SUIT- DIVISION PROBABILITY

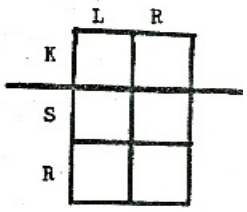
Tables showing the probability of suit divisions (3-3, 4-2, etc.) are not very useful for those situations in which significant information is available about the distribution of one or more other suits in the defenders' hands. The following is an easy way to calculate suit-division probabilities in such cases, but of course it is only useful for postmortem analysis, as computer help during play is illegal!

The calculations are easily done with a small calculator that has factorial capability. For those who may have forgotten, 0! = 1. For those who *have really* forgotten 4! = 4 x 3 x 2 x 1.

It is important to understand what "significant cards" means. The American Contract Bridge League's *The Official Encyclopedia of Bridge* explains the concept in the article "Cards, Neutral and Positive."

The example below has five significant cards known on the left, and two on the right, perhaps after one suit's distribution has definitely been established. Now, what is the probability that another suit will be split such that two cards are on the left and four cards are on the right?

SUIT DIVISION PROBABILITY ALGORITHM



1. Make a 3 X 2 matrix as shown:

   L column is left hand opponent's hand.

   R column is right hand opponent's hand.

2. Enter known cards in row K. One or both may be zero, of course.

3. Enter suit division for which probability is wanted in row S.

4. Enter remaining cards (13 - K - S) in row R.

Example

	L	R	
K	5	2	(Known significant cards in L/R hands)
S	2	4	(Want 2-4 split probability)
R	6	7	(Remaining cards to make 13)

5. Working with the 2 X 2 matrix below the line:

   a) Sum the columns and the rows, any order, getting four results

      For the above case you get 8, 11, 6, 13.

   b) Sum the entire 2 X 2 matrix (getting 19 for above).

   c) Make a fraction:

      Numerator is the product of factorials of the four column/row sums.

      Denominator is the product of factorials of matrix sum and the four numbers.

      For the above - $\frac{8!\ 11!\ 6!\ 13!}{19!\ 2!\ 4!\ 6!\ 7!}$ equals .34, the answer.