# ARE CONSTRUAL LEVEL EFFECTS DOMAIN SPECIFIC? EXPLORING THE EFFECT OF CONSTRUAL IN A MULTI-GOAL CONTEXT

by

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(Under the Direction of Michelle vanDellen)

#### ABSTRACT

People often pursue many goals simultaneously in their lives. I hypothesized that people engaging in high-level construal would evaluate means to pursue a salient goal as higher in perceived utility (compared to means for an alternative goal). In the first study, I tested the effect of manipulated construal level on evaluations of means, demonstrating that, contrary to expectations, low-level construal lead to higher evaluations of perceived utility for means overall. In the second study, I expanded on the findings of the first to examine how means counter to long-term goals were evaluated across construal level. Participants did not demonstrate significant differences across construal level in their evaluations of means that advanced or countered an active or alternative goal. Interpretations of the unexpected results and future directions are discussed.

INDEX WORDS: Goal systems, self-regulation, construal level

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## TABLE OF CONTENTS

Page
LIST OF TABLES
LIST OF FIGURES vi
CHAPTER
1 INTRODUCTION
Construal Level Theory4
Present Research
2 STUDY 110
Methods10
Results12
Discussion15
3 STUDY 2
Methods16
Results17
Discussion
4 GENERAL DISCUSSION21
REFERENCES

## LIST OF TABLES

Paş	ge
Table 1: List of means, Study 1    2	29
Table 2: List of means, Study 2	30
Table 3: Arithmetic Means for main analysis, Study 1	31
Table 4: Arithmetic Means for interaction analysis, Study 1	31
Table 5: Exploratory analysis (construal by active goal on academics/health means), Study 13	32
Table 6: Arithmetic Means for main analysis, Study 2	33
Table 7: Arithmetic Means for construal by active goal interaction analysis, Study 2	33
Table 8: Exploratory analysis (construal by active goal), Study 2	34
Table 9: Exploratory analysis (construal on within person variation), Study 2	34
Table 10: Exploratory analysis (construal by active goal on academic/health means), Study 23	35

## LIST OF FIGURES

Page

Figure 1: Perceived utility of means predicted by manipulated construal level with 95% CI of	
means (Study 1)	36
Figure 2: Perceived utility of means predicted by manipulated construal level with 95% CI of	
means (Study 2)	36

#### CHAPTER 1

#### INTRODUCTION

Goal conflict is inevitable. No matter what people choose to do (or avoid doing) in service of a goal, they will likely act in discordance with one of their goals or be faced with alternatives that would better promote progress in other goals. Goals are desired end states that guide action (Kruglanski, 1996). Many strategies or opportunities for goal pursuit, known as means, are typically available to pursue these goals (Kruglanski, 1996). The structure of a person's goals and means is organized in networks of goal systems (Kruglanski et al., 2002). Considering this structure and the inherent conflicts people face, how do people choose what to do or avoid? The purpose of this investigation is to examine a specific case of how people may make this decision, by determining how people's subjective interpretations, or construals, of situations impact their evaluations of means to pursue goals.

People often pursue many goals simultaneously, some of which often compete for resources such as time and physical energy (for a review, see Kruglanski et al., 2002). In a goal system, related goals and means are linked through cognitive-motivational associations (Kruglanski et al. 2002). A person with the goal of losing weight may form a link between the action of running and the goal of losing weight; a person with a goal of getting a 4.0 GPA may form a link between the action of studying and this academic goal. Multiple goals may be simultaneously active to varying extents, either consciously or non-consciously (Aarts & Dijksterhuis, 2000; Bargh & Ferguson, 2000; Bargh & Chartrand, 1999). According to goal

shielding theory, an active goal draws away activation from other goals (Shah, Friedman, & Kruglanski, 2002). Active goals influence the choices people make, typically in line with efforts to pursue these goals (Ferguson & Bargh, 2004). For example, activating a goal to perform well on an upcoming exam will reduce the activation of one's goal to exercise. However, when an alternative goal facilitates progress in the focal goal, this effect should be weaker (Kruglanski et al., 2002).

Both goals and means vary in characteristics specific to themselves and how they relate to other goals and means (Kruglanski et al., 2002). A given means may serve one or more goals: when a means serves more than one goal, the means is multifinal (Kruglanski et al., 2013). Multifinal means provide increased value compared to unifinal, or single goal, means; however, this increased value is at the cost of a weakened association with each individual goal (Zhang, Fishbach, & Kruglanski, 2007). In the reverse orientation, any number of means that can provide value to the same goal are defined as equifinal (Kruglanski, Chernikova, Babush, Dugas, & Schumpe, 2015). Another possible orientation is that a means serves one goal and impairs another; this means is counterfinal (Kruglanski et al., 2015).

Each potential means available to pursue a given goal may affect other goals in a person's goal system to varying extents. Any means available to pursue a given goal can have varied effects on alternative goals. In a goal situation where two goals are perfectly aligned, a given means to the lower order goal will promote progress in both goals (i.e., serve a multifinal function). This scenario is represented as a subgoal-goal relationship (Kruglanski et al., 2002). On the opposite end, one may imagine a goal scenario where progress on one goal always impairs progress in another goal. Consider the hypothetical case of someone who wants to pursue a goal to lose weight and a goal to gain weight simultaneously. Pursuit of these two goals

at the same time is not possible, because using a means that assists progress in losing weight directly conflicts with a goal of gaining weight.

However, most goals are neither in perfect alignment with one another nor in direct opposition to each other. Instead, means may promote or impair alternative goal progress to varying degrees. In this regard, the extent to which goals are structurally conflicting can be defined by the degree to which the most relevant and utilized means for a given goal impair progress in another goal. Furthermore, the extent to which people perceive their goals as discordant represents the subjective experience of goal conflict, with lower levels of conflict occurring when there is facilitation between goals (Shah & Kruglanski, 2002).

Although not many goals are in constant, complete opposition, means strongly associated with one goal can create strong conflict between this goal and a second goal. One such case is the dual-motive self-control conflict (Fujita, 2011). This conflict occurs when a short-term, small reward goal conflicts with a long-term, larger reward goal. In this goal scenario, means to pursue one of the goals are consistently associated with negative outcomes for the other goal (i.e., a counterfinal relationship; Kruglanski et al., 2015). This goal scenario is exemplified in a dieter who chooses to eat an unhealthy but tasty snack; pursuing their goal of enjoying food to the detriment of their long-term goal of losing weight. In these types of highly conflicting goal scenarios, means that allow a person to pursue both goals simultaneously are rare (Köpetz, Faber, Fishbach, & Kruglanski, 2011). For example, a dieter who likes strawberries may use this means to pursue both the goal of eating healthily and the goal of enjoying food. Due to the nature of these two goals, there may not be many other available means that promote progress for both goals. However, goals also may be organized in a way that is less conflicting, allowing for a broader set of multifinal means to simultaneously pursue both goals. For example, a person who

wants to achieve academic success and pursue a health goal may attempt to pursue both goals by getting adequate sleep.

Means also vary in the extent to which they provide utility for active and non-active goals. Any given means may provide differential value and signal different expectancy to competing short-term and long-term goals (Fujita, 2011), as well as vary in the extent to which it is concordant with an individual's goal system structure (Fujita, Carnevale, & Trope, 2018). In the case of a dieter, choosing to eat a high-calorie snack may provide value for a goal of enjoying food while also providing negative value for the long-term goal of losing weight. Regarding this differential value over time and concordance with the collection of one's goals, an important consideration for understanding people's behavior is determining how people will make choices based on their perceptions of actions over time, and more broadly, across psychological distance.

#### **Construal Level Theory**

Construal level theory provides a framework for how people think about the world across levels of psychological distance (i.e., time, physical distance, hypotheticality, social distance; see Trope & Liberman, 2010). Past research on construal level theory has explored how people can think about the world at varying levels of abstraction. As objects become further removed from direct experience, engaging in high-level construal allows people to make more abstract representations of objects in the world that contain central, essential characteristics, as objects are more psychologically distant. Engaging in low-level construal produces more concrete, specific representations as objects become psychologically proximal. These representations are the result of the typically decreased available information regarding objects further away in psychological distance, but people have the capability to think about any object at varying levels of construal (along a continuum from low to high).

The effects of construal may depend on actual temporal distance, as well as priming from other instances of psychological distance. Any object can be construed in different ways and at varying levels of abstractness. For example, one can construe the act of eating an apple as "chewing and swallowing" (relatively concrete) or "being healthy" (relatively abstract). Active goals should affect the way a person assigns meaning to any given object (Trope & Liberman, 2010). For instance, if one had the goal to show others that they maintain a healthy lifestyle, the act of eating an apple could be construed as an opportunity for social advancement.

The effect of active goals on construal should also extend to include varying construals of means to pursue goals. If a means advances an active goal, high-level construal should increase the likelihood that a person uses this means (Fujita, Henderson, Eng, Trope, & Liberman, 2006). Existing research on construal level theory has examined the role of construal in the previously mentioned dual-motive self-control conflict. This orientation of goals typically results in a direct competition between the short-term, small reward and long-term larger-reward goals, such that means to progress in one goal impairs progress in the other goal (Fujita, 2011). In these goal scenarios, high-level construal reduces the likelihood of pursuing the short-term goal in favor of the larger reward long-term goal (Fujita, 2008; Fujita & Carnevale, 2012). This effect occurs because high-level construal shifts focus toward the desirability of an end state over the feasibility of attaining an end state (Liberman & Trope, 1998). When a smaller, short-term goal conflicts with a bigger, long-term goal, high-level construal allows people to forgo the more proximal and highly available temptation and realize the greater value of the long-term, less immediately feasible reward. A dieter may want to indulge in eating a high-calorie pizza, but high-level construal should shift their representation of the pizza from a "tasty snack" to a "diet disturbance". As a result, high-level construal should make them more likely to avoid this

temptation and pursue their long-term goal of losing weight to achieve the more abstract reward of appearing slim.

Beyond the context of a dual-motive conflict, goals can be arranged in many ways, and construal level effects may differ among these various goal orientations. As such, Fujita and colleagues (2018) have recently expanded upon the theoretical predictions of construal level effects by redefining the conflict involved in self-control. In this newer approach, self-control is presented as a conflict between the larger structure of a person's goals and the unstructured individual concerns that may temporarily detract from the overall structure. Units of action may contribute to this overall structure or deviate, with self-control failure represented by deviation. From this theoretical view, high-level construal should promote long-term goal progress through better identification of how actions fit within the broader structure. Furthermore, conflicts that do not involve competition between an individual concern and the whole of an individual's goal system structure are not defined as a self-control conflict, but rather a different type of goal conflict.

Consider the earlier discussion of goal alignment, wherein goals may conflict or facilitate each other (either structurally or subjectively). People often pursue multiple long-term goals concurrently, which may impact how varied levels of construal may impact means selection (Fishbach, Zhang, & Koo, 2009). Although the effect of construal has been well studied in temporally disparate goals that directly compete (as in the case of indulging in a high-calorie snack versus losing weight; see Fujita, 2008), there is less empirical work on the effects of varied levels of construal on long-term goals that instead only compete for attention and resources (Fujita et al., 2018).

In a goal scenario containing multiple long-term goals with comparable associated rewards, the effects of high-level construal will not necessarily be driven by differential value of means over time. Research on goal shielding demonstrates that people engaged in contemporaneous goal pursuits cognitively inhibit means for an alternative goal to the extent that it does not facilitate the active goal (Shah, Friedman, Kruglanski, 2002). There is evidence for this goal shielding effect occurring in both short-term task goals as well as long-term abstract and chronic goals.

I predicted that when a person has one of two long-term goals more active than the other, high-level construal should promote a focus on means that advance the active goal. In this scenario, high-level construal should make people consider a given means in the context of the value it provides for the active goal. These predictions are based on the idea that high-level construal shifts focus to the value of an object, which is shaped by a person's active goals (Trope, Liberman, & Wakslak, 2007). Because of the value a relevant means provides the active goal, people should see means that advance progress in the focal goal as more useful.

The extent to which a unifinal means promotes an active goal, high-level construal should lead to increased perceived utility of the means. In parallel, the extent to which a unifinal means promotes a secondary goal and is increasingly orthogonal to one's active goal, high-level construal should not lead to increased utilization of this means. Multifinal means that simultaneously advance both the active and non-active goal should be viewed as more useful because of the value they provide for pursuing the active goal. Means that solely advance a nonactive goal will likely be viewed as less useful when a person engages in high-level construal, as the benefits these means provide are not tied to the value of the active goal. When a means provides value for a non-active goal and negative value for an active goal, high-level construal

should reduce perceived utility of this means (as in the case of a dual-motive self-control conflict; Fujita et al., 2006).

Multifinal means typically lead to a dilution effect, where multifinal means have weaker cognitive associations with each individual goal that they advance (Zhang, Fishbach, & Kruglanski, 2007). However, high-level construal should shift focus to the value of a means in terms of one's active goal, thus reducing the dilution effect. As the strength of the association between a means and goal is perceived as the means' usefulness for that goal (Kruglanski et al., 2015), the shift in focus to value of the means only to the active goal should increase perceived utility. If a means still provides value for the active goal, people engaging in high-level construal should only focus on the association between the multifinal means and active goal, disregarding its impact on the secondary goal. For example, if a person has goals to perform well academically and get adequate exercise, getting adequate sleep may advance both goals. If the academics goal is active, sleep should still seem valuable in relation to the active goal when the person is engaging in high-level construal. However, this effect should be limited by the value provided to the focal goal: if the means only provides a small benefit to the active goal, it should still be viewed as less useful compared to a means that provides a large benefit to the active goal.

#### **Present research**

The present research investigated the role of construal level on perceived utility of means in two experiments. I examined the effect of manipulated construal (high vs. low) on perceived utility of unifinal (Studies 1 and 2), multifinal (Study 1), and temptation advancing counterfinal (Study 2) means when one goal was made salient. In both studies, I presented participants with an experimental manipulation containing content related to a long-term goal in one of two

domains and presented the cognitive process of high or low-level construal (Fujita & Trope, 2014). Participants then rated lists of means on perceived utility (and intended action in Study 2).

For the first study, I predicted participants manipulated to engage in high-level construal, compared to low-level construal, would see means central to the active goal as more useful. Participants engaging in high-level construal (vs low-level construal) should also have seen multifinal means as more useful. In addition, those engaging in high-level construal (vs. low-level construal) should have viewed effective means for attainment of non-central goals as less useful than those engaging in low-level construal. The second study aimed to expand upon the findings of the first by clarifying unexpected results and measuring behavioral intentions. The main preregistration page for both studies is available at <u>osf.io/c8qxp/</u>.

#### CHAPTER 2

#### STUDY 1

#### Method

#### Participants.

Four-hundred and forty-seven undergraduate students (71.6% female, 28.4% male) in the psychology participant pool at a large public university in the Southeast completed an experimental survey (most completed the survey online at a location of their choosing; 55 participants completed the survey in the lab). All participants received partial course credit for participation. Sample size was determined by a target of least 100 participants per cell, allowing additional sign ups until the posted time slots were filled. Because the average effect size in social psychology is equivalent to a Cohen's d of .43 (Richard, Bond, & Stokes-Zoota, 2003), I determined that this sample size would allow for correct identification of a meaningful difference in a two-tailed test of means 80% of the time. No additional participants were run after the beginning of analysis.

#### **Procedure.**

*Construal level and active goal manipulation.* At the beginning of the experiment, participants were randomly assigned to complete a construal level manipulation (i.e., the whyhow task) based on one of two randomly assigned goals: "Improve and maintain health" or "Pursue academic goals". Participants either completed a why task (high-level construal) detailing abstract reasons one engages in a given goal or a how task (low-level construal) detailing more concrete ways in which one would pursue a goal. This task has been shown to

reliably induce varied construal levels (Freitas, Gollwitzer, & Trope, 2004). The goal presented in this task served as the manipulation for making the given goal salient (academics or health).

Participants in the why condition first read the following instructions: "Beginning in the lowest blank box (the one just above the box labeled 'Improve and Maintain Health' ['Pursue academic goals"]), fill in each box by answering the question 'Why do I engage in the behavior described in the immediately lower box?' To help you with this exercise, the boxes below show how our example, participating in a psychology experiment, can be linked to important life goals." Below this set of instructions was the example listed. Following the example was a reminder of the instructions "Start at the bottom box, and when you've completed this box you can advance to the next page". The task contained five boxes, with the lowest containing the text of the active goal from the manipulation. Each of the four remaining boxes allowed participants to type in text to respond.

Participants in the how condition participants read similar instructions: "Beginning in the highest blank box (the one just below the box labeled 'Improve and Maintain Health' ['Pursue academic goals"]), fill in each box by answering the question 'How can I meet the goal described in the immediately higher box?' To help you with this exercise, the boxes below show how our example, attaining life happiness, can be linked to specific activities." Below this set of instructions was the example listed. Following the example was a reminder of the instructions "Start at the next box, and when you've completed the last box you can advance to the next page".

*Perceived utility of means.* Following the construal level and active goal manipulation, participants viewed a list of 30 means: 10 academic means, 10 health means, and 10 multifinal means (which served both academic and health goals; see Table 1). These means were presented

in a randomized order on the same page. Participants responded to the item "How useful would this be to do?" on a 1 (*Not at all*) to 7 (*Very useful*) scale for each of the listed means. Finally, participants completed individual difference measures (Brief Self-Control, Tangney, Baumeister, & Boone, 2004; an exploratory regulatory focus scale), demographics, and were debriefed.

#### Results

Each type of means was analyzed as a composite score, as the alphas were above .70, consistent with the preregistered analysis plan (academics  $\alpha = .80$ ; health  $\alpha = .88$ ; multifinal  $\alpha = .82$ ; <u>osf.io/csjt6/</u>). Data was excluded from analysis if participants did not complete the survey (indicated by a lack of an email entered on the last item). In addition, data with duplicate emails was removed, keeping only the first response from a participant that responded more than once.

Independent variables of interest were the manipulated construal level (high-level, lowlevel) and manipulated active goal (academics, health). Because I was interested in the effect of means that either advanced an active goal or did not advance an active goal (i.e., advanced the alternative goal), I coded the dependent means composite scores based on condition, reflecting the different match and mismatch means. That is, for those with the active goal of academics, the academics means were included in analyses as matched means and the health means were included as mismatched means (with the opposite for those in the health condition). As multifinal means served both goals, this composite score remained the same in analyses. The main analysis was preregistered, along with exploratory analysis (see <u>osf.io/csjt6/</u>).

**Construal level on perceived utility.** For the main analysis, I tested the effect of construal on perceived utility of means, using SAS 9.4 to analyze a 2 (construal: high-level, low-level) x 3 (means type: match, mismatch, multifinal) mixed model. Contrary to predictions, there was a significant effect of construal such that high-level construal condition saw means that

matched the active goal as less useful compared to low-level construal, F(1, 439) = 13.90, p = .0002,  $\eta^2 = .0307$ , 95% CI for  $\eta^2$  [0.0069, 0.0687]. This effect also occurred for means that mismatched the active goal, F(1,439) = 7.44, p = .0066,  $\eta^2 = 0.0167$ , 95% CI for  $\eta^2$  [0.0013, 0.0476], and were multifinal, F(1, 439) = 6.42, p = .0116,  $\eta^2 = 0.0144$ , 95% CI for  $\eta^2$  [0.0007, 0.0439]. Thus, the results of the main analysis were not consistent with predictions. For cell means, see Table 3. For a visual representation of these results, see Figure 1.

**Construal level and active goal on perceived utility.** I also tested for potential asymmetric effects of goal type. The main analyses of interest examined the effect of construal based on match/mismatch of means to active goal without regard to which of the two goals was active. The exploratory analysis included active goal to analyze a 2 (construal: high-level, low-level ) x 2 (active goal: academics, health) x 3 (means type: match, mismatch, multifinal) mixed model.

For the match means, the effect of construal held, F(1, 437) = 14.35, p = .0002,  $\eta^2 = 0.0311$ , 95% CI for  $\eta^2$  [0.0071, 0.0693], and there was a significant effect of active goal, such those with the health active goal saw match means as more useful, F(1, 437) = 9.90, p = .0017,  $\eta^2 = 0.0215$ , 95% CI for  $\eta^2$  [0.0029, 0.0551]. There was not a significant interaction between construal and active goal on match means, F(1, 437) = 0.14, p = .7073,  $\eta^2 = 0.0003$ , 95% CI for  $\eta^2$  [0, 0.0114]. For mismatch means, the effect of construal also held, F(1, 437) = 7.54, p = .0063,  $\eta^2 = 0.0168$ , 95% CI for  $\eta^2$  [0.0013, 0.0479], and there was not a significant effect of active goal, F(1, 437) = 3.34, p = .0682,  $\eta^2 = 0.0075$ , 95% CI for  $\eta^2$  [0, 0.0314]. There was not a significant interaction between construal and active goal on mismatch means, F(1, 437) = 0.03, p = .8684,  $\eta^2 = 0.0001$ , 95% CI for  $\eta^2$  [0, 0.0075]. For multifinal means, the effect of construal also held, F(1, 437) = 6.38, p = .0119,  $\eta^2 = 0.0144$ , 95% CI for  $\eta^2$  [0.0007, 0.0439], and there was no

effect of active goal, F(1, 437) = 0.20, p = .6569,  $\eta^2 = 0.0004$ , 95% CI for  $\eta^2$  [0, 0.0125]. There was not a significant interaction between construal and active goal on multifinal means, F(1, 437) = 0.01, p = .9222,  $\eta^2 = 0$ , 95% CI for  $\eta^2$  [0, 0.0051]. Thus, overall, the only further effect of interest was the effect of active goal on matched means. For cell means, see Table 4.

**Construal level on within-person variation.** Due to the unexpected results, I conducted an exploratory analysis on the standard deviation of each of the sets of means. To get at withinperson variability in means evaluation, I used the standard deviations of composite means perceived utility as the dependent variable. To create this value, I took the standard deviation of the ratings of each set of means for each participant. That is, using a participant's rating of all means in a given category, I created a score that represented how variable their ratings were within a given domain of means. Mirroring the main analysis of interest, I conducted a 2 (construal: high-level, low-level) x 3 (means type: match, mismatch, multifinal) mixed model on the individual-level standard deviations of composite scores. I found that high-level construal had a significantly higher standard deviation than low-level construal for match means, F(1, 439) = 4.54 p = .0337,  $\eta^2 = 0.0102$ , 95% CI for  $\eta^2 [0, 0.0366]^1$ . I found no difference of construal for mismatch means, F(1, 439) = 0.20, p = .6520,  $\eta^2 = 0.0005$ , 95% CI for  $\eta^2 [0, 0.0126]$ , and multifinal means, F(1, 439) = 0.12, p = .7324,  $\eta^2 = 0.0003$ , 95% CI for  $\eta^2 [0, 0.0110]$ .

**Construal level and active goal on perceived utility by domain.** Finally, I ran analysis on the original lists of means grouped by goal domain. That is, the dependent variables included academics means, health means, and multifinal means. The purpose of this analysis was to test for any effects of active goal or construal level across goal domain. Consistent with the results when analyzed in terms of match, high-level (vs low-level) construal resulted in lower

<sup>&</sup>lt;sup>1</sup> The confidence intervals for this analysis include zero because 95% confidence intervals for  $\eta^2$  is equivalent to an F test with  $\alpha = .025$ . That is, 90% confidence intervals for  $\eta^2$  is equivalent to an F test with  $\alpha = .05$ .

evaluations of means in all three domains. For academics and multifinal means, there were no differences in evaluations among active goal. However, those with the health active goal evaluated health means more positively. For detailed results, see Table 5.

### Discussion

The results of study 1 did not support the main hypothesis. I found that high-level construal led to lower evaluations of perceived utility for means that matched the active goal, mismatched the active goal, and were multifinal when compared to those engaging in low-level construal. One possible theoretical explanation for the findings in the first study is that low-level construal used the information presented in the list of means to form meaning related to the given goals (Fujita & Trope, 2014). Another possible explanation for these findings is that the simultaneous presentation of all means more readily allowed those engaging in low-level construal to identify the relation of means to goals.

#### **CHAPTER 3**

#### STUDY 2

The second study aimed to address the unexpected results of study 1. If low-level construal leads people to use any available information to determine which goals are important, then presenting people with means that oppose long-term goals of interest should also lead to indiscriminately positive evaluations. To test this idea, I added means that were counter to either the active or alternative goals (i.e., counterfinal means with benefits for short-term competing goals and negative value for long-term goals). Participants also viewed the means one by one, to reduce any effect due to the concurrent presentation of all the means. I expected low-level construal would lead to indiscriminately high evaluations of means, whether they are good or bad for the active or non-active goal. Further, I predicted high-level construal would evaluate means beneficial for the long-term goals (active and non-active) more positively than means that inhibit progress in the long-term goals (i.e., good for short-term temptations).

#### Method

**Participants.** Three-hundred and sixty-four undergraduate students (73.7% female, 26.2% male, 0.5% unreported) in the psychology participant pool at a large public university in the Southeast completed an experimental survey. All participants received partial course credit for participation. I used G Power 3.1.9.2 to estimate the effect size of the first study given the observed arithmetic means of match (and mismatch) means at high vs low-level construal and standard deviations of each means type. The average effect size between match and mismatch (compared across construal level) in Study 1 was f = .15. For the second study, I aimed to

achieve 80% power and a 5% two-tailed Type 1 error rate, which required a sample size of at least 352 people for an a priori power analysis of a one-way ANOVA. Thus, I aimed to collect at least this number of participants, allowing additional sign ups until the posted time slots were filled. No additional participants were run after the beginning of analysis.

**Procedure.** Participants were randomly assigned to receive the same construal and active goal manipulations from the first study (why-how task). Participants either completed a why task (high-level construal) detailing abstract reasons one engages in a given goal or a how task (low-level construal), detailing more concrete ways in which one would pursue a goal. These tasks were either in relation to a goal to "Improve and maintain health" or "Pursue academic goals".

Following the construal level and active goal manipulation, participants viewed a set of 20 means: 5 academic means, 5 health means, 5 means counter to the academic goal, and 5 means counter to the health goal (see Table 2). Each means was presented on a separate page in a randomized order with the following item: "How useful would this be to do?" with responses on a 1 (*Not at all*) to 7 (*Very useful*) scale. After seeing all 20 means, participants were again presented with the same set of means and asked the question "How likely are you to do this in the next week?" with responses on a 1 (*Not at all likely*) to 7 (*Very likely*) scale. Finally, participants complete individual difference measures (Brief Self-Control, Tangney et al., 2004; Lockwood regulatory focus scale; Lockwood, Jordan, & Kunda, 2002), demographics, and were debriefed.

#### Results

Each type of means was analyzed as a composite score for ease of interpretation, but, as the alphas were below .70, analyses were also conducted on individual means<sup>2</sup>, consistent with

 $<sup>^{2}</sup>$  Collectively, these analyses did not appear to add any consistent or meaningful informational value in interpreting the current data. For the output of these analyses, see <u>osf.io/c8qxp/</u>

the preregistered analysis plan (academics  $\alpha = .60$ ; health  $\alpha = .67$ ; counter to academics  $\alpha = .45$ ; counter to health  $\alpha = .66$ ; <u>osf.io/4z3jv/</u>). All participants completed the experiment in the lab, so data were only excluded pairwise when missing values for the relevant analyses.

Independent variables of interest were the manipulated construal level (high-level, lowlevel) and manipulated active goal (academics, health). Because I was interested in the effect of means that either advanced or impeded an active goal or advanced or impeded an alternative goal, I coded the dependent means composite scores based on condition, reflecting the different match, mismatch, counter to match, and counter to mismatch means. That is, for participants with the active goal of academics, the academics means were included in analyses as matched means and the health means were included as mismatched means (with the opposite for those in the health condition). For those with the active goal of academics, the means counter to academics were coded as counter to match and the means counter to health were coded as counter to mismatch (with the opposite for those in the health condition). The main analysis was preregistered, along with exploratory analysis (see <u>osf.io/4z3jv/</u>).

**Construal level on perceived utility.** For the main analysis, I tested the effect of construal on perceived utility of means, using SAS 9.4 to analyze a 2 (construal: high-level, low-level) x 2 (means domain: match, mismatch) x 2 (means alignment: consistent, counter) mixed model. Contrary to predictions, there was no significant effect of construal on match means, F(1, 357) = 2.59, p = 0.1081,  $\eta^2 = 0.0072$ , 95% CI for  $\eta^2$  [0, 0.0343], mismatch means, F(1, 357) = 1.02, p = 0.3131,  $\eta^2 = 0.0029$ , 95% CI for  $\eta^2$  [0, 0.024], or means counter to the mismatch, F(1, 357) = 0.49, p = 0.4855,  $\eta^2 = 0.0014$ , 95% CI for  $\eta^2$  [0, 0.0192]. Further, there was a significant effect of construal on means counter to match, F(1, 357) = 3.98, p = 0.0469,  $\eta^2 = 0.011$ , 95% CI for  $\eta^2$  [0, 0.0418], such that high-level construal had higher ratings for means that would impede

progress in the active goal. For cell means, see Table 6. For a visual representation of these results, see Figure 2.

**Construal and active goal on perceived utility.** I also tested for potential asymmetric effects of goal type. This exploratory analysis included active goal to analyze a 2 (construal: high-level, low-level) x 2 (means domain: match, mismatch) x 2 (means alignment: consistent, counter) x 2 (active goal: academics, health) mixed model. None of the effects of construal, active goal, or their interaction were significant, with the exception of the aforementioned effect of construal on means counter to the match. For cell means, see Table 7. For detailed statistics, see Table 8.

**Construal level on within-person variation.** To mirror the exploratory analysis in Study 1, I used the standard deviations of composite means perceived utility as the dependent variable to approximate a measure of within-person variability in means evaluation. To create this value, I took the standard deviation of the ratings of each set of means for each participant. That is, using a participant's rating of all means in a given category, I created a score that represented how variable their ratings were within a given domain of means. Mirroring the main analysis of interest, I conducted a 2 (construal: high-level, low-level) x 2 (means domain: match, mismatch) x 2 (means alignment: consistent, counter) mixed model on the individual-level standard deviations of composite scores. None of the effects of construal on within-person variation were significant. For detailed statistics, see Table 9.

**Construal level and active goal on perceived utility by domain.** As with Study 1, I ran analyses on the original lists of means grouped by goal domain. The dependent variables included academics means, health means, counter to academics means, and counter to health means. Consistent with the results when analyzed in terms of match, there were no effects of

construal. The only effect of active goal was that participants with the health active goal saw means counter to academics as more useful than those with academics as the active goal. For detailed results, see Table 10.

#### Discussion

Study 2 expanded on the findings of study 1, examining if the previous findings may have been due to indiscriminate evaluations of means by those engaging in low-level construal. However, findings of this study failed to support this prediction. Most effects were nonsignificant, and the only significant effect was not consistent with theoretical predictions. In other exploratory analyses, I used mediation models to examine if construal level would exert an indirect effect on intended behavior through evaluation. These models did not provide any evidence that the effects of construal level followed this pattern.

#### **CHAPTER 4**

#### GENERAL DISCUSSION

In day to day life, construal level likely has a large impact on the decisions people make about how to plan and act (Soderberg, Callahan, Kochersberger, Amit, & Ledgerwood, 2015). The current set of studies sought to examine how construal and salient goals may influence evaluations of behavior. As a whole, the findings were not consistent with predictions. Despite a strong theoretical base predicting that participants engaging in high-level construal would more positively evaluate means for active, long-term goals, those engaging in low-level construal seemed to evaluate means more positively in the first study, and there were no major differences in evaluations in the second study. There are several reasons why I may have obtained these findings, and several new questions that can be expanded upon in future research.

Notably, there were several intended methodological changes between study 1 and study 2. Means counter to the long-term goal were included in Study 2 to attempt to determine if those engaging in low-level construal were simply positively evaluating any means that had value in their lives (disregarding long-term impact). Another possibility to explain the findings of Study 1 may have been that participants engaging in low-level construal were using the presented means to activate the relevant long-term goal structures, which in turn led to higher evaluation. Means were presented all on the same page of the survey for the first study, and on separate pages for the second study. Previous research has found that when goal consistent and tempting items are presented together, people more positively evaluate temptations than when the items are presented separately (Fishbach & Zhang, 2008). Further, people engaging in low-level construal

may be more likely to positively evaluate healthy items when presented as complementary to unhealthy items (vanDellen, Sanders, & Fitzsimons, 2012). Thus, there is considerable evidence that the effects of construal level may vary based on presentation format and the presence or absence of temptations.

An alternative approach in methodology addressing the research question of interest may shed light on the unclear results. In the present research, participants evaluated many strategies to pursue given goals but did not make comparisons among them. When pursuing goals in real life, people make choices among various means, and can use any combination of these means over time. One future methodological adaptation could be to have participants rank or compare means, examining the relative relationships between means to pursue multiple goals. This comparison process may make the advantage of high-level construal apparent, as those engaging in high-level construal should be more accurately able to determine which means are most effective for a goal, as well as which means may be important for a goal that is more salient. In particular, this process could more properly distinguish between means that are very positively evaluated (as with the long-term goal concordant means in Studies 1 and 2). Another modification could involve participants imagining they were making decisions over time or having participants make decisions about actual goal pursuit over time. As high-level construal should produce more coherent responses over time, this orientation may lead to more effective discrimination in evaluations or utilization of means when means decisions are repeated.

A major point of interest regarding these findings is the relationship between construal level and the dimensions of desirability and feasibility. Past work has demonstrated that highlevel construal can promote a preference for outcomes higher in desirability with low feasibility over outcomes low in desirability with high feasibility (Liberman & Trope, 1998). In the present

studies, I presented participants with means that were likely high in feasibility and desirability. In addition, the goals made salient were likely high in desirability and may have varied in feasibility. A possible reason for out inconsistent findings may be that the extremely high feasibility in means made options that advanced a goal so high in value that differences in construal level did not matter. Future research could present participants with means that involve varying levels of feasibility (e.g., include risk or hardship) to determine if high-level construal will continue to promote positive evaluations. Further, a distinction may need to be made between the feasibility and desirability of the goal compared to the feasibility and desirability of the means to attain a given goal.

Another point of interest regards the specific mechanisms through which high-level construal may exert its effects in promoting distal outcomes. Past work has demonstrated the benefit of high-level construal for avoiding short-term temptations in the face of a larger value, long-term goal (Fujita, 2008). These effects involve shifts in the construal of objects, but the target of these construals may influence whether or not these effects are realized. One possibility is that the overall construal and value of means to attain a focal goal of interest remain relatively the same, while the temptations are reconstrued to less valued representations. In our second study, I tried to address this issue by adding means typically considered temptations, but the temptations may have been too obviously negative as a whole to demonstrate a difference in evaluations among construal level. In addition, there was a significantly more positive evaluation of the means counter to the match among those engaging in high-level construal, which may provide evidence against this idea. Further understanding of the mechanisms of construal level effects may help to better explain the present mixed findings.

One final consideration relates to how construal level may function at various levels within a goal system. In the present studies, participants were presented with goals related to academics and health. These goals are not directly related, but high-level construal may promote assimilation between these similarly abstract goals, similar to how individuals may assimilate choices in a decision (Borovoi, Liberman, & Trope, 2010). If this is the case, then this reasoning may explain why there were no differences among goal domain at high-level construal, but fails to provide any additional reasoning as to why low-level construal may have led to higher evaluations overall (in Study 1).

Beyond the present questions and limitations of interest, the study of goal pursuit can benefit from a more cogent integration of construal level theory and goal systems theory. Although both perspectives often research questions in different ways, each theory offers valuable insight into the potential mechanics of the other. Both lines of work make predictions about how people experience the world based on their goals, and levels of abstraction are inherent in the hierarchical structure of goals presented in goal systems theory. Notably, recent work has begun to conceptually integrate these theories (e.g., Bélanger et al., 2016; Fujita et al., 2018). Both theories aim to elucidate how people make decisions about goal pursuit in their lives—furthering our understanding of the structure of their goals systems in relation to their construals will help to more sufficiently explain why, when, and in which ways people will act.

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#### List of means, Study 1

#### Academics 1. Attend class 2. Sign up for classes you're interested in 3. Go to professor's office hours to get help/ask questions 4. Studying with friends 5. **Reviewing notes** Limit the number of nights you go to social events 6. 7. Teach others the material 8. Use the UGA tutoring center 9. Write down concrete academic goals 10. Finding a good spot to study Health 1. Prepare healthy recipes 2. Drink more water 3. Eating fruits and vegetables 4. Finding other people to work out with 5. Finding a form of exercise you enjoy Have a workout buddy hold you accountable 6. 7. Limit the number of times you go out to eat 8. Buy more healthy foods at the grocery store 9. Track your exercise 10. Walk to class instead of riding the bus **Multifinal** Get adequate sleep 1. 2. Set small goals to reach your bigger goals 3. Talk with friends who share similar goals 4. Make a schedule 5. Find a mentor Seek out advice online or in books 6. 7. Plan a reward for reaching your goals Review your progress toward your goals 8. Limit distractions 9. 10. Waking up on time

List of means, Study 2

Lisi	of means, Study 2
Effe	ctive – Academics
1.	Attend class
2.	Sign up for classes you're interested in
3.	Go to professor's office hours to get help/ask questions
4.	Review notes
5.	Finding a good spot to study
Effe	ctive – Health
6.	Drink more water
7.	Eat fruits and vegetables
8.	Find a form of exercise you enjoy
9.	Have a workout buddy hold you accountable
10.	Buy more healthy foods at the grocery store
Inef	fective – Academics
1.	Watching TV/streaming services
2.	Spending time on social media
3.	Not doing your homework or reading for class
4.	Skipping class
5.	Going out the night before an exam
Inef	fective – Health
6.	Eating food that is high in sugar or fat
7.	Skipping a workout/not exercising
8.	Drink soda
9.	Not eating enough vegetables
10.	Being lazy/sedentary

					95% CI		
	Construal			Std	Lower	Upper	
	Level	Ν	Mean	Dev	Bound	Bound	
Match Means	Low	227	5.98	0.73	5.88	6.08	
Water Wears	High	214	5.70	0.82	5.60	5.81	
Mismatch	Low	227	5.68	0.88	5.56	5.81	
Means	High	214	5.44	1.02	5.31	5.56	
Multifinal	Low	227	6.01	0.68	5.91	6.10	
Means	High	214	5.83	0.81	5.72	5.93	

## Arithmetic Means for main analysis, Study 1

## Table 4

## Arithmetic Means for interaction analysis, Study 1

						95%	O CI
	Construal	Active			Std	Lower	Upper
	Level	Goal	Ν	Mean	Dev	Bound	Bound
	Low	Academics	116	5.85	0.70	5.71	5.99
Match Maans	LOW	Health	111	6.11	0.74	5.97	6.25
Wraten Wrealis	High	Academics	108	5.60	0.75	5.46	5.75
	mgn	Health	106	5.80	0.88	5.66	5.95
	Low	Academics	116	5.60	0.95	5.42	5.77
Mismatch	LOW	Health	111	5.78	0.79	5.60	5.95
Means	Uiah	Academics	108	5.36	1.08	5.18	5.54
	nigii		106	5.51	0.95	5.33	5.69
	Low	Academics	116	6.02	0.62	5.88	6.16
Multifinal	LOW	Health	111	5.99	0.75	5.85	6.13
Means	High	Academics	108	5.84	0.76	5.70	5.99
	High	Health	106	5.81	0.86	5.66	5.95

Explo	oratory	, anal	vsis	(construal	bv	active	goal	on	academics/health	means).	. Study	v 1
2			1000	00.000.0000	~		0.000	···			$, \sim \cdots$	-

Academics	
Model	F(1, 357) = 4.16, p = 0.0063
Construal	$F(1, 357) = 11.28, p = 0.0009, \eta^2 = 0.0251, 95\%$ CI for $\eta^2 [0.0043, 0.0606]$
Active Goal	$F(1, 357) = 1.17, p = 0.2803, \eta^2 = 0.0026, 95\%$ CI for $\eta^2 [0, 0.0204]$
Interaction	$F(1, 357) = 0.01, p = 0.9294, \eta^2 = 0.0000, 95\%$ CI for $\eta^2 [0, 0.0046]$
Health	
Model	F(1, 357) = 13.05, p = <.0001
Construal	$F(1, 357) = 9.39, p = 0.0023, \eta^2 = 0.0197, 95\%$ CI for $\eta^2$ [0.0023, 0.0524]
Active Goal	$F(1, 357) = 29.68, p = <.0001, \eta^2 = 0.0623, 95\%$ CI for $\eta^2 [0.0256, 0.1102]$
Interaction	$F(1, 357) = 0.17, p = 0.6842, \eta^2 = 0.0004, 95\%$ CI for $\eta^2 [0, 0.0118]$
Multifinal	
Model	F(1, 357) = 2.20, p = 0.0875
Construal	$F(1, 357) = 6.38, p = 0.0119, \eta^2 = 0.0144, 95\%$ CI for $\eta^2$ [0.0007, 0.0439]
Active Goal	$F(1, 357) = 0.20, p = 0.6569, \eta^2 = 0.0004, 95\%$ CI for $\eta^2 [0, 0.0125]$
Interaction	$F(1, 357) = 0.01, p = 0.9222, \eta^2 = 0.00, 95\%$ CI for $\eta^2 [0, 0.0051]$

					95% CI		
	Construal			Std	Lower	Upper	
	Level	Ν	Mean	Dev	Bound	Bound	
Match	Low	180	6.29	0.67	6.19	6.39	
Means	High	179	6.18	0.67	6.08	6.28	
Mismatch	Low	180	6.19	0.76	6.08	6.31	
Means	High	179	6.11	0.79	6.00	6.22	
Counter to	Low	180	1.85	0.59	1.76	1.94	
Match	High	179	1.98	0.67	1.89	2.08	
Counter to	Low	180	1.99	0.61	1.90	2.08	
Mismatch	High	179	2.04	0.65	1.94	2.13	

## Arithmetic Means for main analysis, Study 2

## Table 7

Arithmetic Means for construal by active goal interaction analysis, Study 2

						95%	6 CI
	Construal	Active	<b>N</b> 7		Std	Lower	Upper
	Level	Goal	Ν	Mean	Dev	Bound	Bound
		Academics	89	6.24	0.73	6.10	6.38
	Low	Health	91	6.35	0.62	6.21	6.48
Match		Academics	88	6.20	0.69	6.06	6.34
Means	High	Health	91	6.15	0.66	6.01	6.29
		Academics	89	6.16	0.86	6.00	6.32
	Low	Health	91	6.22	0.65	6.06	6.38
Mismatch		Academics	88	6.18	0.80	6.02	6.34
Means	High	Health	91	6.04	0.78	5.88	6.20
		Academics	89	1.85	0.56	1.72	1.98
	Low	Health	91	1.85	0.61	1.72	1.98
Counter to		Academics	88	1.91	0.63	1.78	2.05
Match	High	Health	91	2.05	0.69	1.92	2.18
		Academics	89	1.95	0.66	1.82	2.08
	Low	Health	91	2.03	0.56	1.90	2.16
Counter to		Academics	88	1.94	0.75	1.81	2.08
Mismatch	High	Health	91	2.13	0.54	2.00	2.26

Match	
Model	F(1, 357) = 1.32, p = 0.2687
Construal	$F(1, 357) = 2.54, p = 0.1116, \eta^2 = 0.0071, 95\%$ CI for $\eta^2 [0, 0.0341]$
Active Goal	$F(1, 357) = 0.17, p = 0.6818, \eta^2 = 0.0005, 95\%$ CI for $\eta^2 [0, 0.0147]$
Interaction	$F(1, 357) = 1.19, p = 0.2763, \eta^2 = 0.0033, 95\%$ CI for $\eta^2 [0, 0.0253]$
Mismatch	
Model	F(1, 357) = 0.89, p = 0.4454
Construal	$F(1, 357) = 0.98, p = 0.3221, \eta^2 = 0.0028, 95\%$ CI for $\eta^2 [0, 0.0237]$
Active Goal	$F(1, 357) = 0.20, p = 0.6553, \eta^2 = 0.0006, 95\%$ CI for $\eta^2 [0, 0.0154]$
Interaction	$F(1, 357) = 1.46, p = 0.2278, \eta^2 = 0.0041, 95\%$ CI for $\eta^2 [0, 0.0272]$
Counter to N	Aatch
Model	F(1, 357) = 2.06, p = 0.1053
Construal	$F(1, 357) = 3.91, p = 0.0489, \eta^2 = 0.0108, 95\%$ CI for $\eta^2 [0, 0.0414]$
Active Goal	$F(1, 357) = 1.05, p = 0.3064, \eta^2 = 0.0029, 95\%$ CI for $\eta^2 [0, 0.0242]$
Interaction	$F(1, 357) = 1.16, p = 0.2830, \eta^2 = 0.0032, 95\%$ CI for $\eta^2 [0, 0.0250]$
Counter to N	Aismatch
Model	F(1, 357) = 1.63, p = 0.1821
Construal	$F(1, 357) = 0.47, p = 0.4945, \eta^2 = 0.0013, 95\%$ CI for $\eta^2 [0, 0.0190]$
Active Goal	$F(1, 357) = 3.78, p = 0.0528, \eta^2 = 0.0105, 95\%$ CI for $\eta^2 [0, 0.0408]$
Interaction	$F(1, 357) = 0.63, p = 0.4272, \eta^2 = 0.0018, 95\%$ CI for $\eta^2 [0, 0.0207]$

## Exploratory analysis (construal by active goal), Study 2

## Table 9

Exploratory analysis (construal on within person variation), Study 2

Match means
$F(1, 357) = 1.35, p = 0.2463, \eta^2 = 0.0038, 95\%$ CI for $\eta^2 [0, 0.0264]$
Mismatch means
$F(1, 357) = 1.63, p = 0.2032, \eta^2 = 0.0045, 95\%$ CI for $\eta^2 [0, 0.0283]$
Counter to Match means
$F(1, 357) = 0.11, p = 0.7415, \eta^2 = 0.0003, 95\%$ CI for $\eta^2 [0, 0.0133]$
Counter to Mismatch means
$F(1, 357) = 0.33, p = 0.5681, \eta^2 = 0.0009, 95\%$ CI for $\eta^2 [0, 0.0173]$

Explor	atorv and	alvsis	(construal)	bv active	goal on	academic/health	means).	Study 2
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Academics						
Model	F(1, 357) = 1.44, p = 0.2305					
Construal	$F(1, 357) = 2.06, p = 0.1524, \eta^2 = 0.0058, 95\%$ CI for $\eta^2 [0, 0.0311]$					
Active Goal	$F(1, 357) = 1.31, p = 0.2536, \eta^2 = 0.0037, 95\%$ CI for $\eta^2 [0, 0.0261]$					
Interaction	$F(1, 357) = 0.92, p = 0.3390, \eta^2 = 0.0026, 95\%$ CI for $\eta^2 [0, 0.0232]$					
Health						
Model	F(1, 357) = 1.36, p = 0.2547					
Construal	$F(1, 357) = 1.23, p = 0.2677, \eta^2 = 0.0035, 95\%$ CI for $\eta^2 [0, 0.0256]$					
Active Goal	$F(1, 357) = 1.02, p = 0.3139, \eta^2 = 0.0029, 95\%$ CI for $\eta^2 [0, 0.024]$					
Interaction	$F(1, 357) = 1.79, p = 0.1820, \eta^2 = 0.005, 95\%$ CI for $\eta^2 [0, 0.0294]$					
Counter to Academics						
Model	F(1, 357) = 3.96, p = 0.0084					
Construal	$F(1, 357) = 1.70, p = 0.1932, \eta^2 = 0.0048, 95\%$ CI for $\eta^2 [0, 0.0288]$					
Active Goal	$F(1, 357) = 10.06, p = 0.0016, \eta^2 = 0.0276, 95\%$ CI for $\eta^2 [0.004, 0.0686]$					
Interaction	$F(1, 357) = 0.10, p = 0.7501, \eta^2 = 0.0003, 95\%$ CI for $\eta^2 [0, 0.0131]$					
Counter to Health						
Model	F(1, 357) = 1.35, p = 0.2585					
Construal	$F(1, 357) = 1.85, p = 0.1750, \eta^2 = 0.0052, 95\%$ CI for $\eta^2 [0, 0.0298]$					
Active Goal	$F(1, 357) = 0.00, p = 0.9469, \eta^2 = 0,95\%$ CI for $\eta^2 [0, 0.0042]$					
Interaction	$F(1, 357) = 2.14, p = 0.1446, \eta^2 = 0.006, 95\%$ CI for $\eta^2 [0, 0.0316]$					



Figure 1. Perceived utility of means predicted by manipulated construal level with 95% CI of

means (Study 1)



Figure 2. Perceived utility of means predicted by manipulated construal level with 95% CI of means (Study 2)