

Snowman, is it just me or just a coincidence that I have observed the following. Using RWD each session requires only 59 spins. Recently I have been plotting the results on the wheel layout card that most casinos provide - if you ask for one. Each time I have done this, there are two sections on opposite ends of the wheel that get hit much more frequently than anywhere else on the wheel. i.e. in 59 spins I am finding numbers on opposite sides of the wheel that are being hit 3 or 4 times in small clusters of 3 to 5 numbers. For example, last night at Sandia 31 = 2 hits, 18 = 3 hits, 6 = 3 hits, 21 = 3 hits, and 33 = 2 hits. On the opposite side of the wheel 22= 2 hits and 34 = 4 hits. Would like for somebody to RX it if possible for groups of 60 spins for a session and see what it looks like. By the way it was a Huxley.

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Can you please post how many times each number hit?

- - -

Hi Snow. I just got back tracking the same old wheel I have been tracking for the past three nights. Boy, are these poor Indian casinos slow! It took 3 minutes per spin this evening. Had some nut playing who won \$10,300 on one spin and couldn't walk away. Some people just need a n old fashion "arse kickin". She lost it all back. She had special permission to bet using \$100 chips. She just spread them all over the place, and in STACKS of \$100 chips.

Here are my results so far on the Huxley during 4 sessions spread over three nights.

Total Number Of Spins: 230 spins

At 3 minutes per spin, that's a lot of overtime for this ole fart after teaching all day.

38 X 6 = 228 Average Number Of Hits Per Number = 6

Number Number Of Hits

=====

00.....6
 27.....7
 10.....7
 25.....10
 29.....3
 12.....5
 8.....3
 19.....9
 31.....5
 18.....7
 6.....9
 21.....9
 33.....8
 16.....4
 4.....5
 23.....1

35.....3
 14.....3
 2.....4
 0.....10
 28.....7
 9.....8
 26.....6
 30.....8
 11.....11
 7.....4
 20.....4
 32.....5
 17.....4
 5.....5
 22.....6
 34.....9
 15.....9
 3.....4
 24.....8
 36.....5
 13.....8
 1.....3

It looks like there are a couple of "hot spots" :
 1. 18,6,21,33 had 33 hits = $33/230 = 14\%$
 2. 0,9,30,11 had 37 hits = $37/230 = 16\%$
 These two spots or sectors accounted for 30% of the spins.

Hot Numbers:
 11 had 11 hits.
 0 had 10 hits.
 25 had 10 hits.
 6,15,19,21,34 all had 9 hits.

Based upon this information, what numbers would you bet on?
 I have only one more night and then its off to Oklahoma City.
 Thanks Snow.

At least so far this isn't showing to be a bias wheel.

So I wouldn't be so quick to think it is or there's a benefit.
 Track more spins for now.

(my advice)

Thanks Turbo. Not really in a financial position to try it if the wheel is not biased. Thank
 you for responding so quickly. Have a great day Turbo.

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Henry,

Can you contact me? I have 8K very detailed data points on that Sandia wheel and would be interested in collaborating with someone.

- - -

Interesting Benny. You need to collect more spins though. The chance of randomness is pretty random so far. It's hard to tell anything from so few spins.

- - -

^^ agreed.

I would seriously invest some more time in recording only - after all, there's nothing to lose by just recording - and then if it turns out that there's an advantage you can hop on and ride it to the bank.

Maybe a few more recording sessions on the same wheel (keep track of it if it moves) and then we can work up some charts and see what's what.

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Turbo, hypothetically speaking, what if you and I tracked a wheel for a year and had 100,000 spins and all the evidence points clearly to a hot sector on the wheel containing 10 numbers. Your bankroll is \$200 and the minimum inside bet is \$5. How would YOU bet? Would you bet \$1 on all ten numbers? After a win would you bet \$2 on each of the ten numbers? What if several streets were covered by 5 of the ten numbers. Would you bet on the streets? Would you bet on the double streets? Anything you can suggest will be greatly appreciated.

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For me, it would really all depend on what the specific numbers were and then I'd figure out how to play it from there.

If it were 10 numbers, I'd probably play them individual each spin.
If the bias was obvious then I'd probably increase the unit size every time I had 2 or 3 wins - if the wheel is bias then you can increase your bankroll fairly quickly.

If the min inside is 5.00 (meaning 5.00 total has to be on the table) then I'd do it like above - but probably only increase the unit size every time I hit a new goal/balance.

example - 1.00 per number until I had reached 500.00 in profit, then increase to 2.00 per number to 1,000.00, etc etc

It would really depend "to me" on how bias the wheel really was.
A slight bias would mean it's still possible to lose the bankroll even at the 1.00 level.

A wheel that is more bias (more than what was described above) then I'd feel pretty safe with the above progression in units.

And of course if the wheel was terribly bias then I'd simply do an extreme progression - probably 1.00 per number and then add 1.00 per loss until a win, then reset back to 1.00 (something along those lines)

It really depends to me on what the charting looks like as far as how the method used will be.

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Thanks Turbo. I really appreciate you and what you have done for the game of roulette.

- - -

Ok, here's the quick script for winning using biased wheel play if you aren't trained to quickly defect spot the biased wheels. For starters, forget everything you have ever read about or know about biased wheels, because most of it is wrong.

If you follow these procedures, you will win most of the time. The problem is, most people can't stay focused long enough to do it. If you can stay focused, then you can win some hefty amounts of money.

If you can't defect spot the wheels, then simply track everything in sight. This is a great way to get your feet wet. Start with low stakes only. Playing like this at higher units will occasionally get you banned. This is only an entry level method. If you want to move to the next level, you have to learn how to defect spot the biased wheels, otherwise you will likely waste too much time and money tracking random wheels. Defect spotting enables you to quickly determine which wheels are biased and which wheels to ignore.

1. Track every wheel in sight to 7,500 spins. Have friends and family help you track, or hire help and run it like a business. (log any identifying markings on each wheel so that you can identify it and track it's movement around the casino.)

2. Play every number that is in excess of 2 standard deviations using the modified Kelly Criterion. If you don't have at least one number above 3 or more standard deviations, and at least one or two others above 2 standard deviations, then move on to the next wheel. If you have several numbers close to or slightly above 2. standard deviations, then pick the top seven.

Do not bet more than 10 numbers. The more numbers you bet, the greater the random fluctuations will likely be. Betting more numbers will increase the severity of random draw downs during play. You can't win if you're betting half the wheel!! You don't have to be on every biased number. The numbers on which you bet just have to be biased.

3. The day of play, pre-track your wheel for 350+ spins to correlate with previous data prior to play. Peak pick your play day. Any number that appeared bias prior to play that is not close to, or above expectation prior to play should be dropped. If the data doesn't correlate, try another day.

4. If you want the strongest possible chance of a positive outcome, then play for nothing less than 12-16 hours straight. You have to allow for a significantly large enough volume of

spins for your edge to dominate the random fluctuations of the game. Simply betting for an hour or two isn't sufficient. (For example: $+ \text{ or } - 2.5 \times \text{square root of } N$ represents your ave. fluctuations most of the time. $N =$ the total number of spins played) Overtime you will learn when favorable playing conditions are occurring or fading and you will want to adjust your playing style accordingly.

Bet using the following bank to bet calculation:

Edge/expectancy x the chance of losing your bet at each spin. Multiply this amount times your bankroll each spin. (I added the additional step to the Kelly criterion to reduce the over betting that can occur when the player is betting on several biased numbers).

For example: if your edge is 15% on five biased numbers, then you would calculate your bet as follows.

$$.15 \times (35-4)/5 \times 31/36 = .02$$

If your starting bankroll is 500 units, then multiply the .02 times 500, then divide by 5 to determine how much to bet on each of your five numbers. $500 \times .02 / 5 = 2$ units on each of your five biased numbers.

I've just told you how to make a fortune at the game. Will anyone try it? Not likely. 99.999% of the people lack the discipline and the focus to win. Most people will be distracted by the WDL's of the forums. If anyone does have the focus, then email me your data, and I'll run it through the different statistical tests for you for free. If you are into tracking wheels and want to take things to the next level, then feel free to email me. I enjoy discretely talking about the wheels and exploiting the different design flaws.

Based on my experience, here is a quick note on sectors: Most individual biased numbers are part of a larger biased section. Many of the individual biased numbers that appear to be biased, are what we call temporary local biased numbers (TLB) within a true biased section.

When playing a biased section, it is often more effective to play in between wheel cleaning cycles when the TLB numbers are strongest. This will enable you to play fewer numbers within the overall biased section at a higher edge. Playing to many numbers within a biased section will exacerbate any random drawdowns that you may experience during biased wheel play. Since wheels are most frequently cleaned just before the weekend, look for your TLBs within biased sections on a Wed. or Thursday. On Fridays and Saturdays, look for the TLB to weaken and to spread over the larger biased section.

A quick note on mirror bias: It's not your imagination, it occurs. Because of the many different factors that cause bias, you will frequently find patterns to the bias on the wheel. The type of pattern can sometimes quickly indicate the wheel defect. You may find a bias that appears every five pockets on some wheels, or one that appears 20 pockets away on another wheel. Some patterns are even just mere reflections of a bias defect that may exist on the opposite side of a wheel head.

-Snowman

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I want to once again thank Snowman, Laurance, and Turbo for your knowledge and time. Wow! Snowman, I feel like I just got hit with a blizzard and I'm laying on my back in the snow. I wipe the snow off of my face, and I look up and see you smiling. That is the finest and most revealing post I have ever read on GG. You are correct, however, in your assessment of most players, including me. I just don't have the energy level to do what is required. If I was retired, maybe.

I played last night using RWD and noticed several of the hot numbers had not shown in 40+ spins and went against RWD's philosophy. I "chased" several of the hot numbers for 7-8 spins, and she hit. I also placed a \$1 chip on the numbers for the dealer. It was fun to have everyone rooting for you. When it hit, I felt like I just won the lottery. I had placed \$4 on the "hot" numbers. I actually made a profit of \$107 for the night, and very quickly left Dodge! That's what I love about the game so much. For once, NO AGONY OF DEFEAT thanks to you men.

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$15 \times (35-4)/5 \times 31/36 = .02??$ (edge/ expectancy)

Snowman; You noted down the example of the 5 number calc wrong! - I just point it out because it must confuse no end anyone who is really trying to unravel the details of your post for the first time!

Great and particularly the point that you don't HAVE to cover every bias number. People starting out have a tendency to this and towards too many numbers covered, a kind of comfort thing. Or for people looking at the difficulties of finding opportunities - you don't need to find a 'golden' sub 1 in 25 number. Just 1 in 30 / 34 and you are in the advantage zone.

@ henny
What is RWD?

- - -

What mistake? I must be having a brain fart.:) Can you be specific?

Tsir, I know you already understand the following paragraphs. I wrote the following for that 1 other person that may accidentally read this post

1-25 is actually not real uncommon in less than a 800-1000 spins. I have a couple of wheels that currently in that range for certain a number at more than 3500 spins. One of them is at 1-26.8 at 3533 spins currently.

1-30 would be huge if you're talking about 15k-20k spins. With that many spins you have a much larger amount of chaos in your data stream. Including multiple wheel cleanings and bowl rotations. A frequency of 1-30 at 20k spins may be stronger than a frequency of 1-25 at 3533 spins, if you're looking for a static biased number.

A good example is a wheel on which we have 21,787 spins. On this wheel, one number is hitting at 1-30.39 6.08 standard deviations.

On a different wheel on which we have only 3553 spins, we have a number that has a frequency of 1-26.51 ...4.24 standard deviations.

The wheel with the one biased number is amazing, because despite all of the chaos in the wheel data, all wheel speeds, all dealers, all bowl rotations and multiple cleanings, the number is still showing as a strong static biased number. The wheel that has a number at 4.24 standard deviations, is still impressive, and it too may settle into that 1-30.39 range as more chaos is introduced into the data. With only 3553 spins on that wheel, you can't be sure how strong it will remain under all conditions.(unless you know the bias cause and underlying defect).

My point is that if your talking about a frequency of 1-30, then you have to indicate how many spins are in the sample that you are observing. 1-30 is fairly common at only 1000 spins, but very rare at 20k spins.

-Snowman.

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A question for the Math People:

Suppose I find a wheel where a 3 number sector is @ 3 STD (over, let's say 7,500 spins).

How strong would 3 numbers that are not consecutive need to be in order to be considered the same strength as finding a sector?

For example, I find that 1/00/27 is biased to the 3rd STD. But, I also find that the number 5, combined with the number 10, combined with the number 4 also have the same number of hits as 1/00/27.

I think everyone would agree that the 1/00/27 is much stronger because the numbers are consecutive on the wheel.

At what point STD-wise do 3 numbers not consecutive on the wheel have the same strength as a group?

This can be determined emperically by running simulations. But, it seems as if there should be a mathematical way to do this.

-Laurance

PS: Emprically, it appears as if 3 "peak-picked" non-consecutive numbers as a group have to be outside of 4.2 STD to be of the same significance as a 3 number sector at 3.0 STD.

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..I think everyone would agree that the 1/00/27 is much stronger because the numbers are consecutive on the wheel.

Laurance

I wouldn't agree with that (so far!!) - but you say it can be sim produced?

I've always looked on isolated bias slots as stronger if anything as the feeding area is focused into one number. Anyway I've never thought a greater sample is required before backing them to the same confidence.

Converse a bias sector of 3 adjacent slots, to have the equivalent STD across all three for the same sample size, I have to accept is perhaps indicative of a stronger bias zone? But do you ever see this usually they are not equal even globally and then varying through different playing conditions? No wonder there is no simple maths to compare the two situations.

Perhaps it is a false comparison as the two situations are likely the result of different cause of bias?

How did you arrive at the 4.2 STD / 3 STD comparison?

@Snowman

Your post explaining frequency properly in context of sample size is much better. I just wanted to make the point that 1 to 30 / 1 to 34 zone on a reasonable initial sample of say 3k and you may well be in business! The perception is that entry level to playing successfully requires those exceptional situations - hence very few having the discipline to get started.

You have often stated that you don't take on situations delivering below 15% edge - but this sets the bar high for the starter? On an individual bankroll there no need to pass by say anything around 10%? Even below 10% is better than playing without advantage!! And is very likely to find starting out - and then improve from as you learn to relate data to playing conditions.

And weak bias is left undisturbed by the casino for extended periods which for the individual player provides a longer term bankroll building opportunity.

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..II Tsiri,

I only ran one simulation (I guess I could run a lot more) of 1000 games of 1,000 trials each (100,000 total trials).

I then determined how many times a 3 number sector reached the 3 STD point. I don't have the simulation in front of me (I did this some time ago), but let's say 20 of the 1,000 random games had a 3 number sector that ended up at 3 STD or greater.

I then took the 3 highest occurring numbers from each game and ranked the games based upon the total of these 3 "peak picked" numbers.

I then looked at the top 20, to get a direct comparison with the 3 consecutive number occurrence.

For these top 20 games, if you took the average of the 3 number totals, the averages were much higher than for the consecutive 3 number games.

IF the 3 peak-picked numbers HAD been a consecutive 3 number section, they would have been at 4.2 STD.

Not terribly scientific, but it did give me a notion of what I was up against. Probably

worth further study.

It would be interesting to run similar analysis for maybe 1 million games of 10,000 trials, and determine the equivalence for 2,3,4,... number arcs.

Note I did NOT say that EACH number was at 4.2 STD. It could very well be that each number, taken individually, may only be at an average of 2.0 STD. This is why the sector is stronger: The individual numbers do not stand on their own merit. The sector does. It is only when you take the individual numbers in combination with the other "peak picked" numbers do they rise to the required STD level.

To put it another way:

- 1) You take 7,500 trials on a wheel
- 2) The sector 1/00/27 occurs 660 times
- 3) The number 5 occurs 225 times
- 4) The number 8 occurs 215 times
- 5) The number 9 occurs 220 times

So, both 1/00/27 and 5/8/9 occur exactly 660 times.

Which would you rather stake your money on?

What we are trying to determine is when the effect of "peak picking" non-consecutive numbers is outweighed by their statistical significance.

-Laurance

- - -

@Tsirikooakhtsz

RWD = Roy Ward Dickson

Not sure if a URL exists. I purchased Roy Ward Dickson's book on Amazon.com for \$80 - hard copy. So far, it has paid for itself MANY times over in just three or four sessions. The major part is looking for numbers that did not appear for 30 spins, and appear three times in 19 spins - with never going more than 6 spins between hits during the 19 spins. Then you bet on the number(s) for up to 9 spins betting 9,9,9,10,10,10,12,12,12 units for each of the 9 spins or a hit. STOP ON A HIT. This wins 34% of the time.

The other bets, as you are playing and tracking, are either COLUMN or DOZEN bets based upon patterns. i.e. If you see this pattern on columns(A B B A) you would continue to bet on columns A and on column B until the pattern is broken by an appearing C column. I bet \$5 on A and \$5 on B. When it wins, I'm up \$5. p.s. I have had strings where I won 12 to 13 spins in a row. Be careful about using a Marty. When you lose, you lose two bets.

When you see this pattern (A C B C B), then bet on columns A and B next time since it hit last time on column B and it is not repeating. When a pattern stops, look at DOZENS, and there is normally a pattern you can latch on to. i.e. 23223(bet on doz 2 and on doz 3). 13213(bet on doz 1 and on doz 2 since doz 3 hit last) If you are not a greedy person, you

can slowly rack up some cash.

The second you get greedy, bam you lose both bets.

Another pattern to watch for, is a quadruple repeat on a dozen or column, followed by three spins or less with no duplicate columns or dozens, followed by another quadruple repeat of a dozen or column. Then, you look for a dozen or column to repeat twice. Then you bet 20 units on the dozen or column(don't mix column repeats with dozen repeats) that just hit two times consecutively.If it wins, let it ride for the next spin and quit. On two separate occassions, I got cold feet and bailed after my first win, only to see the dozen hit THE FREAKIN FOURTH TIME just like RWD says!($1/3 \times 1/3 \times 1/3 \times 1/3 = 1/81$ not counting 0/00)

The remaining two bets to watch for are the 0/00 SLEEPERS. If they sleep for 100 spins, be on the look out. When either appears, get ready to make a BUNDLE! So far, I have not seen this event. RWD says it occurs about once every 24 hours. For up to 7 spins bet 13 units on the 0/00 split. If a hit within the 7 spins, then bet 15 units on 0 and 15 units on 00 for up to 7 spins. If you get another hit, then bet 25 units on 0, 25 units on 00, and 25 units on the 0/00 split. Mr. Dickson states that he once saw 0 or 00 pop up 7 times in 19 spins after being absent for 100 spins.

The other gravy train, is a missing COLUMN/DOZEN combo. Say A1, column A(1,4,7,10, etc) and dozen 1(1,2,3,4,5,6,7,8,9,10,11,12).

So A1 contains 1,4,7, and 10. If these numbers have not occurred in 30 spins, bet 3 units on the number that first appears from A1 and 2 units on the other three numbers. Do this for up to three spins(up to 27 units). That's pretty much it in a nutshell. ENJOY!!!!

That about sums it up. This past week in Alb, out of about 11 sessions, I only had one session where a missing number hit three times within the last 19 spins, and it hit on the second spin after the 19 qualifying spins.

I ask the casino for one of their cards that has the wheel layout. I then write all of the nubers at the top of the card using small numbers. 0 00 1 2 3 4 5 6 7 8 9 10
11 12 13

Then, as the wheel is spun, I write the results in one of the columns beneath the wheel diagram. Say a 33 was spun. In the first box I write 33 and in the box immediately to the right, I write C3. C3 means COLUMN C(third column) and the 3 denotes the third dozen. I then write an X over the 33 indicating the 33 hit and does not qualify as a hot number for this session. I continue this process down 15 boxes on the left hand side of the card. Then, in the third column, I start writing the next 15 numbers continuing the process above. If my bankroll is large enough, \$200, then I start betting on the fifth spin, if I see a pattern on dozens or columns.

I have a another column on the card labeled 1 thru 19. I write the results down in those columns as well. I circle each sleeper that hits during these 19 qualifying spins. If it hits twice, I circle the number twice. My heart usually starts beating much faster, my mouth gets dry, and my hands start getting a little moist. If the number hits three times and no more than 6 spins between hits during the 19 spins, then you bet 9,9,9,10,10,10,12,12,12 as described above.

I HAVE NEVER, EVER HAD ANYONE IN THE CASINO ASK ME NOT TO USE THE CARD. AFTER ALL, IT'S THEIR CARD. THEY DON'T GIVE A FLYING RATS ASS ABOUT WHAT YOU WRITE! I PLACE THE CARD ON THE TABLE IN FRONT OF ME. YES, THEY

ARE CURIOUS. SOMETIMES THEY EVEN ASK ME WHAT MY SYSTEM IS. I NORMALLY SAY, I'M JUST KEEPING ACCURATE STATISTICS OF THE SPINS AND HOW MUCH "I LOSE".
Enjoy....

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ONE CORRECTION ON RWD FROM LAST POST - SORRY

<<<When you see this pattern (A C B C B), then bet on columns A and B next time since it hit last time on column B and it is not repeating. When a pattern stops, look at DOZENS, and there is normally a pattern you can latch on to. i.e. 23223(bet on doz 2 and on doz 3). 13213(bet on doz 1 and on doz 2 since doz 3 hit last) If you are not a greedy person, you can slowly rack up some cash.
The second you get greedy, bam you lose both bets.>>>

I should have stated, ", then bet on columns A and C" instead of ", then bet on columns A and B".

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henny
Thanks for the extensive RWD info.

I understand now that when you raised the possibility of a bias 'pattern' you noticed something whilst tracking for RWD patterns.

But you need to take on board that the bias patterns Snowman responded to are evidence of a physical cause. This is quite different to patterns in past spins pointing to the probability of future repetition.

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Laurence
I just haven't grasped what you are trying to explain to me.

To my mind the closed group (3 no; sector) is no different mathematically to the open group (3 nos; randomly spaced)

Although I understand there may be many circumstances why the sector is better to play, particularly if you are able to target the sector plays with some basic vb.

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We have a method that we use to test the biased numbers on which we will be betting. It's actually a fairly simple math formula.

We use our entire number stream on a target wheel to run a simulation. Using the simulation we can determine the optimum risk to return ratio. Our program calculates the unit per spin return in relation to the max drawdown and provides us with an output number ratio value for the number combination. The higher the number, the better the bet

selection is. The optimum bet selection is not always the top five to seven numbers.

Having tested sections repeatedly in the past, my experience has shown that larger sections almost ALWAYS have larger unit drawdowns than simply choosing only the best numbers within the overall section. The optimum bet selection value almost always tests out higher when only the best numbers within the section are chosen. (the drawdowns are usually smaller)

Sometimes what appears to be a biased sector on a real wheel is nothing more than a group of ordinary numbers that are receiving hits from a "section donor". (That being said, many biased numbers are actually part of a larger biased section). The section donor may donate the extra hits to the section by allowing the ball to pass through the center cone more frequently. The section appears biased because of the average ball scatter pattern on the wheel. This can also be enhanced by a dominate drop that comes and goes. Within what appears to be a biased section may exist temporary local biased numbers (TLB's), or weak biased numbers that are being enhanced from the section donor located elsewhere on the wheel.

When playing conditions change during play, the average ball scatter distance that is causing the larger section to run as bias may change. A new section may form just short of, or past the previous section that was running as bias. This could cause the section player to experience a serious drawdown. However, if the player is playing only the best numbers within the biased section, the TLB's or weak biased numbers within the section will likely damp the drawdown.

If the combined standard deviation for an entire section was only 3 standard deviations, then I would only choose the best numbers that were at least above 2 standard deviations within the section. If all of the numbers are above 2 standard deviations within the section, then I would play all of those numbers. However, it depends on the spin sample size. 2 standard deviations just isn't that significant at 25k spins.

When I have someone playing for me, I actually prefer individual biased numbers scattered about the wheel, preferably in pairs. The reason is the ball is more likely to try on at least one of my biased numbers each spin, regardless of where the ball drops and regardless of the dealer. When playing a section, there may be longer periods of time where the ball isn't even trying on my section of the wheel because of intentional or unintentional dealer shooting.

That being said, I will still sometimes play large sections when I am playing. If I am the player, I will combine VB with biased wheel play. I will try to anticipate when the ball is likely to land in the biased section and bet the section only when I think it is likely to try on my section. I also will watch the action of the ball on the wheel, so that I can capitalize on the favorable conditions that can make a section "run". When conditions are right, you can run up a profit very quickly on a section.

In short, I would rather have three numbers, each at 3+ standard deviations, scattered approximately 12 pockets apart on the wheel, rather than adjacent to one another with a hired player, and a section when I'm playing.

-Snowman

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Regarding patterns on real roulette wheels.

We're talking about a pattern that appears on a graph of the wheel.

The graph shows the numbers in the order they lay on the wheel and how many times each number as hit. Don't mistake patterns, like red and black, with patterns in the graphed data.

Most roulette wheels have real wood laminates on the center cone. Each wood cone is usually composed of 8 wood cone panels that are glued to an artificial wood composite or particle board type of material.

Sometimes ridges will develop where these wood panel laminate seams meet in the cone. When a ridge forms directly above a specific number on the wheel, the corresponding number will likely be a negatively biased number. When the ball passes through this affected number and into the center cone, the ball is directed either to the left or the right of the pocket because of the ridge. The ridge reduces the chance that the ball will be able to roll back into the pocket that it exited. (Think about a piece of paper that you have laid out flat after having folded it. Next imagine how ping pong balls might react if you were to roll the balls over the previous folds. The balls would tend to roll away from the ridges in the paper).

Next time you are looking at a graph on a wheel that you have tracked, look to see if you're negatively biased numbers appear to be "magically" spaced 5 pockets apart on the roulette wheel. Likewise, you will also occasionally find the biased numbers "magically" every 5-6 numbers as well.

Here's something else the American player's will find interesting. Do you think that it's a coincidence that the standard settings on a roulette wheel when it leaves the factory is to have the panel seams splitting the numbers 17, 18, between the 1-00, and 2-0? It's not. As the wheels age, these most widely bet numbers on the roulette wheels tend to become negatively biased. As the wheels become biased, the casino may actually experience a higher take than they do on the random wheels. That's why most casinos WILL leave biased roulette wheels in play. If they aren't biased for the most frequently bet numbers, and they are showing a profit return above expectation, why remove them? Besides, wheels are very expensive.

That being said, can you now think of one defect that you could instantly spot that would instantly signal a wheel that you should track? Anyone other than Laurance or Tsir (you guys know) care to take a guess?

-Snowman

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A quick note: The formula we use to determine best bet selection for a static bias play is simply Profit/max draw.=PDR (profit to drawdown ratio). The higher the PDR number is, the better

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Tsiri,

It is a subtle, but important, concept.

Here is an extreme case that might get the point across.

Let's assume you have 10,000 spins recorded, and that the 1/2 wheel from 0 through 27 (00 wheel) has hit 5,600 times.

You wager \$190,000 (19 X 10,000).

You win \$201,600 (36 * 5,600).

You have a 6.1% edge: (201,600/190,000) - 1

This kind of result would be into the 12th STD:

$$1 \text{ STD} = \text{SQRT}(N*P*Q)$$

$$N=10,000$$

$$P=.5$$

$$Q=.5$$

$$N*P*Q = 2500$$

$$\text{SQRT}(2500) = 50$$

So, 50 hits above expectation is 1 STD. We are 600 hits above expectation.

I think you would agree that this would be a very strong wheel, and you probably would have no problem bankrolling a play.

Now, suppose I came to you all excited with a set of data on another wheel.

After 10,000 trials I was able to find 19 numbers (the top 19 numbers - scattered around the wheel) which - with their combined hits - totaled 5,600 hits. I "peak picked" these numbers AFTER I had taken the data.

These are the 19 numbers I want to play.

Would you bankroll that play? I would hope not. The chances are actually quite good that the top 19 numbers over an entire sample of 10,000 trials would total greater than 5,600.

The difference is because the 1/2 wheel is a true 50/50 proposition that is decided in ADVANCE of the sample taking. The random 19 numbers that just happen to come in the most is not a true 50/50 proposition before you start taking data. It is a 50/50 proposition that is decided AFTER the sample taking. This is the essence of "peak picking", and has been the downfall of many a roulette enthusiast.

Now, just scale this thinking down to 3 numbers. With 3 consecutive numbers, we are trying to predict a true 3/38 chance of occurring. This cannot be said of just 3 numbers picked AFTER the data is taken.

Yet, there does seem to exist a threshold where 3 "peak-picked" numbers do have statistical significance, and would be warranted to play as a group, even though each number - on its own merit - does not come up to the statistical deviance required for play.

The end result is hopefully a way to measure EMERGING bias numbers/sectors without taking massive amounts of data to account for the fact that the numbers are spread around the wheel vs. lumped into a sector.

My meager research in this area shows that when you have 3 "peak picked" numbers that you analyze as a 3 number group that 4.2 STD is equivalent to a 3 number sector at 3.0 STD.

-Laurance

- - -

@SNOWMAN

Back to a comment made earlier by Laurance. If you had two numbers like 5 and 10 that showed up 3 to 5 standard deviations, could there be a reason the ball is falling into their pockets so frequently? I am new to the VB world. But from a physics stand point, if the pocket containers(frets?) were replaced by a mechanic, and they were seated even 1/128 of an inch lower than the others, couldn't that be one explanation of the extra hits? Just a question.

- - -

There are many causes of bias. The most common bias causes are cone or pocket insert related.

Individual number bias is usually related to pocket insert problems in either the affected biased number (loose insert or air pocket below the insert) or adjacent numbers with lumpy or tilted inserts that deflect the ball towards the biased number. Individual number biases can also be cone related.

On Huxely wheels, depending on the model, the frets may be still individually seated and can become loose, high or low at the front or back, and even splayed if bent. A loose fret will produce a more intense bias than a tall fret will. A 1/128 of an inch rise isn't going to cause a very strong bias.

- - -

<<That being said, can you now think of one defect that you could instantly spot that would instantly signal a wheel that you should track? Anyone other than Laurance or Tsir (you guys know) care to take a guess?>>

-Snowman

Being a kind of "cause and effect" sort of fella, and completely ignorant of how to

physically spot a wheel defect, I would look at the marquee. If I saw 29(5 numbers to the right of the seam between 1/00, 3(5 numbers to the left of the 1/00 seam), 4(5 numbers to the left of the 2/0 seam), and 30(5 numbers to the right of the 2/0 seam). Four other numbers would suggest the seam is raised between 17 and 18 - 30, 3, 29, and 4. Hummmmmmm, 3,4,29, and 30 are in both groups. So, if I saw those numbers on the marquee, I would deduce - perhaps incorrectly - the wheel has a defect. What I want to know, is how can you visibly detect this "seam" defect when your eyes are not all that good in the first place. Thanks Snowman for the challenge. At least I'm trying and learning.

- - -

I think everybody on this board would acknowledge that if you found a true bias with a 10% edge (monetary edge over the house, which means that on a 00 wheel you really have a 15.26% physical edge) that you would have found something really special.

If you don't agree with the above statment, you can stop reading.

Well, let's assume you are betting 5 bias numbers, and have a 10% edge. What would this look like in the long term?

Let's look at 1,000 spins.

Your true expectation would be: $5/38 * 1,000 = 131.58$ hits.

So, in a truly random situation you will win - on average - 131.58 times out of 1,000 - or 13.16 times out of 100

Now, let's look at what life would be like with your 10% edge.

If you bet 5 numbers for 1,000 spins at \$1 each, you would have put \$5,000 in action. Your 10% edge would have netted you a total return of: \$5,500

To earn \$5,500 you would have had to hit the 5 number section ($5500 / 36$) times, or 152.7 times. 15.27 times per 100

So, on a totally random wheel you would hit 13.16 times per 100 spins. In a 10% edge situation, you would hit 15.27 times per 100 spins.

Now, let's assume you are in a typical game where you get 40 spins per hour. On a per hour basis:

Random = $13.16 / 2.5 = 5.264$ hits per hour

10% Edge = $15.27 / 2.5 = 6.108$ hits per hour

So, in an hour's play, you can expect to get a little less than one additional hit with your 10% bias vs. a totally random game.

There is no way to discern that you have the 10% edge in the short term. The marquee board means nothing. 4 hours of play means nothing.

And this is a huge edge.

-Laurance

- - -

Interesting when the math is put that way.

You would of course not be flat betting a true bias wheel - so the figures actually won't reflect what would happen.

- - -

Henny, the answer: Where do the panel seams line up? On the Huxley double zero wheel, do they still split the middle of the numbers 17 and 18?

If you look at a wheel, and the panel seams don't line up with the factory settings, then track the wheel. If the seams don't line up, then someone has taken the time to rotate or to refinish the cone. Likely the tables games distributor repairman. If the cone has been rotated, then it has been rotated for a good reason. (It's likely warped.) To thwart any wheel trackers and to discourage bias wheel play they can, and do sometimes rotate the center cone. Track the panel seam locations on the cone, as well as the wood grain patterns, so that you can quickly spot changes.

If the seams aren't where they belong, then track the wheel. Most of the time, you will find the suspect wheel is biased.

- - -

Turbo,

For the purposes of illustration, I was assuming that all 5 numbers were of equal bias. In a reality, some numbers will be better than others, and there are several different formulas (Kelly / Klotz) that dictate how much is bet on a single number.

But, suppose you do bet more on some of the numbers? If you work the math, your long term gain is maximized, but your short term variance is increased.

Let's work the math for just 1 number that is biased 10%:

Random = $1/38 * 1000 = 26.32$ hits per 1000, or 2.63 hits per 100.

With a 10% edge you would get a \$1,100 return over 1000 spins = 30.56 hits per 1000 spins ($1,100 / 36$), or 3.06 hits per 100.

So, over 100 spins on a totally random game you would hit 2.63 times.

With your 10% edge, you would hit 3.06 times. You would hit, on average, .43 more hits per 100 spins.

On a per hour basis that would be $.43 / 2.5 = .172$ additional hits per hour.

Here is what the STD would be over 1000 spins:

$$1 \text{ STD} = \text{SQRT}(N * P * Q)$$

$$N = 1000$$

$$P = 1/38 = .0263$$

$$Q = 37/38 = .9737$$

$$N * P * Q = 25.61$$

$$\text{SQRT}(25.61) = 5 \text{ (close enough)}$$

So, with expectation being 26.32 hits per 1000, expectation + 1 STD is 31.32 hits per 1000.

But, with a long term 10% edge (15.26% physical edge over the wheel), you are only hitting 30.56 per 1000.

Not even out of the 1st STD after 25 hours of play (1000 / 40).

How the hell can you ever know you have an edge on one number in the short term unless you can relate it directly to cause and effect?

-Laurance

- - -

A ten percent edge can be huge if you're talking about five or more numbers combined. If you're talking about one number, then it requires too long of a casino stay to be guaranteed a positive outcome when you have 38 degrees of freedom on the wheel. That's why I prefer to play only when my edge is much higher on a group of at least three to seven numbers.

Consider this: With a 10% edge on five numbers, you're making an average of .5 units per spin.

Play for 24 hours straight at 35 spins per hour and you will have played for around 840 spins. You are likely going to be looking at close to 420 units of profit. If you're playing with \$5.00 units, then you're looking at \$2100. profit.

Now try running a positive progression such as the KC. It adds up fast. 😊

-Snowman

- - -

You also have to consider at what point are you measuring your expected edge. Are you calculating your edge after 100 spins, 1000, or 10,000 spins? The more spins, the more chaos will have randomized your data. I usually make the determination of actual edge at 7,500 spins for raw biased wheel play.

The conditions also are a huge factor. Here's a good example of a wheel that is already hovering in the 19% edge range for the top five numbers at approximately 3,886 spins. The wheel was cleaned just two days ago which dropped the edge from just over 25% at spin 3300.

The edge will like increase for the next few days until the next cleaning cycle. As more chaos is introduced into the data, the edge will likely drop to around 15% for the top five numbers after 7500 spins. If the wheel is tracked to 20k spins even more random playing conditions will have been introduced into the data and the edge will likely settle in at around 12%.

The most important thing to remember, is that you can also improve your edge by choosing to play only during the optimum playing conditions. For example, don't play just after the wheel is heavily cleaned and polished, wait two to three days. Even better,

combine bias wheel play with hybrid dealer's signature and VB



To give people a view of the wheels current state I have posted part of the spread sheet below.

--- Actual #'s hit ---

Count Total Ratio St. dev.

0	124	31.3	2.18
28	103	37.73	0.07
9	95	40.91	-0.73
26	115	33.79	1.28
30	108	35.98	0.57
11	123	31.59	2.08
7	121	32.12	1.88
20	109	35.65	0.68
32	94	41.34	-0.83
17	79	49.19	-2.33
5	80	48.58	-2.23
22	86	45.19	-1.63
34	107	36.32	0.47
15	131	29.66	2.88
3	104	37.37	0.17
24	79	49.19	-2.33
36	118	32.93	1.58
13	84	46.26	-1.83
1	111	35.01	0.88
37	110	35.33	0.78
27	94	41.34	-0.83
10	125	31.09	2.28
25	110	35.33	0.78
29	112	34.70	0.98
12	80	48.58	-2.23
8	89	43.66	-1.33
19	108	35.98	0.57
31	89	43.66	-1.33
18	92	42.24	-1.03
6	111	35.01	0.88

21 102 38.10 -0.03
33 142 27.37 3.98
16 92 42.24 -1.03
4 95 40.91 -0.73
23 103 37.73 0.07
35 91 42.70 -1.13
14 85 45.72 -1.73
2 85 45.72 -1.73

Total 3,886

High 142 3.98
Low 79 -2.33

Chance of
random (1/x) 1.080E+06
Chi square 93.29

Average 102.26
Break even 107.94

80% hi conf. 127.21
95% hi conf. 132.20
80% low conf. 77.32
95% low conf. 72.33

Best ratio 27.37
Worst ratio 49.19

- - -

Laurence

I know your posts above were to show the short term at 10% does not show outside normal variance but it puts the profit potential in worst possible light.

Profit in terms of bankroll growth as opposed to measured against total action is serious at 10%.

BTW - have you come across that beautiful piece of bj software BJRM produced by John Austin (used for the sims in Schlesinger's book)still my favorite tool,particularly the random walk against trip bankroll feature. About time we had the equivalent for bias opportunities.

For comparison BJRM throws a 'Hands to double' bankroll figure up. Usually with good count at 1/2 kelly this is in the 30,000 area.

The example you quote is hardly lightweight in comparison!!

Henny has sparked a great set of posts from you and snowman here, very informative.

- - -

"If the seams aren't where they belong, then track the wheel. Most of the time, you will find the suspect wheel is biased."

So if the wheel was biased but towards the favourite numbers backed by the players.... On a single wheel I would imagine that zero would be one of the top numbers.

Am I now right in saying that they would move the seam to make the zero biased towards the casino?

Cheers Geoff.

Quick question what type of bearing does the rotor run on?

And the numbers from the spielbank are now no use?

- - -

The seams on the single zero Huxley's are as follows.

Line 1 is between the number 7-28, with the line slightly over more onto the number 28 side.

Line 2 is between the numbers 26-0, with the line slightly over more onto the number 0 side.

Line 3 is down the middle of the number 4

Line 4 is between the numbers 17-34 with the line slightly over more onto the 34 side

Line 5 is between the number 36-11 with the line slightly over more onto the number 36 side

Line 6 is down the middle of the number 10

Line 7 is between the number 33-1

Line 8 is between the number 9-22 with the line slightly over more onto the number 9 side.

Ok, let's say you walk up to the roulette wheel (Huxley Saturn or Mark 4,5,6) and you don't know anything about the conditions of the pocket inserts or any other defects that may cause the wheel to become biased. Which numbers would you likely want to avoid betting?

I'll tell you now zero is one of them.



Now look at where the seams line up on your wheels 😊

-Snowman

- - -

Team work and bias play is unseparable. Tracking of several thousands spins is not very likely for a one man army.

The way i witnessed it, was a crew of VB players that had trackers going in front of them tracking numbers for 7-8 days on each wheel. The trackers has additional skills than just being able to read the numbers and note them down, they were all skilled VB players and also noted wheel speeds and clock wise/counter clock wise to each number.

7-8 days resembles around 2500-3000 spins and as one of them pointed out: If you see a visible bias (for example zero blocked over with tape so it couldn't hit) then, how many standard deviations do you need to be sure that zero won't hit ?

Point was, that a physical event doesn't NEED to be exceeding 2-3 std before it is playable. Of course, one needs to be pretty sure what was going on in the bowl and to be honest, in the time i spent with them i didn't manage to see it.

They were kind enough to hand me over a few bits of info on which sectors were stealing hits under which circumstances on the wheels we played and once you get the hang of moving the predicted sector to the left or right if it happened to be in the middle of a "non hit" sector it worked tremendously.

But it couldn't have been done without the help of the trackers/spys.

By the way: Snowman, whats the chance of a biased cone on this one: (Kies wheel)

- - -

Brutal. It looks like a miniature wheel. Metal cones aren't good. However, that doesn't mean that they are always assembled well.

Snowman.

- - -

Its full size, +80 cm. and a little beauty in my eyes.

- - -

Actually there is being shot a dvd on this wheel but i think it is only for internal use. Im not quite sure of the purpose of the dvd.

Which demo are you referring to ? Could very well be an explanation of the the "Uwe" system when i see the 3 diamonds marked and the cross bars numbered.

Its true that there are more bounce on the newer Caro with the "bouncy" balls but that doesn't necessarily means they are unpredictable as long as the bounce is consistent.

- - -

Hi Kelly,

No, this is not a system demo, only a 50 spins sequence at normal motion and slow motion. This guy offered it to me the time i was testing Mark's computer. Thank you for having explained what are those numbers sticked in the crossbars, i had no idea of the why.

Yes the ball bounces a lot on this wheel and sometimes make rollers, but it shouldn't represent the worse case you encountered.

Good night.

- - -

Uwe is using the cross bars and the top 3 diamonds for detecting the key revolution. For the unexperienced it might look a bit confusing without the numbers.

At some point in the spin when 4X occurs the ball will pass for example diamond in the middle (12 o'clock) and for example cross bar no. 1 at the same time, in the next ball revolution the ball and cross bar no. 2 will cross each other at 12 o'clock (middle) and then in the third ball rev. the ball has lost so much power that the ball and the cross bar will now meet each other at diamond to the left (or right depending on spin direction C/CC) this is what we know as exit point.

Given the same wheel speed, the ball has now a known amount of revs. to go before drop. Where to read the prognose is same standard procedure as all wheel watching tecknickes based on key revolution and exit point.

- - -

Snowman,

How are you doing, i am not promoting your book but i have had great success with it thank you my man, hello turbo, laurence, kelly and the others i am back after a year off this site due to the bollocks by stefano and co, i see they are now banned so i am rejoining this website and my alias MR X will also be contributing again.

thanks boys and girls,

has anyone yet found the holygrail or are the casinos still winning apart from the very few of us being the visual bias detect wheels the only way to win at roulette.

R

- - -

Snowman has a book?

- - -

"Snowman has a book?"

lol

WB X

- - -

Whats WB X?

- - -

WB is "welcome back" X is Mr X which is who that is.

- - -

Alias.....Dan Brown

No way it's Jilly Cooper

lol

- - -

What about snowmans book? Is it on Amazon?

- - -

You will have to contact snow. But believe me, 180 pages packed with first class info. Doesn't come any better in bias department.

- - -

All the secrets of bias play? Was it a bestseller? Is everybody doing it now? Good, that means I don't have to..

- - -

Kelly, it's 183 😊

Spike you wouldn't be interested - you have no need for bias spotting since you can pick 'em with such an amazing accuracy. No bias play can match such an amazing power as yours.

You would be ahead thousands of units by the time any of us were prepared to play. Who can compete with that ?

- - -

Yes the book exists. I wrote the book sometime back to help recruit trackers and defect spotters. Over the past year or two, I decided against a main stream release because everyone involved with our team was completely against it, since we were back into operation.

The book contains very sensitive information, that I just don't want known by every gambler out there. The book is also not very "reader friendly" for the novice player (someone new to the game). I'm told it requires a great deal of time to study. Critical thinking is also a must.

I'm very cautious about to whom I send a copy. Most of the people with copies are people that we work directly with on our collective team, or as a programmer.

I'm also concerned, and aware, that some of the information may have found it's way into certain advantage play manual guides that have recently been written.

-Snowman.

- - -

No bias play can match such an amazing power as yours.>>

Duh..

- - -

I wouldn't worry if i were you. I have already seen system sellers refer to cone wobble without knowing what a cone wobble is doing.

Like biasplayer said: "you talk too much snow". The points they pick up is from what you say on the net, which means squat unless you got the pictures and the rest of the info from your manual.

So at the best, some backyard hearsay based on your info is coming out on the other side twisted beyond recognition.

I can tell you, that the bias info in your manual is by far the best published so far. Jarecki, and other bias players tracking is not as good as this.

For what its worth, biasplayer & Co has just taken 92.000\$ off one of the northern europe casinos within 1 week, tracking not included. Its a damned lot of money.

- - -

Kelly,

Spike beats us all. 😊

We just got back from a trip as well.

- - -

Spike beats us all.>>

In some ways, that's true. My advantage over the house is greater, but you beat me on volume. I can't sit there for 14 hours and bet on every spin like you can.

- - -

@Laurance.

About "picked peak" numbers.

There are other things.

When you find 3 neighbor numbers with 3SD you haven't decided what 3 numbers you want, the 3 SD turned up in any 3 number section, we put the eye on the one we think it is better, so the 3SD is false. The way to have the 3SD is to decide what 3 number we are going to follow and then get the 3SD.

Finding a 3sd-number-section means less than 2SD.(I don't know the formulae to calculate it but a friend of mine how knows it told me).

Any 3 neighbor numbers with 3SD is stronger than 3 isolated 1 on each location, the formulae must be the same.

So, my guess is that 3 scattered numbers with 4,5 to 5SD equals 3 neighbor numbers with 3SD and 2SD for 3 numbers that we decided to play beforehand.

This topic is from 2006, I came across it by chance.

Nice to read Laurance, Snow and Kelly together.

Best regards

- - -

Kelly, Spike beats us all.>>>

That was 6 years ago, but you could have said it yesterday..

- - -

Suppose you play a wheel where you know you'll find an edge but you don't know the exact % you have.

You'll find it out after 20 to 30k.

Can you debank it with less trials? 1k 2k ?

- - -

Toby,

This gets into the realm of bias wheel play, a subject that I don't really want to get into at this time on this forum.

However, the short answer is No. I don't think an opportunity is worth banking at 2K spins even if you know you will have an edge. Unless you have some other evidence that allows you to at least hypothesize where the edge might manifest.