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Past decisions do affect future choices: An experimental demonstration

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ABSTRACT

This paper demonstrates experimentally that the mere fact that an alternative was chosen in the past increases the likelihood that it will be re-chosen in the future, when new alternatives are being offered. The experimental design consists of a new variation of the *free-choice paradigm* that is immune to Chen and Risen's (2010) criticism of how results have been interpreted in previous studies of post-decision effects. An additional experiment indicates that once participants have chosen a particular alternative they view its characteristics more positively. I suggest that the new design can be used to study various aspects of the effect of past decisions on future ones. In the present paper, I apply it to show that the allocation of limited resources among various uses may be biased in favor of a particular use if it was preferred to another in a previous situation.

Introduction

Imagine you are shopping around for a car. You visit one dealership each day and closely examine the cars being offered for sale. Suppose that on the first day of the search you find model A to be the best among the models being offered at the dealership you are visiting. Now suppose that on the second day you visit a different dealership and encounter model A again, along with some previously seen models and several models that you haven't yet seen. Would the fact that model A was judged to be the best among the offered models on the previous day increase the subjective value you attribute to it on the second day and the likelihood that you end up buying it?

The main goal of this paper is to demonstrate experimentally that the mere act of deciding on the preferred alternative in a given context may enhance its attractiveness in the future and increase its likelihood to be preferred to other alternatives. Recently, Chen (2008) and Chen and Risen (2010) argued that studies which used variations of Brehm's (1956) *free-choice paradigm* to demonstrate choice-induced changes in preferences were subject to a methodological flaw that raises doubts as to the interpretation of their results. The present paper introduces a new experimental design that is immune to this criticism and uses it to explore choice-induced changes in preferences.

Many real-life decision contexts are sequential in nature and hence give rise to the possibility of one decision influencing a subsequent one. This paper focuses on situations in which making an interim decision does not have material consequences and nevertheless it may affect future decisions. Consumer search is a prominent example. Thus, even if consumers visit only one sales outlet, their consideration of the alternatives may be carried out in several stages and the order in which the products are presented to them may affect their purchase decision. Another example would be a selection committee that interviews part of a group of candidates on one day and then the rest on another day. At the end of the first day, committee members might make an interim choice of the best candidate from among the ones they have seen that day and then on the second day will choose the best of all the candidates. In some cases, the decision makers' choice process induces a structure of sequential decisions since their attention is first drawn to a particular subset of the alternatives and only after identifying the best alternative in that subset do they consider the complete set of alternatives.

The classic model of rationality assumes that preferences are stable, unless the material conditions are changed, and thus it is unable to capture such order effects in the decision maker's consideration process. A better understanding of how decisions affect subsequent decisions may provide the foundations for new models of choice.

The psychological literature has discussed various mechanisms that may lead to the enhanced attractiveness of a previously chosen alternative. According to the Theory of Self-Perception (Bem, 1965), individuals' past choices reveal information to them about their own attitudes, which in turn affects their future choices. Alternatively, Differentiation and Consolidation Theory (Svenson, 1992) suggests that during the choice process one alternative is differentiated from the others in order to make it appear sufficiently superior. Thus, preferences are constructed such that the perceived attractiveness and importance of the alternatives' various attributes are in favor of the alternative to be chosen. (For a

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review of theories of biased predecision processing, see Brownstein, 2003.) The most commonly discussed explanation for the effect of past choices on future ones is cognitive dissonance reduction (Festinger, 1957), which states that the desire for consistency induces the decision maker to place a higher value on a previously chosen alternative. This may result in the decision maker re-choosing this alternative, even when new and more attractive alternatives are available.

In the present paper, I argue that the observed tendency to re-choose an alternative is due to a change in attitude in favor of that alternative. However, the experiments I report here do not distinguish between the different mechanisms that may lead to such a change in attitude.

Following Brehm's (1956) experiment, which studied the effect of choice on subsequent preferences, many studies of cognitive dissonance used variations of his free-choice paradigm (e.g., Egan, Santos, & Bloom, 2007; Hoshino-Browne, Zanna, Spencer, Zanna, Kitayama, & Lackenbauer, 2005; Lieberman, Ochsner, Gilbert, & Schacter, 2001). The findings of these studies have been interpreted as evidence for the increased valuation of an alternative chosen in a previous context and a decreased valuation of the non-chosen alternative. However, Chen and Risen (2010) pointed out that the experimental design used in these studies does not allow the results to be interpreted unambiguously in this manner. They meticulously reviewed the free-choice paradigm studies and suggested that the choices may be reflecting preferences in these experiments rather than affecting them. In particular, the weakness in these studies is that they are subject to self-selection and do not control for the information on the initial preferences that is revealed by the choice. I discuss this issue at length below and suggest a new design that avoids the problem of self-selection.

The free-choice paradigm

Most of the studies that use the free-choice paradigm involve the ranking of a number of alternatives and test how that ranking is altered following a close choice between pairs of alternatives. In these experiments, participants are first asked to rank a list of items and then to choose between two similarly ranked items. Finally, they are asked to rank the list of items again. A change in the ranking following the choice was interpreted as evidence of a change in attitude.

This paradigm has been modified in other studies in order to examine how choices affect subsequent choices (rather than ranking of items). Egan et al. (2007) conducted an experiment with children and capuchin monkeys to demonstrate that making a choice between two items reduces the subjective value of the rejected (non-chosen) item. In their modified free-choice paradigm, the experimenter first selects three alternatives (A, B and C) among which the participant appears to be (approximately) indifferent. The participants are then asked to choose between A and B. If the participants choose A, for example, they are then asked to choose between the rejected alternative B and the alternative C. The argument presented in Chen and Risen (2010) is that the high proportion (more than 50%) of participants who chose C in this case does not imply that the choice between A and B changed the participants' preferences. The reason is that participants are not exactly indifferent between the three alternatives and their choice of A over B reflects their initial preferences, according to which they do not particularly like B. Specifically, their preference ordering over the three alternatives may be one of the following: $A \succ B \succ C$, $A \succ C \succ B$ or $C \succ A \succ B$. If the three orderings are a priori equally likely, then one would expect about 2/3 of the participants who chose A over B to choose C over B in the subsequent choice (for further discussion of this point see Chen & Risen, 2009; Sagarin & Skowronski, 2009a, 2009b). This proportion is very close to the one obtained in the experiment conducted by Egan et al.

Similarly, if after choosing A over B the participants are asked to choose between the chosen alternative A and the alternative C, a high proportion of participants choosing A would not be an indication of a choice-induced change in attitude. Moreover, a randomly assigned control group that chooses between A and C does not help in identifying a possible change in attitude since the group of participants who chose A over B self-select to choose between A and C, whereas in the control group the whole population makes the choice. If the three preference orderings above are a priori equally likely, it is to be expected that among the participants who prefer A to B, A will be preferred to C more often than is the case in the general population.

An analogous self-selection problem pertains to the free-choice paradigm studies that measured spreading in the rating following a choice. Chen and Risen (2010) argue that taking into account that participants' preferences are not measured perfectly and that the ratings of the alternatives become more accurate as the participants gain experience with the rating task (namely, in the second rating), a spreading in rating in favor of the previously preferred alternative is to be expected even if the participant's preferences remain stable during the experiment. Furthermore, they argue that their preference-driven model of choice can account for part of the results in studies that used the free-choice paradigm to explore the moderators and mediators of dissonance (such as the study that compared the effect of choosing between "far" alternatives and "close" alternatives in Brehm, 1956).[1]

A new modification of the free-choice paradigm

In order to solve the self-selection problem, I adopt a different approach to demonstrate a change in attitude following a difficult choice. Participants are randomly assigned to one of two conditions. In the first condition, all participants choose between alternatives A and B and then, in a second phase, choose between alternatives A, B, and C (the alternatives are identical for all participants and it is not determined in advance whether participants are roughly indifferent between the three). In the second condition, participants choose between the alternatives A, B, and C (as in the second phase of the first condition) and following that are asked which alternative they would have chosen if their chosen alternative had not been available. Thus, I will refer to the first condition as the 2–3 condition and to the second as the 3–2 condition. The procedures are summarized in Fig. 1.

I will compare between the distribution of choices made from the set {A, B, C} in the second phase of the 2–3 condition and the distribution of choices made in the first phase of the 3–2 condition. Since the two conditions are randomly implemented and all participants in the experiment make a choice from the set {A, B, C}, any difference between the distributions can be attributed to the choice made in the first phase of the 2–3 condition. A higher probability of choosing a previously chosen alternative in the 2–3 condition should lead to C being chosen less often and A and B more often than in the 3–2 condition. A significant difference will provide support for the hypothesis that the mere choice of A over B (B over A) in the first phase of the 2–3 condition makes A (B) more attractive in comparison to C in the second phase. Later I will discuss the contribution of the second phase of the 3–2 condition to the analysis.

[1] Note, however, that their criticism does not apply to the two other paradigms that were used to study dissonance reduction: the induced compliance paradigm (e.g. Festinger & Carlsmith, 1959; Linder, Cooper, & Jones, 1967) and the effort justification paradigm (e.g. Aronson & Mills, 1959; Wicklund, Cooper, & Linder, 1967).