

The effects of temporal orientation on reasoning over relationship conflicts

by

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Abstract

Past research on construal level theory (CLT) has shown that adopting a temporally distant (vs. temporally close) orientation facilitates a more abstract, “bigger picture” representation of events. Furthermore, research on other forms of psychological distance (e.g., self-distance) has linked abstract representations of past interpersonal negative events to positive psychological benefits, such as reduced negative affect. Despite this connection, little work has been done looking at how temporal distance, a form of psychological distance, may also result in positive psychological outcomes. Moreover, few have explored the effects of temporal distance on reasoning within an interpersonal context. Provided the past literature on psychological distance, I hypothesize that a distant temporal orientation when reasoning over a recent romantic relationship conflict will result in greater abstract representations of the past conflict. Given that the context is in an interpersonal domain, I predict that the abstract representation will manifest itself through a more inclusive reasoning strategy, which will lead to beneficial reasoning strategies for the relationship. I test these hypotheses by randomly assigning participants to a present-oriented mindset, or a future-oriented mindset when reflecting on their past conflict. Results from two experiments (Study 1: College students; Study 2: Age-heterogeneous community sample) indicate that taking a future-orientation leads to an inclusive reasoning strategy (i.e., greater non-self centered word use) and also leads to reasoning that is considered conducive to positive relationship outcomes (e.g., lower partner blame and greater expression of growth). Implications for research on psychological distance and reasoning are discussed.

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CHAPTER ONE

INTRODUCTION

At some point during our youth, we all learn to rely less on our imaginations and focus more on the present reality. The adventures we once had fending off beings from another planet, or marrying the charming young prince become less meaningful to us as we slowly realize that the only true reality is what we can experience here-and-now. But the saying that there is a child in all of us still holds some weight, as the capacity to imagine and experience alternate realities never really leaves us. Rather, we are engulfed in other versions of reality outside of the here-and-now frequently throughout the day, from moments when we daydream, to moments when we imagine the future, or re-experience the past. Although these realities engender less excitement than those of our youth, this type of mental travel nevertheless plays a large role in our cognition, motivations, and emotional processes. Despite only being capable of truly experiencing the present, many major psychological theories in social cognition have revolved around our ability to transcend the present moment and ourselves. From making erroneous affective forecasts about the future, to reconstructing our past in partial and unbalanced ways, it is clear that we are both capable of and susceptible to the effects of temporal distance away from the present time.

It is argued that humans are uniquely capable of mental time travel (Suddendorf & Corballis, 2007; c.f. Cheke & Clayton, 2010). The true evolutionary purpose of mental time travel is often debated, but its utilization as an adaptive tool is usually not in question. Researchers in memory and cognition have long asserted that the instrumental purpose of episodic memory is to serve as a means for imagining the future (Barsalou, 1999; Schacter & Addis, 2007). Reconstructing our past functionally allows for predicting the future through

personal experience, offering a framework to expect and anticipate what the uncertain future holds. This suggests that how we anticipate the future and re-experience the past exerts a very real influence over our present thought processes.

Whether our focus is on the present or on the future (i.e., our temporal orientation) affects how we interpret and understand our current situations. For example, the decision between saving your money for that romantic getaway in Italy next year, or impulsively purchasing that captivatingly new iPhone, depends largely on whether one is future-oriented or present-oriented. Temporal orientations not only play a role in how we make decisions for ourselves, but also in how we reason about issues involving others. If taking a present orientation, one might question why their partner bought that iPhone when they are currently in debt. In contrast, if the same person were taking a future orientation, they might realize that they will still be okay paying for a vacation one year from now. The influence of temporal orientation on our reasoning is apparent, specifically when it comes to conflicts in our social relationships, but research on this topic remains relatively unexplored.

Nevertheless, relevant literature in the field of mental time travel is plentiful and provides a foundation with which to address how temporal orientation may influence reasoning over our social relationships. Converging evidence suggests that greater temporal distance from an event yields greater abstract representations of that event (Liberman & Trope, 1998; Liberman, Sagristano, & Trope, 2002). This idea is described by Construal Level Theory (CLT), which posits that temporally distant events produce more abstract, high-level representations, whereas temporally close events, prompt the formation of concrete, low-level representations (Trope & Liberman, 2003). This differentiation in construal applies across multiple distance dimensions

that involve transcending the here-and-now (e.g., spatial, temporal, and social distances) all of which fall under the overarching concept of psychological distance.

Findings support the notion that psychological distance (e.g., viewing oneself as a distant observer rather than an immersed participant) from negative events, generally leads to positive psychological benefits, such as reduced negative affect, lower rumination and lower distress (Kross & Ayduk, 2011). The mechanism underlying these effects are often attributed to the abstract, bigger picture representations that come from representing distant events (Fujita, Trope, Liberman, & Levin-Sagi, 2006). Given that psychological distance is said to operate similarly across multiple dimensions (Trope & Liberman, 2010), it is possible that temporal distance will function similarly to these other forms of distance.

Although past researchers exploring the effects of psychological distance from a recent negative event have found beneficial effects (Ray, Wilhelm, & Gross, 2008), few have explored whether these effects extend into the domain of mental time travel (i.e., temporally transcending the here-and-now) and whether or not they influence our reasoning over interpersonal conflicts. In order to investigate these unanswered areas in the field, this thesis reports two studies using literature from CLT, relationship conflicts, and psychological distance. In both studies, I explore if temporal orientation provides an abstract, bigger picture view on a romantic relationship conflict, and whether this results in reasoning that is adaptive for their relationships.

Distant Construals and Reasoning about a Romantic Relationship Conflict

Psychological distance can be described as the experience of something close to or far from *oneself*. This definition is also true in a romantic relationship context, though it requires some additional considerations. First, because romantic relationships often involve two interdependent minds, distance within a romantic relationship context incorporates the concern

of more than just one person. Moreover, when it comes to reasoning over a romantic relationship conflict, the level of reasoning is subject to different processes. For example, the motivation to see our partner's in a positive light (Murray, Holmes, & Griffin, 1996) may shadow our interpretation of potential relationship issues (Murray & Holmes, 1993).

There are several types of reasoning strategies that may follow a romantic relationship conflict. One destructive form of reasoning comes in the form of blame attributions. For example, increased blame attribution toward one's marital partner in a conflict is linked with lower marital satisfaction (Bradbury & Fincham, 1992). Blaming the other person is often an antecedent to negative consequences for both parties involved in a conflict (Hodgins & Liebeskind, 2003). On the opposing end, forgiveness of one's partner typically precedes positive relationship outcomes and even results in increased mental health of the forgiver (Rye & Pargament, 2002). Forgiveness inhibits destructive responses from a romantic partner and is considered a constructive response to a destructive form of behaviour (McCullough, Worthington, & Rachal, 1997)

In a recent review on reflecting over negative experiences, Kross and Ayduk (2011) proposed that psychological distance is the key factor in determining whether this reflection acts as a maladaptive or adaptive process, and whether attempts to understand past negative events such as a relationship conflict succeed or fail. Attempts to adaptively deal with one's past negative experiences typically succeed when one increases psychological distance from the self (i.e., self-distance). Researchers have provided converging evidence to this end, suggesting the best strategy may be to take a self-distanced perspective, typically through reappraisal from a third-person or outside observer perspective (e.g., Libby, Eibach, & Gilovich, 2005). Re-experiencing negative events from a distanced perspective typically lower emotional reactivity

and negative affect (Kross, Ayduk, & Mischel, 2005). Moreover, these benefits extend beyond that of short-term positive psychological health, as researchers have linked it to adaptive long-term benefits and benefits for physiological health such as reduced blood pressure (Ayduk & Kross, 2008; Kross & Ayduk, 2008). Although reflecting over a past negative event makes one prone to the negative consequences of rumination (Ayduk & Kross, 2010), it is also the means toward adaptive processing of the event.

The give-and-take involved in relationship conflicts makes it difficult to determine if psychological distance would result in the same reasoning that is conducive to positive relationship outcomes. As Kross (2009) notes, adaptive self-reflection over past negative events are most difficult when they are intense and when we are motivated to understand and improve upon our feelings. Not surprisingly, it is interpersonal connections that provide us with the greatest amount of anxiety (Baumeister, Wotman, & Stillwell, 1993) and it is these which we are often most eager to understand. Considering that a stable and successful relationship entails the balance of self-interest and risk (Murray & Holmes, 2009), it is reasonable that constructive reasoning involves an abstract and inclusive mindset. In a recent marital intervention study, (Finkel, Slotter, Luchies, Walton, & Gross, 2013) the researchers found that instructions to adopt the perspective of an outside observer with a “best for all” mindset, protected couples from the negative trajectory of marital satisfaction. Considering what past research on psychological distance suggests, the driving force behind the adaptive benefits of distance are the abstract, high-level construals that result in “bigger picture” thinking (e.g., Fujita et al., 2006) or, as Finkel et al. (2013) applies in their intervention, an inclusive relationship mindset.

Despite the fact that the different dimensions of psychological distance (e.g., spatial distance, social distance, temporal distance) are purported to all be cognitively related (Trope &

Liberman, 2010), few have explored whether temporal distance similarly produces adaptive reasoning over interpersonal conflicts. That is, does temporal distance operate similarly on our reasoning capacities, as other forms of psychological distance should? Theoretically it should proffer the same benefits as it does for other conflicts, but its contribution to adaptive reasoning over relationship conflicts is still undetermined.

The Influence of Mental Construals

Psychological distance influences our interpretations of events, and inasmuch as mental construals mediates these interpretations, it also influences the outcomes of our interpretations in related and predictable ways. CLT proposes that as temporal distance increases, events are represented in higher-level, abstract terms, as opposed to low-level concrete terms. In a romantic relationship context, an abstract representation of a negative event tends to extract a general “bigger picture” meaning out of the event, whereas a concrete representation focuses on the specific details of the event, making the one prone to re-experiencing the arousal and irritation caused by the event. These different forms of reappraisal of the same situation produce different implications in terms of reasoning about one’s relationship. To the extent that a contextualized representation of an event focuses on the low-level, concrete details, it is also likely that such construals will lead to a focus on the fault at hand.

The distinction between low-level, concrete, and high-level, abstract representations is necessary in order to understand what exactly is being assessed. Consider a motorbike for example. A low-level representation of this object may draw on the incidental features of the motorbike, such as what colour it is, whereas a move towards an abstract concrete representation of the object retains the central features of the object, such as its function as a transportation vehicle. The translation of these different levels of construal towards non-physical objects and events, such as an argument with a romantic partner follow a similar structure. Consider a

conflict in a romantic relationship where one partner recalls when the other recently forgot to feed the dog. Construing this issue in an abstract form omits the incidental features of the event and leads to decontextualized interpretations (e.g., my partner is a forgetful person) whereas a more concrete contextualized construal of the event focuses on the details (e.g., my partner forgot to feed the dog after work).

If your partner forgets to feed the dog after work, the blame falls upon them for failing to complete an act even though they had the opportunity to do so. In contrast, your partner being a forgetful person is a considerably more flexible interpretation. Such flexible interpretations of relationship conflicts have been linked to seeing virtues in one's partner (e.g., Murray & Holmes, 2003). Not only may this interpretation increase willingness to forgive them, but it may also serve as a reminder of the qualities that make them special and unique. Moreover, such reappraisals of the situation may foster positive outcomes from the event, such as growth in the relationship. An abstract construal of a past argument may result in seeing a positive outcome from the negative experience (e.g., we had an argument, but we understand each other better now). Although flexibility does not always entail a positive interpretation, the distinction between contextualized and decontextualized representations promote very different reappraisals. As CLT posits, this distinction in interpretation is readily apparent between temporally distant and temporally close representations of an event. Given this contrast, the mental construals fostered by psychological distance may very well be the key to adaptive reasoning over a romantic relationship conflict.

Research Overview

Based on research from CLT and psychological distance, I predicted that increased temporal distance would result in a more inclusive construal of a relationship conflict. That is,

temporal distance will foster reasoning that considers all of those involved in the conflict. Building on evidence from past research on other forms of psychological distance (e.g., self-distance; Kross & Ayduk, 2011), I also expected that reasoning while adopting a distanced temporal orientation would provide adaptive benefits in a romantic relationship context. Reappraisal of the situation from a distant temporal orientation would allow one to focus more on potential positive interpretations, such as experienced growth in the relationship from the conflict. It should also minimize the expression of partner blame in the relationship conflict and increase forgiveness of the partner over the conflict, two types of reasoning over a romantic relationship that are considered beneficial (Fincham & Bradbury, 1992; Rye & Pargament, 2002). Finally, I expected that the initial abstract, inclusive mindset would serve as the underlying mechanism that produces the positive relationship outcomes.

In Study 1, I explored these predictions by having an undergraduate sample adopt either a future-oriented or present-oriented mindset while reasoning over a recent romantic relationship conflict. I assessed participants' conflict descriptions and reported measures of reasoning to examine the effects of temporal orientation on their thought process. Using a similar paradigm, Study 2 sought to conceptually replicate the results of Study 1 with a different temporal orientation manipulation, and explored the effects of temporal orientation when reasoning over a romantic relationship conflict in a more diverse community sample.

CHAPTER TWO

TWO EMPIRICAL STUDIES EXPLORING THE EFFECTS OF TEMPORAL ORIENTATION ON REASONING OVER A ROMANTIC RELATIONSHIP CONFLICT

Study 1

In the first study, I experimentally examined the influence of temporal distance on reasoning about one's romantic relationship. Participants recalled a recent unresolved conflict with a romantic partner, and either considered its influence in a temporally distant, one-year from now (future-oriented) or a temporally close, right now (present-oriented) mindset. As past research suggests, temporal distance facilitates positive reasoning benefits over past negative events through abstract, "bigger picture" construals of that event. I expected that these abstract representations would manifest itself through greater non-self centered descriptions adopted by future-oriented participants, and would mediate the adaptive reasoning strategies that are facilitated by adopting a temporally distant mindset.

Method

Participants. In exchange for course credit, one hundred and seventy-three undergraduates from the University of Illinois at Urbana-Champaign participated in this study. 21 participants who failed to report an unresolved conflict were excluded from analyses. An additional 17 participants who incorrectly answered questions intended to assess attention toward the study were also excluded¹, leaving a total of 135 participants (93 females, 1 unidentified; ages 18-32, $M = 19.67$, $SD = 1.70$). Seventy-one percent of participants identified as at least part Caucasian, 12% as part Asian or Asian-American, 8% as part Latino/Hispanic, 8% as part Black, and 12% as "other."

¹ Analysis that included these participants did not alter any of the presented results.

Procedure and Materials. Participants completed the study on a computer that was set up to guide them through written instructions.² As part of a screening question, participants were first asked if they were in a romantic relationship. Only participants who reported being in a current romantic relationship were included in this study. As part of the cover story, participants were told that the researchers were interested in obtaining information about negative life experiences. They were then asked to recall and write about “a recent event in which things were going truly badly” between them and their romantic partner, and that the conflict should be one that still bothered them to a great extent. Participants were asked to report the name of their partner, and then randomly assigned into either a temporally close or a temporally distant condition.

Those in the present-oriented conditions were instructed to adopt a present perspective when writing about their recent conflict, and provided the following set of instructions:

Some people indicate thinking about the experiences from a present perspective, that is, right now. At this time, we would like for you to take this perspective when describing your thoughts about the conflict. Specifically, right now when you think of this event, what thoughts come to your mind?

Those who were placed in the future-oriented condition were provided a similar set of instructions:

Some people indicate thinking about the experiences from a future perspective, that is, one year from now. At this time, we would like for you to take this perspective when describing your thoughts about the conflict. Specifically, one year from now when you think of this event, what thoughts would come to your mind?

² Participants completed the study either in lab ($n = 274$) or at home ($n = 63$) with identical instructions. Separate locations did not yield any significant main effects or interactions on reasoning variables (all F 's < 2.37 , *n.s.*)

After the manipulation participants were prompted to spend about 3 minutes writing their thoughts down, but to feel free to use more time if they needed it.

LIWC. Participants' stream of thought essays were content analyzed using a computerized text analysis program: the Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francis, & Booth, 2007). The program captures and reports back frequencies of different categories of words. Using a pre-set dictionary of word categories developed by Pennebaker, Francis, and Booth (2001), the frequency of present and future tense verbs were measured as a manipulation check of temporal orientation. Non-self centered word usage was measured using a difference score between the "we" category (e.g., *our, we, us*) and directed word usage as measured by the frequency of "I" (e.g., *I, me, mine*) and "she/he" (e.g., *he, she, hers*) categories.

Reasoning. Participants' stream of thought essays were also content analyzed for expressions of partner blame, partner forgiveness, and growth in the relationship from the experience. See Appendix A for the codebook with descriptions expressing high ratings of each category. Two trained research assistants coded participants' responses on these dimensions from 1 (not at all) to 3 (a lot) descriptions. A Cohen's κ of .62 (95% CI: [.56, .67]) was achieved between the coders, suggesting an acceptable level of agreement. As per guidelines for coding content-analyzed responses (Bushman & Anderson, 1998), the resulting discrepancies in ratings were averaged between the two coders.

Post-Reasoning Forced-Choice Items. Participants were asked to reflect on their process of reasoning about the conflict. Participants indicated if they thought they took perspectives outside their own into consideration using 2 questions: i. To what extent did you try to look at the event from [partner's name]'s point of view; and ii. How much did you think of the

event from both your own perspective and [partner's name]'s perspective? Participants also reported the extent to which they thought “that the event was your own fault” and “that the event was [partner's name]'s fault”. Questions assessing post-reasoning reflections on perspective taking and blame were on a scale of 1 = not at all to 5 = very much. These questions all began with “While you were writing down the event during the 3 minutes”. A question regarding participant's emotional reactivity was also included (“I re-experienced the emotions I originally felt during the event when I wrote it down”).³ This question was assessed using a 7-point scale with 1 = not at all to 7 = very much.

Results

Preliminary analyses revealed no gender differences on coded reasoning, or use of non-self centered words (F 's < 2.80, *n.s.*). There were also no differences across ethnicities (F 's < 1.60, *n.s.*) and no interactions between gender and ethnicity (F 's < 1.68, *n.s.*).

Manipulation Check. In order to assess whether participants in the temporally distant condition were relatively more future-focused, I conducted a quantitative content analysis of participants' stream of thought essays using the LIWC. I specifically focused on the percentage of words indicating future vs. present orientation. Participants in the future-oriented condition used significantly greater percentage of future verbs ($M = 2.76$, $SD = 2.10$) compared to those in the present-oriented condition ($M = 1.02$, $SD = 1.30$), $F(1, 133) = 32.98$, $p < .001$. There was no significant difference in use of present words, $F(1, 133) = 1.53$, $p = .219$ ⁴. Analysis of a relative temporal distance, quantified via a difference score between future and present words, suggested

³ Additional items assessing thoughts about the conflict were also included, but reported items here are the only ones of theoretical interest as they referred participants to the key temporal manipulation rather their immediate present-focused state after the manipulation.

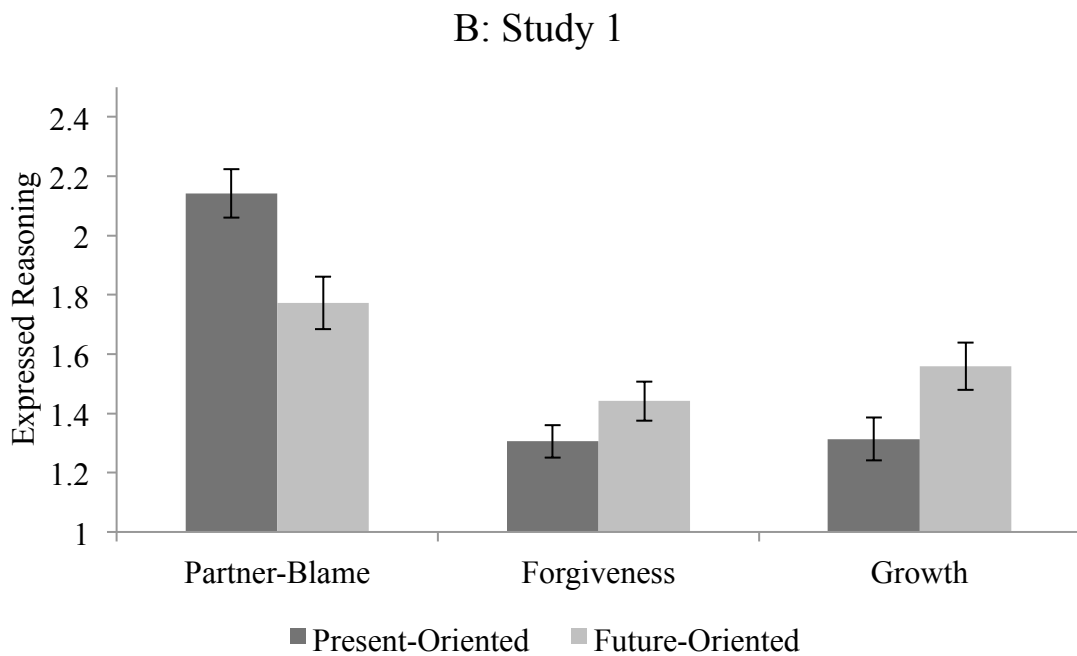
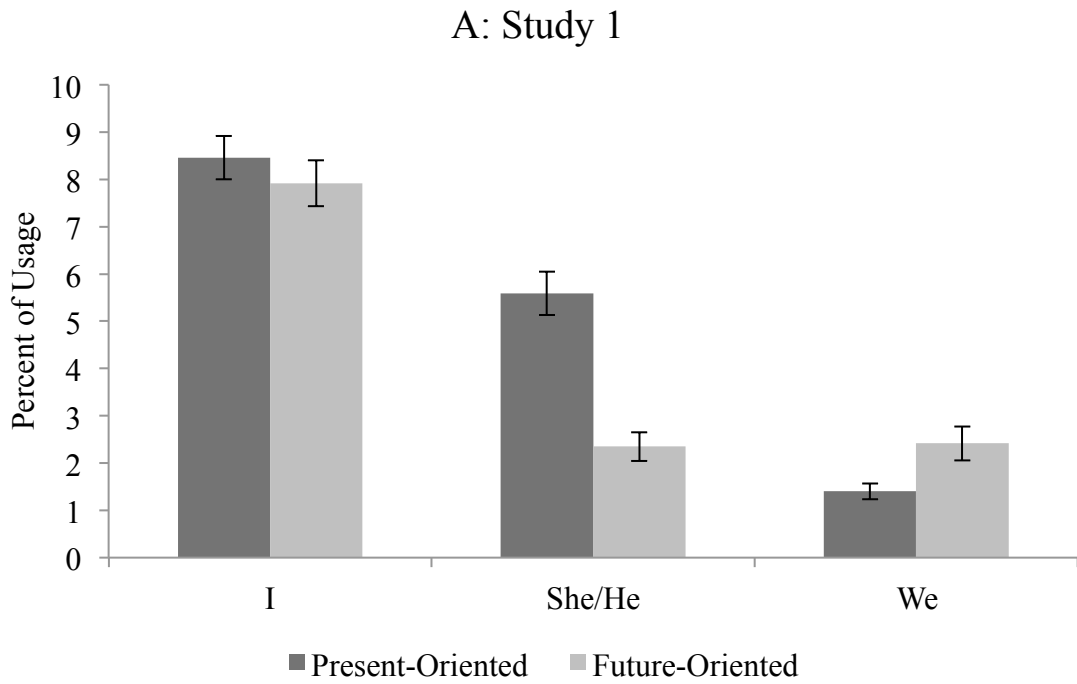
⁴ The mean frequency of present words was 8.80 ($SD = 4.16$) in the temporally close condition and 7.82 ($SD = 4.11$) in the temporally distant condition.

a significantly greater temporal distance for those in the temporally distant vs. temporally close condition, $F(1, 133) = 12.62, p = .001$.

Analysis of Reasoning. Independent sample t-tests were used to assess the effects of temporal orientation on use of “I”, “she/he”, “we” category words. As there were unequal variances in some measures, reported degrees of freedom are Welch-corrected (Welch, 1951). Panel A of Figure 1 displays the mean percentage of these categories used in participants’ conflict descriptions. There was no significant difference in use of “I” words, $t(132.59) = .805, p = .422$, but future-oriented participants used significantly more “we” category words, $t(93.89) = 2.56, p = .012$, and significantly less “she/he” category words, $t(114.87) = 5.90, p < .001$, than those in the present-oriented condition. As a measure of non-self centered word use, a difference score between “we” and “she/he + I” category words was created. There was a significant difference across temporal orientation in use of non-self centered words, $t(129.26) = 4.04, p < .001$, finding that those in the future-oriented condition used more non-self centered words than those in the present-oriented condition.

Independent sample t-tests were also used to measure the effects of temporal orientation on qualitatively coded dimensions. Panel B of Figure 1 depicts means of the qualitatively coded dimensions across temporal orientation. Those in the present-oriented condition were significantly more likely to mention partner blame in their essays, $t(132.39) = 3.08, p = .002$. Compared to those in the future-oriented condition, they were also less likely to express more growth from the experience, $t(131.91) = -2.29, p = .024$. Those in the future-oriented condition showed a trend towards greater forgiveness of the partner, $t(129.38) = 1.57, p = .118$.

Figure 1. Study 1: Mean expression of non-self centered, self-centered and partner directed word usage (Panel A) and Mean Reasoning variables (Panel B). Error bars represent Standard Error.



Non-self centered word use as a mediator of reasoning. In order to assess whether a more inclusive and abstract mindset generated from temporal distance was responsible for the reasoning strategies, I conducted a mediation analysis to test whether non-self centered word use (i.e., a difference score between “we” and “she/he + I” category words) mediated blame attributions and experience of growth. Temporal orientation was effect coded (-1 = present-oriented; 1 = future-oriented) and significantly predicted the difference score, $b = 2.40$, $t(134) = 4.03$, $p < .001$. Indirect effects are determined to be significant if 0 did not fall between the bootstrapped confidence intervals (Preacher & Hayes, 2004). Using this criterion, a significant indirect mediation of non-self centered word use on the effect of temporal orientation on partner-blame was found (95% CI [Lower: -.149; Upper: -.048]). The pathway analysis suggests that future-orientation leads to greater non-self centered word use, which in turn negatively predicts expression of partner blame.⁵ An indirect effect using expression of growth as the predicted independent variable was also significant (95% CI [Lower: .022; Upper: .125]). The pathway analysis suggests that future-orientation leads to greater non-self centered word use, which in turn positively predicts expression of growth from the conflict.⁶ Table 1 depicts the indirect effects and bootstrapped confidence intervals for the mediation models. Figure 3 depicts the mediation pathway for both partner blame and expressed growth from the experience.

Post-Reasoning Forced-Choice Items. Independent sample t-tests were also used to assess the effects of the temporal orientation on manipulation on self-assessed ratings of

⁵ Separate mediation analyses of “we” and “she/he+I” as mediators were both significant, suggesting that the mediation is driven by both increased “we” words and decreased “she/he+I” words for those in the future-oriented condition.

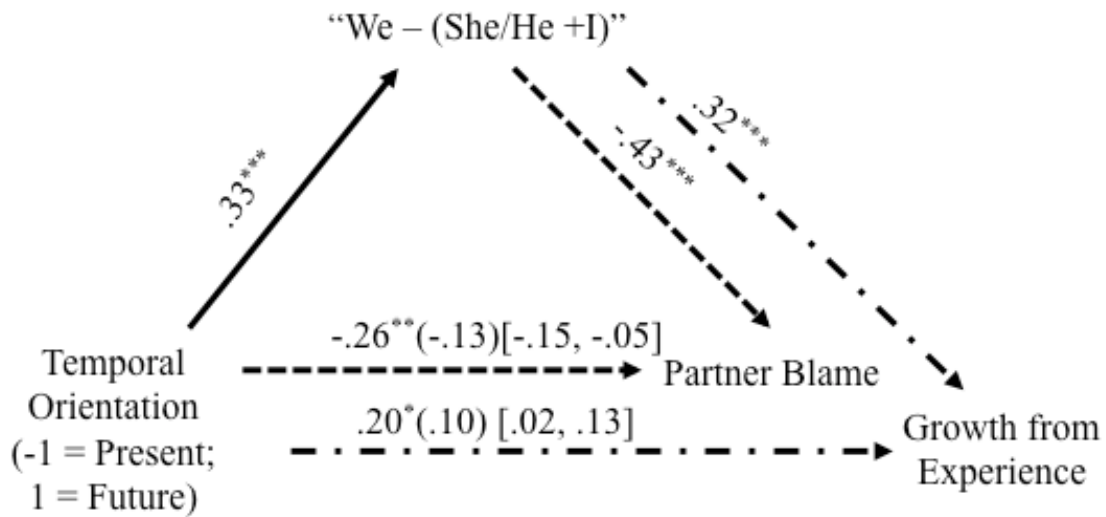
⁶ Separate mediation analyses using “we” and “she/he+I” as mediators were also both significant. As with the non-self centered mediation on partner blame, the mediation on growth of experience was also driven by both an increase in “we” words and a decrease in “she/he+I” words for those in the future-oriented condition.

Table 1. Study 1 indirect effects of non-self centered word use on the effect of temporal orientation on partner-blame and experienced growth.

Predicted Variable	Effect	Boot	SE	95% Confidence Interval	
				Lower	Upper
Partner Blame	-.0914	-.0904	.0297	-.1485	-.0481
Growth	.0601	.0601	.0248	.0220	.1254

Note. Boot-strapping was done using 5000 resamples.

Figure 2. Study 1: Path analysis examining non-self centered word use in mediating the effect of temporal orientation on partner blame and expressed growth from the experience.



Note. Numbers represent the standardized coefficients. Parentheses represent the relationship between temporal orientation and reasoning variables while controlling for non-self centered word usage. Brackets represent 95% confidence intervals from a 5000 sample bootstrap test. Mediation is determined to be significant if zero is not included in the interval.

perspective taking, self/partner blame, as well as emotional reactivity. There were no significant effects of temporal orientation on any of these variables. (t 's < 1.40, *n.s.*).

Study 1 Discussion

Analysis of the participants' descriptions of the conflict yielded differences across temporal orientation, suggesting that holding a future-orientation led to greater abstract, inclusive reasoning (i.e., more "we" words in contrast to "he/she and I" words) in conflict descriptions. Adopting this future-orientation also led to greater expression of growth from the experience, as well as lower partner blame. There was also a trend of temporal orientation on forgiveness, finding that participants who took a future-oriented mindset tended to express greater forgiveness. A mediation analysis found that this non-self centered word use mediated the effect of temporal orientation on partner blame and experience of growth.

The results here provide evidence that holding a temporally distant, future-oriented mindset while reasoning over a recent romantic relationship conflict results in reasoning strategies that are conducive to positive relationship benefits. That is, temporal distance in the context of romantic relationship conflicts offers similar beneficial reasoning strategies to that of other dimensions of psychological distance in other contexts. Interestingly, temporal orientation did not affect self-assessed perspective taking and blame tendencies when using forced-choice items after describing their conflict. It is possible that the act of writing about their conflicts minimized their emotional reactivity and subsequent effects of the manipulation (see Pennebaker & Graybeal, 2001). Moreover, it is possible that no effects were observed because the questions asked participants about *how* they thought they reasoned about the conflict, thus the questions referred to meta-reasoning, which may be different from the effects of temporal orientation on reasoning per se. Nevertheless, the captured effect of temporal orientation in

written descriptions provides evidence that the psychological distance in the temporal domain leads to an inclusive mindset, which fosters adaptive processing of past romantic relationship conflicts. In addition, results of the mediation analysis found that this adaptive reasoning regarding romantic relationships were a result of greater non-self centered word use. These results support the idea that the benefits of psychological distance stem from more abstract and inclusive reasoning processes.

There are two limitations of Study 1. First, it is possible that the observed effects were driven by factors other than temporal distance. Namely, because the future-orientation manipulation in Study 1 took the form of prospecting one year into the future, the act of prospecting itself rather than temporal distance may have been responsible for the observed effects. Secondly, the sample was from an undergraduate population. College students tend to have relatively little experience with committed relationships, as compared to older and middle-aged adults. Moreover, college is a time of high social mobility and short romantic relationships (Paul, McManus, & Hayes, 2000) and college students are typically aware that a life a year from now will likely be somewhat different from their current life. Rather than inducing temporal distance, asking Study 1 participants to take a perspective of a year from now may have reminded them how transient their social relationships are and that it is not worth spending much energy on blaming their partner and that it is easier to forgive. Thus, the conclusions of Study 1 to populations beyond college students may not be warranted.

Study 2

Study 2 sought to conceptually replicate the results from the previous study while also addressing the prior limitations of Study 1. In order to do so, Study 2 retained the characteristics of temporal focus (future-oriented vs. present-oriented), while also asking participants in both

groups to retrospect on an occurred relationship conflict. Study 2 also dealt with the generalizability of the effects of temporal distance on relationship-related outcomes by extending the population to a national online sample. The national online sample included an age-heterogeneous sample of adults who were more likely to have a wider range of diverse relationship experiences, and a less transient social circle.

Method

Participants. One-hundred and eighty-three American adults participated in the study for \$0.50 USD via Amazon's Mechanical Turk. Five participants who failed attention check questions⁷ and one who failed to report an unresolved conflict were excluded from analyses. A total of 131 participants reported about a conflict in their romantic relationship (73 females; aged 19-67, $M = 35.54$, $SD = 12.39$). In order to maintain similar ethnic backgrounds as Study 1 and minimize potential cultural differences in spontaneous tendencies to take a psychologically distant perspective (Grossmann & Kross, 2010), participants were limited to Caucasian, Black and Southeast/Asian ethnic backgrounds. Ninety-three percent identified as Caucasian, 5% as Black, and 2% as Southeast/Asian.

Procedure and Materials. Participants were guided through written instructions on the computer. Procedures were similar to that of Study 1, except for two modifications. First, to facilitate participants' engagement in the online study, I presented instructions via standardized audio-clips in addition to written instructions on the monitor screen. Second, I modified the wording of Study 1 manipulation to maintain a retrospective focus both in the temporally close and temporally distant conditions. Participants were randomly assigned into either a temporally close or a temporally distant condition.

⁷ Analysis that included these participants did not alter any of the presented results.

Those in the present-oriented condition were provided the following audio and written instructions, which asked them to adopt a present perspective, but to hold this temporal perspective (i.e., *right now*) while thinking back on their recent conflict:

Some people report adopting a present time perspective when thinking about their relationship conflicts. This is what we would like you to do. Looking back at the events right now, what thoughts come to your mind? Please spend several minutes writing your thoughts down in the box.

Those who were placed in the future-oriented condition were provided a similar set of audio and written instructions that were aimed at placing participants in a future-oriented mindset (i.e., *one year from now*) while creating a retrospective mindset from that future:

Some people report adopting a future time perspective when thinking about their relationship conflicts. This is what we would like you to do. Looking back at the events, one year from now, what thoughts would come to your mind? Please spend several minutes writing your thoughts down in the box.

In both manipulations, participants were provided as long as they needed to write down their descriptions of the conflict.

LIWC. Participants' written thoughts were also content analyzed through LIWC, using the same category of words and procedures described in Study 1.

Reasoning. Participants' written thoughts were content analyzed on the same dimensions of relationship reasoning as Study 1. A Cohen's κ of .64 (95% CI: [.59, .70]) was achieved between the coders, suggesting moderate agreement. Resulting discrepancies were averaged across coders.

Post-Reasoning Forced-Choice Items. Self-report items following the description of the conflict were matched to those of Study 1. Assessment of perspective taking was collapsed into one question (“Considering the event, to what extent do you feel like it would be important to try to understand the different viewpoints of those involved?”). Questions assessing self-blame, partner-blame, and emotional reactivity were identical to Study 1.

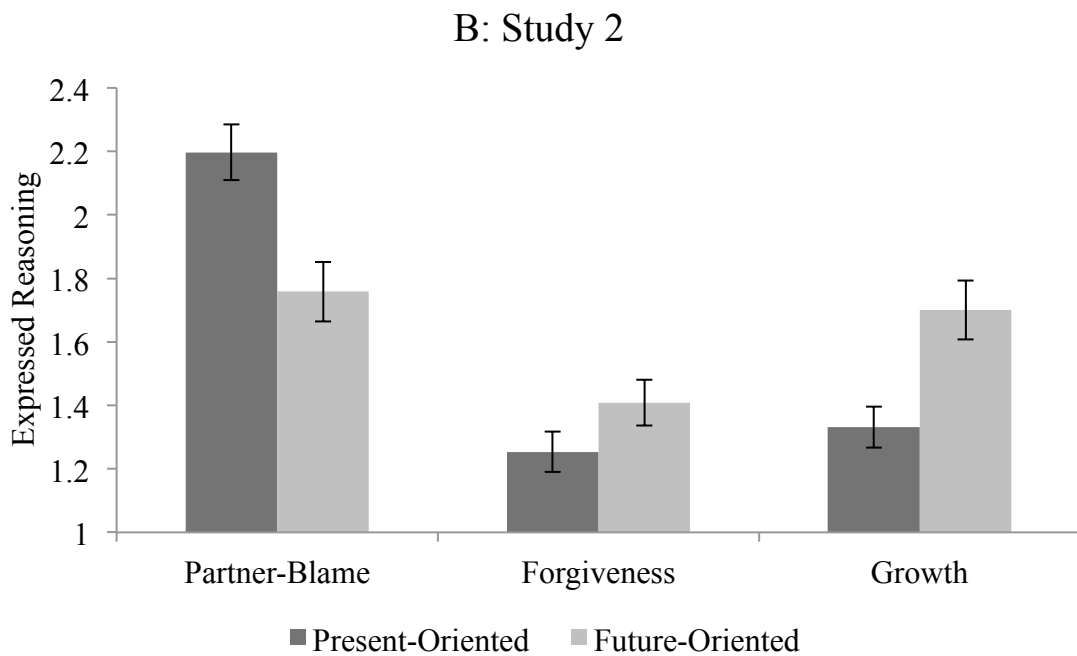
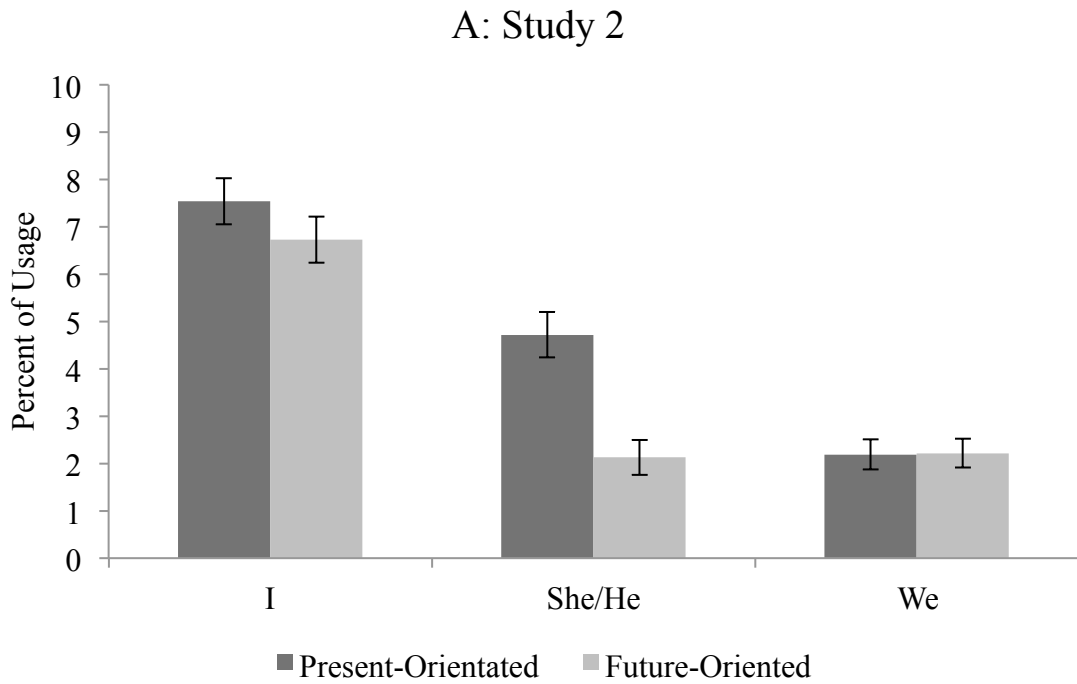
Results

Preliminary analyses revealed no differences between gender on coded reasoning (F 's < 1, *n.s.*), but there was a significant main effect of Gender on non-self centered word use, $F(1, 125) = 6.10, p = .015$, finding greater non-self centered word use for females. There were no differences across ethnicities on coded reasoning or non-self centered word use (F 's < 2.29, *n.s.*), and no significant interactions between gender and ethnicity (F 's < 1.51, *n.s.*).

Manipulation Check. Participants in the future-oriented condition used significantly more future words ($M = 4.17, SD = 2.88$) than those in the present-oriented condition ($M = 1.44, SD = 1.67$), $F(1, 129) = 45.63, p < .001$. Those in the present-oriented condition used significantly more present words ($M = 12.85, SD = 5.36$) than those in the future-oriented condition ($M = 8.84, SD = 4.85$), $F(1, 129) = 19.80, p < .001$. An assessment of the relative temporal distance (i.e., a difference score between future and present words) indicated significantly greater temporal distance for those in the future-oriented vs. present-oriented condition, $F(1, 129) = 45.59, p < .001$.

Analysis of Reasoning. Independent sample t-tests were used to assess the effects of temporal orientation on use of I, he/she, and we words. As there were unequal variances in some measures, reported degrees of freedom are Welch-corrected (Welch, 1951). Panel A of Figure 3 displays the mean percentage of these categories used in participants' conflict descriptions.

Figure 3. Study 2: Mean expression of non-self centered, self-centered and partner directed word usage (Panel A) and Mean Reasoning variables (Panel B). Error bars represent Standard Error.



There was no significant difference in use of “I” category words, $t(128) = 1.18, p = .241$, or “we” category words, $t(128.74) = .061, p = .951$. Those in the future-oriented condition used significantly less “she/he” category words, $t(125.42) = 4.31, p < .001$, than those in the present-oriented condition. A difference score between “we” category words and “she/he + I” category words was created as a measure of non-self centered word use. There was a significant difference across temporal orientations, finding that future-oriented participants used more non-self centered words, $t(128.82) = 2.83, p = .005$. Independent sample t-tests were also used to measure the effects of temporal orientation on qualitatively coded dimensions. Panel B of Figure 3 depicts results of content analysis across temporal orientations. Those in the present-oriented condition were significantly more likely to mention partner blame in their essays, $t(126.24) = 3.40, p = .001$, and expressed less growth from the conflict, $t(109.38) = -3.27, p = .001$, than those in the future-oriented condition. Future-oriented participants also showed a trend toward greater forgiveness of their partner, $t(123.52) = 1.62, p = .108$.

Non-self centered word use as a mediator of reasoning. Using the same methods as Study 1, I conducted a mediation analysis of non-self centered word use, on the predicted variables of partner blame and experience of growth. Temporal orientation significantly predicted the non-self centered word use, $b = 1.71, t(130) = 2.78, p = .006$. Using the criterion discussed in study 1, a significant indirect mediation of non-self centered word use on the effect of temporal orientation on partner-blame was found (95% CI [Lower: -.109; Upper: -.014]). The pathway analysis suggests that future-orientation leads to greater non-self centered word use, which in turn negatively predicts expression of partner blame.⁸ Analyses assessing the mediation

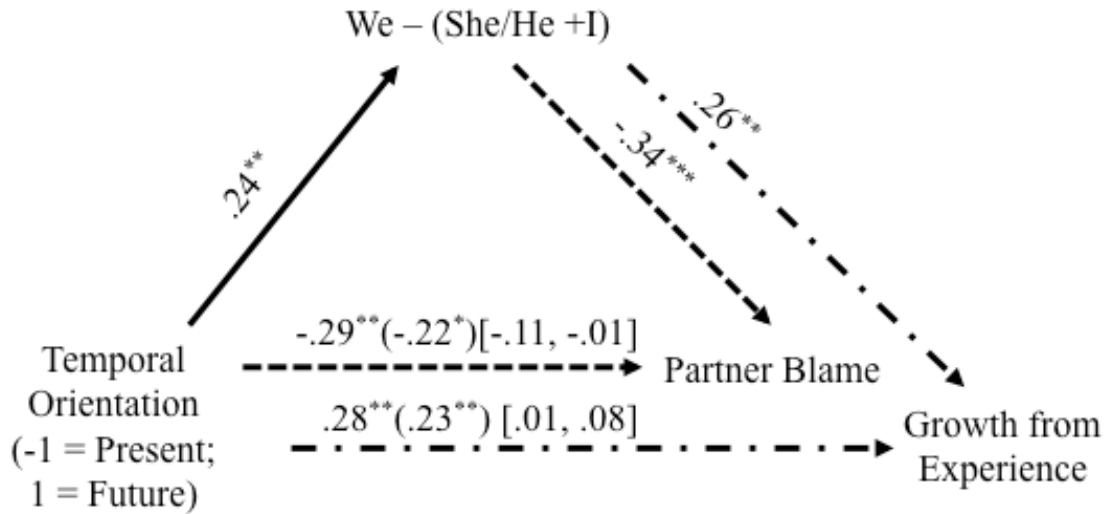
⁸ Separate mediation analyses for “we” and “she/he+I” on temporal orientation predicting partner blame did not find a significant mediation of “we”. However, there was a significant indirect mediation of “she/he+I” words (95% CI [Lower: -.125; Upper: -.012]), suggesting the effect is driven by lower use of “she/he+I” words in the conflict description.

Table 2. Study 2 indirect effects of non-self centered word use on the effect of temporal orientation on partner-blame and experienced growth.

Predicted Variable	Effect	Boot	SE	95% Confidence Interval	
				Lower	Upper
Partner Blame	-.0525	-.0523	.0240	-.1087	-.0141
Growth	.0320	.0322	.0177	.0056	.0762

Note. Boot-strapping was done using 5000 resamples.

Figure 4. Study 2: Path analysis examining non-self centered word use in mediating the effect of temporal orientation on partner blame and expressed growth from the experience.



Note. Numbers represent the standardized coefficients. Parentheses represent the relationship between temporal orientation and reasoning variables while controlling for non-self centered word usage. Brackets represent 95% confidence intervals from a 5000 sample bootstrap test. Mediation is determined to be significant if zero is not included in the interval.

of the contrast score on experience of growth also found a significant indirect effect (95% CI [Lower: .005; Upper: .076]). The pathway analysis suggests that greater temporal distance leads to more non-self centered word usage, which in turn positively predicts expression of growth.⁹ Table 2 depicts the indirect effects and bootstrapped confidence intervals for these mediation models. Figure 4 depicts the mediation pathway for both partner blame and expressed growth from the experience.

Post-Reasoning Forced-Choice Items. I conducted independent sample t-tests assessing the effect of temporal perspective on ratings of perspective taking, emotional reactivity and blame towards the self/partner. There was a significant effect of temporal orientation on emotional reactivity, $t(128.45) = 2.76, p = .007$, finding higher reports of emotional reactivity for those in the present-oriented condition ($M = 4.34, SD = 1.90$) compared to those in the future-oriented condition ($M = 3.57, SD = 1.70$). There were no significant effects of temporal perspective on blame towards the self/partner, or reports of perspective taking (t 's $< .55, n.s.$).

Study 2 Discussion

Results from Study 2 were consistent with those of Study 1. Participants in the future-oriented condition were more likely to use non-self centered words in their conflict description. They were also more likely to express growth from the conflict and less likely to mention partner blame in the conflict descriptions. A trend was also found, suggesting that future-oriented participants expressed greater amounts of forgiveness. These reasoning strategies are suggested to be conducive to positive relationship benefits. As with Study 1, the effects of temporal orientation on partner blame and experienced growth were mediated by the non-self centered word use in their descriptions. Holding a present-orientation led to increased ratings of emotional

⁹ Separate mediation analyses for “we” and “she/he+I” on temporal orientation predicting expressed growth did not find a significant indirect mediation of either.

reactivity, but temporal orientation did not influence ratings of perspective taking, partner blame or self-blame, which were ratings about reflecting on the issue and not actual reasoning about the conflict. The increased emotional reactivity in present-orientation may be attributed to the retrospective instructions used in Study 2. As the question solicited participants to assess how much they re-experienced the emotions, the integration of both a temporally close orientation and a retrospective mindset may have induced a re-experiencing of the emotions, notwithstanding any expressive writing effects.

Results suggest that including a retrospective aspect (i.e., having participants *look back* in both manipulations) did not differ from results observed in Study 1. This suggests that the results of temporal distance on reasoning over relationship conflicts were not attributable to prospection in the future-oriented condition. Moreover, Study 2 provides evidence that the results from Study 1 generalize to a more age-heterogeneous sample, who were more likely to hold diverse relationship experiences and have a less transient social circle. These findings address the limitations of Study 1, highlighting that the effects of temporal distance in our romantic relationship conflicts include benefits in reasoning at various stages of our lives.

CHAPTER THREE

GENERAL DISCUSSION

In two studies I report results that suggest temporal orientation influences reasoning over a romantic relationship conflict. In Study 1, undergraduate participants adopting a future-oriented (vs. a present-oriented) mindset while reasoning over a recent romantic relationship conflict used more inclusive wording in their conflict descriptions (i.e., more “we” and less “she/he and I” words). They expressed less blame attribution toward their romantic partner, greater growth from the experience, and tended to express greater amounts of forgiveness. The effects of temporal orientation on growth and blame attribution were mediated by use of non-self centered words. That is, greater use of inclusive wording in their descriptions (i.e., more use of “we” and less “she/he and I” words) led to greater expression of growth and lower partner blame. These results were replicated in Study 2 using an age-heterogeneous community sample that likely held a more diverse range of relationship experience and romantic relationship conflicts. Study 2 also had participants in both conditions retrospect on the past relationship conflict, ruling out the possibility that effects observed in the future-oriented condition were in response to a prospective mindset. With the exception of reduced emotional reactivity in Study 2, the effects of temporal orientation were observed within participants’ reasoning during their description of the conflict, but not within the participant’s report of their reasoning strategies.

These studies contribute to past research on psychological distance and relationship conflicts in three ways. First, it provides support to the idea that the effects of distance, at least within an interpersonal context, operate through a more inclusive and less directed reasoning mindset. Second, it provides evidence that temporal distance when reasoning over a romantic relationship conflict, leads to reasoning strategies that are considered to be conducive to positive

relationship benefits. Third, these studies show that the beneficial reasoning strategies are a product of the increased inclusive mindset fostered by a temporally distant mindset. These results follow prior research in suggesting that psychological distance from a negative event leads to benefits in reasoning, emotion regulation, and adaptive reflection (Kross & Ayduk, 2011). While past research explored these effects under other forms of psychological distance (e.g., an outside observer perspective) these studies provide evidence that similar effects of distance within a romantic conflict context also operate under temporal distance. These results parallel findings from CLT literature that suggest temporal distance from an event results in abstract, high-level mental construals of the event (Trope & Liberman, 2010). Similarly, temporal distance in these studies facilitated an inclusive reasoning strategy that focused more on those that were involved in the conflict.

These studies also contribute to the extant literature suggesting that different dimensions of distance map onto similar fundamental and interrelated aspects of psychological distance (Liberman & Trope, 2008). Despite psychological distance still being an egocentric form of reasoning – as the *distance* across different dimensions of psychological distance draw on the self as a reference point, these studies demonstrate that temporal distance situates reasoning in the broader context. Past research on adopting outsider perspective draws on similar conclusions, suggesting that representing events from others’ perspectives result in reflecting on the broader meaning of a situation (Libby & Eibach, 2011, p. 231). The studies presented here on temporal distance provide similar conclusions. Specifically for romantic relationship conflicts, where consideration of different perspectives may be important, temporal distance provides a method of facilitating a broader and more inclusive reasoning strategy. The results of these studies provide

evidence that this broader context also yield positive reasoning strategies within a romantic relationship context.

Overall, these results build on the previous literature that suggests psychological distance facilitates better reasoning strategies. Specifically, temporal distance can operate similarly to other forms of distance to boost other areas of reasoning. Past literature has connected self-distance to increased wise reasoning (e.g., recognition of limits of knowledge and uncertainty, Kross & Grossmann, 2012). While these results support that adaptive reasoning in romantic relationships occur from temporal distance, it is likely that this form of distance will also facilitate beneficial reasoning strategies that extend beyond the relationship context and into other areas of reasoning as well.

Future Directions. Although I provide evidence that temporal distance facilitates positive reasoning strategies, there is no evidence that such reasoning strategies would result in the positive downstream consequences of healthier and more satisfying romantic relationship experiences. Although evidence suggests this may be the case (e.g., Finkel et al., 2013), future research would benefit from a behavioural oriented examination of the effects of these reasoning strategies. As a result of romantic relationship involving the give and take of interdependent minds, it is not often clear which may be the best possible solution to a relationship conflict. These studies show that reasoning that is generally considered conducive to positive outcomes, such as lower blame attribution and more forgiveness result from temporal distance, but not whether these results are actually providing the expected positive outcomes. Along these lines, different levels of conflict intensity need to be considered. Increased forgiveness and lowered blame for particularly flagrant violations in a romantic relationship may not typically be considered conducive to positive relationship outcomes.

Additionally, the studies presented in this thesis only present temporal distance as it relates to a future-oriented mindset. However, people also do not solely consider only the future, or only consider the past. Often these two are interrelated thought processes. Within CLT, it is proposed that the two different directions of temporal distance function very similarly (Trope & Liberman, 2003). Nevertheless, these two constructs are distinct methods of reconstrual. Although the presented studies undoubtedly incorporate both past and future components, the attempt to situate the mindset in a distant future while recalling a temporally close past event limits the conclusions that can be drawn about the effects temporal distance. It is possible that the act of considering the past may be important to understand. The act of retrospection for example, may have been responsible for the increased emotional reactivity observed in Study 2. Through retrospection of a temporally close past event, individuals may be susceptible to the outcome of re-experiencing the emotions that the event entails. Future research should explore the act of retrospection on a temporally distant past event to examine whether construal of distant past events promote the same reasoning benefits.

Finally, the presented studies were all conducted within North America, a nation where the predominant cultural mindset is an individualistic one (Markus & Kitayama, 1991). Research suggests that those from collectivistic cultures, compared to individualistic cultures, are more likely to adopt distanced perspectives (Grossmann & Kross, 2010). It is also argued that individuals from independent cultures such as North Americans tend to adopt self-immersed perspectives as a way of fostering their individualism (Cohen, Hoshino-Browne, & Leung, 2007). Provided this differentiation, it would be difficult to generalize the conclusions presented in this study across cultures. It is possible that temporal distance may not facilitate the inclusive reasoning strategies for romantic relationships within collectivistic cultures as it does in an

individualistic one. Rather, it is possible that such reasoning strategies are already present. Research has already demonstrated to some extent that culture differences exist in psychological distance domains. For example, Grossmann & Kross found that Russians naturally self-distance over their feelings than Americans. Future research would benefit from exploring different dimensions of psychological distance, such as temporal distance within the domain of romantic relationships across cultures.

Conclusion. Part of being human means we are conferred with the ability to mentally travel beyond the here-and-now. Whether we use this ability to imagine holding that new iPhone tonight, or to imagine that vacation one year from now, we invoke different assessments from those closest to us. This thesis presents evidence that holding different temporal mindsets when thinking about a romantic relationship conflict results in different reasoning strategies. Taking a temporally distant mindset facilitates reasoning that is more beneficial to the relationship as a whole. It does so by fostering an inclusive mindset, in which one considers the issue for all of those that are involved in the conflict. This results in less blame and focus on either your partner or yourself. That is, the next time partner comes home with a ludicrous purchase – it may be best to realize that one year from now your tickets to Italy may still be refundable.

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Appendix A

Code	Conflict Descriptions
1. Partner Blame	<p>i. When thinking about this conflict, I remember that it was not my fault whatsoever. He gets angry sometimes when he drinks and makes me feel like a bad person for nothing. I remember feeling angry. I was angry because this has happened before. He gets mad for no reason...</p> <p>ii. It isn't fair. I try to not promise too much, but things happen in life. I don't know why she can't understand that...How can she expect me to foresee getting laid off...It's so frustrating and upsetting when this happens.</p>
2. Forgiveness	<p>i. I love him a lot so I know it will not get in the way of our relationship. It was an accident and he is truly sorry. As of now, I feel like it is my fault, but eventually I think I will be able to get over it...A year from now it will not be a big deal at all and I will probably make fun of him for it.</p> <p>ii. I believe we will have a reoccurrence of the same disagreement several times over the next year...I will try to work on my part of our agreements in resolving this situation and she will work on her parts. But we are both human and we will most likely slip up now and then and get frustrated with each other.</p>
3. Growth	<p>i. What will come to mind is the anger and unhappiness I felt with this issue. I will probably look back and think of how much we've grown together because we have had many of those moments. I will most likely be reminded of all that we've experienced and understand that we are both human and will continue making mistakes. I would hope that we could handle future problems as we have done our previous problems.</p> <p>ii. I would believe that things had changed for the better...Looking back, it makes me happy that we have come as far as we have despite the circumstances we were in. We are now in a position that was better than we had a year ago. We are moving forward no matter how slow the pace is in doing so.</p>
