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Probability Paper Summary - "8 Ever, 9 Never" by "Durango Bill"

This paper by Durango Bill discusses the probabilistic aspects of a basic rule about finessing cards in bridge: 8 ever, 9 never. The basic rule states that when missing a queen in the trump suit, if you and your partner control 8 of the trump suit, you should attempt a finesse, but if you control 9 cards of the trump suit, your probability of winning the queen are maximized by dropping the ace in an attempt to pick up the queen.

This article starts by outlining some basic combinatoric principles. It notes that once you know your cards, your partners cards, and one of your opponents' cards, the 2nd opponent's cards are explicitly known. Thus, given your hand and your partner's hand, there are 26 choose 13 (or 10,400,6000)possibilities for the distribution of cards between your two opponents. Furthermore, when you know that there are n cards outstanding in a suit, and you want to know how many ways the opponent to your left (or right, by symmetry) could hold k of those, you only need to compute n choose k times 26-n choose 13-k.

Finally, Durango Bill extends his analysis to examine the special scenario where you and your partner control either 8 or 9 of the trump suit, not including the queen, and he provides a case by case analysis of the potential outcomes of finessing vs. dropping the ace. The final calculations reveal that when you and your partner control 8 trumps, you win the queen more often by finessing than dropping the ace with probabilities .5283 and .3474 respectively. Consistent to the rule, when you control 9 trumps, you win the queen more often by dropping the ace (p=.5792) than by finessing (p=.5622).

It is interesting to note, however, that the probability of winning the queen when you have 9 cards is almost identical between the two strategies. Thus, Durango Bill claims that it is sometimes effective to finesse in this case in order to keep the lead away from the more dangerous opponent. Thus, he re-defines the rule as "8 ever, 9 sometimes depending on where you would like the lead if it doesn't work."