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Signaling When (and When Not) to Be Cautious and Self-Protective: Impulsive and Reflective Trust in Close Relationships

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Abstract

A dual process model is proposed to explain how automatic evaluative associations to the partner (i.e., impulsive trust) and deliberative expectations of partner caring (i.e., reflective trust) interact to govern self-protection in romantic relationships. Experimental and correlational studies of dating and marital relationships supported the model. Subliminally conditioning more positive evaluative associations to the partner increased confidence in the partner's caring, suggesting that trust has an impulsive basis. Being high on impulsive trust (i.e., more positive evaluative associations to the partner on the IAT) also reduced the automatic inclination to distance in response to doubts about the partner's trustworthiness. It similarly reduced self-protective behavioral reactions to these reflective trust concerns. The studies further revealed that the effects of impulsive trust depend on working memory capacity: Being high on impulsive trust inoculated against reflective trust concerns for people low on working memory capacity.

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Trust; automaticity; risk-regulation; working memory capacity; IAT

Romantic relationships are riddled with reason to self-protect against the possibility of rejection. Such caution is central to interdependent life because conflicts-of-interest are inevitable (Murray & Holmes, 2009). Imagine a conflict common to many households. Fastidious to her core, Sally loves a clean house, but her partner Harry does not share her appreciation for sparkling counters and glowing hardwood. Sally cannot achieve her goal of spotlessness without Harry's cooperation, but soliciting his help leaves her vulnerable to his non-responsiveness. For Sally to set aside her need to avoid Harry's rejection, and instead, solicit his cooperation, she needs to know whether it is safe for her to depend on him to meet her needs (Holmes & Rempel, 1989; Reis, Clark & Holmes, 2004; Simpson, 2007).

According to the risk regulation model, trust in a specific partner signals the safety of approach (Murray, Holmes & Collins, 2006; Murray & Holmes, 2009). Trust is experienced as a state of comfort (or unease) in the partner's presence – a basic apprehension of gain (or loss) through dependence on the partner (Deutsch, 1973; Holmes & Rempel, 1989). Being more trusting signals the possibility of gain, releases people from self-protective concerns, and allows approaching connection to the partner. In contrast, being less trusting signals the possibility of loss, preoccupies people with self-protection concerns, and motivates suspicious states of mind and behavioral efforts to avoid the partner (Wieselquist, Rusbult, Foster & Agnew, 1999).

Existing close relationships research uniformly equates trust with consciously held expectations (Murray et al., 2006). However, the unconscious mind sometimes knows things that escape the notice of the conscious mind (Bargh & Morsella, 2008; Dijksterhuis, 2010; Wegner, 2002; Wilson, 2002). In this spirit, the current paper advances a dual process model of trust and self-protection in relationships. The model assumes that trust has an impulsive (i.e., relatively unconscious) and a reflective (i.e., relatively conscious) form. Impulsive trust refers to Sally's automatic evaluative association to Harry. Reflective trust refers to her consciously held expectations about his caring and commitment to her (Murray et al., 2006; Wieselquist et al., 1999). This model further assumes that more positive automatic evaluative associations to the partner can inoculate against less trusting conscious beliefs in ways that short-circuit self-protection. Thus, being impulsively trusting can motivate approaching, and not avoiding, partners even when reflective trust concerns suggest that caution is warranted.

Regulating Self-Protection: Impulsive and Reflective Trust

Figure 1 presents our dual process model of trust and self-protection (for similar dual-process models see Gawronski & Bodenhausen, 2006; Hofmann, Friese & Strack, 2009; Strack & Deutsch, 2004; Wilson, Lindsey & Schooler, 2000). This model assumes that impulsive and reflective forms of trust jointly function to orient behavior. In particular, they together provide a behavioral direction to action by revealing the safety of approach, and thereby, control when people self-protect and avoid the partner and when they approach and seek deeper connection.

Signaling the Safety of Approach

Like prior models, the dual process model in Figure 1 assumes that trust involves a feeling of relative comfort and safety (as opposed to unease and vulnerability) in the partner's presence (Murray et al., 2006; Simpson, 2007). Unlike prior models, this model assumes

that this sense of relative safety is represented through both associative (i.e., impulsive) and propositional (i.e., reflective) processes (Strack & Deutsch, 2004).

Impulsive trust corresponds to one's immediate evaluative association to the partner's presence. That is, impulsive trust refers to one's automatic attitude toward the partner. In simple terms, being in the partner's presence activates an immediate evaluative reaction – an affective association that signals the possibility of good or bad things to come. Thus, Sally's impulsive trust in Harry is captured through her automatic evaluative association to him (Murray, Holmes & Pinkus, 2010). This definition of impulsive trust has long intellectual roots in attitude theory (Fazio, 1986; Olson & Fazio, 2008). Automatic evaluative associations (i.e., attitudes) are thought to orient people to their social worlds – signaling what is good, and to be approached, or bad, and to be avoided (Alexopoulos & Ric, 2007; Banaji & Heiphetz, 2010; Banse, 2001; Baumeister, Vohs, DeWall & Zhang, 2007; Fazio, 1986; Olson & Fazio, 2008). For instance, priming positive objects automatically activates arm movements associated with drawing things closer; priming negative objects automatically activates arm movements associated with pushing things away (Chen & Bargh, 1999). In our model, automatic evaluative associations to the partner play a similar orienting function – signaling whether the partner is safe and to be approached or risky and to be avoided. Consistent with this assumption, people who evidence more positive automatic associations to their partner on the IAT also report greater feelings of relationship security (Zayas & Shoda, 2005).

Reflective trust corresponds to conscious or considered beliefs about one's value to the partner – a meta-perspective that also signals the possibility of good or bad things to come through dependence (Murray et al., 2006; Murray & Holmes, 2009). That is, reflective trust refers to one's beliefs about the strength of the partner's caring and commitment, now and in the future (Holmes & Cameron, 2005; Holmes & Rempel, 1989; Murray & Holmes, 2009). Thus, Sally's reflective trust in Harry is captured through her expressions of faith that Harry values her specific qualities and feels close and committed to her (Murray, Holmes & Griffin, 2000). This definition departs from early definitions that located trust in dispositional judgments of the partner's dependability and predictability (Rempel et al., 1985). Our dual process model instead locates reflective trust in a dyadic judgment about the partner's particular devotion to oneself, a definition shared by recent models of attachment and interdependence (Mikulincer & Shaver, 2003; Murray et al., 2006; Murray & Holmes, 2009; Reis et al., 2004; Wieselquist et al., 1999).

The dashed line connecting impulsive and reflective trust assumes that these sentiments inform one another and can send complementary or contradictory safety signals. The literature on attitudes suggests that automatic evaluative associations are typically formed through associative learning in concrete situations, whereas deliberative expectations are typically formed through abstract reasoning (Baccus, Baldwin & Packer, 2004; Fazio, 1986; Gregg, Seibt, & Banaji, 2006; Wilson et al., 2000). This implies that actual prior experiences with a partner being more or less caring and responsive may more strongly condition impulsive than reflective trust. Consistent with this logic, newlyweds whose partner behaved less responsively early in their marriage evidenced less positive automatic evaluative associations to their partner after four years of marriage. However, such concrete early experiences did not predict their later explicit beliefs about the partner's caring (Murray et al., 2010). While still sensitive to the partner's actual behaviors, reflectively trusting expectations typically shift as people consider their own worthiness of love (Murray, Rose, Bellavia, Holmes & Kusche, 2002), explain experiences with previous relationship partners (Mikulincer & Shaver, 2003), and engage in motivated distortions of ongoing events (Murray, 1999).

Because impulsive trust and reflective trust develop through only partially overlapping processes, these sentiments can be dissociated. For instance, a low self-esteem Sally might be high on impulsive trust (because Harry treats her well), but low on reflective trust (because she cannot fully convince herself that such kindnesses will always continue). In contrast, a high self-esteem Gayle might be low on impulsive trust (because her partner behaves reasonably selfishly), but high on reflective trust (because she easily generates excuses for such lapses). In fact, prior research reveals dissociations between more implicit and explicit relationship sentiments (Murray, Derrick, Leder & Holmes, 2008; Murray, Holmes, Aloni, Pinkus, Derrick & Leder, 2009). For instance, more positive evaluative associations to the partner predict greater relationship stability regardless of reported satisfaction (LeBel & Campbell, 2009; Lee, Rogge, & Reis, 2010). Further, people who feel pressured to justify their commitments because they are highly invested and have few alternatives claim to be satisfied in their relationships even when their automatic reactions to their partner are relatively negative (Scinta & Gable, 2007).

The Regulation of Self-Protection

By signaling the safety of approach, the impulsive and reflective bases of trust jointly regulate self-protective caution (as indicated by their convergent influence on Paths A and B). The model assumes that self-protective caution is exercised through behavioral expressions of approach vs. avoidance (Murray et al., 2006). Specifically, stronger self-protection concerns promote avoidance (or conversely, inhibit approach), whereas weaker self-protection concerns promote approach (or conversely, inhibit avoidance). 1 Our model differentiates self-protection into an immediate and automatic inclination to approach vs. avoid the partner (Path A) and a subsequent, sometimes corrective, overt behavioral reaction (Path B). We draw the distinction between automatic inclinations and overt behavior because not every inclination is acted upon. Instead, people can correct automatic behavioral inclinations when they are motivated and able to do so (Murray et al., 2008; Murray & Holmes, 2009; Olson & Fazio, 2008). Imagine Sally and Harry have an argument serious enough to cause her to question his devotion to her. Such doubts activate the automatic inclination to self-protect and withdraw (Murray et al., 2008). When Sally is depleted, she might act on such intent, but when better judgment prevails she might apologize instead (Finkel & Campbell, 2001).

Reflective trust—Existing research reveals how being low versus high on reflective trust can regulate automatic self-protective inclinations and overtly self-protective behavior. Experiencing state doubts about a partner's trustworthiness triggers automatic efforts to avoid the partner (Murray et al., 2006). For example, preoccupying participants with the fear that their dating partner will discover their secret selves spontaneously elicits a vigilant and prevention-oriented mindset (Cavallo, Fitzsimons, & Holmes, 2010). Similarly, thinking of a time when a partner behaved non-responsively automatically activates a behavioral orientation (i.e., hostility) for distancing oneself from the partner (Murray et al., 2008). Experiencing chronic concerns about the partner's trustworthiness also strengthens overtly self-protective behavior (Holmes & Rempel, 1989; Murray et al., 2006). Specifically, it both increases the tendency to be suspicious in one's inferences, a mindset that makes it easier to detect (and avoid) rejection, and the tendency to be distancing and avoidant in one's behavior, a reaction that makes rejection less likely and less painful. For instance, people who are less trusting read rejection into events as ambiguous as their partner being in a bad mood (Murray, Bellavia, Rose & Griffin, 2003). They also react to daily hurts by behaving in a cold and rejecting way toward their partner (Murray et al., 2003). Similarly, people who

[1]Our model assumes that approach and avoidance are polar opposites at the level of behavioral expression (Cacioppo, Gardner, Berntson, 1999). Accordingly, approach necessarily implies inhibited avoidance and avoidance necessarily implies inhibited approach.

are less trusting overreact to daily conflicts, treating them as an excuse to withdraw from the relationship (Campbell, Simpson, Boldry & Rubin, 2010).

Impulsive trust—Our model also assumes that impulsive trust can qualify the influence that reflective trust has over the regulation of self-protection. How so? Being low on impulsive trust should only reinforce self-protective caution and avoidance in response to doubts about the partner's caring because less positive automatic evaluative associations to the partner echo conscious suspicions that approach might not be safe. However, being high on impulsive trust might have the power to inoculate against conscious doubts about the partner's caring.

Why might such an effect emerge? First, more positive automatic evaluative associations might function as a chronic or "selfish" goal to approach that neutralizes avoidance goals activated in a specific situation of rejection (Bargh & Huang, 2009). Second, more positive automatic evaluative associations to the partner might make the actual experience of contemplating rejection less hurtful (Banaji & Heiphetz, 2010; Dijksterhuis, 2010; Fazio, 1986). Because interacting with the partner automatically primes one's evaluative associations, any concerns about the partner's behavior are likely to be mitigated by more positive general evaluations (Kunda & Spencer, 2003; Mikulincer, Hirschberger, Nachmias, & Gillath, 2001). Third, evaluative associations are likely to be slow to align or catch up with newly emerging doubts that could undermine such positive approach signals. Indeed, automatic evaluations are thought to be asymmetrically malleable, more readily formed than undone (Gregg et al., 2006). Therefore, being high on impulsive trust might provide a counterweight to emerging doubts because such automatic evaluative sentiment stubbornly retains its relative positivity. Fourth, automatic evaluative sentiments can elicit corresponding behaviors even when contradictory explicit sentiments are accessible in memory (Wilson et al., 2000). For instance, unconsciously primed thoughts of security heighten empathy (Mikulincer, Gillath, Halevy, Avihou, Avidan & Eshkoli, 2001), diminish outgroup derogation (Mikulincer & Shaver, 2001), and increase the desire to seek support from others in dealing with a personal crisis (Pierce & Lydon, 1998) even when conscious reservations oppose such behaviors.

In sum, our dual process model assumes that impulsive trust can modulate the safety signal conveyed by reflective trust concerns. When Sally is high on impulsive trust, conscious reservations about Harry's caring may lose their message value – and consequently, lose their power to elicit expressions of approach vs. avoidance. However, when Sally is low on impulsive trust, such automatic unease might only amplify the motivating power of her conscious doubts.

The Moderating Role of Working Memory Capacity

Our dual process model further assumes that the power impulsive trust has to inform the safety signal conveyed by one's conscious doubts is likely to be constrained by the capacity to ignore or discount one's automatic evaluative impulses. The MODE (Motivation and Opportunity as Determinants) model of the attitude-behavior relation assumes that automatic evaluative associations control behavior unless people have the motivation and opportunity to override their impulses (Olson & Fazio, 2008). Therefore, being high on impulsive trust may better inoculate against reflective trust concerns when working memory capacity (WMC) is low because it is harder to suppress or ignore one's automatic evaluative impulse to approach in such circumstances. In this way, the opportunity to correct (i.e., WMC) for chronic impulses to approach controls how much influence impulsive trust ultimately has over automatic self-protective inclinations and overt approach vs. avoidance behavior (Paths C_1 and C_2 in Figure 1).

Vigorous efforts at self-regulation, cognitive load, and distraction can all compromise working memory capacity in the short term, and heighten the tendency to act on the basis of one's evaluative impulses (Hofmann et al., 2009; Murray et al., 2008; Schmeichel, 2007). Similarly, people who are chronically low in working memory capacity have trouble regulating attention and inhibiting automatic behavioral inclinations (Baddeley & Hitch, 1974; Hofmann et al., 2009; Hofmann, Schmeichel, Friese, & Baddely, in press). For instance, people low in WMC succumb to the temptation compelled by their automatic evaluative response to M & M's and eat what their impulses dictate, not what their explicit intentions to diet dictate (Hofmann, Gschwendner, Friese, Wiers, & Schmitt, 2008). Therefore, being high on impulsive trust may better inoculate against doubts when WMC is constrained, and thus, people have little capacity to ignore the safety signal supplied by impulsive trust. However, when people are high in WMC, and thus better able to ignore or correct for the influence of their automatic evaluative impulses, being high on impulsive trust may lose its protective effect.

Research Strategy and Hypotheses

The current paper is unique in positing impulsive and reflective forms of trust, and consequently, impulsive and reflective controls over approach vs. avoidance inclinations and behavior in relationships. As a starting point for testing this model, we designed six studies to highlight the relatively automatic processes involved in the expression of self-protection.

Studies 1 through 3 examine whether automatic evaluative associations to the partner do indeed function as trust. Explicitly trusting expectations signal the safety of approach within the risk regulation model (Murray et al., 2006; Murray & Holmes, 2009; Wieselquist et al., 1999). Thus, if automatic evaluative associations supply an impulsive form of trust, more positive associations should foster greater expressed faith in the partner's caring and stronger expressions of closeness. Consistent with this logic, automatic evaluative associations to social objects can enter conscious awareness in the form of feelings or preferences and become represented in one's explicit beliefs (Gawronski & Bodenhausen, 2006; Jordan, Spencer & Zanna, in press). Our model further stipulates that the influence of automatic evaluative associations should be most evident when the ability to overturn impulses is constrained because WMC is limited.

In Studies 1 and 2, we conditioned more positive evaluative associations to the partner using a subliminal procedure. We then measured reflective trust through explicit faith in the partner's love and commitment (Studies 1 and 2) and we also measured explicit feelings of closeness (Study 2). We expected participants high on impulsive trust (i.e., those subliminally conditioned to make positive evaluative associations to their partner) to report greater trust and closeness. In Study 3, we measured automatic evaluative associations to the partner using the Implicit Association Test (Greenwald, McGhee, & Schwarz, 1998; Zayas & Shoda, 2005), working memory capacity (WMC), and the willingness to depend on one's partner in situations where the partner is tempted to be selfish (Simpson, 2007). We expected participants high on impulsive trust (i.e., more positive evaluative associations to the partner on the IAT) to be more willing to approach their partner in such situations when they were chronically low on WMC.

We designed Studies 4 through 6 to test the hypothesis that impulsive trust regulates self-protective caution in response to reflective doubts about the partner's responsiveness. In Study 4, we manipulated reflective trust by inducing state concerns about the partner's rejection (Murray et al., 2002). We then measured the automatic tendency to approach vs. avoid the partner by measuring how quickly people attributed positive (and negative) traits to their partner (Murray et al., 2006). We utilized an implicit measure of approach vs.

avoidance because our model focuses on automatic self-protective inclinations and stipulates that automatic inclinations to approach vs. avoid the partner precede overt behavioral responses. We expected participants low on implicit trust (i.e., less positive IAT scores) to automatically distance from a partner they perceived to be rejecting – by being slower to identify positive (or quicker to identify negative) traits in their partner. However, we expected participants high on impulsive trust (i.e., more positive IAT scores) to continue to approach their partner in the face of doubts about their partner's caring.

In Studies 5 and 6, we manipulated both reflective trust and working memory capacity to test the hypothesis that the effects of impulsive trust are most evident when working memory capacity is constrained. We then measured the automatic tendency to approach (vs. avoid) the partner (Studies 5 and 6) and the willingness to depend on one's partner in situations that tempt the partner to be selfish (Study 6). We expected participants who were low on impulsive trust and low in WMC to distance from a partner they perceived to be rejecting – in both their automatic inclinations and in their overt behavior. However, we expected participants who were high on impulsive trust and low in WMC to instead approach a rejecting partner.

Study 1

We designed Study 1 with two goals in mind. The first: Demonstrate that the experience of trust has an impulsive basis. If it does, subliminally conditioning more positive automatic evaluations to the partner should increase faith in the partner's love and commitment, a primary basis of trust (Holmes & Rempel, 1989). The second: Rule out the possibility that automatic evaluative associations to the partner simply inform judgments about the partner's desirability. In this study, we manipulated evaluative associations to the partner using a subliminal conditioning paradigm. We then measured explicit faith in the partner's love and commitment (i.e., reflective trust) and evaluations of the partner (i.e., partner desirability). We expected participants subliminally conditioned to evaluate their partner positively to report greater trust, as expressed through greater faith in their partner's love and commitment.

Method

Participants—Seventy-eight undergraduates involved in exclusive relationships participated. Four participants were eliminated for failing to follow instructions and one participant was eliminated for being an extreme outlier on a pre-measure of satisfaction, leaving 73 (27 men). Participants averaged 19.3 years of age (SD=1.7); relationships averaged 16.3 months (SD = 14.1). (Participants were randomly assigned to condition in this and all subsequent experiments).

Procedure—Participants believed that the study examined cognition and relationships. They first completed demographic questions and a one-item measure of relationship satisfaction among other measures. Participants then underwent a subliminal evaluative conditioning procedure based on the procedure Dijksterhuis (2004, Experiments 3, 4, 5a, 5b) utilized to enhance implicit self-esteem. As part of this task, participants completed a lexical decision task on a personal computer with a 17" or 19" flat panel monitor. The lexical decision task, programmed in Inquisit 2.0 (Millisecond Software, 2006), consisted of 30 trials in which the stimulus materials were presented in random order. Each trial consisted of the following sequence: A row of Xs was presented in the center of the screen for 500 milliseconds. The name of the participant's romantic partner then was presented for either 13 ms (one refresh rate on monitors set at 75 Hz) or 17 ms (one refresh rate on monitors set at 60Hz). In the positive evaluative associations or impulsive trust condition (N = 36), the partner's name was immediately followed by a positive trait term (i.e., warm, sweet, nice,

sincere, honest, attractive, cheerful, smart, strong, wise, love, funny, happy, certain, positive) that was also presented for one refresh rate (i.e., 13 ms or 17 ms).2 In the control condition (N = 37), the partner's name was immediately followed by a neutral word (e.g., chair, bike). In both conditions, the conditioning word was then masked by the presentation of the target stimulus for the lexical decision task, a random letter string. Participants indicated whether the first letter in the string was a vowel or consonant. Stimuli were presented in black Times New Roman bold font size 14 with a white background. Participants completed the dependent measures tapping trust (i.e., faith in the partner's love and faith in the partner's closeness) and evaluations of the partner. On probing, no participant indicated awareness of any words appearing on the screen other than the random letter strings.

Dependent Measures

Faith in partner's love: This 23-item scale (α = .96), adapted from Murray, Leder, McGregor, Holmes, Pinkus & Harris (2009), tapped trust in the partner's continuing love and commitment (e.g., "My partner loves and accepts me unconditionally"; "I am confident that my partner will always want to stay in our relationship", 1 = not at all true, 7 = completely true).

Faith in partner's closeness: This 5-item scale (α = .94), adapted from Murray et al. (2002) tapped perceptions of how close the partner felt to the participant (e.g., "My partner is closer to me than any other person in his/her life", 1 = not at all true, 9 = completely true).

Evaluations of the partner: This 22-item scale (α = .85), adapted from Murray, Holmes and Griffin (1996), asked participants to describe their partner on positive (e.g., "kind and affectionate"; "intelligent") and negative qualities, reversed (e.g., "distant", "critical and judgmental") using 9-point scales (1 = not at all, 9 = extremely characteristic).

Results and Discussion

We created a composite measure of trust by standardizing and averaging responses to the faith in love and closeness measures (α = .83). A regression analysis predicting trust from condition (1 = positive evaluative associations, 0 = control) revealed that participants subliminally conditioned to evaluate their partner positively reported greater trust (M = .24) than controls (M = −.18), β = .23, t(71) = 2.00, sr^2 = .05, p =.05. However, a regression analysis predicting evaluations of the partner yielded no significant effect, β = −.08, t(71) < 1, sr^2 = .01. Thus, subliminally conditioning positive evaluative associations to the partner increased reflective trust. It did not affect beliefs about the partner's qualities, consistent with our contention that automatic evaluative associations to the partner signal safety in particular, not the partner's general desirability. Our procedure does invite an alternative explanation given research on felt security priming (Mikuliner & Shaver, 2001). Maybe simply priming the positive words – not conditioning these positive words to the partner's name – bolstered trust.3

Study 2

Study 2 eliminates this alternative. In this experiment, we utilized the subliminal conditioning procedure to create more positive evaluative associations to the partner, but we

[2]We utilized these words because the majority had demonstrated effectiveness in Dijksterhuis (2004). However, we would expect to find parallel effects with any words that are normatively positive enough to effectively condition an automatic and positive evaluative association.

[3]We tested for moderating effects of gender and a premeasure of relationship satisfaction in all of the experiments. We did not find any consistent effects.

included a further control condition. In this condition, we subliminally conditioned an X to the positive valence words. We also had two further goals for this study. The first: Demonstrate that positive automatic evaluative associations foster behavioral expressions of trust. If they do, people subliminally conditioned to evaluate their partner more positively should not only feel more trusting, they should also be more trusting. That is, they should approach and draw closer to their partner, a primary consequence of trust within the risk regulation model (Murray et al., 2006). The second: Demonstrate that positive evaluative associations to the partner signal safety and motivate approach even when there are reflective concerns about the partner's responsiveness, as the independence of influence assumption in our model anticipates.

In this study, we manipulated reflective concerns about the partner's responsiveness by asking half the participants to describe a time when their partner disappointed them. All participants then underwent the evaluative conditioning procedure. Next, we measured trust, explicit evaluations of the partner, and closeness. We expected participants subliminally conditioned to make more positive evaluative associations to their partner to report greater trust. We also expected participants in this impulsive trust condition to report feeling closer to the partner. Because our model stipulates that automatic evaluative associations to the partner inform trust independent of more reflective or deliberative beliefs, we expected these effects to emerge regardless of people's state reflections on the partner's non-responsiveness.

Method

Participants—One hundred twenty-six undergraduates involved in exclusive relationships participated. One participant was eliminated for not following instructions and one for being an extreme outlier on relationship length, leaving 124 (53 men). Participants averaged 19.7 years of age (SD=2.6); their relationships averaged 20.1 months in length (SD = 14.3).

Procedure—Participants believed that the study examined cognition and relationships. They first completed a questionnaire that included demographic questions. Participants in the reflective trust concerns condition then described a time when their dating partner seriously hurt or disappointed them. Participants in the neutral essay condition described their commute to school. All participants then completed a lexical decision task that provided the guise for the subliminal evaluative conditioning procedure. The procedures in the positive evaluative associations (N = 39) and control (N = 43) conditions paralleled Study 1. For participants in the new positive priming control condition (N = 42), the procedures paralleled those in the positive evaluative associations condition, with one crucial exception: A single X replaced presentation of the partner's name. Participants then completed dependent measures tapping trust (i.e., faith in closeness, $\alpha = .84$, and faith in love, $\alpha = .94$), as in Study 1, and two further trust measures, faith in the partner's commitment and perceptions of the partner's regard for one's traits. They also completed the evaluations of the partner measure, $\alpha = .84$, as in Study 1. Also new to this study, participants completed global measures of closeness (i.e., inclusion of other in self, feelings of closeness, commitment, and centrality of the relationship). Finally, they answered questions about the transgression they had described (e.g., "How long ago does it feel like the event occurred?"; "How hurt were you by this event at the time it occurred?").4 No participant indicated awareness of any words on the screen other than the random letter strings.

[4]Control participants were asked to provide a brief (one sentence) description of a partner transgression before completing this measure.

Trust Measures

Faith in partner's commitment: This 2-item scale (α = .87), adapted from Rusbult, Martz & Agnew (1998) tapped the participant's perception of his/her partner's orientation toward the future of the relationship (e.g., "My partner wants our relationship to last a very long time", 1 = do not agree at all, 9 = agree completely).

Perceptions of the partner's regard for one's traits: This 20-item scale (α = .75), adapted from Murray et al. (2000), asked participants to describe how their partner perceived them on positive (e.g., "kind and affectionate"; "intelligent") and negative qualities (e.g., "distant", "critical and judgmental", reversed, 1 = not at all, 9 = extremely characteristic).

Closeness Measures

Inclusion of other in the self: This 1-item measure (Aron, Aron, Tudor & Nelson, 1991) consisted of a series of 7 progressively overlapping sets of circles representing the self and the partner. Participants selected the circles that best reflected how close they felt to their partner.

Own feelings of closeness: This 5-item scale (α = .87, Murray et al., 2002) tapped how close the participant felt to the partner (e.g., "I would choose to spend time with my partner over anyone else in my life", 1 = not at all, 9 = completely true).

Own feelings of commitment: This 3-item scale (α = .84), adapted from Rusbult et al. (1998) tapped the participant's long-term orientation toward the future of the relationship (e.g., "I want our relationship to last a very long time", 1 = not at all true, 9 = completely true).

Centrality: This 4-item scale (α = .68, Agnew, Van Lange, Rusbult & Langston, 1998) tapped the importance of the relationship to the participant (e.g., Among the things that give your life meaning, how important is your relationship? 1 = the least, 7 = the most important?).

Results

We created composite measures of trust (i.e., faith in partner's love, closeness, and commitment and perceptions of the partner's regard for one's traits, each z-scored and averaged, α = .85) and closeness (i.e., inclusion of other in self, own closeness, own commitment, and centrality, each z-scored and averaged, α = .87).[5] We then conducted a hierarchical regression predicting each dependent measure. In the first step, we entered: (1) two dummy coded contrasts to capture the evaluative conditioning conditions (one compared the impulsive trust condition, coded 0, against the control condition, coded 1, the other compared the impulsive trust condition, coded 0, against the positive priming condition, coded 1), (2) one dummy coded contrast to capture the essay condition (1 = reflective trust concerns, 0 = neutral), and (3) how long ago it felt like the event had occurred (centered).[6] In the second step, we entered terms to capture the two-way interactions between experimental conditions. Table 1 presents the results.

[5]As expected, the measures tapping perceptions of the partner's love, regard, closeness, and commitment strongly converged (average inter-correlation=.60). Thus, these measures uniformly capture trust, as defined as faith in the partner's caring and commitment, as is further evidenced by the high internal consistency of the composite.

[6]We included psychological distance (i.e., perceived elapsed time) as a control variable because more psychologically distant events may be less threatening.

Trust—The expected significant main effects for the contrasts comparing the impulsive trust condition against the control condition and impulsive trust condition against the positive priming condition both emerged. Participants conditioned to associate their partners with positive words reported greater trust (M = .24) than participants conditioned to associate their partner's name with neutral words (M = −.11) and participants primed with the positive words (M = −.14).

Closeness—The expected significant main effect for the contrast comparing the impulsive trust condition against the control condition emerged. Participants conditioned to associate their partner with positive words reported greater closeness (M = .21) than participants conditioned to associate their partner with neutral words (M = −.19). A parallel, but not significant, effect emerged comparing the conditioning to the positive word prime condition (M = −.02).7

Discussion

Study 2 again revealed that subliminally conditioning more positive evaluative associations toward a dating partner increased trust. It also increased closeness. However, as Table 1 reveals, conditioning more positive evaluative associations to the partner did not affect explicit evaluations of the partner's traits (even though this measure preceded the closeness measures). Importantly, the simple priming of positive words was not sufficient to increase trust or closeness (see Footnote 7). Conditioning more positive automatic evaluative associations also increased trust regardless of people's current reflective trust concerns (which typically involved recalling past instances of hurtful lies, broken promises, or infidelity).

Study 3

Studies 1 and 2 suggest that making positive automatic evaluative associations to the partner functions as an impulsive form of trust. Study 3 provides further evidence that positive automatic evaluative associations have trust-specific behavioral effects. In designing this study, we turned to assumptions central to interdependence theory: Situations in which Harry has an incentive to be selfish best diagnose his trustworthiness because his responsiveness to Sally in such situations necessitates putting Sally's needs before his own (Holmes & Rempel, 1989; Simpson, 2007). Correspondingly, Sally's willingness to expose herself to such "strain-test" situations diagnoses her level of trust in Harry. If Sally's automatic evaluative associations to Harry do indeed function as an impulsive form of trust, such associations should predict her willingness to give Harry the opportunity not to be responsive. That is, they should predict her willingness to depend on Harry in situations where he could behave selfishly, such as asking Harry for a sacrifice. Moreover, the power of impulsive trust to promote such risk-taking should be most pronounced for people who are more likely to be swayed by their automatic evaluative impulses – that is, people low in working memory capacity (WMC). New to Study 3, we measured individual differences in impulsive trust using an Implicit Association Test (IAT) because it has demonstrated validity indexing automatic evaluative associations (Greenwald et al., 2008). We expected being higher on impulsive trust (i.e., more positive associations to the partner on the IAT) to predict greater willingness to depend on the partner when people were low in WMC, and thus, more likely to be swayed by their automatic impulses).

7Further analyses comparing the impulsive trust condition against the combined control conditions revealed that participants conditioned to associate their partner with positive words reported greater trust, $\beta = .20$, $t(119) = 2.42$, $sr^2 = .04$, $p < .05$, and closeness, $\beta = .18$, $t(119) = 1.99$, $sr^2 = .03$, $p < .05$. The control conditions did not differ significantly for either measure.

Method

Participants—Sixty-four couples involved in exclusive relationships participated. One couple was eliminated for being an extreme outlier on relationship length, leaving 63. Participants averaged 19.5 (SD = 2.0) years in age and their relationships averaged 13.7 (SD = 11.8) months in length.

Procedure—Participants believed that the study involved cognitive processes in relationships. Both members of the couple then completed a demographic survey, a partner-specific version of the Implicit Association Test, and measures of working memory capacity and the willingness to depend on the partner in risky situations (among measures not relevant to the current study).

Measures

Partner IAT: The IAT measure contained 7 blocks. Participants categorized words belonging to four categories: (1) pleasant words (e.g., vacation, pleasure), (2) unpleasant words (e.g., bomb, poison), (3) words associated with the partner (e.g., partner's first name, partner's last name, partner's nickname or term of affection for partner, descriptive term such as boyfriend or girlfriend, and partner's date of birth), and (4) words not associated with the partner (e.g., first name not associated with partner, last name not associated with partner, date of birth not associated with partner, state not associated with partner, country not associated with partner).8 The words in categories (3) and (4) were generated idiographically. The computer prompted participants to answer a series of questions that created words that were uniquely descriptive of their partner (category 3) or to choose from a list of names, dates, states, and countries that were not associated with their partner (category 4; Scinta & Gable, 2007; Zayas & Shoda, 2005).

The critical blocks in this version of the Partner IAT consisted of the compatible pairing blocks (practice and test blocks), in which participants used the same response key to respond to pleasant words and partner words, and the incompatible pairing blocks (practice and test blocks), in which participants used the same response key to respond to unpleasant words and partner words. We computed IAT scores for each participant following the improved scoring algorithm procedure recommended by Greenwald, Nosek and Banaji (2003). We deleted trials with latencies above 10,000 milliseconds; participants who had latencies below 300 milliseconds on more than 10% of the trials were removed. For the practice and test blocks, separately, we subtracted the average response latency during the compatible block from the average response latency during the incompatible block, divided by the pooled standard deviation from these critical blocks. The IAT scores are computed as the average of these two quotients (Greenwald et al., 2003). Higher scores reflect more positive evaluative associations.

Working memory capacity: A computation span task used by Hofmann et al. (2008, p. 966) assessed individual differences in working memory capacity. A set of equations (ranging from 4–8 equations, and involving a mixture of addition and subtraction; e.g., 3 + 5 = 8, 11 – 7 = 5) was presented sequentially on the computer screen for 3 s, followed by a 1-s inter-stimulus interval. The participant had to remember the result of each equation and enter the correct sequence of results (e.g., 8, 5) on the keyboard at the end of the set. While engaged in this task, participants also had to judge each equation as true or false within the 3-second window of stimulus presentation by pressing the appropriate key. Thus,

[8]We utilized pleasant vs. unpleasant words as the contrast category because impulsive trust involves overall evaluative associations to the partner. However, we would expect to find parallel results with any contrast category that provoked normatively strong evaluative associations (e.g., positive vs. negative affect words).

participants had to memorize the sequence of results while being engaged in a distracting secondary task. Participants completed two practice and 10 test trials. The index of WMC was the sum of correctly entered sequences weighted by the number of equations in each set.

Willingness to depend on the partner: Ten items (α = .84), adapted from Murray et al. (2008), tapped the willingness to depend on the partner in situations that might tempt the partner to be non-responsive (e.g., "help me solve my personal problems", "give up time with friends to spend time with me"; "take care of my chores/responsibilities"; "consider my needs when he/she makes decisions about his/her life"; "help me solve my financial problems"). Participants rated their willingness to solicit each behavior from their partner (1 = not at all, 7 = very).

Results

We used structural equation modeling (SEM) to test our hypotheses because it accommodates dyadic data and allows estimating pooled effects across gender (Kenny, 1996). Figure 2 presents our analytic model. Non-primed paths reference women's criterion variables; primed paths reference men's criterion variables. This model predicts the willingness to depend on the partner from impulsive trust (i.e., centered partner IAT, Paths a and a′), working memory capacity (centered, Paths b and b′), and the two-way interaction term between impulsive trust and working memory capacity (Paths c and c′). (Correlations among all exogenous variables were also estimated). In a first step, we estimated models that individually constrained corresponding paths to be equal across gender. Doing so revealed no significant gender differences (a 1-df Chi-square test). Table 2 contains path coefficients pooled across gender.

We found the expected, significant interaction between impulsive trust and working memory capacity predicting the willingness to depend on the partner in risky situations. We decomposed this interaction into the simple effects of impulsive trust on the willingness to depend on the partner by conducting conditional SEM models for participants one standard deviation above and below the mean on WMC (see Aiken & West, 1991). Among participants low in WMC, higher levels of impulsive trust predicted greater willingness to depend on the partner, $\underline{b} = .24$, $\underline{z} = 2.03$, $\underline{sr}^2 = .06$, $\underline{p} < .05$. In contrast, among participants high in working memory capacity, impulsive trust had no significant effect, $\underline{b} = -.19$, $\underline{z} = -1.34$, $\underline{sr}^2 = .03$.

Discussion

Study 3 provides further evidence that automatic evaluative associations to the partner do indeed function as trust – especially for people likely to rely on the safety signal supplied by their automatic evaluative associations for directing behavior. Specifically, for people low in working memory capacity, being high on impulsive trust predicted greater willingness to enter strain-test situations where one's partner might be tempted to be selfish or non-responsive. Having established that more positive automatic evaluative associations to the partner constitute an impulsive form of trust, we now examine how being more or less impulsively trusting regulates self-protective caution in response to conscious concerns about the partner's caring.

Study 4

Study 4 provides our first test of how impulsive trust and reflective trust jointly influence the strength of one's automatic inclination to self-protect. We threatened reflective trust by leading participants in the experimental condition to believe that their partner was compiling an inordinately long list of the participant's most serious faults, a rejection experience that

creates reflective trust concerns because it undermines confidence in the partner's caring (Murray et al., 2002). We then measured the automatic inclination to approach vs. avoid the partner by examining how quickly participants associated the partner with positive and negative traits in a categorization task (Murray, Holmes et al., 2009). We chose an implicit measure as our dependent measure of approach vs. avoidance inclinations because automatic inclinations precede overt behavioral reactions in our model (Wegner, 2002). We chose this particular measure because identifying positive (and negative) qualities in the partner constitutes a primary means of drawing the partner closer or pushing the partner away (Murray et al., 2006). We expected experiencing rejection to provoke the automatic inclination to distance for people low on impulsive trust (i.e., less positive IAT scores). That is, we expected people lower on impulsive trust to be slower to associate their partner with positive traits (or faster to associate their partner with negative traits) when that partner seemed to be compiling a long list of faults. However, we expected people higher on impulsive trust (i.e., more positive IAT scores) to be inoculated against this rejection experience.

Method

Participants—Eighty-eight couples participated, but three were dropped for not following instructions, leaving 85. Participants averaged 19.3 years in age (SD=1.9); relationships averaged 15.9 months (SD = 15.6).

Procedure—Participants believed that the study examined cognition and relationships. They first completed demographic questions. Participants then completed the partner IAT tapping impulsive trust utilized in Study 3 and the practice trials for the partner categorization measure tapping automatic approach vs. avoidance inclinations (described below). For couples in the experimental or reflective trust concerns condition (N = 46), target participants were led to believe that their partners were spending an excessive amount of time listing qualities in the target that their partner disliked, a procedure that activates concerns about the partner's caring and commitment (Murray et al., 2002, Experiment 3). To achieve this end, the target participant received a one-page questionnaire that asked them to list important aspects of their partner's character that they disliked. The instructions also stated that participants should not list any more than one such quality if that was all that easily came to mind. Although the targets were led to believe that their partner received an identical questionnaire, the partner actually received a one page questionnaire that asked them to list as many of the items in their dormitory room, bedroom, or apartment as they could generate (and a minimum of 25 items). Through this subterfuge, target participants spent a few anxious minutes waiting for their partner to finish this task. (The experimenter stopped partners 5 minutes after the target participant finished if the partner was still detailing his/her room contents). For couples in the control condition (N = 39), target and partner participants both received the one page questionnaire that asked them to list important aspects of their partner's character that they disliked. As a result, target participants in the control condition typically finished the task coincident with their partner (and thus had no reason to think that their partner perceived a troubling number of faults in them). All participants then completed 240 target trials for the partner categorization task tapping automatic approach vs. avoidance inclinations. Finally, participants completed a manipulation check (i.e., "How many negative aspects of your character do you think your partner listed?"), were probed for suspicion and debriefed.

Measures

Implicit approach vs. avoidance: This measure (adapted from Dodgson and Wood, 1998 and Murray, Holmes et al., 2009) tapped how quickly participants identified positive and negative traits in their partner. Participants were told that single words would appear on the

screen and that they had to indicate whether each word, either a person descriptor such as warm or an object descriptor such as car, could ever possibly be used to describe their partner (by pressing yes/no keys). For the practice trials, they responded to 15 person and 15 object descriptors. If participants responded incorrectly on the practice trials (e.g., responding “no” to warm or “yes” to car), they received an error message.9

For the target trials, participants responded to 120 person and 120 object descriptors. The target words of interest were 35 positive traits (e.g., understanding, passionate, knowledgeable, forgiving, compassionate, competent, smart, skilled) and 30 negative traits (e.g., thoughtless, judgmental, unkind, complaining, lazy, clumsy). The target trials also included 12 acceptance (e.g., accepted, loved) and 15 rejection words (e.g., blamed, unloved) among fillers. The words were presented in a random order. Reaction times were recorded in milliseconds. Quicker responses to positive traits capture stronger automatic approach inclinations (or conversely, weaker avoidance inclinations, see Footnote 1). Quicker reactions to negative traits capture stronger avoidance inclinations (or conversely, weaker approach inclinations).10

Results

To create the implicit approach vs. avoidance measure, we first subjected reaction times to each person and object word to a logarithmic transformation (Fazio, 1990). Within each word category (e.g., positive traits), we then averaged response times for correct responses made within 3000 milliseconds (Murray, Holmes et al., 2009). On the first step of the regression analyses predicting log-transformed reaction times to positive (or negative) traits, we entered reaction times to object, acceptance, and rejection words (the latter controls allowed us to separate the ascription of traits to the partner from affective reactions to the rejection experience). On the second step of the regression, we entered the main effects of impulsive trust (i.e., IAT, centered) and experimental condition. (1 = reflective trust concerns, 0 = control). On the third step, we entered the two-way interactions. We discuss only the significant effects involving experimental condition. Table 3 contains the results.11

Implicit Approach vs. Avoidance—The analysis predicting reaction times to positive traits revealed the expected significant impulsive trust (i.e., partner IAT) by reflective trust concerns (i.e., experimental condition) interaction. Figure 3 presents the predicted scores for the raw latencies in each experimental condition for participants one standard deviation below and above the mean on impulsive trust. Participants low on impulsive trust (i.e., less positive evaluative associations to the partner on the IAT) evidenced the automatic inclination to distance from a rejecting partner, the typical response to rejection. They were slower to identify positive traits in their partner when they thought their partner perceived a laundry list of faults as compared to controls, $\beta = .28$, $t(77) = 3.30$, $sr^2 = .03$, $p < .05$. In contrast, participants high on impulsive trust seemed inoculated; the simple effect of reflective trust concerns was not significant, $\beta = -.03$, $t(77) < 1$, $sr^2 = .00$.

Manipulation Check—As expected, participants in the experimental condition (M = 5.6) believed that their partner listed more faults than control participants (M = 3.3).

9As the task required “yes” responses to all person descriptors (as these words could all be used to describe the partner in some circumstance), reaction times to positive and negative words were not confounded with “yes” versus “no” responses (Dodgson & Wood, 1989).

10We did not conceptualize reaction times to positive vs. negative traits as separate measures of approach and avoidance, respectively. Trait ascriptions to one’s partner are typically bipolar, in that seeing more positive traits strongly predicts seeing fewer negative ones (Murray et al., 1996). Consequently, we assumed that automatic inclinations to self-protect might surface in either slowed reactions to positive traits, quicker reactions to negative traits, or both.

11In Studies 4 through 6, the samples sizes vary slightly across dependent measures because of missing data (e.g., participants not completing a given measure, data recording errors, etc).

Discussion

Study 4 revealed that impulsive trust (i.e., automatic evaluative associations to the partner) regulated self-protection in response to reflective trust concerns. Participants who were low on impulsive trust automatically distanced themselves from a partner they perceived to be rejecting. In contrast, participants high on impulsive trust seemed to be inoculated against the automatic activation of self-protective inclinations. Of course, a critic might object to the measure of approach vs. avoidance inclinations we utilized. Such a critic might argue that our implicit measure captures automatic evaluative reactions to the partner that are no different than those captured by the IAT. However, these measures are empirically and conceptually distinct.

Empirically, responses on the IAT did not consistently predict responses to positive or negative traits on the partner categorization measure in Studies 4, 5 or 6. Indeed, only one significant association emerged among the 6 tested. A sample of 159 married couples also revealed near zero and non-significant correlations between responses on the IAT and responses to positive and negative traits in the partner categorization task. Conceptually, these measures involve different judgment processes. In completing the IAT, participants are never required to make a judgment about whether their partner is a good or bad person. Instead, the IAT captures the ease of responding when “partner” and “pleasant” vs. “partner” and “not pleasant” require the same vs. different response key. Thus, the IAT captures the extent to which positive associations are made more readily to the partner than negative ones – associations that are basic to impulsive trust. In completing the partner categorization task, participants are making repeated judgments about whether their partner is a good or bad person. Therefore, the partner-categorization task can readily pick up subtle shifts in feelings of closeness vs. distance to the partner, as captured by how quickly participants affirm the presence of positive or negative qualities in their partner. Such reactive judgments of partner value are basic to the behavioral expression of approach (vs. avoidance) within the relationship (Murray et al., 2006).

Study 5

Study 5 extends Study 4 by examining whether impulsive trust is more likely to inoculate against reflective trust concerns when people are short on working memory capacity. Accordingly, we manipulated both reflective trust and working memory capacity. To threaten reflective trust, we asked experimental participants to vividly describe a time when their partner had seriously hurt them, thereby invoking a strain-test situation in which their partner had failed to be responsive (Simpson, 2007). To deplete WMC, we asked experimental participants to write an essay without using the letters A or N, a cognitively demanding task that depletes working memory capacity (Schmeichel, 2007). We then measured automatic approach vs. avoidance inclinations as in Study 4. We expected people to be swayed by the safety signal conveyed by impulsive trust when WMC was depleted. Namely, for people low on impulsive trust, being short on WMC should compound reflective trust concerns and provoke self-protective avoidance. In contrast, for people high on impulsive trust, being short on WMC should inoculate against reflective trust concerns and promote approach. Consequently, we expected people who were low on impulsive trust and short on WMC to automatically distance from a rejecting partner. However, we expected people who were high on impulsive trust and low on WMC automatically to sustain closeness to a rejecting partner.

Method

Participants—Ninety-three people involved in exclusive relationships participated. Eleven were eliminated (5 for not following instructions, 4 for having latencies below 300

milliseconds on more than 10% of the IAT trials, and 2 for being extreme outliers on relationship length), leaving 82 (48 men). Participants averaged 19.3 years of age (SD=1.8); relationships averaged 15.4 months in length (SD = 15.9).

Procedure—Participants believed the study examined cognition and relationships. They first completed demographic questions, the partner IAT (as in Study 3), and the practice trials for the partner categorization measure (as in Study 4). Participants in the reflective trust concerns condition then identified a time when their partner seriously hurt or disappointed them (using a few words). Participants in the control condition identified a time when they felt supported and encouraged by their partner. Participants in the high load/low WMC condition then wrote a story about a recent trip, with the stipulation not to use the high-frequency letters A or N (Schmeichel, 2007). Participants in the low load/high WMC condition wrote a story about a recent trip, with the stipulation not to use the low-frequency letters Q or Z. All participants then provided a vivid description of the relationship event (i.e., disappointment or support incident) they identified initially. (We had participants identify the relationship event before we manipulated WMC to ensure that this manipulation did not affect event selection). Participants completed the target trials for the partner categorization task tapping automatic approach vs. avoidance inclinations (as in Study 4). Finally, participants completed two items tapping appraisals of the relationship event (i.e., "How long ago does it feel like the event occurred?"; "How hurt do you feel when you think about this event now?"). Participants were probed for suspicion and debriefed. (Cell sizes in each combination of experimental conditions ranged from 20–22).

Results

We conducted a regression analysis separately predicting log-transformed reaction times to positive and negative traits from how long ago the relationship event was perceived to occur, reaction times to object, acceptance, and rejection words, entered on the first step, the main effects of impulsive trust, WMC (1 = high load, - 1 = low load), and reflective trust concerns (1 = low, −1 = control), entered on the second step, and the two-way interactions, entered on the third step, and the three-way interaction, entered on the final step. The regression analysis predicting the manipulation check omitted the reaction time covariates. We discuss the highest order significant effects. Table 4 contains the results.

Implicit Approach vs. Avoidance—The regression analysis predicting reaction times to positive traits revealed the expected and significant 3-way impulsive trust (i.e., partner IAT) by WMC by reflective trust interaction. We decomposed the 3-way interaction its component 2-way WMC (low vs. high) by reflective trust concerns (high vs. control) interaction for participants one standard deviation above and below the mean on impulsive trust, respectively (Aiken & West, 1991). The two-way interaction was significant for participants high on impulsive trust, $\beta = -.35$, $t(69) = -3.73$, $sr^2 = .05$, $p < .001$, but not for participants low on impulsive trust, $\beta = .14$, $t(69) = 1.46$, $sr^2 = .01$, $p = .15$.

Figure 4 presents the predicted scores. When participants were high on impulsive trust and short on WMC, contemplating the partner's transgression promoted approach; they were quicker to identify positive traits in their partner in the reflective trust concerns than control condition, $\beta = -.31$, $t(69) = -2.11$, $sr^2 = .02$, $p < .05$. When participants were high on impulsive trust and not cognitively taxed, the partner's transgression promoted distancing; they were slower to identify positive traits in their partner in the reflective trust concerns than control condition, $\beta = .41$, $t(69) = 2.3.07$, $sr^2 = .04$, $p < .01$. In contrast, when participants were low on impulsive trust and short on WMC, the partner's transgression promoted distancing; they were slower to identify positive traits in their partner in the reflective trust concerns than control condition, $\beta = .29$, $t(69) = 2.01$, $sr^2 = .02$, $p < .05$. The

simple effect of reflective trust was not significant when people were low on impulsive trust and not cognitively taxed, $\beta = .01$, $sr^2 = .00$, $t(69) < 1$.

The regression analysis predicting reaction times to negative traits revealed a significant WMC by reflective trust interaction. When participants were cognitively taxed (i.e., low WMC), they tended to be quicker to identify negative traits in the partner transgression (M = 895.5) than control condition (M = 969.3), $\beta = -.19$, $t(69) = -1.54$, $sr^2 = .01$, $p = .13$. In contrast, when participants were not cognitively taxed (i.e., high WMC), they tended to be slower to identify negative traits in their partner in the partner transgression (M = 965.6) than control condition (M = 870.5), $\beta = .19$, $t(69) = 1.64$, $sr^2 = .02$, $p = .11$, suggesting that WMC can provide a resource in responding constructively to relationship threats (Finkel & Campbell, 2001).

Manipulation Check—Participants who recounted a time when their partner disappointed them felt significantly more hurt in thinking about the incident (M = 4.4) than control participants (M = 2.4).

Discussion

Study 5 revealed that impulsive trust is more likely to regulate self-protection when people are short on working memory capacity (and, thus, more likely to be swayed by the safety signal conveyed by their automatic evaluative associations to their partner). As expected, when people were low on impulsive trust and short on WMC, they distanced from a rejecting partner; they were slower to identify positive traits in their partner when contemplating their partner's failure to be responsive. In contrast, when people were high on impulsive trust and short on WMC, they approached a rejecting partner; they were actually faster to identify positive traits in their partner when contemplating their partner's failure to be responsive. Unexpectedly, when participants were high on impulsive trust and not cognitively taxed, they seemed to correct for their automatic impulse to approach; that is, they were slower to identify positive traits in their partner when threatened. We return to this effect in the General Discussion.

Study 6

Study 6 examines whether impulsive trust also regulates overtly self-protective behavior for people who are short on working memory capacity. We again manipulated both reflective trust and WMC. To threaten reflective trust, we had participants read a vignette about a fictitious couple, one that highlighted the myriad of ways in which a partner eventually could fail to be responsive (Cavallo, Fitzsimons & Holmes, 2009). To deplete WMC, we again asked participants to write an essay without using the letters A or N (Schmeichel, 2007). We then measured automatic approach vs. avoidance inclinations as in prior studies. We also included an explicit measure of the willingness to depend on the partner in situations where the partner has an incentive to be selfish. We expected people to be swayed by the safety signal conveyed by impulsive trust when WMC was depleted. Specifically, we expected people who were low on impulsive trust and short on WMC to distance from a partner they perceived to be rejecting, in both their automatic and controlled responses. However, we expected people who were high on impulsive trust and low on WMC to approach and depend on a potentially rejecting partner.

Participants

One hundred twenty-two people involved in exclusive relationships participated. Fourteen were eliminated (3 for not following instructions, 7 for suspicion, 2 for latencies below 300 milliseconds on more than 10% of the IAT trials, and 2 for being extreme outliers on

relationship length), leaving 108 (48 men). Participants averaged 19.3 years of age (SD= 2.4); relationships averaged 20.1 months in length (SD = 15.1).

Procedure

Participants believed the study examined cognition and relationships. They first completed demographic questions, the partner IAT (as in Study 3), and the practice trials for the partner categorization measure (as in Study 4). Participants in the reflective trust concerns condition then read a series of vignettes about a fictitious couple, designed by Cavallo et al. (2009) to undermine trust in the partner's responsiveness. The preamble to the vignettes noted that most couples overestimate the quality of their relationships. The vignettes then illustrated how each partner in this couple overestimated the other's motivation to be responsive. For instance, Katie became frustrated when Brad repeatedly interrupted her and the commentary noted that such interruptions mean that the partner does not care about listening. Participants in the control condition read a similar series of vignettes. However, the preamble noted that most couples underestimate the quality of their relationships and the vignettes illustrated how each partner in the couple underestimated the other's motivation to be responsive. We then manipulated WMC (high load vs. low load) as in Study 5. Next, participants completed the target trials for the partner categorization task tapping automatic approach vs. avoidance inclinations as described in Study 4, the measure of willingness to depend on the partner in risky situations described in Study 3 ($\alpha = .83$), and a manipulation check tapping reflective trust concerns, as indexed by worry about the partner's caring and commitment. Participants were probed for suspicion and debriefed. (Cell sizes in each combination of experimental conditions ranged from 24–30).

Measures

Manipulation check—Three items ($\alpha = .74$) tapped concern about the partner's caring and commitment fading (e.g., "I worry about my partner's affection and caring for me diminishing", 1 = not at all true, 7 = completely true).

Results

We conducted regression analyses predicting each dependent measure as described in Study 5. We discuss the highest order significant effects. Table 5 contains the results.

Implicit Approach vs. Avoidance—The regression analysis predicting reaction times to negative traits revealed a significant 3-way impulsive trust (i.e., partner IAT) by WMC by reflective trust interaction. The two-way WMC by reflective trust interaction was opposite in nature for participants high on impulsive trust, $\beta = .15$, $t(95) = 1.75$, $sr^2 = .01$, $p = .08$, and participants low on impulsive trust, $\beta = -.11$, $t(95) = -1.30$, $sr^2 = .01$, $p = .20$. Figure 5 presents the predicted scores.

When participants were high on impulsive trust and short on WMC, threatening reflective trust promoted approach; they were slower to identify negative traits in their partner in the reflective trust concerns than control condition, $\beta = .32$, $t(95) = 2.71$, $sr^2 = .02$, $p < .05$. In contrast, when participants were high on impulsive trust and not cognitively taxed, threatening reflective trust had no significant effect, $\beta = .01$, $sr^2 = .00$, $t(95) < 1$. In contrast, when participants were low on impulsive trust and short on WMC, threatening reflective trust provoked distancing; they were faster to identify negative traits in their partner in the reflective trust concerns than control condition, $\beta = -.31$, $t(95) = -2.36$, $sr^2 = .02$, $p < .05$. The simple effect of reflective trust was not significant when people were low on impulsive trust and not taxed, $\beta = -.09$, $sr^2 = .00$, $t(95) < 1$.

Willingness to Depend on Partner—The regression analysis predicting willingness to depend on the partner also revealed a significant 3-way interaction. The two-way working memory capacity by reflective trust interaction was significant for participants high on impulsive trust, $\beta = .34$, $t(98) = 2.29$, $sr^2 = .05$, $p < .05$, but not for participants low on impulsive trust, $\beta = -.11$, $t(98) < 1$, $sr^2 = .01$. Figure 6 presents the predicted scores. As expected, when participants were high on impulsive trust and short on WMC, threatening reflective trust again promoted approach; they were more willing to depend on their partner in the reflective trust concerns than control condition, $\beta = .39$, $t(98) = 2.04$, $sr^2 = .04$, $p < .05$. No other simple effect of reflective trust concerns was significant.

Manipulation Check—The regression predicting concern about the partner's caring revealed a marginal main of effect the manipulation, such that participants in the reflective trust concerns condition tended to report greater concern (M = 2.3) than controls (M = 1.9), $p < .07$. It also revealed a significant impulsive trust by WMC interaction, suggesting that impulsive trust is more likely to inform reflective trust when WMC is depleted. For participants under cognitive load (i.e., low WMC), higher impulsive trust tended to predict less concern about the partner's caring, $\beta = -.25$, $t(100) -1.76$, $sr^2 = .03$, $p = .08$. In contrast, for participants not under load (i.e., high WMC), impulsive trust did not significantly predict concern, $\beta = .17$, $t(100) = 1.29$, $sr^2 = .01$.

Discussion

Study 6 revealed that impulsive trust is more likely to regulate automatic self-protection and overtly self-protective behavior when people are short on working memory capacity. As expected, when people were low on impulsive trust and short on WMC, they distanced from a rejecting partner; they were faster to identify negative traits in their partner in the reflective trust concerns than control condition. In contrast, when people were high on impulsive trust and short on WMC, they approached a rejecting partner; they were both slower to identify negative traits in their partner and more willing to depend on their partner in risky situations when their conscious beliefs about their partner's future caring and responsiveness were challenged.

General Discussion

Our dual process model of trust (Figure 1) posits that impulsive trust and reflective trust jointly regulate self-protection in relationships. As we hypothesized, people typically heed the safety signal supplied by impulsive trust when they are short on working memory capacity. In such circumstances, being high on impulsive trust inoculates against reflective trust concerns and short-circuits self-protection in both its automatic and controlled forms. In contrast, being low on impulsive trust amplifies reflective trust concerns and promotes self-protection.

The Respective Power of Impulsive and Reflective Trust

Studies 1 through 3 tested the hypothesis that automatic evaluative associations to the partner function as an impulsive form of trust – both fostering confidence in the partner's caring and commitment and the willingness to approach the partner. In Studies 1 and 2, subliminally conditioning more positive evaluative associations to the partner increased trust and closeness. In Study 3, people who were low in WMC, and thus, likely to heed the safety signal supplied by impulsive trust, reported greater willingness to depend on their partner in risky situations, the more positive their evaluative association to their partner on the IAT.

Studies 4 through 6 examined how impulsive trust and reflective trust jointly regulate automatic approach vs. avoidance inclinations and overt behavior. In Study 4, we activated

reflective trust concerns by leading experimental participants to believe that their partner (who was physically present) perceived a laundry list of faults in them. People who were low on impulsive trust (i.e., had less positive automatic evaluative responses to the partner on the IAT) automatically distanced; they were slower to associate their partner with positive traits in the reflective trust concerns than control condition. In contrast, people who were high on impulsive trust showed no signs of this automatic avoidance inclination.

Studies 5 and 6 revealed that impulsive trust has greater power to regulate self-protection when people are short on working memory capacity, and thus, less able to ignore the safety signal supplied by their automatic evaluative associations to the partner. In Study 5, we manipulated reflective trust concerns by focusing experimental participants on their partner's past transgression. People who were low on impulsive trust and under cognitive load (i.e., low WMC) distanced from a rejecting partner; they were slower to identify positive traits in their partner in the reflective trust concerns than control condition. However, people who were high on impulsive trust and cognitively taxed (i.e., low WMC) actually approached a rejecting partner; they were quicker to identify positive traits in their partner in the reflective trust concerns than control condition. In Study 6, we activated reflective trust concerns by leading experimental participants to believe that most people typically overestimate their partner's caring and responsiveness. People who were low on impulsive trust and cognitively taxed (i.e., low WMC) distanced themselves from a potentially rejecting partner; they were quicker to identify negative traits in their partner in the reflective trust concerns than control condition. However, people who were high on impulsive trust and under cognitive load (i.e., low WMC) again approached. They were not only slower to identify negative traits in their partner, but they also expressed greater conscious willingness to approach and depend on their partner in situations where their partner could behave selfishly.

The current findings are impressive in several respects. We demonstrated the power that impulsive trust has to signal the safety of approach utilizing both subliminally conditioned and pre-existing evaluative associations (i.e., IAT). We also demonstrated interactive effects of impulsive and reflective trust in regulating both automatic self-protective inclinations and relatively more controlled behaviors. Finally, we revealed how WMC moderates the power of impulsive trust through an individual difference measure (Study 3) and manipulations of cognitive load that both preceded (Study 5) and followed (Study 6) the threat to reflective trust.

Nonetheless, the present findings have some limitations. First, automatic self-protection inclinations surfaced in reaction times to positive traits in Studies 4 and 5 and reaction times to negative traits in Study 6. We suspect these differences are a property of the reflective trust manipulations we employed in each study, but this explanation is speculative. Second, in Study 5, people who were high on impulsive trust and not under cognitive load distanced in response to reflective trust concerns; that is, they were slower to identify positive traits in their partner when they recounted a time when their partner had disappointed them (as compared to controls). We hesitate to interpret this effect because Study 6 did not reveal a parallel effect. (Reflective trust concerns had no effect on reaction times to negative traits when people were high in impulsive trust and not cognitively taxed.) Third, being low on impulsive trust and low on WMC elicited automatic inclinations to self-protect and avoid the partner in Studies 5 and 6, but it did not provoke actual behavioral avoidance in Study 6. However, other research reveals such an effect. Married intimates who are low on impulsive trust and low in WMC treat their partner in a more cold and hostile way the greater their doubts about their partner's responsiveness. Such self-protective behaviors disappear among married intimates who are high on impulsive trust and low in WMC (Murray et al., unpublished data). Finally, although we selected the IAT because it is a highly validated

measure (Greenwald et al., 2008), our model should be tested using alternate measures of automatic evaluative associations.

In sum, the present findings support two major conclusions. One: Automatic evaluative associations to the partner function as a form of trust, one that has not been identified to this point. In fact, more positive automatic evaluative associations to one's partner function just as highly trusting conscious expectations function. More positive automatic evaluative associations to the partner and conscious feelings of trust both motivate approach and inoculate people against momentary concerns about their partner's responsiveness (Murray et al., 2006).

Two: Impulsive trust changes the safety signal conveyed by reflective trust, particularly when working memory capacity is in short supply. Doubting a partner's responsiveness elicited automatic inclinations to avoid the partner when people were low on impulsive trust and short on WMC. In contrast, doubting a partner's responsiveness actually turned into an invitation to approach the partner when people were high on impulsive trust and short on WMC. We suspect this compensation effect emerged for two related reasons. In ongoing interactions, experiencing concern about a partner's rejection might heighten the accessibility of the impulsive trust signal because it is likely to be the primary motivator of approach. Once on-line, being more impulsively trusting can change the threat value of the message conveyed by doubts about the partner's caring. Namely, for people in the habit of following their automatic impulses (i.e., those low in WMC), being high in impulsive trust may make dealing with relational concerns a more positive experience, one that elicits a promotion-focused and constructive orientation. Consistent with this logic, people who are high in impulsive trust and low in WMC actually evidence greater physical and psychological resilience when led to believe their partner perceives a long list of their faults (i.e., challenge: increased cardiac output, decreased total peripheral resistance, and decreased apprehension about being evaluated by the partner, as compared to controls). In contrast, people who are low in impulsive trust and low in WMC evidence less physical and psychological resilience in the same rejecting circumstance (i.e., threat: decreased cardiac output, increased total peripheral resistance, and greater apprehension about being evaluated by the partner, Murray, Lupien & Seery, 2011).

Such findings suggest that future research might profitably explore untested implications of our model. Our studies focused on how being more or less impulsively trusting regulates self-protection in response to state reflective trust concerns. We adopted this approach because heightening doubt about a partner's responsiveness provokes self-protection, our dependent variable of interest (Murray et al., 2006). Nonetheless, our model also suggests that being low on impulsive trust might disrupt the normal benefits attached to consciously expecting one's partner to be responsive. For instance, someone who is low on impulsive trust and somehow depleted (e.g., tired, low working memory capacity) might hesitate to seek their partner out for support even though they consciously trust in their partner's responsiveness. Further research might also explore how impulsive and reflective trust influence one another over time. Such research could help unravel why both sentiments are needed to effectively navigate through interdependent situations. For instance, being more reflectively trusting might help sustain relationships when ongoing stressors, like the birth of a first child, make one's automatic evaluative association to the partner more negative.

Conclusion

Because the unconscious mind can sometimes know things that escape the conscious mind, the current paper advanced a dual process model of trust. The studies revealed that automatic evaluative associations to the partner – that is, impulsive trust – signal the safety of approach in ways that regulate self-protective responses to rejection. Indeed, being more

impulsively trusting can function as a relationship-resource in preempting some of the self-protective defenses that can lead to relationship dissatisfaction and dissolution.

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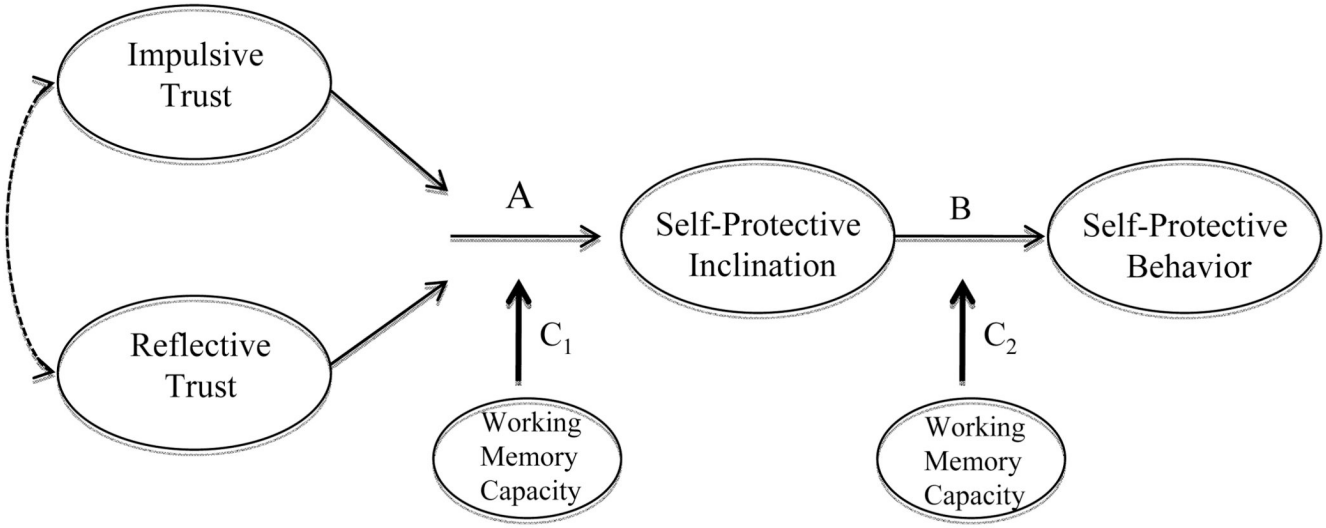

Figure 1.
A Dual Process Model of Trust and Self-Protection in Close Relationships

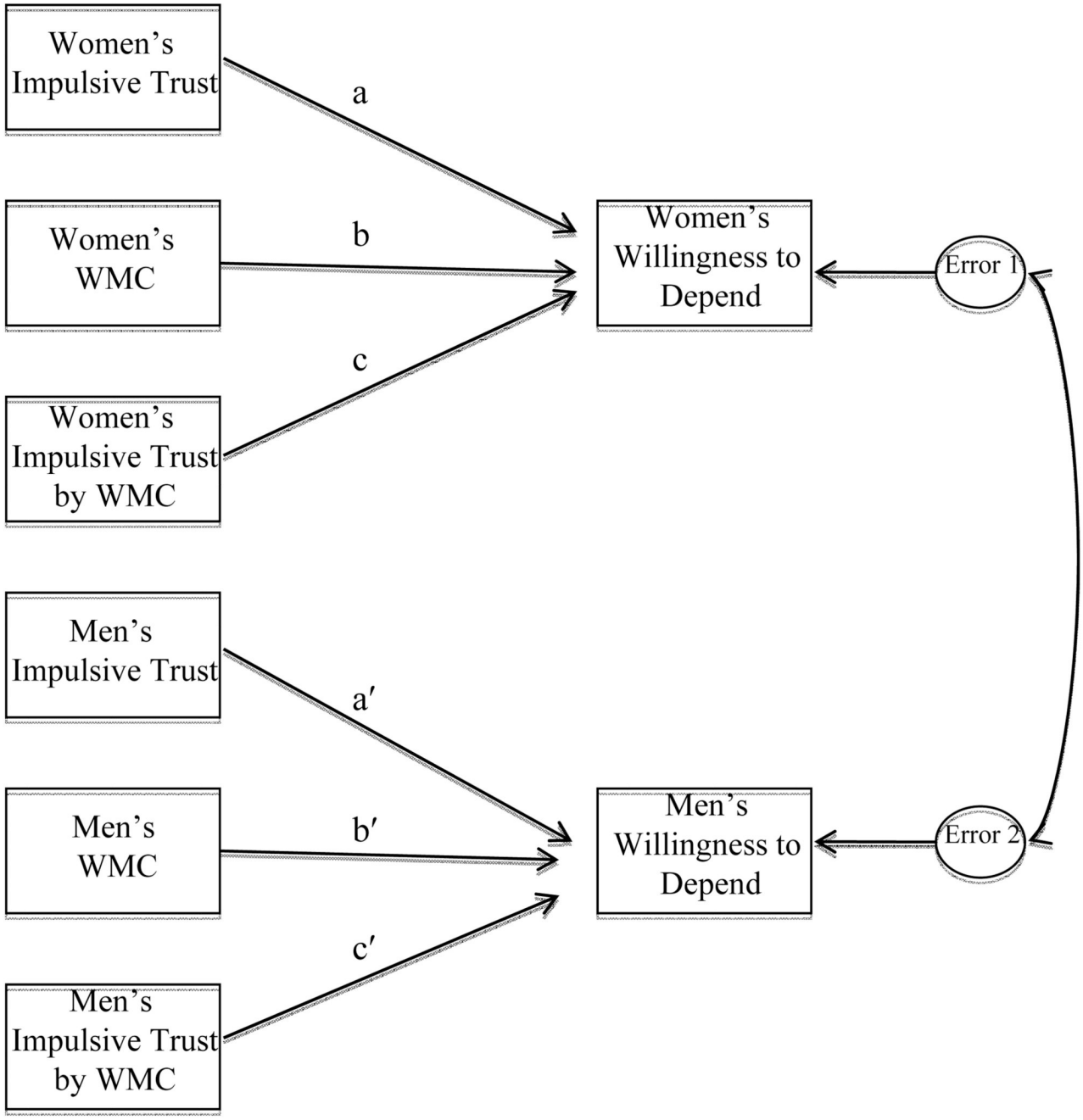

Figure 2.
SEM model predicting willingness to depend on the partner from impulsive trust, WMC, and the interaction.

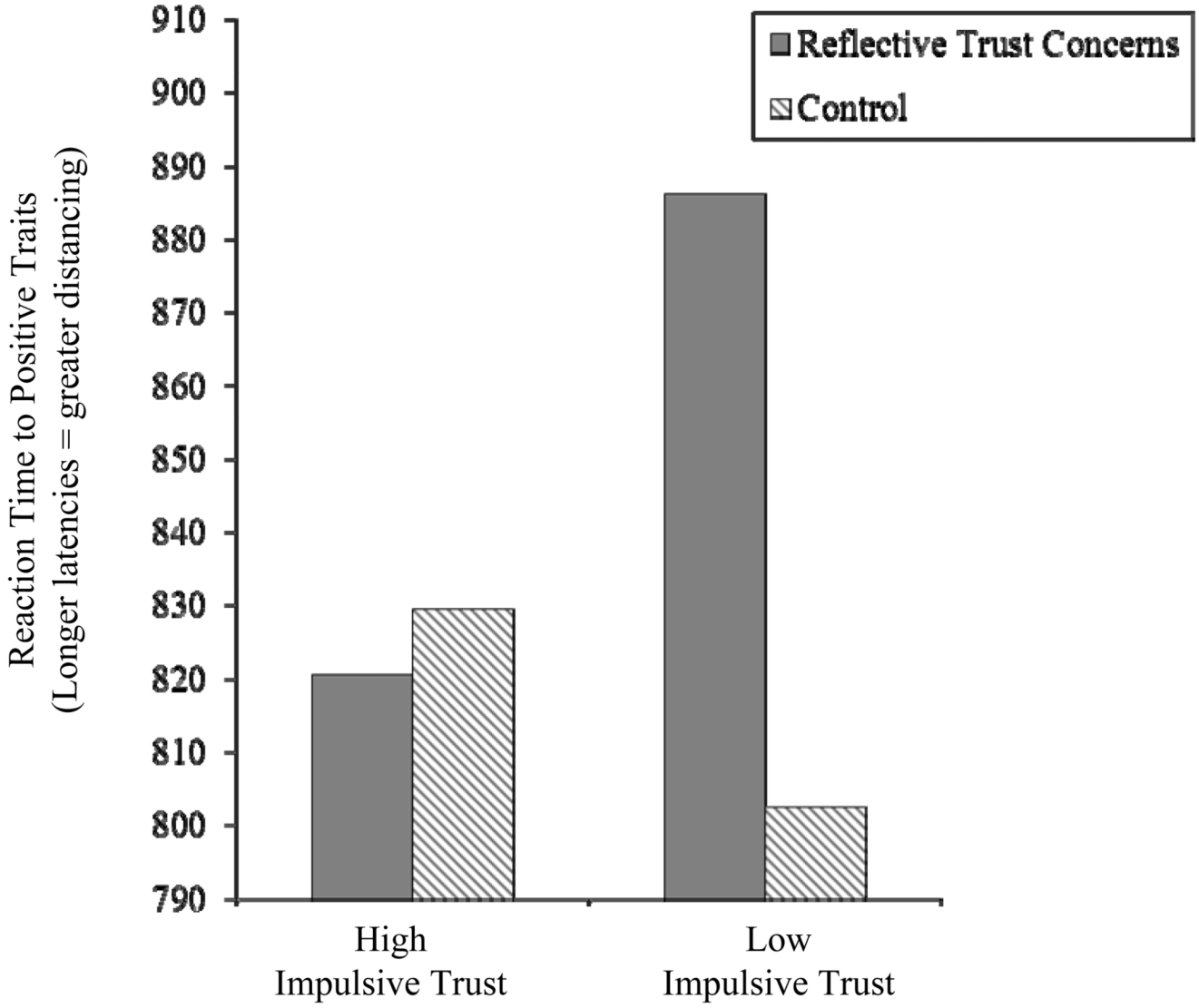

Figure 3.
Automatic Approach vs. Avoidance Inclinations as a Function of Impulsive Trust and Reflective Trust Concerns in Study 4.

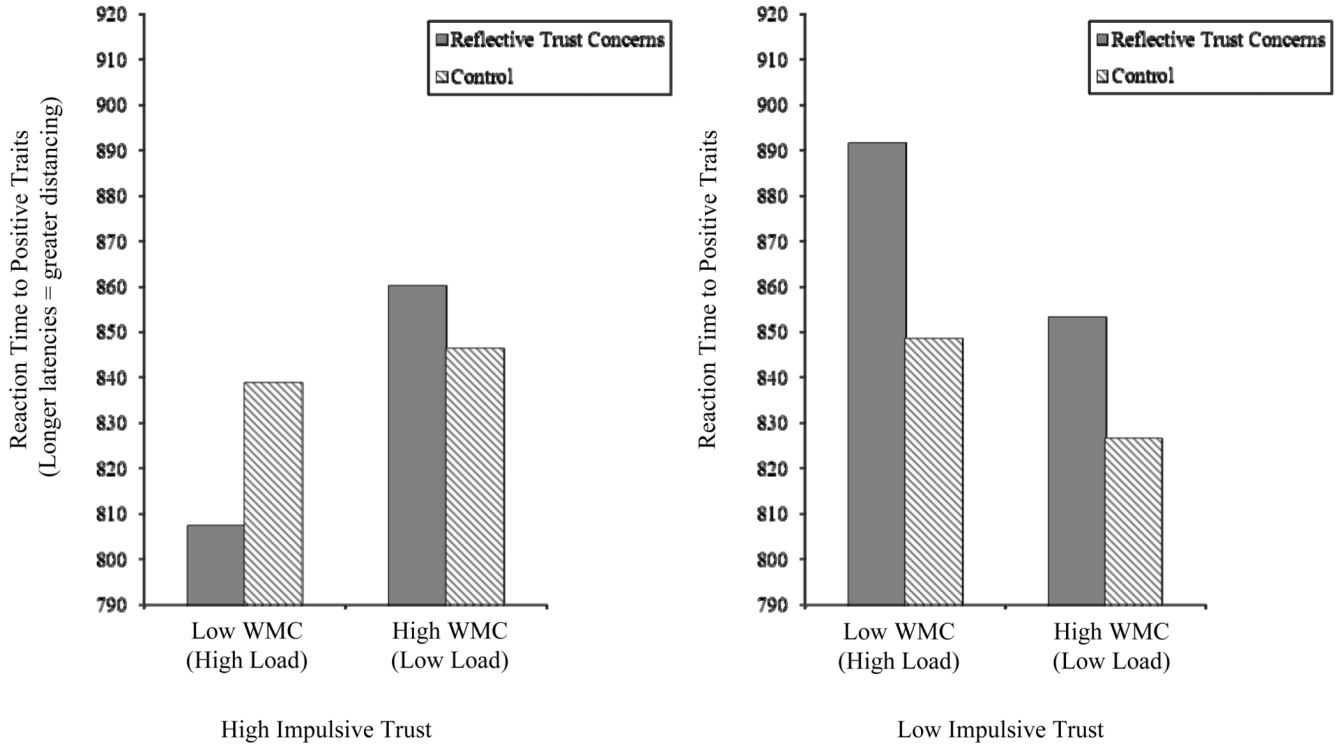

Figure 4.
Automatic Approach vs. Avoidance Inclinations as a Function of Impulsive Trust, Reflective Trust Concerns, and Working Memory Capacity in Study 5.

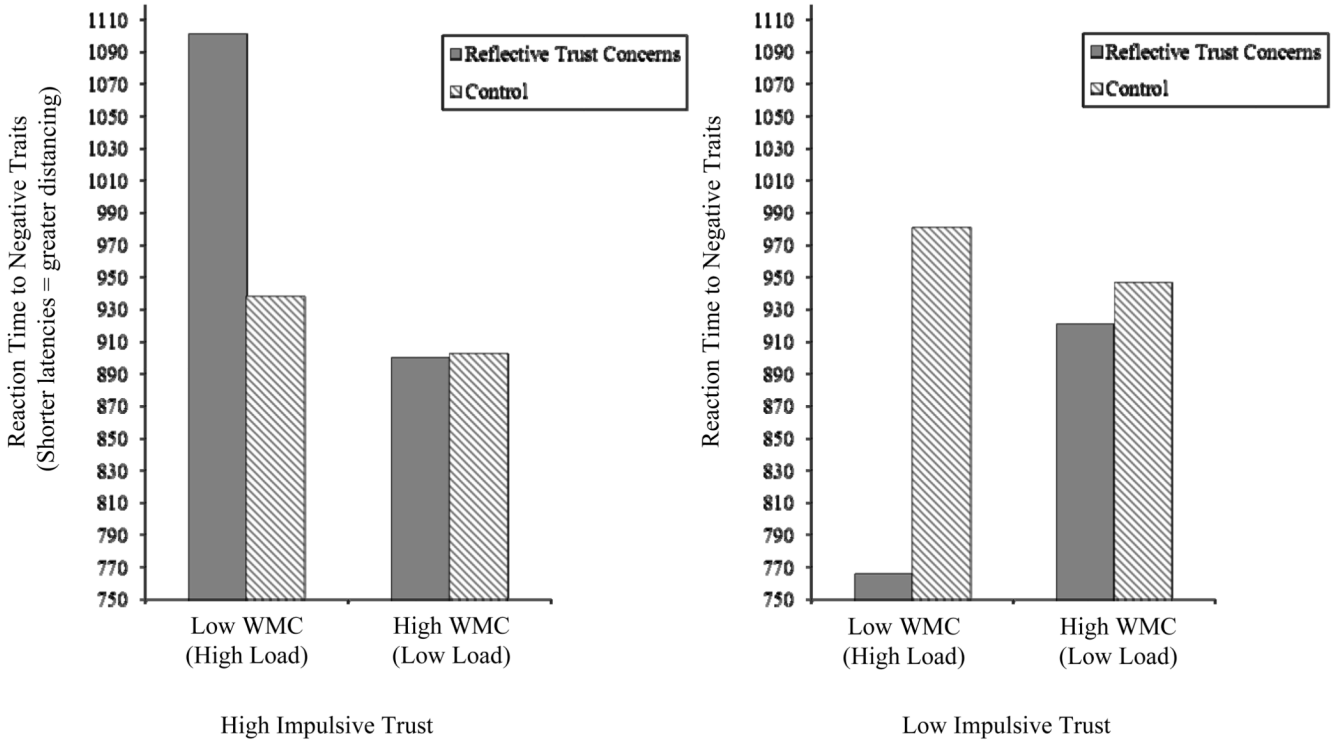

Figure 5.
Automatic Approach vs. Avoidance Inclinations as a Function of Impulsive Trust, Reflective Trust Concerns, and Working Memory Capacity in Study 6.

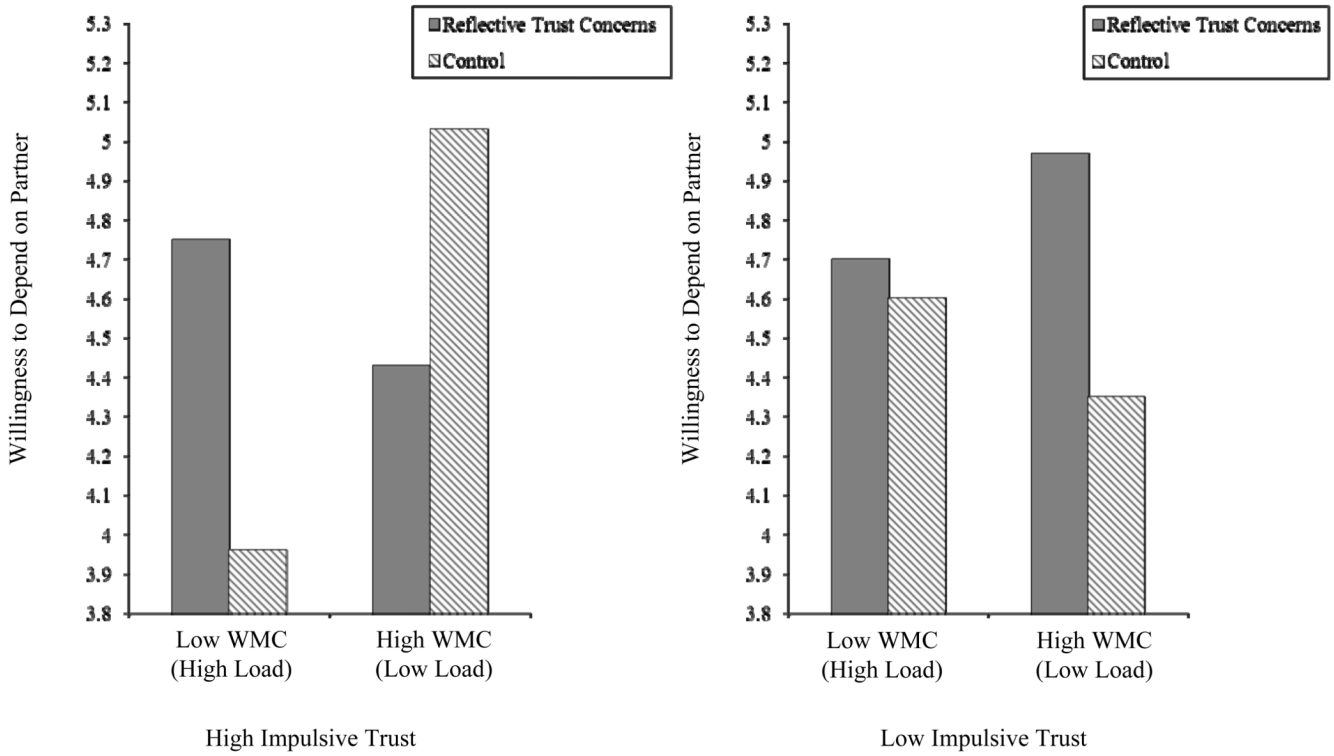

Figure 6.

Approach vs. Avoidance Behavior as a Function of Impulsive Trust, Reflective Trust Concerns, and Working Memory Capacity in Study 6.

Table 1

Summary of regression analyses for Study 2.

	Trust[a]			Closeness[a]			Evaluation of Partner[a]		
Predictor	**β**	**t**	**sr²**	**β**	**t**	**sr²**	**β**	**t**	**sr²**
How long ago	−.40	−4.76**	.16	−.21	−2.38*	.04	−.41	−4.93**	.17
Impulsive trust vs. neutral conditioning (C1)	−.20	−2.04*	.03	−.23	−2.24*	.04	−.11	−1.17	.01
Impulsive trust vs. positive prime (C2)	−.21	−2.19*	.03	−.13	−1.24	.01	−.13	−1.28	.01
Reflective trust condition	−.02	< 1	.00	−.04	< 1	.00	−.08	< 1	.01
C1 Contrast by reflective trust	.11	< 1	.00	.20	1.19	.00	.24	1.58	.02
C2 Contrast by reflective trust	.17	1.08	.01	.04	< 1	.01	.10	< 1	.00

*p < .05,

**p < .01.

[a]Degrees of freedom: first (122), second (119), third (117).

Table 2

Results of SEM analyses for Study 3.

	Willingness to Depend on Partner		
Predictor	**b**	**z**	**sr^2**
Working memory capacity (WMC)	−.07	−0.80	.00
Impulsive trust	.03	0.33	.01
WMC by impulsive trust	−.21	−2.32*	.08

* $p < .05$.

CFI = 1.00, RMSEA = .00, $\chi^2(9, N = 63) = 7.03$, ns.

Table 3

Summary of regression analyses for Study 4.

	Reaction Times Positive Traits [a]			Reaction Times Negative Traits [a]			Number Faults Listed [b]		
Predictor	**β**	**t**	**sr^2**	**β**	**t**	**sr^2**	**β**	**t**	**sr^2**
Object words	.23	3.28*	.04	.14	1.73+	.01	--	--	--
Acceptance words	.44	5.60**	.11	.36	4.02**	.07	--	--	--
Rejection words	.35	4.42**	.07	.44	4.93**	.11	--	--	--
Impulsive trust	−.03	< 1	.00	−.01	< 1	.00	.18	1.73+	.03
Reflective trust	.12	2.05*	.01	−.03	< 1	.00	.34	3.23**	.11
Impulsive trust by reflective trust	−.18	−2.54*	.02	−.05	< 1	.00	.10	< 1	.01

+ p < .10,

* p < .05,

** p < .01.

[a] Degrees of freedom: first (80), second (78), third (77).

[b] Degrees of freedom: first (76), second (75).

Table 4

Summary of regression analyses for Study 5.

	Reaction Times Positive Traits [a]			Reaction Times Negative Traits [a]			Manipulation check [b]		
Predictor	**β**	**t**	**sr²**	**β**	**t**	**sr²**	**β**	**t**	**sr²**
How long ago	−.10	−1.47	.01	−.01	< 1	.00	−.00	< 1	.00
Object words	.27	3.29**	.05	−.06	1.49	.00	--	--	--
Acceptance words	.48	5.38**	.13	.17	1.58	.02	--	--	--
Rejection words	.20	2.40*	.03	.65	6.45**	.26	--	--	--
Impulsive trust	.12	1.69+	.01	.07	< 1	.01	−.04	< 1	.00
Reflective trust	.09	1.23	.01	.02	< 1	.00	.50	4.83**	.23
WMC	.02	< 1	.00	.02	< 1	.00	−.04	< 1	.00
Impulsive trust by reflective trust	−.01	< 1	.00	.06	< 1	.00	−.05	< 1	.00
Reflective trust by WMC	−.11	−1.50	.01	−.19	−2.30*	.03	−.12	−1.19	.01
Impulsive trust by WMC	−.00	< 1	.00	.09	1.02	.01	.00	< 1	.00
Impulsive trust by reflective trust by WMC	−.25	−3.60**	.05	−.13	−1.51	.01	.01	< 1	.00

+ $p < .10$,

* $p < .05$,

** $p < .01$.

[a] Degrees of freedom: first (76), second (73), third (70), fourth (69).

[b] Degrees of freedom: first (71), second (64), third (58), fourth (54).

Table 5

Summary of regression analyses for Study 6.

	Reaction Times Positive Traits [a]			Reaction Times Negative Traits [a]			Willingness to Depend on Partner [a]			Manipulation check [b]		
Predictor	**β**	**t**	**sr²**	**β**	**t**	**sr²**	**β**	**t**	**sr²**	**β**	**t**	**sr²**
Object words	.05	< 1	.00	−.07	< 1	.00	--	--	--	--	--	--
Acceptance words	.55	7.85**	.13	.45	4.65**	.09	--	--	--	--	--	--
Rejection words	.36	5.04**	.05	.42	4.25**	.07	--	--	--	--	--	--
Impulsive trust	.02	< 1	.00	.15	2.24*	.02	−.04	< 1	.00	−.03	< 1	.00
Reflective trust	.01	< 1	.00	.01	< 1	.00	.14	1.39	.02	.18	1.84+	.03
WMC	−.03	< 1	.00	.08	1.2	.01	−.08	< 1	.01	.05	< 1	.00
Impulsive trust by reflective trust	.08	1.64	.01	.17	2.82**	.03	−.05	< 1	.00	.12	1.21	.01
Reflective trust by WMC	.04	< 1	.00	.02	< 1	.01	.10	1.01	.01	−.09	< 1	.01
Impulsive trust by WMC	.05	< 1	.00	.18	2.93**	.03	−.08	< 1	.01	−.20	−2.04*	.04
Impulsive trust by reflective trust by WMC	.03	< 1	.00	.13	2.14*	.02	.21	2.15*	.04	.12	1.27	.01

+ $p < .10$,

* $p < .05$,

** $p < .01$.

[a] Degrees of freedom: first (102), second (99), third (96), fourth (95).

[b] Degrees of freedom: first (104), second (101), third (100).