Membrino: Madman or Genius?

   Conrad Membrino is something of an anachronism. Way back in 1983, to much consternation, Arnold Snyder introduced his revolutionary Red 7 count. The idea in a nutshell: *simplicity.* With an unbalanced count, you could have reasonable accuracy around the "pivot" with **no true count conversions** required. There had been earlier unbalanced counts, such as the Noir count, but none that garnered general acceptance and approval.

   Some thirteen years later, Vancura and Fuchs gave us the KO count. The idea in a nutshell: *simplicity.* With *this* unbalanced count, you could have reasonable accuracy around the "pivot" with **no true count conversions** required. What a revelation!

   Right around that time, the idea of **true counting** unbalanced counts seemed to start popping up everywhere. In the December '97 issue of Blackjack Forum, Snyder mentions a curious fellow by the name of Conrad Membrino, who presented a persuasive argument that Red 7 could, and should, be true counted, and "what could be simpler?" But there had been rumblings about this idea even before, on the old rec.gambling.blackjack newsgroup. Brett Harris had presented his "Unbalanced True Count Proof" on the old bjmath.com (before it had that domain name) in mid 1996. You can see it here: http://www.bjmath.com/bjmath/counting/unbalbal.htm The idea, in a nutshell: *who needs simplicity!* If you start with the right IRC, you can still do true counts easily enough, and you can improve accuracy over hi-lo and other balanced counts, by letting each rank take whatever tag seems the best, and to hell with the balancing act!

   Here are a few links with details on that unfolding saga:

A history of the Brh systems:

http://www.bjrnet.com/member/archive/BRH.htm

From August 22 1997 (by way of confirming the time frame) Scroll down to the Harris post:
http://groups.google.com/group/rec.gambling.blackjack/browse_thread/thread/c019549d8c2ac0fd/

Then scroll toward the bottom for the September 6 1997 post from Olaf Vancura...
"Yes, Ken and I had constructed and played around with what's now known as "TKO" prior to publishing K-O BJ [ed: in 1996]. *Since K-O is unbalanced by 1 per suit, you simply can subtract 1/13 from each K-O value to get the equivalent TKO card tags. Of course no one want to carry around numbers like 12/13, -14/13, etc. So we used the actual running count less the expected running count (as defined in the book), divided by NOD (number of decks remaining). This should exactly give the TKO TC.*
Though "simple," we thought it not simple enough. Brett has demonstrated another simple technique, in fact independently derived by others around the time K-O came out..."

Some Harris systems comparisons:
http://www.blackjackforumonline.com/w-agora/view.php?site=bjf&bn=bjf_forum&key=1273989592

There's also a post by Syph on "How to Quadruple Your Win Rate" in that thread that's worth a read.

Some systems from T. Hopper (almost certainly unavailable) including true counted KO with a variety of side counts:

http://www.bjrnet.com/member/bjapr/T.htm
http://www.bjrnet.com/thop/index.htm
http://www.lulu.com/items/volume_21/366000/366532/1/print/T-H_Basic_Blackjack-2.pdf

  Apparantly, complexity doesn't sell as well as simplicity. For his six books and dozens of reports on various systems, T. Hopper had a total of three customers, according to a post by him on bj21.com in January of 2003.

  But the deflating experiences of Dr. Brett Harris and T. Hopper -- both geniuses, IMHO -- were not enough to deter a tornado named Conrad Membrino. No sir! We now have 300 plus pages in the BJFO library on his version of true counted Red 7, with or without a (6mAc) side count. But that wasn't good enough for Membrino, whose motto is "have spreadsheet will travel!" He has now discovered -- wait for it -- **true counted KO with side counts**. What a revelation! It appears Conrad has been living in a time warp. I recently introduced him to "Optimal Betting Theory," which was a new idea to him. I guess you have to read the internet to know about Brh, T-H, or OBT.

  Membrino no longer advocates the use of true counted Red 7, although he still feels it's a good system. It's just not the **best** system, which he will reveal "Real Soon Now." His latest creation, which he feels everyone should adopt immediately, is true counted KO, starting with an IRC of zero to avoid negative numbers, and using charts to convert RC to TC, plus a side count where 4 and 5 count +1, and 7 and 9 count as -1. The side count, at least, is balanced. However, he is also keen on adding yet another side count, specifically to improve the insurance correlation.

  Arnold was understandably dubious about publishing another 300-400 pages of impenetrable gobbledygook on a count he never invented in the first place. So he asked me to do some sims to uncover the real value underlying this torrential downpour of spreadsheet data. What can I say? I owed him a favor...

  This project illustrates the usefullness of the PowerSim approach to blackjack research. It's not the fastest simulator, nor the most feature laden. Instead, it was written specifically to be "hackable" for a variety of different approaches. PowerSim.exe, ScoCalc.exe, and PSRed.exe have been included in the basic package since 2006. The other .EXE files listed (12 additional programs) were all created for this project. Source code for each program (extension .x) are included for your inspection. I have tried (emphasize *tried*) to lay down bread crumbs in the form of program remarks, so our loyal base of PowerSim programmers can quickly find the lines added or modified to create these 12 new programs.

  This paper actually includes new data on Red 7 that was previously unattainable. To the best of my knowledge, the PSRedBBinBJ.exe program, included here, is the first to fully implement the Advanced Red 7 system described in Blackbelt In Blackjack -- using "true edge" for betting and two different strategy matrixes for each half of the shoe. All our Red 7 programs count a red seven as plus one and a black seven as zero. Most other simulators (with the notable exception of Imming's now defunct RWC) inaccurately count all sevens as +0.5 in this context.

  You can use PSRedBBinBJ.exe, or any of the other Red7 executables, to run sims under better conditions for Red 7. Red 7 seems to perform best with excellent rules, plus poor penetration. The sims below concentrate on excellent rules and pen, and the other extreme of abysmal rules and pen, to get a wide variety of results in the comparisons. Every detail about these sims can be reconstructed with the Simulation Notes below, and the files linked right here:
http://www.blackjackforumonline.com/content/MembrinoMorG.zip

Group I: Running Count Systems

1) Simple Red 7 with 6 indexes, using running count for both betting and strategy, as described by Arnold Snyder in *Blackbelt In Blackjack*.

2) KO Core, using running count for both betting and insurance, as described by Vancura and Fuchs in *Knock-Out Blackjack*. No strategy indices other than the insurance index.

3) Simple KO with the same 6 indexes used in the Simple Red 7 sim. Running count for both betting and strategy, as described in *Knock-Out Blackjack*.

4) KO Preferred, using "reduced and rounded" indices, as described in *Knock-Out Blackjack*.

Group I Simulation Suite:

A. 5 decks dealt out of 6, Dealer stands on all 17s, Double after splits permitted on non-aces, one burn card, 4 players with player #2 using basic only, 1 billion round sim with a random seed set by the TIMER, win rates for 100 rounds (approximately one hour of play) calculated with optimal bets for a 5% risk of ruin on a $10,000 bankroll averaging players 1, 3 and 4. [Note: System 4 was done with 5 billion rounds, seed = 1934543680, and player #4 only using indices. Also, an IRC of -24 was used and the indices adjusted appropriately.]

System	number indices	.SIM file	.EXE file	1 - 12 win rate	1 - 16 win rate	Wong in/ out RC	1 - 4 win rate
1)	6	SimpleR7	PSRed	$12.43	$14.77	-1	$24.81
2)	1	KOCore	PowerSim	$9.25	$11.36	-2	$20.87
3)	6	KOCorePlus5	PowerSim	$12.32	$14.83	-2	$25.70
4)	14	KO6dPref-24	PowerSim	$21.71	$25.37	-4	$40.17

B. 4.5 decks dealt out of 6, Dealer hits soft 17, No double after split, two burn cards, 4 players with player #2 using basic only, 1 billion round sim with a random seed set by the TIMER, win rates for 100 rounds (approximately one hour of play) calculated for a 5% risk of ruin on a $10,000 bankroll averaging players 1, 3 and 4. [Note: System 4 used an IRC of -24 and the indices were adjusted appropriately.]

System	number indices	.SIM file	.EXE file	1 - 12 win rate	1 - 16 win rate	Wong in/ out RC	1 - 4 win rate
1)	6	SimpleRed7B	PSRed	$4.35	$6.34	1	$17.50
2)	1	KOCoreB	PowerSim	$2.66	$4.30	0	$14.63
3)	6	KOCorePlus5B	PowerSim	$4.66	$6.84	0	$19.19
4)	14	KO6dPref-24B	PowerSim	$5.08	$7.31	-4	$19.82

Group II: True Counted Level 1 Systems

5) Hi-lo with exact true counting and Don Schlesinger's "Illustrious 18" indices, excepting T-T v 5 or 6.

6) Hi-lo with exact true counting and 33 indices suggested by Conrad Membrino.

7) Hi-lo with exact true counting and 33 indices suggested by ET Fan.

8) Red 7 with true-edge for both bets and strategy, using Snyder's rounding up to nearest half-deck and 1/2% precision. (A hybrid system from ET Fan.)

9) "Advanced Red7" as described in *Blackbelt In Blackjack*, using true-edge for betting and two running count strategy matrixes, one for the first half of a shoe, and another for the second half. Uses Snyder's rounding and 1/2% precision, similar to 8).

. 10) Conrad Membrino's Red 7 system, using true counts for both betting and strategy via his tc conversion charts (emulated by formulae in the programs) and his suggestion for rounding to nearest full deck. The two .EXE programs that implement this system are hard coded with a reverse index for splitting 8-8 v T.

11) Conrad Membrino's KO system, using true counts for both betting and strategy via his tc conversion charts (emulated by formulae in the programs) and his suggestion for rounding to nearest full deck. The two .EXE programs that implement this system are hard coded with a reverse index for splitting 8-8 v T.

Group II Simulation Suite:

A. 5 decks dealt out of 6, Dealer stands on all 17s, Double after splits permitted on non-aces, one burn card, 4 players with player #4 only using indices. 5 billion rounds with seed = 1934543680. Win rates are for 100 rounds (approximately one hour of play) calculated with optimal bets for a 5% risk of ruin on a $10,000 bankroll using player 4 only.

System	number indices	.SIM file	.EXE file	1 – 12 win rate	1 – 16 win rate	Wong in/ out TC	1 – 4 win rate
5)	16	hi-logen	PowerSim	$21.59	$25.09	2	$39.51
6)	33	HiLoMemb	PowerSim	$22.30	$27.04	2	$42.51
7)	33	Hi-loPlus	PowerSim	$23.94	$27.67	2	$42.85
8)	33	PSTERed7	PSTERed7	$23.50	$27.26	0	$42.71
9)	6/13	PSRedBBinBJ	PSRedBBinBJ	$20.34	$23.85	0	$38.63
10)	34	memb	PSMemb	$23.56	$27.23	2	$42.22
11)	34	membTKO	membTKO	$24.15	$28.02	2	$43.74

B. 4.5 decks dealt out of 6, Dealer hits soft 17, No double after split, two burn cards, 4 players with player #2 using basic only, 1 billion round sim with a random seed set by the TIMER, win rates for 100 rounds (approximately one hour of play) calculated for a 5% risk of ruin on a $10,000 bankroll averaging players 1, 3 and 4.

System	number indices	.SIM file	.EXE file	1 – 12 win rate	1 – 16 win rate	Wong in/ out TC	1 – 4 win rate
5)	16	hi-logenB	PowerSim	$4.74	$6.81	2	$18.73
6)	33	HiLoMembB	PowerSim	$5.31	$7.51	2	$20.11
7)	33	Hi-loPlusB	PowerSim	$5.36	$7.56	2	$19.89
8)	33	PSTERed7B	PSTERed7	$5.44	$7.67	1	$20.25
9)	6/13	PSRedBBinBJB	PSRedBBinBJ	$4.58	$6.63	1	$18.86
10)	32	membB	PSMembB	$5.81	$8.09	2	$20.64
11)	36	membTKOB	membTKOB	$5.90	$8.24	3	$21.04

Group III: True Counted Systems with a side count

12) Membrino's Red 7 system as per 10) plus a secondary count where 6's are tagged +1 and aces are tagged -1. Assorted "k" values are used to combine the two counts in various proportions for each strategy. Therefore it is called Red 7 + k * (6mAc) The two .EXE programs that implement this system are hard coded with a reverse index for splitting 8-8 v T.

13) Membrino's KO system as per 11) plus a secondary count where 6's are tagged +1 and aces are tagged -1. Assorted "k" values are used to combine the two counts in various proportions for each strategy. Therefore it is called KO + k * (6mAc) The two .EXE programs that implement this system are hard coded with a reverse index for splitting 8-8 v T. This system is currently unavailable to the public.

14) Membrino's KO system as per 11) plus a secondary count where 4's and 5's are tagged +1 and 7's and 9's are tagged -1. Assorted "k" values are used to combine the counts in various proportions for each strategy. Therefore it is called KO + k * (45m79c) The two .EXE programs that implement this system are hard coded with a reverse index for splitting 8-8 v T. This system is currently unavailable to the public.

Group III Simulation Suite:

A. 5 decks dealt out of 6, Dealer stands on all 17s, Double after splits permitted on non-aces, one burn card, 4 players with player #4 only using indices. 5 billion rounds with seed = 1934543680. Win rates are for 100 rounds (approximately one hour of play) calculated with optimal bets for a 5% risk of ruin on a $10,000 bankroll using player 4 only.

System	number indices	.SIM file	.EXE file	1 - 12 win rate	1 - 16 win rate	Wong i/o TC	1 - 4 win rate
12)	47	Memb6mAc	Memb6mAc	$26.11	$29.84	2	$44.56
13)	47	MembTKO6mAc	MembTKO6mAc	$27.25	$31.24	2	$46.92
14)	47	MembTKO45m79	MembTKO45m79	$27.66	$31.72	2	$47.61

B. 4.5 decks dealt out of 6, Dealer hits soft 17, No double after split, two burn cards, 4 players with player #2 using basic only, 1 billion round sim with a random seed set by the TIMER, win rates for 100 rounds (approximately one hour of play) calculated for a 5% risk of ruin on a $10,000 bankroll averaging players 1, 3 and 4.

System	number indices	.SIM file	.EXE file	1 - 12 win rate	1 - 16 win rate	Wong i/o TC	1 - 4 win rate
12)	45	Memb6mAcB	Memb6mAcB	$6.59	$8.98	2	$21.67
13)	44	MembTKO6mAcB	MembTKO6mAcB	$6.87	$9.34	2	$22.36
14)	46	MembTKO45m79B	MembTKO45m79B	$7.31	$9.89	2	$23.22

Simulation Notes:

These results reflect the use of "the theory of optimal betting" as originally developed by Dr. Brett Harris, Karel Janacek and others. The bets are, in general, weird fractions that nobody could use in a real casino. But it's easy enough, once you pick a risk of ruin you feel comfortable with, to a given bankroll, to round bets to realistic chip multiples, and then run the practical bets through ScoCalc to witness the minimal effect of rounding on win rate and RoR. One may ask why I didn't simply use the bets recommended by each of the four authors involved. However, in each case the recommendations seemed vague (with "unit" and/or "bankroll" ultimately undefined), and I didn't want to give undue advantage to the authors who had access to my email address. Optimal betting theory provided a level playing field.

The *A.* game is clearly far more lucrative than the *B.* game -- better rules and more importantly, deep penetration. Recently, someone on blackjackforumonline was asking about a 4/6 game. The numbers there are so abysmal it's pointless even to run a sim. The results above show why professionals swim hard to get to the deep end of the pool.

Fans of the SCORE terminology can generate SCOREs from these results by multiplying win rates by $\ln(0.05)/-2 =\sim 1.5$, or simply adding 50% to the win rates. It's not generally appreciated that changing the bankroll, and/or risk of ruin, cannot affect the relative ranking of winners and losers under normal optimal betting assumptions.

The standard error for any of the 5 billion round sims can be calculated as $SqRt(\text{win rate}) \times 0.011555$. For example, for sim A. 5), StErr for the 1-4 Wong rate is $SqRt(39.51) \times 0.01155 = 0.0727$, or about 7 cents. This will be found to be equal to $SqRt(var/5{,}000{,}000{,}000)$ times 100 to convert to the 100 round metric. Standard error for the 1 billion round sims also involves a covariance between the three hands being averaged. For these 1 billion round sims, you can do $SqRt(\text{win rate}) \times 0.02244$. For example, for B.1), StErr on the 1-12 win rate is $SqRt(4.35) \times 0.02244 =\sim 0.0468$ or about a nickel. These errors only work out to these neat multiples because of the optimal betting at this particular 5% RoR on a \$10K roll.

Absolutely everything about these sims is verifiable and repeatable if you've got the time and desire. The notes below back up this claim.

People with Vista or Windows 7 have been unable to install my custom version of XBasic, but any Windows administrator should be able to run any of the included programs. You can run simulations similar, or if you choose 100% identical, to any of these sims without a whit of programming. Here is the very simple procedure:
1). Pick a line in one of the Simulation Suites above. Each line represents a separate sim. Example: let's pick A. 13.
2) Run the sim by double clicking on the .EXE file named on the line. Example: MembTKO6mAc.exe
3) When prompted for a seed, press [Enter] to use a seed provided by the TIMER function.
4) When prompted for a .SIM file, enter the .SIM file on the line you chose in step 1. Example: MembTKO6mAc [Enter]
5) When prompted for a .BIN file, enter any file name of your choice (something not already taken in the current folder). Example: axyze12435 [Enter]
6) When prompted for how many rounds to play, enter something reasonable, such as the number that was run in the sim you're interested in. Example: 1000000000 [Enter]
[Note that a 1 billion round sim may take an hour or two, depending on how speedy a computer you have. You can interupt the sim at any time by a) making sure the sim program is "selected" i.e. click your mouse on the gray box, and b) pressing the space bar on your computer. You can resume the simulation at any time by pressing [Enter].]

If you want to run exactly the same sim as one of the above (checking up on me maybe?) you can find the correct seed to enter manually by looking inside the .SIM file. (Example: MembTKO6mAc.sim) You can quickly look inside a .SIM file by renaming the extension to .rtf (stands for Rich text File), but then you will have to change it back to a .SIM file to run the sim. It's

better to set up Windows on your computer to open .SIM files in WordPad or some other simple word processor. Here is the procedure to do that in Windows XP: First select a .SIM file (such as MembTKO6mAc.sim) with your left mouse button, then hold down the shift key while <u>right</u> clicking on it. Choose Open With... from the drop down menu. You will get a dialogue box. Choose the option to "Select the program from a list" and click OK. Now make sure there's a check in the box labeled "Always use this program ..." Scroll down and select WordPad from the list and click OK. From now on, you can double click on any .SIM file, and it will open in WordPad.

   If you use the seed and the number of rounds indicated in the .SIM file, the program will deal the exact same sets of shoes to the simulated players. And since the .SIM file determines every other sim parameter, everything should be identical. You can see this by once again opening the .SIM file and checking out the new frequencies, win rates, and variances for each TC listed. They will be identical to those listed above from the simulation performed by yours truly. If you know how to run ScoCalc (Instructions are in the BJ PowerSim Instructions.rtf file included) you can go on to recalculate all of the win rates listed in suites I, II, and III above.

   Many other details concerning each simulation are included in the .SIM files. For example, the specific bets employed for each spread, and the specific strategy file (extension .str) used (or in the case of PSRedBBinBJ, two strategy files). You can add indices, or take them away, by editing the strategy file (better read the instructions if you want to do this) to see the effect on your own simulations. Also, the .BIN file is listed. The .BIN file is how the executable sim programs communicate with ScoCalc -- the optimal bet and win rate calculator. In this set of simulations, the .BIN files have the same pre-extension file name as the .SIM files. If you know how to use ScoCalc (you guessed it -- instructions again), you can use the included .BIN files to generate win rates for almost any spread, Risk of Ruin, and bankroll you can imagine. If you go outside the bounds of what is theoretically feasible for these particular sims, ScoCalc will give off several warnings, such as 100% RoRs and/or negative win rates.

   When you run PSRedBBinBJ.exe, the strategy file for the second half of shoe must have exactly the same name as the strategy file for the first half of shoe, except with a "2" prefixed at the beginning. Otherwise, the program will assume you want the same strategy for both halves of the shoe. For the A.9) simulation, the two strategy files are: Red7BBinBJShoe.str and 2Red7BBinBJShoe.str . For the B.9) simulation, the two strategy files are: Red7BBinBJshoeH17noDAS.str and 2Red7BBinBJshoeH17noDAS.str .

   There's no need to run your own sim if you just want to verify any of the win rates reported above. Here is the procedure for that:
1. Pick the .SIM file listed above for the simulation you're interested in. (Example: KOCorePlus5)
2. Double click on the ScoCalc.exe program.
3. In response to the prompt for a .BIN file, enter the pre-extension file name of the .SIM file. (KOCorePlus5)
4. In response to "Which will flat bet?" press [Enter] for the default, which is none.
5. Press [Enter] 5 or 6 times to start the betting at 1 unit.
6. Then press the backslash key ("/" without the quotes) to start calculating optimal bets.
7. When you get way up to about "bet at 15" (+15 is a safe max tc/rc to use for all the calculations in these suites), enter 12 [Enter] to maximize your spread at 12 units.
8. Keep pressing [Enter] to get through all the bets through +20
9. Press [Enter] to use the default bankroll of $10,000 .
10. Press 0.05 [Enter] to use the RoR of 5%
11. Average the win rates for players 1, 3 and 4 times 100 to get the 1-12 win rate of $12.32 reported above: (.1233823 + .1232283 + .1228675) / 3 * 100 = $12.32 after rounding.

   To get the 1-16 spread, you would obviously key in 16 instead of 12 in step 7. above. Then complete steps 8. through 11. as above.

   To get the 1-4 Wong rate, key in 0 for the very first bet at minus 20, then keep pressing [Enter] to leave it at zero up through the bet at minus 3, then key 1 [Enter] / [Enter] [Enter] [Enter] [Enter]

[Enter] [Enter] [Enter] [Enter] [Enter] [Enter] [Enter] [Enter] [Enter] [Enter] [Enter] [Enter]
(we're at +15 now) 4 [Enter] [Enter] [Enter] [Enter] [Enter] [Enter] [Enter] 0.05 [Enter] then average
1, 3 and 4, and multiply by 100 as above, to get $25.70 .

   The total "number indices" listed in the suites includes all the indices in the relevant strategy file
(s) plus one (1) for all the programs with "Memb" in the title. Programs with "Memb" in the title
have one additional index (8-8 v T, a reverse index) written into the source code. "number
indices" does not include indices that are never used by the simulated players, such as surrender
indices.

   In many cases the .SIM file will list one or two additional spread results from those listed above.
Careful inspection will reveal these to be for different Wong in/out points from what's listed. The
Wong points above were chosen by trial and error to produce the maximum win rate under the
assumptions of the simulation, one of which is that you stay put and observe all rounds, whether
or not you play. In some cases, a player may be somewhat better off chosing a different Wong
in/out number, but that is a calculation each player must make for him or herself. Also, I'm aware
some players use much, MUCH more aggressive spreads than those listed. In that case, you will
need to run ScoCalc to get your win rate. Or if you ask very nicely on the PowerSim Project
board, I might be inclined to run it up for you.

   Special Note: I have done some sims that convince me Red7 (the old fashioned running count
version), with optimized indices, runs neck and neck with Hi-lo in a 4.5/6 S17 DAS LS game.
Therefore, Red7 is a better count than KO for this game, as you can see from the Risk-Adjusted,
Six Deck, S17, DAS, LS, 75% Dealt table in the following article:

http://www.blackjackforumonline.com/content/battleofbabies.htm

   The Red7 numbers in Auston's table are inflated, due to counting all 7's essentially as +0.5, but
bringing them down to the Hi-lo level, as I indicated, still has KO bringing up the rear. I believe all
systems in the Auston table used the I18 indexes, generated as risk-averse by SBA.

A Personal Evaluation

   For at least 20 years, the trend in blackjack systems has been toward simplicity. Conrad feels
these results will turn the world of blackjack *upside down*. Everyone must come to grips with his
systems in their own way, but I'm afraid I don't foresee hordes of people switching to TKO + k*
(45m79c) any time in the near future.

   Three things are clear from these sims. First: true counting unbalanced systems, such as Red 7
or KO, is a perfectly valid approach. Second: counting the 7 as plus one is more powerful than
tagging it at zero. I've been aware of both these facts for about 12 years. Tagging the 7 and/or
the 2 at zero instead of +1 was done purely to balance your simple level one counts. So if you
don't need a balanced system in order to true your count, why not go the Membrino way?

   In a word, the answer is simplicity. Mr. Membrino believes his system, with its charts for true
count conversions is very, very simple. Why there's no need for division! Two problems with that:
1) I have never done division at the tables -- I multiply by a memorized chart of reciprocals, which
is the same regardless of the number of decks in the hopper. 2) He has **different charts**
depending on the size of the shoe. I can only begin to imagine the confusion that would
engender.

   I think perhaps Membrino plays in an environment where only one type of shoe game is
available. But most pros encounter several game types on a daily basis. Long ago, when Arnold

Snyder, Brett Harris and others were kicking around the idea of true counting an unbalanced system, they came up with a solution. The solution is to start with an initial running count such that the final count -- after all cards have been seen -- is equal to zero. If you do this, there only needs to be one chart (assuming you want to learn a chart for TC conversions) or one formula, namely: TC = RC / decks remaining. (Or to put it another way: TC = RC X (1/decks remaining), at which point the only table you need to memorize is the multiplication table!) Still, I must admit, if the only game you play, day after day, is a 6 deck shoe, then the Membrino way is a nifty solution. Just pray you *never* have to play in a different casino!

   I also freely admit Membrino is peerless in his use of spreadsheets and correlation coefficients for blackjack research. He can create EV maximizing indexes for any count system -- balanced or unbalanced -- with his spreadsheets. He also has some risk-averse indexes (maybe he has a spreadsheet for that, too?). He projects and combines insurance correlation, playing efficiency and betting correlation via spreadsheet. He combines side counts with ALL the above to project, with pretty good accuracy, exactly which side count(s) is best with a given system. He says 6mA is a good side count for Red7 -- it's a darn good side count. He says 6mA is also good for TKO, but 45m79 is even better. Right again. Ask him exactly how much any of this is WORTH in a specific game to a particular counter? I don't think he has a spreadsheet for that. Yet.

   The simplicity that comes out of a balanced level one system, such as hi-lo, is that the IRC is always zero, whether you're playing one deck pitch, or a 12 deck shoe. This is particularly important if you're into shuffle tracking, where different IRCs for different "sub-shoes" (aka slugs) is a horrendous nightmare. Another benefit this immediately confers is that a negative count always equates to a negative EV. Any time your count is zero or less, you can a) bet table minimum and b) relax about making true count calculations, unless you really feel like it, or c) take a bathroom break, or d) stroll over to that cute blond dealer breaking out a new shoe. Yeah, yeah, I know, when the KO TC is <= -4 (using the Harris/Snyder TC metric) it's the same thing, but you have to *estimate* decks remaining and *calculate* the TC to know that. Zero divided by anything is still zero. Zero is such a nice, friendly frame of reference.

   Now the third thing you can glean from these sims is that **hard work pays**. If you want to count all your 7's and fool around with charts or IRCs and the rest, you will make a little more money. (Compare system 6) with system 11).) If you want to add a side count, you will make a little more. (Compare system 11) with system 13).) If you want to do an even fancier side count, you can make even more. (Compare system 13) with system 14).) Mr. Membrino would be quick to add that system 14) provides an element of camouflage, while simultaneously improving accuracy. He is very excited about these results. He feels they confirm his very hard work in several ways. And there's no doubt about it -- when I get that computer chip implanted in my brain, I'm switching right over to TKO plus three or four side counts.

   And yet ... and yet ... I would humbly suggest there are better ways to allocate the limited brain power we mortals all abide. If I upgrade from my hi-lo system (roughly system 7)) by counting those 7s, giving up my friendly zero reference frame, adding 14 indexes, adding a side count of 4's, 5's, 7's and 9's and learning 47 "k" values to further complicate all my betting and strategy TC calculations, I wind up with system 14), and can add a whopping $5 to my hourly EV under idealistic conditions!

   Or can I. Can I really do this and watch every hand (not just my hand -- *every* hand) for dealer totaling and payoff errors? Can I really do this and backcount two shoes -- a 6 decker on the left and an 8 decker on the right -- simultaneously? Can I really do this and track a juicy slug through a two pass shuffle? Can I do this and distract the dealer with inane patter about ObamaCare and the state of the economy? I don't think I can. Can you??

   Madman or genius -- sometimes it's a very fine line. I'll let you make the call.

More Sims Are Needed

Some of these sims were done with 5 billion rounds, and some with "only" one billion rounds. Most professionals never even reach the one million round watermark in brick and mortar casino play. We can see that a billion rounds represents over a thousand lifetimes of active professional play. Nevertheless, in some cases the systems above came in at a statistical dead heat. For example, we can't say, based on these results, that one is better off in a 6d game to use KO Preferred with its 14 indexes over Hi-Lo with 16 indexes. The pure KO enthusiast avoids true count calculations, but there are other reasons to prefer hi-lo, such as no IRC to complicate shuffle tracking and a smaller range of running counts to contend with. But assuming a player is comfortable with either system, the sim results are no help, results are too close to call, and a thousand lifetimes are not enough! We need more sims. We need longer sims. [Longer sims have in fact been done several times, but it's often unclear exactly which indexes were used for one or the other system -- reason #241 to prefer the open source approach.]

Also, Conrad Membrino is **very** anxious to know whether or not his KO + k*(45m79c) count is the new king of the heap. He feels sure it will blow Hi-Opt II with an ace side count out of the water. Can somebody please run this simulation for him? He thinks I'm the only one that can do it. I've tried to tell him Science is a community project. You are not limited to PowerSim. Several commercial simulators can run Hi-Opt II with a side of aces. If someone *else* gets win rates significantly lower than those listed above for KO + k*(45m79c), comparing apples to apples with similar spreads and conditions, well then maybe he's onto something. If I did it all, wouldn't that raise several questions?

Besides, my laptop is vulnerable to heat issues, and I'm not sure which heap Conrad is worried about. Surely someone has a nice, fast desktop laying around. Conrad can grind out zillions of indexes for you with his spreadsheets. And once you do Hi-Opt II, you can start somparing KO + k*(45m79c) to any of T. Hopper's multi counts, or some of the old counts from Brett Harris. Or what about Thorp's Ultimate Count? Oh yeah, and Mr. Membrino **really** wants to know about adding a **second** side count, just for insurance purposes. We will always need more sims.

Acknowledgements

ETF