Card Counting with Hand Patterns
A Bridge Tip

By Neil H Timm

When one wins a contract, it is important to try to determine Hand/Suit patterns to facilitate counting cards in each suit. The most common patterns are (from the Official Encyclopedia of Bridge, 7th Edition):

Distribution	Pattern Type	Expected % Frequency
4432	E	21.55
5332	O	15.52
5422	E	10.58
4333	O	10.53
6322	E	5.64
7222	E	0.52
Sub Total		64.34%
5431	O	12.93
6421	E	4.70
6331	O	3.45
5521	O	3.17
4441	E	2.99
7321	O	1.88
Sub Total		9.12%
6430	E	1.33
5440	E	1.24
5530	O	0.90
Sub Total	O7/8E	3.47%
Sub Total		96.93%
Other 6-10+cards & Singleton/Void		3.07%
		100.0%

What does one observe from these data?

The "balanced" patterns: 4432, (21.55%); 5332, (15.52%); 5422 (10.58%) and 4333, (10.53%) constitute 58.18% of the hands and if you add the patterns 6322 (5.64%) and 7222 (0.52%) about 2/3 (64.34%) of the patterns do not contain a singleton or void.

While the number of Even (E) hand patterns are twice as frequent than the Odd (O) patterns for hands within this group, T.C. Pant (April 28, 2002) from Delhi Bridge Association found based upon a simulation of 2000 dealt bridge hands that the hand patterns: 4333, 5332, 6331 (3 sets of odd & 1 set of even, defined as "ODD") or 4432, 6421, 5422 (3 sets of even & 1 set of odd – defined as "EVEN") constituted 63% of the hands generated and that the set of hands with 2 ODD and 2 EVEN patterns occurred 558 times out of 2000 (28%) and that set of hands with all ODD or all EVEN patterns occurred 181 times of 2000 (9%).

Since the probability that the fourth hand will turn out to be of same pattern as the other three hands i.e. all ODD or all EVEN hands is only 0.09 (90 hands out of 1000), we may conclude that "If the three hand patterns are same, then the probability that the fourth hand is a different pattern is as high as 90%".

Only in cases, where the declarer has counted two hands of one pattern and the third of different pattern, will it require better judgment for finding the pattern of 4th hand, since the probability that the fourth hand pattern does not go along with his theory is 28.9% (2 EVEN and 2 ODD pattern combination). However, this case also yields a 71% probability of success in estimating the pattern of 4th hand.

What follows is Pant's analysis of a hand played in the Delhi Bridge Association's weekly Pairs tournament using his theory.

Dealer: S

	♠ J964 ♥ 932 ♦ J9754 ♣ K	
♠ AK3 ♥ A107 ♦ Q1063 ♣ 652	N W E S	♠ Q1052 ♥ QJ5 ♦ AK2 ♣ A108
	♠ 87 ♥ K864 ♦ 8 ♣ QJ9743	

Playing Precision the bidding was:

S	W	N	E
P	1D	P	1S
P	1NT	P	3NT
P	P	P	

North lead his 4th best Diamond, won by West with ♦10. When West played a low diamond to his Ace, South showed out. The ♥Q was finessed and ♥J continued, was covered by King and taken by Ace. Declarer trying for a Spade & Club squeeze now rectified the count by playing a low club and ducking (in last 4 card position, South with 5 Clubs & 4 Spades will get squeezed when 3 Hearts, 4 Diamonds & 2 clubs are played). North continued with diamonds. When declarer played the ♣A, North showed out.

The inference up to now is that north has the ODD pattern (as already 2 odd distribution have occurred and hand can only be either 3 odd – 1 even or 3 even – 1 odd). He has 5 diamonds & 1 club and has already followed to 2 Hearts. Similarly we know that south has 6 Clubs & 1 Diamond and has followed to 2 Hearts. When you cash the ♥ A and both follow, you have a big GUESS?

Is north having 4 Hearts & 3 Spades or 3 Hearts & 4 Spades? I went along with my theory. Myself, my partner and my left opponent have ODD pattern. Hence with as high as 90% probability South should have an EVEN pattern. Since South has already shown 6 clubs, 3 Hearts & 1 Diamond, the only combination to make his hand an EVEN pattern can be 6 Clubs, 1 Diamond, 4 Hearts & 2 Spades. Hence when both followed to my ♠A & ♠K, I coolly took the spade finesse, when North played low to my third spade, making 12 tricks and getting a TOP.

He sums it up: "while probability is probability and the theory may fail more than once. However, it is a fact that more often than required, the Bridge players then also go for the finesse, which has only 50% probability of success. If that is so, why not to take chances with my theory which has far more probability of success, in finding the hand patterns, which may help you in squeezing, end playing, playing for a drop and other juggleries of Bridge".

Playing on BBO, I was playing with a new partner who played the BBO standard 2/1-convention card. I was south and the bidding went:

South	West	North	East
2♥	Pass	2♠	Pass
3♥	Pass	4♥	Pass
5♣	Pass	5♦	Pass
6♥	Pass	Pass	Pass

Looking at the hand it appears that it success depended up who has the ♦K. Is it west or east? Since there was a two-way finesse with a 50% chance, I tried to employ the hand theory suggested by Pant since there was no information from the bidding.

West let his ♠A and the deal follows:

		♠	QJ1032		
		♥	J109		
		♦	AJ7		
		♣	QJ		
♠	AK85	N		♠	964
♥	342	W	E	♥	-
♦	K			♦	964532
♣	109864	S		♣	7532
		♠	7		
		♥	AKQ8765		
		♦	Q109		
		♣	AK		

West led the ♠A his partner played the 6♠ to give no information to the opponents (playing standard carding he does not play the 4 or playing UDCA, he does not play the 9). What next?

Should west now play the ♠K or the ♦9? Playing the ♦9 may persuade me that East holds the ♠K and see no reason to risk the diamond finesse? If I do go up with the ♦A and rely on a ruffing finesse, the contract would be defeated. By leading the diamond West would be hoping that declarer (me) is relying on the principle that high-card strength is evenly divided between opponents that fail to bid. Or should west next play the ♠K hoping that the declarer (I) will play east for the ♦K? He played the ♠K and east played the ♠9. I ruffed with the ♥5.

Since there was a two-way finesse with a 50% chance, I tried to employ the hand theory suggested by Pant since there was no information from the bidding. Looking at hand patterns, my pattern was ODD as was Dummies; hence East or West was likely ODD and the other was most likely EVEN per Pant's theory.

Spades are most likely split 4-3, hearts 2-1, diamonds 4-3, and clubs 5-4. I next played the ♥A and east showed out. Thus, west had 3 hearts and east had none?

Playing two more rounds of trumps east discarded a spade and a diamond and west discarded two spades, thus spades were split 4-3 and hearts 3-1.

Since clubs were more likely to split 5-4, the distribution was 4-3-2-4 (E) or 4-3-1 5 (O) for west or 3-0-6-4 (E) or 3-0-4-6 (E) for east. Thus it was more likely that the distribution for east was EVEN and that west's was ODD.

I did not need diamond finesse but that for west to have a singleton ♦K (distribution: 4-3-1-6=ODD) and 3-0-6-4=EVEN for east making my contract of 6♥ by playing my ♦A.