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INTERDEPENDENCE, INTERACTION, AND RELATIONSHIPS

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■ **Abstract** Interdependence theory presents a logical analysis of the structure of interpersonal situations, offering a conceptual framework in which interdependence situations can be analyzed in terms of six dimensions. Specific situations present specific problems and opportunities, logically implying the relevance of specific motives and permitting their expression. Via the concept of transformation, the theory explains how interaction is shaped by broader considerations such as long-term goals and concern for a partner's welfare. The theory illuminates our understanding of social-cognitive processes that are of longstanding interest to psychologists such as cognition and affect, attribution, and self-presentation. The theory also explains adaptation to repeatedly encountered interdependence patterns, as well as the embodiment of such adaptations in interpersonal dispositions, relationship-specific motives, and social norms.

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INTRODUCTION

The essence of a social psychological way of thinking frequently is described in terms of the “power of the situation.” Indeed, the familiar equation $B = f(P, E)$ embodies our shared desire to understand the ways in which behavior (B) is shaped not only by properties of the person (P), but also by features of the situation, or social environment (E) (Lewin 1936). Perhaps the essence of a social psychological analysis can be even more fully expressed by construing our goals in terms of the relationships between people. To develop a truly social psychology, we may need to expand our formulation, noting that an interaction (I) between persons A and B can be conceptualized in terms of their needs, thoughts, and motives in relation to one another (A and B) in the context of the specific social situation (S) in which their interaction transpires (Holmes 2002, Kelley et al. 2002). Expressed in an equation, $I = f(S, A, B)$.

To illustrate the utility of an interaction-based analysis, imagine two scenarios for John and Mary, who are deciding where to spend their summer vacation. In one scenario their interests conflict: John wants to go to a beach resort, whereas Mary wants to go to Rome. In this type of situation each person will seek to explain his or her preference (“I need the excitement of Rome”) and each will engage in cognitive activity oriented toward understanding the other’s needs (“Does John want to relax because he had a stressful year?”). The situation makes it possible for each person to display his or her goals and motives (self-centered vs. prosocial). Communication and information-seeking will center on each person’s needs, goals, and motives in relation to those of the partner (“Whose needs are more pressing?” “Will Mary be responsive to my needs?”). The two may rely on fairness norms to resolve their problem (“It’s my turn” or “You deserve a break”). Thus, situations involving conflicting interests are interpersonally rich, affording psychological processes such as self-presentation and attributional activity and activating morality- and benevolence-relevant motives and norms.

In a second scenario John’s and Mary’s interests correspond: Both want to vacation in Rome. Neither is likely to be particularly concerned with information-seeking, self-presentation, or attribution, as there is no problem and “nothing to think about.” It is not possible for either person to display benevolent motives because the course of action that would benefit John simultaneously benefits Mary. Interaction is a coordination problem—the two must agree on a date for their vacation, and one person must arrange for travel and lodging. Thus, in comparison to situations with conflicting interests, situations with corresponding interests are relatively simple, in that they are less likely to inspire activities such as information-seeking or self-presentation and are unlikely to present moral dilemmas or questions of benevolence. Instead, they entail coordinating to enjoy the good outcomes that are readily available to the pair (“If we’re separated, meet me at the Piazza Navonna”).

These scenarios very simply illustrate an important claim: The field of social psychology would benefit from a situation-based understanding of interaction—an

analysis that examines each person's needs, cognitions, and motives in relation to one another and in the context of the situation in which the interaction transpires. We suggest that interdependence theory provides a comprehensive account of interaction and relationships by delineating the ways in which social situations shape both intrapersonal and interpersonal processes (Kelley et al. 2002, Kelley & Thibaut 1978, Thibaut & Kelley 1959). Interdependence theory advances a taxonomic model of situations, or a functional analysis of the structure of the social situations interacting people encounter. The theory also relates classes of situations to the particular types of goals and motives that are relevant to dealing with them.

As such, situation structure specifies the interpersonal reality that social cognitive activity is about, in that cognition frequently is oriented toward understanding (a) situations, or the unique problems and opportunities inherent a given situation ("Can both persons' needs be met?"), and (b) persons, or a given interaction partner's goals and motives ("Will she be responsive to my needs?") (Holmes 2002; Kelley 1984a, 1997). In addition, situation structure specifies the interpersonal reality that social motivation is about, in that (a) specific motives are relevant to specific classes of situation and (b) from a historic perspective, motives reflect prior adaptation to specific classes of situation (Kelley 1983, Kelley & Holmes 2002, Kelley et al. 2002). Given that cognition and motivation are embedded in the fabric of social situations, the structure and functions of many interpersonal phenomena may be best understood by adopting an interdependence-based analysis. This paper outlines the main principles of interdependence theory, illustrating the utility of this orientation via a review of recent work on interaction and relationships.

INTERDEPENDENCE STRUCTURE AND PROCESSES

Interdependence Structure

MATRICES AND TRANSITION LISTS The options and outcomes of interaction can be represented using a tool from classic game theory, the outcome matrix (Luce & Raiffa 1957, Von Neumann & Morgenstern 1944). An *outcome matrix* describes interdependence patterns involving two persons (A and B), each of whom can enact either of two behaviors, yielding four combinations representing the consequences of the persons' choices in terms of outcomes for persons A and B (Kelley & Thibaut 1978). Despite their apparent simplicity, matrices are very useful descriptions of social situations, in that matrix patterns describe the intricate ways in which (and degree to which) interaction partners affect their own and one another's well-being. Of course, the matrix is a snapshot of interdependence as it exists at one time. To deal with the sequential and temporal properties of interdependence, a second formal tool was developed. A *transition list* not only represents the behavioral options and outcomes for persons A and B but also specifies the means by which they proceed from one pattern of interdependence to another (Kelley 1984b). Individuals may thus be interdependent not only in affecting one another's

immediate outcomes but also in their pursuit of temporally extended goals and in their movement from one situation to another. (Note that matrices and transition lists are theoretical tools and are not intended as literal depictions of lay cognition or motivation.)

NEEDS, PREFERENCES, AND OUTCOMES What makes specific combinations of behavior on the part of persons A and B pleasurable versus painful? Interdependence theory does not identify an overarching need or drive that fuels interpersonal behavior (e.g., reproduction, security, mastery) (Kelley & Thibaut 1985, Rusbult & Van Lange 1996). Instead, it is assumed that humans have diverse instrumental and social-emotional needs, that some are biologically based whereas others are learned, that needs cover a spectrum from survival to spirituality, and that some needs are pervasive whereas others are unique to specific situations and partners. Many needs are inherently interpersonal and can be gratified only in the context of dyads or groups (e.g., belonging, sexuality, security) (Baumeister & Leary 1995, Drigotas & Rusbult 1992, Hazan & Shaver 1994). Interactions are experienced as pleasurable to the extent that they gratify one or more important needs and are experienced as unpleasant or painful to the extent that they fail to gratify or are antithetical to important needs.

Interaction frequently yields not only concrete outcomes, or direct experiences of pleasure versus displeasure, but also symbolic outcomes, or experiences that rest on the broader implications of interaction (Holmes 1981, Kelley 1979). For example, when John and Mary disagree about where to vacation and John suggests Mary's preferred choice of Rome, Mary enjoys relatively concrete benefits—the disagreement is resolved and Mary enjoys rewards in the form of cultural stimulation, good food and wine, and the pleasure of John's company. At the same time, the fact that John accedes to Mary's preference has symbolic meaning for Mary, yielding positive affect because John has demonstrated that he loves her and is responsive to her needs. The interaction also has symbolic meaning for John, yielding positive affect because he has communicated his love, served as the agent of Mary's pleasure, and confirmed his belief that he is a caring and generous person.

DIMENSIONS OF SITUATION STRUCTURE Matrices and transition lists provide a means to represent the ways in which interacting peoples' needs are gratified (vs. not gratified) during the course of interaction. That is, these tools allow us to analyze situation structure (Kelley et al. 2002, Kelley & Thibaut 1978). By examining the main effects and interaction of each person's possible behaviors, we can discern the impact on each person's outcomes of the person's own actions (actor control: a main effect of Mary's actions on Mary's outcomes), the partner's actions (partner control: a main effect of John's actions on Mary's outcomes), and the partners' joint actions (joint control: an interaction of John's and Mary's actions on Mary's outcomes). By examining within-cell associations between the partners' outcomes, we can discern the extent to which outcomes for actor and partner

are positively correlated (corresponding interests) versus negatively correlated (conflicting interests). These basic components of influence and covariation define four properties of situation structure.

Level of dependence describes the degree to which an individual “relies on” an interaction partner, in that his outcomes are influenced by the partner’s actions. Mary’s dependence is greater to the degree that John can unilaterally cause her pleasure versus pain, and/or can behave in such a manner as to govern her own behavioral choice. People are independent when situations involve high mutual actor control and are interdependent when situations involve high mutual partner control, joint control, or both. Increasing dependence tends to activate increased situation- and person-relevant attention, cognition, and affect; for example, when John’s outcomes are governed by Mary’s actions, he is likely to dedicate considerable effort to understanding what the situation is “about” and to developing expectancies about Mary’s probable behavior (Arriaga & Rusbult 1998, Fiske 1993). Moreover, because dependence constitutes reliance on a partner for fulfilling important needs, increasing dependence yields persistence in interactions and longevity in relationships (Bui et al. 1996, Drigotas & Rusbult 1992). To reduce the vulnerabilities inherent in such reliance, dependence also yields patterns of cognition and affect that quell feelings of insecurity and promote congenial interaction (e.g., positive illusion, downward comparison) (Murray et al. 1996, Rusbult et al. 2000).

Mutuality of dependence describes the degree to which two people are equally dependent on one another. The concepts of dependence and power are inextricably related, in that to the extent that one person is relatively more dependent, the partner is relatively more powerful. The vulnerability deriving from high dependence (and the power deriving from low dependence) is exacerbated to the extent that dependence is nonmutual. Accordingly, nonmutual dependence affords the expression of exploitation versus benevolence, particularly when partners’ interests conflict. We noted above that high dependence reliably activates situation- and person-relevant attention, cognition, and affect, along with adaptations geared toward reducing vulnerability. When dependence is nonmutual, these processes are more pronounced for the dependent partner than for the powerful partner. Mutual dependence yields the sorts of benefits that accrue from balance of power, including more placid and positive emotional experience (less guilt, anxiety), reduced use of threat or coercion, less reliance on norms or contractual agreements, and greater stability and congeniality (Baumeister et al. 1993, Fiske 1993, Drigotas et al. 1999).

Basis of dependence describes the way partners affect one another’s outcomes—whether dependence derives from partner control (Mary’s outcomes are controlled by John’s unilateral actions) or joint control (Mary’s outcomes are controlled by the partners’ joint actions). Partner control is relatively absolute and externally controlled; that is, the person’s outcomes rest in the hands of the partner. Situations involving mutual partner control tend to yield adaptation in the form of exchange (tit-for-tat; “I’ll scratch your back if you’ll scratch mine”), tend to activate particular

patterns of communication (promises, threats), and tend to be governed by morality norms (Axelrod 1984, Clark & Mills 1993, Fiske 1992). Joint control is experienced as relatively more contingent, in that the person's outcomes rest on coordination with the partner's actions. Situations involving joint control tend to yield adaptation in the form of coordination ("Follow my lead"; "You decide"), tend to activate ability-relevant traits and behaviors (problem-solving, taking the initiative), and tend to be governed by rules of conventional behavior rather than morality (Buss & Craik 1980, Fiske 1992, Turiel 1983).

Finally, *covariation of interests* describes the degree to which partners' outcomes correspond, or whether the course of action that benefits John similarly benefits Mary. Covariation varies from perfectly correspondent situations through so-called mixed-motive situations to situations with perfectly conflicting outcomes ("zero-sum"). Covariation is so fundamental to life and so thoroughly defines the possibilities for congenial interaction that humans are predisposed to develop abstract mental representations that help them quickly define whether "What's going on here" is good or bad for them. Situations with conflicting interests activate predictable thoughts and emotions (greed, fear), yield more active and differentiated cognition, information-seeking, and self-presentation ("Can Mary be trusted?"), and afford the expression of specific motives (cooperation vs. competition, trust vs. distrust) (Holmes & Murray 1996, Insko & Schopler 1998, Surra & Longstreth 1990, Van Lange 2000).

TEMPORAL STRUCTURE Interactions and relationships are dynamic phenomena that typically mutate and evolve. Therefore, interdependence should be understood not only in terms of the immediate outcomes produced by specific combinations of behavior but also in terms of the future behaviors and outcomes that are made available (vs. eliminated) as a consequence of interaction (Kelley 1984b, Kelley et al. 2002). *Extended situations* involve a series of steps prior to reaching a specific goal (e.g., repeated "play" of the Prisoner's Dilemma Game, investment situations). While a person proceeds toward a remote goal, outcomes may change owing to fatigue or satiation, partners may have opportunities to communicate their needs and preferences, and one or both partners may act on the basis of abilities or motives that affect future options (e.g., stamina, self-control). *Situation selection* describes movement from one situation to another, bringing the individual, partner, or dyad to a situation that differs from the previous one in terms of behavioral options, outcomes, or both. Whether to attend a party, visit parents-in-law, or sit close to or far from a colleague are selections that involve entering or avoiding new situations. Situation selections are also revealed in decisions to substantially modify an existing situation, as in changing the topic of conversation.

INFORMATION The availability of information is the sixth dimension of situation structure. Inadequate information gives rise to ambiguity and misunderstanding, challenging the flow of interaction (Kelley et al. 2002). People may hold incomplete information about (a) a partner's outcomes for various combinations of behavior

(“How would John feel about going to the beach while I go to Rome?”), (b) a partner’s goals and motives (“Will John be responsive to my needs?”), and/or (c) future interaction possibilities (“If we vacation separately, where will that ‘take’ our relationship?”). For example, Mary may not fully recognize how much John enjoys her company, thus underestimating the degree to which she can influence his outcomes. And if John initially agrees to vacation in Rome but later finds that he cannot do so owing to a pressing work deadline, Mary may be uncertain about the urgency of his deadline or the benevolence of his motives. Finally, neither John nor Mary may hold precise information about the interaction situations they will face in the upcoming months or more distant future.

COMBINATIONS OF DIMENSIONS Most social situations are defined by their properties with respect to two or more structural dimensions (Kelley et al. 2002, Kelley & Thibaut 1978). For example, the defining properties of the Prisoner’s Dilemma situation are strong partner control and weak actor control, the Hero situation is defined by strong joint control and weak actor control, and the Chicken situation is defined by strong partner control and weak joint control; all three situations involve moderately high mutual dependence and moderately conflicting interests. For example, the Twists of Fate situation involves incomplete information, wherein each person at some point might unexpectedly find himself in a position of extreme unilateral dependence. All possible combinations of the six dimensions define an infinite number of situations. However, a smaller number of “landmarks,” or prototypical situations, can be identified (Kelley et al. 2002). Each abstract pattern embodies specific interpersonal problems and opportunities, and each logically implies the relevance of specific goals and motives. Everyday social situations resemble these abstract patterns. For example, the Prisoner’s Dilemma is characteristic of interactions involving mutual sacrifice, trading favors, and free-riding; Twists of Fate is characteristic of health crises and other reversals of fortune.

IMPORTANCE OF INTERDEPENDENCE STRUCTURE Why should we concern ourselves with situation structure? To begin with, situations often exert strong effects on behavior, relatively independently of the partners’ personal goals and motives. For example, research on marital communication has identified a “demand-withdraw” pattern of interaction involving repeated demands for change made by wives, met by chronic withdrawal of husbands (Christensen & Heavey 1993, Berns et al. 1999). Arguably, this type of interaction transpires in situations resembling the Threat situation, the key properties of which are that partner A controls reward allocations to both partners, and partner B’s only course of action is to deliver a threat that harms them both (Holmes & Murray 1996). Typically, men hold more power in deciding who completes household tasks, with women being dependent on their partners’ fairness. If the husband is exploitative, the wife may push to discuss things, perhaps threatening to quit cooking in the meantime. It is in the husband’s interests to avoid discussion, because inaction will maintain the status quo. Hoping to bring about change, the wife may voice increasingly strong

complaints. Although it might be tempting to explain such behavior in terms of sex differences in abilities, dispositions, or norms, the pattern plausibly results from a specific interdependence situation wherein men act in such a manner to maintain a beneficial status quo. Cultural norms play a role in producing and sustaining the power differential, but contemporary behavior in the situation may simply reflect men's pursuit of self-interest. Thus, interaction sometimes is driven more by situation structure than by the interacting individuals' personal dispositions.

There is a second important reason to concern ourselves with situation structure: Specific situations present specific interpersonal problems and opportunities, and therefore (a) logically imply the relevance of specific goals and motives and (b) permit the expression of those goals and motives. The term *affordance* describes what a situation makes possible or may activate in interacting individuals (Gibson 1979, Holmes 2002, Kelley et al. 2002). For example, situations wherein partners do not have complete information about one another's preferences afford misunderstanding and information seeking; clearly, situations with complete information do not afford these activities (Erber & Fiske 1984, Ickes & Simpson 1997). For example, situations involving conflicting interests afford the expression of self-centeredness versus concern with collective interests and therefore inspire predictable sorts of cognition and affect (greed, fear) and invite predictable forms of attributional activity and communication ("Does John care about my welfare?"; "Trust me") (Frank et al. 1993, Van Lange & Kuhlman 1994). These sorts of psychological events are irrelevant to situations with corresponding interests. In short, "the mind has the structure it has because the world has the structure it has" (Anderson 1991, p. 428).

Interdependence Processes

TRANSFORMATION PROCESS As noted above, abstract patterns of interaction outcomes can be formally represented using matrices or transition lists. The phrase *given situation* describes the direct and immediate, "gut level" impact of interacting individuals' combined actions on each person's outcomes. These outcomes are "given" in that they describe immediate effects on the individual, ignoring the partner's interests and ignoring long-term interaction- or relationship-relevant concerns. In a sense, given outcomes represent the "virtual structure" of the situation, or the "S" in the equation $I = f(S, A, B)$.

People sometimes behave in a manner that maximizes direct, given outcomes. This is particularly likely among children, in "simple" situations for which no broader considerations are relevant, among people who lack the inclination or wherewithal to take broader considerations into account, and in situations involving time pressure or other factors that constrain cognitive capacity (Baumeister et al. 1998, Mischel et al. 1996). However, behavioral choices are often based on considerations other than direct, gut level interests. Acting on the basis of broader concerns results from "transformation" of the given situation (see Figure 1). Transformation involves making something of the given situation and essentially frees

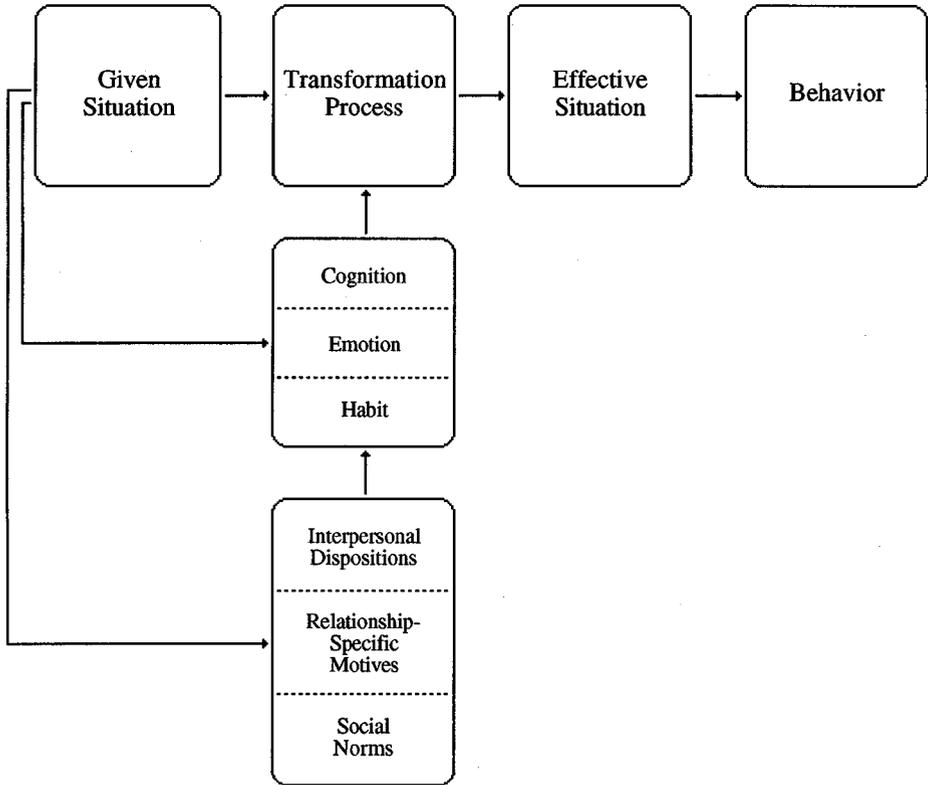


Figure 1 The transformation process.

individuals from control by the given situation, allowing them to be responsive to strategic concerns, long-term goals, or desire to influence a partner's outcomes. For example, John may behave in ways that yield poor direct outcomes because in doing so he can promote Mary's welfare, encourage future reciprocity, or enhance the quality of their relationship. Outcome values resulting from this process constitute the *effective situation*; effective preferences guide behavior. In a sense, transformation can be construed as the point at which the "rubber meets the road," or the person meets the situation, representing the "A" and "B" in the equation $I = f(S, A, B)$ (Kelley 1991).

Transformation constitutes a rule the individual adopts during interaction (Kelley & Holmes 2002, Kelley & Thibaut 1978). Some rules involve sequential or temporal considerations, such as waiting to see how the partner behaves or adopting strategies such as tit-for-tat (Axelrod 1984) or turn-taking. Other rules involve weighting one's own and a partner's outcomes, such as altruism, maximizing the partner's outcomes (MaxOther); cooperation, maximizing the partners'

combined outcomes (MaxJoint); equality, minimizing the disparity between one's own and the partner's outcomes (MinDiff); competition, maximizing the relative difference between one's own and the partner's outcomes (MaxRel); and individualism, maximizing one's own outcomes irrespective of the partner's outcomes (MaxOwn) (Kelley & Thibaut 1978, Messick & McClintock 1968). Altruism, cooperation, and equality are prosocial rules; they are oriented toward benefiting another. Individualism and competition are self-interested or antisocial rules; they are oriented toward benefiting the self.

COGNITION, EMOTION, AND HABIT Given that humans are social animals, human intelligence is highly interpersonal; we are well prepared to construe the world in terms of interdependence (Cosmides & Tooby 1992, Kelley 1997). Cognition and emotion play important roles in stimulating and directing the transformation process, being geared toward: (a) discerning what a given situation is "about"—recognizing that it resembles familiar patterns and identifying its key properties; (b) evaluating behavioral options in terms of one's own needs and motives; and (c) understanding the partner's needs and predicting his or her motives (Kelley 1979, 1984a).

Situation structure helps shape the content of cognition and emotion. For example, situations with the basic structure of the Prisoner's Dilemma are those wherein (a) each person could substantially benefit the partner at low cost to self, but (b) each may be tempted to benefit the self at substantial cost to the partner. This is the crux of the dilemma when deciding to make a small sacrifice on the partner's behalf or to pitch in and help on a dyadic project rather than loaf and let one's partner do the work. Issues of fear and greed come to mind in such situations ("Will Mary help or hurt me?"; "Shall I try to take a free ride?") (Insko & Schopler 1998). John is likely to exhibit self-centered or antisocial transformation to the extent that he experiences greedy thoughts and desires and to the extent that he predicts or fears that Mary cannot be trusted (Mikulincer 1998, Wieselquist et al. 1999). Thus, the mental events underlying transformation are functionally adapted to situation structure and take forms relevant to that structure.

Cognition and emotion are also colored by distal causes including interpersonal dispositions (e.g., self-control, communal orientation), relationship-specific motives (e.g., commitment, trust), and social norms ("Do unto others as you would have others do unto you") (see Figure 1). For example, competitive individuals interpret a broad range of mixed-motive situations in terms of winning versus losing and therefore attend closely to considerations of "might"—to how competent and powerful interaction partners are and to whether they appear competent and powerful to others (Van Lange 2000, Van Lange & Kuhlman 1994). In contrast, prosocial individuals interpret many situations in terms of collective goals ("Let's develop a congenial arrangement") and attend closely to considerations of fairness and trustworthiness.

Of course, the transformation process does not necessarily rest on extensive mental activity. As a result of adaptation to repeatedly encountered patterns, people

develop habitual tendencies to react to specific situations in specific ways, such that transformation comes about with little or no conscious thought (Kelley 1983, Rusbult & Van Lange 1996). Whether the transformation process entails extensive mental activity rests on the degree to which (a) the situation is novel, with unknown or complex implications; (b) the situation is risky, involving the potential for harm; and (c) the partner is unfamiliar, so his motives are not easily predicted (Baumeister et al. 2001, Fincham 2001, Holmes 2002). For example, situations involving high dependence and conflicting interests are likely to yield more extensive analysis, particularly in "high stakes" interactions with strangers (Drigotas et al. 1999, Fiske 1993).

COMMUNICATION, ATTRIBUTION, AND SELF-PRESENTATION During and following interaction, partners seek to communicate their abilities, motives, and dispositions using both direct and indirect means: verbally and nonverbally, via intimation, direct communication, and action. Although conclusions formed on the basis of communication typically are assumed to be cognitive (i.e., expectations, attributions), such conclusions may also be affective (e.g., person-specific affection or dread). Communication entails two related processes: self-presentation on the part of one person and attribution on the part of the other. The material for self-presentation and attribution resides in the disparity between the given and effective situations, in that deviations from self-centered choice reveal the actor's goals and motives, or "self" (Holmes 1981, Kelley 1979). Thus, possibilities for communicating self-relevant information are limited by given situation structure. For example, it is difficult to convey considerateness (or to discern it) in situations involving highly correspondent interests, in that in such situations, considerate behavior aligns with self-interested behavior.

People engage in *attributional activity* in their attempts to uncover the direct meaning and broader implications of a partner's actions, developing expectations regarding future behavior and seeking to explain prior behavior in terms of underlying dispositions (Fincham 2001, Gilbert 1998, Weiner 1985). Expectations are not particularly accurate in new relationships, as they must be based on probabilistic assumptions about how the average person would react in a given situation; in longer-term relationships, expectations can also be based on knowledge of how the partner has behaved in past situations (Kelley 1991). For example, betrayal may inspire greater distress and more negative inferences in long-term, committed relationships, in part because betrayal by a previously loyal partner constitutes a meaningful departure from well-established expectations of benevolence (Finkel et al. 2002). Of course, the attribution process is not always geared toward forming accurate inferences. Particularly in situations involving high dependence, attributional activity may be geared toward reducing doubt or uncertainty. For example, mutually dependent partners exhibit exceptionally positive interpretations of one another, translating one another's faults into virtues and engaging in downward comparison to place their relationships in a favorable light (Murray et al. 1996, Rusbult et al. 2000, Simpson et al. 2001).

Self-presentation describes individuals' attempts to communicate their abilities, motives, and dispositions to partners. Conveying that one cares for or loves another is most directly (and perhaps most convincingly) communicated by departing from one's interests in order to enhance that person's outcomes (Van Lange et al. 1997b, Wieselquist et al. 1999). Because we do not always hold complete information about our partners' given outcomes, we sometimes mistakenly assume that acts resulting from transformation of a situation reflect the partner's simple preferences. For example, John's acts of loyalty, kindness, or sacrifice may not be visible if Mary fails to recognize the costs he incurred (Drigotas et al. 1995). Indeed, self-presentation may sometimes be geared toward concealing one's true preferences and motives. Individuals may present themselves deceptively so as to invite a particular sort of attribution or to induce a particular form of interaction. For example, John may overstate his desire to vacation at the beach so as to highlight the prosocial motives that underlie his acceding to Mary's wishes. Individuals are particularly inclined to present themselves in a socially desirable light during the early stages of developing relationships (Leary 2001, Tice et al. 1995).

INTERDEPENDENCE AND INTERACTION

Conflicting Interests and Interaction

Situations with conflicting interests involve challenging problems of adaptation ("I want my way!" "Don't you care about my needs?"). This type of situation affords the expression of prosocial motives and yields self-presentation and attributional activity centering on issues of morality and benevolence. Such situations are termed *diagnostic situations*, as they reveal one's own and the partner's transformational tendencies (Holmes & Rempel 1989). For example, Mary can discern John's commitment when she recognizes that he was tempted to be sexually unfaithful but declined to do so.

In one type of diagnostic situation, through no fault of either person, the partners' preferences conflict. Such situations call for sacrifice or willingness to depart from one's immediate interests to promote the partner's interests (Van Lange et al. 1997b). For example, for Mary's sake, John may spend the weekend with his in-laws rather than watching World Cup Soccer. A second type of diagnostic situation is initiated by a partner's "bad behavior," or inconsiderate and irritating acts. Such situations call for accommodation, or inhibiting the impulse to retaliate and instead behaving in a conciliatory manner (Gottman 1998, Rusbult et al. 1991). For example, when John says something rude, Mary may simply pour herself a glass of wine and forget about the incident. A third type of diagnostic situation centers on acts of betrayal, wherein one partner departs from relationship-relevant norms and humiliates or degrades the other partner. Such situations call for forgiveness (Finkel et al. 2002, McCullough et al. 1997).

Situations involving conflicting interests share several properties. To begin with, the impulse toward reciprocity is powerful, particularly for negative reciprocity

(Epstein et al. 1993, Gottman 1998). Given that one's immediate impulse in such situations frequently is self-centered or destructive, prosocial reactions require transformation of the given situation. For example, when people confront accommodative dilemmas and are allowed either limited or plentiful reaction time, those given limited time exhibit more destructive behavior; those given plentiful time for the transformation process are more likely to accommodate (Yovetich & Rusbult 1994). What helps people control the impulse to retaliate and instead exhibit prosocial transformation and behavior? Acts such as accommodation, sacrifice, and forgiveness are promoted by strong commitment, a variable that embodies concern for the interests of the partner and the relationship (Finkel et al. 2002, Rusbult et al. 1991, Van Lange et al. 1997b). Prosocial motives and acts are also more probable among individuals with greater self-control, more secure attachment, greater psychological femininity, and stronger perspective-taking tendencies (Arriaga & Rusbult 1998, Finkel & Campbell 2001, Gaines et al. 1997, McCullough et al. 1997, Rusbult et al. 1991). Moreover, patterns of mutual prosocial behavior appear to represent good adaptation, in that they yield greater couple adjustment and longevity (Carstensen et al. 1995, Van Lange et al. 1997b).

Dependence and Interaction

To understand the implications of dependence, it is helpful to recognize that dependence situations involve "needing" or "relying on" another: Dependence implies vulnerability. When Mary's well-being rests in John's hands, there is no guarantee that he will employ his power in a prosocial manner. The dangers of dependence are enhanced to the extent that dependence is unilateral, involves conflicting interests, or both. [Social psychologists are at least implicitly aware of this situation-defined "hot zone"; many interaction phenomena are examined in situations involving nonmutual dependence (infant behavior in the "strange situation", adult behavior in support-seeking or self-disclosure situations) or conflicting interests (behavior during arguments or following transgressions).]

Dependence situations afford the expression of comfort with (vs. avoidance of) interdependence. When dependence is nonmutual and involves at least moderately conflicting interests, the less dependent partner must decide whether to pursue self-interest or the partner's interests, and the more dependent partner will be particularly oriented toward detecting signs of partner responsiveness. Accordingly, dependence situations are highly diagnostic. For example, John can discern that Mary is trustworthy when she reacts to his dependence in a responsive and prosocial manner, declining to take advantage of her power. Mary can discern that John is dispositionally insecure when he reacts to his dependence with "excessive" anxiety—*anxiety that is unwarranted by their history of mutual responsiveness.*

Research regarding abusive relationships reveals that people are more likely to remain in such relationships and endure continued abuse to the extent that they are relatively more dependent—when they have high investments (children, shared history) and poor alternatives (low education, little job training) (Johnson 1995,

Rusbult & Martz 1995). Although it might be tempting to explain such behavior in terms of personal dispositions (learned helplessness, low self-esteem), the tendency to persist in a troubled relationship plausibly results from situation-based entrapment—because one has “too much invested” and there is “nowhere to go.” Likewise, research regarding the principle of least interest demonstrates that the partner who is less dependent in a relationship tends to “call the shots,” exerting control over desired resources; the more dependent partner has less say in decision making, carries the greater burden of interaction costs (is more likely to accommodate, sacrifice), and is more vulnerable to possible abandonment (Attridge et al. 1995, Drigotas et al. 1999, Witcher 1999).

Research regarding attachment processes also illuminates our understanding of dependence situations, in that issues of dependence and security are at the heart of attachment concerns. The adult attachment literature suggests that the intrapersonal and interpersonal adaptations acquired in childhood are carried into adult interactions. For example, securely attached individuals perceive a wide range of dependence situations as safe, experience more positive cognition and affect in such situations, exhibit more trusting expectations about their partners, enact fewer exploitative behaviors, and adopt more constructive strategies in adapting to violations of trust (Baldwin et al. 1996, Mikulincer 1998, Simpson et al. 1996, Tidwell et al. 1996). Insecurely attached individuals exhibit distrustful and destructive cognitive, motivational, and behavioral tendencies not only when they are the more dependent persons in an interaction but also when their partners depend on them. Consistent with the interdependence principle that dependence situations afford attachment-relevant issues, the liabilities of insecure, rejecting, and unresponsive behavior are particularly pronounced when interdependence structure is most problematic—in situations involving nonmutual dependence and conflicting interests (Pietromonaco & Barrett 1997, Simpson et al. 1996): The more problematic the dependence situation, the more attachment concerns arise.

Research regarding rejection sensitivity further enriches our understanding of dependence situations, illuminating the process by which expectancies operate in extended situations (Downey & Feldman 1996, Downey et al. 1998): Women with greater sensitivity to the possibility of rejection develop fearful expectancies regarding partner behavior and exhibit antisocial transformation tendencies: They anxiously expect and readily perceive negativity from their partners and overreact to signs of exploitation, behaving in a provocative and destructive manner during conflicted interaction. Their male partners respond with elevated anger and reciprocal destructiveness, thereby confirming the women’s worst fears. As a consequence of such maladaptive interaction, the relationships of rejection-sensitive women exhibit poor adjustment and are more likely to terminate. In contrast, more adaptive patterns of interaction are evident among partners who are less sensitive to the possibility of rejection and who therefore exhibit prosocial expectations and transformations, enacting responsive behaviors and trusting that the partner will reciprocate.

Work on intimacy processes is also relevant to discussions of dependence, in that when individuals disclose self-relevant information, they make themselves vulnerable to possible rejection or exploitation. In such situations, individuals confront a tradeoff between the benefits of disclosure and the risks of exploitation. Individuals display trust when they disclose, placing themselves in a dependent position (Omarzu 2000, Reis & Patrick 1996). When partners exhibit prosocial motives and do not exploit this vulnerability—exhibiting understanding, caring, and acceptance—relationships become more trusting, reciprocal disclosure is elicited, and mutual attraction is enhanced (Collins & Miller 1994, Laurenceau et al. 1998). The vulnerabilities of disclosure are reduced to the extent that dependence is rendered mutual—and, therefore, safe—by reciprocal disclosure (Collins & Miller 1994, Laurenceau et al. 1998). Because of the vulnerabilities inherent in intimacy situations, this sort of dependence is regulated by norms. For example, partners tend to disclose at roughly equal levels of intimacy (it is rude to respond to a tearful confession of drug addiction with “nice weather we’ve been having”) and regard it as unacceptable to transmit a close partner’s secret to a nonclose third party (Mary can tell John about a colleague’s drug addiction but should not transmit such information to her masseuse) (Reis & Patrick 1996, Yovetich & Drigotas 1999).

Information and Interaction

Partners engage in considerable information exchange during the early stages of developing relationships. Such exchanges serve a variety of functions, including communicating each person’s given outcomes, predicting the partner’s goals and motives, and forecasting future interactions. Early information exchange is guided by rules. As noted earlier, reciprocal displays of intimacy are normative, and such exchanges enhance liking (Collins & Miller 1994, Reis & Patrick 1996). Importantly, the impact of intimate exchange on liking extends beyond the impact of information per se, in that effects on liking are more pronounced for the interaction partner than for a third party who obtains parallel information (Insko & Wilson 1977).

In interactions with strangers, people often rely on heuristic, probabilistic assumptions, sometimes in an automatic and unconscious manner. Individuals hold distinct and chronically accessible mental representations of “significant others” and frequently use these representations as templates for interaction with unfamiliar partners (Andersen & Baum 1994, Andersen et al. 1996). When a new partner exhibits traits possessed by a significant other, individuals frequently respond to the person in a manner that mirrors responses to the significant other. A variety of interaction processes—including memory for traits, liking, and facial affect—are influenced by subtle activation of a significant-other representation. Thus, representations of partners with whom one has a history are easily evoked, activated, and applied to new partners: People fill in the informational gaps using their interdependence histories.

Uncertainty regarding a partner's motives is especially pronounced in situations that are prone to misimplementation of action and miscommunication. Misunderstanding is often rooted in *noise*, or discrepancies between the outcomes partner A intends to produce and the outcomes partner B experiences (Axelrod & Dion 1988, Van Lange et al. 2002). For example, in response to Mary's e-mailed request for assistance, John may attempt to offer help that she fails to receive owing to a local network breakdown. The presence of noise—particularly negative noise, when actual outcomes are poorer than intended outcomes—exerts harmful effects on interaction, yielding reduced mutual cooperation. When Mary suffers negative outcomes that she mistakenly attributes to John's lack of responsiveness, she may react with irritation or hostility, which may prompt reciprocal hostility from John, producing a chain of negative reciprocity that harms them both. Such detrimental effects are attenuated when individuals forego strict tit-for-tat and instead give their partners the benefit of the doubt by behaving in a generous manner (i.e., withholding judgment or exhibiting somewhat greater cooperation than the partner).

Situation Selection

Relationships unfold over time via situation selection, which may entail seeking (vs. avoiding) interdependence, locating situations with correspondent (vs. conflicting) interests, or moving toward situations with greater (vs. lesser) information. Individuals may initiate movement into a new situation via behavioral prompts (e.g., a “no strings attached” prosocial act), direct communication (e.g., self-disclosure, proposals regarding interaction), or nonverbal acts (e.g., gaze, tone of voice, smiling).

The seeking of psychological support is an important form of unilateral situation selection. Securely attached individuals are more willing to place themselves in positions of dependence so as to obtain support from their partners, openly discussing their fears and anxieties, inviting physical contact, and exhibiting trusting expectations of partner responsiveness; anxiously attached individuals “pull away” from their partners when stressed (Collins & Feeney 2000, Simpson et al. 1992). In reacting to the support-seeker's anxieties, securely attached partners are highly responsive and readily provide support; anxiously attached partners react with verbal and nonverbal avoidance. This work illustrates the benefits of examining temporally extended situations and demonstrates the importance of examining both “A” and “B” in the equation $I = f(S, A, B)$ (see Introduction): Through the selection of situations and the response to such selections, both partners' tendencies shape the course of extended interaction.

Situation selection is also relevant to the juncture between a relationship and possible alternative relationships. Research on reactions to tempting alternatives reveals that committed individuals deal with tempting junctures by cognitively derogating potential alternative partners (“I bet he has no sense of humor”) (Johnson & Rusbult 1989). Moreover, using such defensive cognitive maneuvers

to hold temptation at bay appears to be a motivated process, in that the association of commitment with derogation is stronger when temptation is greater—when the alternative is attractive and highly “available.” Recent work suggests that committed individuals also forego tempting alternative situations via relatively more automatic perceptual processes—by literally spending less time looking at alternatives (Miller 1997).

STABLE PATTERNS OF ADAPTATION

Individuals initially react to specific situations as unique problems. In a novel situation, John may either systematically analyze the situation or react in an impulsive manner. If his reaction yields poor outcomes, John will behave differently in future situations with parallel structure; if his reaction yields good outcomes, he will react similarly in future, parallel situations. Repeated experience in situations with similar structure gives rise to habitual response patterns, or stable adaptations that on average yield good outcomes (Kelley 1983, Rusbult & Van Lange 1996). Adaptations may reside within persons, relationships, or groups. For example, John may adopt a communal interaction orientation due to interpersonal dispositions that guide his behavior across multiple partners, relationship-specific motives that guide his behavior with Mary, or norms deriving from relevant social sources (Clark & Mills 1993).

Interpersonal Dispositions

Interpersonal dispositions are actor-specific inclinations to respond to particular situations in a specific manner across numerous partners (Kelley 1983). Dispositions emerge because over the course of development, different people experience different interdependence histories, undergoing different experiences with parents and siblings and confronting different problems and opportunities in peer interaction. As a result of adaptation, people acquire dispositions that are reflected in the manner in which they approach specific situations. They develop tendencies to perceive situations in specific ways, to predict specific sorts of motives on the part of interaction partners, and to apply transformations to situations with greater or lesser probability. At least in part, the “interpersonal self” can be construed as the sum of one’s adaptations to previous interdependence problems.

For example, children’s experiences with parents form the basis for attachment style. Attachment theory focuses on the degree to which caregivers benevolently use their power, offering comfort when the child is in need and serving as a secure base from which the child can explore (Bowlby 1969). Children treated in such a responsive manner develop healthy adaptations, or trusting and secure expectations regarding dependence situations and partners; to the degree that caregiving is unresponsive or exploitative, children develop anxious and fearful expectations regarding dependence, or come to avoid situations in which they need and rely on others (Ainsworth et al. 1978). Later in life secure individuals perceive dependence

situations as safe, anticipate prosocial partner motives, and create opportunities for partners to safely seek intimacy; avoidant individuals perceive dependence situations as dangerous and resolve such dilemmas by exploiting their partners or avoiding dependence; anxious-ambivalent individuals experience inconsistent dependence histories and therefore are erratic, alternating between grasping at that which they most desire and cautiously avoiding the risks of dependence (Collins & Feeney 2000, Hazan & Shaver 1994, Simpson et al. 1992).

The functioning of dispositions is also illustrated in work on social value orientations. Given the opportunity to distribute outcomes to themselves and others, some people consistently select options resting on MaxOwn motives (individualism), whereas others are oriented toward distributions of the MaxJoint/MinDiff variety (cooperation) or MaxRel variety (competition). Social value orientations are established and change as a consequence of interdependence experiences. For example, cooperatively oriented individuals are more likely to have had female siblings during childhood, and as individuals grow older, they become more cooperatively oriented (Van Lange et al. 1997a). Social value orientations are associated with distinct patterns of belief regarding others' motives and are reflected in the probability with which transformations are applied to given situations (Messick & McClintock 1968, Van Lange 1999). For example, competitors perceive a wide range of situations as "competitive," believe that others have equally competitive motives, and are unwilling to cooperate even when doing so would maximize their outcomes. As a consequence, they frequently elicit competitive behavior from others, thereby confirming their beliefs about interaction partners ("I'm facing a hostile opponent in a risky situation") and reinforcing their competitive tendencies ("I need to take care of myself").

Relationship-Specific Motives

Relationship-specific motives are inclinations to respond to particular situations in a specific manner with a specific partner (Holmes 1981). For example, commitment emerges as a consequence of dependence on a specific partner and thus is strengthened as a result of high satisfaction, poor alternatives, and high investments (Rusbult et al. 2001). Commitment colors emotional reactions to challenging interaction situations (feeling affection rather than anger when a partner is neglectful) and gives rise to habits of thought that support the decision to persist (use of plural pronouns, positive illusion, derogation of alternatives) (Agnew et al. 1998, Johnson & Rusbult 1989, Rusbult et al. 2000). In turn, benevolent thoughts and feelings promote prosocial transformation, especially in situations of moderate to high correspondence. For example, commitment level predicts prosocial acts such as sacrifice, accommodation, and forgiveness (Finkel et al. 2002, Rusbult et al. 1991, Van Lange et al. 1997b).

In a complementary manner, trust reflects an individual's confidence in the partner's prosocial motives (Holmes & Rempel 1989). Mary develops trust when John behaves prosocially in diagnostic situations, departing from his direct

self-interest to promote her interests. His prosocial acts communicate responsiveness to Mary's needs, thereby increasing Mary's trust in his benevolent intentions, increasing her willingness to become dependent, strengthening her commitment, and increasing the odds that she will enact reciprocal prosocial acts (Wieselquist et al. 1999). Thus, behaviors such as accommodation and sacrifice ultimately produce a pattern of mutual cyclical growth, whereby each person's prosocial motives and acts strengthen the other's confidence in the person's trustworthiness, yielding reciprocal prosocial motives and acts.

Social Norms

Social norms are rule-based, socially transmitted inclinations to respond to particular interdependence situations in a specific manner (Thibaut & Kelley 1959). For example, most societies develop rules regarding the expression of anger; such rules help groups avoid the chaos that would ensue if individuals were to freely express hostility. Likewise, rules of civility and etiquette represent efficient solutions to interdependence dilemmas, regulating behavior to yield harmonious interaction.

Long-term partners develop relationship-specific norms to solve interdependence problems. For example, although the temptation to become involved with alternative partners may be acute, the costs of doing so are equally acute. Therefore, most couples comply with existing norms or develop their own norms to govern extra-relationship involvement (Buunk 1987). Similarly, partners adopt rules governing the distribution of resources, adhering to distribution rules such as equity, equality, or need, and experiencing discomfort when these standards are violated (Walster et al. 1978). Many allocation rules are relationship-specific. For example, in parent-child or other communal relationships, the norms guiding behavior are need-based rather than contribution-based (Clark & Mills 1993, Fiske 1992). Thus, normative adaptations, too, regulate interaction by promoting specific sorts of expectation about partners' motives and by prompting specific sorts of motives and behavior in response to specific interdependence patterns.

CONCLUSIONS

Interdependence theory offers a relatively comprehensive analysis of exceptionally complex phenomena: interaction and relationships. Thus, it is not surprising that some aspects of the theory call for further development. We identify two broad areas for future work: First, interdependence theory is an abstract, comprehensive theory. It seeks to illuminate intricate issues and is rooted in and extends complex theories such as game theory, social exchange theory, and social learning theory. As such, the theory may be regarded as a school of thought that provides the concepts, logic, and tools for analyzing, predicting, and explaining interaction and relationships. The theory thus stands as an open invitation to new applications and novel operational definitions.

Second, several new topics have recently been added to the theory (Holmes 2002, Kelley & Holmes 2002, Kelley et al. 2002). For example, contemporary formulations emphasize issues regarding expectancies, information availability, and situation selection. These extensions increase the challenge of understanding cognition, motivation, and the dynamics of interaction and call for further theoretical and empirical attention.

Several strengths of the theory are also noteworthy. One concerns the theory's taxonomic characterization of situations, which provides the field with a much-needed typology of interpersonal situations. To fully understand interaction we must begin by analyzing precisely what a situation affords—the sorts of cognition and affect that are probable, the dispositions, motives, and norms that are activated, and the interpersonal processes that are relevant to interaction. Interdependence theory provides such an analysis.

The transformation concept is a second notable strength, illuminating the significance of departures from direct self-interest. Because interdependence structure in some sense is “real,” it exerts meaningful effects on interaction and ultimately makes itself known. Indeed, departures from that which is dictated by given structure forms the basis for attribution and self-presentation. Thus, the transformation concept stands in contrast to prevailing models of rational self-interest, providing a solution to the traditional person-situation problem in psychology.

The theory also serves as one of the few comprehensive analyses of cognition, motivation, and behavior in long-term relationships. Long-term involvements are ideal labs for studying social psychological processes, precisely because they include numerous problematic interactions and are therefore highly diagnostic of human cognition and motivation. The theory thus complements and extends other prominent orientations, including attachment theory and evolutionary theory.

A final strength of the theory lies in its potential for integrating such diverse subfields as close relationships, prosocial behavior, and intergroup behavior. Across subfields researchers employ differing methods, although they frequently examine structurally parallel situations. Interdependence theory eliminates artificial distinctions among subfields via its emphasis on underlying, abstract situation structure, as well as by identifying the intrapersonal and interpersonal processes that reliably emerge from specific patterns of interdependence. As such, interdependence theory stands as an overarching model of social psychological structure and process. We hope that this paper helps convey the comprehensiveness and utility of interdependence theory, as well as its status as a truly social psychological theory of interactions and relationships.

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