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Loss sensitivity and integration of outcomes of concurrent risky decisions

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Abstract

Problem statement: Two experiments were conducted to test the hypothesis that the loss-sensitivity principle extends to integration of the outcomes of two concurrent risky decisions. Purpose of Study: According to this principle, only expected loss outcomes of concurrent decisions would be integrated. Method: A total of 96 undergraduates participated in two experiments. Findings and Results: The results of Experiment 1 showed consistent with the loss sensitivity principle that a prior outcome was integrated with the expected loss outcome of a current decision. However, there was no evidence for integration of the expected loss outcomes of two concurrent decisions. A possible explanation implying that outcomes are ignored if they have not yet occurred was followed up in Experiment 2 where participants were offered bonuses to increase their sensitivity either to gains or losses. An effect of bonus was observed but again there was no evidence for integration of the outcomes of concurrent decisions. Conclusion: Although confirmed in several previous experiments when choices were made between mixed bets with both gain and loss outcomes, whether the loss-sensitivity principle extends to integration of prior outcomes when choices are made between losses or between gains was also questioned by the results.

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Keywords: Decision making; concurrent decisions; integration

1. Introduction

People find it in general difficult to make decisions, that is, to select one of several possible future courses of action. One difficulty is to assess uncertainties, another one to resolve value conflicts. A less often noted additional difficulty is to make sequential decisions whose outcomes are dependent on each other (Brehmer, 1992; Huber,

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1990). This difficulty is exemplified by the sunk cost effect, that is, the irrational effect of a previous loss on evaluations of the outcomes of a current decision (Arkes & Blumer, 1985; Brockner, 1992). A decision maker may also encounter a related difficulty when facing several decisions at the same time.

When two or more decisions are faced concurrently, these decisions may be dependent or independent. Two decisions are dependent if the utility or value of the outcomes of one decision affects the evaluation of the utility or value of the outcomes of the other decision. If this is not the case, the two decisions are independent. However, even though decisions are dependent, they may be made independently. Consider the following example taken from Tversky and Kahneman (1981, p. 454):

Imagine that you face the following pair of concurrent decisions. First examine both decisions, then indicate the options you prefer.

Decision (i). Choose between:
A. a sure gain of $240
B. 25% chance to gain $1000, and 75% chance to gain nothing
Decision (ii). Choose between:
C. a sure loss of $750
D. 75% chance to lose $1000, and 25% chance to lose nothing

A majority of participants chose A and D. However, in choosing between the following two alternatives they chose B´ which maximizes expected utility:

A´. 25% chance to gain $240, and 75% chance to lose $760
B´. 25% chance to gain $240, and 75% chance to lose $750

As realized, alternative B´ is B and C combined whereas A´ is A and D combined. Thus, participants did not make the two decisions which overall maximized expected value. The questions this raises are: When and how are outcomes of several decisions integrated? Integration refers to adding values or utilities of the expected outcomes. In prospect theory (Kahneman & Tversky 1979; Tversky & Fox, 1995; Tversky & Kahneman, 1992) it is assumed that a decision maker edits options prior to assigning values to outcomes. Editing operations include framing of outcomes as gains or losses relative to a reference point. Framing also entails segregating or integrating outcomes. Tversky and Kahneman (1981) believed that outcomes are frequently segregated because this "(i) simplifies evaluations and reduces cognitive strain, (ii) reflects the intuition that consequences should be causally linked to acts, and (iii) matches the properties of hedonic experience which is more sensitive to desirable and undesirable changes than to steady states" (p. 457).

Other research (Arkes & Blumer, 1985; Garling & Romanus, 1997; Garling, Romanus, & Selart, 1994; Laughhunn & Payne, 1984; Thaler & Johnson, 1990; see Garling et al., 1997b, for review) has demonstrated influences of prior outcomes on subsequent choices. Such integration of prior outcomes sometimes occurs despite the fact that it requires cognitive effort (Romanus, Hassing, & Garling, 1996; Romanus, Karlsson, & Garling, 1997). Several motivational explanations have therefore been proposed. In this vein, Thaler and Johnson (1990) and Thaler (1980, 1985) suggested that prospect theory needs to incorporate a hedonic editing rule. Whereas other editing rules are employed for the sake of cognitive simplification, the goal of the hedonic editing rule (i.e., integrating/segregating a prior outcome) is to maximize value. An alternative account is labeled the renewable resources model (Linville & Fischer, 1991). The point of departure is still that a decision maker maximizes value. Since a gain is believed to buffer a loss, outcomes entailing gains and losses are integrated. However, being aware of his or her limited but renewable resources to cope with large losses, multiple losses are aversive to the decision maker who will therefore segregate them. Gain-savoring resources are also perceived to be limited but renewable. Therefore, multiple gains are segregated. As noted by Larrick (1993), in risky choices, people are often more concerned with avoiding negative outcomes than attaining positive ones. This may reflect that anticipated negative events are more salient (Taylor, 1991; Weber, 1994).

A compatible editing rule of integration/segregation proposed by Garling and Romanus (1997) as the loss-sensitivity principle is to only add the prior outcome to the expected loss of the current choice. Since a prior loss is integrated with an expected loss, the dissatisfaction with the expected loss will increase after a loss. Conversely,