ROULETTE 2000 SYSTEM

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Introduction: Getting Started

Finding Places to Play Roulette

Roulette is a game found in most, though not all, casinos in the United States. Laws vary from state to state and, as a result, there are differences in when and where you can find roulette. For example, most riverboat casinos have roulette tables, though typically not many. The fewest number of tables I have ever seen in a riverboat casino was three, the most is six. Some casinos on Native American reservations have video roulette, but I have not been in a reservation casino that had live roulette. Accordingly, if you are going to visit either a riverboat or reservation casino, I recommend that you call ahead to ask if they have roulette, and to ask what the table minimum bets are.

If you are heading toward Las Vegas, Reno, or Atlantic City, then you will find many many roulette tables virtually every which way you turn. You can find roulette in almost any casino outside of the United States, as well.

Finally, most on-line casinos that have opened up for business on the worldwide web offer roulette. In other words, you can find roulette just about anywhere, including in your own home over the computer.

There are only two things you need to know before starting to play. First, it is to your advantage to know if the wheel is a "single zero" or "double zero" roulette wheel. The difference is quite simple. All roulette wheels in the U.S. have either 37 or 38 numbers on the wheel you can bet on. The numbers run from 1 to 36, plus a 0 and 00 for a double zero wheel, 1-36 plus 0 on the single zero wheel. Because both types of games pay off at the same rate, there is a small mathematical advantage to playing on a sigle zero wheel. The "house edge," which I explain in later, is slightly less with a single zero wheel.

Inside the U.S., over 95% of all roulette wheels are double zero wheels, so that is the type of game I will spend most of my time describing. The few single zero wheels you will find are at high stakes tables that require a minimum bet of $25 per spin or more. If you are a beginner or casual player, stay away from such tables for now. Outside of the U.S., on the other hand, more often than not you will find single zero wheels.

Second, you need to know what the "table minimum" bet is. If you have been to a casino before, then you know every game has a minimum bet you must make to play each turn. As you approach each table, there will be a small sign that states what the minimum (and maximum) bets are. Sometimes these signs are color-coded to match the colors of the different denominations of casino chips ($5 = red). If you are in doubt, just ask the dealer at the table what the table minimum is.

If you have played blackjack, then you know that there are some casinos where you can find $1 tables, $3 tables, $5 tables, on up to to $10, $15, $25, $100, and higher. The most common minimum roulette bet you will find is $5. However, when casinos get busy, they raise the minimum bets. In the Mirage in Vegas, for example, during a busy time almost all the tables will require a mimum of $10 or $15 to play each spin. Be picky. If the casino you are in does not offer a $5 table, feel free to move on to one that does. If you look during morning hours or other slow times, you may be able to find tables where the minimum is $2.50 or even $1 per spin.

What do we mean by "minimum bet"? Let us say you are playing on a $5 table. That means that if you are placing a bet on an "outside" bet like red or black, you must bet at least $5. If you place bets directly on the numbers (this is known as "inside" bets), then your bet must total $5. How you distribute that $5 is up to you. You can put five one-dollar chips all on one number straight up, or you can spread them around.

Obviously, you can make your money stretch farther on a lower limit table. I strongly recommend that you start by playing on $5 tables.

The Buy-in

OK, so you have picked out a table to play at and you see from the sign that it is a $5 table. What next? The next step is to buy your chips from the dealer. There are strict rules for how this must be done, because any and all exchanges of money in the casino are videotaped from above and the dealer must keep all the bills and chips clearly in view. Accordingly, when you have the dealer's attention simply say "I'd like to buy some dollar chips." Then lay your money down on the table. The dealer will not take money from your hand, ever. If you try to hand money to a dealer s/he will simply ask you to place it on the table. The dealer will then count out your money so that the overhead video can see. At that point the dealer will give you your chips in stacks of 20.

In order to keep each player's bets clear, each player is given a different color of chip. Sometimes the dealer will ask you if you have a preference in color, but most of the time s/he will pick a color for you. Notice above I suggested you say "I'd like to buy some dollar chips." This means that each chip the dealer gives you is worth $1. If you handed the dealer $100, you will get 5 stacks of twenty $1 chips. For beginning and casual players, the typical buy-in is for $50 to $100, though I have seen people buy in for as little as $5 or $10.

Now, chips can be assigned a higher value. Except for very high stakes tables, the usual chip value is either $1 or $5. You should begin with dollar chips, though down the road if you can afford it and if you feel confident in your play, then you may want to move up to $5 chips. If you want to play with $5 chips, when you place your money on the table for the dealer just say "$5 chips please." $5 chips are also called "nickels" in casino slang, so you can simply say "nickels, please" and all dealers know that you mean you want $5 chips.

So, to review: You have picked a $5 table at which to play. You have bought

your $1 chips and have them in front of you ready to go. Now what?

Placing Your Bets

A betting cycle begins once the dealer says "Place your bets." At that point players can put their chips on the betting area. Take a look at Figure 1 to see what the betting layout looks like. I will describe these bets in the next section. For now, let's just assume you place $1 chips straight-up on five different numbers. Let's say the numbers you picked were 7, 14, 23, 27, and 0. How long do you have to place your bets? That depends on the dealer. Some dealers like a fast game and will give the players only 15 or 30 seconds before spinning the ball. Others will give players up to several minutes. You will get a sense of the dealer's rhythm soon enough.

The betting area is long enough that if the table is full and you are at one end or another, you may not be able to reach the spots where you want to place your bets. If the table is crowded, do not leave your chips unattended to walk around to place your bets. Instead, put the chips you want to bet on the table near the dealer and say "could you place these bets?" All dealers will help you do this--just tell them clearly how many chips to put where. A good dealer will quickly memorize where you want your bets and you just have to put the chips near them in subsequent spins. Once again, do not hand them your chips directly, but put them down on the table. Do not be shy about asking the dealer for help. That is what they are there for.

After a pause that can run for a few seconds to a few minutes, the dealer will put the roulette ball into its spin. For a spin to "count," the ball must travel around the wheel at least 3 times. Sometimes the ball jumps out of the wheel area or drops immediately into a number slot by accident. When that happens, the dealer will call "no spin," which simply means the spin did not count. No big deal. The spin is restarted immediately.

Some time while the ball is spinning around the wheel, the dealer will call "No more bets." Again, each dealer will vary a bit concerning when s/he will call no more bets. Some dealers call is very soon after the ball starts spinning. Other dealers will wait until the ball falls out of its spin and begins to settle into part of the wheel. Again, you will learn your dealer's rhythm.

Some players like to wait until the ball is spinning before placing their bets. I think this is a bad idea. You could run out of time and not get all your bets placed. There is no reason to delay placing your bets. Once you hear the dealer call "Place your bets," go ahead and place them.

As soon as the ball has come to a complete stop by landing in one of the numbered slots on the wheel, the dealer will declare the winning number. Every once in a while, a dealer will make a mistake at this point. Accordingly, if a seat is open near enough to the wheel to see, it is smart to see the results for yourself. Most dealers are grateful if you catch an error before they start paying out money incorrectly.

The dealer will place a marker on the winning number. The marker is typically a piece of molded plastic or glass. The dealer then clears away all of the losing bets. In other countries the dealer often uses what is called a "rake" to collect the losing bets, but in most U.S. casinos the dealers just use their hands.

Do not touch anything near the betting area during this process. There are folks who try to cheat by removing a losing bet before it is collected, or adding a chip to a winning bet, before the dealer can finish the payoff process. Don't even try to do this. The "eye in the sky"--the casino video surveillance and security operation-- will catch you if the dealer doesn't.

The dealer then pays off the winning bets. Dealers are taught a very specific procedure for paying off bets, so don't try to talk to them during this process. First they pay off the outside bets, then the inside bets. Now, there is an important courtesy rule you must follow during the payoff. Do not place any new bets until the marker is removed from the table and the dealer explicitly says "Place your bets." Do not reach across the table to collect your money from a winning bet until the dealer removes the marker or until s/he puts your winnings directly in front of you. These rules are designed to protect the dealer from becoming confused about who has or has not been paid, plus they are designed to stop cheaters. A bit of cooperation and patience on your part will help the process move swiftly and smoothly.

After the dealer finishes all the payouts, the marker will be removed and the dealer will call "place your bets." Then you can pick up your winnings and start to place your next round to bets.

Should you need to buy more chips or cash in your chips, the time to do it is after the dealer has called "place your bets." Once the ball has been put into play, the dealer will transact no business until after the spin is over and all bets paid.

Understanding the Betting Options & Pay offs
There are a lot of options, but they are not difficult to understand. Take a look at Figure One as we go through each of these betting options. Let's begin with the outside bets. There are a total of five outside bets. Three cover 18 numbers, two cover 12 numbers.

Red or Black Perhaps the most famous of all roulette bets and the one on which many fortunes have been won or lost is the bet on red or black. The bet is really quite simple. Assuming you are playing on a $5 table, simply place a bet of no less than $5 on the red or black betting spots. The bet wins even money, which means if you win you get $5 for a $5 bet. Assuming you are on a double zero table, there are 38 slots on the wheel. 0 and 00 are "green," and half of the remaining 36 slots are red and half are black. That means this bet hopes that one of the 18 (of 38) slots on the wheel that are your color will be the winner. If 0/00 or the other color hits, you lose.

1-18, 19-36 Despite the popularity of the red/black bet, the bet as to whether the number will be one of those 1-18 or 19-36 has exactly the same odds and pays off the exact same amount as the red/black bet. In this case you are simply betting whether the winning number will be in the first half (1-18) or the second half (19-36). If you guess correctly, you win even money (1 to 1). If the other half or the 0/00 hits, you lose.

Odd or Even Got this one figured out yet? Same deal as above. You are betting as to whether the winning number is going to be odd or even, and the bet pays even money. These three bets have identical odds. All have 18 chances out of 38, or a probability of winning of 47.37%. It is not purely a 50/50 chance because of 0/00. All three bets pay even money.

Dozen Bets Notice that the numbers 1-36 are divided into three dozens: 1-12, 13-24, 25-36. This bet is also very simple. You place a bet on one of the dozens--let's say, for example, the first dozen (1-12). If the winning number falls within the first dozen of 1-12, you win. If not, you lose. This bet pays 2 to 1, so some players find it more attractive than the even money bets described above. This means if you wager $5, you are paid $10 if your dozen comes in.

Column Bets At the bottom of the betting layout are three spaces that are

known as the columns. The columns cover the numbers that appear on the board above them. Specifically:

Column A covers 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34
Column B covers 2, 5, 8, 11, 14, 17, 20, 23, 26, 29, 32, 35
Column C covers 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36

Like the dozen bets, each bet covers 12 numbers and winning bets are paid at 2 to 1. If you bet on column A and one of the other columns or 0/00 hits, you lose. If your column hits, you win $10 for each $5 bet.

The dozen or column bet has 12 chances out of 38, or a probability of winning on any given spin of 31.58%. Note that the odds are slightly less than 33.33% which would be truly 1 in 3.
One of the ways the casino makes its profit is known as the "house edge" or the vig it takes. I will explain this concept soon, but for now it is enough to note that the true odds of winning are slightly less than the rate the casino pays you for winning bets, so in the long run the house will win at least that amount.

We are now ready to talk about "inside" bets. With a single chip, it is possible to bet on 1, 2, 3, 4, 5, or 6 numbers of the 38 on the wheel.

Straight-up A bet on a single number is known as a straight-up bet and it pays 35 to 1. To place a straight-up bet you simply put your chip directly in the center of the number on the betting area. If there are already chips there, just place your chip on top of them. If you bet on number 23 (often referred to now as "Michael Jordan") with a $1 chip and 23 hits, then you are given 35 chips plus your original bet is left in place on #23. If you decide to leave at that point, don't forget to pick up that chip still resting on #23, or else play it for one last spin if you want to go for the back-to-back repeat. The casino pays you 35 to 1 (36 if you count the return of your bet), but the true odds are 38 to 1. This means the house edge is 5.26%. That figure is one of the highest house advantages you will find in any game in the casino and it explains, in part, why roulette is tough to win consistently.

Split A bet on two numbers is known as a split bet. You place a split bet by putting your chip on the line in between two numbers, such as 1 and 2, or 8 and 10 (see Figure 1). A split bet pays 17 to 1, plus your bet is returned. The split bet is my favorite bet. Because you cover two numbers instead of 1, you will win at literally twice the rate as you will if you just bet straight-up. Plus the payoff is large enough that you can accumulate a lot of chips in a short period of time.

Trio or Street A bet on three numbers is called a trio or street bet. You place a trio bet by placing your chip on the outside line of column A. That is, you place the chip on the lefthand edge of a set of three numbers that begins with one of the following: 1, 4, 7, 10, 13, 16, 19, 22, 25, 28, 31, 34. The bet then covers the three numbers in that "street," such that a chip on the outside edge of 1 covers 1, 2, 3; a chip on the outside edge of 4 covers 4, 5, 6; etc. This bets pays 11 to 1, plus your bet is returned. This is a fairly economical bet, as 5 chips can cover 5 streets or a total of 15 numbers. If you win, you lose 4 of the chips on the losing streets, but gain 11 with the winning street for a net profit of 7 chips.

Corner A corner bet covers 4 numbers and you place it by putting your chip on the corner of four adjacent numbers. For example, look at the layout and you see that 1, 2, 4, & 5 share a common corner. Placing a chip there covers all four numbers and pays 8 to 1 plus your bet is returned. You can cover 20 numbers with 5 corner bets, but your net profit is now down to 4 chips so I don't recommend this bet unless you are seeking just one more hit.

Basket Bet The basket bet covers 0, 00, 1, 2, & 3. The problem is that this bet pays at a rate that give the house an even larger edge (over 7%) because it pays only 6 to 1. It is considered the worst bet in roulette and I recommend against ever using it. If you really want to cover these numbers, I suggest a split bet to cover 0/00 and a trio bet on 1, 2, 3.

Line or Double-Street This bet covers 6 numbers. You place it in a manner similar to the trio or street bet, but instead of putting the chip on the edge of one number, you put it on the edge and on the corner where two streets meet. The line bet is paid at a rate of 5 to 1 plus your bet is returned.

A bet on the outside corner of 1 & 4 covers 1, 2, 3, 4, 5, 6.
A bet on the outside corner of 4 & 7 covers 4, 5, 6, 7, 8, 9.
A bet on the outside corner of 7 & 10 covers 7, 8, 9, 10, 11, 12.
A bet on the outside corner of 13 & 16 covers 13, 14, 15, 16, 17, 18.
And so forth...

The Courtesy Line The only remaining bet to describe is really the same as a split bet but it covers only the 0 and 00. The "courtesy line" is the line that divides the outside betting boxes that house the second and third dozen. If you put a chip there, it is not considered a bet that covers the second and third dozen, but rather a bet on the 0 and 00. It is considered a "courtesy" to players at the far end of the betting area since putting chips directly on the 0 and 00 may be inconvenient. Like all other split bets, this bet pays 17 to 1.

When and How to Tip
Should you tip? This is an entirely personal matter as far as I am concerned.
The matter is also somewhat different at low stakes tables versus high stakes tables. Let's assume we are playing at a $5 table. I think the service staff like cocktail servers should definitely be tipped 50 cents or a buck. But what about the dealers?

There are two considerations here. First, has the dealer been helpful? Has the dealer been fairly pleasant and cooperative? Has the dealer been helping you place your bets? In short, has the dealer served you well and made the experience more positive? If so, a tip may be in order. If the quality of service has been bad, don't tip.

The second consideration is whether you are winning or losing money. Here you must find that fine line between being stingy and stupid. If you are winning, it is typically considered a bit rude not to give the dealer anything. On the other hand, if you are losing or barely keeping even, you are simply whittling away potential earnings by tipping too much. So, tip only when you are winning unless you just feel like being generous.

When should you tip? There are three ways to handling tipping. The first is to "pay as you go." Most players will toss the dealer a chip or two after a good win (of at least 35 chips) and say "this is for you." That is not a bad way to handle it, but you might want to consider that you decrease your winnings by almost 3% for every single chip you tip out of 35! That adds up fast. So be frugal.

The second way to tip is at the end of your playing session. The advantage of waiting until the end of the session is that you can better assess the quality of service you have been receiving and evaluate how much you can

afford to tip without unduly cutting into your profits.

The third way to tip is my favorite. It is the most fun and potentially the most profitable for the dealer. If you are winning, every now and then place a bet "for the dealer." You can pick the number or ask the dealer where they want you to place the bet. Now, recognize that this is truly the dealer's bet . If it hits, the dealer is supposed to receive the winnings, whether the winning be 1 chip or 35. So if you also want to bet on that number, make sure you have your own bet there as well.

How much should you tip? There simply is no standard or agreed-upon rate, unlike restaurant or taxi tipping. My rule of thumb is to tip about one chip for every 50 chips in wins. This results in a pattern where I tip a chip every other time I win, approximately.

Cashing Out

OK, so you have played for a while and are ready to leave. What do you do? You must cash your chips at the roulette table where you have been playing. If you take the colored roulette chips away to a cashier, they will not cash them in because they do not know whether they are $1 or $5 chips. So, when you are done, wait until a pause in the action (right after the dealer calls "place your bets" is the ideal time) and say to the dealer "I'm cashing in." Let the dealer pull your stacks of chips to count them--they know better than you do how to move those stacks of chips without spilling them and making a mess. The dealer will count your chips and give you regular casino chips equal in value. You can then take those chips to a regular cashier to get cash.

If you have not tipped the dealer previously but wish to do so now, wait until the roulette chips have been converted into regular casino chips. After you are paid, you can place your tip on the table and say "this is for you" so they know it is a tip.

Chapter One: Money Management

Why Money Management is Crucial

I have played roulette for a number of years now. To stress the importance of money management I want to make two simple empirical observations: First, most roulette players are ahead in profit at some point during their playing session. Second, most roulette players leave the table with a net loss and often they are empty-handed, having lost their entire session bankroll.

Now, stop reading. Go back and reread the previous paragraph. Then think about it for a little bit. The other chapters of this book are important, but if you do not get the message of this chapter, you will lose money. This is the most important chapter in this book! Remember the empirical observations: Most players get ahead, but leave losers. Why? Because of poor money management. It does not matter how well you understand the game of roulette, you will lose money if you do not determine a money management plan such as what I am going to describe here.

Have I preached the importance of money management enough? I doubt it. Most people do not really become convinced until they have lost a good deal of money gambling. Please don't let this happen to you.

There are three simple steps to successful money management. The three steps

are simple to understand and simple to do if you discipline yourself and get into good money management habits.

Determining Your Bankroll

First and foremost, the money you use to create a gambling bankroll has to be disposable income that you can afford to lose. Nobody wants to lose, but that does not mean you won't. Do not gamble with money you need to pay your bills--doing so is one of the chief warning signs of a gambling problem.

Money spent on gambling is like money spent on a hobby. It is up to you to calculate how much you can afford to spend on your hobby. Whether that amount is $100 or $100,000, money management is still of the utmost importance.

There are two kinds of bankrolls to think of. One is your total bankroll, the other is your session bankroll. Your total bankroll is the amount you have set aside for gambling. Your session bankroll is the amount you are willing to put at risk in any given gambling session at the casino.

You can organize you total bankroll into session bankrolls in one of two ways. I describe these as a series approach and a progressive approach.

A series approach simply means that you break your total bankroll into a set of smaller, equal-sized session bankrolls. If you lose one session bankroll you simply move on to the next in the series. The rationale here is that you want to spread out your risks and you never want to put more than one of these session bankrolls at risk in any given betting sequence. Organizing your money this way prevents you from chasing your losses with larger and larger bets in a potentially desperate effort to make up your losses. With a series of session bankrolls, if you lose one, you shrug, walk away, and start fresh again with a new session bankroll.

Below is simply one example of how to organize your total bankroll into a series of session bankrolls. It is designed to be an illustration for how you can do the same, it is not designed to be The Way to do this for you.

- If your Total Bankroll is under $150, use the whole bankroll as one Session Bankroll.
- If your Total Bankroll is between $150 and $299, divide the money into two Session Bankrolls.
- If your Total Bankroll is between $300 and $799, divide the money into fou r Session Bankrolls.
- If your Total Bankroll is between $800 and $1199, divide the money into si x Session Bankrolls.
- If your Total Bankroll is between $1200 and $3999 then divide the money into eight Session Bankrolls.
- If your Total Bankroll is over $4000 then divide the money into ten Session Bankrolls.

Players with less than $500 or so to gamble with might as well take the whole amount to the casino, recognizing that there is a risk, though hopefully a small one, that they might lose the whole amount. But once you get to the point where you have more than $500 invested in your hobby, I recommend that you take no more than half with you to the casino. That way if you do have a terrible day and lose it all, you still have at least half at home to come back with in the future.

A progressive approach to your session bankrolls is quite different than a series approach. It is riskier and is appropriate only if you have a rather substantial amount of funds you are willing to put at risk playing roulette. The idea is that you play conservatively but are backed by the bankroll

equivalent of a big stick. For example:

- You start with a $100 or $200 bankroll that you play using $1 chips.
- If you lose it, you move immediately to a $500 to $1000 bankroll that you play using $5 chips.
- If you lose your second bankroll, you can move up from there to a bankroll of $2500 to $5000 that you play using $25 chips.

The virtue of this approach is that you make up previous losses much faster than you would with a series approach. One $5 chip split over 2 numbers pays 17 to 1 or $90 (counting the return of your bet). That makes up almost all of your loss of your starting $100 bankroll. The downside is that if you do not pick your bets carefully, you could end up chasing your losses wily-nily. There are a number of very good, safe strategies in this book. If you are careful, this sort of bankroll strategy could be ideal.

Regardless of whether you use a series or progressive approach, it is very important to learn discipline in the use of your session bankrolls. Let's say you have $200 to gamble with. You should go ahead and take it all with you, but divide it into two session bankrolls. When you play, buy $100 worth of chips. If you lose it all, walk away. That session is over. You lost. Walk away and think about what went wrong and whether you misplayed or just had bad luck. Go off and relax a bit until you feel you have a good attitude again. Then start over with your second session bankroll. Do not try to win back your loss all at once. Forget that first $100. It is history. Instead, just start over with this second session bankroll. The same idea can be applied no matter how much is in your bankroll or how you have organized it.

The idea here is that as you increase the size of investment, the more cautious you need to be to minimize the risk of what gamblers call "ruin"--the loss of your entire bankroll. Most gamblers, once they have saved up a sizable bankroll, want to feel like a high roller and gamble at a substantially higher level. It is fun to act like a high roller and bet those big chips. You get treated like royalty by the casino staff and often are "comped" (given free meals or other benefits) at a greater rate than playing low stakes. The reason the casino treats you so well is that they want you to keep playing so you will lose those big chips. You must resist this temptation. Instead, see yourself as a general keeping plenty of troops in reserve. As your bankroll increases, you will indeed be able to increase the size of your bets. The key is to do so slowly, steadily, and cautiously.

Do not allow yourself to take your checkbook, ATM card, or any credit cards with you to a casino. If you hit a losing streak (and we all do at times) it is simply too tempting to reach for more money. Don't. Quit and play another day. I have seen gamblers lose every penny they have on them and who then must beg or borrow taxi fare home. I have seen respectable folks reduced to tears as they had to call home to ask for money to be sent to them so they can pay their hotel bill. Gambling makes people do crazy things, so be careful!

Setting Win Goals and Loss Limits

The vast majority of casino gamblers have no idea what they are doing when it comes to money management. If you asked the average casino goer "What is your goal today?" they would probably look at you blankly because they do not have a clue, or else say something outlandish like "win a million dollars!"

If you want to go win a million bucks in one trip to the casino, you are reading the wrong book. I have designed this book for steady, modest wins that will slowly add up to whatever amount you want to go for.

The reason you need to set specific goals is that otherwise you will not know when to stop. Remember the empirical observations: Most players get ahead but leave losers. You must decide before you sit down what it will take for you to leave.

Your loss limit is very simple to calculate: It is your session bankroll. If you lose your session bankroll, whether that amount is $100 or $18,000, then walk away. That session, as I said before, is history. One of the worse things a gambler can do is to "chase" a loss by reaching for more money to play at the same table trying to make up your losses. Don't do it. Have the class and the discipline to walk away. Many serious gamblers, including myself, have learned this lesson the hard way. Later we shake our heads and think "if I had only just stopped I would have only lost such-and-such" instead of five or ten times that amount.

The amounts I described earlier for dividing your total bankroll into session bankrolls are arbitrary. You should feel free to divide your money in some other way if you like, but I insist that to stay a winner you must follow the basic principles I have described so far: Divide your total bankroll into session bankrolls, and walk away if you lose a session bankroll.

Setting a win goal is easy in theory but tough to follow in practice. I am going to describe an approach that is quite deliberately conservative. You can deviate from the particulars, but the basic principles are important to follow: You must set a reasonable goal to win. My suggestion is to set the goal of winning 10% of your session bankroll. Now, I am not saying you have to go home at that point, only bring this particular session to an end. If you buy in for 100 chips, then you should stop once you are over 110 chips. Calculating 10% is simple so it is an easy amount to keep track of.

Now, many people say to me that they refuse to quit while they are winning. No one likes to quit while on a roll. Fine. Then you need to keep a second win-goal concept in mind: Never give back more than half of your profit in one session. For example, let's say you have a big hit on your very first spin and find yourself with a profit of 30 units. Personally, I would walk away at that point. But if I were to continue to play, I would not allow myself to lose more than 15 of the 30 units of profit. If you lose that amount, walk away. You are still up by 15 units. That is better than getting irritated and trying to win it back and ending up with a loss. If you continue to win, then readjust your loss limit as you go. Tell yourself, for example, that since you are now up 60 units you will give back no more than 20 before stopping.

Setting both a win goal and a loss limit is absolutely crucial, because it is the only way to tell when it is time to stop. Remember: Most players get ahead but leave losers. Don't be one of them.

Why 10%? Why not 25% or 50%? The 10% figure is not simply pulled out of thin air. In my experience 10% is a reasonable goal that you can reach most of the time. Setting a higher goal means that you will risk your 10% profit in order to try for more. Playing longer at the same table increases the risk of hitting a cold streak. Instead, I recommend you take a break after you reach your goal. Change tables. Don't worry if you only played a few spins and are already cashing in. That is no one's business but your own. You may notice that you change tables far more frequently than most other players you see. So what? Most players get ahead but walk away losers.

You will hear stories of people having big wins that will make you hunger for more than a modest 10% goal. What those stories leave out is all the losses that happened before and after the big win. You bought this book because you thought I might have something valuable to share with you. The money management strategies I am describing here are the result of years of play

and, to be honest, the result of some hard lessons I have had to learn personally. I know firsthand how winning makes you arrogant and you start to take bigger risks, only to come crashing down with a big loss. If you want to ride a roller coaster for the thrills of highs and lows, then go find an amusement park. If you want to regularly and consistently win money playing roulette, then you simply must learn strict money management habits, starting with the 10% win goal.

I am not telling you to go home after winning 10%, I am only saying end your session. Go to a new table and start your next session. Depending on how long you spend at the casino, those 10% profits will add up nicely. This leads to the last goal you need to set: Your win goal for the day. Set a goal of how much you want to win, but make it a reasonable goal. If you go to casinos often, set the goal to win between 50% and 100% of a session bankroll (not your total bankroll). That means you will play as many sessions as it takes to get to your specific goal, then go home.

Discipline and Team Play

The hardest thing in the world to do in gambling is to walk away after winning. That is truly the key to casinos' financial success. If you really want to make money playing roulette, you simply must develop good habits like I have described in this chapter. You must be disciplined. I have two suggestions for helping to develop this discipline. First, keep a logbook of your casino wins and losses. This should be a small notebook you can stick in a pocket. Take it with you to the casino and record the results of each session. You can include a lot of information or a little, but at least include the following.

Date	Time	Casino/Table	W/L
11/3/98	1:00 - 1:20 pm	Mirage, $5 table	up 30 units
"	" 1:30 -2:20 pm	Mirage, $5 table	up 10 units
"	" 3:00 - 3:30 pm	Harrahs, $5 table	up 15 units

Keeping a log will help you see patterns over time. Perhaps there are some casinos where you do better than others, or perhaps you will notice (as I have) that most of my wins come quickly and the longer you stay at a table the less you win. You can add any other information you want--like what strategies you concentrated on in that session or who the dealer was. If you start to see patterns, you can take advantage of them.

More importantly, keeping a log has important psychological functions. It will help you feel good about your accumulation of modest wins. It will make you feel bad if you broke your own win-goal or loss-limit rules. That's OK. Knowledge is power. To become a better player you have to know your strengths and weaknesses, and concentrate on eliminating weaknesses (like the temptation to stay at the same table).

My second suggestion is to play with a partner. If your spouse or significant other also likes to gamble, play as a team. Or go with a friend. If it is not possible to go to the casino, then have a "gambling buddy" to whom you promise to tell your results after each casino trip. If you are married or involved in a serious relationship, never lie to your partner about your losses. It is a good way to ruin the relationship and it encourages you to create a separate fantasy life of gambling that can lead you into all sorts of serious problems, including addiction.

Why have a partner? Because we are less likely to make stupid decisions if we are not alone. We can talk ourselves into anything! You can rationalize to yourself to ignore every bit of advice I have offered in this book so far

in the heat of the moment. But if you have a friend present, or if you know you have to tell someone about your choices later, then you are less likely to take unnecessary risks.

I have already stated my belief that this chapter is the most important chapter in this book. I promise you that if you follow the suggestions I have made, you will see your gambling profits rise:

- Never play with money you cannot afford to lose.
- Divide your total bankroll into session bankrolls.
- Set realistic win goals and stick to them.
- Keep a gambling log.
- Find a partner you can play with or at least report to.

Chapter Two: Why Systems Fail

Naïve versus Sophisticated Roulette

What do I mean by "naïve" roulette? If you are a serious player, then no doubt you have played long enough to watch the average player come up to the table and steadily lose money by betting a collection of birthdays, Michael Jordan's uniform number, and other favorite numbers. You know full well that whether such players come out ahead or down is entirely a matter of luck. "Naïve" roulette is when players do not play the game with any sort of strategy or awareness of the probabilities involved with the game. From time to time a naïve player may make some money, but they are virtually guaranteed to lose money in the long run. Why? For a combination of reasons that I will summarize by the labels the House Advantage and the Variance Demon.

A word of warning: This chapter upsets many of my roulette-playing friends because the obstacles to winning at roulette seem so huge. Do not despair. I would not bother to share these obstacles with you if I did not have a set of solutions to offer. So do not skip this part! Understanding these notions will help you a good deal when it comes to using the strategies that Roulette 2000 has to offer. After all, the goal here is to increase your sophistication in the game of roulette.

The House Advantage

As I mentioned earlier, casinos make their money because of the built-in advantage the casino has from the "vig"--the house "take" of each bet. In roulette the house advantage is very large: 5.26%. They get this advantage by paying the player less than the true odds of a bet. For example, an outside bet on red or black pays even money as if the odds were an even 50/50. But the odds are not 50%. Because of the 0 and 00, the odds in any given spin of red or black hitting are actually 47.37%. So if you bet one unit (where 1 unit can be anywhere from 25 cents on up to $100) on red every time, at best you will win only 47.37% of the time and end up losing 52.63% of the time, for a net loss of 5.26%. Similarly, with inside bets the true odds are 38 to 1 (36 numbers plus 0/00), but you get back 36. The difference is, again, 5.26% in the casino's favor. Most of the time this edge is all the casino needs to make money. To be sure, some players walk away winners, but many more walk away losers. On average the house can be confident that it will clear at least a profit of 5.26%.

A note about single zero wheels: Obviously the odds are slightly better on a single zero wheel because the house edge is less; about 2.7%. Let me take this opportunity to say that many players put themselves at a disadvantage by not playing on single zero wheels when they get the chance. There are plenty of single zero wheels available in Las Vegas, Atlantic City, and even in some riverboat casinos. However, most of these wheels require the player to bet a minimum of $25 per spin. So it is understandable that you may not want to play on a single zero table unless you have a large enough bankroll.

The difference between true odds and the casino's payoff is, by itself, no guarantee that the house will come out ahead. As I will explain below, there are some systems that could produce consistent winning except for one other house advantage: Table limits. By keeping the range between the minimum and maximum bets under control, the casino assures itself that some progressive systems will run into the limits before they beat the house.

The Variance Demon

What is variance? To answer I have to get into statistics a bit, but bear with me. The concepts are not all that difficult and you will understand the game a good deal better by mastering them. At the very least, skip to the end of this section to see just how long it can take for certain bets to come in that appear to be "due." Under-standing the extreme limits of variance can literally save you a fortune.

Let's say you have 10,000 spins of a roulette wheel. If the results were distributed in a perfectly random pattern, each of the 38 numbers would appear n/38 times, or 100,000/38 = 2632. However, even with a perfectly unbiased wheel or a very good computer program to generate random numbers, there is variation from a "perfect" distribution. Some numbers will appear more than 2632 times and some will appear less.

You can test this idea by flipping a coin 100 times. I can virtually guarantee you that it will not come up heads and tails exactly 50 times each. In fact, if you flipped a coin 100 times a day for 30 days, most or maybe even all of those days you would not get exactly 50 heads and 50 tails. In the theoretical long run, we assume that you will get an average of a 50/50 split. But on any given day your "score" of heads or tails will vary from 50%, and your cumulative average will probably not be precisely 50%. Some days the mix might be 51 to 49, other days it might be more like 70 to 30. Your cumulative average will move up and down each day. Once you have tracked your coin flips for enough days, you could calculate how much variation from 50% you have experienced.

In statistical terms such variation is called "variance." The cool thing about variance is that we can measure it. That is, we can measure how much each individual day's average varies from the expected mean of 50%. The amount of variation from the mean (in this case, 50%) is measured in units described as the "standard deviation."

Let's return to roulette. The amount of variation from the mean of 2632 can be calculated as a standard deviation. Let's say the standard deviation is 200. This means that each number appeared "on average" between 2432 and 2832 times.

One standard deviation above the mean would be +200 in this example (or 2832), while two standard deviations below the mean would be -400 or 2232. Now here is the cool part: Using standard deviation as a measure allows us to estimate the probability or chances of the occurrence of an actual score compared to what we expect the “normal” scores to be. We expect approximately 68% of all frequencies to fall between plus-or-minus one standard deviation of the mean. That is, only 32% of all scores will be outside of the range of 2432 to 2832. Moving further away from the absolute average of 2632, we expect a little over 95% of all scores to fall between plus-or-minus two standard deviations. This means that a score outside of the range of 2232 to 3032 has only a 5% chance of happening. When applied to the various betting options in roulette, the concepts of variance and standard deviation explain how difficult the game is to beat. And later Roulette 2000 will explain how to utilize these notions against the game in

order to defeat it.

Let me give an example of what I mean by the Variance Demon. Let us say that I am just learning about roulette and I quickly figure out that each number should hit on average once every 38 spins. I also happen to notice that the number 23 has not hit for 30 spins. "Wow!" I think to myself. If I bet on 23 for the next 8 spins or so, I ought to have a hit. Well, maybe yes, maybe no. The problem is that each number will hit on average once every 38 spins. But the variance on the frequency of a single number is huge. The number might hit 4 times in the next 8 spins, or it might not hit for another 360 spins.

Even though a number disappearing for over 300 spins is unlikely, it does happen. When something like that happens, I often think of myself as falling victim to the Variance Demon. Now, even if you did not follow all the mathematical details, it is not difficult to understand the results: Numbers do not always hit when they are "due." The improbable happens.

I know many people who have lost a lot of money chasing a particular bet because they just cannot believe that "X" won't hit. Now "X" can be the red or black, or the first dozen or even a single number. Absolutely convinced that "X" must hit soon, people pour hundreds of dollars on a string of bets that wipes them out. If you are going to chase a particular number or set of numbers, you need to be aware of just how long you might have to chase them before you start the chase. Let me warn you now about the extreme limits of variance:

Straight-up: To hit 1 number might take 1 spin or up to 360 spins.
Split Bet: To hit one of 2 numbers might take 1 spin or up to 180 spins.
Trio/Street: To hit one of 3 numbers might take 1 spin or up to 120 spins.
Line Bet: To hit one of 6 numbers might take 1 spin or up to 60 spins.
Dozen/Column: To hit one of 12 numbers might take 1 spin or up to 30 spins.

What about the even-money bets, like red/black, even/odd, 1-18/19-36? This means you are trying to hit one of 18 numbers, and it might take 1 spin or up to 20.

The lesson to learn here is that you cannot trust a vague intuition that a particular number or set of numbers is "overdue." You need to know just how long they can lay dormant, or "asleep," before they finally wake up.

Why the Improbable Happens

Before I get potential players excited with various strategies, I need to issue a word of caution. Roulette is a game in which "the improbable" happens all the time. In fact, it is not as odd as it sounds to say the "improbable is probable" in roulette.

Allow me one example. Every experienced roulette player knows that streaks of 8 or 9 reds or blacks in a row happen regularly. If you have played long enough, you may have seen a streak of 14 or 15 in a row. The odds of a streak of 18 in a row are very slim indeed: .0000096. However, there is a sense in which this kind of unlikely event is happening all the time in roulette.

Think about it: Red or black is simply a random way of identifying 18 of the 38 numbers on a roulette wheel. In any given set of 18 spins, the most number of numbers that can be hit is 18. That means that in those 18 spins, over half of the numbers are not being hit--just like a situation when red hits 18 times without a single black number or 0/00 hitting. From a probability standpoint the two situations are identical--some random set of 18 number hitting 18 straight times. The odds of some set of 18 numbers

hitting in a set of 18 spins is 100%, but the odds of any particular set of 18 numbers hitting in all 18 spins is less than 1 in 100,000. That is what I mean by the improbable is probable. Something weird is always happening on the roulette wheel. What we need to do is figure out how to spot those opportunities where the weird becomes reasonably predictable.

So how should we play? In the next two sections I want to explain the problems with "systematic" Flat and Progressive Betting. Then I'll teach you how to avoid these problems.

Problems with Flat Betting

By "flat betting" I simply mean that a player bets on any given bet (inside or outside) at a constant rate. Typically this is called one unit, where the unit can be anything from 25 cents to $100. The precise bet does not really matter: It could be 5 of the player's favorite numbers on the inside, or some outside bet of even money or 2 to 1 odds.

It is possible to win money by flat betting, but not in the long run. If I went up to a table and bet $5 on red each time for 100 spins, I might make a profit. You may say, but those bets only win 47.37% of the time! How can I win? The answer is "variance." In an analysis I did of an even money bet, I found that for my data set of 100,000 spins the standard deviation was 5.64%. This means that to the extent this sample is representative, about 68% of the time we can expect the average to range between 41.73% and 53.01% (one standard deviation); 95% of the time we can expect the range to be between 36.09% and 58.65% (two standard deviations). Because results vary, we seldom get exactly the expected average of 47.37%. Instead we might actually win a profit of 11 units. Or we could lose more than average. If we hit only 36% of the time in 100 spins, we would have lost 28 units.

In the long run, however, we can be fairly confident that we will have more losing sessions than winning ones with flat betting. The reason goes back to the house edge gained by not paying us the true odds. In theory the longer we play, the more the positive and negative variance will cancel each other out and we will get closer to the average, which for even money bets is 47.37%. Unfortunately, that means in the long run the house can count on getting its 5.26% profit. To make a long story short: The longer you play roulette with flat bets, the greater the chance that the odds will even themselves out and the house edge will become the determining factor. What we will need to do, then, is to talk about how to get in and out quickly, to play "strategically" rather than "systematically."

Problems with Progressive Betting

OK, so if systematic flat betting fails why don't we systematically progress our bets? The classic example of a progressive betting strategy is the infamous Martingale strategy. This strategy is for the even money bets (red/black, even/odd, 1-18/19-36). One begins with a bet of one unit. If you lose, you next bet 2 units. You continue to double your bet until you have a winner. As a result, you are guaranteed to come out ahead one unit once you finally hit.

The problems of the Martingale strategy are shared by almost all other progressive betting strategies. The first problem is that it requires a large bankroll. To illustrate my point, I will focus on red/black even though the analysis would apply to any even money bet. Most streaks of red or black are fairly short, but if you have played for very long you have seen some long streaks. Let's take a streak of 15 as an outer extreme. If you are betting $1 on red, to defeat a losing sequence where you encounter 15 black in a row you must bet 16 straight times as follows: $1, $2, $4, $8,

$16, $32, $64, $128, $256, $512, $1,024, $2,048, $4,096, $8,192, $16,384, $32,768. Thus you need to have a bankroll of at least $65,535.

Even if you have a large bankroll, you will get defeated by the next problem: table limits. Most tables have a minimum of $5, in which case you can take the above numbers and multiply them times 5 (total bankroll now needed: $327,675). However, tables also have maximums. On typical $5 tables the maximum outside bet usually is $1000 or $2000 or at most $5000. Even if you started with a $1 bet, you would run into a table maximum before you won.

Now, admittedly my example is an extreme one. But the lesson still applies to less extreme cases. Because of the table minimum and maximum, a spin-by-spin strategy of doubling one's bets will encounter a losing sequence sooner or later that cannot be defeated.

Could it be worth it? Perhaps you have figured out that the odds of 6 reds or black in a row are about 2%. Why not take the wins and outweight the losses? Ah, if only we could! Let's say we have a $1 table and a bankroll of about $100. That means we can start with a $1 bet and double it 5 times, so only a streak of 6 in a row will defeat us. How would we fare? Well, the good news is that on average we should win 98 times. 98 wins x $1 = $98. The bad news is that our two losing sessions each cost us $63 for a total of $126. $98 - $126 = a loss of $28.

Again, to shorten the story, the problem with almost all progressive betting schemes is either that they run into table limits that force losses, or the payoff rate multiplied by the win-rate suggest that you will end up losing money. For more examples of this, see the appendix where I offer statistical critiques of a number of different progressive betting strategies. To put it most simply, with almost all systems that require you to progress your bet, the problem is that only a few losses will wipe out your winnings plus most or all of your bankroll. Those systems that advertise even a 90% or 95% winning rate must be asked the simple question: How much do you win with each win (on average) and how much do you lose when you lose? I have yet to find a system that involves progressive betting that has solved this problem.

The Gambler's Fallacy

A number of betting strategies try to avoid the problems I have identified with flat and progressive betting by trying to detect and follow the trends of a table. They admit that the Variance Demon will defeat conventional strategies, so they try to detect which way the variance is running and bet accordingly. Such strategies may hope to catch the wave of more reds than black, or catch the "hot numbers" that seem to be popping up at a greater-than-average rate.

This is where the difference between a "strategy" and a "system" become crucial. I suggest in the next chapter that "playing for repeats" is a perfectly acceptable short-term strategy. Streaks and repeats do happen. But to base a whole system on this notion is to commit what is known as the "Gambler's Fallacy." The Gambler's Fallacy refers to the belief that one can predict an upcoming spin based on a set of preceding spins. It is considered a fallacy because each spin is an independent event that cannot "cause" a future event to occur. The wheel does not know what color a number is, and it has no memory of what number just appeared.

Trends happen. But you cannot rely on them to continue. A trend where red is hitting 10% more than average could continue for another 50 spins or stop on the very next spin. The same is true for any other trend: they may continue, they may not. "Following the trend" is OK as a short-term strategy, but if you turn it into a system (as many systems do), it becomes an unreliable way to bet that will meet the same fate as flat betting or progressive betting as described above.

Beware of Systems

It may seem odd in a book of roulette strategies to say "beware of systems" but I believe it is important for you to understand the difference between Roulette 2000 and "mechanical" systems. I have identified a set of obstacles to winning consistently at roulette. Before you ever purchase another system, you should ask how that system avoids the problems we've discussed. Ask such questions as:

- Is the system consistent with probability theory?
- If the system relies on flat betting, how does it beat the house edge?
- If the system relies on progressive betting, how does it beat table limits, bankroll requirements, and the Variance Demon?
- Does the system commit the Gambler's Fallacy?

If you have already purchased a system, I strongly encourage you to purchase a home computer roulette game and to try the system out extensively before ever risking your money at a casino. Do not just try it once or twice, but do a number of sessions and keep careful notes of your results. I recommend ideally 30 sessions of at least 100 spins each. That sounds like a lot, but it will go much faster at home than in a casino, and you could save yourself hundreds or thousands of dollars.

If you do not have a home computer or do not want to buy a roulette program, you can use the list of 10,000 spins included in the appendix of this book. Start any place and treat each number as a successive spin. The results will be virtually identical to a home program or a real casino with an unbiased wheel.

Chapter Three: Becoming The Sophisticated Roulette Player

My goal with Roulette 2000 is to empower you with knowledge so that you can be a more sophisticated roulette player. I cannot guarantee that you will get rich with these strategies. And I will not spoon-feed you with mechanical betting formulas. Instead, I will give you the knowledge to know better and worse betting opportunities and how to maximize your odds of winning, as well as offer some suggested betting sequences. How you use that knowledge is entirely up to you, but my advice above all is to be smart, be patient, and don't get greedy.

Finally, read this entire book. Let me know if you have questions. Don't skip ahead to the betting patterns and rush out to start betting. Understand what you are doing and why you are doing it first.

Patience is the key. No gambling strategy yet invented will get you rich overnight. Even the best card counters at blackjack set modest goals of how

much they want to win each day before they quit; such goals are usually a modest percentage (like 10%) of their session bankroll. Roulette players tend to be more greedy, which is why the casinos love us so much. Set more modest goals, play smartly, and be content to gain your profits slowly but surely.

Tracking the Numbers

Every spin of the roulette wheel provides valuable data than can be put to good use, so the sophisticated player begins by recording each spin you witness. If you come up to a table with a results board (typically a lighted display panel), make sure you ask someone if the list is accurate before writing down the numbers. Sometimes a board misses a spin or double-records a number.

It is not necessary to record spins for every strategy that Roulette 2000 describes, but it is useful for most of them so we might as well get this understood at the outset.

I include a sample grid to use for practicing the strategies, but before you go to the casino, buy a mini legal pad (5 inches by 8 inches). On the top sheet, on the left hand side create a column that goes down the page that looks like this:

0/00

1/2
3/4
5/6
7/8
9/10
11/12

13/14
15/16
17/18
19/20
21/22
23/24

25/26
27/28
29/30
31/32
33/34
35/36

Then draw a series of lines down the paper to create columns. Make a small hash mark next to the appropriate pair when one or the other number hits. To track individual numbers, you can put the hashmark in the upper lefthand part of the space to record the first number of the pair, and the lower righthand corder for the second number in a pair. Or use two different color pens. It does not matter how you do so as long as you do so consistently. As I will explain in a moment, you will also write down the numbers for each spin on the next page of your mini legal pad. Each column should record 20 hits. No more, no less.

After a set of 20 you start the next column of marks. In the first column, write a nice big 0 where a pair failed to hit in that set of 20 spins.

So it should look something like this after your first 20 spins:

Chart #1
0/00 ||

1/2 0
3/4 |
5/6 ||
7/8 |
9/10 0
11/12 0

13/14 ||
15/16 |
17/18 |
19/20 ||
21/22 |
23/24 0

25/26 |
27/28 |
29/30 ||
31/32 |||
33/34 0
35/36 0

The purpose of this top sheet is to track individual numbers and pairs. By doing this you will quickly see which pairs are hit and which are not. You can also track dozens and high/low with a quick glance. The above marks are fairly typical. Generally you will have about 6 pairs that do not hit in a set of 20 spins.

On the second page of the mini legal pad also draw columns down the page, drawing a horizontal line after the 5th line, 10th line, 15th line, and 20th line. On this page you list the actual numbers hitting. I also put an A, B, or C next to the number to indicate which column it is in. This sheet serves three purposes. First, when you reach the 5, 10, 15, and 20th line you can check your hash marks to make sure your records are complete on both sheets. Second, later if you want to see exactly how long it has been since a specific number hit, you have a complete record. Third, the list enables you to notice unusual column phenomena, such as a streak of 6 As in a row or an unusually long drought of a column like 15 or 20 spins without a B. In chapter two I describe how to bet in such situations.

This list would begin something like this:
13 A
2 B
27 C
14 B
31 A
36 C
9 C
etc., again in columns of 20 numbers each so you can cross check your record with the top page of hash marks. It is easy to get distracted and miss a number on one list or the other. Keeping both records allows you to cross check and make sure you are recording them all.

With these two sheets I can moniter just about any type of pattern I would be interested in betting on. After 60 spins your top sheet may look something like this:

Chart #2
0/00 || | 0

1/2 0 || |
3/4 | 0 ||
5/6 || | |
7/8 | || ||
9/10 0 0 0
11/12 0 | ||

13/14 || | 0
15/16 | | 0
17/18 | | 0
19/20 || || ||
21/22 | 0 |
23/24 0 | 0

25/26 | | ||
27/28 | | |
29/30 || || |||
31/32 ||| | ||
33/34 0 || |
35/36 0 0 0

Later in Roulette 2000 I will identify some specific uses of these charts. For now, just get in the habit of recording spins in this manner. By keeping such records and taking them home with you later, you can accumulate a substantial data set to study and to test strategies with. If you did not do as well at the casino as you would have liked, keeping a record can help you analyze what happened later.

Chapter Four: The "Step-by-Step" Even Money Strategy

Exploiting Knowledge of Averages and Standard Deviations

The Step-by-Step strategy is a good starting place for two reasons. First, it is a simple and easy strategy that will obtain steady wins. Second, most of the strategies I will be describing later require you to take notes and to wait for the right situation to place your bets. The Step-by-Step strategy can keep you busy until those opportune situations arise.

I also like the Step-by-Step strategy because it is statistically sound. It does not expect somehow to escape the law of averages--it relies on it.

This strategy is strictly an outside bet on the even money bets of black/red, even/odd, 1-18/19-36. Though one could in theory bet all three of these at once, I think it would be rather easy to confuse the heck out of yourself. I recommend therefore to select just one. Personally I prefer the 1-18/19-36 bet because in the process of doing this strategy you may notice other betting opportunities for bets on certain pairs, streets, or dozens.

The idea behind this strategy is that by progressing bets on the even money bets by one unit per spin (following losses) one avoids running into the problems of the Martingale system. Specifically, you need only maintain a ratio of winning bets of 1 win for each 2 losses to stay even. Given that all even money bets average 47.36% in the long run (on an American wheel), one should be able to make money this way. If you can afford to do this on a single zero wheel, the odds improve because each even money bet will hit an

average of 48.6% of the time.

If I had 4 losses (10 units down), two wins at 5 units each balances it out. 10 losses (55 units) would require 5 wins averaging 11 units each, etc. For example:

Bet 1 unit and lose,
Bet 2 units and lose (cumulative loss 3 units)
Bet 3 units and lose (cumulative loss 6 units)
Bet 4 units and lose (cumulative loss 10 units)
Bet 5 units and win (cumulative loss 5 units)
Bet 5 units and win (cumulative result is even)

Once you hang in there and survive the stretches where the "other" side dominates by a large amount and get back to the 47% or 48% average on your betting area, you make money. In theory, you should be able to make about a 21% profit:

52.6% of spins = losses
26.32% of spins = wins to catch even
21% of spins = wins for profit.

In the long run, then, one should win a profit of 21 units for each 100 spins if the basic bet is 1 unit.

Test 1: 10,000 spins.
I divided 10,000 spins into a 156 sets of 64 spins each (with 16 spins left over). I picked 64 spins fairly randomly--it just happened to be the number of spins in each column of my printout. But 64 also seemed like a reasonable minimum number of spins for a session of at least an hour. Of those 156 sessions none lost money with this system. Two times I broke even. The other 154, I came out ahead anywhere from a 1% profit to 33%. The average gain was very close to expected: 20.34%.

I then did some statistical analysis to compare the mean and standard deviation to what would be expected from a perfectly-random distribution. The mean frequency for my bet (1-18 versus 19-36) was 46.67%, which is very close to the expected 47.37%. The standard deviation was 5.64%. This means that to the extent this sample is representative, about 68% of the time we can expect the range to be between 41.73% and 53.01% (one standard deviation); 95% of the time we can expect the range to be between 36.09% and 58.65% (two standard deviations). Remember, any session over 33.33% provides a profit. This means that in 95% of your sessions you should easily turn a profit. Below I will discuss what to do in the other 5%.

Test 2: 20,000 spins more
I repeated the above procedure twice more with sets of 10,000 for a total of 468 sets of 64 spins each. The results for the second and third 10,000 sets were almost identical to the first. There was one sequence where, at the end of 64 spins, I had not yet reached a break even point. I continued the series into the next set of spins and got to a break even point fairly quickly.

Modifying the Step-by-Step Strategy to make it Work
In November 1998 two computer programmers, working independently, tested the Step-by-step system and found that it won money, but at a different rate than projected. In 1000 sets of 64 spins each, 67% of the time there was a win that averaged 21.5 units--which is much higher than I project above with a 21-unit gain per hundred spins. That is the good news. The bad news is that it lost 33% of the time. Accordingly, I am convinced that to play the strategy successfully you must have the following modifications ready to go.

The Step-by-Step strategy is based on the idea that "in the long run" each even money bet area will regress to the mean and hit about 47% of the time. But we may run short of bankroll or patience before we get to "the long run" by running into one of those 5% of sequences that are more than 2 standard deviations away from the average. Or, in some situations, starting off with a disproportionate number of losses makes it very difficult to get caught back up. Accordingly, I suggest you keep an eye out for several betting options during the rough times that your bet is increasing at an uncomfortable rate. Comfort is a relative concept, of course. Most of the time you should be betting between 1 to 12 units. If you start betting higher than that, you should look for opportunities to alter your strategy. Some folks with large bankrolls do not mind letting the bet get into the 20s because they are confident that the skew will end and the wheel will average out the results. But if you get nervous before then, consider some of the modifications listed below.

#1: Pick which even money bet to concentrate on with care. As noted above, trends can start or end at any moment. But I would still not try to buck a trend that is already in progress. Pick whichever of the even money bets that appears to be most even and stable at the time of entry: red/black, even/odd, or 1-18/19-36. Stay away from a bet where you see a serious skew where one side is heavily dominating over the other (or, bet with that skew for a while).

#2: Should you reach an uncomfortable bet--even as low as 5 or 10 units--you can shift to a 2-for-1 bet (the dozens or columns) to make it up more quickly than staying on your even money bet. Let us say you are up to 12 units. Keep the exact same level of bet and shift the next bet of 13 units to a single column or dozen. Since these bets pay two-to-one instead of even money, you need only half as many hits to get back to even. With an even money bet you need a ratio of one win for every two losses; with a 2-for-1 bet you need only one win for every four losses. Thus you can make up your losses within only half as many hits. Your odds for a hit for any given spin are only reduced by 16%, but your need for a given number of hits is reduced by 50%. If you are up to something like 20 units, it is reassuring to know you only need 5 hits to get back to even.

You may say to yourself "Why not play just on a 2-for-1 bet with the Step-by-Step strategy?" You could! It would work effectively there also. But I think the stronger strategy is to bet on the even money bet and save the 2-for-1 option as a very effective "comeback" vehicle.

#3: Start placing a side bet on 0/00. You can make up ground fast with a hit or two here with relatively little additional money risked. If there is a sequence where your area is not hitting as much as it should, it could be because 0/00 are hitting more than average in this series.

#4: If you lose 9 in a row (with no losses due to 0/00), shift to a straight Martingale strategy and start doubling your bets. The probability of an adverse streak going past 16 are so remote that it is worth the risk. I describe this strategy in more detail in the next chapter, but keep it mind when playing this strategy as well.

#5: Track where your losses are occuring. If you are betting 1-18, for example, and the third dozen (25-36) has hit 5 or 6 straight times, start betting on the first and second dozen, progressing your bet to make up lost ground quickly. If you can outlast a streak of hits in one dozen of 10, you can defeat it (but make sure you are hedging your bet with bets on 0/00). Again, see the next chapter for more detail.

#6: Accept a modest loss and change bets. If your bet is on reds versus blacks, for example, and over a period of 30 or 40 spins you just cannot seem

to get back to even, then curse the Variance Demon and change bets to even/odd or 1-18/19-36.

#7: Don't forget the money management techniques described earlier. Get your wins, then get out and move on.

Bankroll Requirements

I would not recommend playing this strategy with less than 500 units. Remember, those units can be as small as 25 cents or as large as $100 each. As you will see as you read through Roulette 2000, I am a relatively conservative player. I want to take a hefty bankroll to the casino so I can outlast those temporary problem stretches. For any of the strategies described in Roulette 2000 you need to decide in advance of going to the casino what your betting limits are going to be. I am not going to prescribe a super specific formula for you--that depends on your income and how risky you like to play. But I do strongly prescribe a strong dose of preparation. Plan ahead and know what you will do under what circumstances.

You should practice this strategy with the practice list of numbers in this kit, with a free electronic version of roulette on the world-wide web, or with a computer game version of roulette easily found at software stores. By practicing you can get a sense of how much risk you are willing to take on and how much bankroll you need to feel comfortable.

Strategy #1, then, is the Step-by-Step strategy for even money bets.

Chapter Five: Outside Situational Bets

When is the Gambler's Fallacy not a Fallacy?: Outside Situational Betting

The Gambler's Fallacy refers to the belief that one can predict a given spin based on a set of preceding spins. It is a fallacy because each spin is an independent event that cannot "cause" a future event to occur. The wheel does not know what color a number is and it has no memory of what number just appeared. But is the gambler's fallacy always a fallacy? Doesn't every system or strategy attempt to make some sort of prediction of upcoming spins based on past spins?

Let us get more specific. What does it mean to "predict" a number or result? The classic example of the gambler's fallacy happens in casinos all the time. Many times in Las Vegas or Atlantic City I have been at a table where the reds or the blacks have hit 5 or 6 times in a row. Let us say the streak is a streak of 6 reds in a row. All of a sudden a bunch of naïve roulette players rush to the table to start betting on black. "It can't keep going red!" they exclaim. I have seen many of these unfortunate folks lose literally every dollar they brought to the casino as they stare in disbelief as the number of consecutive reds climbs higher and higher. I have seen even an experienced roulette player drop $8,000 on a single streak that lasted longer than his bankroll could stretch.

But is the intuition of the naïve gambler entirely wrong? Not really. There are predictable limits to streaks of red or black, for example. The problem in this case was that the players did not know enough about the odds of the streak continuing to a particular length. Allow me a mathematical proof that the so-called gambler's fallacy is not always a fallacy.

The strict version of the gambler's fallacy is based on simple probability theory. The odds of a given spin being red or black is always about 47%. That is true each and every spin. Accordingly, it does not matter what has happened in previous spins. If I bet on black 8 times, doubling my bet each time, I will always average the same result because the events are always the same.

Or are they? My argument is that the gambler's fallacy is not a fallacy during what I call statistically-anomalous sequences. A technical definition of what I mean would be something like "events that happen only beyond a specified number of standard deviations from the norm." A simpler way of putting it is that there are limits to extremes.

For example: I generated 100,000 spins and then calculate exactly how many streaks occured of the even money bets: red/black, even/odd, and 1-18/19-36. Cumula-tively this represents 300,000 spins of experience on an even money bet. In no case did a streak go any longer than 16 in a row. In Russell T. Barnhart's book, Beating the Wheel, he reports on the results of over 46,000 spins from an actual roulette wheel in Monte Carlo. In that case the longest streak of red or black was 15.
Accordingly, imagine that you only bet on an even money bet when a streak reached 10 in a row. In these data sets, one of 100,000 and another of 46,000, you would have no losses. The win/loss rate would have been 100%. In these situations, the gambler's fallacy is not a fallacy. The results of situational betting (waiting for 10 in a row) are different from betting in continuous sets of 8 bets at any other times.

Now have we really disproved the gambler's fallacy? Not completely. We can describe what happens in these situations with standard probability theory. While one can never predict the result of one spin, we can predict, with some precision, the probability of a given event over a series of spins. One calculates this by multiplying the probability of one event times the probability of another. If you flip a fair coin the odds that it will come up heads is .5 or 50%. The odds that it will come up heads twice in a row is .50 x .50 = .25 (or 25%). Now, let us say you have flipped the coin twice and it came up heads both times. What are the odds it will come up heads again for the third time in a row? Careful! The odds are still .5 on any given flip because these are independent events. So, even though in general the odds of three heads in a row is only 12.5% (.5 x .5 x.5 =.125), on any single flip they are still 50/50.

Now the question becomes What are the limits to extremity? If you can have a coin come up heads 10 times in a row, despite the fact the odds are very small (.0009765), when is it "safe" to bet that the streak will end?

Because you are in the process of becoming an increasingly sophisticated player, you can decide for yourself what your comfort level is. My personal suggestion is that for even money bets you need to be able to outlast a streak of 17. I see streaks of 9 and 10 often enough (especially in a large casino with lots of tables) that if I can increase my bets to outlast a streak of 17, I feel pretty darn confident.

The specific probability I want to obtain is 99.999%. That is, I want to be beaten only by an event that has a probability of less than 1 in 100,000. If you consult the Bernoulli trials in the appendix you will see that the odds of an even money bet (which covers 18 of 38 numbers) winning on your first spin is about 47%, the odds of winning at least once within two spins is about 72%, and so on. The odds of losing a given number of consecutive bets is simply 1 minus the probability listed. You reach odds of less than 1 in 100,000 if you can outlast a streak of 17, so that is the "limits of extremity" I am willing to bet on for the even money bets.

Sadly there is no way to ever get to 100% probability. But by identifying the extreme limits of even money bets at 17, we have seen that you would have had a perfect winning record for two large data sets: My simulated 300,000 spins and the 46,000 spins in Monte Carlo. And, for what it is worth, in my years of experience I can say I have never seen a streak go past 14. Depending on how much you play and how fast your dealers are, 100,000 spins

is a very, very long time. A strategy that can win in data sets of 100,000 spins is something to be confident about. You might literally go through the rest of your roulette career using this strategy without a loss.

The Practice of Outside Situational Betting

Almost all outside betting systems require the player to bet continuously. I have described a strategy that is situation-specific; that is, the player bets only when a statistically-anomalous sequence (9-in-a-row or more) occurs. This can be used on the even/odd, red/black, or 1-18/19-36 bets. The obvious limitation of this strategy is that you have to wait to find a streak of 9 or 10 (or even more if you are particularly conservative). I doubt you will get rich with this strategy alone, but at least by conserving your bets to these unusual streaks you can play with confidence.

In practical terms there are two ways you can pursue this strategy: Table Hopping and combining this strategy with others at a single table.

"Table Hopping" refers to moving from one roulette table to the next in search of unusual streaks to take advantage of. The most visible example of such a streak is the streak of red or black, since most results boards are color-coded and one can see from a distance a block of red or black numbers. If you intend to use this strategy, however, you should also look for streaks of even or odd numbers, or of high (19-36) and low (1-18) numbers. Many players forget to look for these sequences and miss four more betting opportunities. Note: When you walk up to a table you should ask one of the players if the results board is working properly. Players generally watch these boards carefully and can warn you if it is falsely repeating or omitting numbers.

Atlantic City is the best place to table hop because there are a number of casinos with a group of tables all within sight of one another. My personal favorite casino in AC is Harrahs because of the number of tables (typically $5 tables) within sight of each other.

If I am feeling restless or want to exercise then I will wander through casinos looking for potential betting situations. More often than not, I will stay put at one table in order to play Step-by-Step or to pursue the Inside Situational bets I describe in the next chapter. In those cases you simply pay attention to the results and keep your eyes open for an outside situational betting opportunity.

OK, so by now you want me to get more specific about how to use these ideas in actual play. I will give you five specific outside situation betting strategies:

1) Even money against-the-streak.
2) Even money "correction effect."
3) 2-for-1 sleeper.
4) 2-for-1 "correction effect."
5) 2-for-1 against-the-streak.
1) Even money against-the-streak.

Betting against the streak is pretty obvious. You find a streak of 9 or 10-in-a-row of an even money bet (red/black, even/odd, 1-18/19-36) and you bet against it. You must progress your bet after each losing spin, but how much you progress it is up to you (your bankroll size and risk-comfort level). If you want to be conservative, you can progress your bet Step-by-Step, as described last chapter. If you want to be more aggressive, you can double your bet after each loss until you win. Your profit will be the amount of your original bet. Or you can increase your bet by more than doubling it each time. I will describe a medium-level risk strategy here, but feel free vary it according to your own preferences of risk and profitability:

Sample progression #1: Wait for 9 in a row, then bet

1st spin 1 unit
2nd spin 2 units
3rd spin 4 units
4th spin 9 units, 1 on 0/00
5th spin 21 units, 3 on 0/00
6th spin 48 units, 6 on 0/00
7th spin 108, 12 on 0/00
8th spin 255, 30 on 0/00

Why the bets on 0/00? Because a streak can be brought to an end by either the opposite bet (the one you are betting on) or by the appearance of a zero. That is why I "insure" my bet with a side bet on 0/00 once the bet gets to a certain level.

Note: If you are on a European (single zero) table or are playing in Atlantic City, the rules are a bit different. If 0/00 hits, you lose only 1/2 of your outside bet, in which case you would want to use something like this:

Progression #2: Wait for 9 in a row, then bet

1st spin 1 unit
2nd spin 2 units
3rd spin 4 units
4th spin 8 units
5th spin 18 units, 2 on 0/00
6th spin 41 units, 3 on 0/00
7th spin 90, 6 on 0/00
8th spin 222, 16 on 0/00

Remember, 1 unit can be any consistent amount of money you want. On video roulette you can bet only $1, but in most casinos a minimum outside bet would be $3 or $5, so that would have to be your basic unit. The sample progression would also work if your basic unit is $10 at most casinos, but make sure you check the table maximums before you start your betting sequence.

2) Even money "correction effect."

The next strategy involves a fairly simple idea concerning probability. When a streak happens that is very rare, it is unlikely that it will be followed immediately by another streak that is very rare. Mathematically this is simple to explain. The probability of a streak of 9-in-a-row is .0031 or about 3/10ths of 1%. The odds of two consecutive streaks of 9-in-a-row is .0000096 or about one in 100,000. Accordingly, the even money "correction effect" strategy is to bet against a repeat of another long streak. So, if you have 9 or more reds in a row, you should have bet against the streak until a black or a zero hit. If it was a zero, walk away and count your profit. You are done. But if it was a black, then start betting red. You are betting that the streak of blacks that just began will not go 9 straight spins.

This strategy may seem counter-intuitive to you. After all, after a streak of 9 (or more) reds would not the blacks be "due" to repeat? The answer is not necessarily. Over a number of spins, yes, the blacks and reds will balance out. But in the short run of 20 or 30 spins one color can dominate the wheel hitting about 9 out of 10 times.

What you are betting on is not the color so much as the probability of another long streak. The "correction effect" is not by color but the unusual length of the previous streak. The wheel does not know what color the numbers are. Concentrate on probabilities. Since the odds of two consecutive streaks of 9 or more are less than 1 in 100,000 the appearance of this streak gives you two betting chances--one to bet against the first

streak going to 18, and then another to bet that the second streak will not go to 9.

In addition to the mathematics of probability, I tested this strategy with 100,000 spins dividing the numbers into even and odd. I examined each and every occurance of a streak of 8 or more. None were followed by a second streak of 8 or more. That was a 100% win/loss rate, which is also what I have experienced in the casinos so far with this strategy. The closest I found was a streak of 11 followed by a streak of 6, and a streak of 10 followed by a steak of 7. In both cases, using the betting progressions described above, the second streak would have been defeated.

Again, you will not have a ton of these betting opportunities, but at least each time you find a streak of 9 or more you have not one but two betting chances. When you realize that on any one table there are 6 even money bets that could have such a run, then multiply that times the number of tables in a large casino, you have a good opportunity to make some money with these two strategies.

I suggest using the same betting progression as you use in even money "against the streak" strategy (see the previous page) as for this even money "correction effect" strategy. You still need to "insure" yourself with side bets on 0/00.

3) 2-for-1 sleeper.
Roulette players call numbers that have not hit for a while "sleepers." The idea is that these numbers have fallen asleep and won't reappear until they "wake up." Betting on sleepers is generally a bad idea, as numbers can stay asleep much longer than most players realize. A single number can stay asleep for over 300 spins.

However, once again we find that on unbiased tables there are limits to extremity. When we deal with parts of the table that cover 12 numbers we can bet on sleeping sections under the right circumstances. The 2-for-1 bets are the dozen bets (1-12, 13-24, 25-36) and the column bets, which many players read left to right as A, B, & C with 1 at the head of the A column, 2 at the head of the B column, and 3 at the head of the C column.

Some commercial systems out there are based entirely on betting on these 2-for-1 bets. Be careful, because most of these systems misjudge the probabilities. It is true that the typical column or dozen will hit about once every three spins (31.6% of the time). And if you bet on one column or dozen 10 times in a row, the odds of a winning spin are above 97% (see the Bernoulli trials in the appendix for details). The problem is that when a dozen or column goes to sleep, it can stay asleep longer than most commercial systems acknowledge. We want to get to that comforting 99.999% confidence level where you are only beat by a sequence that is 1 in 100,000. That is, 99,999 times out of 100,000 a series of spins without a particular column or dozen hitting will be 30 spins or less. If you were betting continuously, you would have to last for 30 spins. Given most table limits and bankroll limitations, that is impossible.

The solution is, of course, situation betting. I can keep track of whether a number is even or odd, high or low, and which dozen it is in without any special notes other than simply writing down each number as it comes up. The one extra symbol I record is an A, B, or C to designate which column that number is in. As you record spins you should add a letter after each number to indicate which column it is in. You will soon learn that you can notice sleepers this way, as well as unusually long streaks.

Once again you need to progress your bets according to your bankroll and

risk-comfort level. I personally would wait for a sleeper streak of at least 15 to 18 spins before betting, and then I would bet as follows:

Progression #3: Wait for 15 to 18 spins without a hit in a dozen/column, then bet

spin 1 1 unit spin 6 6 units spin 11 47 units
spin 2 1 unit spin 7 9 units spin 12 71 units
spin 3 2 units spin 8 14 units spin 13 108 units
spin 4 3 units spin 9 21 units spin 14 162 units
spin 5 4 units spin 10 31 units spin 15 244 units

How successful is the 2-for-one sleeper strategy? I can answer three ways. First, unlike most commercial systems, it passes the probability theory test. If you consult the Bernoulli trials in the appendix you will see that the odds of a set of 12 numbers failing to hit by the 30th spin is less than 1 in 100,000. So we have that 99.999% level of confidence.

Second, I have never lost using this strategy, though you should not trust personal anecdotes by themselves because the data set is too limited.

Third, I ran a trial of 100,000 spins and examined the results for a set of 12 randomly-selected numbers created as a hypothetical set (this would function like a dozen or column). The longest sleeper series was 25 spins. Now, I would still urge you to rely on the magic number of 30 rather than 25 to be on the safe side, but obviously those results were reassuring. So with this set of 100,000 spins the success rate would have been 100%, which is precisely what probability theory would predict.

4) 2-for-1 "correction effect."

If you already figured out that there might be a "correction effect" for this betting strategy as well, give yourself bonus points. You are starting to think like a sophisticated roulette player. Once again, it is not so much a matter of a set of 12 numbers being "due" as much as the odds are against another unusually long series of spins where the same dozen or column fails to reappear. Accordingly, if you see a dozen or column go more than 15 spins without a hit and bet on it using the 2-for-1 sleeper strategy, you can turn around and bet on that dozen or column to repeat with the next 15 spins. Once again, like the even money "correction effect" bet, the odds of another streak of greater than 15 happening back to back are remote--about 1 in 100,000. Use the same betting sequence as described in sample progression #3.

Did I test this? Of course. Once again I analyzed a set of 100,000 spins. I examined each and every sequence where a dozen failed to hit for 10 or more spins. In no case was a series of 15 losing spins followed by another series of 15 or more losing spins--which is precisely the result that probability theory would predict.

The two closest were a series of 18 losing spins, followed by a hit, followed by 11 more spins before a hit, then another series where a series of 19 losses were followed by a hit, then followed by 10 losing spins before a hit. Once again the success rate of this strategy for this set of 100,000 spins was 100%. Your results could vary, of course, but again you can see why you should be pretty confident with this strategy.

5) 2-for-1 against-the-streak.

As many roulette books and systems will tell you, the best bet mathematically on a single spin would be to bet on two of the dozens or columns. That way you cover 24 numbers (out of 38 on an American wheel, out of 37 on a European

wheel). The disadvantage is that you are laying odds. That is, you are betting two units at a time in hopes of winning 1 unit. But on the other hand on each spin your odds of a win are over 63% (almost 65% on a European wheel). If you cover the 0/00 in addition to the 2 columns or dozens, your odds go up to over 68% on a single spin.

When I first started to play roulette I was convinced I could make my fortune by betting progressively on two columns or dozens. I quickly figured out, however, that to keep even I had to triple each bet in order to make up for each loss. Well, it would be worth it if you could be sure of winning. If I could bet even twice (2 units, then 6 units) I could reach a 90% win rate. I soon learned that streaks of 3, 4, 5, and 6 in a row within a dozen or column were not as rare as I had hoped. Then I did some computer simulations and found streaks up to 10 in a row within the same dozen or column. Yikes! I abandoned the strategy.

Once I gave up continuous betting and settled on situation betting, I brought the strategy back. It is capital-intensive and I am not a huge fan of it. But if you use it carefully it can bring in additional profit with the same sort of mathematical confidence as the other outside situation bets.

Basically you wait until a streak within a given dozen or column reaches 6 in a row, then be prepared to bet 5 times on the two other dozens or columns.

Sample progression #4:
spin 1 bet 1 unit in each of two columns/dozens
spin 2 bet 3 units in each of two columns/dozens
spin 3 bet 11 units in each of two columns/dozens plus 2 units on 0/00
spin 4 bet 42 units in each of two columns/dozens plus 7 units on 0/00
spin 5 bet 150 units in each of two columns/dozens plus 25 units on 0/00

I would only use this betting progression if I was reasonably confident that the wheel involved is not biased. If I had any doubts, I would bet more modestly, perhaps betting only a side bet on 0/00 or waiting for the streak to reach 7.

In a data set of 200,000 spins the longest such streak was 10 in a row, which means this strategy as described here would have won 100% of the time. Additionally, standard probability theory predicts that if you cover 26 numbers (2 dozens or columns plus 0/00) the odds of a streak going to 11 are less than 1 in 100,000.

Strategies #2 through 6, then, are Even money against-the-streak, Even money "correction effect," 2-for-1 sleeper, 2-for-1 "correction effect," and 2-for-1 against-the-streak. You now have 6 different strategies in your menu of options.

Chapter Six: Inside Situational Bets

The same principles that inform the outside situation bets can also be applied to inside bets. Once again we want to know "When is the gambler's fallacy not a fallacy?" That is, under what circumstances can one analyze a set of spins and use that data to predict, within reasonable limits, what will soon happen with inside bets involving just a few numbers.

Let me stop right now and explain that I deal with the inside bets in sets of no less than 2--a pair. I do this for several reasons. First, it is too cumbersome to track and bet on single numbers. Second, if you are on a biased wheel but do not know it, a pair is safer than relying on a single number to appear. Third, single-number sleepers simply take too long to wait for (as mentioned earlier, a number can go to sleep for over 300 spins). So, from here on out, I am mostly going to be talking about pairs of numbers.

The numbers are most simply and logically paired as 0/00, 1/2, 3/4, 5/6, 7/8, etc. The numbers are near each other on the betting area, plus they are opposite one another on the wheel.

Most systems that bet on single numbers fail because they underestimate how long numbers can go to sleep and/or they overestimate the value of trying to track and catch a "hot trend" when a part of the wheel hits repeatedly. Later I will offer a mathematical critique of some of these systems, but for now trust me when I say they fail for the same reason any continuous betting strategy fails. Once again I recommend Russell T. Barnhart's Beating the Wheel for a mathematical explanation for why betting on single numbers continuously will lose you money.

The question we want to answer is when is it safe to bet inside on a pair? Based on what we discovered with the "correction effect" earlier, we can hypothesize that a long improbable streak would not be followed by another improbable streak. The theoretical rationale is simply the idea of correction discussed earlier and is implicit in what mathematicians call the law of large numbers. In a given data set, if the average frequency of a randomly-distributed number appearing is 1 in 38 (or 1 in 19 for a pair), then at some point sequences where the number or pair appear less than average must be offset by sequences where the number or pair appear more than average. That is what we mean by the "correction effect." Without imputing motivations to an inanimate object, we can say that an unbiased wheel "must" eventually generate results that "correct" a bias that has accumulated randomly.

Even the most hardened statisticians would agree with me in theory, but they would contend that in practice it is impossible to predict when the correction will take place. I disagree. I believe there are ways to track what I call the "cumulative variance" of a given frequency (say of a pair of numbers) such that one can say that once the frequency of a pair reaches a certain number of standard deviations away from the norm (the mean), one can anticipate the reappearance of that pair. Now, let me pause right here and stress a very important point: Though I believe the inside betting strategies. I am about to describe are the best money makers of all my strategies, they are not foolproof. The longer you play them the better the chance that somewhere down the line you will have a losing sequence because you will run into an extremely unlikely sequence. So I urge you never to "bet the farm" (that is, put your entire bankroll at risk in one sequence) on an inside strategy. The variance demon is just too extreme. Having issued that warning, I think you will find these three strategies to be the most fun, exciting, and profitable of all the strategies Roulette 2000 describes.

My first test of this concept was to track the appearances of 0/00 in a set of 100,000 simulated spins. The 0/00 hit an average of once every 19.2 spins--very close to the expected mean of 19. The standard deviation was 18.6331. I then looked at every single hit in sets of three. We can describe these series as a set of three numbers, X, Y, and Z. X is the number of spins it took to get a 0/00, Y how many spins before the second 0/00 after the first, and Z how many spins to get the third 0/00 after the secone one. Three back-to-back zeros would produce an X Y Z of 1, 1, 1. Three perfectly average scores would be 19, 19, 19. Most sets of X, Y, Z would vary around the mean, such as 23, 9, 26.

I then focussed only on those series of X, Y, and Z that began with an X that was equal to or greater than 40. I picked 40 in part because it is a convenient number and in part because it is a tad more than 1 full standard deviation above the mean.
I then looked at how long the 0/00 took to return after the sequence where X took 40, 50, 60 or more spins. In other words, when X is at least one or two

standard deviations over the average, what is the expected value of Y and Z? I found in this test that the number of Ys that were equal to or greater than 50 were non-randomly distributed. There were more short sequences (Ys less than 50) than longer sequences (Ys equal to or grater than 50) following Xs of 40 or more. Of course one would expect an imbalance, but I found the imbalance was larger than standard probability theory would predict. But the results did not suggest a practical betting strategy. There was still too much risk of a long series to be very useful as a betting option.

So I took the analysis another step. What happens when one has a large X followed by an equally large Y? What happens to Z when X is greater than 60 and Y is greater than 50? Here with a chi square analysis I found some remarkable results. Sequences of 30 or more spins should happen approximately 20% of the time. According to standard probability theory, that probability of 20% is true at all times. The value of X or Y should be totally irrelevant if the events (each spin) are truly independent. While I do not challenge the idea that each spin is independent, I must insist that sets of spins do not necessarily behave as they were independent. In my data analysis there were no Zs that were equal to or greater than 30.

Now I realize this is fairly technical, but hang in there while I explain why this is valuable information. If we can track pairs of numbers to identify 2 series where X 60 and Y 50, then we may be able to predict at a high level of confidence that the third series, Z, will be less than 30. This may sound so rare as to be useless, but I will explain in a little while why that is not true. The good news is that my chi square results were significant at the .06 level of significance. That means that there is a 94% probability that the results were not merely accidental.

My first data set was rather limited, however. Out of over 5000 hits of 0/00 in a set of 100,000 spins, only 219 were over 60. Of those 219 cases of X that I looked at, only 14 were followed by Ys of more than 50. Of those X-Y sequences none were followed by a Z of more than 30. While I was encouraged by the results, I decided I needed more data to see if these trends were consistent enough to be predictable.

So I hired a computer consultant to write a program that allows me to test this very specific strategy. The computer first randomly generates a number of simulated spins. It then tracks each pair and measures how long it takes for each pair to repeat. I can then tell it to look at all streaks above 60, 70, or whatever value I assign to X, then check to see how many many of the next series (Y) are above or below 60, 50, or whatever. It is a very helpful program for testing different versions of the strategy, and I am happy to have the opportunity to share the results with you here.

To simulate a number of trips to the casino that were of typical length, I ran 100 sessions of 300 spins each (a total of 30,000 spins). In these sessions I looked at each and every instance of a pair going 60 or more spins without a hit (X 60) to see how many were followed by a series where the same pair required 51 or more spins to hit again (X 60, Y 51). And of those I checked how many were followed by a third series of 31 or more (X 60, Y 51, Z 31). In those 100 sessions, 97 sessions (of 300 spins each) there were no instances of a losing series where X 60, Y 51, Z 31. In the 3 sessions that had a loss, they only had one loss each. Since each session had a number of wins (from 6 to 13), there were over 900 wins versus 3 losses using this strategy in 30,000 spins. That is a win rate of 99.7%.

Now, in my opinion the 99.7% win rate probably underestimates what you could do. If you were to bet on the neighbors of the pair for only the first 4 or 5 spins in the Z betting sequence, I suspect you could go a year without losing with this strategy. I know I have.

OK, so we have the theory, how do we use it in practice? I will describe three strategies that you can use. The first strategy, chasing zeros, is appropriate only if you have a number of American (0/00) roulette tables to play on and like to roam. The second strategy, "chasing bunches of pairs," can be played effectively either at one table or combined with table hopping. The third strategy, "chasing the sleeper pair," works only if you plan to sit and play at the same table for an extended length of time.

#1: Chasing Zeros

I got hooked on roulette once I won $5000 playing this strategy in less than three days in Atlantic City. It is not as precise as what I have been describing with all the X Y Zs, but it is fun and profitable.

This is a roaming strategy. That is, you roam from table to table or casino to casino. The place I won most of my winnings with this strategy was in one casino where I could watch about 10 roulette tables at once. Why chase zeros as opposed to other numbers? Zeros are the easiest numbers to spot at a distance on results boards. With the red and black numbers you have to be close enough to make out the details, but not the green 0 and 00. You can spot them 100 feet away. It is easy to track 0/00 on a dozen tables at a time because they stand out so clearly.

There is nothing mathematically sacred about zeros. This strategy could work on any pair. I pick zeros to chase for table hopping only because they are easy to track visually. Do not trust folks who try to tell you that zeros hit any more or less than any other pair. Unless they have discovered a biased wheel, they are just plain wrong. Sometimes we get sensitized and notice things we simply did not notice before, but that does not mean they really are more of them (like when you buy a red Honda and then start seeing a ton of red Hondas on the road).

What you want to do is to go to a table where there have been no zeros for a while--at least 20 spins. You cannot track the exact numbers of spins if you are watching lots of tables, but you can estimate. A good dealer in Vegas or Atlantic City should be averaging at least 40 to 60 spins per hour, depending on how many players they are dealing with. So you can typically assume that for each hour a table goes without a zero that 50 spins have passed. Once a zero or double zero hits, you are playing for a repeat.

You can place your bet either as a split bet directly in between the 0 and 00 on the betting area, or you can put your bet on the "courtesy line," which is the line that separates the second and third dozens between 22/23/24 and 25/26/27. There are three ways to pursue this strategy.

Version A) The most cautious way is to just bet 4 times and leave if you have not had a hit. Your odds of a hit are 20%, but the pay off is great. Normally the minimum bet is $5, so just bet a $5 chip 4 times. If you lose 4 times in a row then take your bet up to $10. If you lose that twice then go to $15. If you lose twice more you could take it up to $25, but I would not recommend going any higher. This is a hit and miss way to go but you can slowly but surely pile up wins this way (I did and I know of others who do the same strategy). An advantage to this approach is that you do not get stuck at a table for long and can move on. Do not feel you have to progress your bet strictly with this strategy. You can afford 2 or 3 losses for every win and still come out ahead. Set a goal that is reasonable and walk out of the casino when you get to your goal. This is a fun strategy that you can play with relatively short money ($200 to $300). Set a goal of winning $100 and then quit once you get there.

Version B) A closely related strategy is to bet 4 times but also cover the neighbors of the zero. I do not recommend this strategy unless your session bankroll is between $500 and $1000 because it can get expensive. Or: After a

hit with the above strategy where you are betting only on 0/00, use your profits on the next table to cover the neighbors. The immediate neighbors are 1/2 and 27/28. If you want to branch out another set of pairs, bet on 13/14 and 9/10. Statisticians will tell you that betting on neighbors is silly since the odds of any pair of numbers is the same. That is true, but that also means there is no reason not to bet on these neighbors, plus if the table has even a slight physical bias that might lead it away from 0/00, you might catch it with a neighbor.

Version C) The most serious way to chase zeros is to sit down and plan to chase it for 20 to 40 spins. Check the Bernoulli trials in the appendix to see exactly what your odds are for how many spins. For 20 spins your chances of success hitting a single pair like 0/00 are 66%. Not bad, but certainly not high enough to risk a ton of money on. This variation of "chasing zeros" requires the largest bankroll and it risks the largest losses if you don't hit. I do not recommend it as a consistent style of play. If you are going to settle down at one table, then the strategies I am going to describe below are better bets. But if you see a table that has not had zeros for a really long time and you decide to chase it for a while, at least you should know how much to bet.

Chasing Zeros Version A:
Bet 1 unit 4 spins, repeat at other tables unless you lose at 4 consecutive tables;
bet 2 units 4 spins, repeat unless you lose at 2 consecutive tables;
bet 3 units 4 spins, repeat unless you lose at 2 consecutive tables;
bet 5 units 4 spins, repeat until you figure you have lost or won enough for the day.

Chasing Zeros Version B:
Bet 1 unit each on 0/00, 1/2, 27/28 for 4 spins, repeat unless you lose at 2 tables;
bet 2 units each on 0/00, 1/2, 27/28 for 4 spins, repeat unless you lose at 2 tables;
continue to double your bet until you reach your win or loss limit.

Chasing Zeros Version C:
spins 1 - 16, bet 1 unit on 0/00
spins 17-24, bet 2 units on 0/00
spins 25-29, bet 3 units on 0/00
spins 30-33, bet 4 units on 0/00
spins 35-37, bet 5 units on 0/00
spins 38-39, bet 6 units on 0/00
spins 40-42, bet 7 units on 0/00 (session bankroll required for 42 spins: 117 units)

#2: Chasing Bunches of Pairs
Recall the earlier discussion of tracking pairs over an extended number of spins that we described in three sequences of X, Y, and Z where we were willing to bet that we could avoid a losing sequence where X 60, Y 51, Z 31. You may respond by thinking these sorts of sequences are so rare as to be useless. However, that is not the case. Multiplication is associative, which means 1 x 60 is equivalent to 1 x (2 x 30), which is equivalent to 1 x (3 x 20), etc. Put another way, the odds that one pair will go 60 spins without a hit are the same odds that three pair will go 20 spins without a hit (about .04). Once this principle is understood you will find all sorts of good betting opportunities.

Go back to the tracking system I described earlier, where we had the following results after tracking only 20 spins:

Chart #1

0/00 ||

1/2 0
3/4 |
5/6 ||
7/8 |
9/10 0
11/12 0

13/14 ||
15/16 |
17/18 |
19/20 ||
21/22 |
23/24 0

25/26 |
27/28 |
29/30 ||
31/32 |||
33/34 0
35/36 0

Note the pairs that have not hit in at least 20 spins: 1/2, 9/10, 11/12, 23/24, 33/34, and 35/36. Once any one of these pairs hits, you can "bunch" that pair with the rest of the unhit pairs and treat the bunch as one big pair (as a Big X).

Our Big X consists of the pairs 1/2, 9/10, 11/12, 23/24, 33/34, and 35/36. These 6 pairs going at least 20 spins without a hit is the same as one pair going at least 120 spins without a hit.
The odds are extremely low that such a long sequence with these 6 pairs asleep will be repeated. Accordingly, what we want to do is to treat all 6 pairs as if they were 1 pair--a Big X. If any of the 12 numbers of these 6 pairs hit, we will bet on all 6 pairs. Do not start betting on the pairs until you get a hit. The Big X should be considered "asleep" until one of the pairs hits. How many spins you bet on after the Big X (or "bunch of pairs") wakes up depends on your bankroll. I would not try this strategy unless you can go at least 10 spins (which requires a bankroll of 558 units). If you can afford to go even farther, you can feel even more confident.

Now, there are two great things about this strategy. First, you can play it a lot. If you have 5 or more pairs that have failed to hit in the previous 20 spins, you can pursue this strategy and chase this bunch of pairs. If you have 4 or less, do not chase them. If you have 5 or more, smile. You have a great bet coming up. I would estimate that you will be able to play 8 or 9 times out of each 10 sets of 20 spins. And your confidence on this bet should be very high. That is the second bit of good news. You will very rarely if ever lose this bet. I have used it for over 7,000 spins so far with only one loss. But even if you should have a loss, which eventually we will, the odds of two straight losses are astronomically small. You can quickly make up for lost ground. If you want to avoid even one severe loss, I will explain how.

Chasing 6 pairs for 12 spins in my computer simulation I went 200,000 spins and only had one loss, so that is my preferred way to play this strategy. If you cannot afford that, chasing 6 pairs for 10 spins after they wake up is still a great bet. Chasing 6 pairs for 10 spins I averaged less than one loss for every 10,000 spins, but none of the losses were followed by another consecutive loss. In all I ran 600,000 spins and had no streaks of 2 losses in a row.

Chasing 5 pairs is not quite as great a strategy in the computer simulations, though I personally have never lost with this bet. Chasing 5 pairs for 12 spins for 100,000 spins yielded 1 loss every 10,000 spins. Chasing 5 pairs for 14 spins in a test involving 100,000 spins yielded only three losses, which means an average of 1 loss every 33,000 spins. Again, in no case out of the 200,000 spins was one loss followed by another consecutive loss.

What about if you track 20 spins and have more than 6 pairs without a hit? It happens a good deal: You could have 7, 8, 9 pairs open, maybe more. When that happens, start chuckling to yourself. Chasing 7 pairs 10 spins for 500,000 simulated spins I had a total of 2 losses, which were not back to back. Chasing 8 pairs for 8 spins for 500,000 simulated spins I had no losses. Chasing 9 pairs for for 7 spins for 500,000 spins I had 1 loss. Those are good odds, folks.

A couple of reminders: Track the pairs for 20 spins. If you have 5 or more without a hit in that set of 20, be prepared to treat the pairs as a big bunch, a Big X. Do not start betting on the bunch until they wake up with a hit. Then bet as follows:

Chasing 4 or less Pairs
Don't to it.

Chasing 5 Pairs Chasing 6 Pairs
spin 1 bet 1 unit per pair spin 1 bet 1 unit per pair
spin 2 bet 1 unit per pair spin 2 bet 1 unit per pair
spin 3 bet 1 unit per pair spin 3 bet 2 units per pair
spin 4 bet 2 units per pair spin 4 bet 3 units per pair
spin 5 bet 2 units per pair spin 5 bet 4 units per pair
spin 6 bet 3 units per pair spin 6 bet 6 units per pair
spin 7 bet 4 units per pair spin 7 bet 9 units per pair
spin 8 bet 6 units per pair spin 8 bet 14 units per pair
spin 9 bet 8 units per pair spin 9 bet 21 units per pair
spin 10 bet 11 units per pair spin 10 bet 32 units per pair
spin 11 bet 16 units per pair [Total of 558 units required]
spin 12 bet 22 units per pair
[Total of 385 units required]

Chasing 7 Pairs Chasing 8 Pairs
spin 1 bet 1 unit per pair spin 1 bet 1 unit per pair
spin 2 bet 1 unit per pair spin 2 bet 1 unit per pair
spin 3 bet 2 units per pair spin 3 bet 2 units per pair
spin 4 bet 3 units per pair spin 4 bet 4 units per pair
spin 5 bet 5 units per pair spin 5 bet 7 units per pair
spin 6 bet 8 units per pair spin 6 bet 13 units per pair
spin 7 bet 13 units per pair spin 7 bet 24 units per pair
spin 8 bet 22 units per pair spin 8 bet 44 units per pair
spin 9 bet 36 units per pair [Total of 778 units required]
spin 10 bet 60 units per pair
[Total of 1057 units required]

Chasing 9 Pairs Chasing 10 Pairs
spin 1 bet 1 unit per pair Split the 10 into 2 sets of 5 pairs (high/low)
spin 2 bet 2 units per pair and follow the strategy above for each set
spin 3 bet 4 units per pair
spin 4 bet 8 units per pair Chasing 11 or 12 Pairs
spin 5 bet 16 units per pair Split them into sets of 5 & 6 pairs, or 6 & 6
spin 6 bet 36 units per pair pairs, and follow the strategy above
spin 7 bet 64 units per pair
[Total of 1143 units required]

As strong as this strategy is, it is not unbeatable by any means. I strongly

suggest that you practice this strategy at home extensively before putting large amounts of money at risk. If the number of units required to play these strategies is alarming to you, then youmay want to consider one of the following Variations of the strategy.

Variation A: The vast majority of your hits will occur within the first 3 or 4 spins into your chase. If you want to play a bit more conservatively than the betting sequences described on the previous page, it is easy to do. Just bet half as many spins as is listed. If you still do not have a hit, stop betting in that set of 20. Wait for the next set, then pick up your betting at or near the level you stopped at. If you do not get a quick hit the first time, chances are good you will the next. This slows down your win rate, but it is a more cautious way to protect your bankroll.

Variation B: After you have tracked a set of 20 spins and have 7 (in this variation, 7 not 5) or more unhit pairs, you are not supposed to bet on any of the pairs until you have a hit on one of them. However, once you go 5 spins into the new set of 20 and none of the 7 or more pairs has hit yet, you can go ahead and start betting on the pairs. The odds of 7 pairs going much more than 30 spins with out a hit are extremely remote (less than 1 in 100,000), so you can get a double hit. Once as the pair (the Big X) finally wakes up in your new set of 20 spins, then bet again as you go for the pairs you are chasing to repeat. Do not try this unless you are at least 5 spins into the new set.

Variation C: You will notice with the suggested betting progressions above that there is a point where there is a rather sizable jump in the bet. With 6 pairs that happens when you go from 6 to 9 units, with 7 pairs it happens when you go from 5 to 8 units, and with 8 pairs it goes 4 to 7 units. You can stop the steep progression at these cut-off points to minimize the risk of a huge loss. Now, with Variation A you would pick up the steep progression in the next set of 20. With this variation, you shift the strategy to betting only on the pair that has hit. As you recall, you only start to bet on the "bunch" of pairs after one of them has hit. That is because you have now linked all of those pairs and are basically betting that one of the set will hit. If I do not want to chase them all, for any reason, then I will only bet on the pair that hit. This is a much less expensive route to go and it usually works. I should add that I only chase that pair in this case for no more than 13 to 20 spins (13 is the median, 19 is the mean frequency for pairs). If another one of the missing pairs hits, then I will start chasing it as well, and so forth. Now what you have done basically is to shift to chasing individual pairs instead of the whole bunch. It is an economical way to take advantage of the reasoning behind this strategy without putting as much money at risk.

Variation D: Though I prefer to play "chasing bunches of pairs" while staying at one table for a length of time, you can play it as a table-hopping strategy if you like. Just go up to a table, check with the players that the results board is accurate, and within about 3 spins you should be ready to bet on a bunch of pairs. Most results boards list the past 17 spins, but some have less and some have more. So count them! This variation has the added advantage of keeping you moving and not under the watchful eye of a pitboss for a long time.

Variation E: You will notice while practicing this strategy that after one sleeping pair wakes up, the others often follow suit. While this happens a good deal, it does not happen with such predictability that I want to make it a set part of the strategy. But you might want to consider playing on a few of these still-sleeping pairs with the profit you just made from chasing the whole bunch. Don't get greedy and don't chase your losses from these pursuits. But if you are ahead and want to place a few bets on sleepers that

may wake up while waiting out the remainder of the set of 20 you are on, you will generally come out ahead. I almost always stop this sort of betting if I have accumulated three hits within the set of 20 spins I am betting.

Variation F: Betting on streets. Credit for this idea must go to a Connecticut colleague. He suggested I map out this strategy for those folks who like to bet on streets. A "street" is a set of 3 numbers that are in a line on the betting area. The streets are 1 2 3, 4 5 6, 7 8 9, 10 11 12, etc. If you prefer to track the spins using sets of three to match up with the streets instead of pairs as I have described above, the basic strategy can still work. In this case you will only want to bet when there are 4, 5, or 6 different streets that have not hit in the previous 20 spins. That magic number of 20 stays the same. Since 4 streets covers 12 numbers, the odds of success are the same as for betting on 6 pairs. Five streets covers 15 numbers, and six streets cover 18 numbers. The betting progressions would be as follows:

Chasing 4 Streets Chasing 5 Streets
spin 1 bet 1 unit per street spin 1 bet 1 unit per street
spin 2 bet 1 unit per street spin 2 bet 1 unit per street
spin 3 bet 2 units per street spin 3 bet 2 units per street
spin 4 bet 4 units per street spin 4 bet 3 units per street
spin 5 bet 7 units per street spin 5 bet 6 units per street
spin 6 bet 12 units per street spin 6 bet 10 units per street
spin 7 bet 18 units per street spin 7 bet 17 units per street
spin 8 bet 27 units per street spin 8 bet 30 units per street
spin 9 bet 40 units per street spin 9 bet 51 units per street
spin 10 bet 60 units per street [Total of 605 units required]
[Total of 716 units required]

Chasing 6 Streets
spin 1 bet 1 unit per street
spin 2 bet 2 units per street
spin 3 bet 4 units per street
spin 4 bet 8 units per street
spin 5 bet 16 units per street
spin 6 bet 32 units per street
spin 7 bet 64 units per street
[Total of 762 units required]

#3: Chasing the Sleeper Pair
This strategy works well with the "chasing bunches of pairs" strategy. Let's go back to the X 60, Y 51, Z 31 formula. The idea is to play for a repeat on a pair that has been asleep for at least 40 spins. This is an easy strategy to use and you will have plenty of pairs to bet on in any given 2 or 3 hour session. But you need to be careful how hot and heavy you pursue any given pair. So here are the groundrules.

First, never bet on a pair to repeat with this strategy unless it has been "asleep" for at least 40 spins. You will know this in an instant by looking at your chart. If a pair has a big 0 marked in it for two or more spaces in a row, it is a sleeper. On average each pair should hit once during each set of 20. The standard deviation of this average is a bit over 18. So by waiting for a minimum of 40 spins, we can be sure that the pair was asleep for one full standard deviation above the mean. That means we may be about to encounter what I have been describing as the correction effect.

Look at the 35/36 pair on the chart on page 9 of this kit. The 3 straight 0s indicates it has been at least 60 spins since that pair has hit. Accordingly, once this pair hits, I would start betting on it. I would bet on it for no more than 50 spins (the Y sequence). Then I would wait for the pair to "wake up" and hit again before trying it another sequence of 30 spins

(the Z sequence). That is the "chasing the sleeper pair" strategy in a nutshell.

A few words of warning. First, do not assume that a pair that has been asleep for a long time will always be followed by a short sequence. The last time I played I saw a pair go over 70, it promptly fell asleep again and stayed asleep for over 120 spins. That is why I stop at 50 spins. Now, I waited around long enough to see it finally wake up, and this time I was prepared to chase it for 30 spins. I did not need to wait that long. It hit twice in the next 8 spins.

Second, you do not have to chase every single possible pair. Often you will be chasing 2 pairs that have been asleep, or maybe 3 that have finally hit after a long sleep. You can form these 2 or 3 pairs into a medium-sized bunch and progress your bet accordingly. That way you only need to hit one of them. Keep in mind that each spin counts as two spins if you are betting on 2 pairs and 3 spins if you are betting on 3 pair (for the purposes of the X 60, Y 51, Z 31 formula). So if you are betting on 2 pairs, just bet for 25 spins on the both of them before quitting the Y series. Walk away once you hit your win goal. Do not feel compelled to chase down every single pair you think is overdue. That is a good way to crash and burn.

Also, if you are on a regular (not video) roulette table and you think a wheel may be biased, then be careful about chasing just one pair for any length of time. The pair may be about to correct, but there could be mechanical reasons why it will not appear or repeat when it should.

The very cool thing is that chasing pairs and bunches of pairs as described a bit earlier work really well together. After gathering data for that first 20 spins (less if you have a reliable results board), you will be betting pretty regularly for the rest of your session--I would estimate 15 of 20 spins--either on a big bunch or on 1 or more sleeper pairs. It is fun and typically you roll up steady profits.

Here is the progression to follow if you end up chasing a single pair for as many as 80 spins (Y series of 50, Z series of 30). Remember: You do not need to chase every single sleeper pair. The smaller the numbers you bet on, the greater the possible variance and room for the Variance Demon to do mischief. Set a goal for your session and when you reach it, leave. Don't stay to bet on just "one more pair" because that could be the unlikely one that causes a large loss.

First 50 Spins
spins 1 - 16, bet 1 unit
spins 17-24, bet 2 units
spins 25-29, bet 3 units
spins 30-33, bet 4 units
spins 35-37, bet 5 units
spins 38-39, bet 6 units
spins 40-42, bet 7 units
spins 43-44, bet 8 units
spins 45-46, bet 9 units
spin 47, bet 10 units
spins 48-49, bet 11 units
spin 50, bet 12 units
[Total of 195 units required]

Next 30 Spins
spin 51, bet 13 units
spin 52, bet 14 units
spins 53-54, bet 15 units
spin 55, bet 16 units

spin 56, bet 17 units
spin 57, bet 18 units
spin 58, bet 19 units
spin 59, bet 21 units
spin 60, bet 22 units
spin 61, bet 24 units
spin 62, bet 25 units
spin 63, bet 26 units
spin 64, bet 28 units
spin 65, bet 30 units
spin 66, bet 32 units
spin 67, bet 34 units
spin 68, bet 36 units
spin 69, bet 38 units
spin 70, bet 40 units
spin 71, bet 43 units
spin 72, bet 46 units
spin 73, bet 48 units
spin 74, bet 51 units
spin 75, bet 55 units
spin 76, bet 58 units
spin 77, bet 62 units
spin 78, bet 66 units
spin 79, bet 70 units
spin 80, bet 74 units
[For all 80 spins, a total of 1250 units are required]

Modifying the Chasing Pairs Strategies
I am making the majority of my profit now doing a combination of "chasing bunches of pairs" and "chasing sleeper pairs." However, I only play "chansing bunches of pairs" with the variations described above. I also vary the way I play "chasing sleeper pairs." Those variations are as follows:

Variation A: I often add two "insurance" bets. This has made a significant difference in levelling out the roller coaster of wins and losses. The first insurance bet is to always have something on the green (0/00), whether it seems "due" or not. Now, you could pick any pair for insurance, but there is a little added psychological rush from hitting on the green. This side bet has come in quite handy for me, especially when I have been having a rough time catching sleeper pairs to repeat.
The second insurance bet is to always bet on the last pair to hit. Now lots of folk will bet on the last number, but you will double your pleasure by always betting on the last pair. I have found that especially when the table is giving weird, skewed results that are killing me on the "chasing sleeper pairs" strategy that this insurance bet really can save my butt.

Variation B: I seldom chase pairs for as long as I used to. There is nothing wrong with chasing them precisely as I have described above, but one can limit the needed bankroll and potentially save yourself some time by limiting your chase to between 13 and 20 spins. Why these numbers? The median frequency for repeats is 13. That is, half of the time a pair will repeat within 13 spins. The mean frequency is, of course, 19 spins and 66% of the time a pair will repeat by the 20th spin. The marginal benefit of chasing a pair after that number of spins decreases significantly, as indicated in the Probability Chart based on Bernoulli Trials you will find in the appendix.

This concludes the inside betting strategies. As I said at the outset of this kit, I am not giving you a set formula or rote lesson in memorization

for playing roulette. I am trying to improve your understanding of the game and provide a new set of ways of thinking about playing roulette that are more statistically sound than playing by guesswork or with the vast majority of systems out there on the market.

So you should feel free to play. Use my strategies but if you get a sudden instinct to bet on the zeros for a spin, go ahead. Or if you think a pair is really hot and you want to bet on it a few extra times, go for it. Don't let me stop you. I am merely a coach, not your boss. The nine strategies described so far are now added to your menu of options. Whether you decide to stick to them, adapt and modify them, or ignore them altogether is wholly up to you.

Strategies #7 through 9, then, are Chasing Zeros (with three versions), Chasing Bunches of Pairs (or Streets) and Chasing the Sleeper Pair. You now have 9 different strategies in your menu of options.

Chapter Seven: Biased Wheel Strategies.

It is impossible for casinos to keep their roulette wheels in perfect condition. Many wheels develop minor imperfections that produce non-random results that players can detect and exploit.

The facts that biased wheels exist, can be detected, and produce predictable and profitable results is very well documented in a number of books already on the market. I personally recommend Russell T. Barnhart's book, Beating the Wheel. Barnhart points out that casino roulette wheels are, after all, mechanical constructions that experience wear and tear with use. By accumulating tiny nicks, dents, loose frets, etc., some roulette wheels generate non-random results. Barnhart relates a number of stories of how "wheel clockers" have tracked results to discover biased wheels and then won thousands and thousands of dollars on biased wheels.

Since there are 38 slots on the roulette wheel, over a period of time one would expect to find each number hitting an average of once every 38 spins. However, with a biased wheel, some numbers will come up far above such a rate of once-every-38-spins. If one keeps track of the numbers appearing on a given wheel and discovers which numbers the bias of the wheel is favoring, once could win a good deal of money (as Barnhart's anecdotes demonstrate).

Now, the key to this strategy is patience. If you have played roulette for any length of time, then you know that a given number might hit 5 times out of 20, which looks like the results must be biased. Not necessarily. The Variance Demon giveth and the Variance Demon taketh away. You might get 10 hits on a number in 100 spins, then that number might disappear for 300 spins. Both will happen in the normal course of events on an unbiased wheel.

Accordingly, the only reliable way to know if a wheel is biased or not is to track it for a large number of spins. Based on a number of statistical studies Barnhart has generated a simpler formula for determining at an 80% level of confident if a roulette wheel is producing random results: n/38 + .4 n1/2. That is to say, if you have 100,000 spins, then you calculate 100,000/38 + (.4 x 100,0001/2) = 2758. If some numbers appear more than 2758 times, then the wheel is probably biased or the computer program flawed. The formula for being 95% confident is the same only it is .5 instead of .4.

No, you do not have to wait for 100,000 spins! That was just to illustrate the point. Barnhart suggests that you have at least 500 spins worth of data before deciding whether a wheel is biased enough to bet on. If any numbers have hit 23 or more times in a set of 500, or 33 times or more in a set of 800 spins, then you should assume the wheel is physically biased and will produce a disproportionate frequency of those numbers. If you want more

details, then you should purchase Barnhart's book.
The problem with Barnhart's suggested strategies concerning biased wheels is that they involve an investment of many many hours and may not produce a biased wheel. But that is if chasing biased wheels is your only strategy.
If you are playing Roulette 2000, you have lots of good strategies to keep you busy while you write down the wheel's results (this is also called "clocking the wheel").

My suggestion is quite simple. If you are intrigued by the idea of a biased wheels, then to become more expert about the subject read Barnhart's book. While you are playing on a table using Roulette 2000, make sure your notation system allows you to later count up the hits on individual numbers. You can do this one of two ways. You can go through the lists of numbers reading them aloud while a partner marks on a sheet of paper each time each of the 38 numbers hit. Or, use a system of marking on the list of pairs that allows you to tell which number hit each time. You can put the hashmark in the upper lefthand part of the space to record the first number of the pair, and the lower righthand corder for the second number in a pair. Or use two different color pens to distinguish between odd and even numbers in each pair. It does not matter as long as you are consistent.

That night after you are done playing for the day, count up your totals for each number if you have at least 500 spins worth of information from a given table. If you find numbers that hit more frequently than 23 hits per 500 spins, then bet on those numbers the next day.

Generally speaking you should use strict flat betting for this strategy (1 unit per spin). If the number is biased, it will hit often enough to outweigh the house advantage.

I am not a huge fan of this strategy because it takes so much time and effort for uncertain results--most tables you will find do not produce non-random results worth betting on. But if I did find a wheel that had a clear bias, I would certainly gamble up to 200 units trying to see if the bias kept up.

Strategy #10 is to track individual spins for at least 500 spins, then flat-bet on biased numbers, if any occur.

Chapter Eight: Video Roulette

Yes you can trust them

In a growing number of areas of the country video roulette has become available. For the most part, these games are pretty much the same to play on as regular roulette tables. The payoff rate is the same and the betting options are the same.
They are run by random number generating (or RNG) computer programs. Sometimes I have heard people playing these games grumble that the fix is in, that somehow the computer knows what they have bet on and deliberately produces a losing number. This is utter nonsense. The casinos are not going to risk losing their licenses by rigging the machines in such a way. They don't have to! They make a fine profit just relying on the built-in house advantage that defeats all but the most sophisticated players. It is in

their interest that the game be fair and produce random results.

Each and every machine in the casino is individually licensed by the state gaming board in which it is operated. These gaming boards test, or hire others to test, the RNG programs and the output of these games to make sure they are fair and random. So the short answer is that Yes, you can trust video roulette.

Keep in mind that a regular roulette wheel is merely a mechnical random number generator. There is no logical difference between the wheel and a bit of computer software. They do the same thing. So there is no reason to fear video roulette. You won't find biased wheels, but that can be good news if your strategies assume random distribution as most of ours do.

I do have some advice concerning video roulette. First, it is frankly not quite as much fun as regular roulette because you do not have a live dealer and pit crew with whom to interact. In fact, the other people playing the same machine (most have 5 seats) might be quite annoying. The casinos that have video roulette are not likely to have more than a few machines, so you cannot table hop either. When you play video roulette, get serious and do not let folks distract you.

The most annoying thing that some unhelpful nearby "coaches" may do is claim that they see "patterns" in the results. If a 32 hits after a 22 they will nod knowingly and say, "see? 32 often follows a 22." Of course they also would have said that if 32 followed a 23 (inverse numbers), or a 32 followed a 16 (16 x 2 = 32). What is happening here is a reflection of the fact that we humans are very good at seeing patterns. You can "see" some sort of pattern in just about any sequence! Ignore these jokers. The only patterns that are important are the ones that we can track statistically that have implications in terms of probability theory. The rest is nonsense.

I was in Phoenix, Arizona, about a year ago for a conference and, of course, found time to go to a nearby casino. To my delight I found the exact same video roulette game that I play in Minneapolis (in fact both machines are manufactured here in the Twin Cities). But as I started to play I suddenly realized that the table would not allow you to place a bet for more than $8 anyplace on the betting area. $8! Needless to say, I got off the machine immediately. My point is a simple one: When you start to play on a video roulette machine, check its limits immediately. Also make sure that 1 unit = $1. Most of the time that is the case, but in some places 1 unit is 50 cents.

The table limits obviously will limit what strategies you can pursue. The tables here in Minnesota stop at a bet of $99. Now, that is fine for inside bets. In fact, I can place $99 on each of two numbers plus another $99 as a split bet. More than enough for any of my strategies. But the outside bets are also limited to $99. That is why, for the most part, I cannot pursue my outside strategies here and can pursue them only in out of state casinos with live roulette.

So, to sum up: Yes, you can trust them. Ignore talkative players or on-lookers. Check out table limits right away and adapt your play accordingly.

Some Inside Info you can Profit From

Many of the video roulette machines in the country are made by a company located right here in the Twin Cities. I interviewed the chief design engineer two years ago and it is that conversation that led me to research about how these machines work in more detail. As I said before, to guarantee that the programs are fair to customers, they are checked by state gaming boards. In Minnesota, the certification of machines is overseen by the Minnesota Gambling Enforcement Division. Before a given type of machine is

certified for use, it is tested by outside companies. I interviewed a supervisor at the Minnesota Gambling Enforcement Division as well as the Director of Engineering and Testing Methods at one of the firms hired to check the fairness of the results of these games. From them I was able to ascertain two key bits of information. First, I learned the exact output measures they use. Second, I learned the statistical tests they use to measure whether that output is reasonably random. Knowing how they do these tests allows me to have a much more sophisticated knowledge of what the results of a program will be--in this case, what the video roulette game will do and will not do.

If you have forgotten the explanation of the Variance Demon, go back to page 2.

As I explained, there are results from roulette that look in the short run like they are terribly unfair and non-random. To be sure about this, you have to analyze the results of many spins. If you have a biased wheel or a flawed program that is generating non-random results, then the results of many spins will be significantly more or less than is predicted by standard probability calculation. How do we know if the variation is "significant"? In response to the question “How many standard deviations above or below the mean do you have to be before we consider a score to be significantly different from the average?” most social scientists will respond, “about 2,” which marks about the 95th percentile. So, one possible way to test whether a RNG program is producing reasonably random results would be to measure the standard deviation and stipulate that anything plus-or-minus two standard deviations suggests a non-random result.

Why is this important? Before I explain why it is important, I need to make one more point about the importance of the sample size (n) and standard deviations. As I mentioned earlier, what kills most betting strategies are "unusually" long streaks or sequences. In the long run, red or black will come up slightly less than 50% of the time, which means on average it appears every other spin. But the key to success is knowing what the standard deviation is for red or black. That is, how far off of the average of "every other spin" does red or black actually occur? One cannot answer the question without making reference to a sample size. That is, for 100 spins you will get one standard deviation score, whereas with 10,000,000 spins you will get quite a different score. That is simply the results of randomness.

Think about a town of 100 people compared to a million people. While the averages may be similar (in terms of heighth, weight, income, number of kids, etc.), you will find far more variation from those averages in a large town than in a little one. The larger the sample size (n), the greater chance for really wild variation.

For example, I once ran a program for 1,000 spins and the longest streak of red or black I got was 9. When I ran the program for 100,000 spins I got steaks of 15.

The important thing to note here is that the larger the sample size, the greater the variation one will observe.

The reason this is important goes back to the idea that programs for video roulette must be tested to see if they are fair. Here's the punchline: Once we know the sample size used to test the casino's video roulette program and the tests used for measuring the program's fairness, we can roughly estimate the range of variation we will typically observe as output of the program.

Go back to the formula I mentioned earlier: n/38 + .4 n1/2. The key to the solution, obviously, is n. The larger the sample, the greater the unpredictablity and variation. If we apply this concept to even money bets like red and black, then we could say that a streak of 16 reds in a row in a sample of 1000 would suggest that the wheel or computer program is badly

biased or flawed, while in a sample of 1 million spins, 16 reds in a row would not be a surprise.

As I said before, I have learned both the size of the sample size (only 38,000) and how they measure its fairness (whether it is "reasonably" random). What is the bottom line for you the roulette player? Basically, you can safely assume that a video roulette game will play very much like a live roulette wheel that is in use for about 100,000 spins. No big secret here that will make you millions. But the comfort is that the strategies described in Roulette 2000 can be used with a great deal of confidence when playing Video Roulette since 100,000 is the typical test I used.

Chapter Nine: On-Line Roulette Gambling

On-line gambling over the worldwide web is a vast business already and it is growing by leaps and bounds. It is also almost completely unregulated. Beware. If in doubt, I urge you to not bother with on-line gambling. There are four problems in particular you should be aware of.

First, the on-line casinos are almost completed unregulated and unlicensed. As you know, a video version of roulette is run by a computer program that simulates the random number generating function of a mechnical roulette wheel. On-line roulette wheels are also run by RNG programs. Unlike video roulette machines, however, on-line RNG programs are typically not tested by independent companies or licensed by state gaming boards. They are typically written and tested by the same company. There is more room for mischief here than I feel comfortable risking my money with. One player wrote into a newsgroup that he witnessed "8 zeros (on single-zero Roulette) coming up in 39 spins." Now, this is not impossible by any means even on a fair table, but the fact that players feel like it could have been "rigged" says to me that on-line casinos are not yet trustworthy.

Second, some on-line casinos already have developed bad reputations for not paying their customers their winnings. Until on-line gambling is state regulated, it is unlikely that you will have a legal manner by which to force the casino to pay you what they owe you.

Third, from my brief experiments with on-line casinos, I have found that their roulette games have fairly low maximum bets. This makes many of my favorite strategies difficult to pursue.

Fourth, the legal status of on-line casinos is not yet clear. They may be declared illegal in some states, and their questionable legal status may limit your options should you need to pursue legal options to collect money owed you.

So, I recommend that you avoid on-line casinos. But if you really want to play on them, make sure you investigate three items: Are their RNG programs written and tested by the same company or is there an independent testing organization? Does the casino have a good reputation for paying off their winners promptly and with a minimum of hassle? What are their table minimum and maximum bets and will they accomodate your betting strategies?

Chapter Ten: Dealer Signature Strategy

The Theory & Practice of "Dealer Signatures"

A very popular approach to roulette in recent years is the "dealer signature" strategy. The theory is simple. Dealers spin the wheel hundreds of times a day.
It seems reasonable to assume that they develop certain habits in the way they release the ball and spin it. If the dealer spins the ball in a somewhat similar way each time, then maybe we can track the results of spins in order to predict the results. In this chapter I describe this strategy--and warn you about its shortcomings.

There are different ways to track the dealer's signature, but the main idea is to notice two bits of data for each spin: where the ball is released and where it lands.

For example, if the dealer releases the ball over the number 31, and you notice that the ball actually lands in the number 31 slot after spinning around the wheel the appropriate number of times, then that dealer has the perfect "signature" to track. If, that is, you continue to track the dealer's spins and notice a consistent pattern between the release point and the landing point. The ideal signature would be if the ball consistently landed in or very near the exact point on the wheel where you notice the ball is released. Consider the dealer's signature consistent if it lands within a predicted 7-number area at least 50% of the time. If it does, you can make a lot of money fast!

Once you were sure of the dealer's signature, the betting method is simple. You watch where the ball is released, then immediately place your bets on that part of the wheel, being sure to cover 7 to 9 numbers. In the case of the perfect signature, if you saw the ball released over the 31 you would bet on the 31 plus 3 or 4 numbers on either side: 12 8 19 31 18 6 21.

To pursue this strategy seriously you would need to memorize the wheel so that you waste no time placing your bets after you see the release point. This is not hard to do and you can have a friend quiz you to help you learn the neighbors of all 38 slots on the double zero wheel.

Of course most of the time the signature will not be so easy to detect. Accordingly, most dealer signature strategists suggest dividing the wheel up into a set of sections.
You then keep track on paper which section the ball is released over, and in which section the ball lands. If you detect a pattern, such as when the ball is released over section 2 it lands in section 4, etc., then you place your bets accordingly.

Let's see how this is done. The numbers on the double zero wheel can be listed as follow:

0 - 28 - 9 - 26 - 30 - 11 - 7 - 20 - 32 - 17 - 5 - 22 - 34 - 15 - 3 - 24 - 36 - 13 - 1 -
00 - 27 - 10 - 25 - 29 - 12 - 8 - 19 - 31 - 18 - 6 - 21 - 33 - 16 - 4 - 23 - 35 - 14 - 2
The first step is to divide the wheel into managable sections. By managable I mean small enough that you have time to place bets on all the numbers in each section, but large enough to cover a decent amount of the wheel. You might be tempted to cover too many numbers, but you need to resist this temptation. Bet on no more than 9 numbers. That way as long as you hit even one time in 4 you can stay even with flat betting. If you do any better than 25%, you will make money. On the other hand, if you bet on any more than 9 numbers, then you might as well be using the other strategies that involve significant progressions.

Here is one way to divide up the wheel. It really does not matter which numbers you decide to cluster into your sections, as long as you can remember

them and as long as your sections have no more than 9 numbers in them.

Section 1: 0 - 28 - 9 - 26 - 30 - 11 - 7 (7 numbers)
Section 2: 20 - 32 - 17 - 5 - 22 - 34 - 15 (7 numbers)
Section 3: 3 - 24 - 36 - 13 - 1 - 00 - 27 - 10 (8 numbers)
Section 4: 25 - 29 - 12 - 8 - 19 - 31 - 18 - 6 (8 numbers)
Section 5: 21 - 33 - 16 - 4 - 23 - 35 - 14 - 2 (8 numbers)

Now, mark down for each spin you observe which section the ball is released over and which it lands in. Make a grid that looks like this:

Section 1:

Section 2:

Section 3:

Section 4:

Section 5:

Record where the ball lands after each spin. If the first spin is released over section 3 and lands in section 5, record a 5 next to section 3 like this:

Section 1:

Section 2:

Section 3: 5

Section 4:

Section 5:

After 20 spins you might have something that looks like this:

Section 1: 3 2 3 1 3

Section 2: 5 5 5 4 5

Section 3: 1 4 4

Section 4: 2 4 3 1

Section 5: 1 5 3

Now, the tough question now becomes, what do you bet on? Let me share with you the first bit of bad news about this strategy. I know of no empirical study that proves that this strategy works. You may hear extravagant claims about how wonderfully it works, but beware. The person telling you these claims is probably trying to sell you something. Successful roulette players who believe that they have found a way to beat the game like to brag and the truly great accomplishments usually make their way into a book or gambling magazine. No study has ever been published that I am aware of that documents consistent success with this strategy. Maybe you'll be the first! In any case, do not run out and put a lot of money at risk with this strategy. Not yet. Make it prove itself to you.

Because no empirical work has been done on this strategy, I cannot tell you

exactly how many spins you should record before deciding whether to bet on a given dealer's signature. What I can tell you is that if a dealer has a consistent signature, you should be able to detect it fairly easily. Look at the examples above. If you are getting results like I have invented for the first two sections, then they are worth betting on. Notice in section 1 that three of the five spins landed in section 3. That is a good enough batting average to step up to the plate and give it a chance. In section 2 we have 4 out of 5 landing in the same section. If such a pattern kept going, you will make a lot of profit fast.

But what about section 3? Two of the three spins landed in the same section. Is it worth betting on? This is where you have to trust your gut. Because no empirical work has been done in this area, no one, and I mean NO ONE, can yet say with authority how many spins we need to confirm a dealer's signature.

Sections 4 and 5 are examples where the data do not suggest a consistent dealer's signature. With 5 sections, the odds of any given section being hit in any spin is 20%. Accordingly, unless you get results that are much higher than that, the results could be the result of random fluctuation.

Now, what if you got exactly the results I listed here. Does the dealer have a consistent signature? The answer has to be based on the overall results, not just on how one or two sections hit. Because if the dealer has a consistent manner of spinning the ball, it should show up not just in one or two, but in at least four or all five of the sections. My suggested rule of thumb is that you track at least 20 spins. Do at least half of the spins for each release-section land in the same results-section? If so, then you may have evidence of a dealer signature worth betting on. Remember: You want evidence of a 50% success rate of predicting the section in which the ball will land to pursue this strategy. If the dealer is less consistent than that, do not pursue the strategy. Change tables or wait for a new dealer.

Some Cautions about Playing this Strategy

Some advocates of this strategy will suggest that you track results for much longer periods of time than just 20 spins. Normally I would agree that the more data you have, the better off you are. But dealers change shifts regularly. If you track for too long, the dealer will change just when you have the data you need. Of course, that dealer may come back to the same table, so don't throw away your notes!

Remember, this strategy calls only for flat betting, not progressive. So bet just one unit on each number you bet on. The strategy is too speculative to risk any more.

Two other cautionary comments that you should keep in mind. First, watch the dealer carefully to see if the direction of of each spin is the same, and notice whether the wheel speed is relatively consistent or not. I want to share with you a message posted to a computer newsgroup from a roulette dealer from Australia who wrote to comment on the concept of "dealer signatures." These comments should give you an idea what you are up against:

> As a Roulette dealer, I'm constantly supprised how people fail to recognise that the dealer has two different spin motions on any one table. One clockwise and one anti-clockwise. Furthermore dealers rotate around tables that are both left and right handed. Hence, in one night any one dealer has four distinctly different spin motions.
>
> If anyone is interested in tracking numbers they should try to find a dealer that spins the wheel slowly and constantly--so there is less chance for error--and make sure they track the sections of the wheel differently for each clock-wise and anticlockwise motions.

Second, even if you are very successful with this strategy, don't quit your day job! The reason is that this is the easiest strategy in the book for the casino to defeat once detected. Think about it: To make this strategy work you have to stand over or near the wheel and watch the dealer quite carefully. Then after the ball is released you have to hustle and place your chips on a variety of numbers. If you start winning consistently with this strategy, any experienced dealer or pitboss is going to know exactly what you are doing.

You want to keep the dealer on your side by offering consistent tips when you hit. Even so, the dealer could be instructed by the pitboss to start varying the spin by changing the wheel speed, direction of the spin, or the balls velocity when released. In short, the pitboss can tell the dealer to make changes in what we have been calling their "signature." If that does not work, the pitboss will change dealers. If that still does not stop you, the dealer will start calling "no more bets!" almost immediately after the ball is released so that you do not have enough time to place your bets. Unfortunately, that is the ultimate way to defeat this strategy: Allow players to place their bets for as long as they want, but then call "no more bets" even before starting to spin the ball around the wheel.

To recap: This strategy has not been proven to work, and if it works it is easy for the casino to defeat. Sorry, folks, but better to know the truth than to lose money.

Chapter Eleven: Chaos Theory Fact and Fiction

In mathematical science an exciting form of modeling has developed known as Chaos Theory. Not too surprisingly, I have seen a number of roulette "specialists" out there selling systems that claim to be informed by chaos theory. I have been shown several of these systems and asked for my assessment.

Unfortunately, everything I have seen so far is utter nonsense that has nothing to do with chaos theory. To explain this, I will begin by describing what chaos theory is and is not, then discussing ways it can and cannot be used with respect to roulette.

Chaos theory is simply a way to mathematically model dynamic and deterministic systems. Both parts are important: A dynamic system is one that is constantly changing, like the weather. So far it sounds like chaos theory can fit roulette. But the second part is also crucial: the system must also be deterministic. That is, there is a causal relationship between one event and the next. That causal relationship might be fluid and dynamic (that is where chaos theory comes in handy), but there still must be a causal relationship between events. In roulette, the result of each spin is totally independent of the next spin. There is no causal relationship between one spin and the next. Thus, chaos theory simply does not apply. The numbers generated by spinning a roulette wheel are independent and thus the you do not have a deterministic system.

Chaotic systems are not random, whereas the results of roulette spins are. Now, I should note, chaos theory might be used to help a computer model where the spinning ball will land. The ball spinning around the roulette wheel is an excellent example of a dynamic (constantly changing) but deterministic system. By deterministic in this case I mean that there are physical forces (velocity, direction, the frets, air resistence, etc.) that causally determine where the ball will land. Because the system is so dynamic, it is hard to predict where, but computers have been programmed to help do exactly that, and chaos theory could enhance the models used by those computers.

On the other hand, the results of the spins--that is, the number and its

properties like even/odd, 1-18/19-36, red/black--are random. The results of one spin have absolutely no causal deterministic relationship to the next. As it is often said, the wheel has no memory. Because the results are random and nondeterministic, chaos theory is irrelevant and cannot help predict results in any way. It is sheer nonsense and someone claiming otherwise is trying to use the prestige and mystery associated with chaos theory to sell something.

One system supposedly based on chaos theory show little diagrams that show the "patterns" that are generated by spins. So the system tracks trends like R-R-R-B-B-B and claims that chaos theory can help predict these trends. Utter nonsense. In one sense, of course there are patterns. The most annoying thing that some unhelpful "systems" do is claim that they see "patterns" in the results. If a 32 hits after a 22 they will nod knowingly and say, "see? 32 often follows a 22." Of course they also would have said that if 32 followed a 23 (inverse numbers), or a 32 followed a 16 (16 x 2 = 32). What is happening here is a reflection of the fact that we humans are very good at seeing patterns. You can "see" some sort of pattern in just about any sequence! The only patterns that are important are the ones that we can track statistically that have implications in terms of probability theory. The rest is nonsense.

If such diagrams were mapping wind currents or how the ball bounces, then the diagrams would be heuristically helpful. But as they are merely reconstructions of the random results, they are meaningless and misleading.

Such systems, like almost all systems based on "patterns," is based on the well-known Gambler's Fallacy. The Gambler's Fallacy refers to the belief that one can predict a given spin based on a set of preceding spins. It is a fallacy because each spin is an independent event that cannot "cause" a future event to occur. The wheel does not know what color a number is and it has no memory of what number just appeared.

The patterns most systems identify as betting opportunities can start or stop at any time whatsoever. They are random. I have charts that take 100,000 spins and codes them into streaks of red/black. You will find that the streaks are unpredictably random (except at extremes--see below): a long streak may be followed by a short one or an even longer one. The patterns supposedly chaos theory systems try to track and simply not reliable.

There are only two times when the gambler's fallacy is not a fallacy: The first is when you have reached an extreme sequence that can be described in very specific probability terms as a statistically-anomalous sequence. That is not what I have seen any chaos theory salesperson do. Their sequences are too short for that.

The second is if you can identify a physical cause to the pattern, such as a biased wheel. This may or may not be possible. The verdict is not in yet concerning dealer signatures, for example. But the point is that those who market systems based on the numbers that appear and claim to be guided by chaos theory are simply wrong. Their systems are totally useless unless they have to do with the physical causes involved and are used in conjunction with a computer designed to predict where the ball will land.

Chapter Twelve: Putting it all Together

The Art of the Comeback

Losses are inevitable. No strategy can get you to a 100% success rate. To play the best roulette possible you need to plan for the contingency that the strategy you are using will encounter a loss at some point. How do you respond? By planning and executing the fine Art of the Comeback.

Think of comebacks as falling into one of two categories. The first category of Comeback Strategy is simply escalating your bankroll. Let's say you are simply playing a group of numbers straight-up (birthdays, etc.). And you lose $100 in $1 chips. One way to continue is simply to jump to $5 chips. One hit straight up pays $175, so all you need is one hit and you are even or possibly even ahead. This would take $500 to have 100 $5 chips. And if you lose that you change to $25 chips
(100 = 2500). In each case only one (fairly quick) hit gets back to even so you can go back to the original starting level of $1 chips.

Some strategies make this is possible, others involve progressions that make this comeback strategy too expensive unless you have a very deep bankroll. So that leads to Comeback Strategy #2.

Comeback Strategy #2 is to change your strategy altogether to something that pays high returns fast. So, if you have been betting on a bunch of streets or making outside bets and you are down $200, then shift to chasing sleeper pairs like the 0/00 (preferably on a different table). Hopefully you can start your bet at $15 on a pair (or $20 on a single street) so that one hit again brings you to even.

The details are less important than for you to plan a Comeback Strategy before you start to play serious roulette. For you to categorize a strategy as a Comeback Strategy it must have two characteristics. The first characteristic is that it makes your money back fast. Preferably with only one hit, maybe two. The second characteristic involves probability: Ask your self why a given strategy has lost. Has it tapped into some sort of extreme variance? If so, then playing for the repeat is a decent comeback strategy. You want some reason to believe that the comeback strategy you are using is highly probable to hit.

By now you have learned that the strategies described in this book are all based on one of two concepts: Limits to Extremes, and The Correction Effect. The key to a
good comeback strategy is that it be solidly based on one or the other of these two concepts. If you got burned because a pair went to sleep for very long time, then play it to repeat once it wakes up (that is the correction effect). Or if you lost on one group of streets, but see that another set should be soon hitting the limits of extremity, then go after that. In short, when the table starts churning out improbable results, it should open up a good betting opportunity of some sort.

The other question I hear is whether to use a comeback strategy that gets you back to even after a loss with only one hit, or many. Here it depends totally on your bankroll. This is why I recommend that you have one bankroll that you are playing with you "every day" strategy, and a separate bankroll you tap into only once you have lost the first and need a comeback. The ideal comeback strategy requires only one hit to getback to even, so plan the strategies and betting levels accordingly. If you get in too deep to afford that, then plan on needing 2 or 3 hits. Any more than that and you really don't have a comeback strategy as much as simply a different strategy you use to chase losses. Be careful there.

Be prepared!: Planning your Strategies
Before you run off to the casino, the next thing you need to do is to plan

your execution of the Roulette 2000 strategies with care. First and foremost, go back and reread the money management chapter.

- Don't play with money you need to pay bills. That is evidence of an addiction.
- Don't play with more than you can afford to lose. Old advice, but crucial.
- Divide your total gambling bankroll into two or more "session" bankrolls.
- Never ever ever put your whole bankroll at risk in one session.
- Set clear win limits and loss limits.

This last point deserves emphasis. The biggest problem I have had personally and that I see with many other players is knowing when to stop. The strategies of Roulette 2000 are very powerful. You will win money with them. You must set a reasonable win goal and then STOP when you get to it. Most professional gamblers suggest a modest goal of winning 10 to 20% of your session bankroll. Then walk away. This is tough, but if you do, you will manage to stay ahead of the game longer than those without the necessary willpower.

Now that you have figured out your session bankroll, it is time to calculate your exact betting patterns with the 10 strategies Roulette 2000 has described. I suggest that you purchase a small notebook--about 3" x 5"; something that can slip into a pocket easily. In this notebook write down each strategy on a separate page that you want to be able to play, listing exactly how much you will bet on each spin for each strategy. These can be the betting progressions I have described here, or your own adaptations of them. But write it down and let this notebook become your bible. You should also write down each pair and its neighbors on a page for ready reference. When I play I have my mini legal pad in one back pocket and my strategy notebook in the other. OK, it may look a tad geeky, but no one will laugh when you walk away a winner.

Be disciplined: Practice, Practice, Practice
It is easy to practice roulette strategies for free these days. If you have a home computer, you can purchase cheaply a Casino software program that includes roulette. Or if you have access to the worldwide web, there are free roulette games on line. If you do not have a computer, you can use the list of 10,000 numbers listed here in the appendix.

After you have worked out your bankroll and betting strategies, sit down and play, taking notes as I described on pages 7-9. Make yourself sit through 2 or 3 sessions of at least 100 spins each to get comfortable. That is a bare minimum. Frankly you ought to practice for at least 1000 spins. Once you get in the swing of it that will not take as long as it may sound. If you encounter a problem in your practice, go back and read the relevant part of Roulette 2000. If you still cannot figure it out, drop me a letter or an e-mail message and I will be happy to help you out.

Learning to Walk Away a Winner
I have to stress this point one last time. Set a reasonable goal, win it, then walk away. Don't expect to get rich overnight. These strategies are powerful, but they rely on a slow and steady tempo of winning, not a big rush of overnight success.

A few final thoughts: If Roulette 2000 wins you money, let me know! Share your good news. Let me know if you have problems or if you have ideas about how to improve Roulette 2000.

Keep the Secret!
Do not share your secrets of success. Why? Two reasons. First, you do not

want the casinos to figure out what we are doing. They could make this much more difficult with countermeasures such as banning note-taking and eliminating results boards. The fewer folks who know about this the better. Second, you do not want to violate copyright laws by giving away my hard work, do you? Thanks!

Unhappy?
If you are unhappy and want your money back, here are the rules for a refund: Record your efforts at the casino as Roulette 2000 instructs. If the strategies fail, send me your records for verification within 45 days of receiving Roulette 2000 and your money will be refunded. A failure is when a strategy loses on an unbiased table more than my projected probability. Generally speaking, with all strategies except the Step-by-Step strategy, one losing session is improbable but by no means impossible. But if you lost twice in the same day with the same strategy, I may have done something wrong and you deserve your money back. The Step-by-Step strategy is harder to assess, but the projected probability is that in any given session of 50 or more spins you have a greater than 67% chance of coming out ahead.

Questions or Problems?
Write to me at eschiappa@aol.com or:

Edward Schiappa
P. O. Box 14283
Minneapolis, MN 55414.

Ed's DoubleStreet Strategy, January 2000
This strategy plays a combination of dozen and doublestreet (6 numbers) bets. I recommend that one pursue this strategy only if you have at least 1000 units as your session bankroll, and at least 2000 units in your total bankroll. By session bankroll I mean what you take to the casino, and by total bankroll I mean all the money that you have set aside for gambling purposes.

1 unit can be anything from 25 cents to $100 chips. It all depends on which casino you are playing in (yes, some offer 25 cent chips) and how much money you can afford to gamble. My suggestion is that this strategy be played with 1 unit = $5, which would require a total bankroll of at least $10,000 and a session bankroll of at least $5,000.

Stage One
The first step is to chart the table results. Be sure to ask the dealer or other players if the lightboard showing results is working. Unless they make a point to say "no," I think it is generally safe to assume that it is. An error at this point is not going to be too problematic, and after you record these initial spins you will have your own record.

Remember that you record the results two ways. The first is to have a grid that lists the numbers by streets. I draw a heavier line between each set of double streets to create 6 betting zones (1-6, 7-12, 13-18, 19-24, 25-30, 31-36). A sample is listed below.

On your second page, simply list all the number that hit, marking a line after every 7th number so you can cross check between the two lists to make sure you don't miss recording a number. That is, simply count up your hash marks on the grid on your first page to make sure you get 7 hashmarks for each set that you also record on your second page.

Your top page should look something like this:

0/00
_____
1/2/3

4/5/6
_____
7/8/9

10/11/12
_____
13/14/15

16/17/18
_____
19/20/21

22/23/24
_____
25/26/27

28/29/30
_____
31/32/33

34/35/36
_____

Note that this grid allows you to track, in one glance, both the results by street as well as by double street. A "set" is defined as 7 spins, since each doublestreet should hit every 6.33 spins. Put a hash mark next to each street that hits in the first 7 spins. Now, if an entire doublestreet goes 7 spins without a hit, then mark a "0" that crosses over the dotted line so that it is very obvious to you, visually, that that doublestreet went hitless.

If you have a doubletstreet in which one street hits and the other does not, then put a hash mark in the street that hits, and record a dash "-" for the street that does not. So after 7 spins you should have something that looks like this:

0/00 |
_____
1/2/3 |

4/5/6 -
_____
7/8/9
----------0----------
10/11/12
_____
13/14/15 |

16/17/18 |
_____
19/20/21 -

22/23/24 |
_____
25/26/27 -

28/29/30 ||
_____
31/32/33
----------0----------
34/35/36
_____

You can make the "0" larger, of course. On your second page, you should be simply listing the numbers that hit, then draw a horizontal line after each seventh number. So:

14
24
0
29
29
3
16
_____

Each time you draw a line, go back and count your hashmarks on page 1 to make sure you have 7 of them. If you have more or less than 7, then you have goofed up your record someplace and you need to figure out what you have left out from which list.

Assuming all is well, you can get ready to bet. Now in this example you have two doublestreets (7-12, 31-36) that did not get any hits.

On page 1 of your notes draw a vertical line to start a new column of hash marks, dashes, and 0s.

When you have a hit in one of the doublestreets that has hit in the first column, you do nothing other than record the hit with a hash mark. It does not matter (at this point) which street within the doublestreet hit.

If you have a hit in a doublestreet that has a 0 marked (in this case, 7-12 or 31-36), then you can start betting for the repeat. For this example let's say the number 11 hits, so your "target doublestreet" is 7-12.

The basic stage 1 progression is 14 spins. I am going to describe the most conservative progression you can follow. I strongly recommend that you stick to it for now. You will develop your own variations with experience.

As mentioned before, 1 unit can be any amount, depending on your bankroll. I suggest with a bankroll of $5000 you begin with $5 chips as 1 unit, though I anticipate you will be able to increase this with experience.

You start by betting not just on the doublestreet but on the dozen in which the doublestreet resides. You are doing this for one reason and one reason only: to get quick and easy hits. This will increase your probability of success substantially. True, you will make profit more slowly than you would ideally like, but particularly to start with I think it is the smart move.
As I said, you can increase the size of your units as your experience and bankroll increases.

The first 7 bets are on the DOZEN in which the doublestreet resides. In this example you would be betting on the first dozen: 1-12. Keep in mind that you are going for one hit, that is all. The progression is as follows:

spin 1 1 unit
spin 2 1 unit

spin 3 2 units
spin 4 3 units
spin 5 4 units
spin 6 6 units
spin 7 9 units

You will have a hit within these 7 spins about 93% of the time. That hit might come from the targeted doublestreet, or it may come from the other doublestreet. It does not matter. In any case, you stop after one hit. You will make 1 or 2 units only per hit, but that's OK. Slow and steady wins the race.

What if you do not have a hit yet? After these 7 spins you will no longer pursue the whole dozen, but instead bet only on the originally targeted doublestreet. In this example, as you recall, the number 11 hit so your targeted doublestreet is 7-12. You have just bet on the whole first dozen (1-12) for 7 spins. If you do not get a hit then you now concentrate only on the targeted doublestreet of 7-12. You are going to bet for 7 more spins with the following progression:

spin 8 6 units
spin 9 7 units
spin 10 8 units
spin 11 10 units
spin 12 12 units
spin 13 14 units
spin 14 17 units

Notice that you start this betting sequence with smaller bets than you ended the first 7 spins with. That is because you have moved from the dozens, which pay 2 for 1, to the doublestreet, which pays 5 for 1.

If you get a hit, your profit may be as little as 1 or as many as 4 units, depending on where in the progression you get your hit.

The cumulative odds of success of getting one hit within these first 14 spins is 98%. So that vast majority of the time you will end a betting sequence within this "stage one" strategy.

A word about bankroll. To complete this progression requires exactly 100 units. If you are betting $1 units (on a video roulette machine, for example, where they allow $1 outside bets), then you obviously need $100. $5 units = $500. $10 units = $1000. $25 units = $2500.

There just is no way of getting around the unpleasant fact that one has to put at risk a great deal more money than one expects to win in any one betting sequence. In this case you are commiting to risking 100 units in hopes of winning somewhere between 1 and 4 units. That may feel uncomfortable, which is why you want a large total bankroll. It is also why patience and persistence are THE keys to success. You have to be willing to grind out your profit a bit at a time.

The probability of success for this strategy is so high (98%) that in a given session you may never need to move to Stage Two. However, the longer you play roulette the greater the odds that you are eventually going to hit one of those 2% where you do not get a hit within 14 spins. In that case, it is time to move to Stage Two strategies.

There are several situations that I need to describe within the context of Stage One before moving on. Let us say that you are on spin 5 of your betting progression with your targeted doublestreet of 7-12 and the number 34 comes up. That number is in your other potential targeted doublestreet,

31-36. What do you do?

You have three options. If you are short on bankroll and can only afford to chase one of the two options, then I suggest you go after the doublestreet that has been asleep the longest. In this case that means switching from the 7-12 doublestreet and moving to 31-36 instead. This is the least desirable option and I recommend it only if you are short stacked.

The next most conservative option is to go after both targeted doublestreets, but treat them "independently." That is, simply follow the progression described above for each of the two doublestreet/dozens involved. If you pursue this option, realize that you will need both of the targets to hit in order to come out ahead. So don't be alarmed if one of them hits and you are still down. That is to be expected.

Notice, of course, that this can get expensive. That is why I keep stressing the incredible importance of a deep bankroll. To pursue both targets you will have to have 200 units ready to go. The good news is that you WILL win one of the two series fairly quickly which will allow you to concentrate on only one. Why? Because you are going to be covering a large amount of the board and the wheel cannot hide from you for long. For example, if the 11 hit and then 34 hit the very next spin, you would be starting the progressions at the same time, covering both the first and the third dozen. The only loss is 0/00 and the middle dozen. The odds of 14 spins in a row landing only in the middle dozen and on 0/00 are fantastically small. (Of course if you are getting weird results then I always recommend a side bet on the 0/00).

Now if you start to get deep into the progressions and you are getting nervous about how much money you have out there, then don't sweat it. Just cut back to one of the bets, but increase the amount you have so you come out even or ahead for the sequence. Of course, if you have a large enough bankroll you should not be nervous at all.

The most aggressive (and expensive) option is to "marry" the two bets. What that means is that you are treating them as interrelated parts of the "same" bet, and you progress steeply enough that you only need ONE of the bets to hit to come out ahead. The exact progression cannot be mapped out in advance because there are too many permutations, since I cannot predict how far you will be in one progression when the other one may start. So you will have to roughly calculate it on the spot. It is not difficult to do this if you have your chips stacked neatly and you know exactly how much you have. There is a simple rule of thumb: If you are chasing two series, you will have to progress twice as fast. Be careful! This is the costliest approach and I recommend it ONLY if you feel confident about your bet (for example, if both targeted doublestreets have been asleep for a long time).

Now, in my example thus far I am talking about a data set that has only two potential doublestreets. What happens if you have more than that--perhaps 3 or 4 that do not hit within a set of 7, and then they all start hitting in the next set of spins? What do you do?

This is where experience comes into the picture. The options are the same as I just described. You can concentrate on just one, bet on all of them but treat the progressions as "independent," or you can "marry" the whole bunch and progress them collectively (like "chasing bunches of streets" in the book describes).

What do I do? Well, I start by marrying the whole bunch and progressing steeply for 4 spins. If I don't have a hit by then, I "divorce" the targeted doublestreets and concentrate on those that I believe are the best bets.

What are the best bets? Those doublestreets that have hit the least, and have been asleep the longest prior to this hit.

Now, it can get messy in the sense that there are an infinite variety of situations that could develop. You might have a set of 7 spins where every single doublestreet hits once, then the next set of 7 spins only 2 do, leaving you 4 potential targets. They might all hit at once or they might come out staggered so that it becomes difficult to keep track of all your progressions. Don't Panic! Just do two things:

First, whenever you decide to bet on a targeted doublestreet, circle the number that hit on page 2 of your notes. When it hits, draw a line through it. That way you can always tell with a glance at your second page which doublestreets you have targeted.

Second, memorize the three options described above. Think of them as "Drop back and punt" (that is, concentrate on only one target that is your best bet), "Independence Day" (pursue each target but treat each betting series independently), or "Marriage" where you marry all the bets and progress them collectively so you only need one hit.

This is the sort of thing I have meant when talking about the importance of experience. The basic strategy for Stage 1 that I have described is quite simple to memorize (or have taped into your notepad for easy reference). It is adapting the basic strategy to all the different situations that arise that takes practice.

I do want to talk about one particular situation that could develop. You might have two doublestreets within the same dozen that go without a hit for 7 spins. Let's say 1-6 and 7-12 are both marked with a "0" after a set of 7 spins. Then 4 hits. You then start betting on the whole first dozen. Then the 8 hits. What do you do? With experience you will create your own heuristics, but my recommendation is to consider yourself done. You got your hit, so consider the sequence over and done with. If you are ahead for the day and want to go for a second hit, fine. My suggestion is to try for no more than 4 spins and stop. What you do not want to have happen is to get sucked into a big obligation of 100 units and all of a sudden find yourself forced into a Stage Two comeback situation.

Very Important Note: Once you have been at the table a while, you have acquired a very valuable set of data that gives you a "history" for the doublestreets that you should consider before going after a particular bet aggressively. By "history" I mean what has been happening to that doublestreet prior to it becoming a candidate for a betting series. Has that doublestreet overall been hitting more or less than average? This is easy to see on your grid. On average each doublestreet should hit once every 6.3 spins. That means in each set of 7 spins each street will hit on average once (or slightly less). Look at how many columns you have at this point on your first page. If you have 8 columns representing 8 sets of 7 spins, then each doublestreet should have hit about 8 times. If a doublestreet has hit less than that, then it is hitting below average frequency and represents a good betting opportunity because it is "due." If, however, it has hit more or even a lot more than 8 times, then it is not particularly due and is a less attractive betting opportunity. So even if a doublestreet has been asleep for more than 7 spins, if it hit a lot in the previous sets, then it is not a particularly good betting opportunity. The fact that it has gone to sleep now may simply be a matter of it averaging out the fact that it hit more than average earlier. So I would hesitate to go after it aggressively. In fact, I might bet only lightly on it (4 spins) and instead simply wait for a different betting opportunity elsewhere on the board.

Before moving to Stage Two, one last word of warning. It is not the case that if you have a loss with Stage One with one doublestreet that you don't have to worry about another doublestreet turning sour at the same time. It could happen. Bad things often happen in clusters, so don't think because you had one losing sequence with Stage One that you are safe on your other bets and start increasing your bet size. Stick to the conservative progression with each independend betting sequence.

Stage Two

If you have reached Stage Two, then you are already down 100 units. The First Step is Don't Panic. You still have 900 units with which to make a comeback. Actually, if you have been playing for a while you may have more than 900 units and have lost part of your profit and only part of your original bankroll.

The second step is to set a goal and then devise a strategy with which to pursue that goal. By "goal" I mean ask yourself how much you want to make and how fast. You might even decide that you don't want to take a risk with the Stage Two strategies; instead you would prefer simply to "eat" the 100 unit loss and move on. Or, you might want to make back ALL of the loss with only one hit. If you don't want to play that aggressively, you could set the goal of making back your loss with 2 or 3 hits. It does not really matter to me. This depends on your comfort level with risk, and the depth of your bankroll.

The one exception you might want to consider if if the loss occured because of a player error. For example, if you bet too much, too fast and did not stick to the progression, or if you forgot to place a bet that would have won. You need to clear your head here and not get angry at yourself. Just ask yourself if the playing conditions and available bankroll make you feel comfortable going after a comeback. If not, then walk away, take a break, and start fresh later.

For the purpose of describing Stage Two strategies, I will make two assumptions. First, I assume that you did not lose because of a player error, but instead lost simply because you hit one of those unfortunate 2% sequences where your targeted doublestreet did not hit within 14 spins. This, as we will see, is a very, very important assumption for deciding which strategy to pursue.

Second, I will assume that you want to "go for it"; that is, that you want to win back the 100 units with one hit, and that you are willing to risk most or all of your remaining 900 units to do that. Obviously this does not have to be the case. You can always stop if you feel discouraged or if the playing conditions becomes a problem. The key is that if you play roulette at all, you must play well with a good attitude or you will mess up.

OK, so what can we do to make back that 100 units? I am going to describe 4 different Stage Two strategies. Read through all of them carefully. It may be that you will decide that the best one for you is the last one, "Moving Up in Chip Size." It is by far the simplest because you stick with the Stage One strategy, just at a higher level. I will describe other options as well, but if it all seems too complicated, then strongly consider the fourth and final Stage Two strategy.

Determining Your Best Betting Opportunity

The Basic Theory for comeback strategies is as follows: Whenever you are in a comeback situation, you want to look over your grid of hits (page 1 of your notes) to determine what your very best betting opportunity is.

Normally your best comeback betting opportunity will be to bet again on the

exact same doublestreet that you just had a loss with. However, this will not always be the case. You might have a doublestreet that has not yet hit and that may provide an even better opportunity. For example, let's say that you go after the 1-6 doublestreet that initially only went 8 or 9 spins without a hit. So you do the Stage One betting sequence and lose, but the doublestreet wakes up on the 16th spin. Meanwhile, a different doublestreet (31-36) has now gone 30 spins or so without a hit. In that situation, I personally would use my stage two strategies to go after the 31-36 street, because it has gone several standard deviations past the mean average. I'd still bet on that 1-6 street after it woke up, but I probably would not chase it for very long or very heavily. Instead I would concentrate on the better bet with 31-36.

Or, as another example, perhaps you have been at the table for quite a while and you notice that within one of the doublestreets, there is one single-street in particular (say 34/35/36) that has not hit in a really long time, say 50 spins. In that case, I would still bet 4 times on the doublestreet where I had the loss (strategy #1 described below), but I would also look to this single-street as an ideal place for a good comeback bet.

I hope you get the theory here. As you sit at the table, you are accumulating very valuable data. When you find yourself suffering a Stage One loss, you should not just mechnically pursue that same bet. Instead you need to look at the overall set of data to determine what your very best bet would be.

Now, you may be asking how do you compare, for example, a doublestreet that has gone 15 spins before hitting with a single-street that has gone 46 spins? This is very easy to calculate and, just as importantly, with practice you don't need to do any calculations at all--you will just be able to look at your grid and "see" which is better.

Technically, the "best bet" is to bet on the repeat on the "most overdue" bet. Your grid is set up perfectly to see this. The mean frequency for a pair is 19 (though I just round this up to 20), for a street, 13, for a doublestreet, 7 (rounding up from 6.33). One standard deviation for these different frequencies is pretty much equal to the mean. So, a street that has gone 26 spins without hitting is the mean plus one standard deviation. If it has gone 39 spins that is 2 standard deviations beyond the mean. Etc. The same is easy to see for doublestreets. The mean is 7. So a doublestreet that has gone 28 spins is 3 standard deviations over the mean (7 + 3x7). So the better bet in this case is to go for the doublestreet because it is more overdue, in the sense that it has gone further past its expected mean than the single street.

This may seem like too much math, but it isn't once you get used to thinking and playing this way. Just burn into your brain those three key numbers. For pairs the magic number is 20, for a single street it is 13, for a doublestreet it is 7. Those are the mean averages as well as the unit of a standard deviation. Once you have played a few hours with these strategies, these numbers will become second nature to you. You will develop the habit of thinking of a pair, street, or doublestreet going 2, 3, 4 or whatever standard deviations beyond their mean.

Having a visual grid will help you a great deal. It is very simple. Let's talk about doublestreets for a moment. If you have a "0" marked in a column then you instantly know that this doublestreet has not hit in at least 7 spins (the mean average frequency). If there are two 0s in a row, then you instantly know that it has gone at least 14 spins (mean + 1 standard deviation). Three 0s = at least 21 spins (mean + 2 standard deviations). You don't have to do any complicated math. You just look and see that your different doublestreet options have X many 0s and that tells you which one is

the very best bet.

Tracking the single-streets is also easy. Recall that if one single street hits within a doublestreet but the other one does not, you record a hash mark next to the street that hits, and a dash next to the one that does not. If you go back to the sample grid above, note that the 1/2/3 street hit (so it has a hash mark) but the 4/5/6 did not (so it has a dash). You know that each dash or 0 means that a particular single-street has not hit in that set of 7 spins. This means in addition to tracking doublestreets, you are also tracking single streets and you can see with a glance if there is a single street that has gone a long time without a hit. If you have a single street that has all dashes and 0s for 6 sets, then it has not had a hit in at least 42 spins. That is a bit over the mean plus 2 standard deviations.

So, just by looking at your grid, you can compare your best bets, and without doing any complicated math you can determine what your best bet is. A single street that is 3 standard deviations above the mean is obviously a much better bet than a doublestreet that is just at the mean or only 1 standard deviation past the mean. So, once you get into the habit of looking at the grid and thinking of those 0s and dashes as indicating standard deviation units, it is an easy matter to "see" what the best betting opportunity is.

In some cases you may want to make a comeback but the best possible betting opportunity is not ready for betting yet. Maybe you have a different doublestreet or single-street that is 4 standard deviations beyond the mean and still has not hit yet. In that case, while I would go ahead and bet on the losing doublestreet 4 times (see below) if it wakes up, I would be cautious and not move beyond those bets. Instead I would wait for the better sleeper to finally wake up and be ready to bet heavy on it once it does.

Now, given the data you have, one of the following strategies will be your best bet for making a comeback. I will go through them individually, but always keep in mind that you do not just chase where you lost automatically. Instead you are always assessing what your best betting opportunity is.

Comeback strategy #1: Return to the DoubleStreet
Most of the time, this is the best strategy to follow if the doublestreet you just lost on is way overdue when it finally wakes up. I might hesitate just a bit if it hits on the 15th or 16th spin and I missed it only 1 or 2 spins. I'd still chase it but I would factor in the fact that it was not horribly overdue in planning the next step or how much to risk. If a doublestreet is going to go to sleep and lose you that 100 units, then frankly you want the darn thing then to stay asleep for as long as possible so that it is WAY over the mean (by several standard deviations), and thus is due for a fast repeat once it finally wakes up.

Before you pursue this strategy, you need to look at the long-term history of the doublestreet. Recall that what I mean by "history" is what has been happening to that doublestreet before you had your losing sequence. Has that doublestreet overall been hitting more or less than average? This is easy to see on your grid. On average each doublestreet should hit once every 6.3 spins. That means in each set of 7 spins each street will hit on average once (or slightly less). Look at how many columns you have at this point on your first page. If you have 8 columns representing 8 sets of 7 spins, then each doublestreet should have hit about 8 times. If a doublestreet has hit less than that, then it is hitting below average frequency and represents a good betting opportunity because it is "due." If, however, it has hit more or even a lot more than 8 times, then it is not particularly due and is a less attractive betting opportunity. In fact, you should not have lost 100 units chasing a doublestreet that has been already hitting more than average. If you did, you certainly should think twice about compounding your mistake by chasing it again now.

Assuming you lost on a doublestreet that has been hitting an average or less than average amount, then there is a bit of good news at hand. Assuming you bet on a doublestreet that had not hit for over 7 spins before waking up, then that doublestreet has already defied the odds since doublestreets on average hit within 7 spins about 70% of the time. So you have encountered a series that is only 30% probable.

The sequence that just beat you can be described technically as a "statistically anomolous sequence" because it happens so rarely (about 2% of the time). So you have just seen two improbable series back to back. The first one was only 30% probable, the second was only 2% probable. Those will happen rarely. The good news is that the odds of three consecutive anomolous sequences happening are exceedingly rare. That is what I mean by "due to repeat." The diehard stats person will say that it is never "due" or "overdue" because the odds are always the same. Well,that is one way to describe the situation. But from my standpoint the repeat is "due" in the perfectly valid statistical sense that the odds of three consecutive sequences in which it does not repeat is remote.

Accordingly, most of the time your best shot at a fast comeback is to wait for the sleeping doublestreet (which has now gone 14+ spins without a hit) to "wake up." You will then bet on it to repeat.

You are only going to bet on the doublestreet for 4 spins. That gets you to about 50% probability, but more importantly it puts you over the median average. The median is not the same as the mean average. The median is the true midpoint of any set of data at which point one-half of the data points are on either side. Let me give you a different example to explain the importance of the median, only I want to talk about pairs for a minute. On a standard American wheel there are 19 pairs. So in the long run the mean average frequency for each pair will be to hit once every 19 spins. For reasons too complicated to explain here, most of the time it actually hits soo ner than that. The mean average stays at 19 because numerically a single really really long wait (say 80 or 90 spins) impacts the average the same as a whole bunch of little streaks. In statistical terms we would describe the data set of a given pair over a long set of spins (say 100,000) to be heavily skewed by the long waits. It is like having a billionaire living in a neighborhood of middle income people. The mean average income in the neighborhood will appear much wealthier than it really is--all because of the one extreme data point of the billionaire.

Accordingly, the median average (found midway through all the data scores), where 50% of the streaks are on each side, is a more reliable indicator for betting strategies. In the case of pairs, the median is about 13. So fully one half of the time a pair will hit within 13, not 19, spins.

Similarly, with doublestreets the mean average frequency in the long run will be one hit every 6.3 spins (on a double zero table). But the median is about 4, so 4 spins is all we want to chase.

The progression would be:

spin 1 = 21 units
spin 2 = 25 units
spin 3 = 30 units
spin 4 = 36 units (112 units, total so far of 212 units)

Your probability for success within the 4 spins is technically only about 50%. But combined with the earlier bets, you cumulative chance of success so far is 99%. Not bad. So I hope that you never have to go any father than this first comeback strategy.

What if you lose? You need to set your goal again. You are now down 212 units. Do you feel like risking more, or do you feel better about quitting at this point and starting fresh later? Mental attitude is important. Feeling desperate is a good way to make mistakes. If you find yourself getting upset, you need to take a deep breath and assess your situation logically.

In particular, you need to assess what your "Best Betting Opportunity" is. It may be to continue to chase this part of the board, or it may be to back off that area and look to other parts that are developing into better opportunities (as I described above). If none of those options seems worthwhile, perhaps because things are hitting just after you stop betting on them so they are not all that much past the mean frequency plus one standard deviation, then you need to seriously consider not pursuing the more expensive comeback strategies. Instead consider the last strategy I describe below, "Moving Up in Chip Size."

Let us assume for the moment that you determine that your best betting opportunity is to pursue the same sector. But you don't want to go past the 36 units you just lost (which is $180 if playing with $5 chips). In that case, I suggest the following strategy.

Comeback strategy #2: Narrow your focus to a single street
So, the bad news is that you are now down 212 units. Again, assuming you want to win it all back at once, and that the loss was not due to player error, your best strategy at this point may be to focus on one of the streets within the doublestreet you have been betting on.

The logic is the same as before: The odds of yet another losing sequence are increasingly remote. The reason to concentrate one one street is simple economics: you can make your money back with risking less than if you pursued the doublestreet.

Let me remind you that you need to look at the long-term history of the street. What you want to do is to concentrate on the single-street within your double street that is the best betting opportunity (defined above). This may mean that you continue to bet after the 4 bets above on the doublestreet, but instead you now are betting only on one of the streets. Or it may mean that you decide to wait for one of the streets to "wake up" before betting on it. Again, pick the street that is most overdue, as defined above.

You then bet on that single-street for 8 spins with the following progression:

spin 1 = 20 units
spin 2 = 22 units
spin 3 = 24 units
spin 4 = 26 units
spin 5 = 28 units
spin 6 = 31 units
spin 7 = 34 units
spin 8 = 37 units (222 units, total so far of 434 units)

Your cumulative chance of success now is 99.5%. That is about as high as you can get, particularly with a finite bankroll. One bit of good news is that your profit at this point will typically be 8 to 10 units, rather than just one or two. So if you have a good betting opportunity at this point in the Stage Two strategies, you can not only cover your loss but make a decent little profit besides.

Now what if you lose? Well, at this point you are probably pretty bummed out

because you are down 434 units, or nearly half of your 1000 unit bankroll. Once again it is time to take a very deep breath, check your mental health, and ascertain your best course of action.

If you are freaking out, then you should quit and go take a break.

If you look at your grid and you see no particularly good betting opportunities for attempting another comeback effort, you should quit and go take a break. Leave the table and go clear your head.

Let's say though that you are not freaked out and you feel you can make a comeback. What should you do? I will describe two last strategies, but before I do, let me mention the possibility of continuing to chase the street you were just betting on. If you do so, I want to strongly urge two things. First, do not get your bet above 40 units. It is too traumatic to lose large bets to let yourself get above that. Second, do not chase it any more than another 4 spins. Those 4 spins can be placed right after the 8 you just made. Or, you could wait and see if the street stays asleep for a long time and finally wakes up, then you could chase it again but only for 4 spins. Either way that is another 160 units, and if you lose that you still want to have something left for your last-ditch effort. It is simply not worth the risk of your total bankroll to chase a street that just won't cooperate.

Comeback Strategy #3: Pick Your Best Pair
I really hope you never find yourself in a hole this deep that you are looking for a fast way to make up 400+ units. If you do, your best bet is going to be to look for a sleeper pair to bet on as described in Roulette 2000 . Go to the chapter on "Inside Situational Bets" and reread the sections on "Chasing Zeros" (Version A) and "Chasing the Sleeper Pair."

Because you get back 18 to 1, a bet on a pair is a powerful comeback strategy. A $100 bet gets you (with your bet returned) $1800. Even if you are down a total of 434 units, you still have 566 units to play with. If you stick to 20 unit bets, that leaves you with 28 more bets. If you go to 25 unit bets, you have 22. If you stick to 4 bet sequences such as I describe below, you will have between 5 and 7 more chances to start making back your losses.

Your "Best Pair" may be at the table you have been playing. That is the advantage of taking notes and recording numbers. Take a look at streets that have hit very little since you have been there. Is there a pair within that street that has not hit? Has that pair gone at least 50 spins without a hit? If so, that may be your best bet. Frankly I would not try this strategy unless you have a pair that has gone at least 50 spins. If you have such a pair, I would wait for it to wake up,then bet 4 spins at 20 units. Never ever ever chase a pair that is still alseep. Let is sleep. The longer the better. Wait for it to wake up, then go after it 4 spins. If you have a pair (or perhaps several pairs) that are close to 50 but not there (let's say they are in the 40s), then go 4 to 8 spins at a lower bet such as 10 units.

If you have no pairs that look promising at your table, then leave. Go to another table and start back with the Stage One strategy. If and when you find a really great betting opportunity (such as a pair over 50 or a street/doublestreet that is 3 standard deviations past the mean), then feel free to go after it. Again, the magic number of bets is 4 spins. That typically is enough for something that is way overdue. Obviously you could go longer than that, but in my experience 4 spins is a good cutoff point.

One thing I always keep an eye out for is a table that has not had a zero or double zero for a long time. This is easy to track because the green color really stands out on the lightboards. So, no matter what I may be doing at the table I am playing, I am also looking around the area and noticing if

there are any tables out there that have not had any green (0/00) for a long time. This strategy applies only to American (0/00) wheels, of course, not the European single zero wheel.

So, as you play, develop the habit of checking the tables around you. You have enough down time between spins that you can get out of your chair and walk a few steps to look at lightboards at other tables if you need to. No matter how you do it, you definitely need to cultivate the habit of checking the status of zeros at all the area tables wherever you are playing.

If you have identified a table on which the zeros have gone to sleep for a good long time (at least an hour), I would go hang out near the table and wait for the green to wake up. When it did, I would place a series of four 20 unit bets. 20 units x 18 = 360 units, which is not everything you lose but it is close enough that you can relax.

If you are playing at a casino with a number of tables, there may very well be more than one that offers a good opportunity for this bet. In that case, chase for 4 spins and if you lose, go to the next table and do the same thing. If you only have one shot at it, then you can go for 8 spins. If this seems too pricey for you, then shift down to 10 units. That would still get you back 180 units and it would take only 2 or 3 hits (at different tables) to get you back in business.

If you have 25 total bets chasing pairs, then your cumulative chance of success is now at 99.9%.

Comeback Strategy #4: Moving Up in Chip Size

The problem with the above strategies is that you can get wiped out of resources fairly fast if things turn sour. So you should always consider the possibility of simply stopping after a loss and going back to the Stage One strategy and making up your loss slowly but surely.

There is a way of splitting the difference between accepting the loss without a fight, and playing the first three of the comeback strategies I have described here. That is to move up in chip size, but stick with the Stage One combination dozen/doublestreet strategy.

If you have been playing with $1 chips, this means moving to $5 chips. If you have been playing with $5 chips, this means either changing in your head your unit size to $10 (two $5 chips), or actually going up to $25 chips.

The idea here is that the Stage One strategy is basically very sound and gets you to 98% probability of success. Rather than take risks with steep progressions, just stick to the way you have been playing but play with larger chips only until you have made up your loss.

Let's assume you move up a chip size 5 times your previous chip size (from $1 to $5, or $5 to $25). Your goal is to make up the 100 units you lost previously. But your new units are 5 times as large as your old one, so you only need to win 20 units at this higher level of play. Depending on when you get your hits, it will take you somewhere around 10 hits to make up your loss. That is not bad.

There is only a 2% chance of a loss doing this. Even if you have such a loss, you will be down a total of 600 units, which leaves you 400 units to potentially use as part of a further comeback effort. Accordingly, I consider this strategy to be a very reasonable option, particularly in a casino playing at a live table rather than video roulette. With video roulette it is quite easy to alter the size of your bets. You don't have to count out chips, you just push a button until you have the right amount out there. But in live roulette you have to pay with chips, so this approach is t he easiest and if you lose you still have money to try the other comeback

strategies.

* * *

You can never reach 100% in this game, so the chance of you getting totally wiped out is pretty small. But it is possible. That is why I recommend that one pursue these strategies only if you have at least 1000 units as your session bankroll, and at least 2000 units in your total bankroll. That way even if you get wiped out, you can live to play another day.

One last word about practice. I strongly recommend that you purchase a casino simulation software program that includes roulette. These are relatively cheap and available in any software store. I use one made by "Centron." There are also free roulette software simulators available on-line. Get one of these and practice, practice, practice with these strategies so that you develop the habits and skills you need at the casino, such as accurate note-taking, calculating & placing your bets, and practicing the comeback strategies without the pressure of real money being on the line. I practice at home literally every day, and I give credit to this practice to whatever success I have in the casino.

That is about it. For ease of reference I list the betting progressions again on the next page. I suggest you copy this and carry it with you for ease of reference. Good luck!

Betting on the Dozen
spin 1 1 unit
spin 2 1 unit
spin 3 2 units
spin 4 3 units
spin 5 4 units
spin 6 6 units
spin 7 9 units

Betting on the Targeted DoubleStreet
spin 8 6 units
spin 9 7 units
spin 10 8 units
spin 11 10 units
spin 12 12 units
spin 13 14 units
spin 14 17 units

Comeback: Returning to the Targeted DoubleStreet
spin 1 = 21 units
spin 2 = 25 units
spin 3 = 30 units
spin 4 = 36 units

Comeback: Focusing on a Single Street
spin 1 = 20 units
spin 2 = 22 units

spin 3 = 24 units
spin 4 = 26 units
spin 5 = 28 units
spin 6 = 31 units
spin 7 = 34 units
spin 8 = 37 units