Coin Flips and Bridge II

Going back to the “real world” let’s imagine that we have 4 coins that we’re going to flip. From last time we know that there are 5 possible outcomes:

- 4 Heads
- 3 Heads and 1 Tail
- 2 Heads and 2 Tails
- 1 Head and 3 Tails
- 4 Tails

And that the single most likely outcome is the one smack dab in the middle, 2 heads and 2 tails. However there are 2 possible ways of getting a 3-1 division so that **combined** these 2 outcomes are more likely than the single outcome of 2 and 2. So far so good. Now what if some of these coins are not the same? What if instead of 4 pennies we had 2 pennies and 2 silver dollars.

Furthermore, let’s go ahead and say that we’re going to split the proceeds from these coin flips between 2 people. Now we’re going to play a game with them. The rules of the game are that in order to keep playing you need to pay 1 coin. Once you are out of coins you are out of the game.

What do you expect people to do when paying to play in that game? Are they going to spend a penny or a silver dollar if they have a choice? That’s right they’re no fool they’re going to pay a penny and try to hold on to that silver dollar. So if somebody pays a silver dollar on the first round that should make you very suspicious. They almost certainly didn’t have any pennies to pay with. There are only 2 possible scenarios in that case:

- I started with 2 silver dollars and no pennies
- I started with 1 silver dollar and no pennies

Seems like a straightforward 50-50 scenario right?

It turns out that that’s not the right way to think about it because you have 4 unique coins and 2 different silver dollars. Let’s give them years, you have a 2020 silver dollar and a 2021 silver dollar. Now we can list out the cases this way:

- I started with the 2020 and the 2021 silver dollars
- I started with the 2020 silver dollar
- I started with the 2021 silver dollar

Looking at it that way we can see that we are twice as likely to have started with only 1 silver dollar than with 2 silver dollars.

So enough about coins, let's apply this to bridge.

If your spade holding is Txxx opposite AK9xx how should you play the suit (absent any other indicators like any opponent bidding)?

You have 9 cards in the suit so there are 4 missing cards. The single most likely scenario is the 2-2 split, but since there's only one way of any even split that single split is less than 50%. Of the 4 missing cards, 2 are equivalent honors (Queen and Jack) and 2 are spot cards. We can treat these as the silver dollars and the pennies.

Our best chance originally is to hope that the suit splits 2-2 so we cash the ace. If either player shows out then we know where all of the missing cards are so we'll play the suit as best we can.

If both players follow with spot cards then the missing cards are the 2 silver dollars. If we don't find them in opposite hands then we simply can't capture them both on the same trick. So we cash the king and hope.

If one player follows with a spot card and the other player follows with an honor we get to that interesting scenario. If it's our RHO who played the honor, then we hope that they started with both of them and cash the king. We cannot do anything to avoid losing a trick if LHO started with 3 spades to an honor.

But if LHO played the honor our chances of not losing a trick have increased to two thirds if we apply the coin thinking. Try to win a trick over in the dummy and lead a spade towards our KT and finesse.

The # of missing cards isn't that relevant, it's that the missing cards are equivalent. After all if we hold the queen and the jack in the same hand we know this is like holding 2 queens and feel confident about leading the queen knowing that the jack is just as good. If we have the king and the jack in the same hand they aren't the same value and therefore should be unwilling to lead one.

Consider AJT96 vs 8754. After you finesse and lose the jack to the king, because the king and the queen are equivalent the odds are 2:1 in favor of east having the queen. So the percentage action is to finesse again.