



The long and short of it: Closing the description-experience “gap” by taking the long-run view

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ABSTRACT

Previous research has shown that many choice biases are attenuated when short-run decisions are reframed to the long run. However, this literature has been limited to description-based choice tasks in which possible outcomes and their probabilities are explicitly specified. A recent literature has emerged showing that many core results found using the description paradigm do not generalize to experience-based choice tasks in which possible outcomes and their probabilities are learned from sequential sampling. In the current study, we investigated whether this description-experience choice gap occurs in the long run. We examined description- and experience-based preferences under two traditional short run framed choice tasks (single-play, repeated-play) and also a long-run frame (multi-play). We found a reduction in the size of the description-experience gap in the long-run frame, which was attributable to greater choice maximizing in the description format and reduced overweighting of rare events in the experience format. We interpret these results as a “broad bracketing” effect: the long-run mindset attenuates short-run biases such as loss aversion and reliance on small samples.

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1. Introduction

Choices are ubiquitous: They are ever-present at work, at home, at the mall, and at the track. Unsurprisingly, psychologists have devoted considerable time and effort attempting to understand and predict how people make decisions (e.g., Gigerenzer & Gaissmaier, 2011; Kahneman, 2003; Mellers, Schwartz, & Cooke, 1998; Shafir & LeBoeuf, 2002; Weber & Johnson, 2009). Because potential choices vary across so many dimensions, those who study decision-making often come to rely on a small set of choice paradigms designed to isolate and standardize variables across experiments. For example, the “heuristics and biases” program beginning in the late 1960s and early 1970s was extremely influential and it relied heavily upon “description-based” choice paradigms incorporating

simple monetary gambles where outcomes and probabilities were explicitly stated (see Gilovich, Griffin, & Kahneman, 2002; Kahneman, Slovic, & Tversky, 1982).

As a result of such standardization, many of the subsequently formed research questions have only been explored through the prevailing lens of the established description-based choice paradigm. For example, the question of whether decision-makers form similar preferences when a choice is framed in the short run (one outcome) or in the long run (many aggregated outcomes) has only been examined in the context of description-based paradigms (Wedell, 2011). We find this limitation worrying in light of a recent movement away from the description paradigm to an “experience” paradigm within which many of the conclusions made using the description paradigm fail to generalize: an apparent “description-experience gap” (Hertwig & Erev, 2009). The goal of this paper then is to examine an old research question with a new lens: is there a description-experience choice gap in the long run?

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1.1. Different formats of choice

Consider the following gamble: you have a 50% chance of winning \$200 and a 50% chance of losing \$100. Would you take this single bet? How about if the gamble were played 100 times in a row and you received the sum total of the 100 outcomes? Would you change your mind? If you are like Nobel Prize winning economist Paul Samuelson's colleague then you would refuse the single-play bet but accept the multi-play bet because, according to the colleague, with 100 plays there is a virtual assurance "to come out ahead" (Samuelson, 1963, p. 109). As Samuelson notes, though it is true that if the bet were played 100 times the probability of ending up with less than you started with is remote, one cannot ignore this very real possibility.¹

This simple anecdote ignited a long-standing debate over whether it is rational to behave differently to a single bet than to multiple plays of the same bet (Lopes, 1981, 1996; Samuelson, 1963; Tversky & Bar-Hillel, 1983). Samuelson showed that it was irrational under expected utility theory to accept the repeated bet when the single bet was rejected under the wealth bands encompassed by the wager (i.e., winning all bets [+ \$20,000] to losing all bets [– \$10,000]). However, others have argued that it is entirely sensible to adhere to such behavior if choice is based on achieving a certain aspiration; in such cases, choice may reasonably be based on the probability of coming out ahead (Lopes, 1981; Lopes & Oden, 1999). The literature contrasting single- vs. multi-play paradigms in the lab has found that reframing a single-play choice as a multi-play choice often causes decision-makers to seemingly shift from overweighting rare events to more appropriately weighting them and thereby more frequently adhering to normative standards such as value and utility maximization (see Wedell, 2011 for a review).

The literature examining single- vs. multi-play preferences in the lab has almost exclusively relied upon on a descriptive choice paradigm. Description-based choices are those in which the outcomes and their probabilities are provided in a summary description form. For example, in making a decision about your retirement savings, you might examine tables of data describing the performance of different investment strategies in terms of their respective returns. In recent years a new literature has emerged contrasting the descriptive choice paradigm with an experiential one. Experience-based choices are those in which the outcomes and their probabilities are initially unknown and must be inferred from repeated samples of outcomes over time. For example, in making a decision about your retirement savings, you might rely on your own remembered experience of previous returns delivered by implementing different strategies. The literature contrasting description- and experience-based choice paradigms in the lab has found that reframing a single-play, description-based choice as repeated-play, experience-based

Table 1

The four choice paradigms produced by crossing the number of decisions and the number of outcomes.

Number of outcomes	Number of decisions	
	One	Many
One	Single-play	Cumulative-play
Many	Multi-play	Repeated-play

choice causes decision-makers to behave as if they overweight rare events in the descriptive paradigm but underweight them in the experiential one (under the assumption of a nonlinear utility function, see Camilleri & Newell, 2011b).² The implications of this tendency are that many of the conclusions made about human choice behavior, particularly how decisions are made in the context of rare events, do not generalize across choice paradigms: the description-experience choice gap (Hertwig & Erev, 2009; Rakow & Newell, 2010).

In the preceding paragraphs we have implicitly introduced two dimensions upon which description- and experience-based choices differ: the number of consequential decisions required and the number of consequential outcomes produced by those decisions. In Table 1 we explicitly cross these two dimensions and label the four unique types of choice paradigm that are produced as Single-play, Multi-play, Cumulative-play, and Repeated-play (Bristow, 2011).

In a *single-play* situation, the decision-maker has a single decision that produces a single outcome. For example, a gambler bets all of their wealth on black coming up on the very next spin. In a *multi-play* situation, the decision-maker has a single decision that produces many outcomes of a roulette wheel. For example, a gambler programs software to automatically bet some proportion of their wealth on black coming up on each of the next 100 spins. In a *cumulative-play* situation, the decision-maker has many decisions that produce a single outcome. For example, a gambler who needs to make a certain amount of cash to repay a loan shark bets some proportion of their wealth on red or black coming up for the next 100 spins and actively selects a color each time. In a *repeated-play* situation, the decision-maker has many decisions that produce many outcomes. For example, a gambler bets some proportion of their wealth on red or black coming up for 100 spins and actively selects a color each time.

Note that the cumulative- and repeated-play situations are very similar and are distinguishable in this case only by the outcome being sought: fending off loan sharks or making money. Another example may clarify the difference further. Consider two commission-based salesmen working across a period of 1 month: Both salesmen make many decisions about things like where to sell and what selling strategy to adopt, but one receives a commission for every sale made whereas the other receives a commission only if some monthly sales threshold is reached. The salesman receiving the threshold-based commission operates within

¹ In order to lose money across 100 plays of this particular gamble, one would need to be unlucky enough to lose at least 2 bets for every 1 that is won. The chances of this occurring is only approximately 0.0004, which can be calculated with cumulative binomial distribution function.

² By convention, we defined a "rare event" as one that occurs 20% of the time, or less (Hertwig et al., 2004).

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