Relational Schemas and the Processing of Social Information

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It has long been one of the grand ideas in psychology that people internalize their relationships with significant others, which influences their experience of subsequent relationships and their sense of self. Recent work in social cognition has largely neglected the impact of internally represented interpersonal information, however, with researchers choosing instead to focus on the perception of self and other persons in isolation. After a review of relevant theoretical models, it is proposed that research could profitably examine people's *relational schemas,* defined as cognitive structures representing regularities in patterns of interpersonal relatedness. The elements of a relational schema include an interpersonal script for the interaction pattern, a self-schema for how self is experienced in that interpersonal situation, and a schema for the other person in the interaction. Research strategies are discussed.

Most psychologists would agree that past interpersonal experiences can exert a powerful influence on current behavior and on the construal of new social information. A person who has repeatedly been disappointed by significant others, for example, may find it difficult to act in a trusting manner toward others, may become hypervigilant for any signs of undependability on the part of new relationship partners, and may also develop a self-concept as being unworthy of reliable attention. Similarly, a person who experienced a harmonious relationship with a previous employer might anticipate the same type of interaction with a new employer, and a person whose parents were highly evaluative might adopt a similarly critical stance when self-evaluating his or her own performance.

The internal representation of relationships seems an ideal topic for a social cognitive analysis, focusing on how information about one's interpersonal experiences is perceived, interpreted, stored, and recalled. Research in social cognition has largely failed to address this issue, however, focusing instead on isolated aspects of social perception such as impression formation, self-schemas, or social scripts for common situations. Although this approach has led to considerable progress within domains, it is clear that many of the important questions about social cognition actually involve the interdependency of two or more of these domains. Consider, for example, the classic idea that the sense of self is strongly influenced by experiences with significant others, as represented in internalized relationships. Much valuable research has been done on the *self-schema,* posited as a cognitive structure representing information about the self. In contrast, the role of internalized relationships in defining and maintaining the sense of self has generally been underemphasized.

Given the importance of the interplay between the multiple aspects of social cognition, it is perhaps surprising that with some notable exceptions, so little empirical work has been done on this issue by mainstream social cognition researchers. The paucity of research in this area may be due to a lack of guiding hypotheses. To address this imbalance, I review relevant work from a number of perspectives, propose a framework for integrating the various domains of social cognition, and derive specific predictions for research.

The central construct in this formulation is the *relational schema,* based on the notion that people develop cognitive structures representing regularities in patterns of interpersonal relatedness.[1] This general idea has been advanced by numerous writers recently, and many of these models are reviewed. However, often the formulation has been restricted to a particular content area (e.g., depression; Kuiper & Olinger, 1986; Oatley & Bolton, 1985) or has not adequately been tied to current social cognitive models. Although models of cognition surely will change, the benefits of applying current thought to issues of importance include the heuristic value of generating novel hypotheses and research and the possibility of integrating different domains (e.g., self-schemas, impression formation, and interpersonal expectancies) into a single, more general, social cognitive model (Smith, 1984).

The focus, then, is on cognition about relationships, rather than about the self or the other person in isolation. The as-

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[1] As shall become apparent in the literature review, various writers have discussed similar constructs using such terms as *interpersonal schemas* (e.g., Safran, 1990a), *working models* (e.g., Bowlby, 1969), *relationship schemas* (e.g., Baldwin, Carrell, & Lopez, 1990; Horowitz, 1989), *relational models* (e.g., Mitchell, 1988), and *relational schemas* (e.g., Miell, 1987; Planalp, 1987). I have elected to use the term *relational schemas* in agreement with Planalp (1987) that it seems the most generic and widely applicable term rather than because of a preference for any particular formulation.

sumption is that people develop working models of their relationships that function as cognitive maps to help them navigate their social world. These cognitive structures are hypothesized to include images of self and other, along with a script for an expected pattern of interaction, derived through generalization from repeated similar interpersonal experiences. Consider, for example, a student who presents her work to her advisor and receives praise for a job well done. If this type of interaction is repeated over time, the student may develop a relational schema representing being approved of for a competent performance. She will learn to anticipate that her actions will be met with approval, she will form an impression of her advisor as someone who evaluates her positively, and she will develop a self-schema as a competent student. It can be seen from this example how the different elements of the relational schema are highly interdependent.

The larger issue addressed by the idea of relational schemas is how past social experiences affect current ones. If one has learned over time that, for instance, expressing one's anger leads others to act fearful and avoidant, how will this expectation influence one's behavior and perception of others' reactions in subsequent situations? How might it shape one's sense of self? How might it gradually shape a new relationship, such as in a romantic or business context, to re-create the interpersonal patterns learned in previous relationships? The relational-schema notion has heuristic value with respect to these types of questions; by framing these issues in social cognitive terms one can generate specific, testable hypotheses that probably would not be derived from other more circumscribed approaches.

What follows is a selective review across a broad range of relevant models, including classic and current contributions. All of this work is in some way relevant to the interrelation of self, personality, and the interpersonal world. The purpose is not to obscure important differences among the models nor to attempt an integration. Rather, it is to explore and illustrate the commonality of viewpoints and to triangulate on the key elements so that through an inductive process a useful set of hypotheses may emerge. Many of the ideas (e.g., symbolic interactionism, research on close relationships) quite likely are familiar to social cognitive researchers. Some clinically based models may be less so, however. For this reason and because they provide a rich source of data for a social cognitive formulation of relational schemas, they will be given a significant degree of attention. Following this review is a brief elaboration of the relational-schema framework and then an exploration of a number of specific research hypotheses that follow from it.

Social Cognitive Approaches

A comprehensive overview of the social cognitive literature is far beyond the scope of this article, and excellent reviews exist elsewhere (S. T. Fiske & Taylor, 1984; Higgins & Bargh, 1987; Markus & Zajonc, 1985; Sherman, Judd, & Park, 1989). It is helpful, however, to begin this review by surveying some concepts and research that are relevant to the present argument in the areas of cognition about other persons, the self, and social situations.

Person Perception

Many models of person perception emphasize the influence of the perceiver's cognitive structures or schemas in forming impressions of others. In particular, individuals are assumed to view the world through the filter of their person schemas or *implicit personality theory* (Schneider, 1973), generally described as an organized body of knowledge that includes expectations about what attributes of personality typically co-occur in other people. Numerous studies have demonstrated that such schemas lead perceivers to notice some types of information rather than others, to interpret ambiguous information in a way consistent with their expectations, to fill in gaps in information with default or expected values, and to preferentially recall information that is consistent with or at least highly relevant to the schema. Cantor and Mischel (1979), for example, had subjects read lists of adjectives that described certain types of people (e.g., extraverts). Later, on a recognition test, people falsely recognized words that were not on the original list but were highly consistent with the category of person that was described, indicating the organizing influence of person schemas.

Some researchers have investigated the impact of consensually held *role schemas* (S. T. Fiske & Taylor, 1984) on person perception. In one study (Cohen, 1981), for example, subjects viewed a videotape of a woman engaging in a variety of behaviors, after having been told either that she was a waitress or that she was a librarian. A subsequent recall test showed that the subjects were better able to recall information that was consistent with their schema for the occupational label given (e.g., a librarian who wore glasses) than information that was inconsistent or irrelevant (e.g., a librarian who owned a bowling ball).

An important application of the schema notion is in the domain of stereotyping, and how race- or gender-based expectations can lead a perceiver to interpret ambiguous information in biased ways. Subjects in a study by Sagar and Schofield (1980), for instance, interpreted ambiguously aggressive behaviors as more aggressive when performed by a Black child than by a White child. Similarly, in a study of gender stereotypes, Taylor, Fiske, Etcoff, and Ruderman (1978) had subjects listen to scripted discussions involving male and female participants. Subjects tended to interpret identical statements differently depending on whether the speaker was male or female: A warm comment, for instance, might be perceived as friendly if spoken by a man but motherly if spoken by a woman.

A given schema is assumed to be most influential in social perception if it has been activated in some way. This principle is discussed in greater detail in a later section, but an example in the impression formation domain will serve to illustrate the point. Higgins, Rholes, and Jones (1977) first exposed subjects to either the term *adventurous* or the term *reckless*. In a later, seemingly unrelated, task, subjects read a story about a man who shot rapids and planned to learn skydiving. When they were asked to evaluate the target person, they liked him more if they had been primed with the concept of adventurousness rather than recklessness. Thus, the ambiguous behavior was interpreted according to whichever schema recently had been activated.

Self-Perception

Many of the same cognitive principles that have been identified in the perception of others also have been investigated in the domain of self-perception. Most researchers pursuing a social cognitive analysis of self-experience have begun with the reasonable assumption that the critical cognitive structure is a representation of the self that is based on past experience and observation of one's own behavior. Markus (1977), for example, proposes the notion of the self-schema, a cognitive generalization about the self that is based on repeated categorizations of one's behavior by self and others. She found that when a person has a firm idea about self in some domain of behavior (i.e., is self-schematic), domain-relevant information about the self is processed efficiently, confidently, and consistently. Moreover, such information is recalled easily, and schema-inconsistent information is resisted.

Rogers and his colleagues (T. B. Rogers, 1977, 1981; T. B. Rogers, Kuiper, & Kirker, 1977) have conceptualized the self-concept as a prototype, containing "a collection of features the person sees as describing him or her. . . . The elements of the prototype are self-descriptive terms such as traits, values, and possibly even memories of specific behaviors and events" (T. B. Rogers, 1981, p. 196). In a number of studies, subjects who decided whether each in a list of adjectives was self-descriptive showed improved recall of those words, particularly those that were judged as self-descriptive. Also, when tested weeks later for recognition memory, subjects tended to show a false-alarms effect, incorrectly identifying as on the earlier list words that were similar to their own self-concept. These findings were taken as reflecting the influence of a self-prototype.

As social cognition research and theory progressed, it became clear that some account of motivational and affective influences needed to be incorporated into models of personality and self-experience (Showers & Cantor, 1985; Srull & Wyer, 1986). Markus and Wurf (1987) have described the self-concept as a self-system that includes goals, incentives, plans, and scripts for behavior, as well as self-schemas in particular behavioral domains. Goals are represented as desired selves, such as the successful self, the rich self, or the loved and admired self (Markus & Nurius, 1986). At any given moment the person's sense of self is determined by the working self-concept, or that subset of self-conceptions that is currently active in thought and memory (Markus & Kunda, 1986).

Some have suggested that the self-concept may function as a self-theory (Epstein, 1973; Gergen, 1971; Kelly, 1955). Epstein suggests that people develop personal theories of reality to help them organize their experience and anticipate events in their life. These theories are assumed to include major descriptive postulate systems, consisting of generalizations about the nature of the world and of the self, and motivational postulate systems, consisting of generalizations about how to act to reach certain goals or avoid undesired outcomes.

An ambitious attempt to develop a dynamic social cognition model along similar lines was made by Kihlstrom and Cantor (1983, see also Cantor & Kihlstrom, 1985; Kihlstrom et al., 1988). They argue that one's mental representation of oneself is one element in a larger network of knowledge about one's social world. Their model is based on Anderson's (1983) ACT* model

of cognition (see also Smith, 1984) and draws useful distinctions in how social knowledge may be represented. First, knowledge about the social world can be divided into declarative and procedural knowledge. Declarative knowledge includes semantic, or abstract, knowledge about the world—such as self-representations, impressions of others, and prototypes for situations in which social interactions take place. Episodic knowledge, autobiographical memories of specific events from the person's past, is also included. Procedural, or rule, knowledge consists of rules for processing social information, expressed in if–then statements (e.g., impression formation rules: "If she meets people easily and enjoys talking and laughing with strangers, then she is an extravert"). Procedural knowledge also includes rules for social exchange, such as interaction skills, self-presentational strategies, or scripts for interaction (e.g., "if he asks me how I am then I should say 'fine, thank you' "). All aspects of social knowledge go into determining social behavior and therefore defining the personality.

Recently, Ogilvie and Ashmore (1991) have focused on knowledge about the self, with an emphasis on how self is experienced in different relationships. Their central construct is the self-with-other unit, defined as "a mental representation that includes the set of personal qualities (traits, feelings, and the like) that an individual believes characterizes his or her self when with a particular other person" (Ogilvie & Ashmore, 1991, p. 290). They take an explicitly relational approach, attempting to understand how self-experience is shaped by the interpersonal context.

Situation Perception

Closely related to some of the models just reviewed are perspectives that emphasize the person's perception of situations. Cantor, Mischel, and Schwartz (1982), for instance, propose that people learn prototypes for situations that help them anticipate how an interaction will proceed and therefore allow them to plan their actions accordingly. Trzebinski (1985) holds that social knowledge is represented in action-oriented representations, or "chains of events and actions, having actors with typical goals, occurring under certain typical conditions, and meeting typical obstacles that can be overcome in certain typical ways" (p. 1266). Procedures for reaching social goals are assumed to be represented as if–then rules in this model as well.

Researchers originally interested in enabling computers to interpret descriptions of common social situations developed the idea of scripts (Abelson, 1981; Schank & Abelson, 1977), or schemas representing situationally appropriate sequences of events. The popular restaurant script, for example, depicts a sequence of events such as sitting down, reading the menu, and ordering from the waiter. People are assumed to abstract scripts from repeated experience with similar situations and then to apply them to the understanding of new experiences. Studies have shown various information-processing biases that result from having scripts, such as the filling in of informational gaps with expected behaviors and thereby mistakenly remembering events that actually never occurred (Bower, Black, & Turner, 1979).

In summary, a variety of social cognitive models have been proposed to account for how persons interpret and think about

their social experiences. Most focus on individuals' declarative knowledge about self and others, often hypothesized to be represented as schemas or prototypes. Some approaches place these beliefs in a larger framework of social knowledge, including procedural knowledge about how to meet different goals in different social situations. As Smith (1984) points out, however, these diverse approaches tend not to be well integrated within a general model of social cognition, and as a result many questions about how self-perception and interpersonal relationships interrelate have not adequately been studied.

Close Relationships

Whereas most research in social cognition has focused on the individual's perception of self and others, many writers and researchers have explored what transpires between people, particularly in established relationships. The literature on close relationships has been growing exponentially in the past few decades (see Clark & Reis, 1988; Duck, 1988; Kelley et al., 1983; Sternberg & Barnes, 1988, for reviews). Most relevant to our present purposes are studies that focus on patterns of interaction in relationships. A number of researchers have developed sophisticated correlational and time series analyses to study sequences of observable behaviors, including both verbal and nonverbal communication (see Cappella, 1988, for a recent review).

Many writers have examined the dysfunctional relational patterns that characterize relationships in conflict (e.g., family systems approaches; Haley & Hoffman, 1968; Minuchin, 1974; Satir, 1983). Christensen (1987; Christensen & Heavey, 1990; Sullaway & Christensen, 1983), for example, has studied how couples can become trapped in a pattern wherein one partner demands something and the other partner responds by withdrawing from contact. Similarly, Williamson and Fitzpatrick (1985) have identified different patterns of dominance behavior in couples, including sequences in which dominance behavior by one member is met with either reciprocated dominance or else compliance from the other. Interactional patterns around issues of power and the control of resources are central to many models (e.g., Bateson, 1972; Kelley, 1979; Kelley & Thibaut, 1978). Other patterns involve the expression of affect, such as Gottman's (1979) finding that often the expression of negative affect by one person is followed by a similar expression of negative affect by the other.

Whereas some have studied dysfunctional relational patterns, others have discussed the scripted interactions that most of us occasionally, or even routinely, act out in our relationships. Berne (1964), for example, has analyzed a large number of prevalent transactional patterns, such as the game he calls "Why don't you—Yes but," in which one person adopts a helpless, childlike manner in seeking advice from others but then rejects each solution offered because of a flaw of some kind. Perhaps more common are social scripts that are defined by the culture: Numerous researchers have studied the patterns of exchange that are held to be appropriate in different types of relationships, such as a quid pro quo exchange in formal relationships versus a communal, nonreciprocal, pattern in romantic or marital relationships (Argyle, 1986; Clark & Mills, 1979; Murstein, Cerreto, & MacDonald, 1977). Social scripts involving the disclosure of personal information have also been identified, on the assumption that people following the socially approved patterns of self-disclosure will be most successful at developing intimacy (Altman & Taylor, 1973).

Some formulations have included a discussion of the cognitive concomitants of relational patterns. Many of these approaches emphasize the level of confidence the person has in the emotional availability and responsiveness of significant others (Holmes, 1991). Studies have suggested that through such expectations, relationship histories exert a strong influence throughout life: Hazan and Shaver (1987) and others (Collins & Read, 1990; Feeney & Noller, 1990; Simpson, 1990) have found that attachment styles of ambivalence and avoidance, which are based on frustrations in early social experience, generalize to adult romantic love relationships, which indicates an enduring mental model, representing relationship experiences.

Some authors have explored cognitive formulations of interpersonal expectations (Ginsburg, 1988; Miell, 1987; Planalp, 1985, 1987; Sroufe & Fleeson, 1985), using such concepts as schemas, scripts, and prototypes. Ginsburg (1988), for example, advocates an examination of the "stereotypic action sequences commonly performed within particular types of relationship" (p. 23) and discuss a number of recent analyses of the rules and scripts governing various interpersonal situations such as friendships, nonintimate relationships, and sexual encounters. Miell (1987) discusses how having a relational schema for a particular close relationship leads perceivers to structure information and draw inferences about missing information. Planalp (1987) also describes various cognitive consequences of relational schemas, including how interpersonal expectations regarding dominance behavior allow perceivers to make sense out of interactions between people of different social status. She also discusses factors that determine whether incoming information will be assimilated to a relational schema or, if inconsistent enough with expectations, will instigate a change in the schema.

Researchers interested in close relationships, then, have observed many interaction patterns that can develop in relationships. Recent social cognitive formulations in this domain have emphasized the participants' perceptions of interaction patterns and the cognitive consequences of holding such relational schemas. As yet, however, the focus on interpersonal transactions usually has not been extended to the question of how the interpersonal world shapes individuals' sense of self or vice versa.

Symbolic Interactionist and Related Social Psychological Formulations

The recent work on cognition about close relationships touches on issues that have long been of interest to those examining the influence of significant relationships on the self-concept. In some of the earliest social psychological writings, James (1890) recognized the important interdependency between self-conception and interpersonal experience in his observation that individuals behave and experience themselves in different ways with different people. He postulated the existence of multiple selves, saying that a person "has as many different social selves as there are distinct groups of persons about

whose opinion he cares" (James, 1890, p. 282). Cooley (1902) suggested that the self is inferred from the reactions of others. He described the "reflected" or "looking-glass self," assumed to have three elements: "the imagination of our appearance to the other person, the imagination of his judgment of that appearance, and some sort of self-feeling, such as pride or mortification" (Cooley, 1902, p. 184). The best-known expression of this symbolic interactionist position is that of Mead (1934). To facilitate social interaction, individuals are presumed to use symbols and language to anticipate the responses of others. A person playing on a baseball team, for instance, can anticipate what his or her teammates will do in a situation and can therefore decide how to act to achieve the desired results. Self-conception involves extending this process and "taking the role of the other" to imagine how self appears to one's interaction partners. Mead thus places Cooley's looking-glass self, or the process of imagining self from the other's perspective, in the context of learned patterns of interaction. As Hewitt (1976) suggests, partners in any relationship each develop, over time, a map of how the other is likely to respond in any given situation. This map can be used to take the role of the other and to imagine how self appears to the relationship partner.

The symbolic interactionist view is similar to role theory (see Stryker & Statham, 1985). In this view, the focus is less on idiosyncratic interpersonal roles that are learned in particular relationships and more on conventional roles as defined by society (Shibutani, 1961). People are seen as acting out scripts that are part of the culturally shared system of meaning. One need only determine what "type" of person someone is (e.g., police officer, waiter, or mother), and this will delimit the types of behaviors that can be expected. Social interaction involves a complex process of negotiation whereby the actors mutually define each other's roles and the situation they are in and, on the basis of role expectations, the patterns of interaction that are therefore appropriate (D. R. Miller, 1963). From such negotiations the sense of self is derived, as "the individual becomes what he is addressed as by his significant others" (Berger & Luckmann, 1967, p. 131).

Some theorists use the idea of *reference groups* to account for multiple selves. In this view, the role expectations, attitudes, and values that determine one's behavior and sense of self may be associated with a particular subgroup of society. The person's sense of identity, then, will depend on which group is currently being used as a frame of reference or "internal audience" (Baldwin & Holmes, 1987; Greenwald & Breckler, 1985; Schlenker, 1985; Shibutani, 1961). If a person is aware of his or her identity as a Catholic, for example, he or she may respond differently to questions of birth control or religious education than if religious identity were not brought to mind (Baldwin, Carrell, & Lopez, 1990; Charters & Newcombe, 1952). Social control of behavior is often exerted by means of the normative function of reference groups (Kelley, 1952), whereby individuals conform to the values and behavioral prescriptions of a group to which they would like to belong.

Some writers (e.g., Berger & Luckmann, 1967; Harré, 1984; Sampson, 1983; Shotter & Gergen, 1989) have integrated the principles of symbolic interactionism with insights from literary theory and philosophy to develop the perspective of social constructionism. In this approach, the process of defining the self is seen as a communicative act and so must be understood in the context of the individual's culturally defined meaning system. Because the terms *I* and *me* are used in discourse with others, the individual endeavours to identify the nature of the self. This is done by developing stories about the self, or *self-narratives* (Gergen & Gergen, 1988). A person might tell a self-narrative, for instance, that "I did my undergraduate work at University *X*, I did my graduate work at University *Y*, I took a position at Institution *Z*, and now I am a psychologist." Over time, this characterization of self becomes reified (Berger & Luckmann, 1967): After telling the story a number of times and having others acknowledge the identity presented therein, the person comes to experience that he or she *is* a psychologist, as an objective fact independent of the social definition process. The sense of self, then, is created and validated in communication with others.

To summarize, symbolic interactionist and related social psychological perspectives have stressed the importance of interpersonal feedback in defining the sense of self. The individual develops self-concepts in relation to other people, through a process of imagining or inferring how self appears to others. As such, individuals are assumed to have many different self-concepts, each one tied to a different relational context.

Object Relations and Interpersonal Theories

Many models that are based on clinical observation, particularly those in the psychoanalytic tradition, also have emphasized the importance of significant interpersonal experience in defining personality. One of the earliest psychoanalytic treatments of how relationships are internalized is Freud's discussion of depression. Observing that depressed patients' bitter self-recriminations often resemble a rageful tirade against a deceased loved one, Freud theorized that the mourner had dealt with the loss by "taking in" the relationship and "setting up" an internal version of the deceased, thereby continuing the relationship (Freud, 1917/1957). A similar process eventually was hypothesized to account for the child's development of the superego in the resolution of the Oedipal conflict (Freud, 1923/1961).

As psychoanalytic theory progressed, most post-Freudians began to emphasize the importance of internalized relationships in personality and psychopathology. It became apparent that a major factor in people's character is the nature and quality of their relationships with their significant others or *objects* (for reviews of object relations theory, see Blatt & Lerner, 1983; Eagle, 1984; J. R. Greenberg & Mitchell, 1983; Guntrip, 1961; Mitchell, 1988). For our present purposes, it is unfortunate that there is little consistency and consensus on the processes of internalization. Terms such as *internalization, incorporation, introjection,* and *identification* are often used interchangeably and even when clearly defined may be treated very differently from one writer to the next (e.g., Schafer, 1972). Bearing this problem in mind, however, it is useful to sample a number of models to survey how internalization is hypothesized to take place.

It is generally held that individuals organize their interpersonal experiences and impressions into "representational worlds" (Sandler & Rosenblatt, 1962), or cognitive maps with which to navigate through their relationships. Stern (1985), for

example, holds that after a number of similar types of interactions, the individual generalizes these experiences to form a prototype or structure about the likely course of events. Different interpersonal experiences become organized into different "Representations of Interactions that have been Generalized," which when activated give different senses of self being with another (p. 10). The individual's sense of identity comes from the (consciously or unconsciously) imagined presence of "evoked companions."

Tomkins (1978) argues that people are strongly influenced by "nuclear scenes," representing affect-laden interpersonal experiences, which often begin with some significant event in early life and then over time are interconnected with similar experiences and issues. Kernberg (1976) emphasizes the importance of motivation as well as affect in internalized relationships. He describes an internalized object relation as including three parts: an image of the other person, an image of the self in interaction with the person, and a feeling that colors both the self-image and other image, derived from whatever motive or wish is relevant to the interaction.

Mahler, Pine, and Bergman (1975) suggest that a primary motive for learning to form representations of significant others is the alleviation of anxiety. They argue that the young child learns to fantasize the presence of the protective, nurturing parent to maintain a security-giving sense of relatedness to others even when the others are temporarily absent. Bowlby's (1969) attachment theory also emphasizes the importance of significant relationships in reducing stress and anxiety. This perspective focuses on the child's early relationships with the primary caregiver, arguing that for evolutionarily adaptive reasons the child is motivated to develop a working model of how to maintain attachment to the significant other. Observational research supports the link between early interactions with parents and later behavior in stressful situations (Ainsworth, Blehar, Waters, & Wall, 1978; Main, Kaplan, & Cassidy, 1985). Bowlby originally argued that the cognitive structures underlying attachment behavior were discrete but complementary representations of the attachment figure (e.g., as rejecting) and the self (e.g., as unlovable). More recently, other writers (Bretherton, 1985; Crittenden, 1990) are focusing on procedural knowledge about relationship patterns, as represented in scripts or event schemas. One key concern for attachment theorists (as well as other object relational theorists) is how a portion of relational knowledge can become split off or blocked from awareness, either because it is only represented procedurally with no semantic referent or because it is actively excluded from consciousness for defensive reasons, but still can be active in shaping the construal of interpersonal information (Bretherton, 1990; Crittenden, 1990).

In an excellent survey and integration of object relational models (including those just cited as well as those of Fairbairn, Guntrip, Jacobson, Klein, Kohut & Winnicott), Mitchell (1988) argues that the basic relational configuration includes three aspects, "the self, the other, and the space between the two" (p. 33). The third element is described as "some sense of psychic space in which [self and object] interact, in which they do things with or to each other" (Mitchell, 1988, p. 33). He emphasizes the dialectic between self and other, declaring that the experience of self only occurs within a matrix of relations with others. Furthermore, the sense of self is strongly shaped by the desire to be securely related to significant others: "I become the person I am in interaction with specific others. The way I feel it necessary to be with them is the person I take myself to be. That self-organization becomes my 'nature' " (Mitchell, 1988, p. 276).

As well as influencing the sense of self, representations of past significant relationships are also seen to shape the perception of new interactions through a process of *transference*. Although originally identified as specific to the therapeutic context, when a client transfers onto the therapist various thoughts and feelings derived from childhood relationships with parents (Freud, 1905/1953, 1912/1958), the general phenomenon is now recognized by many as a factor in all relationships. Some writers recently have offered cognitive interpretations of transference in attempts to frame the phenomenon in terms more palatable to many psychologists than the original drive–defense model. Singer (1985) suggests that transference reflects the impact of "an organized set of beliefs about other people or about oneself in relation to others" (p. 202). Westen (1988) discusses how these interpersonal schemas are activated, how they are related to wishes and fantasies, and how they bias information processing toward selectively attending to schema-consistent information and ignoring details of another person's behavior that do not fit the schema. Because of past interpersonal experiences, a client might feel judged by a therapist, for example, even if the therapist carefully maintains a nonjudgmental stance.

Horowitz (1988, 1989, 1991) also has integrated psychodynamic insights with cognitive principles, arguing that people learn *role-relationship models*, or "schemas of self in interaction with another person" (Horowitz, 1989, p. 260). A role-relationship model is conceptualized as "a mental schematization of the relative characteristics of self and other, and a sort of script of what each may do to the other in a sequence of interactions" (Horowitz, 1988, p. 42). One aspect of a role-relationship model is a wish or motive that is pursued in the interaction. When a person is in a particular motivational state, any schemas once associated with satisfaction of that motive tend to be activated. Whatever role relationship models are activated then shape the person's interpretation of the current situation to form a working model of the interaction. Recently, Horowitz (1989) has stated that a role-relationship model can contain up to seven elements, which he illustrates with the example of a student perceiving self in a rivalrous relation to his or her advisor: a self-schema, the student perceiving self as an "aggressive challenger"; the schema of the other, the advisor as "mentor"; an anticipated action or expressed emotion of self, the wish to be dominant in the interaction; the expected response of the other, perhaps mortification; the reaction of self to the response of the other, feeling guilt over having harmed the other; and, for some role-relationship models, the self-estimation of these reactions and the other's expected self-estimation of these reactions.

In reaction to his perception that psychoanalytic writers tended to reify psychological processes by postulating egos, superegos, and other homunculi inside the head, Sullivan (1953) focused on observable interpersonal behavior patterns. For him, personality was "the relatively enduring pattern of recurrent interpersonal situations which characterize a human

life" (Sullivan, 1953, pp. 110–111). He hypothesized that social behavior is largely motivated by the desire to be securely related to significant others. As a result, people learn to recognize repeated patterns of interaction that provide that security. Part of this learning takes the form of perceiving "me–you patterns," consisting of an image of self and an image of the other in a complementary relationship. For instance, the self may be seen as "special" and the other as "admiring." Or the self may be "helpless yet deserving" with the other being "magical and merciful" (J. R. Greenberg & Mitchell, 1983). From these interpersonal contexts, the sense of self is derived through *reflected appraisals*, a feedback process akin to that described by symbolic interactionists Cooley (1902) and Mead (1934), by which beliefs about the self are constructed on the basis of the perceived reactions of others.

Sullivan's (1953) work spawned much theory and research aimed at identifying the important dimensions in interpersonal behavior and therefore personality. Much of this work has focused on the interpersonal circle (Benjamin, 1974; Kiesler, 1983; Leary, 1957; Wiggins, 1979). In these models, dimensions of interpersonal behavior such as *control* and *affiliation* are identified, and behavior is categorized according to different combinations of these dimensions (e.g., an arrogant person is controlling and nonaffiliative; a trusting person is noncontrolling and affiliative). These categories of behavior can be arranged in a circumplex configuration that then allows for the prediction of when certain classes of behavior will co-occur in interactions. Specifically, it is assumed that behaviors from one position on the circumplex (e.g., dominance) "pull" for complementary responses from others (e.g., submission, Kiesler, 1983; Leary, 1957). Because in all interpersonal theories, a person's sense of self is thought to be closely tied with others' responses, it can be seen that when a person acts on the basis of their self-concept, their interaction partners will often respond in a complementary way to confirm that self-concept.

Drawing on interpersonal as well as attachment theories, Safran (1990a, 1990b) has begun to develop a cognitive model of how repeated relationship experiences lead people to develop *interpersonal schemas*, defined as generic cognitive representations of interpersonal events. He assumes that humans have "a wired-in propensity for maintaining relatedness to others" (Safran, 1990a, p. 92) and conceives of an interpersonal schema as a program for maintaining relatedness. Consistent with the thinking of other writers in this area, interpersonal schemas are seen as generalized representations of self–other relationships rather than representations of self òr others in isolation. The sense of self is derived from interpersonal experience but is seen as implicit in the interaction script rather than as explicitly represented declarative knowledge. For example, the sense of self as dependent would emerge through self-perception from one's scripted behavior of acting in a weak, dependent manner rather than from having a preformed self-concept as a dependent person (Safran, Segal, Hill, & Whiffen, 1990).

In summary, object relational and interpersonal theories, though having slightly different views of how interpersonal information is represented cognitively, both focus on the space between self and other. Interpersonal knowledge is assumed to be represented as expectations about how an interaction will proceed. This knowledge is associated with various motives and affective responses, as well as with images of self and other. These expectations are assumed to influence the perception of new interpersonal experiences, through a process of transference (or parataxic distortion, in the interpersonal view; Sullivan, 1953).

A Model of Relational Schemas

Although there are some critical differences among the models reviewed, the commonality of perspective is remarkable. Most of the writers agree that people develop cognitive maps, representational worlds (Sandler & Rosenblatt, 1962), or working models (Bowlby, 1969) to navigate their social environment. Some models focus on descriptive or declarative knowledge about social objects, with notions such as self-schemas (Markus, 1977) or internal objects (e.g., J. R. Greenberg & Mitchell, 1983). Other models give equal weight to procedural knowledge about how one acts to meet certain social goals (Epstein, 1973; Kihlstrom & Cantor, 1983; Markus & Wurf, 1987; Safran, 1990a; Trzebinski, 1985).

What follows is a model of relational schemas, drawing from the shared insights of the writers reviewed and framed in terms of contemporary social cognitive theory. Models of cognitive processing are always developing as new findings on memory, affect, and motivation must be accommodated; theoretical perspectives will undoubtedly change over the coming years. Nevertheless, it is valuable to apply current models of cognition to the content areas of interest to social psychologists to generate researchable hypotheses and novel data and to forge links between different domains of social information processing (Smith, 1984).

It will be useful to review some concepts: One important distinction drawn earlier is between declarative and procedural knowledge. Declarative knowledge is descriptive knowledge about the characteristics of things or people and can be further broken down into episodic memory about specific occurrences in the past as well as semantic memory, which includes abstract information based on repeated experiences of a similar kind. Elements of declarative knowledge are thought to be linked together as nodes in an associative network, so that activating or priming one node will lead to a higher level of accessibility for related information (Anderson, 1983). Procedural knowledge, on the other hand, is the person's repertoire of rules and skills that are used in the processing of information. This includes knowledge about how to reach relevant goals or end states and is represented as if–then productions. Procedural knowledge is automatically triggered by relevant information and functions outside of awareness (Kihlstrom, 1987).

I will also be speaking of schemas and scripts.[2] Although

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[2] Some assumptions in schema-based models (e.g., Schank & Abelson, 1977) about how semantic knowledge is represented may differ from assumptions in associative network models (e.g., Anderson, 1983). Other approaches (e.g., Brooks, 1978; Medin & Schaffer, 1978) may dispute the influence of abstract semantic memory in any form, focusing instead on the summative influence of episodic knowledge as represented in specific exemplars. Despite these theoretical disagreements, it is nonetheless useful to draw information-processing principles from multiple perspectives. Most phenomena can be conceptualized from different perspectives (see, e.g., Anderson's, 1983, reconcep-

there are notable differences among such constructs as schemas, prototypes, and scripts, these descriptions of cognitive structure share many information-processing assumptions, leading some to the conclusion that "cognitive structures are more alike than they are different" (Markus & Zajonc, 1985, p. 144). Some definitional starting point is useful, however: *Schemas* are generally conceived as organized representations of past behavior and experience that function as theories about reality to guide a person in construing new experience (Bartlett, 1932; Markus & Zajonc, 1985). A *script* is a representation of knowledge about events and is defined as a "predetermined, stereotyped sequence of actions that defines a well-known situation" (Schank & Abelson, 1977, p. 41). Scripts for social situations are seen as having both procedural aspects to help guide social behaviors and semantic-declarative aspects to help the perceiver think about and understand the social situation (Cantor & Kihlstrom, 1985, pp. 9–10). With these concepts in mind, let us turn to the question of how relational knowledge is represented and how this affects interpersonal perception and the sense of self.

Elements of Relational Schemas

Let us first hypothesize that in their interactions with other people, individuals develop declarative and procedural memory about many aspects of their experience. Although person-perception researchers may focus on the individual's impression of the other person, and self-schema researchers may focus on generalizations drawn about the self, it is likely that these are only two subsets of information that is processed. Following the authors reviewed, one should expect that individuals also develop declarative and procedural memory about *the interactions* between themselves and others. What exactly is thought to be learned varies across the models reviewed, but let us begin with the notion of an *interpersonal script*. An interpersonal script is a cognitive generalization that is based on repeated experiences with similar interactions and will be associated with episodic information about actual encounters in the past. All scripts include a specification of the roles for particular members in the encounter (Abelson, 1981; Schank & Abelson, 1977). A restaurant script includes roles for customer and waiter; a doctor's-office script includes roles for patient, doctor, and assistant (Bower et al., 1979). An interpersonal script for an interaction therefore should be associated with images of self and other as experienced in that situation (Horowitz, 1989). The basic idea, then, is that based on repeated experience with similar patterns of interaction, individuals develop relational schemas. Each schema consists of an interpersonal script with an associated

tualization of schema effects in his production system architecture), and until a unified cognitive model is recognized it is probably in the best interests of social cognitive researchers to use those concepts that are most effective in characterizing social information processing. As cognitive theory develops, the relational-schema notion will need to be fully integrated with perspectives such as, perhaps, exemplar theories of memory or parallel-distributed-processing models (McLelland & Rumelhart, 1988; Rumelhart & McLelland, 1988; see Stinson & Palmer, 1991, for a parallel-distributed-processing model of relational schemas).

self-schema (representing self in this type of interaction) and an associated other schema.

Interpersonal script. The interpersonal script can be defined as a cognitive structure representing a sequence of actions and events that defines a stereotyped relational pattern. Any script has both declarative and procedural aspects. The interpersonal script will include declarative knowledge about the pattern of interaction, specifically a summary statement about what behaviors tend to be followed by what responses. This knowledge can be used to interpret social situations and the behavior of others. As procedural knowledge, the if–then nature of the script can be used to generate interpersonal expectations and to plan appropriate behavior. If a particular interaction pattern is encountered repeatedly, the pattern may be overlearned to the point at which the script functions automatically and may even be applied in situations in which it is not entirely appropriate (e.g., Smith & Lerner, 1986).

Obviously an important question is what elements are included in the interpersonal script. A simple answer is that the script consists of a sequence or pattern of observable behaviors, such as "I insult him, then he clenches his fists, then I turn and run." However, it soon becomes clear that there are other aspects to the interaction, such as thoughts, feelings, and motivation, that must be included in the script. As well as observing the external behaviors of self and other, an individual in an interaction will be aware of his or her own internal states and also quite likely will be inferring something about the internal state of the other person. Included in an interpersonal script thus will be expectations about the thoughts, feelings, and goals of both self and other. A significant subset of these internal states will be those specifically directed at the interaction partner, for instance, one's *goal* of hurting the other person, the other's *evaluation* of one as annoying, and the other's *emotion* of anger.

Interpersonal scripts may become fairly complex when both behaviors and internal states are included or if the interaction is carried out to multiple iterations of if–then sequences. Consider a script for a teenage boy borrowing the keys to his mother's car. His goal is to borrow the keys, and he expects that his mother's goal is to make sure the car and her son are returned safely. He therefore knows that if she seems reluctant, the required behavior is to reassure his mother that he will act responsibly, so he verbalizes phrases that have been successful in the past, such as "I'll be home by 11" and "I'll drive carefully." His expectation is that his mother will respond to these behaviors by perceiving him as responsible, feeling secure that he will be cautious, and ultimately giving him the keys. If not, he may engage different routines, such as emphasizing his urgent need for transportation, whining about the unfairness of her behavior, and so on (see Anderson, 1983, for a discussion of how multiple if–then contingencies can be organized into a complete production system for guiding behavior).

Schemas for self and other. A script includes role slots for the people taking part in the interaction, in this case including self and other. Recasting the usual definition of self-schemas (Markus & Zajonc, 1985, p. 146) with a more interpersonal slant, self-schemas and other schemas can be defined as generalizations or theories about self and other in particular relational contexts that are used to guide the processing of social informa-

tion. A professor might have a self-schema of punishing teacher, for example, and an other schema of delinquent student. These elements of declarative knowledge serve to organize information about the participants in the interaction. Once a professor enters into a disciplinary relationship with a student (e.g., by docking marks for a late assignment), he or she may become sensitized to any authoritarian aspects of self and may begin to perceive the student's behavior according to how it fits the stereotype of the typical delinquent student. The self-schemas and other schemas are assumed to be linked in an associative network with other declarative and procedural knowledge that is relevant to the particular relational context, such as the interpersonal script and episodic memories of when the script was played out in the past.

Note that placing social perception in its interpersonal milieu promotes an important shift in emphasis for impression-formation and self-perception types of research. Although much impression-formation research has focused on the individual's attribution of general traits to others, other evidence suggests that impression formation is more complex and takes into account the interpersonal context. Some studies (e.g., S. T. Fiske & Cox, 1979), for example, have shown that individuals' free-response descriptions of other people include a significant amount of memory for particular behaviors and patterns of behavior rather than just summary trait labels. Moreover, individuals' impressions of others become more complex and multifaceted over time in a relationship, and simple trait descriptors are seen to apply to a familiar significant other only in certain situations (Sande, Goethals, & Radloff, 1988). Perceivers presumably take a Person × Situation interactionist approach (e.g., Endler & Magnusson, 1976), observing that the target person is, for instance, hostile in some situations but friendly in others. When getting to know someone in the real world, a key element in the social encounter is obviously the perceiver himself or herself (Park, 1986), and the most important information for the perceiver may involve predicting how interactions with the target person will proceed (McArthur & Baron, 1983; Zuroff, 1982). In other words, although impression formation may sometimes be limited to a consideration of what a person is typically like, it is often more important to know what a person is like "with me." Thus, the sense of another individual's personality will be influenced by one's own interactions with the person and therefore by one's own interpersonal style and behavioral tendencies. The view of the other person's interactive dispositions will take as many forms as there are distinct patterns of interaction within the relationship. A person might observe, for instance, that "he gets angry whenever I try to force him to do something," and also that "he is extremely supportive and helpful if I act weak and dependent."

A similar comment can be made about research into the self-schema. Although most people very likely have general views of self such as "I am 5 ft 9 in. tall" and "I enjoy Mexican food," the authors reviewed earlier suggest that the sense of identity or selfhood is always socially embedded: Even if it is possible to describe *what* one's characteristics are in a relatively asocial manner, it may be possible to experience *who* one is only in relationship to others (Mead, 1934; Sullivan, 1953). Any model of self-conception that did not acknowledge the importance of interpersonal factors would thus clearly be inadequate.

Parallel to the argument made with respect to impression formation, the sense of self likely derives not only from some general self-concept made up of lists of traits, as has sometimes been assumed, but more specifically from "who I am with this person or in this type of relationship" (e.g., Ogilvie & Ashmore, 1991). A business executive, for instance, might experience self as dominant and powerful when giving orders to subordinates at work but later that evening experience self as weak and dependent when trying to appease a disgruntled romantic partner. Fluctuations in the cognitive accessibility of various relational schemas, therefore, will lead to fluctuations in the momentary sense of self, accounting for the observation that individuals seem to have "multiple selves" as opposed to a single, stable, coherent self.

Self-perception and impression formation often have been treated as cognitive events functioning more or less independently of interpersonal factors. This may be in part because of the tendency in Western cultures to reify behavioral tendencies into general dispositions internal to the individual (J. G. Miller, 1984; Shweder & Bourne, 1982). It may also reflect the general principle that declarative knowledge about the self and other will be more accessible to awareness than procedural knowledge about the interpersonal context that defines it, so, for example, the sense of self as unworthy will be more experience-near for individuals than the underlying sense that their significant others are unresponsive or critical. In a later section I suggest some ways in which person-perception and self-perception research can better incorporate the relational context.

Motivational and Affective Factors

Some authors have emphasized the motivational and affective implications of internalized relationships. In the social cognition literature there have been a number of recent models for how these factors are associated with cognitive structures. Many views suggest that goals and feelings are represented as special nodes or tags in the cognitive structure and as such can prime or be primed by other elements in the structure (e.g., Bower, 1981; S. T. Fiske, 1982). Others suggest that affect is a felt sense, representing the procedural knowledge activated at the time (e.g., Safran, 1990a) or a response to an appraisal of the likelihood that current goals will be reached (e.g., Westen, 1991). Without trying to address the larger theoretical issue, which seems still very much an open question, it is possible nonetheless to outline some parameters specific to the relational-schema approach. An adequate model must eventually include an association among memory, goals, and affect, so that—for example—a particular interpersonal motive such as "getting this person to lend me money" would activate declarative knowledge regarding what kinds of people lend money to what kinds of other people, as well as procedural knowledge about how to act to bring about the desired outcome. Affective responses, such as disappointment, anxiety, or anger, may then result from an evaluation of what outcome is likely to ensue (cf. Higgins, 1987; Kernberg, 1976; Tomkins, 1978).

It is interesting to speculate on what goals account for what percentage of the variance in interpersonal behavior. Certainly basic biological drives will underly some scripts, such as sexual gratification being one of the primary motivational aspects of a

seduction script. Some writers emphasize the influence of specific, consciously held personal projects or life goals, such as graduating from college or getting married (e.g., Cantor, 1990; Cantor & Kihlstrom, 1985). Other writers look to more general goals, such as positive self-esteem or a defense against existential anxieties (e.g., J. Greenberg, Pyszczynski, & Solomon, 1986). Wholly interpersonal motives are important: Jones and Pittman (1982), for example, suggest that most self-presentational behavior is guided by the desire to achieve and maintain power in relationships. Object relations theorists emphasize the desire for secure relatedness with others (Bowlby, 1969; Mitchell, 1988). Others would stress the importance of both interpersonal relatedness and power (e.g., Wiggins, 1979).

Any of these particular motives might become represented as desired or unwanted forms of relatedness. Others have noted the motivational impact of having images of *possible selves* (Markus & Nurius, 1986) that one wishes either to achieve, in the case of an ideal self, or to avoid, in the case of a disliked or feared image of self (Horney, 1950; Ogilvie, 1987; C. R. Rogers, 1959). Perhaps this approach should be expanded to include *possible relationships* as well. A person might wish to re-create a pattern of relatedness that in the past provided some positive emotional experience or facilitated the achievement of some other goal. J. R. Greenberg and Mitchell (1983; see also Westen, 1991) suggest that individuals often try to establish "perceptual identity" between their current relationships and interpersonal patterns that were associated with nurturance and connection in past relationships. Or the person might wish to attain some type of idealized relationship that existed only in fantasy, for example, the contention by Silverman (1976) and others that people often seek to experience the feelings of ultimate reunion with the good mother of infancy. Conversely, a person might be strongly motivated to avoid images of negative interpersonal experiences such as rejection or abandonment. Many writers (e.g., C. R. Rogers, 1959; Sullivan, 1953) suggest that much of moral self-regulation reflects people's efforts to avoid acting in ways that previously had been associated with punishment or loss of love from significant others. Although I do not discuss motivational and affective factors at length, the idea of possible relationships may provide some link between these factors and related cognition.

Research Implications

The primary reason for proposing the relational-schema notion is to frame an approach that can serve as the basis for specific research predictions. This perspective quite likely will not stand or fall on a small number of critical experiments but rather may generate novel data and theory that can lead to a clearer understanding of how significant interpersonal experiences are internally represented and thereby affect subsequent social perception. Fortunately, researchers in the self-schema and person-perception domains already have developed many excellent social cognitive models and methods that can be applied to the study of relational schemas. Some predictions relevant to relational schemas, derivable from other research in the social cognition literature, already have received empirical attention, but most have not. What follows is an exploration of

the heuristic value of the relational-schema concept, with an emphasis on proposing testable hypotheses.

Identification of Relational Schemas

The first question to address is how to identify different relational schemas for study. Possible schema candidates range from conventional social role interactions, such as the doctor-patient or teacher-student interaction patterns studied by script researchers (e.g., Bower et al., 1979), to the highly idiosyncratic nuclear scenes hypothesized by some clinical researchers to be at the core of clinical problems (e.g., Tomkins, 1978). One advantage of the consensually held scripts is the ease of study, in that all subjects presumably would hold at least roughly the same elements in the schema. The advantage of idiosyncratic scripts is that they probably have the most profound and central effect on the person's sense of self and relationships.

One might begin by focusing on an intermediate class of relational schemas, representing common interpersonal situations and patterns of interaction, for example, asking someone for a date, complaining to someone whose behavior is annoying, convincing someone to do something he or she clearly does not want to do, self-disclosing embarassing information to an intimate partner, or exercising authority over others. Examples could be drawn from the "interpersonal circle" (Kiesler, 1983; Leary, 1957; Wiggins, 1979) devised by personality researchers to describe and categorize the range of possible interpersonal behaviors (e.g., deference, aggression, nurturance). Following some self-presentation theorists (e.g., Baumeister, 1982; Jones & Pittman, 1982), target relational schemas could be drawn from the observation of everyday social behavior, such as "supplication" wherein a person presents self as weak and dependent in order to elicit a supportive, nurturant response from an other. Building on work in close relationships, research could investigate relational patterns identified as functional, for example reciprocity in self-disclosure (Altman & Taylor, 1973), as well as those identified as dysfunctional, for example the pattern wherein one partner expresses demands while the other withdraws (Christensen, 1987).

In particular content areas of interest, relational schemas could be identified on a theoretical basis or from close observation. For instance, observation of depressed individuals' interpersonal and self-critical complaints has led a number of researchers to suggest that there may be two general clusters of interpersonal dysfunction that contribute to depression: the sense that self is extremely dependent on support from others that is not forthcoming (*dependent* type), and the sense that the self will only be evaluated as acceptable if certain conditions or contingencies of worth, learned in significant relationships, are met (*evaluative* type) (Arieti & Bemporad, 1980; Blatt, 1974; Hammen, Marks, Mayol, & deMayo, 1985). Some psychoanalytic writers have suggested that depression results from the inability to express anger or hostility because the person expects that the expression of anger will harm the significant relationship (e.g., Freud, 1917/1957). Various models of this sort could be studied by framing the personality or self-evaluative problem in terms of what patterns of interaction are represented in a dysfunctional relational schema.

In conducting research on relational schemas it will be best

to describe as accurately as possible the elements of the schema in question. It seems unwise to prescribe a standard format for description at this point in the research enterprise, however; better to let the free marketplace of ideas and research determine the most pragmatic form of representation. The decision on which elements to include could be made deductively on the basis of theory, or it could be made inductively from consensus among a number of individuals' descriptions of interpersonal transactions. Some authors (e.g., Bower et al., 1979; Broughton, 1990; Cantor et al., 1982; see also Fehr, 1988; Shaver, Schwartz, Kirson, & O'Connor, 1987) have studied scripts and prototypes for socially stereotyped actions and common social situations by asking subjects simply to describe the elements of the situation. By combining the subjects' responses, these authors were able to generate consensually held expectations about the people and behavioral patterns included in a number of social situations, such as a religious ceremony, a visit to the grocery store, and a visit to the doctor's office. This same methodology could be applied to relational schemas by asking subjects to describe the actions, thoughts, and feelings of self and other involved in trying to break off a relationship when the other person doesn't want to or asserting one's position when another person is being domineering.

Gergen and Gergen (1988) report a useful approach for identifying normatively held interpersonal scripts in the domain of emotion expression. In one study (Harris, Gergen, & Lannamann, 1986), research participants were given a scenario in which a person expressed anger and were asked to generate likely responses from the interaction partner. Expected responses fell into three classes: an expression of remorse, an angry rebuttal of the first person's accusations, or a reframing of the person's interpretation of the facts. These three types of responses were then presented to another group of subjects, who generated expected counterresponses. By following this process through a number of iterations, the researchers derived a set of consensually held scripts for the expression of emotions such as anger, happiness, and depression.

Identification of Schematics

For many research questions it will be necessary to identify people who use a certain relational schema in their interpretation of social events (i.e., are *schematic*) and others who do not (i.e., are *aschematic*).[3] Similarly, one may wish to determine for a given person those relational patterns for which he or she is schematic and those for which he or she is aschematic. In attempting to assess the degree to which individuals are schematic, an important issue is level of awareness. In the self-schema literature, when assessing a person's schematicity in some domain, researchers often limit their attention to self-characterizations that are consciously held. In contrast, much of what defines a relational schema may be procedural knowledge and so may not be accessible to awareness (Kihlstrom, 1987). One response is to bear this problem in mind as a caveat and assess schematicity on the basis of the assumption that self-report measures nonetheless can assess the declarative knowledge aspects of the schema, which may adequately mirror the procedural aspects. A different approach is to use measures in which responses reflect the effects of the relationship expec-

tations in question even if the person is not aware of these expectations (see below for examples of this approach).

A second issue concerns the possibility that some people might distort their responses on schema measures, by denying that they see their relationships in a certain way, either for self-presentational or defensive reasons (Westen, 1991). Main, Kaplan, and Cassidy (1985), for example, suggest that even though individuals with an avoidant attachment style very likely have a working model of relationships in which others often disappoint them, they are unwilling to report these types of experiences, presumably because admitting to being disappointed by others implies a degree of emotional dependency that is felt to be threatening. Researchers will need to be wary about the possibility of such distortions, particularly in schema domains in which certain types of relationships are likely to be perceived as undesirable by some or all subjects. Indeed, the occurrence of such distortions could be a fascinating dependent variable in its own right in some instances. In many areas of inquiry, however, subjects' responses will be less likely to be biased by such concerns, so simple self-report approaches will be adequate.

Self-report measures can be modeled on measures of self-schema. T. B. Rogers et al. (1977), for example, simply had subjects rate a number of adjectives for whether they were self-descriptive and made the reasonable assumption that highly descriptive adjectives are strongly associated with the individual's concept of self. Similarly, Markus (1977) asked subjects to rate the self-descriptiveness of an adjective and to indicate the degree to which the adjective was central or important to their sense of self. Self-schematic domains were assumed to be those that were both highly descriptive and highly central to the self-concept. With respect to relational schemas, the person could instead be asked something along the lines of, "to what extent

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[3] Although it is simplest to contrast schematic and aschematic people, there are a number of important issues to bear in mind. First, schematicity probably lies on a continuum rather than being a discrete phenomenon. Second, there are at least three levels or degrees of schematicity. A person may be considered truly aschematic if he or she has had no experience with, and has no representation of, a certain type of interaction (e.g., some clinicians might suggest that certain clients have never developed a working model of being loved and accepted unconditionally). A person may be considered highly schematic if he or she has a cognitive structure for a type of relationship and often uses this schema to understand social experiences (e.g., a person who sees the world as a competitive place in which everyone tries to beat or outdo everyone else; cf. Kelley & Stahelski, 1970). Between these two extremes are people who have the targeted relational schemas available in memory but for whom these schemas are not chronically accessible in their day-to-day processing of social information; these people might be termed *relatively schematic* or *relatively aschematic,* depending on the group with which they are being compared. Although this intermediate group is not a problem theoretically, researchers wishing to compare schematics with aschematics must specify which levels of schematicity they are intending. Also, if people with available but not chronically accessible structures are being assessed, the researcher should be aware that if context or stimulus characteristics are strong enough, they could activate the normally nonaccessible schema and these people may produce the same results as a group of highly schematic persons. The issue of degrees of schematicity is a familiar one in the study of self-schemas (e.g., Safran, Segal, Hill, & Whiffen, 1990).

does this type of interaction characterize your relationship experiences?" Christensen and his collaborators (Christensen, 1987; Christensen & Heavey, 1990; Sullaway & Christensen, 1983) took this approach by asking their subjects to rate the likelihood of various patterns occurring in their close relationship, for example, "husband nags and demands while wife withdraws, becomes silent, or refuses to discuss the matter further" (Christensen, 1987, p. 254). To gain even greater reliability, subjects could be asked to report on the incidence of the interaction pattern across a number of significant relationships, with the assumption that someone who was highly schematic on a given relationship pattern would report observing it in many contexts.

A number of researchers have taken similarly direct approaches in asking subjects to report on their interpersonal expectations. Rempel, Holmes, and Zanna's (1985) Trust Scale measures agreement with a series of statements such as "I can rely on my partner to react in a positive way when I expose my weaknesses to him/her" (p. 102). Hazan and Shaver (1987) asked subjects to read three descriptions of relationships and endorse the one that best characterized their relationships. Items in this measure include "often, love partners want me to be more intimate than I feel comfortable being" (p. 515) and "I find it relatively easy to get close to others" (p. 515). Safran and Hill (1989) devised a scale that was based on Kiesler's (1983) interpersonal circle, which specifically asks what kinds of behaviors the individual would expect from certain people in response to certain actions. For instance, the person is asked to indicate how his or her mother would respond to an expression of anger by choosing from a list of responses including "would be distant," "would be quarrelsome," "would respect me," and so on. This direct approach holds a lot of promise for identifying people who hold a specific relationship expectation. One strength of this method is that it explicitly focuses on the if-then nature of the procedural knowledge that leads to relationship expectations.

Other researchers might prefer to use more general personality measures. Self-schema researchers have used such scales as the Bem Sex Role Inventory (S. L. Bem, 1974; see Markus, Crane, Bernstein, & Siladi, 1982) to identify people who are schematic with respect to gender-typed behaviors. In the area of depression, Kuiper and Olinger (1986) pointed out that the Dysfunctional Attitudes Scale (Weissman, 1979) assesses subjects' beliefs about the contingencies they feel they need to meet to be worthy and acceptable, with statements such as "if I do not do well all of the time, people will not respect me" (Kuiper & Olinger, 1986, p. 137). Although these authors focus on the self-schema, it is clear that these and many other personality scales tap into interpersonal patterns and roles and could accurately be portrayed as indicators of relational schemas as well.

As mentioned, other researchers have developed more idiographic approaches to assessing individuals' schemas, which provide less opportunity than self-report measures do for subjects to bias their responses. These researchers (e.g., Carlson, 1981; Horowitz, 1989, 1991; Luborsky & Crits-Christoph, 1989; Mayman & Faris, 1960) collect from subjects a number of examples of relationship experiences, either in the form of early memories, reports of day-to-day interactions, or through videotaped

interactions in therapy sessions. Judges then examine these episodes for consistencies in their theme, presumably reflecting highly overlearned patterns of relationship. These researchers have found that it is possible, with acceptable rates of interjudge reliability, to cluster a person's experiences according to a small number of interpersonal themes. Judges try to identify, for example, the wishes, needs, and intentions guiding the episode, the responses from others involved, and the responses from the self. The relationship theme that was identified in one subject's reports included the wish "to do what I want without giving in to others' wishes," the response from other "pressures me and expects me to conform to their ideas," and the response from self "not able to assert self, go along with others, feel helpless, frustrated, angry, resentful" (Luborsky & Crits-Christoph, 1989). This pattern of relating appeared repeatedly across a number of relationship episodes, suggesting the functioning of a relational schema.

This approach could also be modified to be more generic by asking respondents to generate multiple examples of a targeted interaction situation, for instance, "think of some times when you felt angry toward someone you know." Responses then could be assessed for how the person acted (i.e., how was the anger expressed, if at all; how did the subject feel) as well as for the reactions of the other (both behaviorally and how the subject inferred the other thought and felt). Some researchers have begun work in this direction. In a study of interpersonal intimacy, Helgeson, Shaver, and Dyer (1987) asked subjects to describe an intimate experience and a distant experience in terms of what self and other did, said, and felt. They observed some important individual and gender differences regarding the elements included in prototypes for intimacy (e.g., apprehension and the expression of appreciation).

Another idiographic approach involves asking subjects to generate a list of significant relationships and then rate these relationships on a number of characteristics. This technique was pioneered by Kelly (1955) and has been extended and modified in recent years by researchers using more sophisticated statistical techniques such as multidimensional scaling and hierarchical cluster analysis (e.g., Forgas, 1982; Merluzzi, 1991; Ogilvie & Ashmore, 1991). In one approach (Ogilvie & Ashmore, 1991), subjects described how they experienced themselves in 25 different relationships by rating their feelings using self-generated descriptors. The researchers then identified the underlying senses of self-with-other that organized the subjects' interperonsal experiences.

In summary, there are a number of routes to pursue in identifying different relational schemas and the degree to which people use them. Hypothesized interpersonal patterns can be drawn from theoretical models, from observation of interpersonal behavior, or from consensus among naive observers. People then can be asked directly whether certain patterns characterize their relationship experiences. Alternatively, these patterns can be assessed indirectly through various personality measures or through an analysis of their free descriptions of interpersonal experience.

Information-Processing Consequences: Three Guiding Research Questions

Once a target relational schema has been identified, it should be possible to predict various information-processing effects.

Some of the research predictions to follow will involve fairly abstract, idealized experimental procedures to assess the microlevel functioning of relational schemas; others will be broader and more obviously applicable to everyday social perception phenomena in the real world. Before focusing on specific predictions, however, it may be useful to identify three general issues, relating to the interpersonal script and the ideas of conjoint schematicity and conjoint priming.

The interpersonal script. First, there should be predictable information-processing effects for all three elements in the relational schema: the self-schema, the other schema, and the interpersonal script. Whereas the self-schema and other schema have received much research attention lately, the interpersonal script has been relatively understudied. On the basis of past findings relevant to the other two elements, a number of predictions can be made with reference to the impact of interpersonal scripts on the perception of social interactions, including memory effects, interpretations of ambiguous or counterschematic information, and so on. Issues of this sort will be explored in the sections to follow.

One particularly useful approach to assessing the effects of a cognitive structure is to use priming methodologies. Although some interpersonal scripts may be highly accessible or easily cued by appropriate social information or contexts, others may not be typically or automatically accessible for information processing. Under these conditions one can activate, or *prime,* the structure for some subjects but not for others (Higgins et al., 1977; Srull & Wyer, 1979; Wyer & Srull, 1986).[4] Subjects with a primed script should process schema-relevant information differently than people for whom the schema was not primed. Relevant to this prediction is a study by Wilson and Capitman (1982), in which subjects who read a story that primed a certain interpersonal script were more likely to act in ways congruent with that script in a subsequent interaction. Studies could also investigate the interpretational and memorial effects of primed interpersonal scripts, using priming stimuli presented in separate experimental situations (cf. Baldwin & Holmes, 1987; Higgins et al., 1977) or outside of conscious awareness (Baldwin et al., 1990; Bargh & Pietromonaco, 1982).

An intriguing priming methodology recently used by Higgins, Van Hook, and Dorfman (1988) could be adapted to explore directly the associations between certain behavioral expectations a person might hold in an interpersonal script. They used a modified Stroop color-word test (Stroop, 1935) to assess whether activating one feature of a hypothesized cognitive structure would lead to the activation of other features. Applying their approach in the relational-schema domain, individuals who anticipate that interpersonal vulnerability leads to being hurt or abused by others could be given primes of words such as *trust* or *openness.* When asked to name the color of ink that a subsequent word is printed in, they should show interference effects on schema-related words and phrases such as *hurt* or *used.* These subjects could be compared with individuals who instead link vulnerability with intimacy with others and should therefore show more interference on target words that match their interpersonal expectancies such as *closeness* and *warmth.* Such findings would support the hypothesis that these types of interpersonal expectancies do function as cognitive structures.

Conjoint schematicity. Second, the relational-schema approach suggests that the self-schema, the other schema, and the interpersonal script are mutually associated in cognitive structure. If a person is schematic on one element of a relational schema, he or she also should be schematic on the other two elements. If a person considers self as submissive, for instance, he or she also should possess procedural knowledge structures representing patterns of submission-relevant interactions (e.g., "someone tells me what to do, and I do it"), as well as declarative memory structures for the other person in the interaction (e.g., domineering other). Conversely, if an individual has had repeated experience with a certain type of behavior from a significant other (e.g., the criticisms of a perfectionistic parent), he or she also should hold related self-schemas (e.g., self as incompetent or unworthy).

Preliminary research could simply assess whether people hold corresponding self-schemas, other schemas, and interpersonal scripts. Subsequent studies should then explore the information-processing effects of conjoint schematicity, that is, that a person showing schema effects (e.g., memory biases) on one element of the relational schema should also show effects on the other elements.

Conjoint priming. The idea of conjoint schematicity implies that one also should expect conjoint priming, that is, if one element of a relational schema is primed, the other two elements should be accessible as well.[5] Reminding a woman at a cocktail party of her occupational role (i.e., self-schema) as a clinical psychologist, for example, might lead her momentarily to see her interaction partners in terms of potential diagnostic categories (other schema) and to converse with them in a nondirective and supportive fashion (interpersonal script). The conjoint priming notion is applied to a number of issues in the sections to follow.

Information-Processing Consequences: Specific Predictions

By conceptualizing interpersonal knowledge as relational schemas, one gains the ability to make specific predictions about how schematic principles should shape the processing of information about the interpersonal world. In the following sections, I propose a number of testable hypotheses, focusing on the interpersonal script and the notions of conjoint schematicity and conjoint priming.

Sensitivity and efficiency in processing schema-relevant infor-

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[4] The question of what exactly is being activated through priming procedures is still under some dispute in the social cognitive literature. There is disagreement about how different elements of declarative knowledge are activated (e.g., Higgins & King, 1981; Wyer & Srull, 1986) and also about whether it might rather be a strengthening of procedural knowledge that is occurring (Smith & Branscombe, 1987). In my discussion of priming I tend to refer to the priming of declarative knowledge structures, although it seems reasonable to assume that associated procedural knowledge will be influenced as well.

[5] By using the term *accessibility,* I do not mean to imply that the interpersonal knowledge necessarily is accessible to conscious awareness but only that it is accessible to the information-processing system and activated for use in stimulus encoding (e.g., Higgins & King, 1981).

mation. One of the most robust findings in the social cognitive literature is that people with a schema in some domain are more sensitive than aschematics to domain-relevant information. Markus and Fong (cited in Markus & Sentis, 1982; also Fong & Marcus, 1982) found that subjects with a self-schema of independence were more responsive to variations in the independence-relevant behavior of a target person and therefore gave more extreme evaluations of this person's independence. In a study by Sentis and Geller (cited in Markus & Sentis, 1982), subjects with a self-schema in the domain of dominance–submission were more sensitive to the behavioral cues of a target person who was attempting to convey either a dominant or submissive impression. Markus et al. (1985) found that subjects with a self-schema of masculinity tended to "chunk" a target person's masculinity-relevant behaviors into larger sequences, indicating that the subjects were assimilating the individual behaviors into functional units. Sensitivity to schema-relevant information also can affect automatic processing; Bargh (1982) found that people's performance on a dichotic listening task was impaired by the presentation of words in the unattended ear that were descriptive of the subjects' self-concept. A related finding is that information-processing efficiency generally is improved for domains in which one is schematic. Markus (1977) found that people who had a self-schema in the domain of independence, and so could be considered "experts" in that domain, were able to make quicker judgments (when compared with aschematics) of whether independence-related words applied to them or not (see also Kuiper & Rogers, 1979; Markus et al., 1982).

Following from these findings, a prediction in the interpersonal domain is that people who are schematic with respect to some interpersonal script should be more responsive than aschematics to information about interactions that relate to the script in question. This is a major issue of interest to clinical researchers, namely, how a person's interpersonal expectancies lead him or her to preferentially notice schema-consistent events in his or her day-to-day relationships. For example, a person who expects others to be highly competitive may be particularly attuned to any interactions that could be construed as competitive. Thus, people who are schematic with respect to a given interpersonal pattern should (a) preferentially attend to schema-relevant events when observing or participating in social behavior, (b) process this information more efficiently (e.g., by organizing schema-relevant interactional sequences into larger perceptual chunks), and (c) show these and other effects under automatic as well as conscious processing circumstances. Studies such as those just reviewed could be modified by simply assessing schematicity on interpersonal scripts instead of on self-descriptors and using specifically interactive stimuli. Rather than measuring subjects' self-schema in some domain such as masculinity and then showing tapes of a person acting in a masculine fashion (Markus et al., 1985), one could instead measure subjects' schematicity for a certain pattern of interaction, such as competition, and then present them with vignettes, videotapes, or actual interactive situations that include competitive aspects.

Some of the research described above applies to the issue of *how self-schemas influence the perception of others.* A number of researchers have studied how self-schemas allow individuals

to process more efficiently the behavior of others that is consistent with the self-schema (Markus & Fong [cited in Markus & Sentis, 1982]; Markus & Smith, 1981; Markus et al., 1985; Sentis & Geller [cited in Markus & Sentis, 1982]). For instance, a person with a self-schema as being dependent shows superior processing of dependent behaviors on the part of others. On the basis of the notion of conjoint schematicity, one also should expect that the self-schema will be associated with a complementary other schema, which will aid in processing complementary interactive behaviors on the part of others (Kiesler, 1983; Leary, 1957). A dependent self-schematic should, by virtue of past successful and unsuccessful interactions, also possess schemas for others as dependable or reliable (or undependable and unreliable), so behaviors relating to this trait should be processed preferentially. It would not be surprising if a person describing self as dependent were particularly sensitive to information about a target person's tendency toward canceling plans, shirking interpersonal responsibilities, or withdrawing when under emotional pressure from others.

Memory effects. A second well-documented effect of cognitive structures is improved memory for schema-relevant information. People not only preferentially notice information for which they have relevant schemas, they also show greater ability to recall this information at a later time. As a result, persons with organized semantic memory structures in any domain tend to be able to access exemplars from episodic memory that support the semantic memory. Markus (1977), for example, found that individuals with self-schemas for dependency could generate memories of specific events in which they acted in a dependent manner. Given that a relational schema is a cognitive structure representing a person's views and expectations about relationships, on the basis of past experience, a person who has a well-defined interpersonal script should, under normal circumstances, be more able than those without the script to generate multiple instances of when this pattern of behavior was observed. Congruent with this prediction, participants in a recent study (Koh-Rangarajoo, 1991) found it much easier to generate instances of significant relationships that matched their primary attachment pattern (i.e., secure, anxious, or avoidant; Ainsworth et al., 1978) than relationships that did not.

As well as assisting access to exemplar memories of past significant experiences, schemas influence memory for any new information that is relevant to the stored knowledge. Many studies have investigated memory for schema-relevant information using incidental recall paradigms. For example, when subjects are asked to evaluate lists of trait descriptors, adjectives that are highly descriptive of the self are preferentially recognized and recalled over those that are not related to the self (e.g., Hull & Levy, 1979; Kuiper & Rogers, 1979; Markus, 1977; Markus et al., 1982; T. B. Rogers, 1977; Swann & Read, 1981). Similarly, in person perception, expectations about another's personality often lead to preferential recall for consistent information (Cohen, 1981; Rothbart, Evans, & Fulero, 1979). Others have found improved memory for information that is highly *inconsistent* with expectations about self (e.g., Judd & Kulik, 1980) or others (Hastie & Kumar, 1979). These effects have been discussed at length elsewhere (e.g., Higgins & Bargh, 1987; Markus & Zajonc, 1985), and the conditions under which highly consistent or highly inconsistent information will be better remem-

bered have been delineated. The consensus is that schema-relevant information, whether consistent or inconsistent, will be better recalled and recognized than schema-irrelevant behavior.

In the interpersonal domain, parallel memory effects should obtain. Research on consensually held social scripts has shown that information that fits a script (e.g., going to the dentist) or that is clearly inconsistent with expectations is remembered better than information that is irrelevant to the script (Bower et al., 1979; Graesser, Gordon, & Sawyer, 1979). One could adapt this methodology by comparing people who are schematic with respect to a given interaction pattern (e.g., being rejected for expressing dependency needs) with those who are aschematic. Subjects could read a list of interaction episodes, such as "Bob told Mary he was feeling insecure about his job, and Mary told him to grow up," or "John challenged Janet to a game of Scrabble, and Janet asked, 'How much do you want to wager?' " Schematics should show preferential memory for schema-relevant, rather than schema-irrelevant, patterns of interaction (e.g., competition). Such a finding would demonstrate the tendency for relationship expectations to persevere by maintaining an organized body of consistent memories. Note that in one study that addressed this type of hypothesis, Kendzierski (1980) did not find strong memory effects for situational–interactional information, but many different types of situations were used, and so it is difficult to judge whether they reflected well-differentiated interpersonal scripts that would be accessible during the memory phase of the study.

One benefit of having a schema in some domain is that one can go beyond the information available in a situation and fill in the gaps with what would be expected on the basis of past experience. This sometimes leads to a second memory bias, however, in which the perceiver mistakenly recalls schema-consistent information. For example, in recognition tests of information read previously, schematics tend to identify some new items as previously seen if the items are consistent with the subjects' cognitive structure. In one study, subjects who had rated adjectives for self-descriptiveness incorrectly claimed to have seen adjectives that were not presented but were related to their self-schema (T. B. Rogers, Rogers, & Kuiper, 1979; see Higgins & Bargh, 1987, p. 372, for a discussion of this and related findings). In the person-perception domain, recent work by Andersen and her colleagues (Andersen, 1990; Andersen & Cole, 1990) has generated experimental evidence for transference phenomena. These researchers focused on representations of significant others and how these person schemas influence the perception of new acquaintances. Andersen (1990) had subjects list a number of attributes of a significant other whom they either liked or did not like. Two weeks later, in a different experiment, they were presented with a description of a fictional target person that included some but not all of the attributes listed earlier. Consistent with the notion of transference, subjects showed false-alarm recognition errors on a later memory task; they "remembered" attributes that actually had not been presented but that were part of their significant-other schema. Subjects' feelings about the target person were also congruent with how they felt about the relevant significant other. Thus, relational schemas may organize and construct

memory in such a way as to assimilate new relationship information to seem more consistent with past experiences.

With reference to social scripts, Bower et al. (1979) found that subjects seemed to fill in gaps with expected information (e.g., even if talking to the receptionist was omitted from a script for visiting a doctor, it was assumed to have been presented), and these default values were incorrectly identified on a later recognition task. This methodology could be applied to more personal, idiosyncratic scripts. Subjects could first read a list of interaction descriptions. A week later they could perform recall or recognition tasks. Subjects identified as schematic with respect to a certain relationship pattern would be expected to incorrectly identify schema-consistent information as having been presented previously. Indeed, in the close relationships domain, researchers have found that subjects' reconstructive memory about past events in a relationship is often strongly influenced by their mental model of the relationship (Holmberg & Holmes, in press) and their current frame of mind (Miell, 1987).

A third way in which relational schemas can distort memory recently has been reported by A. P. Fiske, Haslam, and Fiske (1991; Study 3). These researchers asked subjects to recall instances when they incorrectly remembered which person they had done something with. Results showed that the mistakes people made tended to involve confusing different people with whom they had the same type of relationship. A person might misremember which ex-romantic partner had performed some particularly odious behavior, for example, or a supervisor might forget which subordinate had made a useful comment at the last business meeting. Social errors of this kind, including calling people by the wrong name or acting toward them in ways that are appropriate only with other people, reveal the influence of cognitive models of different types of relationships.

Interpreting ambiguous information. As the false-alarms effect demonstrates, schemas allow the perceiver to go beyond the information available to fill in missing data with expected values. Schema effects such as this tend to be most pronounced when the stimulus information is ambiguous and therefore open to interpretation. There are few stimuli that are more ambiguous than interpersonal interactions. Was that comment by one's friend that "you look good today" a sincere compliment, a scripted statement she says to everyone she sees, or an attempt to charm one into doing something unappealing, or was it in fact meant to imply that on most days one is usually quite unattractive? Many clinicians would suggest that how people apply relationship paradigms in construing the interpersonal world is a key factor in their personality. Westen (1988), for example, describes a client who was a schoolteacher and perceived his interactions with his therapist according to a relationship pattern taken from a different context, saying that he wanted the therapist to correct his (the client's) character "like one would criticize a paper, by marking 'good' by certain parts and red-penciling others that could use some improvement" (p. 166). This evaluation-by-authority schema presumably would have an impact on the construal of other relationships as well.

Some research already has been conducted into how accessible categories can influence the interpretation of ambiguous behavior (e.g., Bargh & Pietromonaco, 1982; Higgins et al., 1977; Srull & Wyer, 1979). Additional research could take a

more specifically interpersonal focus. Subjects could be assessed for their schematicity for certain patterns, such as "when one person acts in an independent manner the other person feels hurt and abandoned." They could then be presented with interpersonal information that ambiguously represents the pattern. For example, they could be induced to act independently by neglecting a teammate (an experimental confederate) in some game, who then excuses himself or herself to buy a drink from the machine down the hall. Subjects' interpretation of this behavior and assumptions about how the other person is feeling might be quite different depending on what expectations are represented in an activated relational schema. Congruent with this hypothesis, Holmes (1991) has shown that when married couples are asked to discuss a difficult issue in their relationship, the individuals' chronic expectations of their partner's trustworthiness are highly predictive of the individuals' emotional reactions and attributions for their partner's behavior.

It has been observed that the categories that an individual uses to perceive others largely derive from the general cultural and linguistic context in which the individual was raised. People raised in China, for instance, may interpret a target person's behavior very differently from people raised in North America, who have a different set of interpretational categories (e.g., "the strong, silent type"). Thus, interpretational frameworks for interpersonal experiences might be cued by priming a person's cultural identity. Indeed, Hoffman, Lau, and Johnson (1986) found that bilingual individuals formed different impressions depending on the language in which they were thinking when reading about a target person. It would be intriguing to extend this analysis by exploring whether social perceptions might shift as a result of priming different interpersonal contexts. Subjects might be asked to visualize a significant other from one of two cultures, for example, or even to visualize a particular person who chronically tends to categorize others in terms of some domain (e.g., competency or morality). The dependent variable would then be whether the subject uses the categories that he or she would use in discourse with the primed other (e.g., by describing someone who successfully cheats on his or her tax return as clever versus unscrupulous). By focusing on the influence of the communicative context on social cognition, this type of study might be a step toward a rapprochement between social cognitive formulations and some aspects of recent social constructionist alternatives (cf. Forgas, 1982; Markus & Zajonc, 1985; Sedikides, 1990).

Reversing the focus for a moment, the same principles should apply in the social construction of the sense of self (e.g., Deutsch & Mackesy, 1985; Gergen, 1984). Some authors have suggested that self-attributions about one's own behavior, for example, often are powerfully shaped by the current communicative context (Schlenker, 1980; C. R. Snyder & Higgins, 1988). Saying "I failed the test because I was sick" does represent an appraisal of causal factors, as attributional approaches would suggest, but it also may serve as an attempt to convince others that the failure did not represent a lack of ability. From the relational-schema perspective, the person might be acting according to procedural knowledge that "if I construe the outcome as because of external factors then the other person will still like me." This type of interpersonal influence might occur even in the absence of actual interaction partners, as the individual thinks about self in relationship with imaginary or "private" audiences (Baldwin & Holmes, 1987; Schlenker, 1980).

The tendency to interpret self-relevant information according to procedures derived from relational contexts may contribute to the rigidity of beliefs often observed by clinicians, such as the extremely negative views of self held by many clients. This belief perseverence may in part be due to the cognitive conservatism of the information-processing system, because well-developed schemas often lead perceivers to disattend, dispute, or explain away information that is inconsistent with their expectancies (Chaiken & Baldwin, 1981; Kulik, Sledge, & Mahler, 1986; Markus, 1977; Swann & Ely, 1984; Swann & Read, 1981; Sweeney & Moreland, 1980). Inflexible self-beliefs may also reflect the impact of a relational schema, however. In depression research, for instance, a clinician may wonder why a client's obviously debilitating self-schema of being inadequate may not be revised despite evidence that the client is in fact adequate in many ways. Rigidity in the self-concept may be because the sense of self is only part of a larger cognitive structure, for example, a relational schema wherein an inadequate self is criticized, but at least attended to, by a significant other who wishes to feel superior or dominant (Arieti & Bemporad, 1980). Consistent with this interpretation, many researchers and therapists searching for the core cognitive construct in depression have begun to look past surface self-schemas to the interpersonal structures that underlie them (Guidano & Liotti, 1983; Higgins, 1987; Kuiper & Olinger, 1986; Oatley & Bolton, 1985; Safran & Segal, 1990; Safran, Vallis, Segal, & Shaw, 1986). Thus, whereas past perspectives on depression often seemed to depict depressed people's problems as being all in their head (e.g., Beck, Rush, Shaw, & Emery, 1979) or else all in their relationships (e.g., Coyne, 1976), recent approaches are exploring a middle ground involving how people think about their interpersonal world. Studying dysfunctional relational schemas may enable researchers to integrate findings regarding depressed persons' dysfunctional self-evaluations, interpersonal behavior, and attributions about self and others. Once again, priming methodologies may be appropriate techniques for assessing the conjoint functioning of these seemingly diverse phenomena. For instance, Hooley and Teasdale (1989) found that the best predictor of relapse in their sample of unipolar depressives was how critical the patients felt their significant others were. One might expect, then, that a person should be particularly prone to make negative attributions about the self if momentarily primed with a highly critical significant other. In a study along these lines (Baldwin & Holmes, 1987), we primed nondepressed subjects with either a supportive, unconditionally accepting relationship or else an evaluative, highly conditional relationship. When later they were induced to perform poorly on a difficult task, subjects tended to evaluate themselves according to the inference rules embodied in the interpersonal context that had been primed. Indeed, the self-evaluations and attributions of subjects in the evaluative-other condition appeared similar to the self-criticisms that might be made by a depressed person, supporting the notion that the negative self-schemas of depressed people may reflect the activation of relational schemas representing highly evaluative interaction patterns. Similar priming methodologies could easily be applied to other questions of interest regarding the links between dysfunc-

tional self-cognition and internally represented interpersonal contexts.

The foregoing arguments suggest that cognitive-priming techniques could be used in a similar fashion in a therapeutic context: A person could be reminded of a certain significant relationship (e.g., through a guided visualization exercise) to explore how the primed relational schema influences the processing of ongoing interpersonal information. A woman primed with her relationship with her domineering father, for example, might later in the session experience herself as weak and ineffectual and experience her male therapist as powerful and judgmental. Thus, a transference reaction perhaps could be primed directly, rather than passively waiting for it to develop as the result of a growing attachment to the therapist. This type of technique might be useful in certain forms of intervention, given that helping clients to identify their different relational states may be one of the key elements in insight-oriented therapies (Horowitz, 1988).

Affect and motivation. The nature of the links among cognition, affect, and motivation remains very much open to debate. Nonetheless, it is possible to make some predictions about affective and motivational concomitants of relational schemas.

When a particular relational schema is activated, related feelings may be activated as well (S. T. Fiske, 1982). Many adults probably are familiar with the experience of returning to one's childhood home, perhaps for a family dinner, and feeling like a child again. Early self-schemas and relational schemas may be primed by the familiar surroundings, as one begins to interact with one's parents or siblings according to archaic interpersonal scripts. This experience often will include congruent affective responses, such as intense feelings of frustration, competitiveness, or dependency, that seem more closely associated with the earlier relationship than with the current adult situation.

In a recent attempt to study a similar phenomenon experimentally (Baldwin et al., 1990), we used subliminal exposures to prime subjects with relational schemas representing disapproval by a significant authority figure. In one study, graduate students in psychology were asked to evaluate some of their own research ideas after being exposed, outside of awareness, to slides of their departmental chair scowling in disgust. The prime of interpersonal disapproval did induce a negative self-evaluative state, as evidenced by lowered ratings of their own work. In a conceptual replication, Roman Catholic women who had just read a sexually permissive written passage were exposed subliminally to a picture of Pope John Paul II with a somewhat disapproving expression. These subjects reported higher levels of tension and anxiety and evaluated themselves more negatively than control subjects, who were not shown the slide. These and other findings suggest that it is possible to activate relational schemas with very minimal primes and that one result is often an affective response.

Just as relational schemas can trigger associated affective responses, they also can motivate behavior through desired and abhored relational patterns. Some relational outcomes may be more motivating than others. Many writers have focused on the motive of achieving and maintaining positive interpersonal relatedness as a particularly influential factor in personality and self-experience. Because feeling emotionally attached to others provides a sense of security and therefore a reduction in anxiety,

people (particularly in childhood) learn what types of behaviors signal both increases and decreases in relatedness with significant others. These contingencies of acceptance become the procedural knowledge they then use to guide their behavior so as to maintain a sense of secure relatedness. People learn to control their behavior and even their thoughts according to guidelines of morality or competency to feel acceptable to others (see C. R. Rogers, 1959; Sullivan, 1953, for examples of this type of analysis). If one's parents valued intelligence, for example, one may tend to speak intelligently when one is feeling needy or insecure (Safran & Segal, 1990). As Mitchell (1988) has pointed out, the desire for maintaining relatedness with significant others can have a strong effect on the sense of self: "The way I feel it necessary to be with them is the person I take myself to be" (p. 276). The most compelling sense of "who one is," then, may derive from relationships or relationship patterns that provide the greatest feeling of attachment. Indeed, research on reference groups and self-evaluation processes has shown that others who are most important or significant to the individual carry the most weight in self-conception (e.g., Manis, 1955; Rosenberg, 1973).

In a similar vein, Higgins and his collaborators have explored the influence of specific types of interpersonal situations on self-evaluations, motivation, and self-related affect (see Higgins, 1987, for a review). Through experience with significant others, individuals are assumed to learn standards for their behavior: what they ought to be or ideally could be. Associated with these standards are interpersonal contingencies, whereby failing to act consistently with standards becomes associated with various negative psychological situations such as punishment, rejection, or the loss of social esteem. As a result, the individual monitors and regulates his or her behavior to be consistent with oughts and ideals and experiences certain specifiable emotions (e.g., sadness or anxiety) in response to unavoidable discrepancies between self and standards. Although these authors focus their research on discrepancies among evaluative standards, which is declarative knowledge about specific aspects of the interpersonal situation, their theoretical discussions make it very clear that the impact discrepancies have results from procedural knowledge about the links between discrepancies and interpersonal outcomes (e.g., Higgins et al., 1985, pp. 72–73).

The motivational concomitants of relational schemas can be studied using priming methodologies. In one study (Baldwin & Holmes, 1987, Study 1), we asked women to rate the enjoyableness of a sexually permissive written passage. Earlier, in a different context, they had spent a few moments visualizing either their parents or two friends from campus. When it came time to rate the passage, their responses were less positive if they had been primed with their (presumably comparatively conservative) parents, suggesting that they were motivated to act in a way that would be acceptable in the context of the activated relational schema. Interestingly, this finding was somewhat stronger under conditions of heightened objective self-awareness (Duval & Wicklund, 1972), suggesting that the well-documented self-regulation shown by self-aware persons may reflect in part the impact of procedural knowledge about what types of behavior are associated with what types of interpersonal consequences.

Interpersonal consequences. Social cognition research typically focuses on how social information is perceived, interpreted, stored in memory, and recalled. The guiding assumption is that information processing has direct effects on social behavior. The link between relational schemas and interpersonal behavior is a clear and important one. Relational schemas should shape the individual's expectations about and interpretations of other people's behavior, as well as beliefs about appropriate responses. The individual bases his or her behavior on this information, to reach valued goals.

A particularly fruitful area of inquiry into the interpersonal consequences of relational schemas will involve ongoing significant relationships, such as in couples research or in a therapeutic context. Recurrent patterns of interaction can be observed over time, either in dyads or by using stochastic analyses to study more complex interpersonal systems. Rather than limiting the focus to observable behavior patterns, however, it will be important to assess cognitive factors as well, including individuals' perceptions of self and other and their expectations and interpretations of the interaction. One useful methodology might involve assessing individuals' relational schemas, videotaping them in either structured or unstructured interactions with others, and then later asking them to observe the tapes and report on their thoughts and feelings at various moments in the interchange (e.g., Gottman, 1979; Holmes, 1991; Ickes & Tooke, 1988; Noller, 1987). In a study that took this general approach, Simpson, Rholes, and Nelligan (1992) report that knowing individuals' typical attachment patterns allows one to predict with some accuracy how they will seek support from their romantic partner when placed in a stressful situation. Priming procedures might contribute to the linking of specific behaviors with specific relational expectations: It should be possible to activate different relational schemas involving trust and attachment, for example, with predictable interpersonal consequences. A man discussing a highly stressful issue with his romantic partner might act very differently depending on whether he was recently reminded of his unfailingly supportive mother or his rejecting and dismissive ex-wife.

An intriguing question involves interpersonal confirmation effects in interaction: Numerous studies (see D. T. Miller & Turnbull, 1986; M. Snyder, 1984) have demonstrated that social behavior often produces responses from others that confirm the individual's interpersonal expectations, thus reinforcing the relational schema. Interpersonal confirmation may occur inadvertently, as when a low-self-esteem individual's expectation of rejection leads him or her to adopt a defensive, somewhat hostile stance that results in the prophesized reaction from others. At other times it may be more directive, such as when a person "altercasts" (Weinstein & Deutschberger, 1963) another person to play some part in an interpersonal script that then proceeds along the expected lines. The idea of a *cognitive–behavioral cycle* (e.g., Kiesler, 1982; Safran, 1990a; Wachtel, 1977), in which social cognition leads to interpersonal events that confirm or support the cognitive structures, is particularly useful when dealing with relational schemas. As Andrews (1989) points out, once cognition and behavior are seen as elements in a cycle rather than as independent events, research or intervention can be targeted at any point in the cycle; whether at the cognitive structures, the actual social interactions, or the links between

the two. One could, for example, study how priming certain relational schemas affects a person's interpersonal behavior or how certain interpersonal experiences either change a person's relational schemas or make certain schemas more accessible than others. Following the notion of conjoint schematicity, one might explore how particular self-schemas (e.g., macho man) are sustained by having particular types of interactions (e.g., dominance–submission) with particular types of other people (e.g., traditionally feminine women; cf. Swann & Read, 1981, on the interpersonal confirmation of self-schemas). On a longer term scale, one could study how individuals' chronically accessible relational schemas lead them to create and maintain relationships that are consistent with their interpersonal expectancies, such as in Hazan and Shaver's (1987) finding that adults' romantic relationships are shaped by the predominant attachment pattern learned in early family relationships.

A critical element of the cognitive–behavioral cycle is how interpersonal feedback shapes the sense of self. One important factor in the self-attribution process is the level of awareness one has of the relationship information that is influencing one's behavior. Consider someone who is engaged in the self-presentational strategy that Jones and Pittman (1982) term *supplication.* In this pattern, a person attempts to elicit positive treatment from another by acting in a weak, dependent manner. This behavior cues a social norm that stronger people should assist weaker people, so the interaction partner reacts to the dependent behavior by offering support, attention, and assistance. Presumably a person who engages in supplication as a conscious interpersonal strategy will not make correspondent inferences about his or her true personality, attributing the behavior instead to some transient goal ("I was trying to get her to take pity on me"). Like any other procedural knowledge, however, an activated interpersonal script can influence the processing of information without any awareness on the perceiver's part (Kihlstrom, 1987). Consider, then, a person for whom the supplication strategy functions as unconscious procedural knowledge about how to reach a goal that itself may be out of awareness. This person may act in a weak, dependent manner but have no extrinsic attribution for this behavior. This person should then be more likely to make a self-attribution for the behavior (D. Bem, 1972) and conclude that he or she truly is a weak, dependent person. This internal attribution probably will be reinforced by patronizing feedback from the interaction partner, whose role in the interaction is, after all, to be the superior, more powerful person (because of complementarity in the cognitive–behavioral cycle; Kiesler, 1983). Interpersonal procedures that are automatically used thus may have a much stronger impact on self-experience than procedures of which the person is aware.

Concluding Comments

The relational-schema model presented here has much heuristic value in generating novel approaches to the study of cognition about social stimuli. The interpersonal script is one aspect of relationship cognition that has been given short shrift in favor of self-schemas and impression formation. Future research should focus on this element and the impact it has on the perception of and behavior in ongoing interactions. In particu-

lar, a person's interpersonal expectations should render him or her more sensitive to schema-relevant information, more likely to interpret ambiguous interactions as consistent with the expectation, more able to recall supportive instances, and so on. As well, the principles of conjoint schematicity and conjoint priming suggest many testable hypotheses involving the interdependency among the three elements of the relational schema. Finally, the relational-schema approach has important implications for the more focused study of how interpersonal factors influence person perception and the experience of self.

There are a number of important questions about relational schemas that I have mentioned only briefly. First, as alluded to in an earlier section, many of the relational patterns that shape people's interactions probably are much more complex than the single behavior-response units described in most of the examples given. Interpersonal scripts may include an elaborate sequence of behaviors in which one person's choice of behaviors is contingent on the particular action of the other person. Moreover, many scripts may include numerous roles, making them more complex than simple dyadic interactions. Indeed, some important consequences of relational schemas may involve situations in which three-person scripts (e.g., nurturant mother, rivalrous father and vulnerable self) place the person in conflict about the most appropriate or desirable course of action (Bateson, 1972; Horowitz, 1988). Also, the representation of relational knowledge clearly is more elaborate than can be captured by descriptions of single interaction patterns. Relationship information quite likely is represented in a hierarchy of schemas (Abelson, 1981; Bretherton, 1990; Epstein, 1973), in which lower level scripts can be seen as "tracks" of higher level scripts. A person may have a general working model of relationships, for instance, to the effect that others tend to be only partially and unpredictably responsive to one's needs. At a more specific level, this expectation will take different forms when considering different role relationships, such as customer or romantic partner. Within romantic relationships, expectations might then vary significantly depending on the specific partner, or the specific situation, or the specific needs being expressed.

Finally, a central practical concern for many will be how to help individuals change their relational schemas, particularly those that are dysfunctional in some way. Some interpersonal theorists, for instance, explore ways to induce individuals to accept novel interpersonal information and to actively challenge their expectations (Kiesler, 1982; see also Planalp, 1987, for a discussion of how relational schemas may be modified in response to schema-inconsistent experience). Others suggest that once a satisfying therapeutic relationship is established, it is periodic empathic failures on the part of the therapist that lead the client to internalize the new, more functional pattern (Kohut, 1984). Research into relational schemas eventually might lead to a better understanding of how different approaches operate or even to the generation of new techniques. For example, some kind of priming procedure might be a useful technique if the therapeutic goal is for the client to learn to recognize his or her cognitions, emotions, and behaviors when different relational schemas are activated.

In conclusion, the proper task for social cognition is to explore how individuals deal with information about their social world. Researchers can direct their attention to any facet of that

social world that a perceiver might attend to, whether it be the self, or others, or the patterns of interaction between self and other. The relational-schema notion suggests that researchers broaden their scope to include all three aspects of the interpersonal field and how they work together to frame the individual's social experience. The idea of relational schemas has been proposed by a number of writers in recent years. The preliminary formulation offered here will allow researchers to generate testable hypotheses and novel data to articulate the model further. Ultimately this may allow for a greater degree of mutual enrichment between disparate content domains such as impression formation, self-perception, and close relationships and disparate theoretical perspectives such as social constructionism, psychoanalysis, and social cognition.

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