

THE EFFECT OF VERB ASPECT ON COGNITIVE  
DISSONANCE AND SOCIAL INFLUENCE

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## ABSTRACT

The present research addresses whether describing a prior decision-making act as ongoing using the imperfective verb aspect (rather than describing it as completed using the perfective verb aspect) influences attitudes toward the decision and tendencies to make similar decisions. In Experiment 1, participants who described their prior decision-making act using the perfective (vs. imperfective) aspect indicated greater decision satisfaction (i.e., a larger preference for their chosen over the unchosen alternative). In Experiment 2, participants viewed the decision to agree to a small request in the perfective (vs. imperfective) aspect and were then asked a larger, more costly request. Though it was expected that participants who viewed the perfective (vs. imperfective) in their descriptions would demonstrate more compliance, the results suggested verb aspect had no effect on compliance. All told, the present research provides mixed evidence for understanding how subtle language features shapes basic thought processes, but may hold important implications for understanding cognitive dissonance and decision-making processes.

## LIST OF ABBREVIATIONS AND SYMBOLS

$\beta$	Standardized regression coefficient
$M$	Mean: the sum of a set of measurements divided by the number of measurements in the set
$p$	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
$SD$	Standard deviation
$t$	Computed value of $t$ test
$<$	Less than
$>$	Greater than
$=$	Equal to

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## INTRODUCTION

Before making a decision, people are generally open-minded to alternatives. After making a decision, however, people become closed to decision alternatives and behave in decision-consistent ways. For example, after agreeing to a small request, people are likely to agree to a larger, related request (Cialdini, Cacioppo, Bassett, & Miller, 1978). Much research has examined how decision characteristics (e.g., number of alternatives) influence tendencies to defend and act in line with decisions (Brehm, 1956; Johnson, Meyer, & Ghose, 1989; Tyszka, 1985), but there has been little research conducted on the impact of different cognitive representations of the decision-making process. One way to represent the decision-making process is by using the imperfective (e.g., *I was making* a decision) or perfective (e.g., *I made* a decision) verb aspect, which represents the decision process as ongoing or completed, respectively. The current paper will focus on how representing the decision-making process using imperfective (vs. perfective) verbs will affect attitude change and compliance.

### **Verb Aspect**

Prior research has generally assessed how verb aspect influences narrative comprehension. In the tradition of narrative comprehension, verbal markers (e.g., verb aspect and tense) act as processing cues that help the spontaneous construction of a situational model of an event (Bransford, Barclay, & Franks, 1972; Bransford & Johnson, 1972; Glenberg, Meyer, & Lindem, 1987; Zwann & Radvansky, 1998), which may denote characters, spatial settings, intentions, and actions in a text (Glenberg, Kruley, & Langston, 1994; Graesser, Millis, &

Zwaan, 1997; Johnson-Laird, 1983; Johnson-Laird & Byrne, 1989; van Dijk & Kintsch, 1983). As a result, verbal markers facilitate construction of a coherent representation of an event. For instance, information described with a past-tense verb is forgotten more quickly compared to information conveyed with a present-tense verb (Carreiras, Carriedo, Alonso, & Fernandez, 1997).

Presumably, verb aspect operates as a processing cue to memory to construct an ongoing or completed representation of an event (Glenberg, Kruley, & Langston, 1994; Graesser, Millis, & Zwaan, 1997; Johnson-Laird, 1983; Radvansky, 2008; van Dijk & Kintsch, 1983). In particular, the imperfective aspect is presumed to cue the retrieval of knowledge on the initial and intermediate stages of an event's progression, producing an ongoing mental representation of the event. By contrast, the perfective aspect is presumed to cue the retrieval of knowledge on the outcome of an event, producing a completed mental representation of the event. Prior research supports some of these presumptions. In one study (Madden & Zwaan, 2003), participants read actions conveyed in an imperfective or perfective aspect (e.g., "The man *was making/made* a fire") and then selected appropriate pictures showing relevant completed or ongoing actions. As anticipated, participants were more likely to choose pictures showing completed (e.g., a picture of man sitting by a fire) than ongoing actions (e.g., a picture of a man making a fire) after reading perfective descriptions (see also Hart & Albarracín, 2011; Morrow, 1990). Other research shows that events described with an imperfective (vs. perfective) aspect increase the retrieval of knowledge that links to the initial or intermediate stages of the event (Ferretti, Kutas,

& McRae, 2007; Hart & Albarracín, 2011; Magliano & Schleich, 2000; Zwaan & Radvansky, 1998).

These ideas from narrative comprehension have been extended to the study of how the verb aspect applied to verbs in *self-descriptions* of past experiences influences memory and future behavior. In one study (Hart & Albarracín, 2009), after being interrupted during an anagram task, participants described their behavior on the anagram task in the perfective (vs. imperfective) aspect. Then, participants completed a memory task and were asked if they were willing to resume the anagrams. The results revealed that those who described their behavior in the imperfective (vs. perfective) aspect were more willing to resume the anagrams and had better memory of the anagrams. In a subsequent study (Study 4), participants completed an anagram task and viewed perfective (vs. imperfective) behavioral descriptions that were either relevant or irrelevant to a subsequent anagram task. The results demonstrated that participants in the imperfective condition performed on the subsequent anagram task better when the behavioral descriptions were relevant (vs. irrelevant), but in the perfective condition, participants who read irrelevant (vs. relevant) descriptions performed better (Hart & Albarracín, 2009). This suggests that describing decisions in the imperfective (vs. perfective) aspect improved memory, but only for action-relevant concepts.

The current research addresses whether the verb aspect applied to the self-descriptions of a past decision-making act influences people's attitudes toward their decisions and tendencies to make similar future decisions. If recalling a prior decision described in the imperfective aspect promotes a memory of the decision-making process as ongoing and the perfective promotes a

memory of the decision-making process as completed, use of the perfective (vs. imperfective) should instill commitment to the decision. This commitment may be manifested as a tendency to amplify one's attitude toward the chosen option and denigrate the unchosen alternatives and a tendency to engage in decision-consistent responses. These predictions are derived from prior research in the tradition of cognitive dissonance and social compliance.

### **Commitment and Cognitive Dissonance**

One classic mechanism that uses decision commitment to produce attitude change is cognitive dissonance. The theory of cognitive dissonance states that when there are two conflicting or inconsistent behaviors or cognitions, an unpleasant state of dissonance arises, which produces a motivation to reduce the dissonance (Festinger, 1957). Attitude adjustment is one way to reduce dissonance, as illustrated in the free-choice paradigm (Brehm, 1956). After making a choice between alternatives (e.g., deciding between two apartments) a spreading-of-alternatives effect takes place, wherein favorability increases for the selected alternative and decreases for unselected alternatives. For example, in one study, participants were asked to rate a variety of consumer goods (e.g., a toaster) and then asked to choose between two comparably rated items. When asked to re-rate the items, participants rated the chosen alternative more favorably and the unchosen alternative less favorably (Brehm, 1956).

There has been much research on cognitive dissonance since it was originally articulated. For example, recent research has examined the underlying neural processes associated with cognitive dissonance (Harmon-Jones, Harmon-Jones, Serra, & Gable, 2011; van Veen, Krug, Schooler, & Carter, 2009). Furthermore, investigators have explored how cognitive dissonance

and related processes are affected by interpersonal variables (Matz & Wood, 2005; Norton, Monin, Cooper, & Hogg, 2003), culture (Hoshino-Browne et al., 2005), power priming (Galinsky, Magee, Gruenfeld, Whitson, & Liljenquist, 2008; Stone & Cooper, 2003), individual differences in the preference for consistency, self-esteem, and the need for closure (Heitland & Bohner, 2010; Stalder, 2010; Stone, 2003), choice difficulty (Mann & Taylor, 1970), consequences of a decision (Mills & Ford, 1995), and characteristics of the alternatives, such as the number of alternatives and the similarity between them (Johnson, Meyer, & Ghose, 1989; Tyszka, 1985). However, there has been little research on how different representations of a decision can influence commitment and decision satisfaction. To correct this omission, the current study will examine whether describing past decisions as ongoing reduces decision satisfaction.

### **Commitment and the Foot-in-the-Door Technique**

In the social influence literature, commitment is a key factor in classic sequential request paradigms (Cialdini & Guadagno, 2004). For example, the foot-in-the-door technique (Freedman & Fraser, 1966) involves first making a small request (e.g., filling out a 5-item questionnaire) to which a target (i.e., the person being asked to comply with a request) will likely agree. After the target agrees to the first request, he or she is propositioned with a related, but much larger, request (e.g., filling out a 25-item questionnaire). Generally, after making a commitment to a small request, individuals are much more likely to agree to a larger request in the future.

Research has revealed several moderators to the effectiveness of the foot-in-the-door technique. For example, those with low (vs. high) self-concept clarity or low (vs. high) preference for consistency are less influenced by the foot-in-the-door technique (Burger & Guadagno, 2003; Guadagno, Asher, Demaine, & Cialdini, 2001). In fact, the reverse foot-in-the-door effect refers to the tendency for individuals, after agreeing to an initial request (e.g., signing a petition for a cause), with a low preference for consistency to be less likely to agree to a second request (e.g., volunteering time for a cause) when the trait implications (e.g., being a helpful person) of the behavior are made salient (Guadagno, Asher, Demaine, & Cialdini, 2001). Put simply, just by asking a rhetorical question that promotes elaboration on the trait implications of a behavior (e.g., asking the target if he or she is usually helpful), a classic finding in the social influence literature can be nullified or reversed. The current research proposes that this effect may be qualified by whether the initial decision to commit is represented as ongoing or completed. For example, representing an initial decision to commit in the imperfective (vs. perfective) aspect may imply the decision is ongoing, and thus decrease commitment to that decision. If the commitment mechanism that drives the foot-in-the-door technique is nullified by describing the commitment decision in the imperfective (vs. perfective) aspect, then the decision to agree to a second, larger request will be less likely.

### **Experiment Overview**

In the first study, participants indicated a decision between two equally desirable apartments and then described this decision-making act as ongoing (using imperfective verbs) or completed (using perfective verbs). Following these descriptions, they rated their attitudes

toward each apartment. It was hypothesized that participants who described their decision as completed (vs. ongoing) would show an enhanced tendency to evaluate their chosen alternative more favorably than their unchosen alternative (i.e., greater decision satisfaction). To develop the role of verb aspect further, a second study was conducted using a social influence paradigm. In this study, participants were asked to comply with a small request and then viewed a description of their decision to comply in the perfective or imperfective aspect. Following these descriptions, participants were asked to agree to a second, larger request. It was expected that participants in the perfective (vs. imperfective) condition would be more likely to agree to the second request.

## EXPERIMENT 1

To address the role of verb aspect in attitude change, participants indicated a decision between two apartments and described their decision-making act in imperfective or perfective terms. Next, they rated how much they liked the two apartments. It was hypothesized that there would be an enhanced tendency to evaluate the chosen alternative more favorably than the unchosen alternative in the perfective (vs. imperfective) condition.

### **Method**

**Participants and design.** Participants were 41 undergraduates who participated in exchange for course credit. The design had two conditions (verb aspect: perfective or imperfective).

**Procedure.** Participants were seated at an individual computer station and received all instructions and tasks over the computer. Participants were introduced to a study on decision-making and asked to view the attributes for four hypothetical apartments. Two of the apartments were good options and two of the apartments were negative options. Adapted from Dijksterhuis (2004), the good options had three positive attributes (e.g., the landlord is friendly; the building is in good shape) and one negative attribute (e.g., the landlord is unfriendly; the building is in bad shape) and the negative options had three negative attributes and one positive attribute. Participants were told that in order to make the decision more realistic, two apartments would be randomly eliminated. Because prior research suggests that dissonance only occurs for difficult choices (Brehm, 1956; Gerard, 1967), participants were asked to decide between the two good options (a difficult choice). Thereafter, participants were randomly assigned to the perfective (n

= 24) or imperfective (n = 17) verb aspect condition.<sup>1</sup> Based on the method of Hart and Albarracín (2009), participants were first shown several examples of the perfective (e.g., I *read* a book) and imperfective (e.g., I *was reading* a book) verb aspect. Then, participants were asked to write five sentences about how they went about *making* their decision (imperfective condition) or how they *made* their decision (perfective condition). Afterward, participants rated how much they liked their selected and unselected apartment. Participants were asked to rate four statements, “I like this apartment,” “I would rent this apartment,” “I feel positively about this apartment,” and “I feel negatively about this apartment,” for each apartment on a 5-point scale (1 = *strongly agree*, 5 = *strongly disagree*). After reverse coding the fourth item, a mean score was computed with all four items for each apartment ( $\alpha = .90$ ). Next, a difference score was computed by subtracting the score of the unselected apartment from the score of the selected apartment. A higher score on this measure indicates an enhanced evaluation of the chosen option relative to the unchosen option (decision satisfaction). Ultimately, participants were probed for awareness and fully debriefed.

## Results

To test the hypothesis that those in the perfective (vs. imperfective) verb aspect condition will have a greater decision satisfaction, a univariate analysis of variance (ANOVA) was conducted with the apartment difference score (i.e., unselected apartment score subtracted from the selected apartment score) entered as the dependent variable and verb aspect as a fixed factor. The results revealed a significant main effect for verb aspect  $t(39) = 1.91$ ,  $p$  one tailed = .03. As

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<sup>1</sup> The unbalanced number of participants in each condition is due to an error made in one of the conditions while programming the study. As a result, the computer program used to collect data did not save any of the data for that condition. After this error was discovered, it was corrected and data collection resumed.

predicted, those in the perfective condition ( $M = 1.68$ ,  $SD = 1.33$ ) indicated greater decision satisfaction compared to those in the imperfective condition ( $M = 0.93$ ,  $SD = 1.10$ ).

## **Discussion**

The results of Experiment 1 provide initial evidence that the use of verb aspect in decision representation can influence attitude change. As predicted, we found that those in the perfective (vs. imperfective) condition had a significantly greater decision satisfaction, presumably because representing a decision as completed (vs. ongoing) increases commitment to that decision. It is likely that thinking of a decision as ongoing signals that even though the decision has been made, it is still modifiable. As a result, a commitment to the decision is never solidified and the need to rationalize the decision through attitude change is reduced. These initial findings represent an important advancement to dissonance research and further suggest that verb aspect acts as a powerful language cue.

Experiment 2 was conducted to build upon the findings of Experiment 1 in a few important ways. First, instead of a *self-generated* thought listing task to manipulate verb aspect, participants in Experiment 2 read a description that framed their prior decision (to agree to a small request) as ongoing or completed. Conceptually replicating the verb aspect effects using a different, more subtle manipulation would bolster confidence in the results. Second, to further examine the influence of verb aspect on behavior, Experiment 2 examined whether verb aspect affects susceptibility to the “foot-in-the-door” technique.

## EXPERIMENT 2

To address the role of verb aspect in social influence, participants viewed the decision to agree to a small request (complete five anagrams) in the perfective or imperfective aspect and then were asked a larger, more costly request (complete ten anagrams). Measures for the preference for consistency and social desirability were also included in the study as potential covariates to account for unexplained variance in the compliance rate. Past research has shown that the preference for consistency can predict compliance in the foot-in-the-door paradigm (Guadagno, Asher, Demaine, & Cialdini, 2001). Hence, the measure could be useful as a covariate in the main analyses. To account for the possibility that participants may comply with the requests to appear socially desirable, a measure of social desirability was included as a possible covariate. It was expected that participants who viewed perfective (vs. imperfective) wording in the requests would have a higher compliance rate (to this second, large request).

### **Method**

**Participants and design.** Participants were 100 undergraduates who participated in exchange for course credit. Six participants were excluded because they experienced a high-level of distraction in the lab. There was loud construction taking place in a bordering room during the experiment. Exclusion of these participants did not alter the pattern of the means. Overall, the design had two conditions (verb aspect: perfective or imperfective).

**Procedure.** Once in the laboratory, participants were seated at an individual computer station and received all instructions and tasks over the computer. Participants were introduced to a study on personality. Prior to completing the personality study, participants were told that a

separate group of researchers is testing new word puzzles (anagrams) to see whether the materials are appropriate for future studies. In this context, participants were asked whether they would mind helping out by completing five anagrams (at the end of the session, if there is time left). Participants were asked to respond to this first request by clicking on boxes labeled “yes” or “no.” Given that the request is relatively small, we anticipated a fairly high-degree of compliance to this request. In total, 61 participants complied with the initial request, a percentage that is a bit lower than what we had anticipated. The percentage of participants who agreed to the initial request in other foot-in-the-door studies are rarely reported so it is difficult to compare these rates to the current study (e.g., Cann, Sherman, & Elkes, 1975; Freedman & Fraser, 1966; Snyder & Cunningham, 1975). Despite this, research focused on initial response rates has reported these rates to be higher than the current study (e.g., DeJong & Funder, 1977; Dolinski, 2012). To examine the foot-in-the door hypothesis, it is incumbent that people comply with the initial request. Hence, all the subsequent analyses include only those participants who complied with the request ( $N = 61$ ). Participants who declined this request completed the individual difference measures for the duration of the study. Participants that agreed to the request were randomly assigned (by the computer program) to have their decision to agree framed in either the perfective ( $n = 32$ ) or imperfective ( $n = 29$ ). In the perfective condition, participants were told: “We appreciate that you *made* the decision to test out our word puzzles. We will come back to the fact that you *decided* to volunteer once the study is complete.” In the imperfective condition, participants were told: “We appreciate that you *were making* the decision to test out our word puzzles. We will come back to the fact that you *were deciding* to volunteer once the study is complete.” After this *initial* framing manipulation, participants participated in the personality study that took approximately 15 minutes.

The personality study involved completing a set of personality measures including the Preference for Consistency Scale (Cialdini, Trost, & Newsom, 1995) and the Crowne-Marlowe Social Desirability Scale (Crowne & Marlowe, 1960). The Preference for Consistency Scale is an 18-item self-reported measure on the desire for self and others to be consistent. Participants rated the items (e.g., “I make an effort to appear consistent to others” and “I don’t like to appear as if I am inconsistent”) on a 9-point scale (1 = *strongly disagree*, 9 = *strongly agree*) and, after reverse scoring the appropriate item, a mean score was computed to yield a single index of the preference for consistency ( $\alpha = .90$ ). The Crowne-Marlowe Social Desirability Scale is a 33-item self-report measure of the degree to which a participant is responding in a socially desirable manner. Participants rated the items (e.g., “I like to gossip at times” and “I always try to practice what I preach”) as either “true” or false.” After reverse scoring the appropriate items, responses were summed to yield a single index of social desirability ( $\alpha = .76$ ).

After participants completed the personality measures, they were reminded of their first commitment in the same aspect (perfective or imperfective) as the initial manipulation they received. In the perfective condition, they were told: “Earlier in the study, you *made* the decision to test some new word puzzles. We appreciate that you *decided* to volunteer to try these new puzzles out.” In the imperfective condition, they were told: “Earlier in the study, you *were making* the decision to test some new word puzzles. We appreciate that you *were deciding* to volunteer to try these new puzzles out.” All participants were asked if they are willing to complete an additional 5 word puzzles because more reliable data can be gathered if each participant completes 10 puzzles. Participants were asked to respond to this second request by clicking on a box labeled “yes” or “no.” If participants selected “yes,” they were asked to complete 10 anagrams and debriefed. If participants selected “no,” they were not asked to

complete the anagrams; they went straight to debriefing. Using a funnel debriefing (Bargh & Chartrand, 2000), all participants were probed for awareness of the experiment's true purpose by responding to the following questions: "What do you think the experiment is testing?"; "Do you think any of the tasks you completed were related?"; "Do you think any earlier task affected your behavior on a later task?"; and "Did you notice anything about the experiment that seemed strange?" Though many participants indicated suspicion that the anagram questions were part of the experiment, no participant indicated awareness these questions were related to the way in which the request was made (e.g., the phrasing or language used in the requests), so all participants were included in the analyses.

## Results

To test the hypothesis that there will be a significantly higher compliance rate for a second request in the perfective (vs. imperfective) condition, a chi-square analysis was conducted with the compliance rate as the dependent variable and verb aspect as the independent variable. A chi-square analysis found compliance was higher for the imperfective condition (89.66%), compared to the perfective condition (78.12%), but this difference was not significant,  $\chi^2(1) = 1.47, p = .22$ . To control for the preference for consistency, a logistic regression analysis was conducted with verb aspect and the preference for consistency entered as predictors. There was not a main effect of verb aspect ( $\beta = -0.89, p = .23$ ) nor was there a main effect of the preference for consistency ( $\beta = -0.20, p = .52$ ).<sup>2</sup>

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<sup>2</sup> To explore a possible moderating effect for the preference for consistency, a logistic regression analysis was conducted with verb aspect and the preference for consistency entered into the first step and the interaction term entered on the second step of the equation. The interaction was not significant ( $\beta = -.28, p = .71$ ).

To further explore the effect of verb aspect on compliance while controlling for Social Desirability, the social desirability index was entered into a logistic regression with verb aspect as predictors for compliance. There was not a significant main effect of verb aspect ( $\beta = -0.84, p = .27$ ) or social desirability ( $\beta = -0.05, p = .51$ ).

## **Discussion**

The results of Experiment 2 do not suggest that verb aspect influences compliance in a foot-in-the-door paradigm. It is possible that verb aspect did not produce the predicted effect for a variety of reasons. First, because prior research has found that the preference for consistency can predict compliance in the foot-in-the-door paradigm (Guadagno, Asher, Demaine, & Cialdini, 2001), but failed to do so in this study, it is likely that the dependent variable was, for some reason, an insensitive indicator of compliance.

A second possibility is that the verb aspect manipulation was not salient enough to produce a significant difference in compliance rates. Prior research on verb aspect has used methods (similar to Experiment 1) where participants write or view several sentences in either in the perfective or imperfective aspect (Hart & Albarracín, 2009). This may result in verb aspect being much more salient than was the case in the present study. In the future, salience could be addressed by having participants list out their thoughts (in either the perfective or imperfective aspect) after reading the request.

Third, perhaps the commitment mechanism produces a shift in attitudes more easily than a change in behavior. Though the methods in Experiment 1 and 2 are conceptually similar, there are factors that contribute to behavior that may have been irrelevant to attitudes held toward completing an anagram task in the second experiment. For example, the motivation to be a good participant (or follow perceived experimental norms) may have caused participant to comply

with the large request irrespective of their views or perceptions of commitment (e.g., Milgram, 1964). As a result, relative to an attitude change paradigm, it may be more difficult to illustrate the effect of verb aspect on compliance in the lab.

Fourth, the possibility exists that there are additional influences of verb aspect on compliance than we initially anticipated. For example, research has demonstrated that the imperfective (vs. perfective) aspect promotes memory for action-relevant concepts (Hart & Albarracín, 2009). It is possible that describing the decision to comply with the initial request in the imperfective aspect promoted memory for the *act* of complying, which may have caused participants in this condition to become more compliant (to a level consistent with those in the perfective condition). Indeed, it is important to note that compliance in both aspect condition seem fairly high, which may suggest that both aspects may be enhancing compliance albeit via different mechanisms. Future research could address this possibility by including a memory measure for the act of commitment in addition to assessing commitment to the decision. In sum, for a variety of reasons, these null findings do not necessarily discredit the present theory or detract from the main message of Experiment 1.

## GENERAL DISCUSSION

The findings from Experiment 1 demonstrate that verb aspect influences attitude change. In this experiment, we found that those who described their decision in the perfective (vs. imperfective) aspect had a significantly greater decision satisfaction, presumably because representing a decision as completed (vs. ongoing) increases commitment to that decision. Attempting to build on these findings, Experiment 2 was conducted where participants first viewed a description of their decision to agree to a small request in the perfective or imperfective aspect. Then, they were asked to comply with a larger, more costly request. There was not, however, an effect of verb aspect on compliance. In short, there is mixed evidence concerning the role of verb aspect on subsequent decision making and behavior.

The findings of Experiment 1 provide additional support to the literature on verb aspect. Research on verb aspect has revealed that representing a past behavior as ongoing (vs. completed) influences memory, intentionality, and the likelihood of continuing a behavior in the future (Hart & Albarracín, 2009; Hart & Albarracín, 2011). However, research has not yet addressed how such representations can influence the decision-making process. If the imperfective aspect causes people to represent a decision-making act as ongoing and the perfective aspect causes people to represent a past decision-making act as completed (Hart & Albarracín, 2009), then the verb aspect used in descriptions of past decision making should influence decision commitment and have subsequent implications on decision-making. As one

corollary, perhaps people who discuss their decision making in the perfective may be less likely to change their decisions, even when these decisions are clearly inappropriate. Future research might explore this and related possibilities.

More broadly, the current research contributes to the idea that the subjective mental construal of decisions is a powerful determinant of decision-making. The way in which decisions are represented and the influence this representation has on thoughts and behaviors has been a topic of interest for some time (Fox & Cooper, 1997; Kersten & Szpakowicz, 1994; Trope, Liberman, & Wakslak, 2007; Tversky & Kahneman, 1981; Vendlar, 1957). For example, slight variations in linguistic representations, such as abstract (vs. concrete) and interrogative (vs. simple future aspect) language, influence a variety of cognitive processes and behaviors (Henderson, Wakslak, Fujita, & Rohrbach, 2011; Senay, Albarracín, & Noguchi, 2010). Nevertheless, prior research in decision-making has neglected that decisions can be represented as ongoing or completed and such representations may be an important guide to future decision making.

Experiment 1 also contributes to understanding possible boundaries for classic dissonance phenomena. Traditional findings suggest that under conditions in which behavior is unlikely to be attributed to an external influence (e.g., low monetary compensation for a time-consuming task), attitudes shift to coincide with behavior (Brehm, 1956). The present research suggests that even under such conditions, representing the decision to engage in the counter-attitudinal behavior as ongoing using a subtle linguistic cue can reduce or eliminate an attitude shift. This may hold implications for research on dissonance and consistency-related processes. For example, even individuals with a consistency motivation may not feel compelled to behave in line with a prior decision if the decision is mentally represented as an ongoing activity.

These findings may suggest practical implications for behavior change in real-world situations. For example, research that examined how the use of commitment language influenced the behavior of clients in drug treatment programs found that commitment language-strength (e.g., “I won’t be using” vs. “I will probably use as soon as I get my paycheck”) predicted behavior change and treatment retention (Aharonovich, Amrhein, Bisaga, Nunes, & Hasin, 2008; Amrhein, Miller, Yahne, Palmer, & Fulcher, 2003). However, this research did not investigate how verb aspect may influence treatment outcome. It could be predicted that, within the high commitment language-strength group, those who represented the decision to make a commitment in the perfective (vs. imperfective) aspect would have more positive evaluations of the programs and be more likely to remain the programs.

## REFERENCES

- Aharonovich, E., Amrhein, P. C., Bisaga, A., Nunes, E. V., & Hasin, D. S. (2008). Cognition, commitment language, and behavioral change among cocaine-dependent patients. *Psychology of Addictive Behaviors, 22*, 557-562.
- Amrhein, P. C., Miller, W. R., Yahne, C. E., Palmer, M., & Fulcher, L. (2003). Client commitment language during motivational interviewing predicts drug use outcomes. *Journal of Consulting and Clinical Psychology, 71*, 862-878.
- Bargh, J. A., & Chartrand, T. L. (2000). The mind in the middle: A practical guide to priming and automaticity research. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 253–285). New York: Cambridge University Press.
- Bransford, J. D., & Johnson, M. K. (1972). Contextual prerequisites for understanding: Some investigations of comprehension and recall. *Journal of Verbal Learning and Verbal Behavior, 11*, 717-726.
- Bransford, J. D., Barclay, J. R., & Franks, J. J. (1972). Sentence memory: A constructive versus interpretive approach. *Cognitive Psychology, 3*, 193-209.
- Brehm, J. W. (1956). Post-decision changes in desirability of alternatives. *Journal of Abnormal and Social Psychology, 52*, 384–389.
- Burger, J. M., & Guadagno, R. E. (2003). Self-concept clarity and the foot-in-the-door procedure. *Basic and Applied Social Psychology, 25*, 79-86.
- Cann, A., Sherman, S. J., & Elkes, R. (1975). Effects of initial request size and timing of a second request on compliance: The foot in the door and the door in the face. *Journal of Personality and Social Psychology, 32*, 774-782.

- Carreiras, M., Carriedo, N., Alonso, M. A., & Fernandez, A. (1997). The role of verb tense and verb aspect in the foregrounding of information during reading. *Memory & Cognition*, 25, 438–446.
- Cialdini, R. B., Trost, M. R., & Newsom, J. T. (1995). Preference for consistency: The development of a valid measure and the discovery of surprising behavioral implications. *Journal of Personality and Social Psychology*, 69, 318-328.
- Cialdini, R.B., & Guadagno, R. E. (2004). Sequential request compliance tactics. In R. H. Gass & J. S. Steiter (Eds.), *Perspectives on persuasion, compliance-gaining, and social influence*, 207-222. Boston, MA: Allyn & Bacon.
- Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24, 349-354.
- DeJong, W., & Funder, D. (1977). Effect of payment for initial compliance: Unanswered questions about the foot-in-the-door phenomenon. *Personality and Social Psychology Bulletin*, 3, 662-665.
- Dijksterhuis, A. (2004). Think different: The merits of unconscious thought in preference development and decision making. *Journal of Personality and Social Psychology*, 87, 586-598.
- Dolinski, D. (2012). The nature of the first small request as a decisive factor in the effectiveness of the foot-in-the-door technique. *Applied Psychology: An International Review*, 61, 437-453.
- Ferretti, T. R., Kutas, M., & McRae, K. (2007). Verb aspect and the activation of event knowledge in semantic memory. *Journal of Experimental Psychology: Learning, Memory, & Cognition*, 33, 182-196.
- Ferretti, T. R., McRae, K., & Hatherell, A. (2001). Integrating verbs, situation schemas, and thematic role concepts. *Journal of Memory and Language*, 44, 516-547.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.

- Fox, J., & Cooper, R. (1997). Cognitive processing and knowledge representation in decision making under uncertainty. *Psychologische Beiträge*, 39, 83-106.
- Freedman, J. L., & Fraser, S. C. (1966). Compliance without pressure: The foot-in-the-door technique. *Journal of Personality and Social Psychology*, 4, 195-202.
- Galinsky, A. D., Magee, J. C., Gruenfeld, D., Whitson, J. A., & Liljenquist, K. A. (2008). Power reduces the press of the situation: Implications for creativity, conformity, and dissonance. *Journal of Personality and Social Psychology*, 95, 1450-1466.
- Gerard, H. H. (1967). Choice difficulty, dissonance, and the decision sequence. *Journal of Personality*, 35, 91-108.
- Glenberg, A. M., Kruley, P., & Langston, W. E. (1994). Analogical processes in comprehension: Simulation of a mental model. In M. A. Gernsbacher (Ed.), *Handbook of psycholinguistics* (pp. 609-640). New York: Academic Press.
- Glenberg, A. M., Meyer, M., & Lindem, K. (1987). Mental models contribute to foregrounding during text comprehension. *Journal of Memory & Language*, 26, 69-83.
- Graesser, A. C., Millis, K. K., & Zwaan, R. A. (1997). Discourse comprehension. *Annual Review of Psychology*, 48, 163-189.
- Guadagno, R. E., Asher, T., Demaine, L., & Cialdini, R. B. (2001). When saying yes leads to saying no: Preference for consistency and the reverse foot-in-the-door effect. *Personality and Social Psychology Bulletin*, 27, 859-867.
- Harmon-Jones, E., Harmon-Jones, C., Serra, R., & Gable, P. A. (2011). The effect of commitment on relative left frontal cortical activity: Tests of the action-based model of dissonance. *Personality and Social Psychology Bulletin*, 37, 395-408.
- Hart, W., & Albarracín, D. (2009). What I was doing versus what I did: Verb aspect influences memory and future actions. *Psychological Science*, 20, 238-244.

- Hart, W., & Albarracín, D. (2011). Learning about what others were doing: Verb aspect and attributions of mundane and criminal intent for past actions. *Psychological Science, 22*, 261-266.
- Heitland, K., & Böhner, G. (2010). Reducing prejudice via cognitive dissonance: Individual differences in preference for consistency moderate the effects of counter-attitudinal advocacy. *Social Influence, 5*, 164-181.
- Henderson, M. D., Wakslak, C. J., Fujita, K., & Rohrbach, J. (2011). Construal level theory and spatial distance: Implications for mental representation, judgment, and behavior. *Social Psychology, 42*, 165-173.
- Hoshino-Browne, E., Zanna, A. S., Spencer, S. J., Zanna, M. P., Kitayama, S., & Lackenbauer, S. (2005). On the cultural guises of cognitive dissonance: The case of Easterners and Westerners. *Journal of Personality and Social Psychology, 89*, 294-310.
- Johnson, E. J., Meyer, R. J., & Ghose, S. (1989). When choice models fail: Compensatory models in negatively correlated environments. *Journal of Marketing Research, 26*, 255-270.
- Johnson-Laird, P. N. (1983). *Mental models: Towards a cognitive science of language, inference, and consciousness*. Cambridge, MA: Harvard University Press.
- Johnson-Laird, P. N., & Byrne, R. M. J. (1989). Only reasoning. *Journal of Memory and Language, 28*, 313-330.
- Kersten, G. E., & Szpakowicz, S. (1994). Decision making and decision aiding: Defining the process, its representations, and support. *Group Decision and Negotiation, 3*, 237-261.
- Madden, C. J., & Zwaan, R. A. (2003). How does verb aspect constrain event representations? *Memory & Cognition, 31*, 663-672.
- Magliano, J. P., & Schleich, M. C. (2000). Verb aspect and situation models. *Discourse Processes, 29*, 83-112.

- Mann, L., & Taylor, V. A. (1970). The effects of commitment and choice difficulty on predecision processes. *The Journal of Social Psychology, 82*, 221-230.
- Matz, D. C., & Wood, W. (2005). Cognitive dissonance in groups: The consequences of disagreement. *Journal of Personality and Social Psychology, 88*, 22-37.
- Milgram, S. (1964). Group pressure and action against a person. *The Journal of Abnormal and Social Psychology, 69*, 137-143.
- Mills, J., & Ford, T. E. (1995). Effects of importance of a prospective choice on private and public evaluations of the alternatives. *Personality and Social Psychology Bulletin, 21*, 256-266.
- Morrow, D. G. (1990). Spatial models, prepositions, and verb-aspect markers. *Discourse Processes, 13*, 441-469.
- Norton, M. I., Monin, B., Cooper, J., & Hogg, M. A. (2003). Vicarious dissonance: Attitude change from the inconsistency of others. *Journal of Personality and Social Psychology, 85*, 47-62.
- Radvansky, G. A. (2008). Situation models in memory: Texts and stories. In G. Cohen, M. A. Conway, G. Cohen, M. A. Conway (Eds.) *Memory in the real world (3rd ed.)* (pp. 229-247). New York, NY: Psychology Press.
- Senay, I., Albarracín, D., & Noguchi, K. (2010). Motivating goal-directed behavior through introspective self-talk: The role of the interrogative form of simple future aspect. *Psychological Science, 21*, 499-504.
- Snyder, M., & Cunningham, M. R. (1975). To comply or not comply: Testing the self-perception explanation of the 'foot-in-the-door' phenomenon. *Journal of Personality and Social Psychology, 31*, 64-67.
- Stalder, D. R. (2010). Competing roles for the subfactors of need for closure in moderating dissonance-produced attitude change. *Personality and Individual Differences, 48*, 775-778.

Stone, J. (2003). Self-consistency for low self-esteem in dissonance processes: The role of self-standards. *Personality and Social Psychology Bulletin*, *29*, 846-858.

Stone, J., & Cooper, J. (2003). The effect of self-attribute relevance on how self-esteem moderates attitude change in dissonance processes. *Journal of Experimental Social Psychology*, *39*, 508-515.

Trope, Y., Liberman, N., & Wakslak, C. (2007). Construal levels and psychological distance: Effects on representation, prediction, evaluation, and behavior. *Journal of Consumer Psychology*, *17*, 83-95.

Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, *211*, 453-458.

Tyszka, T. (1985). Variability of predecisional information seeking behavior. *Polish Psychological Bulletin*, *16*, 275-282.

van Dijk, T., & Kintsch, W. (1983). *Strategies of discourse comprehension*. New York, NY: Academic Press.

van Veen, V., Krug, M. K., Schooler, J. W., & Carter, C. S. (2009). Neural activity predicts attitude change in cognitive dissonance. *Nature Neuroscience*, *12*, 1469-1474.

Vendler, Z. (1957). Verbs and times. *Philosophical Review*, *66*, 143-160.

Zwaan, R. A., & Radvansky, G. A. (1998). Situation models in language comprehension and memory. *Psychological Bulletin*, *123*, 162-185.