

## Commitment, Pro-Relationship Behavior, and Trust in Close Relationships

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The present work advances and tests an interdependence-based model of the associations among commitment, pro-relationship behavior, and trust. Findings from two longitudinal studies revealed good support for model predictions. Commitment-inspired acts such as accommodation and willingness to sacrifice provide diagnostic information regarding a partner's pro-relationship motives. Individuals come to trust their partners when they perceive that their partners have enacted pro-relationship behaviors, departing from their direct self-interest for the good of the relationship. The results of mediation analyses are consistent with a model of mutual cyclical growth in which (a) dependence promotes strong commitment, (b) commitment promotes pro-relationship acts, (c) pro-relationship acts are perceived by the partner, (d) the perception of pro-relationship acts enhances the partner's trust, and (e) trust increases the partner's willingness to become dependent on the relationship. Auxiliary analyses revealed that self-reported attachment style does not account for substantial variance beyond the features of interdependence that form the basis for the present model.

The more he treated her as though she were really very nice, the more Lotty expanded and became really very nice, and the more he, affected in his turn, became really very nice himself; so that they went round and round, not in a vicious but in a highly virtuous circle.

—Elizabeth von Arnim, *The Enchanted April*

Sometimes involvement with a close partner is simple. When partners' goals correspond and their behavioral preferences are compatible, partners can readily achieve desirable outcomes such as intimacy, companionship, and security. It is easy to behave well and do the right thing when interdependence structure is congenial. The true test of a relationship arises when circumstances are not so congenial—when partners encounter dilemmas involving conflicted interaction, incompatible preferences, or extrarerelationship temptation. In dilemmas of this sort the immediate interests of the individual are incompatible with the interests of the relationship, and something must give.

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What leads partners to behave well when they encounter interdependence dilemmas? Why are some partners willing to forego immediate self-interest and promote the interests of their relationships whereas others are disinclined to do so? What are the consequences of pursuing self-interest rather than the interests of one's relationship? This article proposes that two constructs—commitment and trust—play central roles in shaping motivation and behavior in ongoing relationships. Our model combines concepts identified by Rusbult and her colleagues in their analysis of commitment processes (Rusbult, Drigotas, & Verette, 1994) with concepts identified by Holmes and Rempel (1989) in their analysis of trust. These theoretical analyses are highly complementary, in that both analyses rest on concepts from interdependence theory (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959).

We begin by suggesting that transformation of motivation shapes preferences and behavior in everyday interdependence dilemmas. Next we introduce the concept of commitment, describing the bases of commitment and outlining the role of commitment in promoting pro-relationship behavior. Then we describe the emergence of trust, characterizing trust as a reflection of the partner's commitment and benevolent intentions; that is, we describe trust as an implicit gauge of the extent and reliability of a partner's pro-relationship motivation. Finally, we present the results of two longitudinal studies designed to test our general model.

#### Transformation of Motivation and Pro-Relationship Behavior

An interdependence dilemma is a "dilemma" because it involves conflicting motives. On the one hand, there may be compelling reasons to pursue immediate self-interest. On the other hand, there

may be compelling reasons to promote the interests of one's relationship. Resolving interdependence dilemmas therefore entails some degree of effort or personal cost. For example, if Mary enacts a rude or hostile behavior, John's immediate impulse may be to behave rudely in return. John may feel demeaned, he may wish to defend his dignity, or he may seek to gain some measure of revenge. The impulse to reciprocate negativity—to defend oneself in the face of attack—appears to be quite strong (Rusbult, Verette, Whitney, Slovik, & Lipkus, 1991; Yovetich & Rusbult, 1994). However, a retaliative act on John's part is likely to escalate conflict, producing a hostile interaction that could harm his relationship with Mary. Thus, John's direct, self-interested impulses are at odds with the interests of his relationship. From a strictly personal point of view, the loss of pride John would suffer if he were to swallow Mary's insult may seem more unpleasant than the unpleasantness associated with retaliating, further irritating Mary, and harming their relationship. Thus, if John is to behave in a manner as to benefit his relationship, he must swallow his pride, control his impulse toward retaliation, and find it in himself to behave in a conciliatory manner.

The interdependence theory distinction between the given situation and the effective situation provides a framework for understanding what makes some partners willing to endure cost or exert effort to ensure the well-being of their relationships (Kelley & Thibaut, 1978). The *given situation* refers to each partner's immediate well-being in a specific situation, describing what we assume to be each person's "gut level," self-centered preferences (e.g., the impulse to retaliate when Mary behaves in a hostile manner). It should be clear that people do not necessarily pursue their given preferences. Frequently, behavior is shaped by broader concerns, including strategic considerations, long-term goals, or desire to promote both one's own and a partner's well-being. Movement away from given preferences results from *transformation of motivation*, a process that leads individuals to relinquish their immediate self-interest and act on the basis of broader considerations. The *effective situation* describes the modified preferences that are assumed to result from the transformation process; reconceptualized, effective preferences are argued to guide behavior (e.g., accommodating rather than retaliating when Mary behaves in a hostile manner).

The transformation process may produce a variety of orientations (Kelley & Thibaut, 1978; McClintock, 1972). In well-functioning relationships the transformation process frequently yields pro-relationship motives, producing a shift from desire to maximize one's immediate self-interest (MaxOwn) toward pro-relationship orientations such as desire to maximize the partner's interests (MaxOther) or joint interests (MaxJoint; Yovetich & Rusbult, 1994). At the same time, antirelationship transformation is also possible (e.g., desire to maximize the difference between one's own and the partner's interests, or MaxRel).

In light of the variety of transformational tendencies that partners might display, interdependence dilemmas can be construed as *diagnostic situations* (Holmes & Rempel, 1989; such situations have also been described as "strain tests"; cf. Kelley, 1983a). Interdependence dilemmas are "diagnostic" in the sense that behavior in such situations is revealing of the individual's broader goals, values, and motives. Does John resolve a specific dilemma by pursuing his immediate self-interest, or does he set aside self-interest for the good of the relationship? If John reacts to

Mary's rudeness by swallowing his pride and accommodating, such a departure from his gut-level self-interest demonstrates his benevolent feelings for Mary and his constructive goals for their relationship.

Relatively stable transformational tendencies are argued to emerge as a result of adaptation. Specific dilemmas initially are experienced as unique problems, the resolution of which may result from either controlled or automatic consideration of the dilemma (cf. Uleman & Bargh, 1989). For example, to resolve a given dilemma John may engage in active thought, reviewing his options, analyzing surrounding circumstances, considering his goals for the future, and deciding whether to pursue self-interest or the interests of the relationship. Alternatively, John may react in an automatic or impulsive manner, on the basis of his immediate preferences. Either way, experience is acquired.

Over time, some dilemmas will be experienced repeatedly. As a result of adaptation, individuals presumably develop habitual tendencies to react to specific dilemmas in specific ways, such that transformation may occur quite rapidly, with little or no conscious thought (Kelley, 1983b). At critical choice points individuals may continue to engage in active decision making, but just as often transformation of motivation may be guided by habit. In some relationships, partners may routinely engage in pro-relationship transformation, whereas in other relationships partners may routinely react selfishly or in a manner that is antithetical to the well-being of the relationship. Thus, it becomes important to identify the bases of stable transformational tendencies.

### Commitment Processes

Consistent with other characterizations of the commitment process (cf. M. P. Johnson, 1991; Levinger, 1979), we suggest that commitment reliably promotes pro-relationship motivation and behavior (Rusbult et al., 1994). *Commitment level* represents long-term orientation toward a relationship, including intent to persist and feelings of psychological attachment (Rusbult, 1983; Rusbult et al., 1994). Commitment develops as a result of changes over time in three aspects of dependence. Individuals become increasingly dependent on their relationships—and become increasingly committed—to the degree that (a) *satisfaction level* is high, or the relationship gratifies the individual's most important needs (e.g., needs for intimacy, companionship, sexuality); (b) *quality of alternatives* is poor, or the individual's most important needs could not be gratified independent of the relationship (e.g., on one's own, in alternative romantic involvements, by friends or family members); and (c) *investment size* is high, or numerous resources have become attached to the relationship (e.g., time and effort, joint possessions, shared friendship network).

Commitment reliably promotes *persistence in a relationship* (e.g., Bui, Peplau, & Hill, 1996; Drigotas & Rusbult, 1992; Felmlee, Sprecher, & Bassin, 1990; Rusbult, 1983). Moreover, commitment promotes a variety of so-called maintenance acts, including (a) *disparagement of alternatives*, or tendencies to drive away or derogate tempting alternative partners (D. J. Johnson & Rusbult, 1989; Miller, 1997); (b) *willingness to sacrifice*, or tendencies to forego desired activities for the good of a relationship (Van Lange et al., 1997); and (c) *accommodative behavior*, or tendencies to accommodate rather than retaliate when a partner behaves poorly (Rusbult et al., 1991). In addition, commitment promotes cognitive

tendencies such as (d) *cognitive interdependence*, or tendencies to think in terms of “we, us, our” rather than “I, me, mine” (Agnew, Van Lange, Rusbult, & Langston, 1998); and (e) *positive illusion*, or tendencies toward excessively favorable evaluations of one’s partner or relationship (Murray, Holmes, & Griffin, 1996; Rusbult, Van Lange, Yovetich, Wildschut, & Verette, 1999).

Existing research is compatible with the claim that commitment-inspired maintenance acts result from transformation of motivation (e.g., Rusbult et al., 1991; Van Lange et al., 1997; Yovetich & Rusbult, 1994). For example, when confronted with accommodative dilemmas, individuals given plentiful reaction time (i.e., time for transformation) react more constructively than do those given limited reaction time; this discrepancy is not evident for situations that do not require transformation of motivation. In addition, existing evidence suggests that maintenance acts are associated with couple well-being (e.g., Murray et al., 1996; Rusbult, Bissonnette, Arriaga, & Cox, 1998; Van Lange et al., 1997), operationally defined as (a) probability of persisting and (b) scores on the Dyadic Adjustment Scale (Spanier, 1976), a frequently used measure of quality of couple functioning.

Four features of commitment may explain why this variable reliably promotes pro-relationship transformation. First, committed individuals are dependent and literally need their relationships—the relationship provides desirable outcomes, investments are sizeable, or alternatives are poor. The more individuals stand to lose, the more effort they will exert to hold on to what they’ve got (cf. Holmes, 1981). Second, commitment involves long-term orientation. In long-term involvements it is beneficial to develop patterns of reciprocal pro-relationship behavior. Thus, pro-relationship acts may represent a means of encouraging reciprocity, thereby maximizing long-term self-interest (cf. Axelrod, 1984). Also, with long-term orientation the costs of foregoing self-interest are aggregated over a longer time perspective and in light of the partner’s reciprocal departures from self-interest (cf. Kelley, 1983a). Third, commitment involves psychological attachment. The self and the partner may become linked to the extent that a departure from self-interest benefitting the partner may not be experienced as personally costly (cf. Aron & Aron, 1997). And fourth, commitment may induce a collectivistic, communal orientation, including tendencies to respond to a partner’s needs in a rather unconditional manner. In a committed, communally oriented relationship, partners may endure costs or exert effort without counting what they receive in return (cf. Clark & Mills, 1979).

### Interpersonal Trust

Thus far we have emphasized individual-level processes: We have argued that *individuals* who are highly committed exhibit pro-relationship transformation of motivation, and we have suggested that such motivation makes *individuals* willing to depart from their immediate self-interest in interdependence dilemmas. However, this individual-level description presents only half of the picture in understanding behavior in ongoing relationships. In developing an interdependence-based explanation of pro-relationship behavior, it is equally important to understand how such individual-level processes influence *partners* (cf. Hinde, 1979).

Given that commitment plays a central role in relationships, it would be adaptive for partners to implicitly or explicitly attend to

one another’s commitment levels. Why so? First, commitment and dependence make individuals vulnerable; such vulnerability is reduced when the partner is equally vulnerable (equal vulnerability represents balance of power). Second, couple well-being has been shown to rest on both level of commitment and mutuality of commitment (Drigotas, Rusbult, & Verette, in press; cf. Holmes & Rempel, 1989; Kelley, 1983a). Third, maintenance acts follow the principle of reciprocity—we are more willing to enact pro-relationship behaviors to the degree that the partner is expected to do so (Rusbult, Bissonnette, et al., 1998; Van Lange et al., 1997). To the extent that achieving and sustaining equal dependence, mutual commitment, and reciprocity of pro-relationship acts rest on knowledge of a partner’s commitment, an implicit gauge of the partner’s commitment would seem to have considerable functional value. We suggest that relationship-specific trust is such a gauge.

Most theory and research concerning trust has examined this phenomenon as a disposition—as a relatively enduring personal attribute that is assumed to yield considerable stability in cognition, affect, and behavior across a variety of situations and across a variety of interaction partners. For example, Rotter (1980) described trust as a personality trait, and attachment theory emphasizes the ways in which early attachment experiences influence mental models of attachment, which in turn shape later inclinations to trust close partners (cf. Hazan & Shaver, 1994; Reis & Patrick, 1996).

In the present context it is suitable to describe trust as an interpersonal phenomenon, construing trust not as a stable trait but as a quality that is specific to a particular relationship with a particular partner (cf. Hinde, 1979). Toward this goal, Holmes and his colleagues have conceptualized trust as a relationship-specific phenomenon, defining *trust level* as the expectation that a given partner can be relied on to behave in a benevolent manner and be responsive to one’s needs (Holmes, 1989; Rempel, Holmes, & Zanna, 1985; Sorrentino, Holmes, Hanna, & Sharp, 1995).

Trust is said to include three components (Holmes & Rempel, 1989): (a) *predictability*, or belief that the partner’s behavior is consistent; (b) *dependability*, or belief that the partner can be counted on to be honest, reliable, and benevolent; and (c) *faith*, or conviction that the partner is intrinsically motivated to be responsive and caring—belief that the partner’s motives go beyond instrumental bases for benevolence. Each component is argued to be a necessary feature of trust.

How do we develop conviction that our partners are predictable and dependable, and how do we develop faith that our partners consistently will be responsive to our needs? Over the course of extended involvement, partners inevitably confront situations in which personal interests are pitted against the interests of the relationship; that is, individuals encounter the sorts of interdependence dilemmas or “strain tests” described earlier. In such situations, individuals implicitly make a choice: “Should I do what’s good for me, or should I put my partner’s needs before my own?” As noted earlier, Holmes and Rempel (1989) suggested that the emergence of trust rests on the manner in which individuals are perceived to behave during such episodes. Episodes of this sort are termed *diagnostic situations*, in recognition of the fact that behavior in such situations is diagnostic of the individual’s broader goals, values, and motives.

We suggest that commitment-inspired maintenance acts are diagnostic of pro-relationship orientation. Accommodation and

sacrifice may provide particularly unambiguous evidence of benevolent motives, in that when individuals accommodate rather than retaliate—and when they sacrifice otherwise desirable activities to solve problems of noncorrespondence—they demonstrate that they are willing to behave toward the partner in a generous and giving manner. To some extent, cognitive maintenance tendencies may provide parallel evidence, especially insofar as such tendencies are seen to involve exceptional effort or cost. If it is true that the benevolent acts promoted by commitment provide evidence regarding strength of pro-relationship orientation, then trust can be construed as a mirror reflecting the strength of a partner's commitment.

As partners develop increased trust in one another they are likely to become increasingly dependent on one another; that is, they are likely to become increasingly satisfied with the relationship, increasingly willing to forego alternatives, and increasingly willing to invest in the relationship (Holmes & Rempel, 1989). As John becomes increasingly confident that Mary will be responsive to his needs, he is likely to experience enhanced satisfaction with their relationship. Moreover, as John's trust grows, he should be more willing to make himself vulnerable by cognitively or behaviorally driving away alternatives, and he should be more willing to

throw in his lot with Mary by investing in their relationship, emotionally or behaviorally. Such increased dependence will yield strengthened commitment, which in turn should produce increased willingness to engage in generous, pro-relationship acts.

In short, we are describing a mutual cyclical growth model in which (a) Partner A's high dependence (high satisfaction, poor alternatives, high investments) increases A's commitment; (b) Partner A's strong commitment motivates A's pro-relationship behavior; (c) Partner B's observation of A's pro-relationship behavior increases B's perceived partner pro-relationship behavior; (d) Partner B's perceived partner pro-relationship behavior increases B's trust; and (e) Partner B's strong trust makes B increasingly willing to become dependent, which in turn enhances B's commitment, and so on. Thus, over the course of a well-functioning, long-term relationship, each person's movement toward increased commitment should be accompanied by enhanced trust and parallel increases in commitment on the part of the partner.

Research Overview and Hypotheses

Figure 1 presents a schematic representation of our model. We conducted two studies to obtain evidence relevant to this model. In

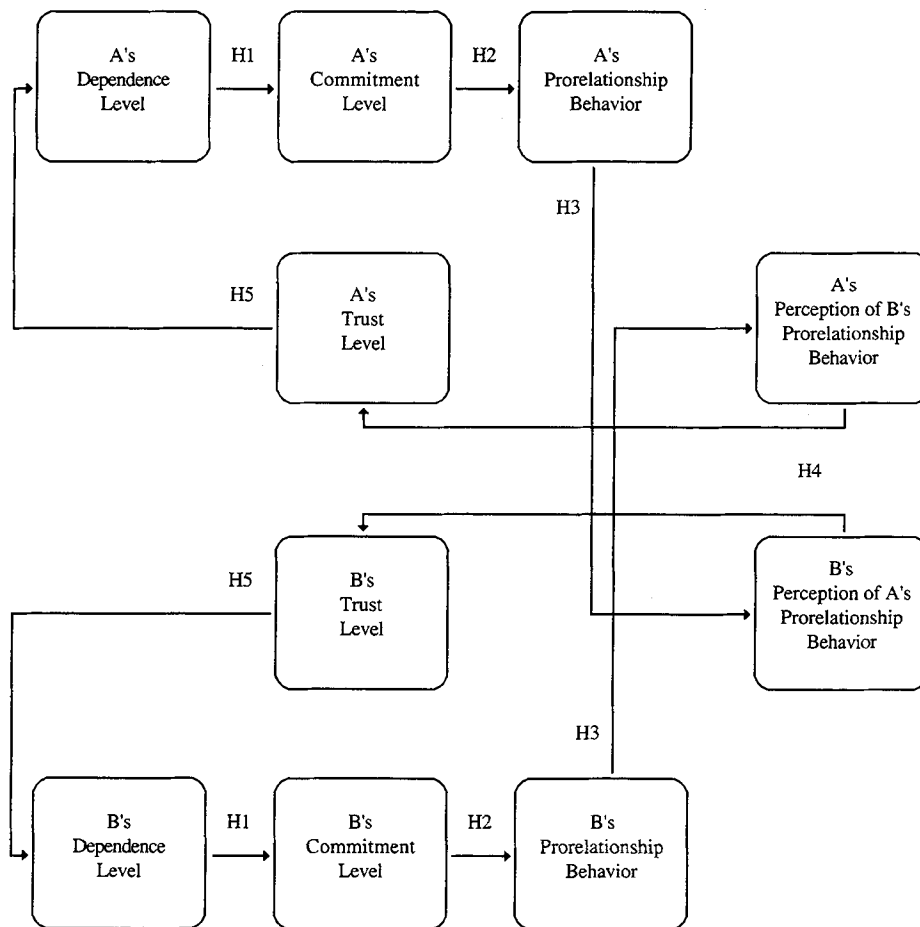


Figure 1. A mutual cyclical growth model of the associations among commitment, pro-relationship behavior, and trust (H1 through H5 refer to hypothesized associations among model variables).

each study we obtained data from both partners in ongoing relationships—Study 1 was a three-wave longitudinal study of dating relationships, and Study 2 was a two-wave longitudinal study of marital relationships. We used two operational definitions of *pro-relationship behavior*, examining (a) accommodative behavior (Studies 1 and 2) and (b) willingness to sacrifice (Study 1 only).

Given that our model is partially dyadic in character, some predictions involve within-individual associations whereas other predictions involve across-partner associations. For example, our model predicts that increases in Partner A's commitment cause increases in Partner A's pro-relationship behavior (a within-individual link) and predicts that increases in Partner A's pro-relationship behavior cause increases in Partner B's perceived partner pro-relationship behavior (an across-partner link). To distinguish between within-individual and across-partner links, all hypotheses are described as associations between variables for Partner A and Partner B.

The model depicted in Figure 1 is symmetrical, with five constructs for Partner A and five parallel constructs for Partner B. In light of this symmetry, our hypotheses describe the Figure 1 links that begin with Partner A's dependence and end with Partner B's dependence. Within-individual predictions describe both the associations of men's predictors with their own criteria *and* the associations of women's predictors with their own criteria. Across-partner predictions describe both the associations of men's predictors with women's criteria *and* the associations of women's predictors with men's criteria.<sup>1</sup>

We obtained measures of relevant model variables on multiple research occasions so that we could test our hypotheses in both concurrent analyses and in analyses examining change over time in each model variable. We anticipated that each of the links displayed in Figure 1 would be evident not only (a) in analyses examining the associations among model variables at a single point in time (i.e., in concurrent analyses) but also (b) in analyses examining the associations of earlier predictors with later criteria, controlling for earlier levels of the criterion (i.e., in residualized lagged analyses). To the extent that a given predictor variable is associated not only with (a) concurrent scores for a given criterion but also with (b) change over time in that criterion, we are in a better position to rule out plausible alternative explanations of our findings (e.g., mood effects or self-report bias).

On the basis of the model described above, we advanced six hypotheses. Hypotheses 1 through 5 represent each of the specific links in the Figure 1 model. An additional hypothesis—termed the "Commitment–Trust Hypothesis"—examines an association that is not a direct link in the Figure 1 model. The Commitment–Trust Hypothesis predicts that Partner A's commitment will be associated with Partner B's trust. Although A's commitment and B's trust are not directly linked in Figure 1, given that we have characterized trust as an implicit gauge of the strength of a partner's commitment, this association should be evident if our interdependence-based model is valid.

*Commitment–trust hypothesis:* Partner A's commitment level will be positively associated with Partner B's trust level.

The first direct link in our model predicts that commitment develops as a consequence of changes over time in dependence. Numerous empirical investigations have revealed support for this hypothesis, documenting the independent associations of satisfac-

tion level, quality of alternatives, and investment size with commitment level (e.g., Bui et al., 1996; Feinlee et al., 1990; Rusbult, 1983; Rusbult, Martz, & Agnew, 1998; Simpson, 1987). Accordingly, in the present work we will examine a composite dependence variable—a variable reflecting total dependence on a relationship.

*Hypothesis 1:* Partner A's dependence level will be positively associated with Partner A's commitment level.

Second, and consistent with prior research regarding commitment and pro-relationship acts, we predicted that strong commitment would promote tendencies toward pro-relationship behaviors such as accommodative behavior and willingness to sacrifice (e.g., Rusbult, Bissonnette, et al., 1998; Rusbult et al., 1991; Van Lange et al., 1997).

*Hypothesis 2:* Partner A's commitment level will be positively associated with Partner A's pro-relationship behavior.

Our third hypothesis rests on the assumption that interdependence structure to some degree is "real" and therefore perceivable by all involved parties. In contrast to the social constructionist point of view (cf. Gergen, 1985), we anticipated that partners' perceptions of one another's actions to some degree would be veridical (at least insofar as we are in a position to judge that which is "veridical"). Specifically, we predicted that there would be a link between one person's self-reported tendencies toward pro-relationship behavior and the partner's perceived partner pro-relationship behavior (e.g., when I say that I accommodate, my partner should perceive that I accommodate).

*Hypothesis 3:* Partner A's self-report of pro-relationship behavior will be positively associated with Partner B's perceived partner pro-relationship behavior.

Fourth, we predicted that the perception of partner pro-relationship acts such as accommodation and willingness to sacrifice would yield enhanced trust in the partner.

*Hypothesis 4:* Partner B's perceived partner pro-relationship behavior will be positively associated with Partner B's trust level.

Finally, in line with our model of mutual cyclical growth, we predicted that trusting individuals will be willing to take risks and make themselves vulnerable by becoming increasingly dependent on their relationships (i.e., trust should be associated with high satisfaction, poor alternatives, and high investments).

*Hypothesis 5:* Partner B's trust level will be positively associated with Partner B's dependence level.

<sup>1</sup> We did not anticipate any substantively meaningful differences in the strength of association among model variables for women and men. Accordingly, we refer to the partners in a given relationship as "Partner A" and "Partner B," and do not distinguish between partners in our hypotheses. However, to explore the possibility of sex differences (and time differences) in levels of variables and in the strength of association among variables, we tested our hypotheses in regression analyses that included main effects and interactions for both partner sex and time.

Importantly, in addition to performing tests of the simple associations predicted in Hypothesis 1 through 5, we also performed parallel first-order mediation analyses (cf. Baron & Kenny, 1986). If our model is valid, we should find that in analyses examining the associations of each criterion with its presumed proximal and next-most-distal predictor (a) the presumed proximal predictor should continue to account for substantial variance in the criterion, whereas (b) the presumed distal predictor should account for reduced variance in the criterion. To the extent that tests of mediation are consistent with expectations, we can feel more confident of the validity of our model. For example, we will be in a better position to rule out common method variance or socially desirable responding as explanations of the observed simple associations among model variables.

We also examined the simple associations of all model variables with scores on the Dyadic Adjustment Scale (Spanier, 1976), a frequently used measure of couple well-being. To the extent that a process of mutual cyclical growth characterizes the associations among model variables, we should find that all model variables exhibit positive associations with quality of couple functioning.

Finally, in addition to examining the role of interdependence structure in shaping the development of trust, we also explored the associations of model variables with attachment style. A priori, it might seem plausible that attachment style would play a role in the process depicted in Figure 1. For example, given that the concept of felt security resides at the heart of attachment theory, it might seem reasonable to anticipate that trust would be positively associated with secure attachment and negatively associated with anxious-ambivalent and avoidant attachment. Also, given that one's interdependence history is assumed to play a role in shaping current transformational tendencies, it might seem plausible that commitment and inclinations toward pro-relationship behavior would exhibit parallel associations with the three attachment styles. The extant literature provides support for this line of reasoning, suggesting that mental models of attachment exert meaningful effects on the capacity to trust a partner and on willingness to depart from self-interest on behalf of that person (for reviews, see Hazan & Shaver, 1994; Reis & Patrick, 1996). We held the general expectation that although such associations might be evident, our interdependence-based model would account for unique variance above and beyond an attachment-based model.

## Method

### Study 1

**Participants and recruitment.** Study 1 participants were 53 couples (53 women, 53 men) who participated in a three-wave longitudinal study of romantic relationships; Times 1 and 3 spanned about a 10-week period in couples' relationships.<sup>2</sup> We recruited participants via a two-stage process: (a) descriptions of the project were posted on the notice board for the University of North Carolina research participant pool as well as in the campus newspaper; and (b) interested couples contacted Jennifer Wieselquist to receive additional information about the project and to volunteer for participation.

At Time 1 participants were 19.94 years old on average (17% freshmen, 28% sophomores, 24% juniors, 24% seniors, 8% other). The majority were Caucasian (6% African American, 1% Asian American, 91% Caucasian, 1% Latino, 2% other). At Time 1 participants had been involved for an average of 19.17 months. The majority described their involvements as steady dating relationships (5% dating casually, 10% dating regularly, 74%

dating steadily, 11% engaged or married). Most participants described their relationships as monogamous (91% said neither partner dated others, 5% said one partner dated others, 5% said both partners dated others).

There was some attrition over the course of the study. We obtained complete data—data for both partners for all model variables for all three research occasions—for 40 of 53 couples (with the exception of missing data for the occasional variable). Thirteen couples separated over the course of the study; for these couples, we obtained complete data for the research occasions prior to breakup. The sample included 53 couples at Time 1, 45 couples at Time 2, and 40 couples at Time 3. We performed preliminary analyses to determine whether couple attrition might have influenced the obtained findings; the results of these analyses suggested that attrition exerted little or no substantively meaningful effects on the observed associations among model variables.<sup>3</sup>

**Research design and procedure.** We obtained data from each couple on three occasions over the course of an academic semester—once every 4 to 5 weeks. At each research occasion partners attended sessions during which they completed questionnaires and participated in laboratory tasks relevant to broader project goals. While completing their questionnaires, partners were separated to prevent them from viewing one another's responses. We assured participants that their responses would remain confidential and that their partners would never be informed of their responses. At the end of each research occasion we partially debriefed, paid, and thanked couples for their assistance. Couples were paid \$10 for participation at each research occasion; in addition, individuals who were recruited through the research participant pool received credit toward partial fulfillment of the requirements for introductory psychology courses.

**Questionnaires.** The questionnaires included measures of dependence (satisfaction, alternatives, investments), commitment level, accommodative behavior, perceived partner accommodation, willingness to sacrifice, perceived partner willingness to sacrifice, trust level, and dyadic adjust-

<sup>2</sup> Data from this project were also used in (a) Drigotas, Rusbult, and Verette (in press), which examined the association of mutuality of commitment with couple well-being (Study 1 used data from Times 1, 2, and 3); (b) Drigotas, Rusbult, Wieselquist, and Whitton (1999), which examined the associations among partner affirmation, movement toward the ideal self, and dyadic adjustment (Study 1 used data from Times 1, 2, and 3); and (c) Van Lange et al. (1997), which examined the association of commitment with willingness to sacrifice (Study 4 used data from Time 2).

<sup>3</sup> We performed preliminary analyses to determine whether attrition might have influenced our results. First, we categorized couples into two groups: (a) full-data couples (40 couples for whom we had complete data at Times 1, 2, and 3) and (b) partial-data couples (13 couples for whom we did not have complete data because of breakup). We performed analyses of variance on the Time 1 data to assess initial differences between the groups. The groups did not initially differ in age, duration of relationship, or Dyadic Adjustment. Importantly, separately for full-data and partial-data couples, we calculated the correlations among all Time 1 variables—Dependence, Commitment, Accommodation, Perceived Partner Accommodation, Sacrifice, Perceived Partner Sacrifice, Trust, and Dyadic Adjustment. Out of 28 correlations, 7 differed significantly or marginally; in six of seven instances, the association was weaker among full-data couples (comparing *r*s for full- vs. partial-data couples, average  $z = -0.42$ ). Such differences may be attributable to greater variance in model variables for partial-data couples, who were on the road to breakup. Thus, to the extent that attrition-based bias existed, such bias at worst was prejudiced against our analysis, in that (a) we have fewer observations for partial-data couples and (b) the associations among variables were a bit stronger for partial-data couples. Although it is difficult to fully assess the extent to which attrition influenced our findings, these analyses give us some confidence that such influence was minimal.

ment, along with additional measures that are irrelevant to the goals of the present research (e.g., partner affirmation, correspondence of outcomes).

Following previous research regarding the investment model (Rusbult, 1983; Rusbult, Martz, & Agnew, 1998), to measure *dependence level* we included four items each to assess the three bases of dependence—satisfaction level (e.g., “All things considered, to what degree do you feel satisfied with your relationship?” 0 = *not at all satisfied*, 8 = *completely satisfied*), quality of alternatives (e.g., “All things considered, how attractive are the people other than your partner with whom you could become involved” 0 = *alternatives not at all appealing*, 8 = *alternatives are extremely appealing*; reverse scored, such that high values reflect high dependence), and investment size (e.g., “Have you personally invested things in your relationship that you would in some sense lose if the relationship were to end—have you invested time or energy, have you disclosed secrets to one another, etc.?” 0 = *put nothing into relationship*, 8 = *put a great deal into relationship*). We developed a single measure of dependence by averaging responses to all scale items ( $\alpha$  at Times 1, 2, and 3 = .76, .79, and .86).

Following previous research regarding commitment processes (Rusbult, 1983; Rusbult, Martz, & Agnew, 1998), we included five items to measure *commitment level* (e.g., “To what degree do you feel committed to maintaining your relationship?” 0 = *not very committed*, 8 = *completely committed*;  $\alpha$  = .82, .84, and .90). To determine whether partners could actually perceive one another’s commitment, we included a parallel instrument to measure *perceived partner commitment* (e.g., “To what degree does your partner feel committed to maintaining your relationship?” 0 = *not very committed*, 8 = *completely committed*;  $\alpha$  = .82, .84, and .87). We developed a single measure of each construct by averaging the items designed to tap each variable.

Following previous research regarding accommodation processes (Rusbult et al., 1991), we included 16 items to measure *accommodative behavior*. The instrument included four stems describing accommodative dilemmas—situations in which the partner enacted a potentially destructive exit or neglect behavior (e.g., “When my partner is upset and says something mean to me or snaps at me . . .”). Each stem was followed by four items—one each for exit, voice, loyalty, and neglect (e.g., for exit, “I feel so angry that I want to walk right out the door”). Participants reported the frequency with which they engaged in each of 16 responses (four responses for each of four stems; 0 = *never*, 8 = *always*;  $\alpha$  = .71, .70, and .69). A parallel instrument measured *perceived partner accommodation* (e.g., “When I’m upset and say something mean to my partner or snap at him/her . . . , my partner talks to me about what’s going on, trying to work out a solution,” 0 = *partner never does this*, 8 = *partner always does this*;  $\alpha$  = .80, .65, and .73). We reverse scored items where necessary so that high numbers consistently reflected tendencies toward accommodation (i.e., destructive items were reverse scored), and we developed averaged measures of accommodative behavior and perceived partner accommodation.

Following previous research regarding *willingness to sacrifice* (Van Lange et al., 1997), we asked participants to list the four “most important activities in your life, other than your relationship.” Participants listed life domains such as parents and siblings, career, education, religion, friends, or pastimes (e.g., playing soccer). We pitted personal well-being against relationship well-being using the logic of forced-choice methodology—for each activity, the participant was asked to “Imagine that it was not possible to engage in Activity No. 1 and maintain your relationship with your partner. To what extent would you consider giving up this activity for the good of your relationship?” (0 = *definitely would not give up activity*, 8 = *definitely would give up activity*;  $\alpha$  = .76, .82, and .86). A parallel instrument measured *perceived partner willingness to sacrifice* (i.e., participants described the four most important activities in the partner’s life, reporting the extent to which the partner would be willing to give up each activity;  $\alpha$  = .76, .85, and .86). We developed a single measure of each construct by averaging the items designed to tap each variable.

To measure trust we identified the four most reliable items from the predictability, dependability, and faith subscales of the Rempel et al. (1985) instrument to develop a 12-item measure of *trust level* (see reliability coefficients in Rempel et al., 1985, p. 103; e.g., “Though times may change and the future is uncertain, I know my partner will always be ready and willing to offer me strength and support,” 0 = *agree not at all*, 8 = *agree completely*;  $\alpha$  = .89, .88, and .89). We developed a single measure of trust by averaging responses to all scale items.

In order to examine the simple associations of all model variables with couple well-being we included a version of Spanier’s (1976) Dyadic Adjustment Scale that is suitable for dating relationships. This 32-item instrument assesses qualities of adjustment such as intimacy, agreement, effective problem solving, and shared activities (e.g., “Do you and your partner engage in outside interests together?” 0 = *none of them*, 4 = *all of them*; “Do you kiss your partner?” 0 = *never*, 5 = *every day*;  $\alpha$  = .90, .92, and .94). We developed a single measure of adjustment by summing responses to all scale items.

## Study 2

**Participants and recruitment.** Study 2 participants were 65 couples (65 women, 65 men) who participated in Times 3 and 5 of a six-wave longitudinal study of marital relationships; Times 3 and 5 spanned about a 12-month period in couples’ marriages.<sup>4</sup> We recruited participants via a three-stage process: (a) Over a 3-year period we located couples who applied for marriage licenses at the Orange County, North Carolina, Courthouse; (b) research assistants telephoned couples to determine whether they wished to receive project information (interested couples were mailed such information); and (c) the principal investigator telephoned couples to solicit their participation. The analyses reported in this article are based on all couples who completed research activities at Times 3 and 5 of the study, at which occasions we measured all relevant model variables.

At Time 3 participants were 32.51 years old on average. All participants had completed high school, 45% had bachelor’s degrees, and 37% had graduate degrees. Participants’ personal annual salary was around \$25,000. The majority were Caucasian (2% African American, 3% Asian American, 94% Caucasian). Forty-seven percent were Protestant, 18% were Catholic, 2% were Jewish, and 33% had other religious orientations (e.g., atheist). At Time 3 participants had been married for about 2 years (24.02 months), and 38% had given birth to one or more children.

There was some attrition over the course of the study. We obtained complete data—data for both partners for all model variables for both Time 3 and Time 5—for 65 couples (with the exception of missing data for

<sup>4</sup> Data from this project were also used in (a) Arriaga and Rusbult (1998), which examined the association of accommodation with partner perspective taking (Study 1 used data from Times 2, 4, and 6); (b) Bissonnette, Rusbult, and Kilpatrick (1997), which examined the associations among commitment, empathic accuracy, and accommodation (data from Times 2 and 4 were used); (c) Drigotas, Rusbult, and Verette (in press), which examined the association of mutuality of commitment with couple well-being (Study 2 used data from Times 1, 3, and 5); (d) Drigotas, Rusbult, Wieselquist, and Whitton (1999), which examined the associations among partner affirmation, movement toward the ideal self, and dyadic adjustment (Study 4 used data from Time 6); (e) Gaines et al. (1997), which examined the association of attachment style with accommodation (Study 4 used data from Time 3); (f) Rusbult, Bissonnette, et al. (1998), which examined the association of accommodation with both commitment and couple well-being (data from Times 1, 2, and 3 were used); (g) Rusbult et al. (1999), which examined the association of commitment with positive illusion (Study 3 used data from Times 2 and 5); and (h) Van Lange et al. (1997), which examined the association of commitment with willingness to sacrifice (Study 6 used data from Times 3, 4, and 5).

the occasional variable). A total of 123 couples participated in the study at Time 1, 88 couples participated at Time 3, and 65 couples participated at Time 5. We performed preliminary analyses to determine whether couple attrition might have influenced the obtained findings; the results of these analyses suggested that attrition exerted little or no substantively meaningful effects on the observed associations among model variables.<sup>5</sup>

**Research design and procedure.** The project was a six-wave lagged longitudinal study: Couples commenced participation at different times but engaged in parallel activities at a parallel pace, completing research activities at approximately 6-month intervals. At Times 3 and 5 we mailed partners copies of questionnaires, asking them to complete their questionnaires independently. Completed questionnaires were returned via the mail. We assured participants that their responses would remain confidential and that their partners would never be informed of their responses. At the end of each research occasion we partially debriefed, paid, and thanked couples for their assistance. Couples were paid \$25 for participation at each research occasion.

**Questionnaires.** The Time 3 and Time 5 questionnaires included measures of dependence level (satisfaction, alternatives, investments), commitment level, accommodative behavior, perceived partner accommodation, trust level, dyadic adjustment, and attachment, along with additional measures that are irrelevant to the goals of the present research (e.g., centrality of relationship). The questionnaires included items that were similar to (or identical to) those used in Study 1 to measure dependence level (13 items;  $\alpha$  at Times 3 and 5 = .77 and .80), commitment level (5 items;  $\alpha$  = .78 and .84), accommodative behavior (16 items;  $\alpha$  = .81 and .83), perceived partner accommodation (16 items;  $\alpha$  = .84 and .87), trust level (12 items;  $\alpha$  = .88 and .91), and dyadic adjustment (a version suitable for marital relationships; 32 items;  $\alpha$  = .91 and .94). In addition, participants read the Hazan and Shaver (1987) paragraph descriptions of *secure*, *anxious-ambivalent*, and *avoidant attachment* and reported the degree to which they agreed with each paragraph (0 = *not at all characteristic of me*, 8 = *extremely characteristic of me*).

## Results

### Reliability and Validity of Measures

Test-retest correlations calculated for each variable revealed good consistency between earlier and later measures for dependence level (for Study 1, average  $r$  for Time 1-to-Time 2 and Time 2-to-Time 3 lags = .84; for Study 2,  $r$  for Time 3-to-Time 5 lag = .77), commitment level ( $r$ s = .80 and .75), perceived partner commitment (for Study 1,  $r$  = .85; this variable was not measured in Study 2), own accommodation ( $r$ s = .71 and .83), perceived partner accommodation ( $r$ s = .81 and .74), own willingness to sacrifice (for Study 1,  $r$  = .82), perceived partner willingness to sacrifice (for Study 1,  $r$  = .80; sacrifice was not measured in Study 2), trust level ( $r$ s = .86 and .75), and dyadic adjustment ( $r$ s = .68 and .86), as well as for secure, anxious-ambivalent, and avoidant attachment (for Study 2,  $r$ s = .47, .60, and .61; all  $p$ s < .01; these variables were not measured in Study 1).<sup>6</sup>

In Study 1 we used two operational definitions of *pro-relationship behavior*, examining self-reported tendencies toward both accommodation and sacrifice. We calculated concurrent correlations between parallel measures to ensure that these variables to some degree were distinguishable. As expected, measures of own accommodation and own willingness to sacrifice were moderately positively correlated (average  $r$  for Times 1, 2, and 3 = .29), as were measures of perceived partner accommodation and perceived partner willingness to sacrifice (average  $r$  = .24; both  $p$ s < .05).

Concurrent across-partner correlations revealed moderate-to-good convergence in partners' reports of dyadic adjustment (for Study 1, average  $r$  for Times 1, 2, and 3 = .42; for Study 2, average  $r$  for Times 3 and 5 = .76). Also, men's reports of own accommodation were correlated with their partners' reports of perceived partner accommodation ( $r$ s = .48 and .49); parallel associations were evident for women ( $r$ s = .52 and .61). Men's reports of willingness to sacrifice were correlated with their partners' reports of perceived partner willingness to sacrifice ( $r$  = .51); a parallel association was evident for women ( $r$  = .46). In addition, men's reports of commitment were correlated with their partners' reports of perceived partner commitment (for Study 1,  $r$  = .70); a parallel association was evident for women ( $r$  = .77; all  $p$ s < .01). These analyses provide good support for the validity of our measures. More generally, these findings are compatible with the assumption that interdependence structure to some degree is "real" and therefore perceivable by both partners. Although there is some subjectivity, the observed associations of self-report with partner-report suggest that the data to a considerable degree reflect real circumstances of interdependence: partners agree in their descriptions of one another's commitment and pro-relationship acts and agree in their descriptions of couple well-being.

<sup>5</sup> We performed preliminary analyses to determine whether attrition might have influenced our results. Using the full Time 3 data set, we categorized couples into two groups: (a) participating couples (65 couples whose data are used in the present study, for whom we have complete data at Times 3 and 5) and (b) discontinued couples (23 couples whose data are not included in the present study because they separated or discontinued participation between Times 3 and 5). We performed analyses of variance on the Time 3 data to assess differences between the groups. Compared with discontinued couples, participating couples exhibited greater dependence, trust, and dyadic adjustment. Importantly, separately for participating and discontinued couples, we calculated the correlations among all Time 3 variables. Out of 36 correlations, only 3 differed significantly or marginally; 2 correlations among interdependence variables were weaker among participating couples (comparing  $r$ s for participating vs. discontinued couples, average  $z$  = -0.73) and one correlation with an attachment variable was stronger among participating couples (average  $z$  = 0.63). Thus, to the extent that attrition-based bias existed, our analyses slightly underestimate the strength of association among interdependence variables and slightly overestimate the strength of association with attachment variables. Although it is difficult to fully assess the extent to which attrition influenced our findings, these analyses give us some confidence that such influence was minimal.

<sup>6</sup> We calculated concurrent correlations of all model variables with duration of relationship—number of months dating in Study 1, and number of months married in Study 2. The duration measure was skewed in both studies, so we performed log-linear transformations of this variable prior to performing analyses. In Study 1 duration was positively correlated with dependence, commitment, and perceived partner willingness to sacrifice ( $r$ s = .17, .25, and .19) and was negatively correlated with perceived partner sacrifice ( $r$  = -.15, all  $p$ s < .05); duration was not significantly correlated with other model variables. In Study 2, duration was negatively correlated with dyadic adjustment ( $r$ s = -.19,  $p$  < .05); duration was not significantly correlated with other model variables or with measures of attachment style. (Given that we recruited Study 2 couples at the beginning of their marriage—and given that couples proceeded through the study more or less in tandem—in Study 2 there was relatively little across-couple variability in duration of relationship.)



Across-partner correlations for other model variables are not directly relevant to assessing measure validity, in that these qualities logically *could* differ for the partners in a given relationship. For example, if husbands' and wives' commitment levels were uncorrelated, this could be because partners' levels of commitment frequently differ. Nevertheless, it was gratifying to discover that in general, wives and husbands exhibited mutuality—partners reported similar levels of dependence (for Studies 1 and 2, average  $r_s = .52$  and  $.55$ ), commitment ( $r_s = .66$  and  $.61$ ), perceived partner commitment (Study 1,  $r = .67$ ), accommodation ( $r_s = .42$  and  $.56$ ), perceived partner accommodation ( $r_s = .32$  and  $.43$ ), willingness to sacrifice (Study 1,  $r = .39$ ), perceived partner willingness to sacrifice (Study 1,  $r = .46$ ), and trust ( $r_s = .41$  and  $.55$ ; all  $p_s < .05$ ). More generally, these findings are compatible with an assumption underlying our model of mutual cyclical growth—the claim that over the course of extended involvement, each person's movement toward increased dependence, commitment, pro-relationship behavior, and trust will be accompanied by parallel movement on the part of the partner. As one would anticipate, partners' self-reported tendencies toward secure, anxious-ambivalent, and avoidant attachment were essentially uncorrelated (for Study 2,  $r_s = .12$ ,  $.16$ , and  $.17$ ).

### Analysis Strategy

Separately for Study 1 and Study 2, we used a two-step analysis strategy to estimate effect sizes and significance levels in simultaneous regression analyses. In Step 1 we calculated the proportion of variance accounted for by each model variable, pooling the data for male and female partners at all research occasions. All Step 1 analyses included main effects of time and sex, the Time  $\times$  Sex interaction, the interaction of time with each model variable, the interaction of sex with each model variable, and the three-factor interaction of Time  $\times$  Sex with each model variable. Step 1 analyses provided estimates of (a) the beta for each variable and (b) the proportion of variance accounted for by each variable (Step 1 effect  $SS \div$  Step 1 total  $SS$ ).<sup>7</sup>

The data from male and female partners at multiple research occasions are nonindependent, so the error terms in Step 1 analyses are inappropriate (i.e., they are based on pooled nonindependent data) and the degrees of freedom are inflated (e.g., the  $df$  reflect observations from men and women on multiple research occasions). In Step 2 we performed analyses relevant to assessing the significance of each Step 1 effect. In Step 2 we replicated the Step 1 analyses separately for male and female partners at each research occasion. We used the median error term from these analyses in calculating significance levels for Step 1 effects. Thus, the Step 2 procedures identified (a) the error term for calculating the significance of each Step 1 effect ( $1 - [\text{Step 2 model } SS \div \text{Step 2 total } SS]$ ), and (b) the appropriate degrees of freedom for calculating the significance of each Step 1 effect (the Step 2 numerator and denominator  $df$  for each effect).<sup>8</sup>

On the basis of the results of the Step 1 and Step 2 analyses, we calculated an  $F$  for each effect using the following equation:

$$\frac{(\text{Step 1 effect } SS \div \text{Step 1 total } SS)}{1 - [\text{Step 2 model } SS \div \text{Step 2 total } SS]} \times \frac{\text{Step 2 denominator effect } df}{\text{Step 2 numerator effect } df}$$

To report  $t$ s for model variables, we calculated the (signed) square-root of the  $F$  for each effect. Given that our analysis strategy is relatively conservative, we report one-tailed significance tests for all associations for which we advanced a priori hypotheses.

Note that the logic underlying our calculations parallels the logic underlying traditional procedures for calculating effect sizes and significance levels. The difference is that in estimating the proportion of variance accounted for by a given variable (i.e., in estimating numerator effects), we pooled data across multiple data sets. It is reassuring to note that the  $t$ s obtained using this procedure are very close to those obtained by averaging the  $t$ s from the individual Step 2 analyses. In all instances, the significance versus nonsignificance of the obtained  $t$  was identical to the significance versus nonsignificance of the average  $t$  from the individual Step 2 analyses.

In testing each hypothesis we performed four types of analysis—we calculated both concurrent and residualized lagged simple associations, and we performed both concurrent and residualized lagged mediation analyses (cf. Baron & Kenny, 1986). To facilitate interpretation of our results, when a given analysis includes two or more model variables (i.e., in all analyses except those

<sup>7</sup> In Study 1 six sets of data were pooled in the Step 1 analyses examining concurrent associations among model variables (data for men's and women's Time 1, 2, and 3 variables); in Study 2 four sets of data were pooled in the Step 1 concurrent analyses (data for men's and women's Time 3 and 5 variables). In Study 1 four sets of data were pooled in the analyses examining lagged associations among variables (data for predicting men's and women's Time 2 criteria from Time 1 predictors, as well as data for predicting Time 3 criteria from Time 2 predictors); in Study 2 two sets of data were pooled in the analyses examining lagged associations (data for predicting men's and women's Time 5 criteria from Time 3 predictors). All variables were centered. In both studies, Step 1 analyses examining the simple concurrent association of a given predictor (VarA) with a given criterion included 7 variables: Time, Sex, Time  $\times$  Sex, VarA, VarA  $\times$  Time, VarA  $\times$  Sex, and VarA  $\times$  Time  $\times$  Sex. Analyses examining the simultaneous concurrent associations of two predictors (VarA and VarB) with a given criterion included 11 variables—in addition to the variables listed above, two-predictor models also included VarB, VarB  $\times$  Time, VarB  $\times$  Sex, and VarB  $\times$  Time  $\times$  Sex. In Study 1, Step 1 analyses examining the residualized lagged association of an earlier predictor (Earlier-VarA) with a later criterion (Later-X) included 8 variables (or 12 variables, for a two-predictor model); in Study 2, Step 1 analyses examining the residualized lagged association of an earlier predictor with a later criterion included 4 variables (given that there was just one time lag, there were no main effects or interactions involving Time). In residualized lagged analyses, later measures of the criterion were regressed onto earlier measures of predictors, controlling for earlier levels of the criterion—in addition to the variables listed above, each analysis also included as a predictor variable the earlier measure of the criterion, Earlier-X. In essence, this type of analysis examines the association of earlier predictors with change over time in the criterion.

<sup>8</sup> Step 2 analyses examining the association of a single predictor variable with a given criterion included just one variable (i.e., there were no main effects or interactions involving Time or Sex because Step 2 analyses were performed separately for each sex at each time). In Study 1, six analyses were performed in the Step 2 analyses examining concurrent effects, and four analyses were performed in the Step 2 analyses examining lagged effects; in Study 2, four analyses were performed in the analyses examining concurrent effects, and two analyses were performed in the analyses examining lagged effects.

Table 1  
*Commitment–Trust Hypothesis: Predicting Partner Trust Level From Individual Commitment Level—Concurrent and Lagged Associations, Studies 1 and 2 (Association of A’s Commitment with B’s Trust)*

Variable	Simple association		Regression analysis		
	$\beta$	<i>t</i>	$\beta$	<i>t</i>	<i>R</i> <sup>2</sup>
B’s concurrent trust level					
Study 1					
A’s commitment level			.43	3.03**	.21**
Study 2					
A’s commitment level			.46	3.80**	.21**
B’s later trust level					
Study 1					
A’s earlier commitment level	.45	2.93**	.12	1.36†	.75**
B’s earlier trust level	.87	9.95**	.82	8.40**	
Study 2					
A’s earlier commitment level	.40	3.19**	.13	1.34†	.57**
B’s earlier trust level	.76	8.74**	.73	7.39**	

Note. Table values are betas from regression analyses; significance levels are based on one-tailed tests. In addition to the variables listed above, all analyses also included main effects of time and sex, the Time × Sex interaction, and all two- and three-factor interactions of time and sex with each model variable.  
 † *p* < .10 (marginally significant). \*\* *p* < .01.

examining concurrent simple associations) we also present the simple association of each variable with the criterion (see statistics under “Simple Association”). The “simple association” reflects the association of a given model variable with the criterion in an analysis that takes account of variance attributable to time, sex, and interactions with time and sex. We present this type of simple association rather than a correlation coefficient because this type of simple association parallels the regression results and accordingly represents a suitable baseline for interpreting unique associations. Thus, all statistics presented below are based on analyses that included main effects and interactions for time and sex.<sup>9</sup>

*Commitment–Trust Hypothesis: Is Partner A’s Commitment Level Associated With Partner B’s Trust Level?*

Our model proposes that trust is an implicit gauge of the strength of a partner’s commitment. Although this association is not a direct link in the Figure 1 model, the Commitment–Trust Hypothesis suggested that if our interdependence-based model is correct, we should observe evidence of a simple association between Partner A’s commitment level and Partner B’s trust level. As can be seen in Table 1, the concurrent analyses revealed that in both Study 1 and Study 2, Partner A’s commitment was significantly positively associated with Partner B’s trust (see Table 1, statistics under “B’s concurrent trust level”;  $\beta$  = .43 and .46). The residualized lagged analyses revealed that in both Study 1 and Study 2, Partner A’s earlier commitment was marginally associated with Partner B’s later trust, controlling for B’s earlier trust (see Table 1, statistics under “B’s later trust level”;  $\beta$  = .12 and .13). That is, Partner A’s earlier commitment level accounted for marginal unique variance in Partner B’s later trust, above and beyond Partner B’s earlier trust—each individual’s earlier commitment predicted change over time in the partner’s trust.

*Hypotheses 1 Through 5: Concurrent and Residualized Lagged Simple Associations*

Table 2 summarizes the results of regression analyses examining the concurrent simple associations predicted in Hypotheses 1 through 5, and Table 3 summarizes the results of analyses examining the residualized lagged simple associations predicted in Hypotheses 1 through 5. These analyses provide relatively good support for our model. All 13 of the predicted concurrent simple associations were statistically significant (see Table 2), all 13 of the lagged simple associations were significant (see Table 3, statistics under “Simple association”), and 9 of 13 residualized lagged simple associations were significant or marginal (see Table 3, statistics under “Regression analysis”). Below, we review evidence relevant to each predicted association.

*Hypothesis 1.* Our model proposes that commitment is strengthened to the extent that individuals are more dependent on their relationships. Specifically, Hypothesis 1 suggested that dependence level would be positively associated with commitment level. The concurrent analyses revealed that in both Study 1 and Study 2, dependence was significantly positively associated with commitment (see under “Hypothesis 1” in Table 2;  $\beta$  = .75 and .73). Also consistent with Hypothesis 1, the residualized lagged analyses revealed that in both Study 1 and Study 2, earlier dependence predicted marginal change over time in commitment (see under “Hypothesis 1” in Table 3;  $\beta$  = .16 and .19).

<sup>9</sup> Out of a total of 54 regression analyses, there were only three marginally significant main effects of time, four significant or marginal main effects of sex, and two marginal interactions of time with other model variables. (We used two-tailed significance tests in these analyses because we did not advance a priori hypotheses regarding these variables.) Given that this number of effects could easily have emerged by chance, we will not address these scattered findings.

Table 2  
Hypotheses 1 Through 5: Concurrent Regression Analyses for All Model Variables, Studies 1 and 2

Variable	Regression analysis		
	$\beta$	$t$	$R^2$
Hypothesis 1: A's dependence level $\rightarrow$ A's commitment level			
A's commitment level			
Study 1			
A's dependence level	.75	7.12**	.58**
Study 2			
A's dependence level	.73	7.89**	.56**
Hypothesis 2: A's commitment level $\rightarrow$ A's pro-relationship behavior			
A's accommodation			
Study 1			
A's commitment level	.48	3.37**	.23**
Study 2			
A's commitment level	.39	3.05**	.16**
A's willingness to sacrifice			
Study 1			
A's commitment level	.52	3.92**	.28**
Hypothesis 3: A's pro-relationship behavior $\rightarrow$ B's perceived pro-relationship behavior			
B's perceived accommodation			
Study 1			
A's accommodation	.48	3.63**	.27**
Study 2			
A's accommodation	.55	4.57**	.32**
B's perceived willingness to sacrifice			
Study 1			
A's willingness to sacrifice	.49	3.33**	.26**
Hypothesis 4: B's perceived pro-relationship behavior $\rightarrow$ B's trust level			
B's trust level			
Study 1			
B's perceived accommodation	.72	6.29**	.54**
Study 2			
B's perceived accommodation	.62	6.01**	.41**
B's trust level			
Study 1			
B's perceived willingness to sacrifice	.27	1.86*	.12*
Hypothesis 5: B's trust level $\rightarrow$ B's dependence level			
B's dependence level			
Study 1			
B's trust level	.63	4.69**	.37**
Study 2			
B's trust level	.53	4.56**	.30**

Note. Table values are betas from regression analyses; significance levels are based on one-tailed tests. In addition to the variables listed above, all analyses also included main effects of time and sex, the Time  $\times$  Sex interaction, and all two- and three-factor interactions of time and sex with each model variable.

\* $p < .05$ . \*\* $p < .01$ .

*Hypothesis 2.* Our model proposes that when individuals encounter interdependence dilemmas, they should be more willing to engage in pro-relationship behaviors to the extent that they are more strongly committed to their relationships. Specifically, Hypothesis 2 suggested that commitment would be positively associated with both accommodative behavior and willingness to sacrifice. The concurrent analyses revealed that all three tests of this hypothesis were significant—the simple association of commitment with accommodative behavior was significant in both studies, and the association of commitment with willingness to sacrifice was significant in Study 1 (see under “Hypothesis 2” in Table 2; sacrifice was not measured in Study 2). The residualized lagged analyses revealed that two of three tests of this hypothesis were significant or marginal—in Study 1, earlier commitment predicted significant change over time in accommodation and predicted marginal change over time in willingness to sacrifice (see under “Hypothesis 2” in Table 3). However, the residualized lagged association of earlier commitment with later accommodation was not significant in Study 2, possibly because of insufficient change over time in accommodation (for the simple association of earlier accommodation with later accommodation,  $\beta = .84$ ).

*Hypothesis 3.* We assume that interdependence structure and processes to some degree are observable and accordingly should be perceived similarly by close partners; that is, that there should be an association between Partner A's self-reported tendencies toward pro-relationship behavior and Partner B's perceived partner pro-relationship behavior. The concurrent analyses revealed that all three tests of this hypothesis were significant—for both accommodation and willingness to sacrifice, each individual's description of his or her pro-relationship behavior was associated with the partner's perception of the individual's pro-relationship behavior (see under “Hypothesis 3” in Table 2). The residualized lagged analyses, too, revealed that all three tests were significant or marginal—each individual's description of his or her pro-relationship behavior was associated with change over time in the partner's perception of the individual's pro-relationship behavior (see Table 3).

*Hypothesis 4.* Our model suggests that individuals develop trust in their partners when they observe the partner behave well in diagnostic situations; that is, individuals develop increased trust when they observe the partner depart from his or her immediate self-interest for the good of the relationship. Accordingly, Hypothesis 4 suggested that perceived partner accommodation and perceived partner willingness to sacrifice would be positively associated with trust level. The concurrent analyses revealed that all three tests of this hypothesis were significant (see “Hypothesis 4” in Table 2). However, the residualized lagged analyses revealed that only one of three tests of this hypothesis was even marginal—in Study 1, earlier perceived partner accommodation predicted marginal change over time in trust level (see Table 3). The other two residualized lagged associations were not significant, possibly because of insufficient change over time in trust (for the simple association of the earlier and later measures of each criterion,  $\beta = .76$  and  $.87$ ).

*Hypothesis 5.* Finally, we anticipated that trusting individuals would be willing to make themselves vulnerable by becoming increasingly dependent on their relationships. Therefore, Hypothesis 5 suggested that trust level would be positively associated with dependence level. The concurrent analyses revealed that in both

Table 3  
*Hypotheses 1 Through 5: Residualized Lagged Regression Analyses  
 for All Model Variables, Studies 1 and 2*

Variable	Simple association		Regression analysis		
	$\beta$	$t$	$\beta$	$t$	$R^2$
Hypothesis 1: A's dependence level → A's commitment level					
A's later commitment level					
Study 1					
A's earlier dependence level	.65	5.35**	.16	1.37†	.67**
A's earlier commitment level	.79	8.70**	.68	5.42**	
Study 2					
A's earlier dependence level	.63	5.94**	.19	1.44†	.59**
A's earlier commitment level	.73	8.03**	.61	4.75**	
Hypothesis 2: A's commitment level → A's pro-relationship behavior					
A's later accommodation					
Study 1					
A's earlier commitment level	.45	2.94**	.19	1.68*	.54**
A's earlier accommodation	.72	6.66**	.62	4.78**	
Study 2					
A's earlier commitment level	.35	2.79**	-.05	-0.55	.90**
A's earlier accommodation	.84	10.82**	.86	9.79**	
A's later willingness to sacrifice					
Study 1					
A's earlier commitment level	.50	3.38**	.19	1.36†	.68**
A's earlier willingness to sacrifice	.83	8.15**	.77	6.87**	
Hypothesis 3: A's pro-relationship behavior → B's perceived pro-relationship behavior					
B's later perceived accommodation					
Study 1					
A's earlier accommodation	.52	3.69**	.14	1.32†	.69**
B's earlier perceived accommodation	.85	3.49**	.75	7.06**	
Study 2					
A's earlier accommodation	.48	4.00**	.15	1.39†	.57**
B's earlier perceived accommodation	.74	7.11**	.66	6.03**	
B's later perceived willingness to sacrifice					
Study 1					
A's earlier willingness to sacrifice	.52	3.52**	.20	1.71*	.68**
B's earlier perceived willingness to sacrifice	.81	7.46**	.72	6.09**	
Hypothesis 4: B's perceived pro-relationship behavior → B's trust level					
B's later trust level					
Study 1					
B's earlier perceived accommodation	.71	5.65**	.16	1.38†	.78**
B's earlier trust level	.87	9.95**	.77	6.09**	
Study 2					
B's earlier perceived accommodation	.52	4.54**	.11	0.94	.56**
B's earlier trust level	.76	8.75**	.68	5.85**	
B's later trust level					
Study 1					
B's earlier perceived willingness to sacrifice	.35	2.15*	.11	1.25	.76**
B's earlier trust level	.87	9.95**	.82	9.49**	
Hypothesis 5: B's trust level → B's dependence level					
B's later dependence level					
Study 1					
B's earlier trust level	.60	4.11**	.17	1.51†	.73**
B's earlier dependence level	.84	9.41**	.75	7.19**	
Study 2					
B's earlier trust level	.36	2.97**	-.09	-0.84	.61**
B's earlier dependence level	.73	8.24**	.80	7.66**	

Note. Table values are betas from regression analyses; significance levels are based on one-tailed tests. In addition to the variables listed above, all analyses also included main effects of time and sex, the Time × Sex interaction, and all two- and three-factor interactions of time and sex with each model variable.  
 †  $p < .10$  (marginally significant). \*  $p < .05$ . \*\*  $p < .01$ .

studies, trust level was significantly positively associated with dependence level (see "Hypothesis 5" in Table 2). The residualized lagged analyses revealed that in Study 1, earlier trust predicted marginal change over time in dependence (see Table 3). However, the residualized lagged association was nonsignificant in Study 2 because of either (a) insufficient change over time in dependence (for the simple association of earlier dependence with later dependence,  $\beta = .73$ ), or (b) suppression (the beta for earlier dependence was .73 in the simple association but .80 in the regression analysis, and the beta for earlier trust was .36 in the simple association but  $-.09$  in the regression analysis).

#### *Hypotheses 1 Through 5: Concurrent and Residualized Lagged Mediation Analyses*

The simple associations reported above provide very good support for our model. However, there are plausible alternative explanations of these findings—the observed associations might be attributable to common method variance or to participants' tendencies to describe well-functioning relationships in a generally favorable light. As a more stringent test of the plausibility of the model advanced in the introduction and displayed in Figure 1, we performed a series of first-order concurrent and residualized lagged mediation analyses (cf. Baron & Kenny, 1986). To the extent that our model is valid, we should find that in simultaneous regression analyses examining the associations of each criterion with its presumed proximal and next-most-distal predictor (a) the presumed proximal predictor should continue to account for substantial variance in the criterion, whereas (b) the presumed distal predictor should account for reduced variance in the criterion.

*Concurrent mediation analyses.* Table 4 summarizes the results of concurrent mediation analyses that correspond to Hypotheses 1 through 5. As noted earlier, each criterion was significantly positively associated with its presumed proximal predictor—all simple associations were significant (see statistics under "Simple association" in Table 4; the presumed proximal predictor is presented in the first row for each model). And consistent with expectations, most criteria were positively associated with their presumed distal predictors—13 of 14 simple associations were significant or marginal (see statistics under "Simple association" in Table 4; the presumed distal predictor is presented in the second row for each model). In all 14 cases, the association of the criterion with its presumed proximal predictor was descriptively larger than the association of the criterion with its presumed distal predictor.

Consistent with expectations, when we performed simultaneous regression analyses examining the associations of each criterion with its presumed proximal and next-most-distal predictor, we found that coefficients for the presumed proximal predictor tended to remain relatively strong—for presumed proximal predictors, the betas observed in the mediation analyses declined by an average of only .07 compared with the betas observed in the simple associations (see statistics under "Regression analysis" in Table 4). In all 14 analyses, the presumed proximal predictor accounted for significant or marginal variance in the criterion above and beyond the presumed distal predictor. Also consistent with expectations, the simultaneous regression analyses revealed that coefficients for the presumed distal predictor tended to decline rather substantially—for presumed distal predictors, the betas observed in the mediation analyses declined by an average of .27 compared with the

betas observed in the simple associations (see statistics under "Regression analysis" in Table 4). Only 2 of 14 analyses revealed that the presumed distal predictor accounted for even marginal variance in the criterion above and beyond the presumed proximal predictor.

Consistent with Hypothesis 1, when we regressed commitment simultaneously onto its presumed proximal and distal predictors, associations with dependence (the presumed proximal predictor) remained relatively strong, whereas associations with trust level (the presumed distal predictor) declined substantially. Consistent with Hypothesis 2, when we regressed indexes of pro-relationship behavior—both accommodation and sacrifice—simultaneously onto their presumed proximal and distal predictors, associations with commitment tended to remain strong, whereas associations with dependence declined considerably. Consistent with Hypothesis 3, regression analyses examining Partner B's perceptions of the partner's pro-relationship behavior—both perceived partner accommodation and perceived partner willingness to sacrifice—revealed that associations with Partner A's self-reported pro-relationship behavior tended to remain quite strong whereas associations with Partner A's commitment declined substantially. Consistent with Hypothesis 4, regressions of Partner B's trust onto Partner B's perceptions of the partner's pro-relationship behavior—along with Partner A's self-report of pro-relationship behavior—revealed that associations with the former variables remained strong whereas associations with the latter variables declined considerably. And consistent with Hypothesis 5, when we regressed dependence onto its presumed proximal and distal predictors, associations with trust tended to remain strong whereas associations with perceptions of the partner's pro-relationship behavior declined substantially. These results provide excellent support for the fairly precise model of associations among variables that we outlined in the introduction.

Is it possible that the association of perceived partner pro-relationship behavior with trust results from projection? In reporting on perceived partner accommodation and willingness to sacrifice, it is possible that individuals operate on the assumption that their partners engage in pro-relationship acts to the same degree as they themselves do. If this line of reasoning is valid, it is possible that the observed association of perceived partner accommodation (and perceived sacrifice) with trust is attributable to the association of perceived partner accommodation with own accommodation (and to the association of perceived partner sacrifice with own sacrifice). We performed auxiliary analyses to explore this possibility. First, we examined the simple associations of trust level with both perceptions of the partner's pro-relationship behavior ( $\beta = .72$  and  $.62$  for perceived partner accommodation and  $.27$  for perceived partner sacrifice) and self-reports of own pro-relationship behavior ( $\beta = .62$  and  $.58$  for own accommodation and  $.22$  for own sacrifice; all  $ps < .10$ ). Thus, both perceived partner pro-relationship behavior and own pro-relationship behavior exhibit simple associations with trust. When we regressed trust level onto both perceived partner accommodation and self-reported own accommodation, coefficients remained strong for perceived partner accommodation ( $\beta = .54$  and  $.45$ , both  $ps < .01$ ), whereas coefficients declined considerably for own accommodation ( $\beta = .27$  and  $.24$ , both  $ps < .10$ ). Results were less clear for sacrifice, in that when we regressed trust level onto both perceived partner sacrifice and self-reported own sacrifice, coef-

Table 4  
Hypotheses 1 Through 5: Concurrent Mediation Analyses for All Model Variables, Studies 1 and 2

Variable	Simple association		Regression analysis		
	$\beta$	$t$	$\beta$	$t$	$R^2$
Hypothesis 1: A's dependence level → A's commitment level					
A's commitment level					
Study 1					
A's dependence level	.75	7.12**	.65	5.03**	.61**
A's trust level	.59	4.17**	.18	1.20	
Study 2					
A's dependence level	.73	7.89**	.65	6.07**	.58**
A's trust level	.49	4.35**	.15	1.36†	
Hypothesis 2: A's commitment level → A's pro-relationship behavior					
A's accommodation					
Study 1					
A's commitment level	.48	3.37**	.39	1.68*	.25**
A's dependence level	.39	2.66**	.11	0.49	
Study 2					
A's commitment level	.39	3.05**	.25	1.38†	.18**
A's dependence level	.38	3.13**	.20	1.05	
A's willingness to sacrifice					
Study 1					
A's commitment level	.52	3.92**	.34	1.36†	.37**
A's dependence level	.47	3.46**	.22	1.06	
Hypothesis 3: A's pro-relationship behavior → B's perceived pro-relationship behavior					
B's perceived accommodation					
Study 1					
A's accommodation	.48	3.63**	.43	2.52**	.27**
B's commitment level	.32	1.95*	.11	0.60	
Study 2					
A's accommodation	.55	4.57**	.51	3.96**	.34**
B's commitment level	.28	2.13*	.08	0.62	
B's perceived willingness to sacrifice					
Study 1					
A's willingness to sacrifice	.49	3.33**	.36	2.01*	.29**
B's commitment level	.40	2.77**	.22	1.20	
Hypothesis 4: B's perceived pro-relationship behavior → B's trust level					
B's trust level					
Study 1					
B's perceived accommodation	.72	6.29**	.64	4.85**	.58**
A's accommodation	.46	3.30**	.15	1.12	
Study 2					
B's perceived accommodation	.62	6.01**	.53	4.10**	.43**
A's accommodation	.47	3.93**	.16	1.23	
B's trust level					
Study 1					
B's perceived willingness to sacrifice	.27	1.86*	.29	1.61†	.13*
A's willingness to sacrifice	.15	0.92	.02	0.16	
Hypothesis 5: B's trust level → B's dependence level					
B's dependence level					
Study 1					
B's trust level	.63	4.69**	.63	3.19**	.39**
B's perceived accommodation	.46	3.08**	.01	0.02	
Study 2					
B's trust level	.53	4.56**	.56	3.61**	.32**
B's perceived accommodation	.29	2.26*	-.05	-0.32	
B's dependence level					
Study 1					
B's trust level	.63	4.69**	.59	4.14**	.46**
B's perceived willingness to sacrifice	.36	2.32*	.20	1.50†	

Note. Table values are betas from regression analyses; significance levels are based on one-tailed tests. In addition to the variables listed above, all analyses also included main effects of time and sex, the Time × Sex interaction, and all two- and three-factor interactions of time and sex with each model variable.  
†  $p < .10$  (marginally significant). \*  $p < .05$ . \*\*  $p < .01$ .

ficients declined for both variables ( $\beta = .13$  and  $.13$ , both *ns*). On balance, these findings suggest that our results for trust are not a simple product of projection; that is, the association of trust with perceived partner behavior is more than a reflection of individuals' perceptions of their own behavior.

*Residualized lagged mediation analyses.* Table 5 summarizes the results of residualized lagged mediation analyses that correspond to Hypothesis 1 through 5. As noted earlier, all criteria exhibited simple lagged associations with their presumed proximal predictors—all simple lagged associations were significant (see statistics under "Simple association" in Table 5; the presumed proximal predictor is presented in the first row for each model). And consistent with expectations, all criteria tended to exhibit lagged associations with their presumed distal predictors—all 14 simple associations were significant or marginal (the presumed distal predictor is presented in the second row for each model). In all 14 cases, the simple association of the criterion with its presumed proximal predictor was descriptively larger than the association with its presumed distal predictor.

Unfortunately, when we performed simultaneous multiple regression analyses examining residualized lagged associations, most associations declined rather substantially for both presumed proximal predictors and presumed distal predictors. The presumed proximal predictors accounted for significant or marginal variance in only 5 of 14 analyses; in no instance did the presumed distal predictor account for even marginal variance above and beyond the presumed proximal predictor. Once we took into account variance attributable to the earlier measure of each criterion, there was simply insufficient remaining variance to examine associations with other predictor variables (for the simple association of the earlier and later measures of each criterion, average  $\beta = .80$ ). (Even in the residualized lagged simple associations presented earlier [see Table 3], many presumed proximal predictors accounted for only marginal change over time in the criteria.) These findings are not inconsistent with our model, in that the presumed distal predictors in no case accounted for greater change over time in the criteria than did the presumed proximal predictors. At the same time, these results are somewhat inconclusive, in that the proximal predictors generally do not account for substantial variance above and beyond the distal predictors, presumably because of insufficient change over time in the criteria.

#### *Associations of Model Variables With Dyadic Adjustment*

To provide additional evidence relevant to our model of mutual cyclical growth, we examined the simple associations of all model variables with dyadic adjustment.<sup>10</sup> The concurrent analyses revealed significant simple associations of all model variables with dyadic adjustment, in both Study 1 (betas ranged from .20 to .64) and Study 2 (betas ranged from .60 to .78; all *ps* < .05). Lagged analyses revealed significant or marginal simple lagged associations of all earlier model variables with later dyadic adjustment in both Study 1 (betas ranged from .23 to .66) and Study 2 (betas ranged from .45 to .61; all *ps* < .10). However, in analyses examining residualized lagged associations with dyadic adjustment, that is, in analyses in which we regressed later adjustment simultaneously onto earlier model variables along with earlier adjustment, only four associations were significant or marginal: In Study 1 earlier accommodation, earlier perceived accommodation,

and earlier trust predicted significant or marginal change over time in adjustment, and in Study 2 earlier perceived partner accommodation predicted significant change over time in adjustment ( $\beta$ s = .16, .19, .21, and .16; all *ps* < .10). Although the residualized lagged analyses are inconclusive, the results of concurrent and simple lagged analyses provide moderately good evidence that model variables such as dependence, commitment, pro-relationship behavior, and trust are associated with healthy functioning in ongoing close relationships.<sup>11</sup>

#### *Associations of Model Variables With Attachment Style*

In Study 2 we obtained measures of each partner's self-reported tendencies toward secure attachment, anxious-ambivalent attachment, and avoidant attachment. We performed a variety of concurrent analyses to examine the associations of attachment style with model variables, the results of which are summarized in Table 6. First, we examined the simple concurrent associations of secure, anxious-ambivalent, and avoidant attachment with dependence, commitment, accommodative behavior, perceived partner accommodation, and trust, as well as with partner trust (see statistics under "Simple associations" in Table 6). For purposes of comparison, we also present the simple association for each presumed proximal predictor from our interdependence-based model (e.g., for the analysis predicting dependence, the presumed proximal predictor was trust; see statistics under "Interdependence predictor").

Most concurrent simple associations with attachment variables were in the anticipated direction: Secure attachment tended to exhibit positive associations with model variables, whereas associations with anxious-ambivalent and avoidant attachment tended to be negative. Out of a total of 18 concurrent links with the three attachment variables, 10 associations were significant or marginal. However, associations with the attachment variables tended to be descriptively weak: Across the six regression analyses examining

<sup>10</sup> The Dyadic Adjustment Scale assesses diverse aspects of couple well-being, including intimacy, intent to persist, effective problem solving, and positive affect. Accordingly, a few items in the instrument overlap with key variables in our model. To ensure that our results were not influenced by item overlap, we deleted key items from the instrument to develop (a) a commitment-and-satisfaction-purged measure of adjustment and (b) a conflict-purged measure of adjustment. Analyses performed using these "purged" measures of adjustment parallel those reported below.

<sup>11</sup> In support of the independence of the commitment and trust constructs, in concurrent analyses in which we regressed dyadic adjustment simultaneously onto commitment and trust, both variables accounted for unique variance in couple well-being (for commitment  $\beta$ s = .29 and .31, for trust  $\beta$ s = .53 and .63, all *ps* < .05). We also performed concurrent analyses in which we regressed adjustment simultaneously onto (a) own accommodation and perceived partner accommodation and (b) own willingness to sacrifice and perceived partner willingness to sacrifice. In support of the independence of reports of one's own and perceptions of the partner's pro-relationship acts, both own accommodation and perceived partner accommodation accounted for unique variance in couple well-being (for own accommodation  $\beta$ s = .41 and .31, for perceived partner accommodation  $\beta$ s = .26 and .42, all *ps* < .05). In the Study 1 analyses examining willingness to sacrifice, neither own sacrifice nor perceived partner sacrifice accounted for significant unique variance in simultaneous regression analyses ( $\beta$ s = .29 and  $-.05$ , both *ns*).

simple associations, the models including secure attachment accounted for an average of 6% of the variance in model variables, models including anxious-ambivalent attachment accounted for an average of 13% of the variance, and models including avoidant attachment accounted for an average of 5% of the variance.

Next, we performed regression analyses examining the simultaneous associations of secure, anxious-ambivalent, and avoidant attachment with each criterion (see statistics under "Three Attachment Predictors" in Table 6). Anxious-ambivalent attachment exhibited consistent negative associations with model variables, accounting for significant unique variance in four of six regression analyses; only one coefficient for secure attachment was marginal, and only one coefficient for avoidant attachment was marginal. Across the six regression analyses, the three attachment variables collectively accounted for an average of 18% of the variance in model variables. In contrast, parallel regression analyses including just one interdependence predictor variable accounted for an average of 33% of the variance in model variables.

To determine whether attachment style accounted for unique variance beyond interdependence variables, we performed regression analyses including four predictors, examining simultaneous associations with secure, anxious-ambivalent, and avoidant attachment, along with the appropriate proximal interdependence predictor (see statistics under "Interdependence predictor plus three attachment predictors" in Table 6). Very few attachment coefficients were significant—two of six coefficients for anxious-ambivalent attachment were significant, and one coefficient for secure attachment was marginal. In contrast, all six coefficients for the interdependence predictors were significant. Across the six analyses, the four-factor models accounted for an average of 39% of the variance in the criteria. Compared with regression models including just one interdependence predictor, these four-factor models accounted for an average of 6% additional explained variance.

It is possible that the four-predictor regression models underestimate variance attributable to each attachment style, in that all three attachment variables were included in each analysis. Accordingly, we performed a final series of analyses, regressing each criterion onto two predictor variables—the appropriate proximal interdependence predictor along with just one attachment variable. Analyses examining the interdependence predictor along with secure attachment revealed that the coefficient for secure attachment was significant in predicting accommodation (for the interdependence predictor and secure attachment,  $\beta_s = .37$  and  $.28$ , both  $ps < .05$ ). These models accounted for an average of 34% of the variance in model criteria—1% more than the models including only the interdependence predictor. In analyses examining the interdependence predictor along with anxious-ambivalent attachment, the coefficient for anxious-ambivalent attachment was significant in predicting accommodation (for the interdependence predictor and anxious-ambivalent attachment,  $\beta_s = .33$  and  $-.27$ ) and trust level ( $\beta_s = .53$  and  $-.28$ , all  $ps < .05$ ). These models accounted for an average of 37% of the variance in criteria—4% more than the models including only the interdependence predictor. In analyses examining the interdependence predictor along with avoidant attachment, the coefficient for avoidant attachment was marginal in predicting accommodation (for the interdependence predictor and avoidant attachment,  $\beta_s = .35$  and  $-.20$ , both  $ps < .10$ ). These models accounted for an average of 34% of the

variance in criteria—1% more than the models including only the interdependence predictor. Thus, attachment style typically does not account for substantial variance beyond the features of interdependence that reside at the heart of the present analysis. In contrast—and consistent with expectations—variables from our interdependence-based model consistently account for unique variance beyond an attachment-based model.

## Discussion

### *Summary of Results*

Findings from two longitudinal studies—one examining dating relationships and one examining marital relationships—revealed good support for an interdependence-based model of the within-individual and across-partner associations among commitment, pro-relationship behavior, and trust. Table 7 presents a summary of findings regarding the concurrent and residualized lagged associations among contiguous model variables, Table 8 presents a summary of findings from concurrent mediation analyses, and Table 9 presents a summary of findings from residualized lagged mediation analyses.

*Simple associations.* Analyses examining the concurrent simple associations between contiguous model variables revealed excellent support for our model: 15 of 15 analyses were consistent with predictions (see statistics under "Concurrent association" in Table 7). In parallel manner, analyses examining the simple lagged associations between contiguous model variables also revealed excellent support for our model: in 15 of 15 analyses, earlier measures of presumed predictors exhibited significant associations with later measures of presumed criteria (see statistics under "Lagged association"). More importantly, residualized lagged analyses revealed moderately good support for our model: in 11 of 15 analyses, we observed significant or marginal associations of predictors with criteria when we examined change in criteria by regressing later criteria onto earlier predictors, controlling for earlier levels of each criterion (see statistics under "Residualized lagged association"). Even when we limit ourselves to hypotheses that are entirely new to the present research (i.e., the Commitment-Trust Hypothesis, as well as Hypotheses 3, 4, and 5), our hypotheses were supported in all 10 concurrent analyses and in 7 of 10 residualized lagged analyses. Results from the lagged analyses are an important complement to the concurrent results, in that they help us rule out alternative explanations of our findings. For example, assuming that there is some day-to-day variability in mood, it seems unlikely that mood effects could explain the associations between earlier predictors and later criteria. Also, it seems unlikely that self-report bias could explain our findings, in that the residualized lagged analyses predict later criteria while controlling for earlier levels of the criteria. Such stringent statistical control arguably captures and controls for tendencies toward consistency in responding, acquiescence, or tendencies toward socially desirable responding.

*Mediation analyses.* Analyses examining first-order mediation assessed the simultaneous associations of presumed proximal and distal predictors with a given criterion. Preliminary concurrent analyses revealed significant simple associations of predictor variables with their respective criteria for 13 of 13 proximal predictors and for 13 of 14 distal predictors (see statistics under "Simple



Table 5  
*Hypotheses 1 Through 5: Residualized Lagged Mediation Analyses  
 for All Model Variables, Studies 1 and 2*

Variable	Simple association		Regression analysis		
	$\beta$	$t$	$\beta$	$t$	$R^2$
Hypothesis 1: A's dependence level $\rightarrow$ A's commitment level					
A's later commitment level					
Study 1					
A's earlier dependence level	.65	5.35**	.11	0.81	.68**
A's earlier trust level	.50	3.43**	.10	0.79	
A's earlier commitment level	.79	8.70**	.68	5.20**	
Study 2					
A's earlier dependence level	.63	5.94**	.21	1.53†	.59**
A's earlier trust level	.33	2.68**	-.08	-0.69	
A's earlier commitment level	.73	8.03**	.64	4.73**	
Hypothesis 2: A's commitment level $\rightarrow$ A's pro-relationship behavior					
A's later accommodation					
Study 1					
A's earlier commitment level	.45	2.94**	.09	0.50	.57**
A's earlier dependence level	.40	2.77**	.15	0.86	
A's earlier accommodation	.72	6.66**	.63	4.75**	
Study 2					
A's earlier commitment level	.35	2.79**	-.01	-0.09	.70**
A's earlier dependence level	.33	2.50**	-.08	-0.66	
A's earlier accommodation	.84	10.82**	.87	9.68**	
A's later willingness to sacrifice					
Study 1					
A's earlier commitment level	.50	3.38**	.10	0.62	.69**
A's earlier dependence level	.46	3.19**	.00	0.02	
A's earlier willingness to sacrifice	.83	8.15**	.76	5.74**	
Hypothesis 3: A's pro-relationship behavior $\rightarrow$ B's perceived pro-relationship behavior					
B's later perceived accommodation					
Study 1					
A's earlier accommodation	.52	3.69**	.11	0.89	.67**
A's earlier commitment level	.33	2.11*	.03	0.27	
B's earlier perceived accommodation	.85	3.49**	.75	6.54**	
Study 2					
A's earlier accommodation	.48	4.00**	.16	1.37†	.57**
A's earlier commitment level	.27	2.01*	-.03	-0.26	
B's earlier perceived accommodation	.74	7.11**	.66	5.96**	
B's later perceived willingness to sacrifice					
Study 1					
A's earlier willingness to sacrifice	.52	3.52**	.20	1.55†	.69**
A's earlier commitment level	.41	2.54**	.02	0.19	
B's earlier perceived willingness to sacrifice	.81	7.46**	.73	5.99**	
Hypothesis 4: B's perceived pro-relationship behavior $\rightarrow$ B's trust level					
B's later trust level					
Study 1					
B's earlier perceived accommodation	.71	5.65**	.16	1.14	.78**
A's earlier accommodation	.40	2.70**	.00	0.00	
B's earlier trust level	.87	9.95**	.77	5.87**	
Study 2					
B's earlier perceived accommodation	.52	4.54**	.17	1.43†	.56**
A's earlier accommodation	.47	3.85**	.05	0.36	
B's earlier trust level	.76	8.75**	.61	4.91**	
B's later trust level					
Study 1					
B's earlier perceived willingness to sacrifice	.35	2.15*	.08	0.83	.76**
A's earlier willingness to sacrifice	.21	1.30†	.06	0.57	
B's earlier trust level	.87	9.95**	.82	9.14**	

Table 5 (continued)

Variable	Simple association		Regression analysis		
	$\beta$	$t$	$\beta$	$t$	$R^2$
Hypothesis 5: B's trust level $\rightarrow$ B's dependence level					
B's later dependence level					
Study 1					
B's earlier trust level	.60	4.11**	.11	0.75	.74**
B's earlier perceived accommodation	.45	2.93**	.06	0.43	
B's earlier dependence level	.84	9.41**	.76	7.52**	
Study 2					
B's earlier trust level	.36	2.97**	-.13	-1.01	.63**
B's earlier perceived accommodation	.20	1.53†	.06	0.50	
B's earlier dependence level	.73	8.24**	.80	7.35**	
B's later dependence level					
Study 1					
B's earlier trust level	.60	4.11**	.20	1.57†	.71**
B's earlier perceived willingness to sacrifice	.37	2.23*	.07	0.71	
B's earlier dependence level	.84	9.41**	.67	5.51**	

Note. Table values are betas from regression analyses; significance levels are based on one-tailed tests. In addition to the variables listed above, all analyses also included main effects of time and sex, the Time  $\times$  Sex interaction, and all two- and three-factor interactions of time and sex with each model variable.  
 †  $p < .10$  (marginally significant). \*  $p < .05$ . \*\*  $p < .01$ .

associations" in Table 8 for both "Proximal predictor" and "Distal predictor").<sup>12</sup> In each instance, simple associations with criteria were descriptively stronger for presumed proximal predictors than for presumed distal predictors. When we regressed each criterion simultaneously onto its presumed proximal and distal predictors, we obtained excellent support for our model of mediation (see statistics under "Mediation analyses" in Table 8 for both "Proximal predictor" and "Distal predictor"; we did not examine mediation for the Commitment–Trust Hypothesis because this association is not a direct link in our model): (a) In 14 of 14 analyses, presumed distal predictors accounted for substantially reduced variance beyond presumed proximal predictors (see "Distal predictor"; coefficients declined by an average of .27), whereas (b) in 14 of 14 analyses, presumed proximal predictors accounted for substantial variance beyond presumed distal predictors (see statistics under "Proximal predictor"; coefficients declined by an average of only .07). Thus, the associations of presumed distal predictors with criteria were rather thoroughly mediated by associations with presumed proximal predictors. Consistent support for our model was observed not only for hypotheses that have been examined in previous research but also for hypotheses that are new to the present research.

Preliminary lagged analyses revealed significant or marginal simple associations of predictor variables with their respective criteria for all 13 proximal predictors and for all 14 distal predictors (see statistics under "Simple associations" in Table 9). In each instance, simple lagged associations with criteria were descriptively stronger for presumed proximal predictors than for presumed distal predictors. When we regressed later measures of each criterion simultaneously onto its presumed proximal and distal predictors, controlling for earlier levels of the criterion, we obtained inconclusive evidence relevant to our model of mediation (see statistics under "Mediation analyses" in Table 9): (a) In all 14

analyses, presumed distal predictors accounted for substantially reduced variance beyond presumed proximal predictors (see "Distal predictor"), and (b) in only 5 of 14 analyses, presumed proximal predictors accounted for substantial variance beyond presumed distal predictors (see statistics under "Proximal predictor"). These results do not actively disconfirm our model, in that distal predictors in no case accounted for substantial variance in the presence of proximal predictors. At the same time, proximal predictors frequently did not account for substantial variance beyond distal predictors. Presumably, these findings were weak because residualized lagged mediation represents an enormously difficult "test to pass"—once we control for the earlier level of each criterion, there is insufficient remaining variance to obtain reliable estimates of variance attributable to two additional predictor variables. Indeed, it is somewhat remarkable that we observed marginally significant effects for presumed proximal variables in 5 of 14 analyses.

The evidence from mediation analyses—particularly the excellent support revealed in concurrent mediation analyses—does much to demonstrate the independence of our constructs, as well as provide support for claims regarding the direct and indirect associations among model variables. These results also help us rule out alternative explanations of our findings. For example, it could be

<sup>12</sup> For Study 1, two mediation analyses are relevant to Hypothesis 5: one analysis in which accommodation is the presumed distal predictor of dependence and a second analysis in which sacrifice is the presumed distal predictor of dependence (see Tables 8 and 9, first and second rows under "Hypothesis 5"). For both rows, the presumed proximal predictor is trust. Accordingly, the simple association of trust with dependence is identical for the first and second rows. For the second row the simple association is identical to the association presented in the immediately preceding row.

Table 6  
*Predicting Each Model Variable From Attachment Style Variables:  
 Concurrent Analyses, Study 2*

Predicting criteria	Interdependence predictor	Attachment style			$R^2$
		Secure	Anxious-ambivalent	Avoidant	
Simple associations					
Dependence level	.53**	.07	-.33**	-.13	
Commitment level	.73**	.07	-.16	-.18†	
Accommodation	.39**	.31**	-.32**	-.26*	
Perceived partner accommodation	.55**	.18†	-.34**	-.15	
Trust level	.62**	.18†	-.44**	-.15	
Partner's trust level	.46**	.13	-.17†	-.16	
Three attachment predictors					
Dependence level		-.06	-.33**	-.12	.18
Commitment level		-.09	-.15	-.21†	.12
Accommodation		.20†	-.27*	-.10	.21
Perceived partner accommodation		.07	-.20*	-.10	.19
Trust level		.09	-.44**	-.04	.26
Partner's trust level		.02	-.16	-.13	.10
Interdependence predictor plus three attachment predictors					
Dependence level	.46**	-.11	-.13	-.11	.33
Commitment level	.73**	-.05	.09	-.13	.59
Accommodation	.32**	.23†	-.23*	-.04	.30
Perceived partner accommodation	.56**	-.02	.08	-.06	.34
Trust level	.52**	.04	-.29**	-.02	.50
Partner's trust level	.44**	.06	-.08	-.05	.26

*Note.* Table values are betas from regression analyses; significance levels are one-tailed tests. In addition to the predictor variables listed above, all analyses also included main effects of time and sex, the Time  $\times$  Sex interaction, and all two- and three-factor interactions of time and sex with each predictor variable.

†  $p < .10$  (marginally significant). \*  $p < .05$ . \*\*  $p < .01$ .

argued that the simple associations among model variables are attributable to common method variance or to tendencies toward socially desirable responding. Alternatively, it could be argued that the simple associations are attributable to participants' tendencies to describe well-functioning relationships in a generally favorable light and to describe poorly functioning relationships in a disparaging light. The fact that mediation analyses consistently revealed stronger associations for presumed proximal causes than for presumed distal causes does much to enhance our confidence in the specific model of cause-and-effect outlined in the introduction and displayed in Figure 1. In the following paragraphs we address each component of the model, reviewing findings relevant to each hypothesis and discussing the broader implications of our results.

#### *Commitment, Pro-Relationship Behavior, and Trust*

Consistent with the Commitment-Trust Hypothesis, we obtained very good support for the assertion that trust can be construed as an implicit gauge of the strength of a partner's commitment. Although the Figure 1 model does not include a direct link between Partner A's commitment and Partner B's trust, we examined this association because it embodies a key assumption underlying our model: the claim that in relationships characterized by strong interdependence, partners' experiences are inextricably linked (Kelley & Thibaut, 1978; Rusbult & Van Lange, 1996). Consistent with our interdependence analysis, the relationship-specific variables that guide each individual's behavior appear to

be mirrored by complementary relationship-specific variables that ultimately guide the partner's behavior. Moreover, it is striking that although individual commitment and partner trust are strongly linked in *across-partner* analyses, auxiliary analyses revealed that these variables exhibit unique *within-individual* associations with couple well-being (see Footnote 11); that is, although trust arguably is a gauge of partner commitment, commitment and trust are sufficiently distinct *within* each individual that they account for independent variance in couple well-being.

Hypotheses 1 and 2 examined predictions that have received support in prior research. Consistent with Hypothesis 1, we observed very good support for the frequently tested prediction that dependence on a relationship (operationally defined in the present work as the "sum total" of high satisfaction, poor alternatives, and high investments) is associated with strong commitment (e.g., Bui et al., 1996; Feinlee et al., 1990; Rusbult, 1983; Rusbult, Martz, & Agnew, 1998). Extending prior research relevant to Hypothesis 1, the present research examined the role of dependence in mediating the association of presumed distal variables with commitment level. Consistent with expectations, we observed evidence consistent with the claim that strong trust (the presumed distal predictor) does not directly translate into enhanced commitment—trust arguably yields enhanced commitment largely insofar as strong trust produces enhanced dependence, which in turn strengthens commitment. Moreover, and in accord with Hypothesis 2, we obtained moderate support for the previously tested prediction that the

Table 7  
 Summary of Concurrent and Lagged Simple Associations,  
 Studies 1 and 2

Analyses	<i>p</i> values		Residualized lagged association
	Concurrent association	Lagged association	
Commitment-trust hypothesis: A's commitment level → B's trust level			
Study 1	.05	.05	.10
Study 2	.05	.05	.10
Hypothesis 1: A's dependence level → A's commitment level (supported in previous research)			
Study 1	.05	.05	.10
Study 2	.05	.05	.10
Hypothesis 2: A's commitment level → A's pro-relationship behavior (supported in previous research)			
Study 1 accommodation	.05	.05	.05
Study 1 sacrifice	.05	.05	.10
Study 2 accommodation	.05	.05	<i>ns</i>
Hypothesis 3: A's pro-relationship behavior → B's perceived pro-relationship behavior			
Study 1 accommodation	.05	.05	.10
Study 1 sacrifice	.05	.05	.05
Study 2 accommodation	.05	.05	.10
Hypothesis 4: B's perceived pro-relationship behavior → B's trust level			
Study 1 accommodation	.05	.05	.10
Study 1 sacrifice	.05	.05	<i>ns</i>
Study 2 accommodation	.05	.05	<i>ns</i>
Hypothesis 5: B's trust level → B's dependence level			
Study 1	.05	.05	.10
Study 2	.05	.05	<i>ns</i>

willingness to depart from one's immediate self-interest for the good of a relationship is predicted by strong commitment (e.g., Arriaga & Rusbult, 1998; Rusbult, Bissonnette, et al., 1998; Rusbult et al., 1991; Van Lange et al., 1997). Importantly, in the present research we used two operational definitions of *pro-relationship behavior*, examining the associations of commitment with both accommodative behavior and willingness to sacrifice.

In support of Hypothesis 3, we observed very good evidence that partners perceive one another's pro-relationship acts in a manner that to some extent agrees with each person's self-report. A social constructionist might argue that such findings reflect partners' shared understandings regarding their relationship and that across-partner agreement does not mean that such perceptions necessarily are veridical (cf. Gergen, 1985). However, our findings were relatively construct specific; for example, Partner A's self-reported accommodation tended to exhibit specific links with Partner B's perceived partner accommodation, not with other

model variables. Thus, a social constructionist would need to argue that partners develop quite specific "stories" about their relationships and that these stories align with those identified in our model. In light of previous demonstrations that self-reported commitment, accommodation, and sacrifice exhibit relatively good agreement with direct behavioral measures (e.g., Drigotas & Rusbult, 1992; Rusbult et al., 1991; Van Lange et al., 1997), we think the most parsimonious interpretation of our findings is that interdependence structure to some degree is "real," and that individuals are reasonably in touch with circumstances of interdependence in their relationships. Interdependence structure and processes would seem to constitute more than simple "in the head" perceptual phenomena.

In accord with Hypothesis 4, we obtained moderately good evidence that perceived partner accommodation and sacrifice are associated with enhanced trust. These findings are compatible with the assertion that when a partner is seen to place the welfare of the relationship above his or her immediate self-interest, individuals come to feel more trusting of the partner (cf. Holmes & Rempel, 1989). According to this analysis, trust is a function of three elements: the individual, the partner, and the situation. Diagnostic situations provide individuals with opportunities to display their pro-relationship motives and serve as tests by which partners may form inferences regarding the individual's pro-relationship motives. Thus, if a relationship provides for few (or no) diagnostic situations in which individuals may display their pro-relationship motives, trust cannot develop. If individuals "fail the test" when confronted with diagnostic situations—that is, if individuals pursue their immediate self-interest rather than exhibiting pro-relationship motives and behavior—trust cannot develop. And if partners fail to perceive the individual's pro-relationship motives and behavior, trust cannot develop.

Is it possible that findings relevant to Hypothesis 4 reflect "self-processes" rather than interdependence processes? For example, is it possible that trust results from projection, such that (a) perceptions of the partner's behavior reflect perceptions of one's own behavior, and (b) the association of perceived partner behavior with trust is an artifact of the link between own behavior and trust? Auxiliary analyses revealed that although both own accommodation and perceived partner accommodation exhibit simple associations with trust, in simultaneous concurrent analyses (a) perceived partner accommodation accounts for unique variance in trust, whereas (b) own accommodation accounts for substantially reduced variance in trust. (Parallel analyses performed for measures of own sacrifice and perceived partner sacrifice revealed inconclusive results.) These findings help demonstrate the independence of model variables, revealing a pattern of findings that is compatible with an interdependence-based analysis regarding the proximal and distal causes of trust.

Consistent with Hypothesis 5, we obtained good evidence that trust is positively associated with dependence. Our findings regarding associations with trust are compatible with the notion that strong trust frees individuals from anxiety regarding their relationships, allowing them to risk increased dependence on a partner (cf. Holmes & Rempel, 1989). Indeed, it may be useful to conceptualize both trust and commitment as aspects of "relationship regulation." Our model suggests that as individuals become increasingly dependent they develop strong commitment, which in turn yields enhanced willingness to engage in pro-relationship behav-

Table 8  
Summary of Concurrent Mediation Analyses, Studies 1 and 2

Analyses	p values			
	Simple associations		Mediation analyses	
	Proximal predictor	Distal predictor	Proximal predictor	Distal predictor
Hypothesis 1: A's dependence level → A's commitment level (supported in previous research)				
Study 1	.05	.05	.05	<i>ns</i>
Study 2	.05	.05	.05	.10
Hypothesis 2: A's commitment level → A's pro-relationship behavior (supported in previous research)				
Study 1 accommodation	.05	.05	.05	<i>ns</i>
Study 1 sacrifice	.05	.05	.10	<i>ns</i>
Study 2 accommodation	.05	.05	.10	<i>ns</i>
Hypothesis 3: A's pro-relationship behavior → B's perceived pro-relationship behavior				
Study 1 accommodation	.05	.05	.05	<i>ns</i>
Study 1 sacrifice	.05	.05	.05	<i>ns</i>
Study 2 accommodation	.05	.05	.05	<i>ns</i>
Hypothesis 4: B's perceived pro-relationship behavior → B's trust level				
Study 1 accommodation	.05	.05	.05	<i>ns</i>
Study 1 sacrifice	.05	<i>ns</i>	.10	<i>ns</i>
Study 2 accommodation	.05	.05	.05	<i>ns</i>
Hypothesis 5: B's trust level → B's dependence level				
Study 1 accommodation as distal predictor	.05	.05	.05	<i>ns</i>
Study 1 sacrifice as distal predictor	Identical <sup>a</sup>	.05	.05	.10
Study 2 accommodation as distal predictor	.05	.05	.05	<i>ns</i>

<sup>a</sup> The simple association is identical to the association presented in the immediately preceding row.

iors. When partners perceive such pro-relationship acts they develop enhanced trust, which in turn leads them to become increasingly dependent—increasingly satisfied, willing to drive away or derogate alternatives, and willing to invest in a relationship in material and nonmaterial ways. This brings us full circle, in that enhanced dependence is argued to yield increased commitment. Thus, relationships to some degree may be internally regulated: Via the process of adaptation to evolving patterns of interdependence, changes in each person's actions and motives trigger complementary changes in the partner. Adaptations such as these reside at the heart of an interdependence analysis (cf. Holmes, 1981; Kelley, 1983b; Rusbult & Van Lange, 1996).

Compatible with our model of mutual cyclical growth, we expected to observe positive associations of all model variables with couple well-being. Concurrent analyses revealed associations of all model variables with dyadic adjustment; residualized lagged analyses revealed several simple associations with change in ad-

justment. These results are particularly meaningful in combination with earlier-reported findings: The fact that Partner A's commitment is associated with Partner B's trust is compatible with our general model. The support for Hypotheses 1 through 5 that we observed in concurrent and residualized lagged simple analyses and mediation analyses provides further support for this model. That model variables are also positively associated with couple well-being represents yet another piece of evidence in a network of findings that is congruent with our model. Although it is impossible to obtain definitive evidence in studies using nonexperimental methods, these findings are compatible with our analysis of the means by which close partners adapt to changing circumstances in their relationship—a pattern whereby shifts in each person's actions and motives yield predictable shifts in the actions and motives of the partner, moving couples toward enhanced (or decayed) couple functioning.

Table 9  
Summary of Residualized Lagged Mediation Analyses, Studies 1 and 2

Analyses	p values			
	Simple associations		Mediation analyses	
	Proximal predictor	Distal predictor	Proximal predictor	Distal predictor
Hypothesis 1: A's dependence level → A's commitment level (supported in previous research)				
Study 1	.05	.05	<i>ns</i>	<i>ns</i>
Study 2	.05	.05	.10	<i>ns</i>
Hypothesis 2: A's commitment level → A's pro-relationship behavior (supported in previous research)				
Study 1 accommodation	.05	.05	<i>ns</i>	<i>ns</i>
Study 1 sacrifice	.05	.05	<i>ns</i>	<i>ns</i>
Study 2 accommodation	.05	.05	<i>ns</i>	<i>ns</i>
Hypothesis 3: A's pro-relationship behavior → B's perceived pro-relationship behavior				
Study 1 accommodation	.05	.05	<i>ns</i>	<i>ns</i>
Study 1 sacrifice	.05	.05	.10	<i>ns</i>
Study 2 accommodation	.05	.05	.10	<i>ns</i>
Hypothesis 4: B's perceived pro-relationship behavior → B's trust level				
Study 1 accommodation	.05	.05	<i>ns</i>	<i>ns</i>
Study 1 sacrifice	.05	.10	<i>ns</i>	<i>ns</i>
Study 2 accommodation	.05	.05	.10	<i>ns</i>
Hypothesis 5: B's trust level → B's dependence level				
Study 1 accommodation as distal predictor	.05	.05	<i>ns</i>	<i>ns</i>
Study 1 sacrifice as distal predictor	Identical <sup>a</sup>	.05	.10	<i>ns</i>
Study 2 accommodation as distal predictor	.05	.10	<i>ns</i>	<i>ns</i>

<sup>a</sup> The simple association is identical to the association presented in the immediately preceding row.

### *Attachment Style and Interdependence Structure*

A priori, we anticipated that attachment style might play a role in shaping trust and other model variables. In the introduction we advanced an interdependence-based analysis of trust—an analysis providing ample room for influence by personal dispositions. Humans do not enter into relationships as *tabula rasa*; prior interdependence history is assumed to play a role in shaping current transformational tendencies. Moreover, the concept of felt security resides at the heart of attachment theory, and all extant empirical evidence points to the conclusion that mental models of attachment should exert meaningful effects on the capacity to trust a close partner (for reviews, see Hazan & Shaver, 1994; Reis & Patrick, 1996). However, analyses of the Study 2 data revealed that compared with interdependence structure and processes, attachment style accounts for relatively little of the variance in trust and related phenomena.

How should we interpret the relatively weak contributions of attachment style compared with interdependence variables? First, it is possible that our attachment measures were less reliable than our measures of interdependence variables. Although many recent studies examining attachment phenomena have used multiple-item indexes, in the present research we measured secure, anxious-ambivalent, and avoidant attachment with one item each. In contrast, we measured interdependence variables with multiple-item instruments. Second, it is possible that the relatively weak results for attachment variables result from the fact that our findings rest on self-report. Perhaps it is easier to accurately describe features of interdependence than it is to describe generalized attachment style. Third, it is possible that well into adulthood, close partners have the capacity to change one another's dispositions. Indeed, involvement in a healthy close relationship may eliminate preexisting differences in attachment style. Participants in Study 2 had been married for 2 to 3 years. It is possible that experiences during the early years of involvement "healed" anxious-ambivalent and avoidant persons, reducing or eliminating individual differences in attachment style. However, the sizeable test-retest correlations for attachment style ( $r_s$  ranged from .47 to .61) would seem to argue against this line of reasoning, in that (a) attachment style exhibits at least moderate stability over time, and (b) if sufficient variability in attachment style existed to reveal significant test-retest correlations, there would appear to be sufficient variability to reveal significant correlations with other variables.

More generally, it is important to note that attachment style *does* exhibit simple associations with some aspects of interdependence. Secure attachment was significantly or marginally positively associated with three of five model variables, anxious-ambivalent attachment was negatively associated with all five variables, and avoidant attachment was negatively associated with two model variables. Notably, anxious-ambivalent attachment was (marginally) negatively associated with partner trust; that is, when one person in a relationship is anxious-ambivalent, the partner finds it difficult to experience strong trust. Moreover, there were instances in which attachment variables accounted for unique variance beyond interdependence variables—secure attachment exhibited a positive unique association with accommodation, and anxious-ambivalent attachment exhibited negative unique associations with accommodation and trust.

Thus, our findings regarding attachment style are *not* notable for the fact that they are null; our attachment findings are notable in that they are weak in comparison to links among interdependence variables. It is not that the emperor is wearing *no* clothes; he is simply wearing fewer clothes than we might have imagined. Acknowledging the caveats noted earlier, it seems suitable to (tentatively) conclude that attachment style may play a less important role than interdependence structure in shaping such phenomena as the willingness to become dependent on and committed to a relationship, the tendency to engage in pro-relationship acts, and the emergence of trust. A relationship is constituted of more than the personal histories of the two partners: What transpires in an ongoing relationship has much to do with the interdependence history the partners create together.

### *Broader Implications*

*Transformation of motivation.* Before closing we should comment on several broader implications of the present findings. One implication concerns the concept of transformation of motivation. Interdependence theory highlights the importance of actual and perceived disparities between the given situation (preferences based on immediate self-interest) and the effective situation (preferences that directly guide behavior). A positive disparity between (a) given preferences and (b) effective preferences is argued to result from pro-relationship transformation (Kelley & Thibaut, 1978). A positive disparity between (a) what is perceived to be in a partner's immediate self-interest and (b) the partner's actual behavior is argued to serve as the basis for attributional activity, or the process by which individuals infer the existence of others' pro-relationship motives and dispositions (Kelley, 1979). Such positive disparities are argued to yield considerable positive affect, in that the partner's behavior is not only rewarding in itself but possesses the "added value" of providing a basis for inferring a partner's pro-relationship intentions, motives, and dispositions (Kelley, 1984).

In the context of the present work, commitment is argued to promote pro-relationship disparities between given and effective preferences (Rusbult et al., 1994), and trust is argued to reflect perceived pro-relationship disparities between given and effective partner preferences (Holmes & Rempel, 1989). The measures of own pro-relationship behavior and perceived partner pro-relationship behavior that we used in the present work (i.e., accommodation and willingness to sacrifice) are assumed to reflect pro-relationship transformation of motivation. But such measures could also be argued to reflect the simple positivity of partners' behavior during conflicted interaction. To the extent that accommodation and willingness to sacrifice are construed as simple indexes of positivity, it could be argued that our findings have little or no relevance for understanding transformation of motivation. That is, it could be argued that strong commitment promotes positive behavior during conflict, not departures from one's immediate self-interest. And it could be argued that individuals come to trust their partners simply because they observe their partners behave in a positive manner, not because they perceive that their partners have sacrificed personal well-being for the good of the relationship. As noted earlier, previous studies have revealed findings in support of the claim that accommodation *does* result from pro-relationship transformation (e.g., Rusbult et al., 1991; Yovetich & Rusbult, 1994). Nevertheless, in future research it will be

important to provide direct evidence that the association of commitment with one's own pro-relationship acts reflects pro-relationship transformation and that the association of perceived partner behavior with trust reflects the inference of partner pro-relationship transformation.

*Reciprocity, equality, and mutuality.* A second implication of the present work concerns the extant literature regarding equity and mutuality in ongoing relationships. Our model of mutual cyclical growth represents an ideal process through which equality of dependence, mutuality of commitment, and reciprocity of pro-relationship acts may be sustained. Our model suggests that (a) each person's dependence produces strengthened commitment, (b) each person's commitment yields enhanced tendencies toward pro-relationship acts, (c) each person's pro-relationship acts are perceived by the partner, (d) the perception of a partner's pro-relationship acts strengthens trust, and (e) each person's trust yields enhanced dependence. Over time with a partner, this steady cyclical pattern will function in such a manner as to yield equal vulnerability, mutual commitment, and equivalent acts of good will.

As noted earlier, this mutual cyclical pattern could have considerable functional value in the context of a well-functioning relationship. Indeed, we suspect that our model may explain general tendencies toward reciprocity, equality, and mutuality better than equity models, which tend to assume rather conscious attention to matters of fairness and equality (e.g., Hatfield, Traupmann, Sprecher, Utne, & Hay, 1985; Sprecher, 1986). Moreover, the forms of growth observed in the present work cannot be explained on the basis of equity per se, in that according to equity theory, (a) a relationship in which partners exhibit *equally low* levels of dependence, commitment, pro-relationship behavior, and trust should function as well as (b) a relationship in which partners exhibit *equally high* levels of each construct. To use the technical language of interdependence theory, there is an important difference between MinDiff transformation (i.e., seeking to minimize the discrepancy between partners' well-being) and MaxJoint transformation (i.e., seeking to maximize joint well-being; Kelley & Thibaut, 1978). Relationship growth requires more than 50–50 reciprocity—partners must sometimes be willing to give more than the other partner seems to be giving, and they must sometimes take it on faith that the partner enacts as many pro-relationship behaviors as they themselves enact (cf. Drigotas, Whitney, & Rusbult, 1995). In future research it would be interesting to explore whether the associations of equity with couple well-being that have been observed in previous research may be partially attributable to interdependence processes of the sort identified in the present work.

*Mutual cyclical growth as a closed system.* A third implication of the present work rests on the fact that our model is represented as a closed system. So long as each person continues to move in positive directions (e.g., so long as each person continues to behave in a generous, giving, and forgiving manner) the system moves forward, feeding itself. But what happens if the system becomes stalled or moves toward entropy? What sort of infusion of energy is needed to redirect the system toward positive functioning? One solution may reside in a process we term the "Enchanted April phenomenon." In the novel *Enchanted April*, Lotty and Mellersh initially are in entropy. Mellersh "counts" daily activities—Lotty must keep a record of all expenses and is criticized for frivolous expenditures. Importantly, both Mellersh and Lotty "count" couple activities, keeping a close eye on departures from self-interest: He will not accommodate unless she has done so; she will not sacrifice unless she knows he will credit her

for doing so; both refuse to make themselves vulnerable unless they are sure of the other's probable reciprocity. Aside from the fact that such vigilant record keeping in itself may be problematic (e.g., record keeping communicates distrust; cf. Clark & Mills, 1979; Holmes, 1981), movement toward growth may require an act of faith on the part of one or both persons. As is evident in the bargaining literature, sometimes the cycle of mutual growth must be initiated or renewed by a unilateral gesture of good will—by a no-strings-attached pro-relationship act (cf. Osgood, 1962; Pruitt & Rubin, 1986). Lotty makes such a gesture, inviting Mellersh to vacation with her in Portofino. Mellersh responds favorably, and in short order the two are bathing together, caring for one another, and behaving in a loving and generous manner. In future research it would be interesting to directly examine exceptional gestures of good will, studying departures from self-interest that extend well beyond the "everyday" accommodations and acts of sacrifice that were examined in the present work (e.g., willingness to forgive a partner's act of betrayal).

More generally, it is important to note that although we have represented our model as a closed system, in point of fact, many of the variables in our model may well be influenced by exogenous variables. For example, factors other than trust presumably affect individuals' decisions to become increasingly dependent by investing numerous or sizeable resources in their relationships (e.g., the forecasting of future benefits). Also, factors other than commitment may induce individuals to engage in exceptional pro-relationship acts. For example, pro-relationship acts such as forgiveness of betrayal may rest on factors extending beyond that which is strictly dictated by preceding events in the relationship (e.g., personal dispositions may contribute to the motivation and ability to forgive the partner and move on, relegating a betrayal to the past). Future research should include detailed analyses of each of the specific links in our model, seeking to identify relevant exogenous variables.

#### *Limitations and Directions for Future Work*

It is important to briefly comment on the most obvious limitations of this work. First, our findings rest on self-report measures. Prior research *has* revealed evidence for the validity of such measures. For example, self-reported accommodation is associated with (a) partner reports of individual accommodation, (b) measures of accommodation obtained by coding audiotaped or videotaped conversations, and (c) measures of accommodation obtained in laboratory tasks assessing conciliatory behavior (e.g., behavior in prisoner's dilemma-type games; Rusbult, Bissonnette, et al., 1998; Rusbult et al., 1991). Self-reported sacrifice is associated with (a) partner reports of individual sacrifice and (b) willingness to step up and down a staircase to earn money for the partner (Van Lange et al., 1997). And commitment level is associated with probability of persisting in a relationship (Drigotas & Rusbult, 1992; Rusbult, 1983; Rusbult, Martz, & Agnew, 1998). In the present research we obtained good agreement between self-reports of our constructs and partner reports of parallel constructs. As noted earlier, these findings suggest that there is a reality to interdependence structure that both partners can perceive and describe. Nevertheless, the fact remains that the present findings rest on self-report. In future work it would be interesting to (a) obtain parallel reports of model variables from individuals, their partners, and from "observer friends" (i.e., from outside observers who are in a position to report on key model variables) and (b) obtain behavioral measures of

model variables. Moreover, in future research it would be interesting to determine whether there is meaningful variability in partners' perceptions of interdependence structure. For example, is across-partner agreement influenced by perspective taking, and does degree of across-partner agreement influence overall quality of couple functioning (cf. Arriaga & Rusbult, 1998)?

A second limitation of the present work is that our conclusions rest on correlational analyses. The significant findings observed in many of the residualized lagged analyses are congruent with the assumption that the observed associations among variables *may* be causal in nature. Also, in light of the character of our mutual cyclical growth model, we are not so much concerned with direction of causation: Ultimately, "causes" are also "effects" in this model. But even if we feel somewhat comfortable living with ambiguity regarding direction of causation, third-variable problems plague correlational research. The findings observed in mediation analyses help to allay such concerns, but it is nevertheless the case that our findings *are* correlational. In future work it will be important to test critical hypotheses using both nonexperimental *and* experimental methods. In addition, if we are to generalize the present findings beyond the domain of close relationships it will be important to examine key processes in the context of both romantic *and* nonromantic involvements. At present we are conducting experimental research relevant to this model, examining stranger interactions in a prisoner's dilemma paradigm to test the predictions that (a) an extended history of partner pro-relationship behavior yields enhanced trust and (b) trusting individuals are more likely to react in a benevolent manner to later acts of partner betrayal (Hannon, Childs, & Rusbult, 1999).

A third limitation of the present work is that although we obtained nearly perfect support for model predictions in concurrent analyses (see Tables 7 and 8), findings from residualized lagged analyses were somewhat weaker (see Tables 7 and 9). Many residualized lagged simple associations were only marginally significant, and in residualized lagged mediation analyses, presumed proximal predictors accounted for substantial unique variance in fewer than half of our analyses. (At the same time, presumed distal predictors *consistently* accounted for substantially reduced variance.) We have suggested that the weak residualized lagged mediation findings *may* be attributable to insufficient change over time in our criteria. Although it is not possible to definitively describe what constitutes "adequate change," we think it is plausible that many of our nonsignificant findings may have emerged because the residualized lagged criterion did not exhibit adequate variance. Indeed, in the residualized lagged analyses in which associations with presumed proximal predictors were weak, the associations of earlier criteria with later criteria were substantial (betas ranged from .72 to .87). In future longitudinal research, researchers should take particular care to maximize the odds of attaining adequate variance in residualized lagged criteria (i.e., by recruiting samples in such a manner that the probability of persistence vs. breakup approaches 50–50, or the distribution of movement toward vitality vs. deterioration is relatively normal).

### Conclusion

The present research brought together two previously unrelated literatures, combining concepts identified by Rusbult and her colleagues in their analysis of commitment processes (Rusbult et al.,

1994) with concepts identified by Holmes and Rempel in their analysis of trust (1989). Given that both of these theoretical analyses rest on concepts from interdependence theory (Kelley & Thibaut, 1978; Thibaut & Kelley, 1959) and given that both analyses concern the implications of dependence and the origins of pro-relationship orientation, the analyses are highly complementary. The results of two longitudinal studies provide good support for our model, which suggests that individuals come to trust their partners as a consequence of observing the partner depart from his or her direct self-interest for the good of the relationship. Commitment-inspired acts such as accommodation and sacrifice are argued to provide particularly diagnostic information regarding the strength of a partner's inclination to behave in a generous and giving manner. It is notable that the present analysis is both (a) dyadic, in that it rests on the interaction between partners, and (b) dynamic, in that it represents a process that unfolds over the course of extended interaction. Our model of mutual cyclical growth received good support across a variety of analyses, suggesting that such a model may account for continued health and vitality in ongoing relationships. Thus, interdependence theory propositions regarding interpersonal motivation and behavior provide a sound basis for understanding important processes in ongoing close relationships.

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