Canadian Junior bridge team.

We have all come across the situation where we have to play the following suit for no losers:

A1054

K9872

Barging ahead, we lead the two to the ace, and the queen drops on our left. We then lead the ten from the dummy, RHO follows with the six (after playing the three on the first round), and we are at the crossroads: do we finesse or play for the drop, and how do we know?

The principle involved in this type of situation is called the Law of Restricted Choice. There is a lot of dissent about this Law, because it seems to defy logic. After all, what happened to "eight ever, nine never"? Why would the probabilities suddenly change in the middle of the hand?

The reason why Restricted Choice works is this: if LHO had the doubleton queen, jack to begin with, then he had a choice of cards to play on the first round, because the queen and the jack are equals. If he had the singleton queen or jack, then his choice of what to play is "restricted" to that queen or jack.

Let's look at some percentages. First, assume that with QJ doubleton, LHO will play each card 50% of the time at random. Since the probability of his holding QJ doubleton is 6.78% (2-2 break is 40.7%, with 6 combinations), LHO will play an honour from QJ doubleton about 3.39% of the time. The probability that LHO has a singleton honour is about 6.22% (3-1 break is 49.74% with 8 combinations). As a result, the finesse on the second round rates to win about twice as often as it loses (6.22 to 3.39).

Sounds simple? Well, let's throw a little kink into the works. Let's suppose that you are playing against op- ponents whom you know from experience would never play the queen from QJ doubleton, or even people who play the jack from this holding by agreement (I've seen it!). Now let's examine the odds. If LHO plays the queen, he must have a singleton, so it is definitely right to finesse, but if he plays the jack, he could have either a singleton jack (6.22% of the time) or a QJ doubleton (6.78% of the time, since they would never play the queen); in this case it is right, albeit by a very small margin, to play for the drop. Similarly, if you are playing against someone whom you know always falsecards, and would never play the jack from QJ doubleton, the same holds: finesse if you see the jack, and go up if the queen is played.

A word of warning, though: be very sure of your opponents. If you do choose to play for the drop in these situations, then you are going against the field, and single-handedly creating a potential swing that your partner or team-mates may have to pay for later.

The moral of the story? Make yourself familiar with the usefulness of Restricted Choice, as it crops up in different situations. On defence, play your queens and jacks randomly; when on play, know your opponents; but above all, play for the 2-1 odds. You don't get those odds in real life....or do you?

Remember "Let's Make a Deal"? Monty Hall tells you that there is a fabulous prize behind one of Doors 1, 2, and 3, but there are "zonks" behind the other two. You choose Door 1, and Monty opens Door 3 to show you a giant rocking horse. He then asks you if you want to switch your choice to Door 2. Do you switch? This problem has caused more heated arguments than you can imagine.

Bridge players should have no difficulty recognizing another Restricted Choice situation here! Switch to Door 2, and your odds of winning are 2-1, not 50-50. Let's say that Door I was the right door -- then Monty could have chosen to show you Door 2 or Door 3, with equal probability. However, if Door 2 was wrong, Monty was forced to choose Door 3, since Door 2 has the prize behind it. Because he is forced to pick Door 3 when Door 2 has the prize, and only picks Door 3 half the time when Door I has the prize, Door 2 has a better shot at making you a winner.