In a February 26, 2006, Omaha World-Herald column H. Andersen discusses reasons for not buying lottery tickets. Mostly his reasons are good. One thing he mentions though is:

The Lottery Commission’s intent seems pretty obvious: Encourage more gambling by Nebraskans, in spite of the fact that the law of probabilities makes it less likely that a record-breaking Powerball payoff will strike in Nebraska again.

Your assignment is to write an explanation for what the Law of Large Numbers actually does say, and why there is no “law of probabilities” which makes it less likely that a record-breaking Powerball payoff will strike in Nebraska again, that in fact the chance that a large payoff occurs in Nebraska is not affected by whether or not there was such a payoff recently.

(What the Law of Large Numbers says is that if you repeat an experiment a lot of times the experimental percentage of the time that a certain outcome happens will be close to its actual probability to happen. For example, if you flip a fair coin many times, it will on average come up heads about half the time. Even if it came up heads 20 times in a row, after 1000 tosses those 20 heads probably will not make the average deviate much from 50%. For example, if it came up heads about half of the other 980 times, say 500 of those 980 times, then it came up heads 520 out of 1000 times for an experimental probability of 52%. If you then continued tossing it until you had done it 10,000 times and if it came up heads 4500 times over the extra 9000 tosses, the experimental probability would be (520+4500)/10000 = 5020/10000 = 50.2%. The probability gets close to 50%. But the coin did not come up tails less often for the last 9000 flips to make up for being heads too often for the first 1000 flips. If it just tends to come up heads about 50% of the time, then with enough flips any occasional excess gets averaged out.)

The relevant part of Andersen’s column is on the back side of the page.
Harold W. Andersen: Huge Powerball payoff obscures hard facts concerning gambling

BY HAROLD W. ANDERSEN

Odds good that lives will change

Powerball winners might have their fill of fame

Before Nebraska Lottery officials, Gov. Dave Heineman and the always cooperative press turn Nebraska's newest multimillionaires into some kind of folk heroes, let's look hard at some of the facts.

In the first place, for the eight Lincoln meat-processing plant workers to hit a mega-million Powerball jackpot, the payoff money – and a good deal more – had to be lost by other gamblers in Nebraska and 27 other states.

My pantheon of folk heroes would not include anyone who has become wealthy ($15.5 million after taxes) without in any way earning it and anyone who reacts by "retiring," as at least four of the lucky eight indicated they plan to do. In one case, the "retiree" is 29 years old; in another case, 30.

Also unlikely picks for my folk-heroes list are people who, while basking in the publicity surrounding acquisition of unearned wealth, fail to suggest that at least some of the money would be used to assist people less lucky than they.

There is, however, one nominee for my folk-heroes list among the eight lucky Instant millionaires. I refer to David Gehle, a 20-year employee who is a night shift supervisor. He reported for work after he learned he was on his way to becoming a millionaire. "They would have been short of help," Gehle said.

Now, as to all the hoopla that Nebraska Lottery officials helped generate: The commission's responsibilities would have been fully discharged by simply issuing a press release announcing the names of the winners and the financial details, period. It seems to me totally unnecessary to call a press conference, invite Gov. Heineman to speak and supply each of the lucky eight gamblers with a "photo opportunity" poster representing an oversized version of the multimillion-dollar check payable to each winner.

The Lottery Commission's intent seems pretty obvious: Encourage more gambling by Nebraskans, in spite of the fact that the law of probabilities makes it less likely that a record-breaking Powerball payoff will strike in Nebraska again.

As to my reference to the "always cooperative press," I think you will understand what I mean if you will follow this suggestion: Recall the number of times – an exact count is not necessary, of course – that you have seen the press give major attention to the winning of a large gambling jackpot.

Then try to recall – you are likely to come up with zero in this case – the number of times you have seen the press report the amount of money lost by other gamblers in a predictably vain pursuit of that jackpot.

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