


# Does an Abstract Mind-Set Increase the Internal Consistency of Moral Attitudes and Strengthen Individualizing Foundations?

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## Abstract

Recent research suggests that experimentally inducing an abstract (vs. a concrete) mind-set enhances political sophistication by increasing the consistency in political attitudes; it also enhances individualizing moral foundations and decreases binding moral foundations. However, the evidence is mixed regarding whether abstract mind-set increases or decreases the strength of moral convictions in general. In this context, the aim of this study was 2-fold. In two preregistered studies on U.S. American and Turkish samples (aggregate  $N = 694$ ), we tested (1) whether abstract mind-set increases the consistency in moral convictions, similar to the case of political attitudes, and (2) whether inducing an abstract mind-set increases individualizing and decreases binding foundations. The results did not provide support for any of the hypotheses and the past findings were not reproduced. Potential implications of these findings for construal level theory literature are discussed.

## Keywords

abstract, concrete, construal level, moral foundations

The literature on construal level theory (CLT) suggests that people adopt an abstract mind-set when thinking about the distant, as opposed to the near, future (Fujita, Eyal, Chaiken, Trope, & Liberman, 2008; Liberman & Trope, 2008, 2014; Liberman, Trope, & Stephan, 2007; Soderberg, Callahan, Kochersberger, Amit, & Ledgerwood, 2015; Trope & Liberman, 2010). Such psychological distance and related mind-set were found to enhance individualizing moral foundations (Luguri, Napier, & Dovidio, 2012; Napier & Luguri, 2013) while there is mixed evidence regarding whether abstractness strengthens or weakens moral convictions (Eyal, Liberman, & Trope, 2008; Gong & Medin, 2012; Žeželj & Jokić, 2014). The current study aims to examine (1) whether the recently reported effect that an abstract mind-set increases the internal consistency of political attitudes (Alper, 2018) extends to moral values, and (2) whether abstract mind-set strengthens individualizing and weakens binding moral convictions (Luguri et al., 2012; Napier & Luguri, 2013).

## Construal Level Theory and Mind-Set

According to CLT, people adopt different mind-sets based on the psychological distance of the target object. When distance is high (in terms of time, place, familiarity, and hypotheticality), an abstract mind-set is adopted (see Liberman & Trope, 2014). Abstract mind-set emphasizes higher order, inclusive

categories for objects and *why* an action is performed. Concrete mind-set, on the other hand, emphasizes lower level, specific attributes of objects and *how* an action is performed. When asked to describe a cell phone, for example, a person with an abstract mind would describe its core, higher order features (e.g., “communication device”). In contrast, someone with a concrete mind-set would provide a specific description of that device (e.g., “an iPhone”; Trope & Liberman, 2010).

## Mind-Set, Political and Moral Convictions

Mind-set, manipulated either directly (see Burgoon, Henderson, & Markman, 2013) or through psychological distance, has important effects on political cognition (e.g., Chan, 2016; Ledgerwood, Trope, & Chaiken, 2010; Luguri et al., 2012; Napier & Luguri, 2013; Yang, Preston, & Hernandez, 2013). Past studies in the CLT literature demonstrate that core values have stronger effects on behavioral intentions when people have abstract mind-sets (Eyal, Sagristano, Trope, Liberman, &

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Chaiken, 2009; Ledgerwood, 2014; Luguri et al., 2012; Torelli & Kaikati, 2009) and that this effect extends to political attitudes as well. It has also been shown that an abstract mind-set rendered evaluations more consistent with core political orientation (Ledgerwood, Trope, et al., 2010; Luguri & Napier, 2013), increased positive attitudes toward outgroups (Luguri et al., 2012), and decreased polarization in political attitudes (Chan, 2016; Napier & Luguri, 2013; Yang et al., 2013).

Mind-set has important implications for moral convictions as well. Eyal, Liberman, and Trope (2008) found that temporally and socially distant moral transgressions evoke harsher judgments while increasing positive evaluation of virtuous behaviors. However, a replication attempt failed and, in fact, yielded the opposite effects (Gong & Medin, 2012). Žeželj and Jokić (2014) demonstrated that the effect of abstraction depends on the manipulation technique: Abstraction, manipulated by asking why an action would be performed (vs. how that action would be performed; Vallacher & Wegner, 1989), decreased the strength of moral judgments, similar to Gong and Medin's (2012) findings, whereas psychological distance increased it, similar to Eyal et al.'s (2008) findings. In addition, it was also found that abstract mind-sets bolster judgments and behaviors that are consistent with moral values (Conway & Petz, 2012; Torelli & Kaikati, 2009) and enhance moral convictions that are associated with one's political orientation (Rogers, Vess, & Routledge, 2016).

Apart from the strength of moral judgments, mind-set is also found to determine the relative valuation of moral foundations. Moral foundations theory (MFT) proposes five foundations of morality (*care, fairness, loyalty, authority, and sanctity*), which may have different weights for different individuals (Graham et al., 2011). Care (i.e., caring about vulnerable parties and avoiding harm to them) and fairness (i.e., concern about maintaining fairness and opposition to cheating) form *individualizing foundations*, whereas loyalty (i.e., being loyal to the ingroup and finding betrayal unacceptable), authority (i.e., respecting authority figures and traditions), and sanctity (i.e., concern about being desecrated by physical contaminants and immoral activities) form *binding foundations* (Graham et al., 2011). Built on previous work showing that individualizing foundations are more fundamental moral values that are applicable across time and place (Wright & Baril, 2011; see also Yilmaz & Saribay, 2017a, 2017b), it was found that abstract mind-set increases the valuation of individualizing foundations, since abstraction highlights core, higher order principles (Napier & Luguri, 2013). In another study, Luguri, Napier, and Dovidio (2012) similarly found that abstraction reduces prejudice and that this effect is mediated by an increase in concern for fairness.

### *Mind-Set and Internal Consistency in Attitudes*

Mind-set affects the level of political and moral convictions but does it also influence their consistency? Researchers have suggested that attitudinal constraint (i.e., internal consistency in attitudes at a given time) is one of the key factors determining

political sophistication (Converse, 1964, 1970; Luskin, 1990; Zaller, 1992). Built on this prior work, it was recently documented that abstract mind-set increased consistency and decreased variation in responses to political attitude scales (Alper, 2018). Across seven experiments conducted on samples from the United States and Turkey, it was found that abstract mind-set decreases within-subject standard deviations (*SDs*; a measure of how much one's responses to different items deviate from one's own mean score) and increases Cronbach's  $\alpha$  scores (a measure of between-subjects internal consistency of responses to different items of the same scale; Cronbach, 1951). Accordingly, since a common latent factor is assumed to determine responses to different items of the same scale (e.g., Bollen, 2002) and abstract mind-set highlights the common invariant aspect (Burgoon et al., 2013), it was found that people with abstract mind-sets focus on the core value underlying different items of the same political scale and thus respond more consistently or in a more "sophisticated" manner (Alper, 2018). For example, when responding to the Right-Wing Authoritarianism scale (Altemeyer, 1998), participants with an abstract mind-set focus on the common underlying factor (i.e., whether one values respecting traditions and obeying authority figures) and respond similarly to different items measuring this core political value (Alper, 2018).

Despite the fact that studies reported by Alper (2018) support the hypothesis that abstractness would increase consistency in responses to political attitude scales, an important limitation remains: There is no reason not to expect this effect to be observed for other scales that tap into latent core values (Alper, 2018). An example would be the scales that measure moral values (e.g., Graham et al., 2011). Construal level and mind-set have been shown to be related to the strength of moral convictions (Eyal et al., 2008; Gong & Medin, 2012; Žeželj & Jokić, 2014) and to the relative valuation of moral foundations (Luguri et al., 2012; Napier & Luguri, 2013). If abstract mind-set highlights the invariant factor underlying different attitudinal statements, then it would also render moral attitudes more internally consistent, as previously suggested (Alper, 2018). For example, people with an abstract mind-set would be more likely to give similar responses to different items that are theoretically related to individualizing or binding moral foundations (Graham et al., 2011). If this hypothesis were supported, it would show that the effect of mind-set may extend to cases where different attitudinal statements are linked to the same latent factor.

### **Mind-Set and Core Moral Values**

In addition to their internal consistency, there is also a need to examine how abstract mind-set affects endorsement of different core moral values. Napier and Luguri (2013) defined core values as "moral sentiments that are consistently applicable across time, place, and contexts" (p. 755). The question of which moral foundations are more fundamental is one of the most controversial issues in the MFT (Graham et al., 2011). Haidt and Kesebir (2010) claim that all humans possess five

different moral foundations that are evolutionarily acquired. In this perspective, conservatives base their understanding of morality on five foundations, whereas the definition of morality is built on two foundations for liberals. The counterargument comes from Jost, Glaser, Kruglanski, and Sulloway's (2003) "conservatism-as-motivated-social-cognition" account, which argues that everyone has two core foundations (care and fairness) and that the difference between the liberal and the conservative moral foundations emerges as a result of conservatives' enhanced valuation of binding foundations in order to satisfy their "resistance to change" and "opposition to equality" needs (see also Jost, 2012). Wright and Baril (2011) directly tested these two different accounts and found that when conservatives were cognitively distracted, they decreased their valuation of the binding moral foundations. Although this finding directly supports Jost et al.'s (2003) account, it was not successfully replicated (e.g., Van Berkel, Crandall, Eidelman, & Blanchar, 2015). It was also criticized because of the possibility of acquiescence bias (i.e., tendency of participants to provide positive responses regardless of the content of the items) since this bias tends to increase with intuitive thinking (i.e., under cognitive load; Knowles & Condon, 1999; see also Yilmaz & Saribay, 2017a, for more details about this methodological artifact). This methodological criticism is particularly important for the Moral Foundations Questionnaire (MFQ) since it lacks reversed coded items. Thus, there is a need for further investigations using different manipulation techniques such as psychological distance to identify core moral foundations. If individualizing morals are core, then they would be expected to become more salient for people with an abstract mind-set because the CLT literature demonstrates that abstract construal emphasizes core values that transcend specific contexts (Liberman & Trope, 2008, 2014; Liberman et al., 2007; Trope & Liberman, 2010). Consistent with our reasoning, there is some evidence that abstractness leads to increased valuation of individualizing and decreased valuation of binding moral foundations (Luguri et al., 2012; Napier & Luguri, 2013). However, other research in the CLT literature revealed mixed results. Some findings showed that abstractness strengthens moral judgment (Eyal et al., 2008) whereas others suggested the opposite (Gong & Medin, 2012; see also Žeželj & Jokić, 2014). These contradicting findings necessitate further investigation of the effects of construal level on alternative moral foundations (see Graham et al., 2011) and of whether there are reproducible effects on moral attitudes.

## Overview of the Current Research

The present research will examine how abstract and concrete mind-sets affect moral convictions. We have three main hypotheses: First, we expect that when people are led to adopt an abstract mind-set, they would be more internally consistent in their attitudes, because they would focus more on core moral foundations, or the latent factors underlying different items of the same scale. We measure within-subject consistency via individual *SDs*, in line with previous research (Alper, 2018).

We anticipate that an abstract mind-set would lead to significantly lower within-subject *SDs* in both individualizing and binding foundations. Second, we expect that an abstract mind-set would increase the between-subjects consistency of responses (see Alper, 2018). In other words, participants in the abstract condition would have more consistent responses as a group. We measure this consistency via participants' Cronbach's  $\alpha$  scores (Cronbach, 1951). Feldt and Kim (2006) developed a procedure to compare two Cronbach's  $\alpha$  scores that yield an *F*-test score that can be used to determine whether two  $\alpha$ s are significantly different from each other. We hypothesize that those in the abstract condition would have significantly higher Cronbach's  $\alpha$  scores in individualizing and binding foundations. Third, based on past findings in the literature on CLT (Luguri et al., 2012; Napier & Luguri, 2013) and thinking style (Yilmaz & Saribay, 2017a), we expect that abstract mind-set would increase the valuation of individualizing moral foundations (harm and fairness) and decrease binding moral foundations (loyalty, authority, and sanctity). This is because abstractness would make core moral values more salient and because past research suggests that individualizing foundations embody the core moral values.

We test our confirmatory hypotheses in two different samples recruited from the United States (Experiment 1) and Turkey (Experiment 2). Both experiments were preregistered prior to data collection. In addition to the confirmatory analyses that we described above, we also preregistered some exploratory analyses that might shed light on future research on CLT. Specifically, we examine the effect of mind-set manipulation on each of the five foundations (care, fairness, loyalty, authority, and sanctity) and whether self-reported ideology interacts with the mind-set manipulation in predicting changes in individualizing and binding moral foundations. The results of these exploratory analyses are reported in the Supplemental Material.

## Experiment 1

### Participants

We conducted a power analysis to determine the sample size. There were three different reference effect sizes. Napier and Luguri (2013) manipulated abstract (vs. concrete) thinking and found that abstract thinking manipulation increases individualizing ( $d = .28$ ) and decreases binding foundations ( $d = .25$ ). Alper (2018) also demonstrated in the aggregate analysis of seven experimental studies that participants have lower *SDs* when they are thinking abstractly ( $d = .52$ ). Therefore, we decided to take the smallest effect size,  $d = .25$ , as a reference point for our study to be able to reproduce all of these effects. As a result, we assumed a small-to-moderate effect size ( $d = .25$ ; Cohen, 1988), set  $\alpha$  at .05 (two tailed) and power at .80. Using G\*Power software (Faul, Erdfelder, Buchner, & Lang, 2009), we computed the required sample to be at least 506 to detect a difference between two conditions in an independent samples *t* test. We initially recruited 520 American participants from Amazon Mechanical Turk considering potential attrition.

The final sample size was 400 (255 females,  $M_{\text{age}} = 40.65$ ,  $SD = 12.34$ ) after performing the exclusions as planned in the pre-registration (<https://osf.io/c8m94/>). The sample size was still adequate to detect an effect size as small as  $d = .28$ , and we did not continue collecting data as our stopping rule was to stop when we reached 520 participants in our preregistered plan.

## Materials and Procedure

Participants were directed to an online questionnaire in which they were randomly assigned to either the abstract ( $n = 192$ ) or the concrete ( $n = 208$ ) conditions. The abstract and the concrete mind-sets were manipulated using “category versus exemplary task,” developed by Fujita, Trope, Liberman, and Levin-Sagi (2006). All participants were provided with a list of 40 words (e.g., river, train, candy). In the abstract condition, participants were asked to write down a word that is a higher level category that includes the given target word. For example, if the given word is “fruit,” one potential answer would be “food,” as fruit is an example of food. In the concrete condition, on the other hand, participants were asked to write down a word that is a lower level example of the given target word. For example, for the word “fruit,” a potential answer would be “apple,” as apple is an example of fruit.

Next, all participants filled out MFQ (Graham et al., 2011). MFQ included 30 items (e.g., “I am proud of my country’s history” and “Justice is the most important requirement for a society”) in total and there were 6 items for each of the moral foundations (care, fairness, loyalty, authority, sanctity). Care and fairness are individualizing moral foundations whereas loyalty, authority, and sanctity are binding foundations; so individualizing and binding foundations were calculated by calculating the mean scores on items measuring these foundations. Participants responded using a 6-point scale (1 = *strongly disagree*, 6 = *strongly agree*). Lastly, participants stated their age, gender, and social and economic ideology (1 = *very liberal*, 7 = *very conservative*) and the experiment was concluded.

## Results

### Exclusions

Those who failed at the Completely Automated Public Turing test to distinguish Computers and Humans apart (CAPTCHA) were eliminated at the beginning of the experiment and were not allowed to proceed. Participants who took an unrealistically long time to complete ( $z$  score for the duration of completion in seconds was higher than 3) were also excluded. In addition, following the standard procedure for MFQ (Graham et al., 2011), there were two “catch” questions: On a 6-point scale (ranging from 0 to 6; see Supplemental Material), participants who score 3 or higher for the item “Whether or not someone will be good at math” and 2 or below for the item “It will be better to do good than to do bad” were also removed from the analyses. The resulting sample consisted of 400 participants. All exclusions were in accordance with the pre-registration. By using a CAPTCHA and two attention check

questions, as well as excluding those who had unrealistically short or long completion durations, we minimized the possibility of having the sample spoiled with “bots” and/or inattentive participants. Although it was not preregistered, we also checked for duplicate internet protocol (IP) addresses. In a frequency analysis, only two IP addresses had a frequency of 2. Considering other potential explanations (e.g., shared Internet connection) and the very low number of cases, we concluded that repeating IP addresses would not pose a threat to the integrity of the sample.

### Manipulation Check

We initially did not include a plan for manipulation check in our preregistration, because similar studies (e.g., Alper, 2018; Napier & Luguri, 2013), which we sought to replicate, did not make use of manipulation checks for the same manipulation technique. However, we still examined whether the manipulation successfully led participants to respond in a more abstract or concrete way. Following a procedure similar to the one used by Fujita et al. (2006), two judges independently rated the content of each response. If the answer included a more superordinate, abstract concept that is inclusive of the target word, then the judges rated that answer with a score of 1. If the answer was a more specific, concrete example of the target word, then the judges rated that answer with a score of  $-1$ . Judges rated all the other responses that did not fall into any of these categories with a score of 0. Ratings of two judges were highly correlated ( $r = .994$ ,  $p < .001$ ), so we calculated mean scores of two sets of ratings. Compared to concrete condition ( $M_{\text{concrete}} = -36.43$ ,  $SD = 6.86$ ), participants in the abstract condition ( $M_{\text{abstract}} = 34.96$ ,  $SD = 11.33$ ) had more abstract responses,  $t(398) = 76.88$ ,  $p < .001$ , 95% CI [69.57, 73.22],  $d = 7.62$ . So, the manipulation successfully altered the level of construal.

### Internal Consistency of Moral Attitudes

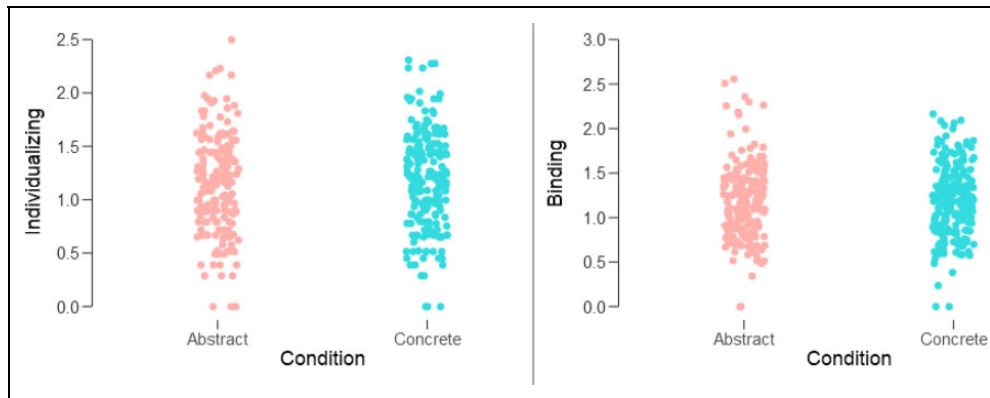
For the first confirmatory analysis examining within-subject consistency, within-subject  $SD$ s for each participant were calculated using the  $SD$  command available at SPSS software (Table 1).  $SD$ s were calculated for individualizing and binding foundations. Contrary to our expectation, construal-level manipulation did not alter the level of within-subject  $SD$ s for individualizing,  $t(398) = -.96$ ,  $p = .337$ , 95% CI [-.13, .05],  $d = -.096$ , and binding foundations,  $t(398) = .06$ ,  $p = .949$ , 95% CI [-.08, .08],  $d = .006$  (Figure 1).

For the second confirmatory analysis examining between-subjects consistency, Cronbach’s  $\alpha$  scores for items measuring individualizing and binding foundations were calculated for both abstract and concrete conditions (Table 2). Similar to Alper (2018), we followed Feldt and Kim’s (2006) procedure that enables conducting an  $F$  test to compare two independent  $\alpha$  scores. Unexpectedly, there was no significant effect of the manipulation on either individualizing,  $F(150, 191) = 1.11$ ,  $p = .247$ , or binding foundations,  $F(154, 207) = 1.04$ ,  $p = .394$ .

**Table 1.** Comparison of Within-Subject SDs in Individualizing and Binding Moral Foundations for Abstract and Concrete Construal Conditions.

Condition	Condition						95% CI for Mean Difference	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
	Abstract			Concrete							
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>					
Individualizing	1.14	.45	192	1.18	.45	208	[−.13, .05]	−.96	398	.337	−.096
Binding	1.18	.42	192	1.18	.40	208	[−.08, .08]	.06	398	.949	.006

Note. *SD* = standard deviation; *CI* = confidence interval.

**Figure 1.** Distribution of within-subject standard deviations in individualizing and binding moral foundations in abstract and concrete construal conditions in Experiment 1.**Table 2.** Comparisons of Cronbach's  $\alpha$ s of Individualizing and Binding Moral Foundations for Abstract and Concrete Construal Conditions.

Condition	# of items	Abstract		Concrete		Result
		$\alpha$	<i>n</i>	$\alpha$	<i>n</i>	
Individualizing	12	.802	192	.822	208	$F(150, 191) = 1.11, p = .247$
Binding	18	.917	192	.914	208	$F(154, 207) = 1.04, p = .394$

In short, the results did not provide any support for the hypothesis that the construal level would change the internal consistency of moral attitudes. Abstract versus concrete construal manipulation did not affect within-subject (as measured by within-subject *SDs*) or between-subjects (as measured by Cronbach's  $\alpha$ ) consistency.

### Changes in Mean Scores of Moral Attitudes

We also expected that mean scores in individualizing and binding moral foundations would be influenced by construal-level manipulation (Table 3). The manipulation, however, did not have any effect on either individualizing,  $t(398) = .76, p = .448, 95\% \text{ CI} [-.09, .20], d = .070$ , or binding foundations,  $t(398) = 1.52, p = .129, 95\% \text{ CI} [-.04, .33], d = .156$  (Figure 2). Therefore, contrary to our initial expectations, abstractness did not increase the endorsement of individualizing foundations and did not decrease the endorsement of binding foundations.

## Experiment 2

Experiment 2 tested the same hypotheses on a Turkish sample. Similar to Experiment 1, the study design and the analysis procedure were preregistered prior to data collection (<https://osf.io/uckjy/>).

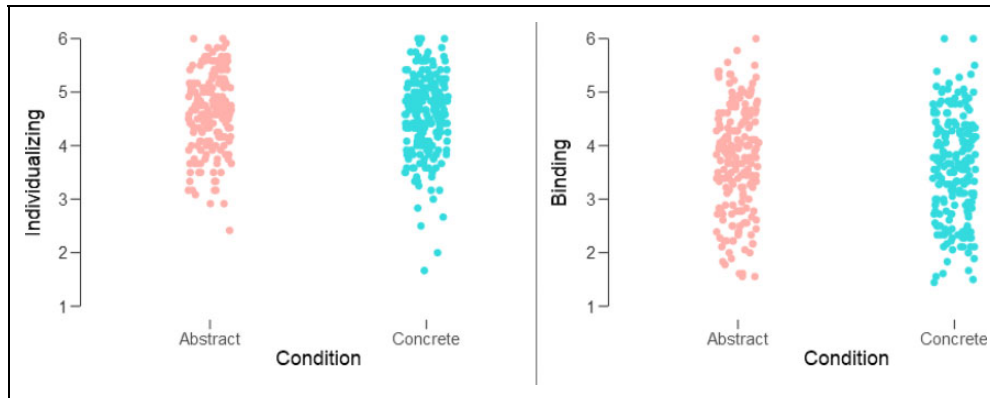
### Participants

We recruited undergraduate students from Yasar University (Izmir) and Dogus University (Istanbul), both of which are located in Turkey, in exchange for extra course credit. The total participant pool consisted of approximately 400 students, and we announced that the deadline for participating in the study was in 3 weeks. A total of 298 students completed the study but four were excluded for spending an unreasonably long time in the study ( $z$  score for the duration in seconds was larger than 3). This exclusion criterion was in consistent with the preregistered plan. This resulted in a sample of 294 participants (247

**Table 3.** Comparison of Mean Scores in Individualizing and Binding Moral Foundations for Abstract and Concrete Construal Conditions.

Condition	Condition						95% CI for Mean Difference	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
	Abstract			Concrete							
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>					
Individualizing	4.63	.70	192	4.58	.73	208	[−.09, .20]	.76	398	.448	.070
Binding	3.74	.98	192	3.59	.94	208	[−.04, .33]	1.52	398	.129	.156

Note. *SD* = standard deviation; *CI* = confidence interval.



**Figure 2.** Distribution of mean scores on individualizing and binding moral foundations in abstract and concrete construal conditions in Experiment 1.

**Table 4.** Comparison of Within-Subject *SDs* in Individualizing and Binding Moral Foundations for Abstract and Concrete Construal Conditions for Experiment 2.

Condition	Condition						95% CI for Mean Difference	<i>t</i>	<i>df</i>	<i>p</i>	Cohen's <i>d</i>
	Abstract			Concrete							
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>					
Individualizing	1.20	.40	157	1.21	.41	137	[−.10, .08]	−.23	292	.818	−.027
Binding	1.34	.33	157	1.33	.36	137	[−.07, .09]	.28	292	.779	.033

Note. *SD* = standard deviation; *CI* = confidence interval.

females;  $M_{age} = 21.42, SD = 2.96$ ).<sup>1</sup> We calculated that the sample size was sensitive enough to detect an effect size of  $d = .33$ , assuming an  $\alpha$  of .05 and power of .80.

**Materials and Procedure**

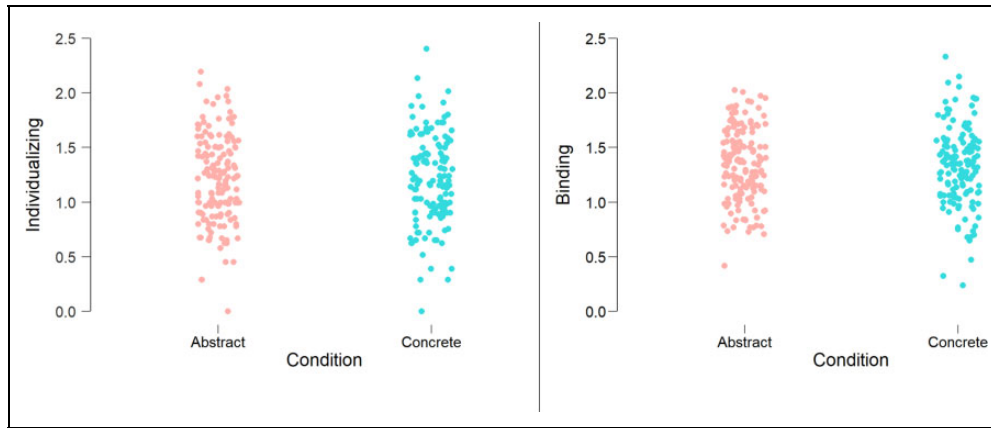
We used the superordinate/subordinate categorization task (Fujita & Roberts, 2010) to manipulate the construal level. There were four sets of stimuli and in each set, there were pictures of four objects. In the abstract condition, participants were asked about the commonalities of these objects (e.g., common physical features, common functions), whereas they were asked about the distinct features that differentiate each object from the other three in the concrete condition. A Turkish version of the task was successfully used in the past to

manipulate the construal level (Alper, 2018). After the manipulation, all participants completed the Turkish MFQ (Yilmaz, Harma, Bahcekapili, & Cesur, 2016). Lastly, they indicated their gender, age, and ideology (1 = *extremely leftist*, 7 = *extremely rightist*).

**Results**

**Internal Consistency of Moral Attitudes**

Contrary to our expectation, construal-level manipulation failed to affect the level of within-subject *SDs* for individualizing,  $t(292) = −.23, p = .818, 95\% CI [−.10, .08], d = −.027$ , and binding foundations,  $t(292) = .08, p = .779, 95\% CI [−.07, .09], d = .033$  (Table 4; Figure 3).



**Figure 3.** Distribution of within-subject standard deviations in individualizing and binding moral foundations in abstract and concrete construal conditions in Experiment 2.

**Table 5.** Comparisons of Cronbach’s  $\alpha$ s of Individualizing and Binding Moral Foundations for Abstract and Concrete Construal Conditions for Experiment 2.

Condition	# of items	Abstract		Concrete		Result
		$\alpha$	<i>n</i>	$\alpha$	<i>n</i>	
Individualizing	12	.729	156	.745	137	$F(100, 155) = 1.06, p = .369$
Binding	18	.874	156	.890	137	$F(100, 155) = 1.15, p = .216$

**Table 6.** Comparison of Mean Scores in Individualizing and Binding Moral Foundations for Abstract and Concrete Construal Conditions for Experiment 2.

Condition	Condition						95% CI for Mean Difference	<i>t</i>	<i>df</i>	<i>p</i>	Cohen’s <i>d</i>
	Abstract			Concrete							
	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>					
Individualizing	4.83	.58	157	4.78	.60	137	[−.09, .18]	.63	292	.531	.073
Binding	3.56	.81	157	3.60	.87	137	[−.23, .15]	−.40	292	.689	−.047

Note. *SD* = standard deviation; CI = confidence interval.

We also examined between-subjects consistencies by comparing Cronbach’s  $\alpha$  scores, similarly to Experiment 1. Construal-level manipulation did not have any effect on  $\alpha$  scores for responses to items regarding individualizing,  $F(100, 155) = 1.06, p = .369$ , or binding moral foundations,  $F(100, 155) = 1.15, p = .216$  (Table 5). In short, similarly to Experiment 1, our hypotheses were not supported, as the construal level did not have any effect on within- or between-subject consistency in responses.

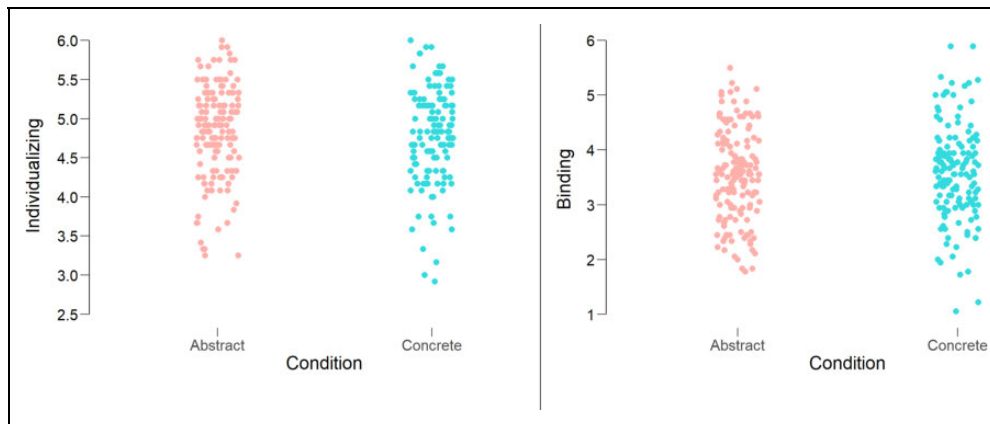
**Changes in Mean Scores of Moral Attitudes**

Similar to Experiment 1, construal level did not affect the mean scores individualizing,  $t(292) = .63, p = .531, 95\% \text{ CI } [−.09, .18], d = .073$  or binding foundations,  $t(292) = −.40, p = .689, 95\% \text{ CI } [−.23, .15], d = −.047$  (Table 6; Figure 4).

**Discussion**

The aim of these two preregistered experiments was 2-fold. We hypothesized that an abstract mind-set would (1) increase political sophistication in moral judgments as in the case of political attitudes (Alper, 2018) and (2) increase individualizing and decrease binding foundations as in Napier and Luguri (2013). For the first objective, we measured both within-subject and between-subjects internal consistency via *SDs* and Cronbach’s  $\alpha$  scores; however, the results did not support our initial hypothesis in two different experiments conducted in two different cultures (the United States and Turkey) and suggested that the effect found by Alper (2018) might be unique to political attitude measures, rather than being applicable to any scales that tap into latent core values such as MFQ.

For the second objective, there was already some evidence that abstractness increases valuation of individualizing moral



**Figure 4.** Distribution of mean scores on individualizing and binding moral foundations in abstract and concrete construal conditions in Experiment 2.

foundations and decreases valuation of binding moral foundations (Luguri et al., 2012; Napier & Luguri, 2013); but considering mixed evidence regarding how construal level relates to the strengths of different moral judgments (Eyal et al., 2008; Gong & Medin, 2012; Žeželj & Jokić, 2014), our study also aimed at filling an important gap in the literature by conducting a high-powered study examining how construal level affects the intensity of different moral foundations. The findings, however, did not produce any effect of abstractness on moral foundations. Therefore, these findings contradict the previous ones suggesting that CLT has the potential to explain core moral and political orientations (e.g., Alper, 2018; Chan, 2016; Ledgerwood, Trope, et al., 2010; Luguri & Napier, 2013; Napier & Luguri, 2013; Yang et al., 2013). In other words, although past CLT research (Lieberman & Trope, 2008, 2014; Liberman et al., 2007; Trope & Liberman, 2010) would have the implication that an abstract mind-set renders the invariant, core characteristics underlying individualizing and binding moral foundations more salient and thus lead participants to respond in an internally consistent way, considering all of the findings including the current two preregistered experiment, the results are inconclusive.

The current study also failed to replicate the finding that abstract mind-set enhances the endorsement of individualizing, as opposed to binding, moral foundations (Napier & Luguri, 2013). In fact, the question of which moral foundation is more fundamental is one of the most controversial issues of MFT. Haidt and Kesebir (2010) argue that all people have evolutionarily acquired five moral foundations and that the difference between liberals and conservatives is caused by the liberals' narrowing of their moral spectrum and thus suppressing their binding foundations. Jost (2012), in contrast, adopted the "conservatism-as-motivated-social-cognition-approach" (Jost, Glaser, Kruglanski, & Sulloway, 2003), and suggest that, rather than liberals suppressing their binding foundations by using cognitive load, conservatives enhance the value they give to the binding foundations in order to satisfy their resistance to change and opposition to equality needs. Wright and Baril

(2011) directly tested these two theoretical accounts and showed that conservatives give less value to binding foundations when their cognitive resources were depleted. Although this finding directly supports Jost's (2012) position, an independent study failed to replicate this effect (van Berkel et al., 2015). Apart from the cognitive load paradigm, Napier and Luguri (2013) also attempted to answer the very same question of which foundations are the core foundations by using CLT. They demonstrated that abstractness increases individualizing, and decreases binding foundations, and suggest that individualizing foundations are the core while binding foundations are the second-order peripheral values. Based on past research suggesting that the core moral foundations are the individualizing ones (see Jost, 2012; Luguri et al., 2012; Napier & Luguri, 2013; Wright & Baril, 2011; Yilmaz & Saribay, 2017a), we attempted to replicate the results of Napier and Luguri (2013) in two preregistered experiments but failed to find any effect. In other words, the current results challenge the argument that individualizing moral foundations, as compared to binding foundations, is applicable across different contexts and thus become more strengthened with an abstract mind-set.

Why are there differences in findings in different studies? The first and the simplest possibility is that the effect of abstract thinking on moral judgment might be spurious. The second is that the manipulation methods used are not as strong as they are supposed to be. Likewise, as shown by Žeželj and Jokić (2014), different abstractness manipulations used for the same purpose can have different effects on the outcome measure. We used two of the most frequently used manipulations of abstract thinking in the literature in our experiments (Fujita & Roberts, 2010; Fujita, Trope, Liberman, & Levin-Sagi, 2006), one of which was also the same manipulation technique that Napier and Luguri (2013) used and found the effect in their research. Therefore, it should be reassessed whether the manipulations used in the CLT literature actually work as intended. Another potential limitation of the current study (and other similar research) is the low-reliability values of the outcome



measures used as a measure of morality. Likewise, although MFQ does not have a good fit value across cultures (including the English version; e.g. Davies, Sibley, & Liu, 2014; Graham et al., 2011; Yilmaz et al., 2016), it has been used in a large number of empirical studies. We used MFT to represent morality in order to replicate the effect previously shown by Napier and Luguri (2013) but the reliability values of the scale fell below the standard criteria. Others (e.g., Eyal et al., 2008) also used small sample sizes with a limited number of moral vignettes (2–4) adopted from the theoretical framework of MFT as a measure of moral judgment.

Finally, it should also be noted that failure to replicate does not necessarily mean that the original results were incorrect, as “false nonreplications” sometimes do occur (Ioannidis, 2012), mostly due to low-power designs (Maxwell, Lau, & Howard, 2015). Considering that some of the effect sizes we were attempting to detect were quite small, future studies should conduct higher powered studies and use more reliable measurements to test the relationship between construal level and morality.


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### Supplemental Material

The supplemental material is available at <https://osf.io/nh4ck/>.

### Note

1. Although 294 participants completed the study, one participant missed some items of the Moral Foundations Questionnaire. As a result, although the participant was included in the analyses regarding standard deviations and mean scores, Cronbach's  $\alpha$  scores were not calculated for that participant. This is why analyses regarding comparison of  $\alpha$  scores were conducted on 293 participants.

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