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Special random numbers: Beyond the illusion of control

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Abstract

Previous research has shown that gamblers prefer numbers they choose themselves because this choice allows them to feel more in control of the (random) outcome. We identify other conditions under which people find numbers "special" (i.e., worthy of betting more on than other numbers). By manipulating gambling task type and assigning participants a number by an endogenous system outside their own control (as is done in numerology, astrology, and other paranormal systems), we find that indeed people prefer to bet on numbers derived from particular special systems. The mechanism underlying this preference is enjoyment with the task—not control. Further, the enjoyment associated with this "specialness" is related to the prevalence of certain types of numbers (i.e., numbers based on dates and names) in the fortune-telling world and not to other factors such as individuality or even belief in the associated system. We replicate these findings using actual money and show that this prevalence-to-enjoyment link already exists in memory for dates and names and is activated and strengthened by priming the fortune-telling systems relevant to those special random numbers. Finally, we present a model of special random numbers that integrates our findings with other determinants of valuation such as regret and subjective probability. Our results expand the realm of special random numbers beyond control. Our enjoyment model has implications not only for understanding gambling, but also for understanding how reasoning under uncertainty is influenced by little-understood phenomena (such as fortune-telling systems) without affecting subjective probability or actual beliefs.

Keywords: Gambling; Uncertainty; Risk; Paranormal; Illusion of control; Randomness; Fortune-telling

In many gambling situations, the decision maker picks a number or symbol in order to potentially win money via a random system. A purely mathematical view of random gambling systems would presuppose that, given the presumed goal of maximizing the probability of winning, there is no reason to prefer one number (such as one chosen for a lottery ticket or a number on a roulette wheel) over another when the expected value stays constant over all possible choices. Research has repeatedly shown, however, that even within a random system decision makers prefer numbers they pick themselves to randomly chosen numbers—a finding termed the "illusion of control" (Langer, 1975; Langer & Roth, 1975; Wortman, 1975). This preference is reflected in actual lotteries. A significant number (approximately 30%) of state lottery players expend the extra effort to choose their own numbers rather than have the computer pick the numbers for them (MUSL, 2003).

A preference for numbers decision makers pick themselves is an indication that decision makers do not view all numbers equally within a random system. Some random numbers are more special than are others. In this set of studies, we explore this notion of "special random numbers," with a particular emphasis on a class of special numbers that has received little attention in the literature: special random numbers over which the decision maker has no control. We establish that decision makers prefer some numbers that they do

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not pick (over other numbers they do not pick) and explore the reasons for this preference, with the goal of explaining (1) the types of random numbers decision makers find special (i.e., more attractive in a gambling scenario), (2) the reasons they find them special, and (3) the cognitive/affective mechanisms that lead to this preference.

We first briefly outline previous research on the illusion of control to establish that decision makers do find some numbers more special than others, even within a random system. Second, we review previous research and discuss some theoretical insights suggesting that decision makers may also prefer some types of random numbers that they do not choose themselves (i.e., that they do not have control over). Finally, we begin to develop a general model of how and why some random numbers come to be considered special.

The illusion of control

There is ample evidence in the literature that people prefer certain numbers over others in a random system. Langer (1975), across several studies, established that participants prefer to choose their own lottery ticket instead of having one chosen for them. In one study, for example, Langer (1975) introduced choice into a lottery task by letting half the participants choose their own football card to represent their lottery ticket. The other half was randomly given a football card as a lottery ticket. When the experimenter inquired about repurchasing the card before the outcome of the lottery was announced, participants who were allowed to choose which football card represented their ticket demanded significantly more money for their ticket (over $8) compared to those participants assigned tickets ($2). This general finding, that people prefer to choose their own random number, is robust over direct and indirect measures, including willingness to bet or trade and levels of confidence in outcomes (e.g., Burger & Cooper, 1979; McKenna, 1993; Wortman, 1975). Presson and Benassi (1996) conducted a meta-analysis using 53 experiments in 29 articles to show the prevalence and consistency of the effect.

The underlying theme of this research is that feelings of control lead individuals to exaggerate their subjective probability of success, which in turn leads to their preference for numbers chosen by them. The fact that the effect is increased when the game involves skill-related cues such as choice, competition, and familiarity (Langer, 1975; Wortman, 1975) supports a control mediator, and when control has been measured (e.g., Wortman, 1975) it does indeed predict the effect. Later studies showed that these increased feelings of control are due at least in part to decision makers increasing their subjective probability estimates of success (e.g., Thompson, Armstrong, & Thomas, 1998).

But is it possible that decision makers favor some random numbers that they do not choose themselves? Could they prefer these random numbers without inflating their estimates of subjective probability? Previous research provides clues towards other special random numbers. For instance, in one study Langer (1975) found that people bet more on letters of the alphabet than on printer symbols. Similarly, Cole and Hastie (1978) found that participants preferred gambling on a common game of tic-tac-toe (which uses letters) compared to its algebraic equivalent. The tic-tac-toe game did not provide any more control than did the algebraic gamble, and participants did not feel that the subjective probability of success increased in the tic-tac-toe game versus the algebraic equivalent. These results suggest that preference for certain special numbers might be divorced from any feelings of control. Instead, preference could have been driven by the familiar system (tic-tac-toe, in this case), which is a legitimate and well-accepted game in the participants' culture. The algebraic game removes this connection to the familiar system. Prevalence in the culture (and associated variables such as enjoyment), and not an increase in control, could be responsible for the random gamble's specialness. Thus, we speculate that some random numbers might become special by association with a system prevalent in the gambler's culture. By activating these associations in memory, a prevalent system may then be more enjoyed, and ultimately preferred, over less prevalent gaming systems independent of the illusion of control.

There are anecdotal reasons to suspect that other variables besides the illusion of control can influence preferences for chance tasks. Numerous systems based on random issues, such as astrology and numerology, provide information to decision makers to guide their life, evaluate their personality, and/or make investments and other risky financial decisions. The "Kabalarians," (www.kabalarians.com) for instance, will provide an analysis of your name (in combination with your birth date) and what it means for you, including future economic decisions. These psychic and fortune-telling systems are based on systematic factors such as the current month or the letters in a person's name; however, these systems are random with respect to the issues they are asked to predict.

Little attention has been given to whether and how these special systems impact preference construction in decision making. Systematic explanations for random events have had a prominent role in human philosophy and thought for thousands of years. If these systems are used in decision making, what types of number systems may people prefer even though they have no control over them?