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The Secrets of a Slot Machine: What the Industry (and the State) Doesn't Want You to Know

By Dennis Bailey

Even if the machines pay back 89%, that still means the house wins. A lot. It keeps 11-cents on every dollar. So let's do the math: if you play a dollar machine for an hour, about 800 spins, you'll put \$800 into the machine. The fact that casinos refuse to disclose the odds of winning on each slot machine (and the government doesn't require them to) should be a warning. When McDonald's runs a contest, it is required by law to disclose the odds of winning each prize. The same is true of the state Lottery and Powerball. But not casinos, which treat the odds as classified trade secrets. Why? Because if people really knew how bad their odds were, they probably wouldn't be so anxious to play.

A typical slot machine might display three spinning reels. Each reel has about 20 symbols – a cherry, a lemon, a blank, etc. One symbol on each reel is the jackpot symbol. It would be reasonable to assume that since $20 \times 20 \times 20$ equals 8,000, a person's chances of hitting the jackpot are one in 8,000. Reasonable but wrong. In fact, the odds on today's computerized slot machines are far worse.

That's because a slot machine is programmed for many more stops than the 20 symbols visible on the reel, something like 256 stops on each reel. Inside each slot machine is a tiny computer chip that generates random numbers all the time, even when the machine is not being played. When the button is pushed or the lever is pulled, the computer stops on three numbers, one for each reel, and those random numbers (once the internal computer does some calculations) correspond to the symbols on the reel and determine where each reel will stop. For example, the numbers one through 66 might correspond to a blank between the symbols, and 67 through 77 is a lemon or a bar, and so on. Obviously, more numbers correspond to lower paying symbols than higher paying ones.

Only one or two numbers, 255 and 256, are the jackpot symbol. Because the losing blank lines above and below the jackpot image correspond to more of the random numbers than other images, a player is most likely to hit the blank stops right next to the winning symbol. This creates the deceptive impression that they "just missed" the jackpot, which encourages them to keep gambling. In reality, of course, the proximity of the actual stops is meaningless.

And the reels are weighted: you are much more likely to hit the jackpot symbol on the first and second reels than on the third, again to deceive you into thinking you came close to winning and keep you playing.

So the odds are really $256 \times 256 \times 256$ – about 1 in 17 million, or roughly twice the odds of you becoming president. And for some machines, the odds go even higher.

By keeping this a secret and refusing to disclose the odds, the casino industry benefits from our own ignorance. Let's face it – we're all math deficient in this country. So when you start talking about the laws of probability and random numbers and odds – all the things that govern the operation of slot machines – people's eyes glaze over.

People really think, for example, that slot machines get hot or cold, that if a machine hasn't paid out in awhile, then the chances are higher that it's going to hit the jackpot. Wrong. The world just doesn't work that way. Your chances of winning are the same on every spin, regardless of whether the machine has just paid out a jackpot or hasn't paid one out in months. Remember, it's all random.

And another thing: the game is over the second you push the button. While the player sees three reels spinning around and finally stopping on a symbol or a number, that's just a time-wasting simulation to make the game more exciting – and seductive. In fact, if you took the back off one of the modern video slot machines, you wouldn't see any spinning reels at all, just a TV screen and some computer chips. Where those virtual reels will stop spinning is determined the moment you push the button and generate the three random numbers. Everything after that is just an illusion to deceive the player. After all, it wouldn't be much fun if you pushed the button and the words "You Lose" instantly popped on the screen.

While the casino industry doesn't expect most people to understand all this, you would hope that our legislators, the people in charge of deciding whether we have slot machines in Maine or not, would. But they don't. In fact, legislators have demonstrated over and over again a startling lack of knowledge about the operation of casinos and slot machines and a downright indifference to the facts.

During a debate last year over a racetrack casino for Washington County, the Senate discussed the payout percentage of slot machines, which can range anywhere from 85% to 98%. In Maine, it's 89% (no bargain compared to the 94-97% payout of most Las Vegas slots), but that's a most misunderstood figure.

During the debate, Sen. Debra Plowman of Hampden said, "We're looking at an 89% payback. That's mandated. Eighty-nine percent of what comes in has to go back out. When you are talking about taking this money out of the pockets of people, there is going to be an 89% return. When I go buy a ticket to the movie theater do you know how much money they give me back when I leave? They don't give me part of my entertainment dollar back. If you are going to be entertained, and you object to paying full-price for your entertainment, then we ought to look at a bunch more laws, when you have to give back 89%."6

Wow. If our Legislators really think that putting a dollar into a machine and getting 89-cents back is some kind of bargain, then I've got some land in Florida I would love to sell Sen. Plowman.

At an 89% payback, you'll be losing \$88 an hour. Ouch. So much for getting some of your "entertainment dollar" back. Multiply that by 1,500 slot machines at the casino, and it comes out to \$132,000 in losses – or \$132,000 in income for the casino – in just one hour! See why no one bothers to rig these machines?

But it gets worse. The real problem with Sen. Plowman is misunderstanding what the 89% payback really means. Has she ever played a slot machine? Who gets 89-cents back on every dollar played? People are walking away from Hollywood Slots every day having lost hundreds of dollars. So what's this payback figure really mean?

The 89% payback is what the slot machine will theoretically pay back after an infinite number of spins. In other words, over millions and millions of pulls on the lever, after maybe 10 million spins, the machine on average will have paid back approximately 89% of what it took in. (Actually the required 89% payback is the average of all machines in the casino, so the payback on many individual machines could be substantially lower).

The payback is based on a 300-year-old mathematical principle called the Law of Large numbers. (This is where the eyes begin to glaze over.) Think about flipping a coin. We all know that when you flip a coin, there's a 50-50 chance that it will come up heads. Which means that half the time it should come up heads and half the time it will be tails. But you could flip a coin 30 times right now and 25 of them might be tails and only five of them are heads, so how can the odds be 50-50?

This is where the Law of Large numbers comes in. Over time, maybe after a million flips, about 500,000 of them will be heads and about 500,000 of them will be tails – 50-50. But it doesn't work out that way with 10 flips or 50 flips or even 1,000 flips, and it's the same with slot machines. On the first thousand pulls of a slot machine, or 10,000 pulls, or a million pulls, that 89% payback can deviate by as much as 50% or more. That's why a machine can go months, even years, without paying out a big jackpot, while another machine might pay out two jackpots in a row.

This Law of Large numbers – and our own ignorance of the laws of probability and averages – is the key to understanding why slot machines are so heavily and deceptively weighted in the casino's favor.

And it's why CasinosNO! opposes and will continue to oppose the spread of casino gambling in Maine. Slot machines are a raw deal. Like pyramid schemes, Ponzi schemes and three-card monte – all of which are illegal – slot machines are a classic rip-off. They are legalized theft. They promote a nothing-for-something economy – taking money from area businesses, car dealers, restaurants, and putting it in the hands of out-of-state casino developers. And when our

legislators join in on this dishonorable and deceptive enterprise for a piece of the action, they are reduced to nothing more than Las Vegas sharks in snakeskin suits.

Call me old fashioned, but I truly believe that government should care for people and look out for their welfare. Instead, just like the casinos, it's playing them for suckers.