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Reports

Promoting prospective self-control through abstraction[☆]Kentaro Fujita^{*}, Joseph C. Roberts

Department of Psychology, The Ohio State University, Columbus, OH, United States

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ABSTRACT

When people anticipate that future temptations may undermine valued goals, they use a number of prospective self-control strategies (or “precommitment devices”) to increase the likelihood of future self-control success. Little is known, however, about the conditions under which people are more or less likely to use them. Drawing from construal level theory (e.g., Trope & Liberman, 2003), we argue that people are more likely to engage in prospective self-control when they construe events more abstractly (at higher-level construals). Results from two experiments demonstrated that higher-level construals promote use of two well-documented prospective strategies: choice bracketing and self-imposing punishment. Higher-level construals thus appear to enhance people's efforts to protect their valued goals from anticipated temptations.

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1. Introduction

People employ a number of strategies to bolster their self-control efforts (e.g., Ainslie, 1975; Hoch & Loewenstein, 1991; Rachlin, 2000; Thaler & Shefrin, 1981; Trope & Fishbach, 2000). Odysseus, on his mythic voyage home, for example, bound himself to his ship's mast so that he could safely pass the Isle of the Sirens without crashing ashore, seduced by their hypnotic voices. People need not be mythical heroes, however, to guard against their potential for self-control failures. For example, people save for seasonal gifts in “Christmas club accounts,” which pay no interest yet entail early withdrawal fees (e.g., Thaler & Shefrin, 1981). Such financially counternormative behavior deters people from withdrawing their savings for impulsive reasons. To protect future self-control, people also self-impose deadlines (Ariely & Wertenbroch, 2002), make rewards contingent on self-control success (Trope & Fishbach, 2000), and regulate the availability of temptations (Wertenbroch, 1998).

Prospective self-control is motivated, engaged to the extent that people anticipate future temptations will imperil valued goals (e.g., Trope & Fishbach, 2005). For example, people self-impose higher cancellation fees as punishment for missed health screenings only inasmuch as they value health and expect the screening procedures to be painful (Trope & Fishbach, 2000). How consciously aware people

are of using such strategies is unclear. Even pigeons, presumably lacking conscious awareness, engage in prospective self-control (e.g., Rachlin, 2000), suggesting that these strategies may be adopted without conscious intent. What is apparent, however, is that such strategies are used to protect valued goals from future temptations.

Despite their effectiveness and widespread applicability, social psychologists have largely overlooked prospective self-control strategies as means of improving self-control. Instead, social psychological research has focused narrowly on the moment of immediate choice, examining only factors that influence whether people's self-control efforts fail when directly confronted with temptations (e.g., Baumeister & Heatherton, 1996; Metcalfe & Mischel, 1999; Mischel, Shoda, & Rodriguez, 1989). For example, cognitive load increases in-the-moment preferences for chocolate cake over fruit salad, highlighting the role of effortful deliberation in self-control (Shiv & Fedorikhin, 1999; see also Hinson, Jameson, & Whitney, 2003; Ward & Mann, 2000; Wiers & Stacy, 2006). Exerting self-control in one task also reduces immediate self-control in subsequent tasks, suggesting that self-control requires sufficient “energy” (e.g., Muraven & Baumeister, 2000). Affective states also impact self-control (e.g., Metcalfe & Mischel, 1999; Mischel et al., 1989). For instance, construing temptations (one marshmallow now, tempting two at delay) in an affective rather than cognitive manner (“the marshmallows look yummy” vs. “the marshmallows look like clouds”) reduces children's success at delay of gratification (e.g., Mischel & Baker, 1975). Moreover, negative moods are more likely to prompt self-control failures than positive moods (e.g., Tice, Bratslavsky, & Baumeister, 2001; Trope & Neter, 1994).

Given the fallibility of self-control during the moment of choice (e.g., its susceptibility to cognitive load, energy depletion, and emotion; Baumeister & Heatherton, 1996; Loewenstein, 1996; Wegner, 1994), it is surprising that prospective self-control has not received more

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^{*} Corresponding author. Department of Psychology, The Ohio State University, 1827 Neil Avenue, Columbus, OH 43210, United States.

E-mail address: fujita.5@osu.edu (K. Fujita).

attention in social psychology. When people can anticipate future temptations, they can promote self-control by engaging in any number of prospective self-control strategies to reduce or even obviate the need for self-control in the moment. What is not well understood, however, is when people are likely to capitalize on such strategies. The present paper proposes that how people mentally represent, or construe, a situation impacts whether people engage in prospective self-control. Specifically, we hypothesize that more abstract, higher-level construals promote adoption of prospective self-control strategies.

2. Construal level theory

Judgments and decisions reflect people's subjective construals of events rather than those events' objective features (e.g., Bruner, 1957; Fiske & Taylor, 2008; Griffin & Ross, 1991). Construal level theory (e.g., Liberman, Trope, & Stephan, 2007; Trope & Liberman, 2003) proposes that construals change as a function of psychological distance. Specific information about events that are remote in time, space, likelihood, or social distance tends to be unavailable or unreliable. People instead rely on more abstract representations (i.e., high-level construals) that highlight the general, essential properties of psychologically distant events. In contrast, construals of more psychologically proximal events (i.e., low-level construals) tend to be more concrete, capturing individual, incidental properties. Increasing psychological distance is analogous to zooming out and seeing "the forest for the trees," whereas decreasing psychological distance is analogous to focusing in on a narrower view. This association between distance and construal level is thought to be overgeneralized and evident even when equivalent information is known about distant and near events. Note that the distinction between higher- and lower-level construals is inherently relative, just as any event's distance or proximity depends on one's reference point. "Dog" is more abstract than "poodle" but more concrete than "mammal"; likewise, the terms "high-level" and "low-level" construals reflect relative differences, rather than distinct points along a continuum.

Extensive research supports distinguishing construals by level of abstraction. Objects associated with more distant future events, for example, are categorized into fewer, broader groups, suggesting more abstract, higher-level construals (Liberman, Sagristano, & Trope, 2002). Actions occurring at more physically distant locations are increasingly identified by the superordinate (higher-level) ends that they achieve rather than subordinate (lower-level) means for achieving them (Fujita, Henderson, Eng, Trope, & Liberman, 2006). Distance-dependent construals are also evident in people's judgments and decisions. For example, people donate more money to wildlife charities in the distant than near future when persuasive appeals highlight superordinate, abstract groups (e.g., "save the orcas") rather than specific, concrete exemplars (e.g., "save Simoon, the orca;" Fujita, Eyal, Chaiken, Trope, & Liberman, 2008).

People can adopt higher- or lower-level construals of events even in the absence of any differences in distance. Vallacher and Wegner (1989) demonstrated differences in individuals' chronic tendency to identify behaviors in terms of their superordinate ends vs. subordinate means (see also Freitas, Salovey, & Liberman, 2001). Moreover, construals can be manipulated by "mindsets" that carry over from one situation to another. Generating superordinate category labels for various objects (e.g., "vehicle" as a category for "car"), rather than subordinate exemplars (e.g., "Mercedes"), for example, can induce higher-level construals in subsequent unrelated situations (Fujita, Trope, Liberman, & Levin-Sagi, 2006).

3. Construal levels and self-control

Because people increasingly interpret events in reference to their global goals and values at higher-level construals (e.g., Liberman et al., 2007), Fujita and colleagues (2006) hypothesized that higher-level construals should promote self-control. Indeed, people induced

to construe at higher levels were more willing to forgo smaller immediate rewards to receive larger delayed ones (Fujita, Trope, Liberman, & Levin-Sagi, 2006). Similarly, higher-level construals led dieters to prefer apples over candy bars (Fujita & Han, 2009). Higher-level construals also appear to protect people against the deleterious effects of regulatory energy depletion, leading to greater self-control despite prior exertions of will (e.g., Agrawal & Wan, 2009; Schmeichel & Vohs, 2009).

4. Present research

We argue that construal levels affect people's prospective self-control efforts. That is, construal levels may influence not only decisions when immediately confronting temptations, but also decisions that bolster the likelihood of resisting future temptations. Because high-level representations place greater weight on valued goals, people construing events in higher-level (and thus, more goal-relevant) terms may act to help themselves resist expected temptations to those salient goals.

Preliminary support for our perspective comes from research on "future lock-in," which describes people's more positive evaluation of choice options associated with self-control success when their implementation occurs further in the future (Rogers & Bazerman, 2008). This increasing temporal distance prompted higher-level construals, which led to more positive evaluations of activities such as joining an intensive but successful exercise program (which, similar to self-control conflicts, people thought they "should" join more than "wanted" to). These findings suggest that anticipating abstract, psychologically distant situations leads people to favor actions consistent with their goals (see also Fujita & Han, 2009; Fujita, Trope, et al., 2006). Whether such abstraction then increases prospective self-control to protect people's goals from anticipated future temptations, however, is still an open question and the focal issue addressed by the present paper.

We argue that higher-level construals increase adoption of various strategies for prospective self-control, but not in all contexts: the motivated use of such actions means a threatened goal must be valued (Trope & Fishbach, 2000). Consider, for example, the difference between dieters and nondieters anticipating a choice between an apple and a candy bar. Whereas dieters construing the choice more abstractly might be reluctant to sacrifice their weight-loss efforts for a candy bar, nondieters would not because weight loss is not a valued goal. Although the former might be motivated to embrace prospective self-control strategies to protect their goals, the latter would be less motivated. Increased use of prospective self-control strategies at higher-level construals should, then, be most evident among people who most value the goals being threatened in future situations.¹

We examined how construal levels affect the adoption of two prospective strategies that previous research has demonstrated successfully promotes self-control. In two experiments, we manipulated construal levels and assessed people's use of prospective self-control strategies when faced with the prospect of a future self-control dilemma. For target strategies, study 1 examined choice bracketing (mentally grouping repeated similar decisions rather than viewing them as isolated individual decisions; e.g., Kudadjie-Gyamfi & Rachlin, 1996; Read, Loewenstein, & Kalyanaraman, 1999), and study 2 examined self-imposed punishment for failure (e.g., Trope & Fishbach, 2000; Wertenbroch, 1998). In addition, in each study, we assessed how much people valued the goal imperiled by future temptations. We predicted that higher-level construals would promote prospective self-control, specifically by people who value the goal at stake. Such people should engage in choice bracketing and self-

¹ We assume that goal value is independent of construal level, an assumption empirically confirmed by past research (Fujita, Trope, et al., 2006; Fujita & Sasota, 2010) and the present studies. We elaborate further on the relationship between goal value and construal level in the General Discussion.

imposed punishment as a means to protecting their goals more at higher-level construals.

5. Study 1: Choice bracketing

5.1. Overview

Paraphrasing William James (1890), drunkards will find reasons to indulge in drink on any given day (e.g., “Today was a tough day,” “I’m in a really bad mood”) and will not stop unless they recognize that their individual choices form a general pattern that renders them a “drunkard.” Choice bracketing is a means to achieve this same recognition while choosing in advance, and to protect against future self-control failures. Consider a dieter’s daily dilemma of choosing between an apple and a candy bar for a snack. The dieter could make each decision individually, independent of her past and future decisions. Alternatively, she could bracket her choices, considering her repeated daily decisions as a set, each decision made in relation to the others. Rather than choosing daily which snack to eat, dieters who bracket their choices decide the respective quantities of apples and candy bars they intend to eat over the course of the week. Choice bracketing reveals the broader patterns of behavior that are less apparent when each choice is considered in isolation. Extensive research suggests that whereas isolated decision-making tends to promote indulging in temptation, choice bracketing effectively promotes future self-control (e.g., Ainslie & Monterosso, 2003; Kudadjie-Gyamfi & Rachlin, 1996; Read et al., 1999). We thus expected higher-level construals to increase choice bracketing in service of prospective self-control.

In study 1, participants were induced to high- vs. low-level construals using previously validated procedures (Freitas, Gollwitzer & Trope, 2004). They were then told they would be making a series of choices, each of which involved selecting healthy or unhealthy snacks. Before making these choices, however, they were given an opportunity to pick one of two choice formats. They could choose a bracketed format, requiring them to choose their selections as a set, or an unbracketed format, allowing them to make each choice individually. To ensure that these snack choices represented a meaningful self-control conflict, participants were asked to indicate how important the goal to be healthy was to them. Higher-level construals should promote preferences for the bracketed choice format but primarily among those concerned about protecting their health goals (i.e., those most likely to view the choices as self-control conflicts).

5.2. Method

5.2.1. Participants

One hundred five students (46 males and 56 females, 3 unreported) participated for course credit and were randomly assigned to condition.

5.2.2. Materials and Procedures

5.2.2.1. Construal-level manipulation. Participants first completed Freitas and colleagues’ (2004) “Why/How” construal level manipulation, in which they generated either superordinate ends or subordinate means for a particular action. Participants in the high-level condition responded to the question “Why do I improve and maintain my health?” After responding, participants answered another question of the same form, referencing their prior response as the new question target. Thus, by responding “to avoid being sick,” participants would next respond to “Why do I want to avoid being sick?” Participants completed four iterations of this question–response process. Those in the low-level condition completed an identical procedure except that the four questions answered were of the form “How do I ... [X],” beginning with the same action prompt (“improve and maintain my health”).

5.2.2.2. Goal value. To assess goal value, participants were asked “How important is it to you to improve your health?” ($M = 7.08$, $SD = 1.68$), using a scale from 1 (somewhat) to 9 (extremely).²

5.2.2.3. Prospective self-control opportunity. Participants were then informed of an opportunity to participate in a future study, for which they would receive a choice of snack on three separate occasions. Several healthy (apple, banana) and unhealthy (piece of lemon pound cake, chocolate candy bar) items were listed, presenting the possibility for future health-inconsistent choices (i.e., self-control failures). A pilot sample ($N = 15$) rated our healthy options healthier ($M = 6.30$) than the unhealthy options ($M = 2.17$) on a 7-point scale, paired $t(14) = 11.69$, $p < .001$. The healthy options were rated less tempting, however; ($M_s = 3.83$ vs. 5.37), paired $t(14) = -2.69$, $p = .02$. Those who agreed to participate were informed that they could either select all three snacks in advance (bracketed format) or make each selection individually during the study (unbracketed format). This constituted the dependent measure of choice bracketing. A postexperimental debriefing explained that the future study was fictional and that they would not be asked to return later.

5.3. Results and discussion

Fifteen students declined to participate in the future study and were excluded from further analysis.³ Of the 90 remaining, 47 chose to bracket their snack choices.⁴ Preliminary analyses revealed no effect of construal level on the measured predictor variable, goal value, $F(1,88) = 0.21$, $p = .65$. Participants’ bracketing preferences were regressed on construal level (contrast-coded with high-level positive), goal value (mean-centered), and the interaction using logistic regression. This analysis revealed as significant only the predicted interaction between construal level and goal value ($b = .42$, $SE = .15$), $p = .005$; model $\chi^2(3) = 11.86$, $p = .008$ (see Fig. 1).

As predicted, among participants more concerned with health (those one SD above mean goal value), construal level significantly affected bracketing preferences ($b = 1.04$, $SE = 0.34$), $p = .002$, such that participants in the high-level condition were 2.77 times more likely (74.4%) to prefer the bracketed over unbracketed choice format than low-level participants (26.8%). Higher-level construals thus increased preferences for bracketed vs. unbracketed choice formats, suggesting the adoption of choice bracketing to enhance future self-control.⁵ Note, however, that construals affected bracketing primarily among those who highly valued the focal health goal. For those who valued health less (one SD below the mean), construal level was unrelated to choice bracketing ($b = -0.38$, $SE = 0.34$), $p = .26$. This specific pattern of results suggests that choice bracketing by those at higher-level construals was indeed motivated to protect a valued goal

² Ratings of goal value may be inflated by social desirability. All analyses used centered variables, statistically controlling for such inflation.

³ Though the study design introduces the possibility of self-selection biases, it is unclear in which direction this bias might be. Nonparticipation may reflect prospective self-control (i.e., avoiding unnecessary exposure to any temptations), prospective self-control failure (missing an opportunity to avoid procrastination in completing course requirements), or simply that participants had met all of the course requirements. Coding nonparticipation exclusively as a preference for bracketed or nonbracketed choice formats left the shape and inferential tests of the primary interaction essentially unchanged.

⁴ Males bracketed more often (62.1%) than females (43.1%), $\chi^2(1) = 3.11$, $p = .08$, but gender did not significantly predict goal value or interact with other predictors. Gender per se (vs. goal value) is unrelated to our research goals and not explored further.

⁵ Because we did not bring participants back to choose snacks later, we cannot compare bracketed to nonbracketed choices to test the effectiveness of bracketing for self-control. We restrict our conclusions to the observation that higher-level construals increase the motivated use of choice bracketing, and defer to past literature to support the effectiveness of choice bracketing for self-control (Ainslie & Monterosso, 2003; Kudadjie-Gyamfi & Rachlin, 1996; Read et al., 1999).

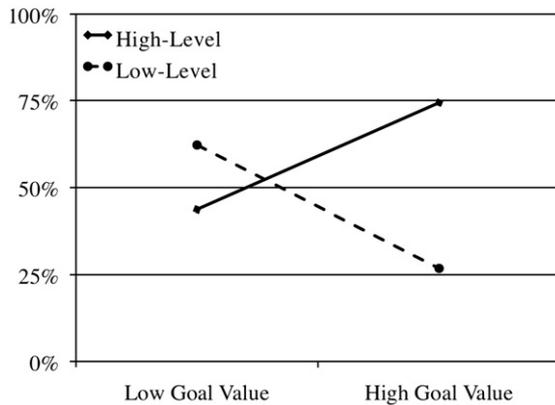


Fig. 1. Likelihood of bracketing choices by goal importance and construal level (study 1).

from temptation. Choice bracketing among those less motivated by the goal was not affected by construal level.

Additional analyses revealed that increasing goal value increased preferences for bracketing among participants in the high-level condition ($b = .39$, $SE = .22$, $p = .07$) and decreased preferences among those in the low-level condition ($b = -.45$, $SE = .20$, $p = .03$). The former provides further evidence that choice bracketing adoption by those at higher-level construals was motivated. Participants at higher-level construals increasingly preferred bracketed choice formats as goal value increased. Why those at lower-level construals evidenced the opposite pattern is less clear. Our theoretical framework provides no specific prediction for this effect, and as this result was not conceptually replicated in study 2, we refrain from post hoc speculation.

Study 2 examines the effects of construal levels on adoption of a second prospective self-control strategy: self-imposed punishment. Study 2, moreover, uses a different construal level induction, both to demonstrate the robustness of the effect and to provide a more critical test of the hypotheses. The construal level manipulation in Study 1 directly referenced the goal under examination: participants discussed why vs. how they improve their health, and then made choices in a health-relevant domain. These procedures may have manipulated some goal-relevant variable other than construal level, such as self-efficacy or commitment. It would be difficult for the main effects implied by such alternate accounts to explain the specific pattern of findings we obtained; nevertheless, study 2 used a construal level manipulation unrelated to the goal under investigation to provide a more stringent test.

6. Study 2: Self-imposed punishment

People self-impose punishments on impulsive actions to motivate greater adherence to successful goal pursuit (Ainslie, 1975; Trope & Fishbach, 2000; Thaler & Shefrin, 1981; Wertenbroch, 1998). If high-level construals promote prospective self-control, then they should promote the use of self-imposed punishment. As in study 1, however, the motivated nature of prospective self-control suggests this effect of construal levels should be specific to situations when people's valued goals are threatened.

In study 2, participants were induced to high- vs. low-level construals by engaging in superordinate vs. subordinate categorization of objects, a procedure adapted from Lin, Murphy, and Shoben (1997). Participants were then informed of a future opportunity to receive an assessment of their cognitive skills. Although this assessment promised useful and desirable information for improving academic success, its uncomfortable procedures tempted avoidance, thus creating a self-control conflict (e.g., Fujita, Trope, et al., 2006;

Trope & Fishbach, 2000). As a measure of self-imposed punishment, participants then reported how much they would be willing to pay for failure to keep their assessment appointment. We predicted that higher-level construals should promote higher monetary penalties. As stated earlier, however, higher-level construals should increase adoption of self-imposed punishment only to the extent that future situations threaten valued goals. Accordingly, we measured the value of the feedback to each participant. Higher-level construals should lead to higher monetary penalties, but only among those for whom the feedback represented a valued goal.

6.1. Method

6.1.1. Participants

One hundred two students participated for course credit and were randomly assigned to condition.

6.1.2. Materials and procedures

6.1.2.1. Construal-level manipulation. Adapting procedures from Lin et al. (1997), participants were presented with four sets of four pictures each, depicting objects that were identical across conditions: T-shirt, high-heel shoe, sandal, and jeans (set A); dump truck, sedan, convertible, and speedboat (set B); Dalmatian, goldfish, German shepherd, and hawk (set C), and coffee table, folding chairs, reclining chair, and table lamp (set D). Participants in the high-level condition were asked questions that would promote superordinate categorization of the objects in each set: they were asked to generate functions, materials, and physical characteristics that were common to all of a set of four objects depicted. Participants in the low-level condition, in contrast, answered questions promoting subordinate categorization of those objects (generating functions or physical attributes that distinguished each object from others in the set). Each condition presented sixteen questions total (four per set).

Although data by Lin et al. (1997) suggests the effectiveness of this construal level manipulation, we collected additional data to confirm its effects. Forty-eight participants completed the induction followed by the Behavior Identification Form (Vallacher & Wegner, 1989), modified for scalar responding. For each of 25 behaviors (e.g., "voting"), participants were asked which of two redescrptions they preferred: one description referred to a subordinate means by which the behavior is performed ("pulling a lever"), whereas the other described a superordinate end achieved by the behavior ("influencing an election"). Participants responded using a 7-point scale anchored by the two redescrptions. The superordinate categorization task promoted preferences for more abstract behavioral descriptions ($M = 4.88$, $SD = 0.73$) than subordinate categorization ($M = 4.13$, $SD = 1.14$), $t(46) = 2.72$, $p = .01$, suggesting successful manipulation of construal levels.

6.1.2.2. Prospective self-control opportunity. Participants were then informed of a future opportunity to complete a cognitive skills assessment. The assessment ostensibly measured participants' concentration ability at different times of day, which could be used to predict academic and career success. In addition to \$50 compensation, participants would have the opportunity to speak with a counselor to receive detailed feedback about how to improve their cognitive abilities. Uncomfortable procedures, however, tempted participants to forgo this valuable assessment: participants were told that participation required arriving for testing at the lab from 2 a.m. until 5 a.m. They were thus presented with a prospective self-control conflict between receiving valuable cognitive skills feedback and avoiding the uncomfortable requirements of participation.

To measure prospective self-control, participants were asked to indicate how much money they would be willing to pay if they failed to attend their scheduled session. They were informed that the

department needed to use cancellation fees to mitigate the expense incurred each time a participant failed to keep an appointment. This constituted the dependent measure of self-imposed punishment.

6.1.2.3. Goal value. To assess how much participants valued the prospect of receiving the feedback, participants rated how valuable they would find the feedback ($M = 5.06$, $SD = 2.01$), using the scale 1 (not at all) to 9 (extremely). Afterward, a postexperimental debriefing explained that the future skills assessment was fictional and that they would not be asked to return later.

6.2. Results and discussion

Preliminary analyses revealed that goal value did not vary by construal level, $F(1,100) = .29$, n.s., supporting its use as a predictor variable. Self-imposed cancellation fees ranged from \$0 to \$50 ($M = \$9.10$; $SD = \$11.87$), and analyses used log-transformed values to reduce skew. Responses were regressed on construal level (contrast-coded) and goal value (mean-centered). Although there was no effect of construal ($b = .05$, $SE = .15$, $p = .74$), higher reported goal value predicted higher cancellation fees ($b = .25$, $SE = .07$, $p < .001$). This effect was qualified by a significant interaction between construal and goal value ($b = .17$, $SE = .07$, $p = .01$; see Fig. 2).

As predicted, high-level ($M = \$9.14$, $\log\text{-}M = 2.33$) vs. low-level construals ($M = \$3.59$, $\log\text{-}M = 1.88$) led to significantly higher self-imposed cancellation fees ($b = .43$, $SE = .21$, $p = .04$) among those who valued the feedback (i.e., one SD above mean goal value). This suggests that higher-level construals increased self-imposition of punishment to protect valued goals from temptations. When participants did not value the feedback, construal level did not affect cancellation fees ($b = -.33$, $SE = .21$, $p = .12$). Self-imposed punishment by those at higher-level construals thus appears motivated by one's goals. As further evidence of this claim, participants induced to high-level construals self-imposed higher cancellation fees as feedback value increased ($b = .43$, $SE = .09$, $p < .001$), but participants at low-level construals did not offer higher cancellation fees with increasing feedback value ($b = 0.07$, $SE = 0.10$, $p = .46$). Higher-level construals thus prompted self-imposed punishment only to the extent that people valued the potentially jeopardized goal. These results conceptually replicated study 1 using a different construal level manipulation containing content unrelated to the focal self-control conflict, thus demonstrating the robustness of the effect of construal levels on prospective self-control.

7. General discussion

Together, studies 1 and 2 indicate that higher-level construals enhance prospective self-control. Across two construal level manip-

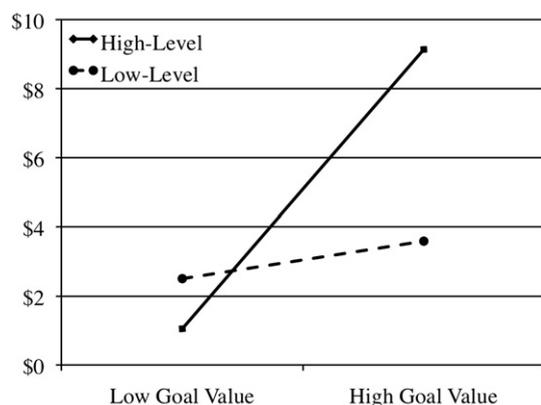


Fig. 2. Self-imposed cancellation fees (in US \$) by goal importance and construal level (study 2).

ulations and two different strategies, higher-level construals promoted prospective efforts to protect valued goals from being undermined by temptations. Moreover, these studies demonstrated that higher-level construals promoted prospective efforts only inasmuch as they addressed meaningful self-control conflicts; actions protecting unimportant goals were unaffected by level of construal. This research indicates that rather than merely responding to the objective features of a situation, subjective mental construals play a critical role in how people address self-control conflicts. Higher-level construals not only promote self-control in the moment of choice (e.g., Fujita & Han, 2009; Fujita, Trope, et al., 2006), but also prompt people to engage in prospective efforts to protect their goals from anticipated temptations.

7.1. On goal value

One conceivable mechanism by which construal levels promote self-control is by increasing the value or importance of an imperiled goal. The independence of construal levels and goal value in these studies, however, replicates past findings (Fujita, Trope, et al., 2006; Fujita & Sasota, 2010) and argues for a different mechanism by which construal levels impact self-control. Higher-level construals may, for example, render people's goals more accessible without changing the value of those goals (Fujita & Sasota, 2010). This increased accessibility may in turn render goal-consistent choices more likely. Successful self-control also requires seeing one's goals as relevant to a particular situation (e.g., Myrseth & Fishbach, 2009). Higher-level construals may promote self-control by increasing the perceived applicability of one's goals to a situation. These proposed alternate mechanisms by which higher-level construals promote self-control clearly await greater empirical exploration, but they are at least consistent with our current data and theorizing.

7.2. On means and ends

The present research also clarifies an apparent contradiction in the self-control literature. Research on implementation intentions suggests that self-control is enhanced by creating plans to perform specific behaviors in response to critical situational cues (e.g., Gollwitzer, 1999). A focus on specific behaviors and concrete cues to promote goals may seem contrary to a construal level approach wherein abstract representations enhance self-control. The present research, however, suggests that the planning process itself is contingent on more abstract construals. In the present work, higher-level construals promoted selection of those concrete means (i.e., choice bracketing, self-imposed punishment) appropriate to one's more global goals. Rather than promoting an exclusive focus on goals to the detriment of concrete planning, these findings suggest that higher-level construals promote attention to means–ends relationships, helping people to select the most effective means for achieving valued ends. Thus, enacting specific plans may serve goals, but whether one chooses to plan or not may require seeing the proverbial “forest for the trees.”

7.3. New directions

Although we used two specific procedures to prime construal levels in the present studies, a number of other factors can induce higher- or lower-level construals. As reviewed earlier, events that are psychologically distant from us are more likely to be construed at higher levels. Accordingly, the more psychologically distant self-control conflicts are, the more likely people should be to engage in prospective self-control. Visualizing an event from a third- rather than first-person perspective has also been linked to abstract construals (e.g., Libby, Shaefter, & Eibach, 2009; Kross, Ayduk, & Mischel, 2005) and should similarly promote prospective self-control. Other variables, such as

positive moods (e.g., Gasper & Clore, 2002) and self-affirmation (e.g., Schmeichel & Vohs, 2009; Wakslak & Trope, 2009), have also been associated with higher-level construals, and should increase people's prospective self-control efforts. Future research might also examine how individual differences in chronic use of higher-level construals (e.g., Vallacher & Wegner, 1989) relate to habitual usage of prospective self-control strategies.

These studies are among the first that we are aware of to examine the cognitive factors that determine when people choose to engage in prospective self-control. As noted earlier, research in social psychology has largely overlooked prospective self-control to focus on decision making at the moment temptations are directly confronted. Prospective self-control strategies may represent more effective means to promote self-control. When people anticipate and engineer future choices to be consistent with their goals, they may reduce or even obviate the need to engage in more urgent and fallible in-the-moment self-control efforts. These present studies represent an initial step toward understanding better when people engage in prospective self-control.

References

- Agrawal, N., & Wan, E. W. (2009). Regulating risk or risking regulation? Construal levels and depletion effects in the processing of health messages. *Journal of Consumer Research*, 36(3), 448–462.
- Ainslie, G. (1975). Specious reward: A behavioral theory of impulsiveness and impulse control. *Psychological Bulletin*, 82(4), 463–496.
- Ainslie, G., & Monterosso, J. R. (2003). Building blocks of self-control: Increased tolerance for delay with bundled rewards. *Journal of the Experimental Analysis of Behavior*, 79(1), 37–48.
- Ariely, D., & Wertenbroch, K. (2002). Procrastination, deadlines, and performance: Self-control by precommitment. *Psychological Science*, 13(3), 219–224.
- Baumeister, R. F., & Heatherton, T. F. (1996). Self-regulation failure: An overview. *Psychological Inquiry*, 7(1), 1–15.
- Bruner, J. S. (1957). On perceptual readiness. *Psychological Review*, 64(2), 123–152.
- Fiske, S. T., & Taylor, S. E. (2008). *Social cognition, from brains to culture*. New York, NY: McGraw-Hill.
- Freitas, A. L., Gollwitzer, P., & Trope, Y. (2004). The influence of abstract and concrete mindsets on anticipating and guiding others' self-regulatory efforts. *Journal of Experimental Social Psychology*, 40(6), 739–752.
- Freitas, A. L., Salovey, P., & Liberman, N. (2001). Abstract and concrete self-evaluative goals. *Journal of Personality and Social Psychology*, 80(3), 410–424.
- Fujita, K., Eyal, T., Chaiken, S., Trope, Y., & Liberman, N. (2008). Influencing attitudes toward near and distant objects. *Journal of Experimental Social Psychology*, 44(3), 562–572.
- Fujita, K., & Han, H. A. (2009). Moving beyond deliberative control of impulses: The effect of construal levels on evaluative associations in self-control conflicts. *Psychological Science*, 20(7), 799–804.
- Fujita, K., Henderson, M. D., Eng, J., Trope, Y., & Liberman, N. (2006). Spatial distance and mental construal of social events. *Psychological Science*, 17(4), 278–282.
- Fujita, K., & Sasota, J. A. (2010). *Construal-moderated automatic associations between temptations and goals*. Unpublished manuscript, The Ohio State University.
- Fujita, K., Trope, Y., Liberman, N., & Levin-Sagi, M. (2006). Construal levels and self-control. *Journal of Personality and Social Psychology*, 90(3), 351–367.
- Gasper, K., & Clore, G. L. (2002). Attending to the big picture: Mood and global versus local processing of visual information. *Psychological Science*, 13(1), 34–40.
- Gollwitzer, P. M. (1999). Implementation intentions: Strong effects of simple plans. *The American Psychologist*, 54, 493–503.
- Griffin, D. W., & Ross, L. (1991). Subjective construal, social inference and human misunderstanding. In M. P. Zanna (Ed.), *Advances in experimental social psychology*, Vol. 21, New York, NY: Academic Press.
- Hinson, J. M., Jameson, T. L., & Whitney, P. (2003). Impulsive decision making and working memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 29(2), 298–306.
- Hoch, S. J., & Loewenstein, G. D. F. (1991). Time-inconsistent preferences and consumer self-control. *Journal of Consumer Research*, 17(4), 492–507.
- James, W. (1890). *The principles of psychology*. New York, NY: Holt and Company.
- Kross, E., Ayduk, O., & Mischel, W. (2005). When asking "why" does not hurt: Distinguishing rumination from reflective processing of negative emotions. *Psychological Science*, 16(9), 709–715.
- Kudadjie-Gyamfi, E., & Rachlin, H. (1996). Temporal patterning in choice among delayed outcomes. *Organizational Behavior and Human Decision Processes*, 65(1), 61–67.
- Libby, L. K., Shaeffer, E. M., & Eibach, R. P. (2009). Seeing meaning in action: A bidirectional link between visual perspective and action identification level. *Journal of Experimental Psychology: General*, 138(4), 503–516.
- Liberman, N., Sagristano, M. D., & Trope, Y. (2002). The effect of temporal distance on level of mental construal. *Journal of Experimental Social Psychology*, 38(6), 523–534.
- Liberman, N., Trope, Y., & Stephan, E. (2007). Psychological distance. *Social psychology: Handbook of basic principles* (pp. 353–381), 2nd ed. New York, NY, US: Guilford Press.
- Lin, E. L., Murphy, G. L., & Shoben, E. J. (1997). The effects of prior processing episodes on basic-level superiority. *The Quarterly Journal of Experimental Psychology. A: Human Experimental Psychology*, 50A(1), 25–48.
- Loewenstein, G. (1996). Out of control: Visceral influences on behavior. *Organizational Behavior and Human Decision Processes*, 65(3), 272–292.
- Metcalfe, J., & Mischel, W. (1999). A hot/cool-system analysis of delay of gratification: Dynamics of willpower. *Psychological Review*, 106(1), 3–19.
- Mischel, W., & Baker, N. (1975). Cognitive appraisals and transformations in delay behavior. *Journal of Personality and Social Psychology*, 31(2), 254–261.
- Mischel, W., Shoda, Y., & Rodriguez, M. L. (1989). Delay of gratification in children. *Science*, 244(4907), 933–938.
- Muraven, M., & Baumeister, R. F. (2000). Self-regulation and depletion of limited resources: Does self-control resemble a muscle? *Psychological Bulletin*, 126(2), 247–259.
- Myrseth, K. O. R., & Fishbach, A. (2009). Self-control: A function of knowing when and how to exercise restraint. *Current Directions in Psychological Science*, 18, 247–252.
- Rachlin, H. (2000). *The science of self-control*. Cambridge, MA: Harvard University Press.
- Read, D., Loewenstein, G., & Kalyanaraman, S. (1999). Mixing virtue and vice: Combining the immediacy effect and the diversification heuristic. *Journal of Behavioral Decision Making*, 12(4), 257–273.
- Rogers, T., & Bazerman, M. H. (2008). Future lock-in: Future implementation increases selection of 'should' choices. *Organizational Behavior and Human Decision Processes*, 106(1), 1–20.
- Schmeichel, B. J., & Vohs, K. (2009). Self-affirmation and self-control: Affirming core values counteracts ego depletion. *Journal of Personality and Social Psychology*, 96(4), 770–782.
- Shiv, B., & Fedorikhin, A. (1999). Heart and mind in conflict: The interplay of affect and cognition in consumer decision making. *Journal of Consumer Research*, 26(3), 278–292.
- Thaler, R. H., & Shefrin, H. M. (1981). An economic theory of self-control. *Journal of Political Economy*, 89(2), 392–406.
- Tice, D. M., Bratslavsky, E., & Baumeister, R. F. (2001). Emotional distress regulation takes precedence over impulse control: If you feel bad, do it! *Journal of Personality and Social Psychology*, 80, 53–67.
- Trope, Y., & Fishbach, A. (2000). Counteractive self-control in overcoming temptation. *Journal of Personality and Social Psychology*, 79(4), 493–506.
- Trope, Y., & Fishbach, A. (2005). Going beyond the motivation given: Self-control and situational control over behavior. In R. R. Hassin & J. S. Uleman (Eds.), *The new unconscious* (pp. 537–563). New York: Oxford University Press.
- Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review*, 110(3), 403–421.
- Trope, Y., & Neter, E. (1994). Reconciling competing motives in self-evaluation: The role of self-control in feedback seeking. *Journal of Personality and Social Psychology*, 66, 646–657.
- Vallacher, R. R., & Wegner, D. M. (1989). Levels of personal agency: Individual variation in action identification. *Journal of Personality and Social Psychology*, 57(4), 660–671.
- Wakslak, C. J., & Trope, Y. (2009). Cognitive consequences of affirming the self: The relationship between self-affirmation and object construal. *Journal of Experimental Social Psychology*, 45(4), 927–932.
- Ward, A., & Mann, T. (2000). Don't mind if I do: Disinhibited eating under cognitive load. *Journal of Personality and Social Psychology*, 78(4), 753–763.
- Wegner, D. M. (1994). Ironic processes of mental control. *Psychological Review*, 101(1), 34–52.
- Wertenbroch, K. (1998). Consumption self-control by rationing purchase quantities of virtue and vice. *Marketing Science*, 17(4), 317–337.
- Wiers, R. W., & Stacy, A. W. (2006). Implicit cognition and addiction. *Current Directions in Psychological Science*, 15(6), 292–296.