

Card Distribution in the Game of Bridge

In the game of bridge, it is often important for the “declarer” to know the probable distribution of his opponents cards. For example, if he and his partner have an “8 card fit,” say 8 spades between them, then the opponents have five spades. How are these divided?

5-0 split: $2(5 \text{ choose } 5)(21 \text{ choose } 8)/(26 \text{ choose } 13) = 3.9\%$

4-1 split: $2(5 \text{ choose } 4)(21 \text{ choose } 9)/(26 \text{ choose } 13) = 28.3\%$

3-2 split: $2(5 \text{ choose } 3)(21 \text{ choose } 10)/(26 \text{ choose } 13) = 67.8\%$

Similar calculations provide probable distribution for other holdings. For example, if the opponents hold

4 cards in a suit, the probability they will split 4-0 is 9.6%

3-1 is 49.7%

2-2 is 40.7 %