Computer Simulation of Opening Leads: An Interview with David Bird

By Robert Thorstad, thorstadrs@gmail.com

We sat down with David Bird, author of 138 bridge books. We usually learn about opening leads from experience at the table. David, in his books 'Winning Notrump Leads' and 'Winning Suit Contract Leads', offers a very different idea based on computer simulations. This type of simulation could also possibly be extended to other areas such as bidding. We discuss these ideas with David below.

Q: Your book suggests using computer simulations to evaluate opening leads. Can you explain how this works?

DB: Perhaps I had better start by showing a typical result of investigating a best opening lead. The bidding is 1NT – 3NT and you have to find a lead from:

♠ A Q J 8 ♡ 9 6 ♢ J 9 7 6 4 ♣ A 2

The software developed by Taf Anthias, my co-author of 'Winning Notrump Leads' and 'Winning Suit Contract Leads', generates many hundreds of thousands of deals that include this West hand. It retains only the first 5,000 that match the bidding of 1NT – 3NT. It then plays each deal 13 times, once for each possible lead, and displays the average results – both for IMPs and matchpoints:

	Beats Contract (IMPs)	Total Tricks (matchpoint pairs)
♠A	36.7%	4.37
♠Q	33.6%	4.29
♡9	32.1%	3.66
♢6	33.6%	3.78
♣A	27.5%	3.55

So, the ♠A is the best lead at IMPs. It is best by a huge margin at matchpoint pairs, beating the 4th-best diamond by well over half a trick per deal!

Q. How do simulations compare to human experience at the bridge table?

DB: A player can remember at most a handful of results for any particular type of lead situation. Against that, we analyze 5,000 deals containing one particular West hand. For example, for four decades I thought leading from K-J-x-x against a suit contract was a splendid idea; it was likely to work when partner held the ace or queen. Computer simulation revealed that leading from a king was generally quite awful. Leading from K-J-x-x was the very worst of the leads from a king!

Q. Which findings from the books surprised you most?

DB: Against suit contracts we found that low doubleton leads (such as 8-2) were

excellent, despite the prejudice against them. It is not that partner can win two rounds and give you a ruff very often. It is more that you hope to be leading towards partner's honors in the suit, just as declarer leads towards honors in dummy or his hand. Everyone knows that side-suit singletons are good leads, but we found that they are truly excellent, usually better than a K-Q-J sequence in another suit. We also discovered that ace leads against a suit slam were poor at IMPs but almost essential at match-points, where declarer might otherwise score an overtrick. There were many surprising results.

Q. Why is there sometimes a bias towards major suit leads against notrump contracts?

DB: If the bidding is a simple 1NT – 3NT, the responder is unlikely to hold a 5-card major and much of the time will not hold a 4-card major. This means that your partner is more likely to hold length in the majors than the minors. In general, you should seek to lead a major-suit. Dummy will hold an average of 2.44 cards in each major, 4.06 in each minor. You and your partner will each hold an average of 3.59 in each major, 2.91 in each minor. Suppose you are leading from:

♠J 8 6 ♡9 5 ♢K Q 7 2 ♣K J 7 2

A spade lead will beat the contact 21.3% of the time, a heart 20.6%. Most players would lead a minor, but a diamond will beat the contract with a frequency of only 14.1% and a club only 15.7%.

Q. Can you speculate about the future of this kind of analysis?

DB: In my subsequent book 'Winning Duplicate Tactics', I used computer simulations to evaluate various bidding situations For example, you hold:

♠K 9 2 ♡A 10 3 ♢Q 8 7 3 ♣8 5 2

Partner opens 1NT (15-17). Should you pass, make a game-try or raise to 3NT? The 5,000-deal simulation reveals that 3NT would be made 57% of the time. Does that mean that you should raise to 3NT? Not necessarily, because if you make a game-try and partner declines, it may be better to play in 2NT on those hands. These were the results when partner declines a game-try:

Contract	Makes	Avg. tricks	MPs	IMPs (vul)	IMP (NV)
2NT	82.8%	8.4	54.3%	-1.4	-0.3
3NT	42.4%	8.4	44.6%	+1.4	+0.3

So, you should definitely pass 2NT at match-points. At IMPs, particularly when vulnerable, you always want to be in 3NT and should go there directly.