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Unstuck from the concrete: Carryover effects of abstract mindsets in intertemporal preferences

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ABSTRACT

Prior research has demonstrated that individuals show decreasing levels of impatience as the delay of consumption gets longer (i.e., present-bias). We examine the psychological underpinnings of such present-biased preferences by conceptualizing timing decisions as part of a series of judgments. We propose that shifts in the abstractness of processing (focusing on details vs. broad aspects) triggered by aspects of an earlier (related or unrelated) decision systematically influence the degree of present-bias in subsequent decisions. The results of five studies show that the processing mindset (concrete vs. abstract) evoked in previous related and unrelated decisions influences the level of construal evoked in subsequent decisions and moderates the extent of present-bias without changes in affect. We further show the default mindset is concrete (displaying high present-bias) and thus the effect of construal is eliminated when the subsequent intertemporal task is inherently more abstract.

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Introduction

Imagine an individual who is shopping for a camera online. Her delivery is scheduled for 3 days later. How impatient would she be to receive this camera (i.e., how much would she pay per day to avoid the delay in shipment)? Would her impatience over a given day be any different if her delivery was scheduled for 10 days later? An extensive literature indicates that it would be. For instance, Malkoc and Zauberman (2006) demonstrated that people require higher daily premiums to avoid a 3-day delay (about $5, $1.8 per day) than a 10-day delay (about $10, $1 a day). We refer to such a decrease in required premiums as delay increases as *present-bias* (Thaler, 1981). In this paper we examine whether previous tasks people engage in prior to the intertemporal decision affect decision-makers' present-bias. For instance, would present-bias in shipment preferences depend on the type of cameras that were evaluated prior to the shipment decision (e.g., considering two digital cameras vs. considering one digital and one traditional camera)? Alternatively, imagine another person receiving a gift certificate from amazon.com. Might his present-bias depend on the article he read on newyorktimes.com 5 min earlier? These are the types of questions we address in this paper by examining the role of prior decisions and the processing they evoke on intertemporal preferences encountered on subsequent occasions.

On any given day, people routinely make a series of decisions like the ones previously mentioned, often moving from one context to another. Every act they engage in has the potential to influence decision-making on later occasions. Indeed, recent research has examined how prior decisions can lead to differences in the activation of goals (Dhar & Simonson, 1999; Novemsky & Dhar, 2005), various mindsets, such as implementation (vs. deliberation; Gollwitzer & Bayer, 1999), promotion (vs. prevention; Higgins, 1997), which-to-buy (Xu & Wyer, 2008) and shopping momentum (Dhar, Huber & Khan, 2007), as well as personality traits (Bargh & Chartand, 2000; Khan & Dhar, 2006). These differences in activation then affect subsequent behaviors, such as goal fulfillment, indulgent consumption, and creativity (for a review see Wyer & Xu, 2010). In our work, we extend prior research by examining consumers' mindset abstraction and its role in subsequent intertemporal decisions in general and present-bias in particular. We argue that while some situations evoke concrete mindsets (enhancing focus on the context and the details), other situations facilitate abstract mindsets (enhancing focus on the big picture; Freitas, Gollwitzer, & Trope, 2004). These mindsets then influence how decision-makers process and represent related or unrelated information and, most central to our work, subsequently affect their intertemporal preferences.

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Intertemporal decisions involve a tradeoff between the timing and the cost of the outcome. As described previously, online purchases often involve intertemporal tradeoffs. Other important instances of intertemporal tradeoffs that routinely influence our lives include people deciding whether to spend money immediately or to save it for retirement or whether to indulge in consumption with short term benefits or to choose more healthy options with longer-term benefits. Given the prevalence and importance of intertemporal tradeoffs in everyday life, extant research has explored how such decisions are made and what factors affect these decisions (for a review see Frederick, Loewenstein, & O'Donoghue, 2002).

One of the main findings in this literature is that people are present-biased. In line with the literature, we define present-bias (often referred to as hyperbolic discounting; e.g., Thaler, 1981)[1] as people's tendency to show decreased impatience (e.g., discounting of future outcomes) as the time horizon (i.e., length of delay) increases. For example, Thaler (1981) found that to delay a $250 lottery prize for 3 months, people required an extra $50 (a monthly premium of $16.70), but when delaying the same amount for 1 year, four times as long, they required an extra $100 (a monthly premium of only $8.30), implying a much lower discount rate over longer periods. An extensive literature has focused on establishing this phenomenon of decrease in discount rates from short to long time horizons across a variety of settings, identifying its boundary conditions and its possible psychological drivers (e.g., Malkoc & Zauberman, 2006; Rachlin & Raineri, 1992; Zauberman & Lynch, 2005). However, all of this work has focused on the emotions or cognitions that are evoked by the target outcome to be delayed (e.g., the $250 lottery prize), with no consideration of the possible role of earlier tasks.

Unlike this previous research, in the current work we conceptualize intertemporal decisions as a part of a series of decisions that might or might not be related to each other. In particular, we propose that prior decisions and tasks can alter mindset abstraction without directly changing the affect or cognition about the focal outcome, and this mindset can carry over to later decisions, having systematic effects on the way people make intertemporal tradeoffs. We hypothesize that people in concrete mindsets process information in a detailed and context-dependent manner, leading to present-biased preferences that are manifested in a lower rate of discounting in longer than shorter time periods. When their thinking is abstract, however, their information processing is decontextualized, allowing them to see higher level considerations and leading to less present-biased preferences that show similar discounting rates for short and long time horizons. That is, we predict an interaction between mindset abstraction and time horizon on rate of discounting.

To test this moderation hypothesis, we use a sequential task structure and introduce three novel manipulations of abstraction. We manipulate mindset abstraction using tasks that are affect-free and are independent of the timing of the decision. These three tasks are theoretically motivated to shift the processing of information from concrete to abstract, are implemented *prior* to the target timing decision, and do not directly focus on the target event. Importantly, in the third study, we employ a supraliminal semantic prime to alter mindset abstraction, which provides evidence that abstract thinking can be activated automatically and non-consciously, as recently suggested (Bar-Anan, Liberman, Trope, & Algom, 2007). In addition, in the last study we identify a boundary condition of our proposed mechanism and show that if the subsequent intertemporal task inherently triggers more abstract, less contextual processing, then the moderating role of mindset abstractness on the degree of present-bias is eliminated.

[1] We use the terms present bias, hyperbolic discounting and decreasing impatience interchangeably to refer to the phenomenon of a declining rate of discounting with time.

Theoretical development

Intertemporal choice and present-bias

Extensive research on intertemporal choice has demonstrated multiple anomalies that violate the assumptions of the standard rational economic model (e.g., Frederick et al., 2002). Of all the behavioral anomalies that have been reported, the best documented, and arguably the most important, is present-biased preferences (i.e., hyperbolic discounting; Strotz, 1955; Thaler, 1981). That is, people use a higher discount rate when delaying outcomes over shorter periods (e.g., 3 months) than over longer ones (e.g., 1 year). This effect has been replicated repeatedly with humans and lower animals (e.g., Ainslie & Herrnstein, 1981), with both relatively naive and sophisticated participants (Shelley, 1993) and with hypothetical and real outcomes (Kirby & Herrnstein, 1995).

Although present-bias has been consistently demonstrated, there has been relatively less research on its psychological underpinnings. The explanations offered have been mostly affective, arguing that visceral mechanisms are responsible for present-bias (Loewenstein, 1996). This line of research has suggested that forgoing a current outcome is painful and leads to a feeling of deprivation (Hoch & Loewenstein, 1991), resulting in impulsiveness and impatience that manifests itself in present-biased preferences (e.g., Rachlin & Raineri, 1992). Recent research, however, showed that cognitive and perceptual processes may also play a role in individuals' bias toward the present (Malkoc & Zauberman, 2006; Zauberman, Kim, Malkoc, & Bettman, 2009; Zauberman & Lynch, 2005). These more recent explanations argue that the timing of events leads to changes in the way events are represented. For instance, Zauberman and Lynch (2005) demonstrated that temporal distance from events systematically and differentially influences perceptions of the amount of resource slack available for time and money, which in turn can account for the pattern of discounting across resources, including present-bias. Malkoc and Zauberman (2006) suggested another cognitive account of present-biased preferences, demonstrating that the framing of the decision (delaying a present outcome vs. expediting a future outcome) moderates the extent of present-bias. Their results indicate that deferral decisions involve inherently concrete representations. Their findings also show that the different degree of concreteness with which consumers represent the outcome in delay and expedite frames can explain the differential present-bias observed under the two frames. This account is consistent with other research showing that temporal distance affects the concreteness of outcome representations (Trope & Liberman, 2003) and that an increase in the vividness of an outcome leads to difficulties in delaying gratification for that outcome (e.g., Metcalfe & Mischel, 1990).

Based on research showing that delaying present outcomes into the future is an inherently concrete task (Malkoc & Zauberman, 2006) and consistent with the notion that people tend to focus on the local context of decisions (e.g., Dhar & Wertenbroch, 2000), we argue that unless something triggers individuals to take a more global perspective, they will be in a concrete mindset and thus show a relatively high degree of present-bias. Our goal is to examine whether prior tasks can shift people's mindsets before they make a subsequent timing decision from concrete to relatively more abstract, attenuating present-bias. We argue that if the processing activated during an earlier task evokes a more global and abstract mindset, it would attenuate the well-established finding of present-bias. We also show that if the discounting task