

WHY KENO?

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I leaned on my friend M., the economist who likes to gamble, last month. As usual, he helped me learn something significant. People were talking about how my lottery could raise more money. Part of my job is to know about what the various state lotteries do in the way of games – what’s allowed there, what’s forbidden here, where the boundaries of our particular box of regulations lie, and what might happen if our box got stretched a little. Lately, it seems, several lotteries have been allowed to stretch in the direction of running draw games more frequently. The name “Keno” gets mentioned. I knew that the question was soon going to come to me yet again: “What could we get if we ran 4- minute Keno?”

Citing facts from different places and earlier times might make me look well-informed, but I find it does not bring me much confidence. In the past, I have provided estimates based on other states’ success, but with more than usual skepticism.

One evening as I was having a beer with M., I blurted out: “Why would anyone want to play Keno?”

“Compared to what?”

“Compared to some lesser evil, I

suppose. Because people do seem to think it’s a step onto a slippery slope, having Keno every few minutes.”

“A slippery slope leading down to...?”

“Video lottery. Slot machines, and what all. The greater evil, to be kept in casinos.”

“And what you are doing now is just a little evil?”

“It’s proved to be tolerable. And tolerably lucrative. But there’s the question of whether doing basically the same thing, only a lot faster, might be tolerable too, and earn more money. But that’s what I don’t get: Keno is just another lottery game, why would anyone want to play it every four minutes?”

“You don’t get it.”

“I pick numbers, lottery picks numbers, numbers come up on a screen, I probably lose money. No, I don’t get it.”

“But then you don’t really get gambling, do you? And you won’t get it here,” he said, including the pub with a wave. “We need to go where we can play. You want to go to a casino tomorrow?”

The very next evening we drove to a tribal casino a few miles toward the

coast, and M. taught me what Keno is about.

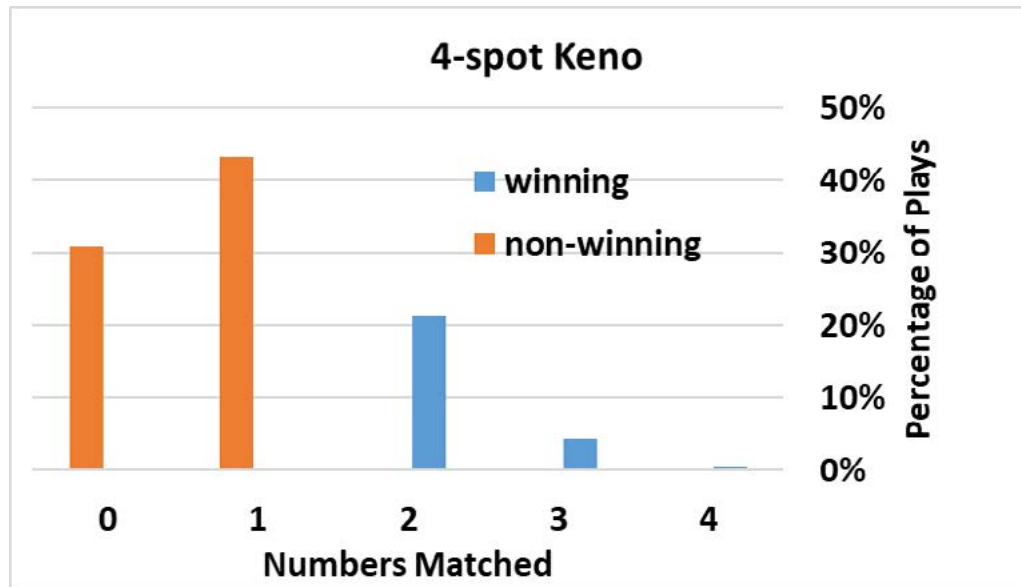
“This is going to cost you \$100,” he said. “I know you understand the rules, so we won’t talk about the rules. This is about the experience.”

The experience turned out to involve sitting in something very much like a sports bar, with very moderately-priced drinks, adjacent to a gaming floor with lots of video lottery terminals. Flat screens around the walls televised several different sporting events. In among these were screens that showed the Keno field: 8 rows of 10 columns.

“How do I play Keno here?” I asked the bartender. She directed me around the corner, to where the game was happening.

“Now of course,” said M. as we walked, “in a casino they are all about gambling, and so they have people just running Keno. In a bar, it’s all about drinks and appetizers, and if the bar is also selling the lottery’s Keno, that can get to be a hassle for the bar staff. You make a lot more money pouring beer than you do collecting commission on Keno.”

The Keno game was being run by some ladies who gave us betting forms



to fill out. The forms did not look to be any more fun to use than a Lotto form. But seeing that I had ten different bets to choose from, I took what seemed like the easy way out and marked four numbers on the form. I marked it to play the same numbers for 10 drawings, and put \$2 down on each bet to use a \$20 bill. I picked another set of four and played the same way.

When I went to the counter, the cashier said, "If you want to play \$2, you ought to take the multiplier instead. You can win more money." I thanked her and agreed.

"You took the 4-spot? I'll play the eight," said M. "Another thing about Keno is, you've got a choice of propositions. You can play a 1-spot, though I don't know why I would spend time trying to win the price of a beer. You've got your 4-spot that pays, what? \$125 to one. My 8-spot pays \$20,000 to one."

"It seems a little weird that you can have such different value propositions under one game name."

"Traditional game, not invented by marketers."

There was a bustle of activity at the counter as the ladies worked a little machine that blew balls around in a chamber. They deflected balls one at a time into a side chamber where they were captured, until the side chamber was full. As the balls were captured, their corresponding numbers

appeared and were filled in on the big screen.

We got back to the bar. "So, the first thing to know," M. said, "is that you don't go to a Keno lounge to play Keno. You go to sit and talk, watch the game, watch the people, drink, play Keno, talk some more...that's how you can tell it's a lesser evil. It doesn't replace normal human interaction, like playing slots or VLTs. It's low-level, intermittent engagement."

So we talked, we drank our beers, and commented on what was going on with the TVs and with the politics of the week. And every few minutes we watched the Keno board. In my modest little 4-spot bet, I only needed to match two numbers to win my bet back. It seemed like I pretty often matched one, and sometimes two. Once even three.

M. on the other hand, seemed to match three numbers with ease. I also saw him match four numbers, which would have won me \$125, but in his case was only good for a pay-back prize.

After an hour, I felt like we were at a natural point of conclusion. We still hadn't spent the \$100 each, and I knew I had won small amounts on several occasions. I had seen lots of the numbers we picked come up. And the evening had certainly been as much about conversation as it had been about gambling. I had a positive

feeling about Keno that I certainly did not have before; it seemed like I had been very close to winning much of the time. I said as much to M., and he said, "Right. That's the trick. Remember how this feels, and in a couple of days I'll send you a file. Then you will understand why you feel that way, and why Keno works."

Sure enough, M. sent me an Excel workbook full of tabs and charts. I opened the one shown below and got him on the phone.

"So when I was playing," I said, "I felt like I matched one number pretty often. And you are saying here that matching one number is the commonest outcome!"

"When you pick four numbers, yes, matching one is likely to happen more than 40 percent of the time."

"I'm not sure I did that well."

"I did not comment on your luck in particular. This is what the math says about players in general."

"And matching two, to win my money back – that's about twice as hard."

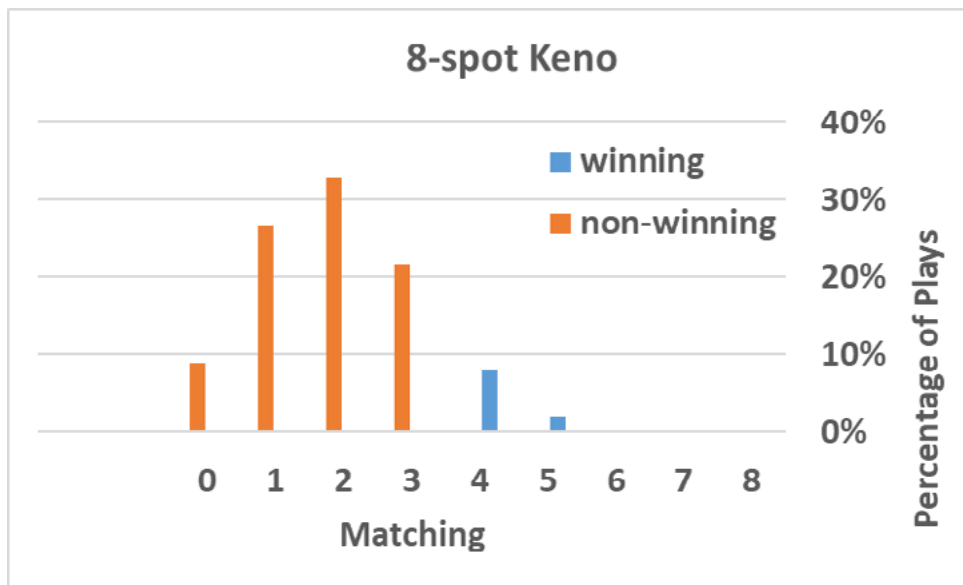
"Right."

"But matching three, to win \$3 – that's not three times as hard. Nor four times."

"It's ten times as hard."

"But I remember I did do that, one time. But I can hardly see the column for matching four."

"That's because it's 14 times harder



than matching three.”

My silence must have signaled that this was a teachable moment, because M. continued:

“You remember you asked why Keno should work any better than some other draw game, just by having a drawing every few minutes. I think it works because we expect things to move in smooth-ish lines as they do in everyday life. I mean, physical movement is a teacher. We expect that sort of smooth-line consistency everywhere. If something is changing, we expect steady change. It’s not reasoning, it’s intuition. We do not intuitively expect acceleration – it comes in brief episodes and it’s never sustained.”

“So, in Keno, we pretty often match one number less than would be needed to win a prize. Sometimes, too, we match that one more. That’s important because now we have two points of experience, and our intuition goes to work projecting what to expect. And how it rolls is this: The difference between pretty often and sometimes – that must be what it costs to get another number. And if that’s all it costs, I might as well keep playing!”

I am sure M. was using his fingers to put air quotes around “pretty often” and “sometimes” as he continued, “In fact, the difference between pretty often and sometimes is just the start of an acceleration of improbability.

Getting the next number in 4-spot – that is, going from two to three matches – is not just as hard, it is ten times as hard as going from one match to two. But we don’t intuitively expect acceleration.”

Now, M. does sometimes use words in a peculiar way, and I was not getting much from his use of ‘acceleration,’ though it was obviously key to what he was telling me. Luckily, he let go of theory and went on to example – “It’s like when you throw a ball: you can tell where it’s going pretty quick. You know where it’s going to end up, by seeing how it starts. If it slows down and hits the ground, that’s going to surprise you. With Keno, it’s like it feels like a baseball in the hand, but as soon as you throw it, it turns into a whiffle ball. You remember whiffle balls?”

I do remember whiffle balls, those little hard plastic things that are not much fun to throw, but kind to windows.

“But you got three matches pretty often,” I objected.

“Right. Look at the 8-spot tab.

“I matched three pretty often, and sometimes four. But that’s because I picked eight. And again, being in the money is between twice as hard and three times as hard as matching three. So again, intuitively I expect matching five shouldn’t be all that hard. I know better, of course. But you know, when we’re sitting around watching balls

being thrown and traveling smoothly, seeing people run down the court and end up where they seem to be going, it’s easy to expect that fifth number to turn up.”

I was finally getting it. “So you are saying that being one away, very often, and winning a little, sometimes, is a key feature of Keno. It’s more than reassurance, it’s persuasion because it activates the intuitions you’ve been talking about.”

“That is my view.”

“And getting some experience with the game, rather than disproving this intuition, tends to activate and support it.”

“How long did we play, an hour? And how did you feel, do you remember?”

“You have absolutely got something there. I suppose if I played for a long time I might start to feel like something was off, but I was pretty happy with our session.”

“It’s good of you to admit that, being a scientist and all. But you’re right, of course, about the whole number-picking thing in Keno being very old-school. It’s an ancient game, after all. But if a new slick-looking game comes along that is offered for the same space, just remember to run these charts on it. If it’s going to be as good as Keno, it needs to be just as persuasive.” ■