Four C's

In the June, 1982, Editorial (and once earlier), we referred to a mysterious method of valuation: "on the count we use to program a computer, the example hand is worth 12.95." Quite a surprising number of readers have written to demand details, so we will oblige—after warning that this computer count was devised for use by a machine; it is not meant for mere mortal Masters.

Its genesis came in a conversation between Editors. Edgar asked Jeff whether his computer would be gracious enough to generate 100 or so pairs of hands, suitable for bidding practice, with auctions starting with two clubs (Edgar and Betty were tinkering with their responses to their big opening bid). "Sure," said Jeff, "but you've got to tell me how to tell my machine exactly what sort of hands you open with two clubs." After lots of discussion and reflection, Edgar decided that the key variables, in his judgment, were controls, losers, and playing strength (suit quality).

With much trial-and-error experimentation, numerical values were assigned. Controls were counted normally, 2 for an ace, 1 for a guarded king. Losers were measured backwards: every ace, guarded king, and twice-guarded queen counted 1, as a "non-loser"; also, every card less than three-card length in a suit counted 1, as a non-loser. The combination of the Control and (non-) Loser counts yielded interesting results. An ace had a value of 3 (2 for control, 1 for non-loser), a king 2 (1 control, 1 non-loser), a guarded queen 1 (non-loser): the Four Aces count for honors! In addition, a void suit provided 3 non-losers, a singleton 2, a doubleton 1: the Goren count for distribution! (Very early, we modified the shortness count by assuming that a "normal" hand contains one doubleton. Thus, we did not count the first short card. And a 4-3-3-3 hand counted *minus* half a point for distribution.)

Suit quality, playing strength, we computed by multiplying the point-count (4-3-2-1) in any suit by the number of cards in that suit, then dividing by ten. Thus, the computer would count up this hand, say,

♠ A K x x x ♡ x x x x x ◇ A K ♣ A.

for suit quality: 3.5 in spades (7 x 5 divided by 10), 0 in hearts, 1.4 in diamonds, .4 in clubs—5.3; then, for honors (controls plus non-losers): 5 in spades, 0 in hearts, 5 in diamonds, 3 in clubs—13; then, for shortness (non-losers): discounting the first doubleton, 2. Total value, 20.3. The machine would reject this hand as a two-club opening, since the minimum was 22 for a long-major hand (24 for a long minor). However, suppose that the short-suit honors were transferred to long suits:

♠ A K x x x ♡ A K x x x ◇ A x ♣ x.

The controls and non-losers remain the same, but the suit-quality count goes up to 7.8. The hand has a value of 22.8, so the computer would select it as a two-club opening. The machine's judgment accorded with ours—fine!

Of course, many minor modifications were needed. In the honor count, we added .5 extra for certain short-honor combinations otherwise unvalued: a singleton king, and the queen in ace-queen or king-queen doubleton. Also, we added .5 for the jack under two higher honors (but not three): AKJ, AQJ, KQJ. The queen in a three-card or longer suit *not* headed by a higher honor was demoted from 1 to .75. In a doubleton suit, the queen (with a lower card) counted .25. The jack, if under precisely one higher honor, also counted .25. The ten counted .25 when under precisely two honors, or when with the nine and under precisely one honor.

Thus, the full table of honor values (the value given is that of the honor in **bold face**) became:

A(x):	3	**K**:	.5
Kx(x):	2	**Q**xx:	.75
K**Q**x:	1	**Q**x:	.25
A**Q**:	.5	K**J**(x):	.25
AK**J**:	.5	K**10**9:	.25
AQ**10**:	.25		

Note, then, that a combination like AJ10 is valued at 3.5: 3 for the ace, plus .25 each for the jack under one honor, and for the ten under two honors. A holding like queen-jack doubleton counts .25 each for the doubleton queen and for the jack under one honor, .5 in all (plus the value of the doubleton).

The suit-quality count was modified so as to "swallow up" missing jacks and queens in very long suits: a seven-card suit would count 1 point extra (before multiplication by .7 for length) if either minor honor were missing; an eight-card suit would increase its high-card count by up to 2 extra points for missing honors, and an even longer suit by up to 3 extra. Thus, this suit,

♠ A 9 8 6 5 4 3 2,

would count to 4.8 for suit quality: 4 for the ace plus 2 for the missing queen, 6, times .8 for length of suit.

A suit-quality count for tens was added: 1 (before multiplication) when the ten was under two or more honors, or when it was with the jack—but only in a suit of six cards or fewer; any other ten counted .5. The nine-spot was not ignored: in a suit of six cards or fewer, it would count .5 when under the ten, or under any two honors, or accompanied by the eight-spot. Thus, this heart suit,

♡ A K 10 9 3,

counts to 4.25 for quality (4 plus 3 plus 1 plus .5 for the ace, the king, the ten under honors, the nine under the ten, 8.5 total, times .5, suit length). Of course, those hearts also count 5.25 for honors (controls, non-losers). So, add an ace or king on the side, and the hand will compute to an opening bid.

Indeed, we found that the count worked as well for one-bids as for two-bids, delicately mirroring the Editors' judgments of value. For a K-S player, an opening bid of one in a major or one notrump becomes possible at 12.0 points, mandatory at 12.5; in a minor, possible at 13.0, mandatory at 13.5. It turned out that when E.K. picked up a hand he felt could be opened one heart or passed, at whim, for example,

♠ 7 6 4 ♡ A Q J 7 4 ◇ 4 2 ♣ A 8 3,

the computer, on being consulted, would be undecided also, valuing the hand near the mid-point, 12.25. And some hand with which E.K. would surely open when his long suit was a major, but would reluctantly pass if a minor, like that example hand in the June Editorial,

♠ A J 10 x x x ♡ K 10 9 x ◇ x x ♣ x,

would compute to just under 13—perfect! Take away the heart ten, and the computer tells you that you may pass, but probably should open; without the spade ten, you may open but probably should pass; without either ten, you are far short of a minimum opening.

For later in the auction, in responding and rebidding, distributional hands like the example above may greatly increase or decrease in value. The 3 points in distribution for that singleton and doubleton, three non-losers, will be subtracted by the computer on a totally misfitting auction; and the distribution count may be as much as doubled when the auction reveals a good fit. When supporting partner's suit with three or more trumps, the computer adds an extra 50% to the short-suit count if sure of an eight-card fit, and adds an extra 100% when sure of a better fit. When it is partner who has supported, the extra credit is 25% for an assured eight-card fit, 50% for nine, 100% for huge fits.

Responder to that minimum one-spade opening gives a limit raise to three spades. The computer now values opener's hand as close to 16, and bids on to game. Quite right, too!

So, there you have it, a delicate, sensitive valuation, which allows a machine to reproduce faithfully the bidding judgment of a Bridge World editor. Alas, if *you* try to value your hands this way at the table, you will lose twice as much in slow-play penalties as you gain from superb accuracy. Other than for programming a computer, the most practical use of our count is for winning leisurely post-mortems, demonstrating mathematically that your table decision was indeed correct, or partner's erroneous. For the most part, you must allow yourself to be discouraged by the four C's of our title: Caution! Complex Computer Count.

●