

Bridge Statistics!

Everyone loves stats! Column after column of numbers that give insight into the real world, and give the most exciting people in our society (i.e. accountants) pleasure and money. Seriously, this information is not to be learned by anyone except the saddest of characters. Players looking to improve their Bridge might like to gradually learn the practical implications of these stats, which I will outline as we go along. The information has been shamelessly plagiarized from Hank Eng's bridge pages (Ohio State Univ.) as I am not sad enough to type these sorts of numbers out myself. (He's got most of them from elsewhere anyway.)

Bear in mind that these are the mathematically determined values, and do not take into account the fact that hands that are mealy 'shuffled and dealt' often are more balanced than those randomly generated on a computer.



High Card Points

(statistics from "The Official Encyclopedia of Bridge" (1984))

hcp	Probability (%)	hcp	probability (%)
0	0.36	16	3.31
1	0.79	17	2.36
2	1.36	18	1.61
3	2.46	19	1.04
4	3.85	20	0.64
5	5.19	21	0.38
6	6.55	22	0.21
7	8.03	23	0.11
8	8.89	24	0.056
9	9.36	25	0.026
10	9.41	26	0.012
11	8.94	27	0.004 9
12	8.03	28	0.001 9
13	6.91	29	0.000 7
14	5.69	30	0.000 2
15	4.42	31-37	0.000 1

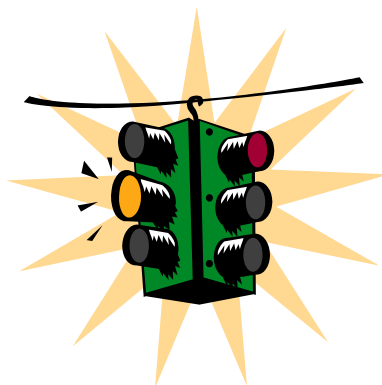
As you can see from this table, getting dealt 20+ pts is very unusual, around 1 deal in 80. Also, being dealt 7-12pts accounts for over half of all deals.

So you would like to know the likelihood of that trump suit splitting evenly? Here are the splits in the commonly occurring situations:

SPLITS

Missing Cards	Possible Split Distributions	Probability of Occurrence (%)
2	2-0	48
	1-1	52
3	2-1	78
	3-0	22
4	3-1	49.7
	2-2	40.7
	4-0	9.6
5	3-2	67.83
	4-1	28.26
	5-0	3.91
6	4-2	48.4
	3-3	35.5
	5-1	14.5
	6-0	1.5
7	4-3	62.2
	5-2	30.5
	6-1	6.8
	7-0	0.5
8	5-3	47.1
	4-4	32.7
	6-2	17.1
	7-1	2.9
	8-0	0.2

Given the number of contracts, which are played in 8 and 9 card fits, the four and five cards missing sections are especially important here. Notice that, with 5 cards missing, the 4-1 split will occur almost 1/3rd of the time, and so is well worth considering when planning the declarer play. (You were going to plan the play, right?) The “even cards missing - bad break, odd cards missing - good break” rhyme that we all know and love, is only good to a point. With four cards missing there is still over 40% chance of that all-so-important 2-2 break.



What a funny distribution! Or was it? Was that the one in thousand distribution that your bidding methods couldn't cope with, or is a rethink in order? Here follows the probabilities of distributions of hands, up to and including 9 card suit. All other hands come up with less than 0.01%. Incidentally the 13-0-0-0 hand comes up 0.000 000 000 6 % of the time.

Probability of Hand Patterns

{statistics from "The Official Encyclopedia of Bridge" (1984)}

hand patterns (any suit order)	probability (%)	hand patterns (any suit order)	probability (%)
4432	21.55	6610	0.072
4333	10.54	7321	1.88
4441	2.99	7222	0.51
5332	15.52	7411	0.39
5431	12.93	7420	0.36
5422	10.60	7330	0.27
5521	3.17	7510	0.11
5440	1.24	7600	0.005 6
5530	0.895	8221	0.19
6322	5.64	8311	0.12
6421	4.70	8410	0.045
6331	3.45	8500	0.003 1
6430	1.33	9211	0.018
6511	0.71	9310	0.010
6520	0.65		

I'll also give the common hand patterns ranked in terms of their frequencies:

hand patterns (any suit order)	probability (%)
4432	21.55
5332	15.52
5431	12.93
5422	10.60
4333	10.54
6322	5.64
6421	4.70
6331	3.45
5521	3.17
4441	2.99
6430	1.33
5440	1.24
7321	1.88

all other combinations are less than 1%

As this list shows, the devilishly hard to bid 4441 hand only comes up 3% of the time, and so bidding methods should (probably) not be built around the possibility of this hand type coming up. Notice also that around 1/3rd of the time you are dealt a hand who's longest suit is 4 cards. This means that most of your partners opening suit bids will be based on a 5 card suit (especially playing 12-14 1NT openings) and so in a competitive auction, raising partners suit with 3 card support is OK.

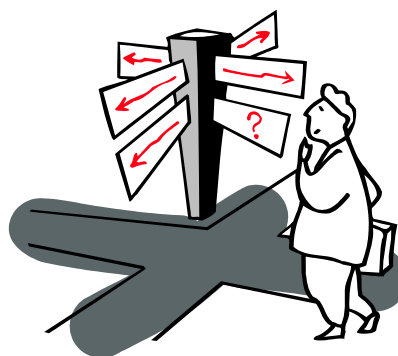
Note also that 70% of all your hands will be one of the top 5 distributions.

Comments on minor openings when playing 5-card majors.

How likely is it that partners 1(minor) bid will be based on a 3 card suit playing 5 card majors, better minor? (4-4 bid Diamonds, 3-3 bid Clubs)

12-14 1NT	15-17 1NT	useful numbers
3.846% 1D with 3 cards	3.756%	4-%
24.606% 1D with 4 cards	24.406%	24+%
71.548% 1D with 5+ cards	71.838%	72%
14.293% 1C with 3 cards	13.994%	14%
23.055% 1C with 4 cards	22.983%	23%
62.652% 1C with 5+ cards	63.022%	63%

Obviously this assumes that you and your partner are going to bid exactly to the book every time. In practice the final column is what counts. Frankly, I would suggest that, until you have some reason to think otherwise, always assume partner has a 4 card or better suit and bid accordingly. This is especially true for 1 diamond openings. This may well be an argument for 1 diamond opening's guaranteeing 4 cards, and so 1 Club including the possibility of a 2 card suit. I really think that there's no need to do this provided the players realise how unlikely the probability of a 3 card diamond suit and bid as though partner had shown a 4 card minimum suit at the outset.



By Phil Smith

<http://community.dur.ac.uk/bridge.club/teaching.php>