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## The Behavioral System Construct: A Useful Tool for Building an Integrative Model of the Social Mind

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In this chapter we (a) explain the core construct in Bowlby's (1969/1982, 1973, 1980) attachment theory, *behavioral system*; (b) describe how the construct has been used in the empirical literature on *adult attachment style* (the pattern of relational expectations, emotions, and behavior resulting from a particular history of attachment experiences; Fraley & Shaver, 2000; Shaver & Mikulincer, 2002); and (c) assess the usefulness of attachment theory and research for creating bridges between social psychology and other disciplines. Originally, Bowlby's attachment theory was itself the result of creating bridges between psychoanalysis, community psychiatry, ethology, and cognitive and developmental psychology. Bowlby's creativity, conceptual breadth, and open-mindedness encouraged Shaver, Hazan, and Bradshaw (1988) to extend the theory into the realm of adult romantic love, thereby creating a bridge between attachment theory and the social psychology of relationships (cybernetic control processes, social cognition, and cognitive/attributional aspects of stress), close relationships (including marriage), and evolutionary aspects of human social behavior (mate selection, jealousy, parental investment), attachment theory and social psychology shared certain agendas and themes. These commonalities made it possible for attachment researchers in

social psychology to take advantage of constructs (e.g., cognitive/affective schemas, self-disclosure) and research techniques (e.g., priming, diary diaries, behavioral observation) used by other social psychologists. The result is a large and growing body of research, summarized recently by Shaver and Mikulincer (2002) and Mikulincer and Shaver (2003), which contributes substantially to social, personality, developmental, and clinical psychology.

Although Bowlby (1969/1982) focused mainly on the formation of attachment bonds in childhood and the self-protective and affect-regulatory functions of seeking proximity to others in times of need, he also attempted to understand how evolutionary mechanisms shape other categories of human behavior (e.g., exploration, maternal caregiving, affiliative behavior with peers). For this purpose, he borrowed from ethology the concept of *behavioral system*, a species-universal neural program that organizes an individual's behavior in ways that increase the likelihood of survival and reproductive success in the face of particular environmental demands. These demands—for example, dealing with threats to life and well-being by relying on "stronger, wiser others," exploring and learning how to cope with the environment, caring for dependent offspring—led to the evolution of distinct but interrelated behavioral systems (e.g., attachment, exploration, and caregiving systems), each with its own functions and characteristic behaviors (Bowlby, 1969/1982).

### BEHAVIORAL SYSTEMS DEFINED

A behavioral system is an inborn, goal-oriented neural program that governs the choice, activation, and termination of behavioral sequences so as to produce a predictable and generally functional change in the person-environment relationship. Each behavioral system involves a set of contextual activating triggers; a set of interchangeable, functionally equivalent behaviors that constitute the primary strategy of the system for attaining its particular goal state; a specific set-goal (a state of the person-environment relationship that terminates the system's activation); cognitive operations that facilitate the system's functioning; and specific excitatory and inhibitory links with other behavioral systems. Although akin to the evolutionary psychological construct of "module," the behavioral system construct is more complex and more closely tied to empirical operations.

Bowlby (1973) discussed individual differences in the functioning of behavioral systems. In his view, the ability of a behavioral system to achieve its set-goal depends on a person's transactions with the external world. Although behavioral systems are innate intrapsychic structures, which presumably operate mainly at a subcortical level and in a reflexive, mechanistic manner, they are manifested in actual behavior, guide people's transactions with the social world, and can be affected or shaped by others' responses. Over time, social encounters mold the parameters of a person's behavioral systems in ways that produce individual differences in strategies and behaviors. In a sense, a person's general neural/behavioral capacities become

"programmed" to fit with major close relationship partners. Bowlby (1973) assumed that social interactions gradually correct a behavioral system's primary strategies and produce more effective action sequences. According to him, the residues of such experiences are stored as mental representations of person-environment transactions, which he called *working models of self and others*. These models presumably operate mainly at a cortical level and in a relatively reflective and intentional manner. Nevertheless, with repeated use they can become automatic and may sometimes be held out of awareness by defensive maneuvers. They are an important reason for within-person continuity in the functioning of a behavioral system and can fruitfully be viewed as part of the system's "programming."

Because a behavioral system accomplishes a specific biological function, individual variations in the functioning of a system have important implications for a person's social adjustment, mental health, and quality of life. Consider the case of the attachment behavioral system. It is activated by perceived threats and dangers, which cause a threatened person to seek proximity to protective others (Mikulincer & Shaver, 2003). The attainment of proximity and protection results in feelings of security as well as positive mental representations of self and others. Bowlby (1988) considered the optimal functioning of this behavioral system to be crucial for mental health, the development of a positive self-image, and the formation of positive attitudes toward relationship partners and close relationships in general. A large number of studies provide strong support for these benefits of optimal functioning of the attachment system.

For example, attachment security is associated both with personal benefits, such as greater psychological well-being, higher self-esteem, enhanced relationship satisfaction, and greater satisfaction with work, and with social benefits, such as enhanced compassion for others in need, greater outgroup tolerance, and stronger tendencies toward gratitude and forgiveness (for extensive reviews see Mikulincer & Shaver, 2003; Shaver & Mikulincer, 2002).

### BEHAVIORAL SYSTEM AS A BRIDGING CONSTRUCT

The behavioral system construct is useful for bridging evolutionary theories, ethology, and social psychology. For example, the attachment behavioral system has been shown to underlie general features of close relationships (e.g., love, support seeking, grief), as well as individual variations in the way people form and maintain intimate ties, regulate distress, and cope with threats.

Similarly, the caregiving system is important for understanding altruistic behavior in general and the way particular people behave in specific caregiving contexts (e.g., parenthood, leadership). The affiliation system is useful for understanding friendship and group-related behavior, and the exploration system provides a framework for understanding a person's behavior in achievement settings and ways of dealing with novelty and uncertainty. Behavioral systems are also important for understanding social cognition, because



they involve mental representations of self and others that can shape a person's social attitudes and judgments (Shaver & Mikulincer, 2002).

The behavioral system construct can connect research on social behavior, interpersonal relations, and group processes, and can also bridge between various levels of analysis (individual, dyadic, and group). For example, researchers have documented the contributions of relationship partners to shaping the activation and dynamics of one's attachment system. Feeney (2002) showed how a supportive close relationship partner can induce greater felt security (and its associated benefits), even in generally insecure individuals, and Rom and Mikulincer (2003) showed how a highly cohesive group improved the functioning of chronically attachment-anxious group members. Furthermore, when a relationship partner is viewed as another focal individual, a foundation is provided for systems models of social behavior (e.g., members of groups, marital couples, families). In these models, one person's cognitions, emotions, and behaviors are organized around intrapsychic and interpersonal regularities determined partly by a partner's behavioral systems.

Bowlby's construct of working models provides a bridge between social psychology and the study of personality. In attachment theory, for example, consolidation of a relatively stable working model is the most important psychological process that explains the transition from context-tailored variations in the functioning of the attachment system to person-tailored variations. Given a fairly consistent pattern of interactions with attachment figures during childhood and adolescence, models of these interactions increasingly become part of an individual's personality. Thus, what began as representations of specific interactions with a particular partner become core personality characteristics and tend to be applied in new situations where they explain variations in attachment-system functioning.

Working models are a source of continuity in the functioning of behavioral systems across time and situations, and hence can bridge social and developmental psychology. For example, Bowlby's attachment theory is not only a theory about the construction of interpersonal behavior, emotional bonds, and close relationships, but also a theory of personality development. According to Bowlby (1973), a person's attachment dynamics in adulthood reflect past experiences with relationship partners, especially parents, beginning in infancy. In this way, Bowlby provided a foundation for studying the developmental sources and trajectories of social motives, cognitions, and behaviors. This does not mean, however, that these trajectories are simple or linear. Although variations in the functioning of a behavioral system may stem from childhood experiences with parents, they can also reflect a broad array of contextual factors that moderate or even override the effects of internalized representations of past experiences (Fraley, 2002). In fact, Bowlby (1988) claimed that working models can be updated throughout life, and he selected the term "working" in "working models" partly to represent the provisional and changing nature of these cognitive-affective structures.

The assumption that behavioral systems act at both subcortical and cortical levels (Bowlby, 1969/1982; Shaver & Mikulincer, 2002) provides a useful tool for integrating social psychology with the emerging fields of cognitive, social, and affective neuroscience. Research can be directed at identifying the patterns of autonomic nervous system activation and neuroendocrine responses related to the functioning of each behavioral system (Diamond, 2001; Panksepp, 1998). Researchers can use split hemifield experiments (Cohen & Shaver, 2004), evoked reaction potentials (ERPs), and functional magnetic resonance imaging (fMRI) to delineate the cognitive components and cortical and subcortical regions involved in the functioning of these systems.

## CONCLUSIONS

Bowlby's attachment theory is a valuable framework for explaining social behavior and bridging social psychology with other disciplines. Although Bowlby's theory was not meant to be a broad theory of the social mind (he was trying mainly to remedy errors and dead ends in Freudian psychoanalysis while retaining some of its valid components), our reading of his work suggests that the theory was meant to apply to a wide swath of social behavior and help in understanding large-scale social phenomena (e.g., juvenile delinquency, community-based hopelessness and depression, interpersonal and intergroup violence). We believe we have begun to map some of the important effects of the attachment system on social cognition and social behavior while integrating individual, interpersonal, and group levels of analysis; to delineate personal, developmental, and social/contextual determinants of people's attachment-related behavior in dyads and groups; and to explore the interplay between various behavioral systems. We hope this brief chapter stimulates researchers to use the construct of behavioral system in their attempts to build bridges within social/personality psychology and between this field and its potential neighbors. We look forward to the day when a single theory or conceptual framework—a theory of the social mind—provides a lingua franca for psychologists and other researchers interested in the complex interplay of evolution, physiology, culture, individual development in a relational context, and the current social context.

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## CHAPTER 42

# Dynamical Evolutionary Psychology: How Social Norms Emerge From Evolved Decision Rules

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While revising a social psychology text, one of us received a pair of interesting criticisms. One regarded a deficit—failing to explain how social psychology differs from sociology. The other regarded an excess—too much space on the evolutionary perspective, which, the reviewer suggested, has had less historical impact than other perspectives. Both criticisms, although true, elicited more sadness than repentance in the transgressing author. Social psychologists have expended far too much effort building walls between our territory and sociology, on the “holistic” side, and biology, on the “reductionist” side. Those walls often block our view of the phenomena we hope to elucidate—mutual interactions between individual humans and their social context.

Within social psychology, mini-theories about aggression, attraction, stereotyping, and leadership are themselves often isolated from one another, not to mention biology and sociology. How are social psychology’s subdomains connected to one another, to the other disciplines of psychology, and to other sciences? We believe an answer to these questions will come from integrating insights from cognitive science, evolutionary psychology, and dynamical systems theory (Kenrick, 2001). Although social psychology has been part of the cognitive revolution, fewer social psychologists have incorporated insights from evolutionary psychology or dynamical systems theory. Because the mind