Learning Points – Spot Cards and Opening Leads **June 15, 2009**

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Probabilities from Richard Pavlicek's *Card Combination Analyzer*.

South Deals NS Vul MP Pairs

North: ♠ A62 ♥ 63 ♦ Q6542 ♣ A82

West: ♠ ♥ ♦ ♣ — N W 13 E S — East: ♠ ♥ ♦ ♣

South: ♠ KQJ5 ♥ AJ102 ♦ A3 ♣ J73

S	W	N	E
1N	P	3N	P

Deep Finesse: NS: 4NT

What is declarer's best strategy to make this 3N contract? Assume Declarer must give up the lead to West one time before making the contract. Let's assume declarer's objective is to retain a stopper in ♣, either by creating a 2nd winner or by blocking the suit. **What is declarer's best play from dummy to trick 1?**

Let's look at:
1) the ♣5 lead itself;
2) popular spot card leads; and
3) card combination analysis

to define the decision space for declarer. This is beyond analysis possible at the table.

What can we glean from the ♣5 opening lead? There's a preference for leading a major in this auction (*though less so since opening 1N with 5 card majors has become more popular*). Leading a minor suit implies length, and lack of a useful 4-card major. A 4 or 5 card ♣ suit seems likely. We can eliminate singletons and doubletons as unlikely (and too inspired for us).

Can West have 6 or 7 ♣? If the ♣5 is the 4th card, then West cannot hold 6 or 7 ♣ (there must be 3 cards bigger than the ♣5 and there's only one smaller, the ♣4). Similarly if 5th best West cannot hold 7 cards (4 above, 1 below is 6 cards maximum).

West might be using one of several popular opening lead strategies:
1) 4th best;
2) 4th best from 5 cards (*not a strategy but a useful filter for our Analysis*);
3) 3rd best from 3, or 4th best;
4) 5th best from length;
5) 3rd best from 3 or 4;
6) Attitude (1 or more Honor, 3+ cards length).

We can combine 4) and 5) to mimic 3rd and 5th best spot card leads. Other opening lead strategies are possible – we leave them to you.

Some card combination analysis simplifies inconsequential cards to x's for convenience as follows: ♣KQ109654 becomes ♣KQ109xxx. However, the ♣5 is significant information and filters out certain hands. Let's look at what cards West could hold. There are 64 possible card combinations for West (*where 4, 5 and 6 are assigned "x". There are 128 individual instances when specific spot cards 4,5,6 are considered*). 14 cases don't include the ♣5, and another 7 are singletons or doubletons, inconsistent with ♣ length assumptions. This leaves 43 possible cases for the ♣5 from 3 or more cards. Of these 43, some are eliminated depending on what opponent's lead strategy / signals are.

Missing ♣KQ109654:

#	West	East	Ways	%
1	KQT9xxx	—	1	0.26
2	KQT9xx	x	3	1.45
3	KQT9x	xx	3	2.18
4	KQT9	xxx	1	0.89
5	KQTxxx	9	1	0.48
6	KQTxx	9x	3	2.18
7	KQTx	9xx	3	2.66
8	KQT	9xxx	1	0.89
9	KQ9xxx	T	1	0.48
10	KQ9xx	Tx	3	2.18
11	KQ9x	Txx	3	2.66
12	KQ9	Txxx	1	0.89
13	KQxxx	T9	1	0.73
14	KQxx	T9x	3	2.66
15	KQx	T9xx	3	2.66
16	KQ	T9xxx	1	0.73
17	KT9xxx	Q	1	0.48
18	KT9xx	Qx	3	2.18
19	KT9x	Qxx	3	2.66
20	KT9	Qxxx	1	0.89
21	KTxxx	Q9	1	0.73
22	KTxx	Q9x	3	2.66
23	KTx	Q9xx	3	2.66
24	KT	Q9xxx	1	0.73
25	K9xxx	QT	1	0.73
26	K9xx	QTx	3	2.66
27	K9x	QTxx	3	2.66
28	K9	QTxxx	1	0.73
29	Kxxx	QT9	1	0.89
30	Kxx	QT9x	3	2.66
31	Kx	QT9xx	3	2.18
32	K	QT9xxx	1	0.48
33	QT9xxx	K	1	0.48
34	QT9xx	Kx	3	2.18
35	QT9x	Kxx	3	2.66
36	QT9	Kxxx	1	0.89
37	QTxxx	K9	1	0.73
38	QTxx	K9x	3	2.66
39	QTx	K9xx	3	2.66
40	QT	K9xxx	1	0.73
41	Q9xxx	KT	1	0.73
42	Q9xx	KTx	3	2.66
43	Q9x	KTxx	3	2.66
44	Q9	KTxxx	1	0.73
45	Qxxx	KT9	1	0.89
46	Qxx	KT9x	3	2.66
47	Qx	KT9xx	3	2.18
48	Q	KT9xxx	1	0.48
49	T9xxx	KQ	1	0.73
50	T9xx	KQx	3	2.66
51	T9x	KQxx	3	2.66
52	T9	KQxxx	1	0.73
53	Txxx	KQ9	1	0.89
54	Txx	KQ9x	3	2.66
55	Tx	KQ9xx	3	2.18
56	T	KQ9xxx	1	0.48
57	9xxx	KQT	1	0.89
58	9xx	KQTx	3	2.66
59	9x	KQTxx	3	2.18
60	9	KQTxxx	1	0.48
61	xxx	KQT9	1	0.89
62	xx	KQT9x	3	2.18
63	x	KQT9xx	3	1.45
64	—	KQT9xxx	1	0.26
			128	99.92

Rounding Error

Here's an example to illustrate. Assume 4th best spot card leads. Give West ♣KQ10xx. 4th best is possible only with ♣xx = ♣54: KQ1065, KQ1064, **KQ1054**. 2 of 3 instances for this case are eliminated. The specific ♣5 reduces the ways contributing to this holding.

How does West's lead strategy affect Declarer's choice of play to trick 1? The ♣2 wins when the ♣KQ are with West or EW can take no more than 3 ♣ tricks, and loses when the honors are split. The ♣A wins when ♣ block or EW can take no more than 3 ♣ tricks. When both honors are with East, both plays win. Since we can afford to lose the lead only once, any 4/3 ♣ split allows either play. Let's filter the relevant instances based on each of the 6 strategies outlined above.

Lead Strategy	# Relevant Cases	# Instances Reduced by ♣5	Impossible Lengths, # cards	♣A wins %	♣2 wins %	% Best
4th best	19	13	6 or 7	10.4	6.5	61% ♣A
4th best; exactly 5 cards	10	4	6 or 7	5.1	2.9	64% ♣A
3rd best 3 cards, or 4th best. *Not topless 3 cards nor KQx*	23	19	6 or 7	14.1	14.6	51% ♣2
5th best	14	6	7	4.6	5.3	54% ♣2
3rd Best from 3 or 4	22	18	5, 6 or 7	20.4	20.4	even
Attitude	34	22	None	27.3	28.8	51% ♣2

What can we conclude? **South's play to trick one depends strongly on West's ♣ length and carding agreeements.** If you believe West leads 4th best and has 4 or 5 ♣, playing the ♣A to block is best.

Observations

1) Knowing West has 5 ♣ cards makes the right play the ♣A if they lead 4th best.
2) Including West's 3-card suit options reduces the odds to very close to 50:50, with a small advantage for the ♣2 in each case.
3) 5th best includes leads from 6 card suits. Specifically, the 2 cases where East holds a singleton ♣K or ♣Q allows either choice at trick 1. That shifts odds enough to favor the ♣2, albeit slightly. Few today are passive defending with a 6 card suit and 5-8 HCP over a strong 1NT opening. West will not hold ♣KQ109xx and the ♦K (8 HCP) and pass at their first turn. Adjusting probabilities for this lack of competitive bidding swings the choice back to the ♣A (55%)!
4) Both "3rd or 5th" and Attitude leads keep more relevant cases in play (36 and 34 of 43 respectively). These lead strategies are less helpful to a knowledgeable declarer. Use these lead strategies where you want to communicate interest while giving up less information.

URLs:

Deeper Finesse: http://www.cincybridge.com/alerts/Alert%20April%202009%20Version%202.pdf

Richard Pavlicek Card Combination Analyzer: http://www.rpbridge.net/cgi-bin/xcc1.pl

Richard Pavlicek Home Page: http://www.rpbridge.net/rpbr.htm

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