

The
Slot Expert's
Guide to
Playing Slots

JOHN ROBISON



BAR



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Introduction

Casinos today earn more money from slot machines than from all their table games combined. If slot machines didn't exist, there would be no pirate battles, canals, or 1,000-foot-tall towers at the casinos we frequent.

Today's slot machine is a high-tech marriage of computers, mathematics, and graphics—a far cry from the slot machines found in casinos even as recently as five years ago.

Because there's now such a variety of slots (with new ones appearing every year) and so many different things to be aware of while playing them, slot players need to keep abreast of how today's machines work. Like aficionados of any gambling game, slot players can use knowledge about their favorite game to improve results while playing.

This book will show you how to recognize the different types of machines and explain what makes them different. You'll learn which

types of machines let you play for a long time and which types eat your bankroll quickly.

You'll also learn how many coins should be played in each type of machine, as well as techniques for stretching both your bankroll and your play time.

I can't guarantee that you'll win every time you play if you follow these tips. But I can guarantee that you'll play longer on the same bankroll and have more fun while you do.

The Lingo

Modern slot technology has its own jargon. In order to get the most out of this book, you need to understand the terms that are associated with slots.

Here is the Slot Expert's short list of slot terminology.

Action—The total amount of money played through a slot machine is called the action. Because action includes winnings that are replayed, the amount of money you bring to play will generate various amounts of action. I've gotten slightly more than \$100 in action from a \$100 buy-in, and I've gotten thousands of dollars in action from a \$100 buy-in. How much action you get out of your buy-in depends on what you hit during play.

Bonusing—Bonusing is slot-industry jargon for any kind of payback over and above the return from the main reel-spinning game. Bonusing can be either a secondary event, such as spinning the wheel on a Wheel of

Fortune machine, or an event unrelated to the game, such as a mystery jackpot awarded to a player chosen at random.

The MotorCity Casino in Detroit has a promotion called MotorCity Millionaire, in which \$1,000,000 may be given away to a slot player chosen at random. The casino gave away the first million eight days after opening, which was two days before Christmas.

It's important to remember that any money you win in the bonus event has to be paid for with a reduction in payback in the main reel-spinning game.

Coinless Gaming—This is the industry name for systems in which players are paid with tickets printed and dispensed by the machine, rather than with coins. The purest implementation of coin-free gaming is usually called “ticket-in/ticket-out.” In this implementation, all cash-outs are paid by tickets, which can also be reinserted into other machines and played.

Full Coin—Playing the maximum number of coins that a slot machine accepts per spin is called “playing full coin.” Playing less than the maximum is known as “playing short coin.”

Hit Frequency—Hit frequency is the percentage of the spins that will return something to the player. It's a theoretical number based

on how many times each symbol is present on each reel. A hit frequency below 10% (that is, one spin in 10 wins something) is generally considered low, while a hit frequency of 25% or higher (one spin in four returns something) is generally considered high.

Machines with high hit frequencies pay out small amounts frequently. Machines with low hit frequencies have fewer payouts overall, but compensate with more high payouts (or jackpots). You tend to get more play for your money on machines with high hit frequencies.

There is no set correlation between hit frequency and long-term payback. Machines with low hit frequencies can have high long-term paybacks, and machines with high hit frequencies can have low long-term paybacks. It's also possible that both the hit frequency and the long-term payback can be either high or low at the same time.

You'll learn later how to recognize machines that have low hit frequencies.

Hold—The hold is the percentage of the money played through a machine that is not returned to the players. This number represents the casino's win from the machine. The hold percentage for a slot machine is 100% minus the long-term payback percentage. For example, if a Double Diamond machine has

a long-term payback of 92%, the hold is 8%.

Long-Term Payback— Also called “average payback” or simply “payback,” the long-term payback of a machine is a number that indicates how much of the money put through it will be returned to the players. It’s always expressed as a percentage, as in “97% payback.” It’s a theoretical number based on how many times each symbol appears on each reel. Because the outcome of each spin is chosen at random, a machine’s actual payback can vary greatly on either side of the theoretical return. It typically takes 10,000,000 spins for the percentage of money a slot machine has actually paid back to be within one-half percentage point of its predetermined long-term payback.

Paytable— The paytable identifies the machine’s winning combinations, tells you how much they’re worth, and indicates how many coins you must play to win on each combination.

Payback Program— This is industry jargon for the different long-term paybacks available for a particular slot game. A two-coin Wild Cherry machine, for example, has 11 different payback programs available, with long-term paybacks ranging from 75% to 98%, and hit frequencies ranging from 16% to 20%. The payback program is also called

the “percentaging model.”

RNG – The familiar term RNG is short for Random Number Generator. This is a special part of the computer program that runs a modern slot machine. The RNG generates a series of numbers that corresponds to the stops on each reel. The computer program uses the output of the RNG to determine the outcome of each spin.

Stop – A position at which a slot reel can land. A stop is designated by either a symbol or a blank. Most modern slot machines have 22 stops on each reel.

Virtual Reel – A technology that renders the chances of hitting winning combinations different from what they appear to be.

If there were a single jackpot symbol on each of three 22-stop reels on a slot machine, the chances of hitting the jackpot would be easy to calculate as 1 in 10,648 ($22 \times 22 \times 22 = 10,648$). It would also mean that the largest jackpot this machine could pay would be 10,648 coins – less, actually, because that number wouldn’t allow for any lower-paying winning combinations or profit for the casino. But such machines with jackpots greater than what would appear to be the maximum possible coins are common. Something else must be going on inside the slot machine.

In order to make a jackpot larger, the odds

of hitting it have to be lowered. In the mid-'70s, slot manufacturers investigated three ways to do this. One way was to add more reels to the machine. By adding two more reels to the jackpot-only machine discussed above, the chances of hitting that jackpot decrease to 1 in 5,153,632. Now the machine can pay a huge jackpot; offer many lower-paying combinations, such as mixed bars and single bars; and still earn some money for the casino. But slot players intuitively knew that landing five jackpot symbols on the payline was less likely than landing three. Five reels may be the standard for most video slots, but reel-spinning slot machines with more than three reels never caught on.

Another technique slot manufacturers looked at to decrease the probability of hitting the jackpot was to place more stops on each reel. By squeezing just three more stops onto each reel of the machine, the chances of hitting the jackpot drop to 1 in 266,200. This machine can also pay a nice jackpot, offer many lower pays, and make a profit for the casino. It's also less obvious that the odds have been lengthened.

But what about the life-changing jackpots on machines like Megabucks? Those jackpots can't be offered without adding many more stops to the reels. To add enough stops to send

jackpots into the millions of dollars, either the reels would have to be much larger than those on a normal slot machine, or the symbols would have to be much smaller. Yet the reels on a Megabucks machine appear to be the same size as those on any other slot. Again, something else has to be going on inside.

The last option that slot manufacturers looked at is the technique used in almost every slot machine today. It's the implementation of "virtual reels," also referred to as "Telnaes mapping," after the man who patented the method.

The word "virtual" in computer science means using something that you *do* have to pretend you have something that you *don't*. Hence, the computer program in a slot uses a virtual reel in its memory to pretend that the slot machine's reels have more than 22 stops.

The virtual reels in a slot machine contain from 32 to as many as 256 (or even more) virtual stops. Each blank and symbol you see on the reel corresponds to one or more virtual stops on the virtual reel. The more times a blank or symbol appears on the virtual reel, the more likely it is to land on the payline.

Have you ever noticed how many times the blank above or below the jackpot symbol lands on the payline? When the jackpot symbol lands above or below the payline,

it's called a "near miss." The blanks above and below the payline appear many more times on the virtual reel than the jackpot symbol, so they are more likely to land on the payline than the jackpot symbol. The fact that the blanks above and below the jackpot symbol appear so many times on the virtual reel explains the prevalence of near misses above and below the payline.

Not every modern slot machine uses a virtual reel. Video slots, for example, have no need to map a virtual reel to a physical reel, because they don't have physical reels. The reels in a video slot machine can be as large as the manufacturer wants them to be.

Virtual Stop – A symbol or blank on the virtual reel. There is no way to tell exactly how many virtual stops are on a virtual reel in a slot machine's computer program. As a general rule, though, the larger the machine's top jackpot, the more virtual stops it has on its virtual reels.

Potent Patent

International Game Technology (IGT) owns the Telnaes patent and a manufacturer must license the patent from IGT to be able to use the technique. WMS Gaming developed its own mapping method, called the Fractional Branching Algorithm, but IGT sued and the courts ruled that WMS Gaming's method infringed on IGT's patent. As a result, WMS reprogrammed its machines so they wouldn't use any mapping method at all, a move made possible by the fact that all of its reel-spinning machines have bonus games. The top jackpot on the base reel-spinning game is very low; the big jackpots are on the bonus games. Because the bonus game is video-based, WMS does not need to use a virtual reel to decrease the odds of hitting the bonus game's jackpot.

Know the Different Types of Machines

Even though dozens of different slot machines are mass-produced by a half-dozen or so different manufacturers, slot machines can be classified by six categories. Naturally, different types of machines have different playing characteristics. Knowing the type of machine you're playing enables you to take advantage of those characteristics. For example, it can help you determine whether or not you should play full coin. I'll cover that in another section.

Let's look at the different types of machines you'll find on the slot floor. We'll learn how to recognize them and determine what their playing characteristics are.

Multipliers

This is the most common type of slot machine. Wild Cherry, Wild & Loose, Double Diamond, Triple Diamond, and Five Times Pay are all Multipliers. The payable on a Mul-













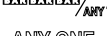

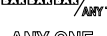



multiplier consists of one row for each winning combination and one column for each coin you can play. The worst payout you can get from a Multiplier is a push—a return of the exact amount of money you bet on the spin. Hit frequencies on Multipliers range from low to high, but they're usually not as high as Multi-Line and Australian-style slot machines (we'll get to these a little later).

"Multiplier" is the category name. Specific machines are either "Straight Multipliers" or "Bonus Multipliers."

Straight Multiplier—Straight Multipliers pay in the manner that their name suggests—the payoff for a winning combination is multiplied exactly by the number of coins played. Each column on the paytable reflects the multiplying of the one-coin payoff (first column) by the number of coins played. Two-coin Double Diamond machines, for example, are usually Straight Multipliers. You get 800 coins for hitting three Double Diamond symbols when you play one coin at a time, and you get 1,600 coins, which is exactly two times 800, for three Double Diamond symbols when playing two coins at a time. All payouts in the Coin #2 column are exactly twice those in the Coin #1 column.

Bonus Multiplier—Bonus Multipliers offer a bonus for playing full coin. On these ma-

DOUBLE DIAMOND

1ST COIN WINNERS		2ND COIN WINNERS	
 800	 1,600		
 80	 160		
 40	 80		
 25	 50		
 /  10	 /  20		
 / ANY TWO  5	 / ANY TWO  10		
ANY ONE  2	ANY ONE  4		

 matches any other symbol on payline  doubles winning combination **2** s pays 4X the winning combination, except when 3 Double Diamond symbols are showing.







This two-coin Double Diamond is a Straight Multiplier. The payoffs for two coins are exactly double the payoffs for one coin.


chines, the amount paid for the top jackpot, and sometimes the second-highest jackpot, is more than just a straight multiple of the one-coin payout. Three-coin Double Diamond machines are usually Bonus Multipliers. The jackpot for lining up three Double Diamond symbols when playing full coin is 2,500 coins. That's 100 coins more than the 2,400-coin jackpot this machine would pay if it were a Straight Multiplier.


Sometimes the bonus is quite large. A Red White & Blue machine, for example, pays 2,400 coins for hitting red, white, and blue

sevens when playing one coin and 4,800 coins when playing two coins (a straight multiple). When playing three coins, however, the jackpot jumps to 10,000 coins. That's a bonus of 2,800 coins for playing full coin.

DOUBLE DIAMOND

	1 ST COIN	2 ND COIN	3 RD COIN	
	800	1600	2,500	
7 7 7	80	160	240	7 7 7
BAR BAR BAR	40	80	120	BAR BAR BAR
BAR BAR BAR	25	50	75	BAR BAR BAR
BAR BAR BAR	10	20	30	
ANY BAR ANY BAR ANY BAR	5	10	15	ANY TWO 
ANY ONE 	2	4	6	ANY ONE 

 Double Diamonds are wild and match any other symbols on the payline. One Double Diamond symbol doubles the winning combination

2  Double Diamonds pay 4X the winning combination

This three-coin Double Diamond is a Bonus Multiplier. The 2,500-coin jackpot includes a 100-coin bonus above the Straight Multiplier payoff.










Buy-A-Pays

Buy-A-Pay machines, sometimes called Buy-Your-Pay or Option-Buy machines, require full-coin play to activate all of the winning combinations. This feature takes many players by surprise, which is why Buy-a-Pay machines, such as the two-coin Sizzling 7s, have a bad reputation. Players who don't read

the paytable carefully don't understand why they don't get a payout on what they think is a winning combination.

The paytable on a Buy-A-Pay is divided into separate boxes, one for each coin you can play. The box labeled "1st coin winners" shows you the winning combinations and how much they're worth when playing one coin. The box labeled "2nd coin winners" shows you the additional winning combinations you buy when you play two coins at a time, and so forth.

SIZZLING 7s

1st COIN WINNERS	2nd COIN WINNERS																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">BAR BAR BAR</td> <td style="text-align: right; padding: 2px;">100</td> </tr> <tr> <td style="padding: 2px;">BAR BAR BAR</td> <td style="text-align: right; padding: 2px;">50</td> </tr> <tr> <td style="padding: 2px;">BAR BAR BAR</td> <td style="text-align: right; padding: 2px;">10</td> </tr> <tr> <td style="padding: 2px;">ANY BAR BAR</td> <td style="text-align: right; padding: 2px;">5</td> </tr> <tr> <td style="padding: 2px;">BLANK BLANK BLANK</td> <td style="text-align: right; padding: 2px;">1</td> </tr> </table>	BAR BAR BAR	100	BAR BAR BAR	50	BAR BAR BAR	10	ANY BAR BAR	5	BLANK BLANK BLANK	1	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">  </td> <td style="text-align: right; padding: 5px;">1000</td> </tr> <tr> <td style="text-align: center;">  </td> <td style="text-align: right; padding: 5px;">100</td> </tr> <tr> <td style="text-align: center;"> Any Three  </td> <td style="text-align: right; padding: 5px;">50</td> </tr> </table>		1000		100	Any Three 	50
BAR BAR BAR	100																
BAR BAR BAR	50																
BAR BAR BAR	10																
ANY BAR BAR	5																
BLANK BLANK BLANK	1																
	1000																
	100																
Any Three 	50																

You must play maximum coins to be eligible for all jackpots on Buy-A-Pays. When playing one coin on this schedule, you are paid only on combinations displayed in the left box.

The worst payout on a Buy-A-Pay can be less than a push, since a paying combination can require two coins to pay back one. Be-











cause a Buy-A-Pay can pay less than a push, it can also have a higher hit frequency than a Multiplier.

There are very few pure Buy-A-Pays on slot floors today. Most of the games that have Buy-A-Pay aspects are Hybrids.

Hybrids

These machines are part Multiplier and part Buy-A-Pay. They usually take three coins, occasionally more, but never less. Sometimes the second coin multiplies the payouts from the first coin and the third coin buys new winning combinations. Sometimes the second coin buys the new winning combinations and

BLAZING 7s

1ST COIN	2ND COIN	3RD COIN
 60		
 40	500	<div style="border: 1px solid black; padding: 5px; text-align: center;"> PAYS PROGRESSIVE </div>
 20		
 10	150	300
BLANK BLANK BLANK 2		

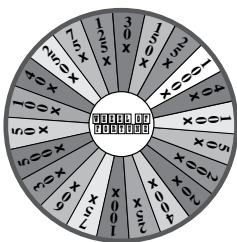
Blazing 7s is a Hybrid; it's a Buy-A-Pay for the first two coins and a Multiplier for the third.

the third coin multiplies the payouts on the combinations bought with the second coin.

Blazing 7s is a Hybrid game. The first coin buys the Bar combinations. The second coin buys the 7 and Blazing 7 combinations. The third coin multiplies the payouts on the 7 and Blazing 7 combinations bought with the second coin.

On other Hybrids, the pay configurations are not as obvious. On some games, such as Banana-Rama, you're eligible for the bonus game only when you play full coin; the third coin buys you the bonus opportunity. Similarly, you can spin the wheel on Wheel of Fortune only when you play full coin.

You must play two coins on this Wheel of Fortune to be eligible to spin the wheel.



\$2,780,038.==

1st COIN WINNERS		2nd COIN WINNERS	
	2000		PROGRESSIVE IS WILD! SUBSTITUTES FOR ANY SYMBOL EXCEPT:
	800		
	200		
	100		
	50		
	50		
	40		
	25		
	20		
	10		
	5		
	5		
	5		
	2		
	2		
	2		
	2		